

Assessment of impact of storm water
overflows from combined waste water
collecting systems on water bodies
(including the marine environment) in the
28 EU Member States

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The views expressed herein are those of the consultants alone and do not necessarily represent the official views of the European Commission.

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1 INTRODUCTION

The main objective of this project is to provide DG ENV with an overview of the impacts of storm water overflows and how these are regulated at EU and Member State level. One of the actions proposed in the Blueprint to Safeguard Europe's Water Resources¹ is to improve compliance rates on waste water treatment by 2018; the reduction of storm water overflows can be a key action for the achievement of this objective.

The ruling of the Court of Justice of the European Union (CJEU) in the case C-301/10 against the UK moreover shows that Member States are obliged to avoid spills from storm water overflows except in exceptional circumstances, or when they show that the costs involved would be disproportionate to the improvement of the state of the environment. In this context, more information is needed on storm water overflows – the way these are regulated (Task 1.1 and 1.2), the number of occurrences, volume discharged and costs to achieve compliance with the Urban Waste Water Directive (UWWTD) requirements (Task 1.3), as well as the impacts on environment and health (Task 1.4)

This report presents the results for Task 1.2. This task involves the compilation and analysis of relevant references to storm water overflows included in Member States' legislation transposing and implementing the relevant EU legislation and international conventions, as well policy or guidance document produced for that effect. In addition, some basic information on the legal and institutional framework in each Member State is presented. Finally, this report presents some of the available data on storm water overflows at national level, which are presented in Task 1.3. report instead. They were included in the Member States factsheet in order to provide a more complete picture of the situation at Member State level.

¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A Blueprint to Safeguard Europe's Water Resources, COM/2012/673.

2 REGULATION AT MEMBER STATE LEVEL

2.1 METHODOLOGY

The work under Task 1.2 was mainly conducted by national experts who were expected to complete the templates developed by Milieu through desk research and on the basis of complementary interviews with experts, academics or competent authorities at national level. Therefore, the work was divided in four steps: development of templates, pilot study, desk research and interviews.

Firstly, a uniform template was created for the national factsheets. Based on the draft templates discussed during the inception meeting, Milieu prepared templates for national factsheets, which were sent to national experts in the team in mid-April. These templates seek to gather information for both task 1.2 (section 1 – Basic Information, and section 2 – Overview of Legal and Policy Framework) and task 1.3 (section 3 – Available Data Relevant for Storm Water Overflows), as discussed in the inception meeting. The template includes tables to build up an inventory of references, including quotation of the relevant text. The template also includes boxes for the summaries of specific national guidance and implementation such as national technical standards, guidelines, strategies or action plans.

A pilot study was also undertaken for Poland to serve as a reference for the other studies. From our experience with similar projects, we have learnt that the use of pilot studies strengthens the methodology and provides a solid basis for further research. The reason for conducting a pilot study during this project was twofold. On one hand, it gave us a concrete idea of the process of identification and reporting and provided us with the possibility to adapt the template of the national report. On the other hand, the pilot study was distributed among the national legal experts as a tangible and clear example and tool for guidance.

National experts in each Member States were then provided with a template to carry out the study and the pilot study for Poland. The experts were asked to search for and include information on existing legislation, guidance documents and policy documents but also on any drafts that were available. Based on the information identified, the national expert populated the template of the national factsheet.

Preliminary drafts of the national factsheets were submitted to Milieu by the end of April. Milieu carried out a completeness-check and made the first comments on the documents. In most of the cases, it was suggested to national experts on the team to contact an external expert on storm water overflows that they had identified in their respective countries (national officials, independent experts, academics) for an interview. These interviews were considered necessary as a follow-up, mainly to gather national factsheets data on storm water overflows, as this was rarely found via desk research.

Between June and September the competent authorities in each Member State had the opportunity to comment on the draft factsheet and provide additional information, though inputs were received as late as November. This report presents the final factsheets where all comments from the Member States' competent authorities and the Commission have been addressed. All 30 Member State factsheets are sent along as an annex to this report.

2.2 TRENDS AND GOOD PRACTICES IDENTIFIED

A brief overview of the main trends as well as some of the good practices identified is presented in this sub-section. To assess the main trends with regard to the legal and policy framework for

storm water overflows in place in the Member States, specific indicators have been developed; These have been then scored qualitatively (as “-“, “+” or “++”). The indicators, together with their information base and an explanation of the scoring system are explained in this section.

2.2.1 Selected indicators

In total, 4 indicators have been developed for the qualitative analysis of the Member States’ legal and policy frameworks, reflecting the different sections in the Member State factsheets collected under Task 1.2. The indicators are developed to obtain a high-level comparison across the EU of how Member States have regulated storm water overflows.

The first two indicators of the legal and policy category (indicator 1-2) assess to which extent the main references to storm water overflows under the UWWTD have been transposed, i.e. Annex I.A(3) and footnote 1 of Annex I. Annex I.A(3) asks to “limit the pollution of receiving waters due to storm water overflows”. Footnote 1 of Annex I recognises “that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall” and asks Member States to “decide on measures to limit pollution from storm water overflows. Such measures could be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable number of overflows”. The directive recognises that it is not possible to reduce at zero the storm water overflows and encourages Member States to adopt specific national rules to fix the limit to the treatment of water during heavy rainfall.

Indicators 3 and 4 refer to the availability of, respectively, Member State guidance documents and standards on storm water overflows. Both binding and non-binding guidance and standards are considered.

Table 1: Overview of indicators to assess Member States’ legal and policy framework

Indicators on the legal and policy framework	Information source
1. Transposition of Annex I.A(3) to the UWWTD	• MS fact sheets developed in Task 1.2
2. Transposition of footnote 1 of Annex I to the UWWTD	• MS fact sheets developed in Task 1.2
3. Availability of Member State guidance documents concerning storm water overflows	• MS fact sheets developed in Task 1.2
4. Availability of technical standards on storm water overflows	• MS fact sheets developed in Task 1.2

2.2.2 Description of the scoring system

The indicators are scored by means of three categories: “-“, “+” and “++”. The scores have a slightly different meaning for each indicator. An overview of the scoring system used is shown in Table 2. An overall score is calculated as the average of the scores for the four indicators.

Table 2: Scoring system for the indicators on the ‘legal and policy framework’

Indicators on the legal and policy framework	Scoring system
1. Transposition of Annex I.A(3) to the UWWTD	- Member States with no transposition at national level scored “-” - Member States with the Footnote/Annex transposed literally or incorporated into legislation but providing no extra regulation scored “+”
2. Transposition of footnote 1 of Annex I to the UWWTD	

Indicators on the legal and policy framework	Scoring system
	Member States going beyond literal transposition to include specific measures were scored “++”
3. Availability of Member State guidance documents concerning storm water overflows	- Member States with no guidance documents scored “-” - Member States with some guidance documents, but do not specifically refer to storm water or are published at municipal level scored “+” - Member States with guidance documents issued at national levels for the implementation of the UWWTD scored “++”
4. Availability of technical standards on storm water overflows	- Member States with not standards given at national level scored “-” - Member States with some standards but are either only covering one part of storm water, are non-binding, or are not specific to storm water scored “+” - Member States with standards specifically relating to storm water overflows scored “++”
5. Overall score on the legal and policy framework at Member State level	The average of the scores for the other indicators under this category

2.2.3 Results of the legal and policy Indicators

This analysis begins by examining the various policy and legislative provisions Member States have in place to address storm water overflows. Table 3 below provides a qualitative summary of the four indicators describing policy and legislative indicators.

These indicators produced quite significant variation, both when comparing Member States and when comparing indicators within Member States. For the most part Member States have taken steps to incorporate the UWWTD into national legislation and policy, with 12 Member States and regions scoring either “+” or “++” for all indicators. However, the combination of scores varies across indicators. Some Member States such as Germany have transposed the Directive literally, then issued detailed guidance documents, while others, such as Bulgaria, have such detailed legislation that guidance documents would be superfluous. Only Brussels and Croatia scored more than two “-”, and in both cases, national experts claim steps are being taken to mitigate the poor legislation/policy performance. In the case of Brussels, legislation changes are expected to include standards (and also potentially transposing the Footnote 1), while Croatia see themselves as laggards only because of recent EU succession.

Table 3: Results of the Legal and Policy Indicators

	Transposition of Annex I.A(3), UWWTD	Transposition of the Annex I Footnote, UWWTD	National Guidance	National Standards
Austria	++	+	++	++
Belgium - Brussels	+	-	-	-
Belgium – Walloon	+	+	+	-
Belgium - Flanders	+	+	++	++

	Transposition of Annex I.A(3), UWWTD	Transposition of the Annex I Footnote, UWWTD	National Guidance	National Standards
Bulgaria	++	++	-	++
Croatia	+	-	-	_2
Cyprus	+	+	-	+
Czech Republic	+	-	++	++
Denmark	-	-	++	++
Estonia	++	+	+	++
Finland	+	-	+	+
France	++	++	+	+ ³
Germany	-	-	++	++
Germany: NRW	+	-	++	++
Germany: Bavaria	++	-	+	++
Greece	+	+	+	-
Hungary	+	+	+	+
Ireland	+	-	++	++
Italy	++	+	-	-
Latvia	+	++	+	++
Lithuania	+	+	-	+
Luxembourg	+	+	+	+
Malta	+	+	+	-
Netherlands	+	-	+	++
Poland	++	++	++	++
Portugal	+	++	++	++
Romania	+	-	++	++
Slovakia	+	++	-	+
Slovenia	+	++	+	++
Spain	++	+	++	++
Sweden	++	-	++	+
UK: England & Wales	+	+	++	++
UK: Northern Ireland	+	-	++	+
UK: Scotland	+	-	++	++

Legislative Indicators

In most Member States, the vast majority of environmental laws and regulations result from the transposition and implementation of the EU Directives and Regulations. It is thus not surprising that also in the field of waste water management, and in particular the management of storm water overflows, in most cases the relevant national laws are those transposing the EU requirements. However, as Task 1.1 has shown, no piece of legislation at EU level is specifically designed to regulate in detail storm water overflows and their impacts on the environment and human health. The most important document in this regard is Directive 91/271/EEC, the Urban Waste Water Directive (UWWTD), which is the only piece of EU

² Although there are no standards set out in any legislation, in practice, German standards are used.

³ Standards were expected in the 2015 Order having been outlined prior, however they did not materialise.

legislation that refers expressly to storm water overflows.⁴ The UWWTD prescribes design principles for the collecting systems, which amongst others, need to limit the pollution of receiving waters due to storm water overflows (these are explicitly mentioned in Annex 1, section A) and requires Member States to “decide on measures to limit pollution from storm water overflows” (footnote 1 to Sections A and B of Annex 1). The UWWTD provides in addition a couple of examples of what these measures could be based on: dilution rates, capacity in relation to dry-weather flow or the specification of an acceptable number of overflows.⁵

Almost every Member State has transposed Section A of Annex I to the UWWTD into national legislation. For the most part (23 out of 34 cases), transposition remains only a literal translation, with the collecting system requirements directly translated without specifying for example how leaks and pollution will be prevented. While this may be considered “adequate”, it does not inspire the assumption that Member States are putting any consideration of storm water during the design of legislation, and in fact, several Member States have simply shoehorned the provision into existing legislation. One of the most notable exceptions is Bulgaria, where Section A of Annex I is not only referenced, but the measures are set out in corresponding legislation (See Box 1).

Box 1: Transposing Section A of Annex I: Bulgaria

Transposing Section A of Annex I: Bulgaria
Section A of Annex I to the UWWTD is effectively transposed by Section A of Annex III to the Ordinance No 6. <i>“ANNEX III - Requirements to the waste water from settlements</i> <i>A. Sewerage networks</i> <i>The sewerage networks shall comply with the requirements for waste water treatment.</i> <i>The design, construction and operation of sewerage networks shall be conducted in accordance with the best technical knowledge not entailing excessive costs with regards to:</i> <i>- Volume and characteristics of waste water from settlements;</i> <i>- Prevention of leaks;</i> <i>- Limitation of pollution of water bodies from rain overflow.”</i> In addition, Ordinance No RD-02-20-8 also lays down requirements for the design, construction and operation of combined and separated sewer systems and expressly refers to rain overflows. For example: Article 6 provides that the period of single overload of sewer networks carrying rain wastewater shall be determined depending on the type of urban area and sewer structure... Article 9 explicitly provides that sewerage networks shall be designed in such a way as to receive and transport rain wastewater. Articles 31-33, among their provisions, set out technical requirements for design and construction in order to avoid overflows. Article 37, item 4 provides that reservoirs are obligatory for separate sewer networks and for combined sewage networks, when needed for the reduction of the flow to treatment plants

⁴ Another express reference on storm water overflows is contained in Directive 2010/75/EU, the Industrial Emissions Directive (IED), with respect to waste incineration plants and waste co-incineration plants: this does not cover urban sewerage and waste water treatment and therefore is not covered under this report.

⁵ The scope of this provision has been interpreted by the CJEU in the case C-301/10, following an infringement procedure initiated by the European Commission against the UK. Please the report for Task 1.1 for more details.

Transposing Section A of Annex I: Bulgaria

during rain events.

Footnote 1 in Sections A and B of Annex I to the UWWTD has been transposed on a much lesser scale than Section A. Only 7 Member States and regions have specifically expanded on the suggestion of measures outlined in the UWWTD, although it must be noted that any measures set out in legislation could be construed to be part of the transposition of the footnote, even if the footnote itself is not explicitly referenced. However, 14 out of 34 made no reference to the Footnote in national legislation, compared to only two countries which have not referenced the Annex 1. This could be because Member States have simply transposed the Footnote in practice without relying on formal regulation.

There is no definition of storm water overflows in EU law. Although the term is used twice in the UWWTD, no definition is provided. There are also no policy or guidance documents produced at EU level that would provide such a definition. This includes both “storm water overflow” as an event, and “storm water overflow” as a mechanism or device. Likewise, the vast majority of Member States does not have such a legal or other definition of storm water overflows. Exceptions include Ireland⁶ or Lithuania,⁷ where a definition is provided in law, or Czech Republic,⁸ where a definition of storm water overflows is provided in technical standards.

Guidance Documents

The majority of Member States (27 out of 34) have at least some guidance document concerning water management at national level. Yet only 14 have documents specifically designed to deal with the implementation of storm water management under the UWWTD. There are, however, a range of documents available. In Denmark, for example, national Guidelines for Development of Action Plans directly refer to Annex 1 of the UWWTD, and direct references to storm water overflows are mostly found in policy and guidance documents instead of national legislation. Other Member States, for example Finland, have guidelines dealing with water runoff and flooding, which are considered to be a part of storm water, and set out standards for dilution rates (see an overview in Table 4 below). On the other hand Germany produces a range of worksheets with technical regulations published by technical associations dealing with storm water overflows. This variation makes a cross-country document comparison difficult, but Table 3 above attempts to provide at least an indication of what documents exist.

It should be noted however that this indicator cannot provide an exhaustive list of guidance documents. Member States may indeed have more documents not found by researches carrying out desk research. This study focuses only on national documents, and therefore municipal documents are excluded. Similarly, non-governmental actors may also publish documents, and while this study tried to incorporate high-profile non-governmental documents (such as in the case of Germany), further documents may have been overlooked.

Table 4: Dilution ratios between storm water flow and dry weather flow

Dilution ratios between storm water flow and dry weather flow	
Austria	ratio around 25/50, minimum ratio of 8

⁶ S.I. No. 684/2007- Waste Water Discharge (Authorisation) Regulations 2007.

⁷ Construction Technical Regulation STR 2.07.01:2003 “Water supply and waste water management. Engineering systems of a structure (building).

⁸ Technical standard ČSN EN 752 Drain and sewer systems outside buildings and Technical standard TNV 756262 Relief chambers and separators

Dilution ratios between storm water flow and dry weather flow	
Belgium (Walloon)	dilution rate for which by-passing the plant is accepted between 6-12 depending on the sensitivity of the received environment
Belgium (Brussels)	
Belgium (Flanders)	A dilution ratio of at least 7 required.
Bulgaria	The dilution ratio shall be determined by the quantitative and qualitative characteristics of the waste water and the receiving water body. 1. for rain overflow shafts within the settlement - at least 5; 2. for rain overflow shafts in front of pumping stations - 1 or 2; 3. for rain overflow shafts outside urban areas or to the treatment plant - 1
Czech Republic	usually 5 to 8 fold dilution of the dry weather flow
Denmark	Dilution zones are set in the permit depending on the biological and water quality requirements of the receiving water body
Estonia	Combined sewer systems: discharge of storm water overflows with waste water with dilution ratio of 1 to 4.
Greece	ratio of 1:7 for combined network works
Ireland	Normally the incoming flow must exceed that calculated from "Formula A" before the storm water overflow spills unless there are high dilutions available. The volume of overflows as a percentage of rainfall run-off volume to the foul sewer would be a maximum of 20%.
Italy	1:6 dilution of dry weather flow treatment plants servicing combined collecting systems: min dilution ratio 1:4 if last overflow before treatment plan, 1:2.5 for biologic treatment.
Latvia	LBN 223-99 "External Networks and Structures of Sewage" shall be followed during the development of the technical design of sewage systems. The guidance however does not contain quantitative standards for dilution.
Netherlands	The reference system in the Netherlands has, in agreement with the design guidelines of the <i>Leidraad riolering</i> (after implementation of the basic effort, see under 2.1), a storage capacity of 7 mm within the system, 2 mm in the settling basins and a pumping overcapacity of at least 0.7 mm/hour. The dilution ratio is not constant and depends on the connected impervious area.
Poland	the intensity of the flow in the combined sewer system before the storm overflow, caused by precipitation, is at least four times greater; this intensity shall be calculated according to the following formula: $(3+1)Q$, where Q is an average intensity in that system in the period of non-precipitation, determined for 24 hours of an average amount of waste water reaching annual a waste water treatment plant.
Slovakia	Minimum dilution of urban wastewater must attain a dilution rate of 1:4 which can be even stricter in locations with more stringent requirements for surface water quality – (dilution rate) up to 1:8. The limit values of pollution parameters are not set for wastewater discharged from the relief structures.
Spain	A coefficient of dilution 5-8.
United Kingdom England & Wales	Location-specific criteria are set for the design of storm water tanks. Region-wide standards have not been found.

Standards for storm water overflows

Although no standards are set at EU level, compliance with the requirements of the UWWTD can be ensured through the setting of standards. Some examples of the type of standards that Member States can adopt to limit pollution from storm water overflows are provided in the footnote to Sections A and B of Annex 1 to the UWWTD - dilution rates, capacity in relation to dry-weather flow or the specification of an acceptable number of overflows -, but other standards could be adopted. These include e.g. the volume of overflows, the number of day during which overflows occur or water quality standards applicable to the receiving water body.

Table 5: UK Standards set out in the Environment Agency Guidance

Directive	Design Standard
Revised Bathing Waters	3 spills per bathing season, for good and sufficient status, 2 spills per bathing season for excellent status, 6mm screening or equivalent aesthetics control and discharges below the mark of Mean Low Water Spring tides.
Current bathing waters	3 spills per bathing season, 6mm screening or equivalent aesthetics control and discharges below the mark of Mean Low Water Spring tides.
Shellfish waters	10 spills per annum and appropriate aesthetic control where required.
Freshwater fish	Fundamental Intermittent Standards (FIS), 99%ile standards and relevant Freshwater fish directive standards. Appropriate aesthetic control where required based on UPM2 requirements.
CRoW Act or Habitats (BOD or ammonia)	Fundamental Intermittent Standards (FIS), 99%ile standards and appropriate aesthetic control where required based on UPM2 requirements.
Urban Waste Water treatment	UPM standards derived using UPM2 methodology. For rivers these will include FIS and 99%iles based on the significance of the discharge. Retained flow of formula 'A' (or equivalent storage) and/or appropriate aesthetic control may be appropriate for low significance discharges. For storm tank discharges the minimum capacity is 68 l/head served or storage equivalent to 2 hours at the maximum flow rate to the storm tanks.
WFD (BOD or ammonia)	Fundamental Intermittent Standards and appropriate aesthetic control where required.

Source: Water Discharge and Groundwater Activity Permits (EPR 7.01), page 30

National standards on storm water overflows range from non-existent to comprehensive and are found in both legislation and national guidance documents. The majority of Member States (28 out of 34) outline standards on water runoff or flooding, but only 19 provide specific standards on storm water overflows (see Table 5 for examples of standards in the United Kingdom). The preferred options appear to be the number of overflows (see the overview in Table 6 below) and dilution rates. Several Member States define the acceptable number of overflows according to the type of receiving water body. Thus, while in Ireland 3 overflows are acceptable for bathing

waters and 7 per recreational waters, per bathing season;⁹ in Portugal, distinction is made between bathing waters (3), sensitive water bodies (6), water bodies which are not sensitive but are used for recreational purposes (10), and non-sensitive water bodies (30).¹⁰ It is worth noting that several Member States, including Croatia and Luxembourg, have adopted, at least in practice, standards based on German documents, while other Member States feel storm water standards are sufficiently addressed in other standards including water quality measures.

Table 6: Standards on the number of spills

	Number of spills allowed
Austria	Percentages are set on the minimum performance of treatment plants under wet conditions: 40-60% of the annual rainfall-runoff is to be treated and 55-75% of the suspended solids. The precise values depend on the rainfall intensity and the size of the treatment plants and are to be calculated based on a time series of rainfall data. This means that maximum 40-60% of the incoming flow and 25-45% of the suspended solids can be discharged as storm water overflow. The minimum performance is set at the level of an agglomeration, not for individual storm water overflow structures. The minimum percentage is to be increased if the agglomeration consists (partly) of separated sewers.
Belgium (Flanders)	Standards are set in the code of good practice on the maximum number of storm water overflows and on the duration. The number of overflows depends on the vulnerability of the receiving water body The maximum number of days with storm water overflows are: 1) 10 per year for areas not included below 2) 7 per year for vulnerable or bodies connecting to vulnerable or highly vulnerable areas 3) 1 in 10 years for highly vulnerable areas
Czech Republic	The Evaluation Guidance also emission criteria: • Regarding the hydraulic disruption, the maximum rainfall outflow from the overflow devices repeated once a year should not exceed 10-50 % of the natural yearly river flow above the outlet. • Regarding the acute toxicity of ammonia, the concentration of N-NH₃ should not even for a short time (1 hour) exceed 0,1 mg/l for salmon waters and 0,2 mg/l for carp waters. Maximum repetition time is 1 year. • Regarding the oxygen deficiency, the concentration of oxygen in river water should not fall under 5 mg/l as the result of an overflow. • Regarding undissolved substances, the indicative criteria for assessing critical cases is the concentration of 50 mg/l of undissolved substances in the water receiver below the overflow outlet.
Denmark	The emission permit standards must ensure that biological or chemical water quality requirements can be met after a certain dilution zone.
France	Local authorities may in the future need to elect one of the three following criteria: - Discharges during rainfall amount to less than 5% of the volume of wastewater produced by urban sanitation during the year; - Discharges during rainfall amount to less than 5% of products pollution flows by urban sanitation during the year; - Less than 20 calendar days of discharge during the year are observed at

⁹ Environmental Protection Agency, 'Urban Waste Water Treatment Directive (91/271/EEC) Procedures and Criteria in relation to Storm Water Overflows'.

¹⁰ ERSAR, in its *Guia de avaliação da qualidade dos serviços de águas e resíduos prestados aos utilizadores*.

	Number of spills allowed
	each combined storm water overflow subject to regulatory self-monitoring. Combined sewer overflows and possible diversions located on a section for collecting a gross load of organic pollution in dry weather more than 120 kg / d BOD5 and less than or equal to 600 kg / day of BOD5 are subject to a monitoring for estimating periods spill and rejected rates. Storm water overflows and possible diversions located on a section for collecting a gross load of organic pollution in dry weather more than 600 kg / d BOD5 are monitored, allowing continuous measurement of the flow rate and estimate the pollutant load (SS, COD) discharged in wet or dry weather.
Netherlands	2) with regards to overflows from combined sewer systems – waste water from overflows from combined sewer systems can be discharged to intercostal surface flowing waters, coastal waters and transitional waters, if the annual average number of discharges from individual overflows is not bigger than 10.
Poland	Non-sensitive area: max 30 overflows per annum Leisure/public areas: max 10 per annum Sensitive area: max 6 per annum Bathing area: max 3 per annum
United Kingdom England & Wales	Revised Bathing Waters: 3 spills per bathing season, for good and sufficient stratus, 2 spills per bathing season for excellent status, 6mm screening or equivalent aesthetics control and discharges below the mark of Mean Low Water Spring tides. Current Bathing waters: 3 spills per bathing season, 6mm screening or equivalent aesthetics control and discharges below the mark of Mean Low Water Spring tides. Shellfish waters: 10 spills per annum and appropriate aesthetic control where required. Freshwater fish: Fundamental Intermittent Standards (FIS), 99%ile standards and relevant Freshwater fish directive standards. Appropriate aesthetic control where required based on UPM2 requirements CRoW Act or Habitats (BOD or ammonia): Fundamental Intermittent Standards (FIS), 99%ile standards and appropriate aesthetic control where required based on UPM2 requirements. Urban Waste Water treatment: UPM standards derived using UPM2 methodology. For rivers these will include FIS and 99%iles based on the significance of the discharge.
United Kingdom Northern Ireland	In the UK where more than one discharge impacts on the bathing water then spills must be aggregated and there must be no more than 3 significant spills to the bathing water on average per bathing season. Aggregation should be done in terms of frequency and volume, such that the sewerage catchment as a whole spills no more than 10 times per annum on average. The size of spill which qualifies as significant will depend upon a number of factors and on a site-specific basis. In general, however, in the UK, for design purposes a spill greater than 50 m3 will be significant. Where more than one storm overflow discharges to a Shellfish Water, then spills should be aggregated, by frequency and volume, so that the combined impact of the aggregated discharges does not result in any part of the shellfish water being impacted by more than 10

	Number of spills allowed
	significant spills per annum on average or 3% of the time on average. According to the Northern Irish Department of Environment, discharge standards for CSOs include minimum flows that the sewer must be capable of before spilling. Inland CSOs do not have standards set, however consideration would have been given to the receiving water quality when sewerage improvement schemes were being designed and built, with provision of storm water retention and storage where deemed necessary by the environmental regulator to protect the receiving water quality
United Kingdom Scotland	According to the information obtained during the interview, the requirements are set through step wise approach or through modelling where SEPA, on the basis of available information, assesses the impact in order to set the requirements preventing discharges from offsetting standards set for the waters in which CSO are discharging into. For example, where unavoidable, SEPA requires a minimum design criteria utilising a 10 to 15 year rainfall record for the spill frequency assessment to ensure that the spill frequency does not exceed: - 3 spills per bathing season for bathing and waters identified for other water users - 10 spills per annum for shellfish waters unless the applicant demonstrates compliance with relevant microbiological standards by numerical modelling . A spill of >50m3 is deemed significant.

Information on investments to address storm water overflows

Member States were not specifically asked about the costs associated with storm water management. However, national experts from some Member States provided examples of costs, both for existing and planned projects. This section gives some brief examples of investment costs, finance sources, and costs of specific tasks including monitoring and inspecting.

In the Netherlands, the 2013 Rioleringszorg (Sewage Management) benchmarking study indicates that more than 5 billion EUR have been invested recently in the country to reduce storm water overflows. Of that, about 2 billion EUR has been invested in underground retention and settling facilities and about 3 billion EUR for decoupling combined systems to create separate sewer systems.

Most of the other data for Member States provides investment costs for capital improvements that include the reduction of storm water overflows with other objectives. Luxembourg, for example, indicated that around 1.08 billion EUR are to be spent up to 2027 on the improvement and expansion of water treatment. This includes the construction and modernization of wastewater treatment plants as well as the construction of storm water retention basins and wastewater collection networks (including rainwater).

Several examples were provided in the UK. In Northern Ireland, Northern Ireland Water invested 160 million GBP (183 million GBP or 258 million EUR in November 2015) in the Belfast Sewers Project to upgrade existing sewer networks and construct a large diameter drainage tunnel to increase storm water capacity. This work was completed in 2010. Between 2000 and 2005, the company spent 5.3 billion GBP (7.1 billion GBP or 10.1 billion EUR in November 2015) on sewerage services: the work improved treatment standards and sludge disposal and also address storm water. Northern Ireland Water has proposed further investments totaling 990 million GBP (1.4 billion EUR in November 2015) between 2015 and 2021: this

includes upgrades to wastewater treatment works, mitigating intermittent discharges and combined sewer overflows, and undertaking storm water separation.

Across Scotland, Scottish Water invested 260 million GBP (368 million EUR in November 2015) between 2006 and 2014 to install barrier screens on combined sewer outfalls to catch debris and increase storage in the combined sewerage systems. Between 2015 and 2021, a planned 229.3 million GBP (325 million EUR in November 2015) will be spent by Scottish Water on further investments: reducing storm water overflows is among these areas of spending.

The review of the US approach also identified investment costs: see Task 1.1.

Monitoring and Inspection costs

For the Flanders Region of Belgium, costs were provided for real-time monitoring, which to set up and manage costs 200,000 EUR per year. This is broken down to 100,000 EUR for the transfer of real-time data, with other costs related to staff costs and monitoring device maintenance. Investment costs are approximately 5,000 EUR for each small monitoring station recording water levels and duration and 10,000 EUR for each larger station that also measures water quality.

Detailed information on inspection costs was not provided; however, the Walloon Region of Belgium has also set aside several million euros with the view of inspecting the types of sewer pipes used in certain agglomerations presenting difficulties.

Sources of funding

Some Member States, for example Malta, outline the source of investment funding, noting that infrastructure projects are partly implemented through EU funding; Slovenia also noted the role of EU funding. In the Netherlands, on the other hand, it appears that since 1997, the national government has supported about half of the costs of measures to address storm water overflows, with municipalities providing the other half.

In the US, the Federal government has supported state and local efforts through the Clean Water State Revolving Fund, which provides low-interest loans.

ANNEX I – MEMBER STATES' FACTSHEETS

ASSESSMENT OF IMPACT OF STORM WATER OVERFLOWS FROM COMBINED WASTE WATER COLLECTING SYSTEMS ON WATER BODIES (INCLUDING THE MARINE ENVIRONMENT)

FACTSHEET FOR AUSTRIA¹¹

1. BASIC INFORMATION

Basic information	
General Information	
1. What are the competent authorities for waste water treatment and management in Austria?	Pursuant to Section 98(1) of the Water Act¹² (WRG), the competent authority for water issues is the respective County Council (<i>Bezirksverwaltungsbehörde</i>), except the WRG determines another competent authority.¹³ The County Council, which is just an abstract name for an authority in the area of general public administration in first instance, can be either the district governor (<i>Bezirkshauptmannschaft</i>) of the respective district or the magistrates (<i>Magistrat</i>) of independent cities having their own statutes. According to Section 99(1) d of the WRG, regarding the discharge of waste water from urban areas including commercial and industrial and other effluents that are included in the sewers, the competent authority is the Governor of the respective <i>Land</i> (<i>Landeshauptmann</i>) if the design value of the associated wastewater treatment plant exceeds 20,000 PE₆₀ (PE means ‘population equivalent’; ‘60’ refers to the assumed load of organic material (60g BOD₅); below that threshold it is the County Council.
2. What is the transposing law(s) of the UWWTD in Austria?	The UWWTD has been transposed in Austria in the Water Act and several ordinances at federal level, as well as legislation at <i>Land</i> level. Storm water overflow has been referred to in the Ordinance of the Federal Minister for Agriculture and Forestry on the General Restriction of Emissions from Effluents in Watercourses and Public Sewage Systems of 1959 (AAEV) at federal level. The most relevant legal measures at federal level are listed here below: - Water Act of 1959, BGBl. 215/1959¹⁴; - Ordinance of the Federal Minister for Agriculture and Forestry on the General Restriction of Emissions from Effluents in Watercourses and Public Sewage Systems of 1959 (<i>Verordnung des Bundesministers für Land- und Forstwirtschaft über die allgemeine Begrenzung von Abwasseremissionen in Fließgewässer und öffentliche Kanalisationen</i>, BGBl. 186/1996¹⁵; - Ordinance of the Federal Minister for Agriculture and Forestry on the Restriction of Emissions from Effluents from Waste Water Treatment Plants for Settlement Areas (1st AEV for communal waste water) (<i>Verordnung des Bundesministers für Land- und Forstwirtschaft über die Begrenzung von Abwasseremissionen aus Abwasserreinigungsanlagen für Siedlungsgebiete (1. AEV für kommunales Abwasser)</i>, BGBl. Nr. 210/1996; - Ordinance of the Federal Minister for Agriculture and Forestry on Effluent Discharge in Sewage Systems that are Authorised

¹¹ For the purposes of this study, Dr. Robert Fenz, Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) has been interviewed.

¹² Wasserrechtsgesetz, 1959 - WRG 1959.

¹³ An overview of the County Councils and contact details, although given in another context, is available here: <http://www.bmi.gv.at/cms/zivildienst/kontakt/bvb.aspx>.

¹⁴ Wasserrechtsgesetz, 1959 - WRG 1959.

¹⁵ AAEV.

Basic information	
	under Water Law (Indirect Discharger Ordinance) (<i>Verordnung des Bundesministers für Land- und Forstwirtschaft betreffend Abwassereinleitungen in wasserrechtlich bewilligte Kanalisationen (Indirekteinleiterverordnung-IEV)</i>), BGBI. II No. 222/1998 .
3. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Pursuant to Section 3(3) AAEV, in a combined sewer system during precipitation events, contaminants should - if necessary, through the intermediary of overflow basins for storage and mechanical cleaning – be treated as far as possible in the central wastewater treatment plant. In accordance with the same provision, hydraulic relief structures in a combined sewer system must be designed and operated in accordance with the concept of critical rainfall intensity (for the meaning of this term, see below, question 7) and taking into account the requirement of maintaining the ecological integrity of the watercourse concerned. Not or only slightly contaminated storm water from an urban area with combined sewer should - as far as locally possible – be left to the natural surface and subsurface runoff events still before the entry into the sewers. In light of the very general nature of Section A of Annex I to the UWWTD, the transposition appears adequate.
4. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	See the section above. The second sentence of the footnote on suggested measures like measures based on dilution rates or capacity in relation to dry weather flow, or to specify a certain acceptable number of overflows per year, has been transposed by a reference in Section 3(3) AAEV to the concept of critical rainfall intensity (for the meaning of this term, see below, question 7), which is defined in the Austrian guidelines on storm water overflows ⁷ as the level above which untreated waste water can be discharged into a water body. Furthermore, in the guidelines a limit for the dilution ratio between stormwater flow and dry weather was set with a minimum ratio of 8.
5. What is the terminology used to refer to storm water overflows in Austria? Is there more than one term used?	In German (Austria), several terms are used: ‘rain water overflow’ (“ <i>Regenüberlauf</i> ”), and combined sewer overflows (“ <i>Mischwasserentlastung</i> ” and “ <i>Mischwasserüberlauf</i> ”). The term ‘ <i>Entlastungsbauwerk</i> ’ refers to a storm water overflow structure. The term that is used to describe the event of rainfall is ‘precipitation event’ (“ <i>Niederschlagsereignis</i> ”). The relevant legislation does not seem to refer specifically to (events of) storm water overflows.
6. Is there a definition of storm water overflow in Austria?	A description of stormwater overflow can be found in the Austrian guidelines on storm water overflows⁷ (see first two paragraphs of chapter 1), which read as follows: “For technical and economic reasons in combined sewers overflow structures (mixed water overflows) are ordered by which the inflow to the treatment plant during rainfall events is limited and the remaining water is discharged into the water bodies. When mixed water is discharged high pollution loads may be discharged that may pollute the water strongly. The purpose of the mixed water treatment is to limit its discharge to the treatment plant hydraulically and, at the same time, to keep the intermittent loads of the water bodies from overflow structures in justifiable limits. Purpose of the mixed water treatment must be the best possible reduction of the total emissions from mixed water overflows and treatment plants in the context of the water management requirements.”
7. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Austria have a definition of extreme or unusual rainfall event?	The concept of critical rainfall intensity (r_{krit} , <i>kritische Regenspende</i> , expressed in l/(s.ha)) or critical flow (“ <i>kritischer Mischwasserabfluss</i> ”, Q_{krit} , expressed in l/s) is defined in the Austrian guidelines on storm water overflows ⁷ as the level above which untreated waste water can be discharged into a water body. Dr.Fenz ¹⁶ provided further information: “The critical rainfall intensity means that there is no spill at an overflow structure (without any treatment) below this critical flow (7-15 l/s/ha). Such critical flows ensure that the dilution ratio between stormwater flow and dry weather flow is high (i.e. dilution ratios around 25-50, with a minimum ratio of 8). At structures, where the throttle flow (<i>Drosselabfluss</i>) is below the critical flow, usually a storage tank should be provided. The volume of the storage tank generally is about 15 m ³ /ha.”

¹⁶ Dr.Robert Fenz, Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), personal communication.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
1. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	As referred to in Section 1 Point 3 above, pursuant to Section 3(3) AAEV, in a combined sewer system during precipitation events, contaminants should - if necessary, through the intermediary of overflow basins for storage and mechanical cleaning – be treated as far as possible in the central wastewater treatment plant. The principle of the State of the Art/Best available techniques applies to the policy addressing stormwater overflows. It must not be in conflict with the public interest, in particular it must not pose a threat to the ecological status of the (receiving) waters. What the State-of-the-Art is is decided on a case-by-case basis. To support the decision-taking of the licencing authorities, the Austrian Association of Water and Water Management (<i>Österreichischer Wasser- und Abfallwirtschaftsverband (ÖWAV)</i>) has issued guidelines in 2007 on the design of stormwater overflows.¹⁷ These guidelines are used by most Länder. Sometimes the German guidelines on stormwater overflows are used, either in combination or alternatively¹⁸. The National Water Management Plan refers to stormwater overflows as possible significant pressure especially for receiving water bodies with weak drainage conditions. (see below last row in this section). In Section 6.3.1.3 several measures to deal with the impact of this pressure are listed. E.g. licensing authorities have to consider State-of-the-Art requirements in the permitting process and, if this still is not sufficient to reach the objectives for a waterbody, stricter criteria have to be set; beyond these measures no additional measures are foreseen.
2.If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	Standards are set in the Guidelines on the design of stormwater overflows. 1) Overflow structures are designed to function only when the rainfall intensity is above the critical rainfall intensity (7-15 l/s/ha). Such critical flows ensure that the dilution ratio between stormwater flow and dry weather flow is high (i.e. dilution ratios around 25-50, with a minimum ratio of 8). 2) Percentages are set on the minimum performance of treatment plants under wet conditions: 40-60% of the annual rainfall-runoff is to be treated and 55-75% of the suspended solids. The precise values depend on the rainfall intensity and the size of the treatment plants and are to be calculated based on a time series of rainfall data. This means that maximum 40-60% of the incoming flow and 25-45% of the suspended solids can be discharged as storm water overflow. The minimum performance is set at the level of an agglomeration, not for individual storm water overflow structures. The minimum percentage is to be increased if the agglomeration consists (partly) of separated sewers. 3) In section 10 of the guidelines, an example is given of the calculation for a fictive agglomeration. The calculation is done with a software called KAREN.

¹⁷ ÖWAV Guideline 19 - Guidelines for the design of combined sewer overflows (*ÖWAV-Regelblatt 19 – Richtlinien für die Bemessung von Mischwasserentlastungen*), 2nd issue, Vienna 2007. This guideline is not freely available on the Internet but can be downloaded here against a fee: <http://www.oewav.at/Page.aspx?target=65710&mode=form&app=134598&edit=0&current=103590&view=134599&predefQuerv=-1>.

¹⁸ Dr. Robert Fenz, Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), personal communication.

Overview of legal and policy framework. Relevant references to storm water overflows.

<i>Direct references to storm water overflows in national law transposing the most relevant EU environmental directives</i>				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	<u>AAEV</u> §1 (3) point 12 sentence 1 <u>AAEV</u> §3 (3)	(3) Im Sinne dieser Verordnung ist: [...] 12. Kanalisation: Gemäß § 32 WRG 1959 bewilligungspflichtige Anlage zur Sammlung und kontrollierten schadlosen Ableitung von Abwasser, Mischwasser oder Niederschlagswasser einschließlich der Sonderbauwerke (zB Pumpwerke, Regenüberläufe, Regenrückhaltebecken, Düker). (3) In einer Mischkanalisation bei Niederschlagsereignissen, Spül- oder sonstigen Vorgängen anfallende Schmutzstoffe sollen - nötigenfalls unter Zwischenschaltung von Regenüberlaufbecken zur Speicherung und mechanischen Reinigung - weitestgehend in der zentralen Abwasserreinigungsanlage behandelt werden. Hydraulische Entlastungsbauwerke in einer Mischkanalisation sollen nach dem Konzept der kritischen Regenspende sowie unter Berücksichtigung der Forderung der Erhaltung der ökologischen Funktionsfähigkeit des betroffenen Fließgewässers bemessen und betrieben werden. Nicht oder nur gering verunreinigtes Niederschlagswasser aus einem Siedlungsgebiet mit Mischkanalisation soll - soweit örtlich möglich - noch vor dem Eintritt in die Kanalisation dem natürlichen ober- und unterirdischen Abflußgeschehen überlassen werden.	(3) For the purposes of this ordinance the following definitions apply: [...] 12. canalisation: An installation subject to permitting pursuant to § 32 WRG 1959 for the collection and controlled harmless discharge of effluents, mixed water and rainwater including special facilities (e.g. pumping stations, rain water overflows, rain water detention basins, conduits). (3) In a combined sewer system during precipitation events, flushing or other events occurring contaminants should - if necessary, through the intermediary of overflow basins for storage and mechanical cleaning – be treated as far as possible in the central wastewater treatment plant. Hydraulic relief structures in a combined sewer system shall be designed and operated in accordance with the concept of critical rainfall and taking into account the requirement of maintaining the ecological integrity of the watercourse concerned. Not or only slightly contaminated storm water from an urban area with combined sewer should - as far as locally possible – be left to the natural surface and subsurface runoff events still before the entry into the sewers.
WFD	N			
MSFD	N			

Overview of legal and policy framework. Relevant references to storm water overflows.				
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	ÖWAV Guideline 19 - Guidelines for the design of combined sewer overflows, p.6	Aus technischen und wirtschaftlichen Gründen werden in Mischwasserkanalisationen Entlastungsbauwerke (Mischwasserüberläufe) angeordnet, durch die der Zufluss zur Kläranlage bei Niederschlagsereignissen begrenzt und die darüber hinausgehende Wassermenge in die Gewässer eingeleitet wird. Bei Mischwasserabfluss können hohe Schmutzfrachten entlastet werden, die die Gewässer stark belasten. Aufgabe der Mischwasserbehandlung ist es, den Mischwasserabfluss zur Kläranlage hydraulisch zu begrenzen und gleichzeitig die stoßweisen Belastungen des Gewässers aus Mischwasserentlastungen in vertretbaren Grenzen zu halten. Ziel der Mischwasserbehandlung muss die bestmögliche Reduzierung der Gesamtemissionen aus Mischwasserentlastungen und Kläranlagen im Rahmen der wasserwirtschaftlichen Erfordernisse sein.	For technical and economic reasons in combined sewers overflow structures (mixed water overflows) are ordered by which the inflow to the treatment plant during rainfall events is limited and the remaining water is discharged into the water bodies. When mixed water is discharged high pollution loads may be discharged that may pollute the water strongly. The purpose of the mixed water treatment is to limit its discharge to the treatment plant hydraulically and, at the same time, to keep the intermittent loads of the water bodies from overflow structures in justifiable limits. Purpose of the mixed water treatment must be the best possible reduction of the total emissions from mixed water overflows and treatment plants in the context of the water management requirements.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR				
HELCOM				
Barcelona				

Overview of legal and policy framework. Relevant references to storm water overflows.				
Convention				
Conv. on the Protection of the Black Sea				
Danube Convention	N			
Rhine Convention				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			
<i>Other direct references to storm water overflows</i>				
Type of document	Title of document		Summary description	
River Basin Management Plans	National Water Management Plan (<i>Nationaler Gewässerbewirtschaftungsplan 2009 – NGP 2009</i>) (BMLFUW-UW.4.1.2/0011-I/4/2010) Section 6.3.1.1) ¹⁹		In English: “In addition, there are a large number of combined sewer overflows and rainwater discharges from sewage and smaller treatment plants, which, depending on the conditions of the receiving body of water may also represent a significant burden [in terms of the parameters chemical oxygen demand (COD) and Biochemical Oxygen Demand (BOD 5), total nitrogen (N _{tot}) and total phosphorus (P _{tot}) - especially when the receiving body of water are weak in terms of drainage.]”	

¹⁹ The document is available on the Website of the BMLFUW: http://www.bmlfuw.gv.at/wasser/wasser-oesterreich/plan_gewaesser_ngp/nationaler_gewaesserbewirtschaftungsplan-ngp/ngp.html.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
1. Which types of sewer system does Austria have?	Both, combined sewer systems (rain and domestic waste water in one pipe) and separate systems (waste water and rainwater in separate pipes) are used ²⁰ .
2. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	According to the study 'Technical challenges in urban water management' (2012) ²¹ , in total, 96,200 km of sewers exist, of which 11,300 km of rain water sewers, 57,500 km of waste water sewers and 27,400 km of combined sewers. Consequently, 28% of the sewers are combined sewers. Separate systems are more frequently used in rural areas (75,500 km or 78%), while combined systems are used in larger cities (20,700 km or 22%)..
3. How many storm water overflows infrastructures exist in Austria?	According to study 'Technical challenges in urban water management' (2012) ²² , the estimated number of overflow infrastructures is 10,300.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
4. Is there information on the occurrence of storm water overflows?	If the standards of the guidelines on storm water overflows are followed, the guideline estimates that 1-3% of the pollution load in combined sewer systems is discharged untreated (as storm water overflow) into the receiving water body. The percentage increases to 2-5% if storm water storage basins are not foreseen. Indicative thresholds are also set to reduce the impact to the aquatic ecology of the receiving water body. Storm water overflows with a return period of 1 year between 10% and 50% of the flood flow (1y return period) are expected not to harm the aquatic ecology. The percentage depends on the type of receiving water body (hydromorphology, flow variability, etc...). The guidelines also include indicative thresholds and formula to limit the concentration of ammonia, the oxygen deficit, bacterial contamination, and sediments. Information is not centrally available. At District level, it may be available. It is estimated that there are only short overflows a couple of times per year, around 30 minutes long. In mountainous areas, storm water overflows occur about 20-25 times per year. Because of the high dilution rate, the impact of storm water overflows on the receiving water body is expected to be minor²³. Information is probably available in the cities of Vienna, Graz and Linz (the three biggest cities). In Vienna, 80% is a combined sewer system with relatively big storage capacities. Over 80% of the storm water is treated there in plants²⁴.
5. Are storm water overflows monitored in Austria? If yes, please describe the monitoring programme. Refer to: - what is measured;	The relevant district authorities are not required to monitor overflow events ²⁵ . However, the possible impacts of stormwater overflows are monitored on the immission side within the nationwide monitoring programme.

²⁰ Dr. Robert Fenz, Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), personal communication.

²¹ Technical challenges in urban water management (*Technische Herausforderungen in der Siedlungswasserwirtschaft*), BMLFUW, 2012, p. 33.

²² Technical challenges in urban water management (*Technische Herausforderungen in der Siedlungswasserwirtschaft*), BMLFUW, 2012, p. 33.

²³ Dr. Robert Fenz, Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), personal communication.

²⁴ Dr. Robert Fenz, Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), personal communication.

²⁵ Dr. Robert Fenz, Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), personal communication.

Available data on storm water overflows	
- how often; and - at how many locations	

FACTSHEET FOR BELGIUM²⁶

1. BASIC INFORMATION

Basic information	
General Information	
8. What are the competent authorities for waste water treatment and management in Belgium?	<i>Walloon Region</i> The competent authority for wastewater treatment in the Walloon Region is the DG for Natural Resources and the Environment, Department of Environment and Water (DEE), which is a part of the Operational Directorate-General for Agriculture, Natural Resources and the Environment (DGO3). The DGO works under the political authority of the Walloon Minister for the Environment. http://environnement.wallonie.be/ For the collective wastewater treatment in wastewater treatment stations, the Walloon Government has established the SPGE (Société Publique de Gestion de l'Eau) which is in charge of implementing the requirements of the UWWTD in the Walloon Region. The relationship between the Walloon Government and the SPGE is regulated in a management contract for five-year periods. The current management contract covers the period from 2011 to 2016. The management contract is accompanied by an investment programme for wastewater treatment, adopted by the Walloon Government. http://www.spge.be/ <i>Brussels-Capital Region</i> The competent authority for water policy and wastewater treatment in particular in the Brussels-Capital Region is the Brussels Ministry for the Environment (Leefmilieu Brussel – Bruxelles Environnement), under the authority of the Brussels Minister competent for the environment and water policy. La Société Bruxelloise de Gestion de l'Eau (SBGE) is in charge, since 2006, of the public wastewater treatment.²⁷ Similarly to the Walloon Region, the relationship between the Government of the Brussels-Capital Region and the SBGE is regulated in a management contract. The Brussels-south wastewater treatment plant is operated by the SBGE; the Brussels-north wastewater treatment plant is operated till 2027 by Aquiris in the framework of a concession contract between SBGE and Aquiris <i>Flanders Region</i> The competence for the management of storm water overflows, as part of the overall competence on sanitation, is distributed between the regional level (Flanders) and the municipalities (local level). Sanitation is a term used in Flanders and covers the collection, transport treatment and discharge of waste water. At regional level, two institutes have a competence in sanitation. • The Flemish Environment Agency (<i>Vlaamse Milieumaatschappij, VMM</i>) is the regulatory authority. The Flemish Environment

²⁶ The following were interviewed for the purposes of this report:

Walloon Region: Christian Didy (SPGE s.a., Société Publique de Gestion de l'Eau);

Brussels – Capital Region: Gaëtan Cuartero Diaz, Michaël Antoine, Sofie Bracke (Leefmilieu Brussel – Bruxelles Environnement);

Flanders: Dr. Guido Vaes (Hydroscan) and at the Flemish Environmental Agency (VMM), Greet Vos (Head of the waste water unit), Filip Verhalle (monitoring of storm water overflows) and Steven Van den Broeck (indicator framework on waste water).

²⁷ <http://be.brussels/vivre-a-bruxelles/environnement/qualite-de-leau>

Basic information	
	Agency is responsible for the monitoring and evaluation of waste water collection and treatment. In particular, they have a mandate to monitor and evaluate the financial and ecological aspects of waste water treatment. • Aquafin is the operator responsible for transport, treatment and discharge of waste water. At the local level, the municipalities are responsible for the collection of waste water at the local level and for treatment at local level, i.e. the individual appropriate systems for waste water treatment. Some municipalities have outsourced sewer management. The distribution of responsibilities between the local and regional level are set by the Decision of 10 March 2006²⁸ on zoning plans. The transition of responsibilities is provisionally defined in the Decision by means of the pollution load (in population equivalent, PE) that needs to be collected in the sewer system. If the pollution load collected in the sewer system is larger than the threshold value noted in the Decision, the responsibility shifts to the regional level. Threshold values have included for each municipality. For smaller municipalities, the threshold value is 100 PE. The largest cities (Antwerp, Gent) have a threshold value of 2000 PE. The precise geographic location where the responsibilities are taken from the municipalities by the regional level is decided on the zoning plans. The zoning plans have been officially published in 2008-2009²⁹ and are publicly available on the map viewer named Geoloket³⁰.
9. What is the transposing law(s) of the UWWTD in Belgium?	<i>Walloon Region</i> The Walloon Region initially transposed the UWWTD into specific legislation on surface waters and wastewater treatment. This legislation has meanwhile been replaced by a new Water Code (Book II of the Environment Code), which consists of a legislative and a regulatory part. The legislative part of the Water Code was adopted through the Decree of 27 May 2004 on Book II of the Environment Code, establishing the Water Code (Décret du 27 mai 2004 relatif au Livre II du Code de l'Environnement constituant le Code de l'Eau), published in the Belgian Official Journal on 23/09/2004. The regulatory part of the Water Code was adopted through the Decision of the Walloon Government of 3 March 2005 on Book II of the Environment Code, establishing the Water Code (Arrêté du Gouvernement wallon relatif au Livre II du Code de l'Environnement, contenant le Code de l'Eau), published in the Belgian Official Journal on 12/04/2005. A coordinated version of both can be found on the following pages: http://environnement.wallonie.be/legis/Codeenvironnement/codeeaucoordonneD.htm http://environnement.wallonie.be/legis/Codeenvironnement/codeeaucoordonneR.html#R.53 <i>Brussels-Capital Region</i> In the Brussels-Capital Region, the UWWTD was transposed through the Decisions of the Brussels-Capital Government of 23 March 1994 and 08 October 1998 on urban wastewater treatment : • In French : Arrêtés du Gouvernement de la Région de Bruxelles-Capitale des 23 mars 1994 et 10 octobre 1998 relatifs au traitement des eaux urbaines résiduaires • In Dutch : Besluiten van de Brusselse Hoofdstedelijke Regering van 23 maart 1994 en 10 oktober 1998 betreffende de behandeling van stedelijk afvalwater),

²⁸ Decision on zonation: Besluit van de Vlaamse Regering houdende de vaststelling van de regels voor de scheiding tussen de gemeentelijke en bovengemeentelijke saneringsverplichting en de vaststelling van de zoneringsplannen

²⁹ The precise date for the publication of each municipal zoning plan is listed here: <http://geoloket.vmm.be/zonering/datum.php>

³⁰ Map viewer zoning plans: <http://www.volvanwater.be/geoloket/geoloket-zonering>

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	published in the Belgian Official Journal on 05/05/1994 and 27/10/1998 A coordinated version can be found on the following pages : French : http://www.ejustice.just.fgov.be/loi/loi.htm Dutch : http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=nl&la=N&cn=1994032331&table_name=wet <i>Flanders</i> In Flanders, the UWWTD was mainly transposed through: - the legislation on general and sectorial provisions concerning environmental hygiene : Flemish Government Order of 1 June 1995 (VLAREM II), Section 2.3.6 (objectives) and Section 4.2 (surface water pollution control). See: https://navigator.emis.vito.be/mijn-navigator?wold=8337 Other legislation with relevance to the UWWTD is: - the Decree of 18 July 2003 on integrated water management that transposes the Water Framework Directive. See: http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=nl&la=N&cn=2003071872&table_name=wet ; - the Order of 10 March 2006 of the Flemish Government establishing the rules for the separation between the municipal and supra-municipal remediation obligation and establishing the zoning plans. See: http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=nl&la=N&cn=2006031063&table_name=wet ; - the Order of 5 July 2013 regarding the establishment of a Regional Planning Regulation on rain drains, infiltration facilities, buffer facilities and separate discharge of wastewater and storm water. See: http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=nl&la=N&table_name=wet&cn=2013070518.
10. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	<i>Walloon Region</i> Section A of Annex I UWWTD is transposed in Article R.300 of the Walloon Water Code. Article R300 transposes part A nearly in a literal manner and effectively requires collecting systems to be designed to take account of volume and characteristics of urban waste water and of the environmental objectives of the receiving water body, to prevent leaks and to limit pollution of receiving waters due to storm water overflows. <i>Brussels-Capital Region</i> The provision transposing Section I of Annex I in the Brussels Region is Art. N1. Annex 1 to the Decision of 23 March 1994 which transposes the UWWTD in the Brussels Region. The provision is transposed in literal manner. <i>Flanders</i> Section A of Annex I to the UWWTD is transposed in article 2.3.6.3 (3) of VLAREM II in the following manner: “§3 The collection systems referred to in § 1 shall be designed, constructed, adapted and maintained in accordance with the best available techniques, in particular regarding:

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	1. volume and characteristics of urban waste water; 2. prevention of leaks; 3. limitation of pollution of receiving waters due to storm water overflows; [...]
11. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	<i>Walloon Region</i> Footnote 1 has not been explicitly transposed in the Walloon Region. The Walloon Water Code requires treatment stations to be designed, built, operated and maintained in such a manner to meet the requirements of Part D of Annex I and to have sufficient capacity in all normal climatic conditions. There is no explicit reference to specific measures for storm water overflows in the Walloon legislation. But several measures allow preventing or attenuating storm water runoffs close to source. Thereby, article R.277 of the Water Code imposes a separate sewer system for waste water and rain water at the house-plot scale. Rain water has to be drained to an infiltration device, into a stream of water or to a separate sewage system when existing. Even if the Walloon Flood Risk Management Plans (PGRI) and the “Plan PLUIES” do not scope on storm water overflow; they also participate in preventing inflows of clear water or rain water into sewers by fixing supplementary measures to prevent and fight against flooding. In its 2013 report on Article 7 of the Protocol on Water and Health to the UNECE Convention, the Walloon Region explains the measures taken to reduce storm water overflows.. Moreover, the treatment stations (> 2.000 EH) have recently been equipped with storage mechanisms from the moment the flow exceeds the hydraulic capacity of the station, in the range of 3 times the average dry weather flow. <i>Brussels-Capital Region</i> The footnote is not transposed in the Brussels Region. <i>Flanders</i> Footnote 1 of Sections A and B of the Annex to the UWWTD does not appear to be transposed as such into the Flemish legislation. Article 2.3.6.3 (3) of VLAREM II however specifies that: “[...]The Flemish minister on the proposal of the Coordinating Committee on Integrated Water Policy, stated in Article 25 of the Decree of 18 July 2003 on Integrated Water Policy, adopt a code of good practice for the design and construction of public sewers.” This Code of good practice was established in 2012 and contains technical information regarding the design, construction and maintenance of drainage systems. Chapter 7 of the code concerns storm water overflow and contains information and criteria on: dilution ratio and certain acceptable number of overflows per year. This could be considered as the measures mentioned in the footnote 1 in Sections A and B of Annex I to the UWWTD.
12. What is the terminology used to refer to storm water overflows in Belgium? Is there more than one term used?	<i>Walloon Region</i> The Walloon Region uses the same term as the French translation of the Directive, namely ‘des surcharges dues aux pluies d’orage’. In the River Basin Management Plan for the Meuse River the Scheldt River, the Rhine River and the Seine River, the authorities also refer to the term ‘surverses d’orage’, which is defined as follows: during moments of high intensity rain (for example during storm weather), when the storm basins with which the treatment station is equipped have reached their maximum storage capacity for used waters, these are deviated through a storm water overflow, directly towards the water body and are therefore not treated by the station.³¹ However, even

³¹ River Basin Management Plan for the Meuse River (Plan de gestion du district hydrographique de la Meuse), http://spw.wallonie.be/dce/IMG/pdf/dgo3-13-12403-document_meuse-af-250413-prod.pdf

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	though the RBMP contains a definition of the term ‘surverses d’orage’, the actual term is not used in the plan. The equipment is translated in the Walloon legislation as a ‘déversoir d’orage’. <i>Brussels-Capital Region</i> The Brussels Region uses the term ‘des surcharges dues aux pluies d’orage’ in French and ‘overstorting van regenwater’ in Dutch. <i>Flanders</i> The term used in Flanders is ‘riooloverstort’ (sewer overflow) or in short ‘overstort’ (overflow). The term ‘nooduitlaat’ (emergency outlet) is not considered to be an overflow. Both are defined in the code of good practice. The legislation (article 2.3.6.3 (3) uses the term “overstorting van hemelwater”. An overflow is an external outlet of the sewer system which starts working as a consequence of the limited flow capacity of the sewer system. An emergency outlet is an external outlet to evacuate waste water, in case of calamities e.g. pump failure. The River Basin Management Plans (RBMPs) of 2009 for Flanders³², cover the following definition for storm water overflows: “During heavy rainfall, the risk exists that combined sewers cannot cope with the amount of water and enhance the risk for floods. Therefore, overflow constructions have been built to drain excess water in surface water without treatment from combined sewers in the case of heavy rainfall. Although overflow water is very diluted, some pollution is discharged in the watercourse, sometimes leading to fish mortality.”
13. Is there a definition of storm water overflow in Belgium)?	<i>Walloon Region</i> The Walloon Region does not define the term storm water overflow in its legislation. A definition is, as mentioned above, included in the glossary of the RBMP for the Meuse River, the Scheldt River, the Rhine River and the Seine River. <i>Brussels-Capital Region</i> There is no definition of the term storm water overflow in the Brussels Region. <i>Flanders</i> See question 5.
14. Storm water overflows occur as a consequence of an extreme or unusual rainfall	The Belgian meteorological service (KMI) defines the types of rainfall.³³ Heavy rain is defined as 1 to 2 mm/minute. Violent rainfall is defined as 3 to 4mm/minute. Storm weather can lead to 30 to 80 mm of precipitation, but the quantity of rainfall can reach more than 100mm in 2 to 3 hours.

³² <http://www.integraalwaterbeleid.be/nl/stroomgebiedbeheerplannen/stroomgebiedbeheerplannen-2010-2015>

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event. Does Belgium have a definition of extreme or unusual rainfall event?	<i>Walloon Region</i> The legislation refers to 'de fortes precipitations', ie. heavy rains. However, this term is not defined in the legislation. <i>Brussels-Capital Region</i> The Brussels Region does not have a definition of extreme or unusual rainfall. <i>Flanders</i> The definition of the Belgian meteorological service is used

³³ http://www.meteo.be/meteo/view/fr/360361-Parametres.html#ppt_7369966

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
3. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	<i>Walloon Region</i> The Water Code in Wallonia states that the main sewers must be designed, built and maintained so as to limit the pollution of receiving waters resulting from overloads resulting from stormy rains (R. 300, Water Code of Wallonia) There are no common practices in Wallonia regarding the control of storm water overflows but mostly constraints on waste water treatment plants main sewers (not network sewers). For example, the Waste Water Treatment Plant permits can state the dilution rate for which by-passing the plant is accepted (12 times the dry weather flow, or 6 times the dry weather flow, depending on the sensitivity of the received environment³⁴). <i>Brussels-Capital Region</i> There is no specific legal framework, general rule, guidance or common practice related to storm water overflows in the Brussels-Capital Region. However, Annex 1 to the Wastewater treatment Decision states that the collecting systems shall be designed, constructed and maintained in accordance with the best technical knowledge not entailing excessive costs, notable regarding [...] 3/ limitation of pollution of receiving waters due to storm water overflows. <i>Flanders</i> The 'code of good practice for the design, construction and maintenance sewer systems'³⁵³⁶ has been approved by the Ministerial Decision of 20 August 2012. The code is to ensure that sewer systems are designed and managed consistently. In general, the code asks to design all sewer systems, at the latest by 2017, such that a storm event that happens 1 time in 20 years does not cause flooding. The code consists of 9 chapters. Chapter 7 cover with storm water overflows. Annexed to the code is a map of the vulnerability of receiving water bodies to the pollution load of storm water overflows.
4. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows	<i>Walloon Region</i> There are no standards set regarding overflows. <i>Brussels-Capital Region</i>

³⁴ These figures were given by the SPGE but can only be regarded as examples from local initiatives

³⁵ http://www.integraalwaterbeleid.be/nl/publicaties/code-goede-praktijk-rioleringssystemen/Kwetsbaarheidskaart_riooloverstorten.pdf/view

³⁶ <http://www.integraalwaterbeleid.be/nl/publicaties/code-goede-praktijk-rioleringssystemen>

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- Volumes of overflow
- Coefficient referring to dilution (e.g. comparing to Dry Weather Flow)
- Number of days when overflows are working
- Water quality standards of receiving water body
- Other

There are no standards set regarding overflows.

However, the draft next Water Management Plan for Brussels (Plan de Gestion de l'Eau pour la Région Bruxelloise numéro 2, currently under preparation, under public consultation from September 2015 and adoption in May 2016) suggests the following:

“De plus, pour encadrer la mise en fonction des déversoirs, il est proposé, comme cela se fait dans les autres régions belges, de déterminer une ligne directrice quant au fonctionnement autorisé des déversoirs : au maximum 7 jours par an. En effet, étant donné qu’il s’agit d’un ouvrage d’urgence permettant d’évacuer le trop plein d’eau en cas de surcharge exceptionnelle du réseau, son fonctionnement se doit d’être exceptionnel, et non fréquent comme c’est actuellement le cas sur certains déversoirs (voir tableau 6.9). Toutefois, les acteurs de l’eau en Région bruxelloise mesurent bien la difficulté de mettre en pratique pareille ligne directrice. En effet, les déversoirs ne sont que des nœuds dans un réseau hydraulique plus vaste. Trouver des solutions pour diminuer la fréquence de mise en fonctionnement des déversoirs nécessite de travailler sur l’ensemble du bassin versant situé en amont dudit déversoir. «

Summary : it suggests establishing a standard of maximum 7 days per year when storm water overflow can occur, while recognising the difficulty to implement such a standard when the entire upstream river basin needs to be considered in order to avoid overflows.

Flanders

Standards are set in the code of good practice on the maximum number of storm water overflows and on the duration. The number of overflows depends on the vulnerability of the receiving water body³⁷. The vulnerability of the receiving water body to storm water overflows is classified on the map, by means of colours, in annex of the code of good practice. ‘Blue’ water bodies are highly vulnerable; ‘green’ water bodies are vulnerable. ‘Yellow’ water bodies are connected to blue or green water bodies. Overflows on yellow water bodies could have an indirect impact on the water quality of blue and green water bodies. Non-coloured (white) water bodies are not included in the above categories.

The maximum number of days with storm water overflows are:

- 1) 10 per year for ‘white’ areas
- 2) 7 per year for ‘yellow’ and ‘green’ areas
- 3) 1 in 10 years for ‘blue’ areas

For operational purposes (such as calculating the impact of overflows on a water body), the maxima are considered as the cumulative time (e.g. 7 days x 24 hours = 168 hours) rather than overflow happening on 7 different calendar days. An overflow event ends when there is no overflow is monitored for more than 10 minutes. Smaller, consecutive events hence can hence be considered as one unique event. WWTP are designed (biological treatment) for minimal 6 times the Dry Weather Flow spread over 14 hours. A dilution ratio of at least 7 is thus required.

³⁷ http://www.integraalwaterbeleid.be/nl/publicaties/code-goede-praktijk-rioleringssystemen/Kwetsbaarheidskaart_riooloverstorten.pdf/view

Overview of legal and policy framework. Relevant references to storm water overflows.				
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	<i>Walloon Region</i> Article R.300 of the Walloon Water Code	<i>Walloon Region</i> Les collecteurs doivent être conçus, construits et entretenus de manière à tenir compte du volume et des caractéristiques des eaux urbaines résiduelles et des objectifs environnementaux de la masse d'eau réceptrice, à prévenir les fuites et à limiter la pollution des eaux réceptrices résultant des surcharges dues aux pluies d'orage.	<i>Walloon Region</i> The collectors shall be designed, constructed and maintained with a view to take account of the volume and characteristics of urban wastewater and the environmental objectives of the receiving water body, to prevent leaks and to limit pollution of receiving waters as a result of storm water overflows.
	Y	<i>Brussels-Capital Region</i> Art. N1. Annex 1 Wastewater treatment Decision	<i>Brussels-Capital Region</i> Aan stedelijk afvalwater gestelde eisen. - Bijlage I.A. - Aan opvangsystemen gestelde eisen. Bij de bouw of de aanpassing van opvangsystemen moet rekening worden gehouden met de eisen inzake afvalwaterzuivering. Opvangsystemen moeten worden ontworpen, gebouwd en onderhouden overeenkomstig de beste technische kennis die geen overmatig hoge kosten veroorzaakt, met name ten aanzien van : 1° volume en eigenschappen van het stedelijk afvalwater; 2° voorkoming van lekkages; 3° beperking van verontreiniging van de ontvangende wateren door overstorting en regenwater.	<i>Brussels-Capital Region</i> Requirements for urban wastewater. – Annex I.A. Requirements for collecting systems. The construction or adaptation of collecting systems shall take into account waste water treatment requirements. Collecting systems shall be designed, constructed and maintained in accordance with the best technical knowledge not entailing excessive costs, notable regarding: 1° volume and characteristics of urban waste water; 2° prevention of leaks; 3° limitation of pollution of receiving waters due to storm water overflows.
	Y	<i>Flanders</i> VLAREM II, Article 2.3.6.3 (3)	<i>Flanders</i> §3 De in § 1 bedoelde opvangsystemen moeten worden ontworpen, gebouwd, aangepast en	<i>Flanders</i> “§3 The collection systems referred to in § 1 shall be designed, constructed, adapted and maintained in

Overview of legal and policy framework. Relevant references to storm water overflows.				
			onderhouden overeenkomstig de beste beschikbare technieken, met name ten aanzien van: 1. volume en eigenschappen van het stedelijk afvalwater; 2. voorkoming van lekkages; 3. beperking van verontreiniging van de ontvangende wateren door overstorting van hemelwater; De Vlaamse minister kan op voorstel van de Coördinatiecommissie Integraal Waterbeleid, vermeld in artikel 25 van het decreet van 18 juli 2003 betreffende het Integraal Waterbeleid, een Code van goede praktijk vaststellen voor het ontwerp en de aanleg van de openbare riolering.	accordance with the best available techniques, in particular regarding: 1. volume and characteristics of urban waste water; 2. prevention of leaks; 3. limitation of pollution of receiving waters due to storm water overflows; The Flemish minister on the proposal of the Coordinating Committee on Integrated Water Policy, stated in Article 25 of the Decree of 18 July 2003 on Integrated Water Policy, adopt a code of good practice for the design and construction of public sewers.”
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	<i>Walloon Region</i> Guide pratique à l'usage des communes et relatif à l'assainissement des eaux usées, 2012³⁸	<i>Walloon Region</i> 6.1.2. ETAPES DE LA MISE EN ŒUVRE D'UN ASSAINISSEMENT AUTONOME GROUPÉ 1ère étape : Procédure de décision quant à la nécessité d'un assainissement autonome groupé [...] 2ème étape : Mise en œuvre d'un assainissement autonome groupé [...] 3ème étape : Impositions techniques Le système d'assainissement autonome groupé mis en place doit faire en sorte que les eaux usées	<i>Walloon Region</i> 6.1.2 Steps for the implementation of group autonomous water treatment 1st step: Decision-making procedure as to the necessity of group autonomous water treatment [...] 2nd step: Implementation of group autonomous water treatment [...] 3rd step: Technical requirements The group autonomous water treatment system shall assure that the used waters coming from households

³⁸ <http://www.spge.be/de/guide-pratique-de-l-assainissement.html?IDC=1094&IDD=979>

Overview of legal and policy framework. Relevant references to storm water overflows.

			provenant des habitations soient collectées de manière privilégiée par un réseau de collecte séparatif. Le réseau de collecte peut néanmoins être de type unitaire s'il préexistait à l'application de l'assainissement autonome groupé. Dans ce cas, les dispositions suivantes devront être respectées : ► aucune eau claire parasite ne pourra transiter dans l'égout unitaire ; ► le SEI sera précédé d'un dispositif de gestion des eaux pluviales tel qu'un déversoir d'orage, un bassin d'orage ou un dispositif de stockage temporaire assurant une restitution régulée des eaux pluviales dans le milieu récepteur. Une attention particulière devra être apportée au dimensionnement du SEI et du dispositif de gestion des eaux pluviales afin d'éviter toute détérioration du fonctionnement du SEI.	shall be collected in a privileged manner by means of a separate collection network. The collection network may be of the unitary type if it pre-exists the application for the group autonomous water treatment. In this case, the following requirements shall be respected: - No parasite clear water shall be allowed to transit the unitary sewer; - The individual operating system shall be preceded by rainwater management equipment, such as a stormwater overflow, a stormwater basin or a temporary storage mechanism which shall ensure the regulated restitution of the rainwater in the receiving environment. Particular attention shall be paid to the dimensioning of the individual operating system and of the rainwater management mechanism with a view to avoid any deterioration of the functioning of the individual operating system. Note: The same guidance document provides that separate and unitary (combined) sewers can be used for collective wastewater treatment. In this case, ever new household shall be equipped with a system separating the clear waters (rainwater, drainage,...) from urban wastewater.
	Y	<i>Flanders</i> Code of good practice for the design, construction and maintenance sewer systems³⁹, Part 7, Overflow missions. The term “overstort” (overflow) is mentioned 412 times in this part of the Code. For more	<i>Flanders</i> Code van goede praktijk voor rioleringsystemen, Deel 7 – Overstortemissies	<i>Flanders</i> Code of good practice for the design, construction and maintenance sewer systems’, Part 7, Overflow missions.

³⁹ http://www.integraalwaterbeleid.be/nl/publicaties/code-goede-praktijk-rioleringsystemen/Kwetsbaarheidskaart_riooloverstorten.pdf/view

Overview of legal and policy framework. Relevant references to storm water overflows.				
		information, see point 1 of this table.		
WFD	Y	<i>Walloon Region</i>	<i>Walloon Region</i>	<i>Walloon Region</i>
		District hydrographique international De la Meuse Plan de gestion en Wallonie, p. 63 and 316 (RBMP Meuse)	Les sources de contamination des eaux de baignade sont essentiellement liées aux activités humaines et sont multiples : rejets d'eaux usées domestiques et industrielles, déversoirs d'orage, accès du bétail aux cours d'eau... Glossaire général By-pass de stations d'épuration (ou surverses d'orage) : lors d'épisodes pluvieux de forte intensité (par exemple lors des orages), une fois que les bassins d'orage équipant la station d'épuration ont atteint leur capacité maximale de stockage des eaux usées , elles sont déviées par un déversoir d'orage directement vers le cours d'eau et ne sont donc pas traitées par la station.	The sources of contamination of bathing water are essentially linked with human activities and are many : release of used domestic and industrial wasters, stormwater overflows, access of cattle to a water body,... General glossary By-pass of water treatment stations (or stormwater overflow): during moments of high intensity rain (for example during storm weather), when the storm basins with which the treatment station is equipped have reached their maximum storage capacity for used waters, these are deviated through a storm water overflow, directly towards the water body and are therefore not treated by the station.
		<i>Brussels-Capital Region</i>	<i>Brussels-Capital Region</i>	<i>Brussels-Capital Region</i>
		Programme of measures of the Water Management Plan of the Brussels-Capital Region ⁴⁰	Bovendien is het rioleringsnet over het algemeen van het unitaire type, wat betekent dat bij regenval het systeem zowel afvalwater als regenwater afvoert.	Moreover, the sewerage network is mostly of the unitary type, which means that the system evacuates both waste water and rain water in case of rainfall. Note: the programme of measures of the Brussels-Region establishes operational and strategic objectives with a view to address this situation. As these do not expressly refer to stormwater overflow, these have not been included in detail here.
		EIA report of the Programme of	Ter herinnering, het rioleringsstelsel in het	As a reminder, the sewerage system in the Brussels-

⁴⁰ http://documentatie.leefmilieubrussel.be/documents/Plan_Eau_PGE_7_Maatregelenprogramma_2012_NL.pdf?langtype=2067

Overview of legal and policy framework. Relevant references to storm water overflows.

		Measures of the Water Management Plan of the Brussels-Capital Region ⁴¹	Brussels Hoofdstedelijk Gewest is van het 'gemengd type', waarbij het rioleringsnet ook het overgrote deel van het hemelwater afvoert. Om het rioleringsnetwerk te beschermen bij overvloedige neerslag, hebben de ontwerpers het net uitgerust met inrichtingen, de overstorten, om in snel tempo het overtollige afvalwater en regenwater gemengd af te voeren naar het natuurlijk milieu. Dit lozingswater bevat redelijk veel verontreinigende stoffen. Ook hier is er sprake van een niet ideale maar historische situatie. [...] Bij hevige regen kan het water van de collectoren rechtstreeks, zonder zuivering, in de Zenne of het Kanaal worden teruggevoerd wanneer de overstorten ter hoogte van de hoofdcollectoren of de bypasses ter hoogte van de zuiveringsstations in werking treden. De overstorten hebben als functie overbelasting van het rioleringsnet te beperken of te voorkomen, en de bypasses beperken het waterdebiet dat in de zuiveringsstations wordt gevoerd. Dit water wordt grotendeels naar de Zenne afgevoerd, maar ook naar het Kanaal. [...] De collectoren zijn voorzien van overstorten op het oppervlaktewater. Er is voorzien dat deze kunstwerken in werking treden bij een debiet van meer dan vijf maal het droogweerdebiet.	Capital Region is of the 'combined type' whereby the sewer network also evacuates a large part of the rainwater. To protect the sewerage network in case of heavy precipitation, the developers have equipped it with installations, overflows, to quickly evacuate the excess waste water and rain water to the natural environment. This waste water contains an important amount of contaminating substances. Also here, this is a not-ideal though historic situation. [...] During heavy rains, the water of the collectors can be evacuated directly, without treatment, in the Zenne River or the Canal when the storm water overflows at the main collectors or the by-passes at the treatment stations enter into operation. The storm water overflows have as their function to reduce or prevent the excess charge of the sewerage system, and the bypasses limit the water flow introduced into the treatment stations. This water is mostly evacuated to the Zenne River, but also to the Canal. [...] The collectors are equipped with overflows to the surface water. It is foreseen that these enter into operation when a flow of more than five times the dry weather flow occurs.
		<i>Flanders</i>	<i>Flanders</i>	<i>Flanders</i>
			<i>Scheldt River Basin District – Programme of</i>	<i>Scheldt River Basin District – Programme of</i>

⁴¹ http://documentatie.leefmilieubrussel.be/documents/MER_Plan_Water_MPr2011_rapport_en_bijlagen1en2.PDF?langtype=2067

Overview of legal and policy framework. Relevant references to storm water overflows.

		<i>The River Basin Management Plans have many direct references to storm water overflows and also propose actions in the Programme of Measures. For each of the 11 river basins, a RBMP is made. In addition, a roof report is made for the Flemish part of the Scheldt and Meuse River Basin District. The 1st RBMP (2008-2013)⁴² is published in 2009. The 2nd RBMP (2015-2021)⁴³ is a draft version. Citations from the 2015 plan are given:</i> <i>River Basin Management Plans 2016 – 2021 (published in 2015)</i>	<i>Measures</i> Verschillende maatregelen ivm overstorten zijn opgenomen: • 4B_014 & 8A_015: Prioritaire aanpak van overstorten ter hoogte van beschermde gebieden; • 7B_065 Uitwerken van een globaal actieplan in verband met de overstortproblematiek; <i>RBMP of the Nete River Basin (2016-2021)</i> i. Druk en impact analyse oppervlaktewater Zo werden er in 2012 maar liefst 18 overstorten geregistreerd met elk een totale overstortduur op jaarbasis van meer dan 10 dagen. Kaart 15 geeft alle gekende overstorten in het bekken alsook de bemeten overstorten in 2012 weer. De bemeten overstorten worden ingekleurd van goed tot slecht volgens de Ecologische Performantiescore (EPI). [...]. Van de 51 beoordeelde overstorten in het Netebekken scoren er 20 zeer slecht, 10 slecht, 19 onvoldoende en 2 goed. In 2006 werden er 11 overstorten elk met een totale overstortduur van meer dan 20 dagen per jaar geregistreerd. Heel wat problematische overstorten werden ondertussen aangepakt, zoals Beerse Antwerpsesteenweg op de Laakbeek (110d → 14d	<i>Measures</i> Several measures on storm water overflows are included, i.e.: • 4B_014 & 8A_015: Priority remediation of storm water overflows in protected areas; • 7B_065: Development of a global action plan to remediate storm water overflows; <i>RBMP of the Nete River Basin (2016-2021)</i> 2.1.3 Pressure and impact analysis of surface water In 2012, 18 storm water overflows were registered each with a total annual duration of more than 10 days. Map 15 shows all known overflows in the basin as well as the monitored overflows in 2012. The monitored overflows are colored from good to bad according to the Ecological Performance Score (EPI). [...]. Of the 51 assessed overflows into the Nete river basin, 20 score very poor, 10 poor, 19 insufficient and 2 good. In 2006, 11 overflows were registered each with a total overflow duration of more than 20 days per year. Several problematic overflows have since been

⁴² <http://www.integraalwaterbeleid.be/nl/stroomgebiedbeheerplannen/stroomgebiedbeheerplannen-2010-2015/maatregelenprogramma>

⁴³ <http://www.volvanwater.be/de-plannen>

Overview of legal and policy framework. Relevant references to storm water overflows.				
			totale overstortduur), Hulshout Doodsbroek op de Grote Nete (50d → 12d), Mol Borgerhoutsedijk op de Molse Nete (43d → 3d), Zandhoven Draaiboom op de Klein Wilboerebeek (37d → 7d) en Wiekevorst Morkhovensesteenweg op de Wimp (195d → 0d) 4.1.1.1. HOE GAAN WE DE GOEDE TOESTAND VAN HET OPPERVLAKTEWATER BEHALEN ? [...] Maatregelen specifiek voor riooloverstorten • Afkoppelen (en bufferen) van verharde en onverharde (grachtinlaten, waterloopinlaten) oppervlakken, met name daar waar deze een rechtstreekse invloed uitoefenen op de overstortwerking van rioleringsstelsels • Saneren van problematische overstorten met invloed op kwetsbaar gebied.	addressed, such as “Beerse Antwerpsesteenweg” discharging on the Laakbeek (decreased overflow duration from 110days → 14d), “Hulshout Doodsbroek” on the Grote Nete river (50d → 12d), “Mol Borgerhoutsedijk” on the Nete (43d → 3d), “Zandhoven Draaiboom” on the Kleine Wilboerebeek (37d → 7d) and “Wiekevorst Morkhovensesteenweg” on the Wimp (195d → 0d) 4.1.1.1. HOW WE OBTAIN THE GOOD STATUS OF SURFACE WATER QUALITY? [...] Measures specifically on storm water overflows • Disconnecting (and buffering) of paved and unpaved (canal inlets, stream inlets) surfaces, especially where these have a direct impact on the relief operation of sewer systems • Remediation of problematic overflows affecting vulnerable areas.
MSFD	Not relevant for the Walloon and Brussels Regions			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N			
HELCOM				
Barcelona Convention				
Conv. on the Protection of the Black Sea				
Danube				

Overview of legal and policy framework. Relevant references to storm water overflows.				
Convention				
Rhine Convention				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	Y	<i>Walloon Region</i> Summary report in accordance with article 7 of the Protocol on Water and Health^{44 45}	<i>Walloon Region</i> Objectif X : limiter la pollution des eaux réceptrices résultant des surcharges dues aux pluies d'orage. Contexte et base légale En matière de collecte, la directive 91/271/CEE précise que : « Les systèmes de collecte tiennent compte des prescriptions en matière de traitement des eaux usées. La conception, la construction et l'entretien des systèmes de collecte sont entrepris sur la base des connaissances techniques les plus avancées, sans entraîner des coûts excessifs, notamment en ce qui concerne : - [...] - la limitation de la pollution des eaux réceptrices résultant des surcharges dues aux pluies d'orage. » Afin de limiter ce rejet, la Région wallonne prône la mise en place d'un réseau de collecte « pseudo-séparatif », c'est-à-dire un réseau empêchant l'intrusion de toute source d'eau claire parasite (source, remontée de nappes, etc.). La réduction du débit de temps sec dans les réseaux permet d'accueillir un volume supplémentaire d'eau pluviale sans pour autant enclencher les déversoirs d'orage. D'autre part, les stations d'épuration récentes sont pourvues de dispositifs de stockage	Walloon Region Objective X : limit pollution of receiving waters due to stormwater overflows. Context and legal basis In relation to collecting, Directive 91/271/EEC notes that: :” The construction or adaptation of collecting systems shall take into account waste water treatment requirements. Collecting systems shall be designed, constructed and maintained in accordance with the best technical knowledge not entailing excessive costs, notable regarding: - [...] - limitation of pollution of receiving waters due to storm water overflows.” With a view to reduce such releases, the Walloon Region advocates the establishment of a “pseudo-separate” collection network, ie. a network which prevents the intrusion of any water body of parasite clear water (source, rising of groundwater, etc.). The reduction of the dry weather flow in the networks allows for receiving a supplementary volume of rainwater without immediately triggering the storm water basins. On the other hand, recent waste treatment stations have been equipped with storage equipment when the flow exceeds the hydraulic capacity of the station, in the order of 3 times the dry

⁴⁴ www.unece.org, report Belgium 2013

⁴⁵ http://www.unece.org/fileadmin/DAM/env/water/Protocol_reports/reports_pdf_web/2013_reports/Report_BELGIUM-2013_final_220813.docx

Overview of legal and policy framework. Relevant references to storm water overflows.

			dès lors que le débit en entrée dépasse la capacité hydraulique de la station, de l'ordre de 3 fois le débit de temps sec en moyenne. Enfin, la Région wallonne a dégagé un budget de plusieurs millions d'euros afin d'inspecter les réseaux de collecte des agglomérations de plus de 2 000 EH présentant des dysfonctionnements. Date cible : 31/12/2015. Mesures prises visant l'objectif X : - Poursuite des investissements programmés et des démarches actuelles dans le domaine : mise en place d'un réseau de collecte « pseudo-séparatif » lorsque les conditions le justifient, création de dispositifs de stockage temporaire des eaux usées au niveau des stations d'épuration, amélioration du fonctionnement du réseau d'égouttage... - Dans le cadre du contrat de gestion de la SPGE, un groupe de travail existant au sein d'AQUAWAL, réunissant les experts en assainissement de la SPGE et des organismes d'assainissement agréés (OAA - intercommunales), a entamé une réflexion sur le thème de la gestion des eaux usées par temps de pluie, en particulier concernant l'impact des eaux de ruissellement sur le fonctionnement des ouvrages d'assainissement et sur la qualité des eaux de surface. D'autres acteurs concernés par la gestion des eaux usées par temps de pluie pourront être conviés à ce groupe de travail en fonction des différentes thématiques examinées (Directions générales de l'environnement (D'GARNE/DGO3) et de l'aménagement du territoire (DGO4) du Service public de Wallonie, Représentants des communes via l'Union des Villes et Communes de Wallonie /UVCW, etc.). Suite à ces réflexions, une note d'orientation devrait	weather flow on average. Finally, the Walloon Region has made a budget of several millions of euros available with a view to inspect the collection networks in agglomerations of more than 2000 EH presenting deficiencies. Target date: 31/12/2015 Measures taken for objective X : - Continue scheduled investments and current initiatives on this issue: establish a "pseudo-separate" collection network where circumstances justify this, create temporary storage mechanisms for waste water at the waste water treatment stations, improve the functioning of the drainage network,... - In the framework of the management contract with the SPGE, a working group within AQUAWAL, involving experts in waste water treatment from the SPGE and of the accredited waste water treatment organisms (OAA- intercommunal associations), has starting reflecting on the issue of waste water management in rainy circumstances, in particular on the impact of runoff on the functioning of waste water installations and on the quality of surface waters. Other actors affected by the management of waste water in rainy circumstances could be invited to this working group in function of the different topics under discussion (DG Environment (D'GARNE/DGO3) and of spatial planning (DGO4) of the Walloon Public Service, representatives of the municipalities through the Union of Cities

Overview of legal and policy framework. Relevant references to storm water overflows.				
			être préparée à terme par la SPGE afin de proposer au Gouvernement wallon de nouvelles mesures relatives à la gestion des eaux usées par temps de pluie et de modifier la législation existante, en prenant en compte les enjeux locaux, les aspects coûts et les modes de financement potentiels. Progrès accomplis relatifs à l'objectif X : Réflexions en cours au sein du groupe de travail cité au point 2.	and Municipalities in Wallonia/UVCW, etc.) Following these reflections, an orientation note should be prepared in the long term by the SPGE with a view to propose new measures for the management of waste water in rainy circumstances and to modify existing legislation, taking account of local circumstances, cost aspects and potential financing modes, to the Walloon Government. Progress towards achieving objective X: Reflections ongoing in working group mentioned under point 2.
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Policy Regional	<i>Brussels-Capital Region</i> VIVAQUA RAPPORT D'ACTIVITÉS 2012 http://www.vivaqua.be/sites/default/files/vivaqua-ra12-fr.pdf		<i>Brussels-Capital Region</i> VIVAQUA, prepared an activity report in 2012 referring to sampling carried out by its Laboratory with a view to characterise the quality of waste water coming from stormwater overflows. This sampling campaign has resulted in a large number of data on overflows as a consequence of heavy rains. (concrete data are not included in the activity report). On this basis, the Laboratory will develop technical measures to characterize the quality of water entering the stormwater basins in the Brussels Region.	

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
Types of sewer system	
6. Which types of sewer system does Belgium have?	<i>Walloon Region</i> The Walloon Region mostly has combined sewer systems. The SPGE has confirmed that more than 90% of the network is of the combined type in the Walloon Region. <i>Brussels-Capital Region</i> The Walloon Region mentions in its Programme of Measures included in the Water Management Plan of the Brussels-Capital Region that the sewer system in the Brussels Region is mostly of the combined type. This is confirmed by Brussels Environment, stating that 100% of the water network in Brussels-Capital is of the combined type. <i>Flanders</i> Flanders has combined sewer systems and separated sewers. The type of sewer systems are explained in the code of good practice.⁴⁶ A fully separated system is difficult to operate in practice. Caution needs to be taken for potential misconnections of a waste water sewer with a rain water sewer besides the possibility of groundwater infiltration into the waste water sewers. Hence, partial separation of waste water and rainwater is also considered as a separate sewer. Following the Decision of August, 1, 2008, when constructing separated sewers, also the areas resulting in rain water run-off need to be disconnected from the combined sewer. The rain water is to be directed to groundwater infiltration or to a rain water sewer.
7. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	<i>Walloon Region</i> In 2015, about twenty sites (sewer overflows) will be equipped with detection systems and measures to prevent discharge (in quantity and quality). Depending on results, we should extend these systems to more sites. <i>Brussels-Capital Region</i>

⁴⁶ <http://www.integraalwaterbeleid.be/nl/publicaties/code-goede-praktijk-rioleringssystemen>

Available data on storm water overflows	
	The sewerage network is in total on average 1806km long (1708km sewers and 98km collectors). It was mapped electronically by Hydrobru (SIGASS-project) on the basis of data collected outside or available on maps. The cartography is constantly updated.⁴⁷ The report does not specify which percentage of these pipelines are unitary, though the report mentions it is the predominant part. <i>Flanders</i> Detailed quantitative information is available, and in addition published on maps. Two databases exist: the public Geoloket⁴⁸, Geopunt⁴⁹ and the internal (to the authorities) Flemish Waste Water Information System (<i>AfvalWater Information Systeem</i>, AWIS). Geoloket and Geopunt are the map viewers where the Flemish authorities publish spatial information to the general public. Relevant information for storm water is the spatial data published on the existing and planned sanitation infrastructure, including the locations of the treatment plants. In addition, the data series obtained from monitoring (see question 4 and 5) are published. Storm water overflows are a specific data layer (check the data layer named 'overstorten'). Published information are the locations of the storm water overflow infrastructures, and the type of activity: active overflow location, non-active or planned (new) overflow. Also published are whether overflow infrastructures are hot spots and whether rehabilitation works are planned. The data layer on storm water overflows can furthermore be combined with the other available data layers. AWIS is an internal database, hosted by the Flemish Environment Agency. According to AWIS, in Flanders there is 28,150 km of combined sewers. AWIS contains the source data for Geoloket, and has in addition more information for operational management and more options for analysis of the data. In particular for storm water overflows, AWIS includes a schematic drawing of the sewer it is part of and where it is discharges to. The latter however is a new feature and not all overflows have yet been included. In addition, 4,327 km of separate sewers exist. Consequently, 87% of the sewers are of the combined type, while 13% are separated sewers. The majority of the sewers are in public ownership (Flanders region or municipalities). Part of the sewer network is owned by the waste water utility Aquafin: 4,091 km of combined sewer and 755 km of separated sewers.⁵⁰
8. How many storm water overflows infrastructures exist in Belgium?	<i>Walloon Region</i> Information not identified.

⁴⁷ http://documentatie.leefmilieubrussel.be/documents/MER_Plan_Water_MPr2011_rapport_en_bijlagen1en2.PDF?langtype=2067

⁴⁸ <http://geoloket.vmm.be/Geoviews/>

⁴⁹ <http://www.geopunt.be/>

⁵⁰ Information extracted from AWIS, by the Flemish Environmental Agency.

Available data on storm water overflows							
9. Is there information on the occurrence of storm water overflows?	<i>Brussels-Capital Region</i>						
	The reports of the Brussels-Capital Region refer to five major storm water overflows. (see table below)						
	<i>Flanders</i>						
	Storm water overflow infrastructures are included in AWIS and Geoloket (see question 2). Currently, information is available on 6,277 overflows at the regional level. The overflow infrastructures that are managed by the municipalities are not fully known. About 1,000 overflows are expected to be missing from AWIS. To collect information on the missing overflows – where thus no prior information is known - a qualitative judgment is made on the current practices by means of a small questionnaire to the municipal authorities.						
Available quantitative data on the occurrence of storm water overflows							
9. Is there information on the occurrence of storm water overflows?	<i>Walloon Region</i>						
	Information not identified. Some pilot initiatives are underway. See question 5.						
	<i>Brussels-Capital Region</i>						
	The EIA report for the Brussels Programme of Measures mentions that, for the period from 2008 to 2010 the water overflowing from the main collectors to the evacuation canal left bank to the Zenne River and to the Canal, corresponds to an average flow of respectively 5 million and 0,7 million m ³ /year. ⁵¹ Table 2.6 of the report shows, for the 5 main overflows of evacuation channel left bank, the monthly overflow frequencies, as well as the average volume being released every month in the Zenne River and the Canal. These measurements are based on 22 reference months (June 2008 to March 2010).						
	June 2008 - March 2010 Overflows to the Zenne and Canal	unit	Paruck	Molenbeek	Beyseghem	Marly	Drootbeek
	Number of days per month in which overflows have occurred	d/month	6,86	4,68	1,55	5,05	0,95
	Without influence of the standstill of	d/month	5,11	4,58	1,21	5	0,58

⁵¹ http://documentatie.leefmilieubrussel.be/documents/MER_Plan_Water_MPr2011_rapport_en_bijlagen1en2.PDF?langtype=2067

Available data on storm water overflows							
	RWZI North **						
	Events separated by more than one day	event/month	3,41	2,73	0,86	2,73	0,5
	Without influence of the standstill of RWZI North **	event/month	3,21	2,68	0,95	2,68	0,53
	Volume of the monthly overflows	103 m3 /month	174	192	14	109,7	5,8
	Without influence of the standstill of RWZI North **	103 m3 /month	145,9	194,9	12,1	115,4	5,2
	Observed peak hour per month	103 m3 /h	16,53	19,32	4,33	9,27	2,62
	Without influence of the standstill of RWZI North **	103 m3 /h	17,22	19,94	4,93	9,87	2,95
	Notes						
	* only the daily overflows of more than 2000 m3 have been considered for these calculations						
	** To remove the systematic deviation (bias) due to standstill of RWZI North, the months November 2009, December 2009 and January 2010 have been taken out of consideration.						
Source: Aquiris 2010 - Calculations: Leefmilieu Brussel, 2010, as included in the EIA Report for the Water Management Plan for the Brussels-Capital Region.							
This average yearly volume corresponds to 24% of the total volume evacuated to the waste water treatment station North by the collector and 2% of the flow of the Zenne River when leaving the Brussel-Capital Region. The overflows now start working when the flow reaches a specific limit value. The norms currently applicable in the Flemish Region foresee that the dimensioning of a sewer is foreseen for 3.66 times the flow during dry weather and that overflows only overflow maximum 7 to 10 times per year. Now, most overflows in the network flow over more frequently. ⁵²							
Flanders							

⁵² http://documentatie.leefmilieubrussel.be/documents/MER_Plan_Water_MPr2011_rapport_en_bijlagen1en2.PDF?langtype=2067

Available data on storm water overflows

Substantial information is available on the occurrence of storm water overflows in Flanders. During the interview, representatives of the Flemish Environment Agency described three methods: 1) a real-time monitoring network (see question 5); 2) estimation by means of the software framework 'Water Emissions Inventory Support System' (WEISS⁵³) and 3) inventory of qualitative information from municipalities if no quantitative information is available. WEISS is a map-based software that is developed to control and monitor compliance of the Water Framework Directive. WEISS helps to determine the significant emission sources and their contribution to the pollution of water bodies. It covers all sources of emissions including diffuse sources, industrial waste water, treated and untreated domestic waste water for 30 pollutants. Storm water overflows are included in WEISS as one of the sources of emissions.

The duration of overflow events is monitored, whereas the volume and pollution load that overflows is estimated by means of WEISS. Finally, the available information is used to quantify a set of indicators on the performance of the sanitation infrastructure⁵⁴. Indicators are defined at the local level and the regional level. Indicator 4 (at the regional level) refers to the functioning of storm water overflows. Other indicators, relevant for storm water overflows, refer to the functioning of pumping stations, respectively before and after overflow infrastructures) and the management of calamities. Hereby, it can be assessed whether the cause of the overflow is related to an imperfect functioning of the pumping stations or related to extreme weather events. The indicators have been quantified (most recently in 2014 over results of 2013) for the 145 largest agglomerations (most of them are larger than 10,000 PE), covering more than 90% of the total pollution load from waste water in Flanders. The indicators are visualized in a 'synoptic plan'⁵⁵, which shows for each of the larger agglomerations, the performance of the WWTP, the pumping stations, overflow infrastructures and storage basins. Colour codes similar as under the Water Framework Directive, visualizes the performance on a particular indicator. Blue and green are rated positive. Yellow, orange and red refer to negative scores.

An overview of the average annual duration of storm water overflows and the number of storm water events in the period 2009-2013 is reported on the website of the Flemish Environment Agency⁵⁶. That website page also compares the performance of the 10 worst overflow infrastructures in 2009 with the performance in 2013. In average for all storm water overflow infrastructures, The average duration of overflow events in 2013 was 2.22%. An average of 40 storm water overflow events occurred in 2013. The average duration of a storm water overflow event is 4 hours and 52 minutes. Numbers for 2014 are not yet published. Information on the occurrence of overflows at individual overflow infrastructures is accessible on Geoloket and Geopunt.

The overflow load for all sources connected to the sewer system is calculated in the WEISS project as a percentage of the emission load of

⁵³ <http://weiss.vmm.be/>

⁵⁴ Indicator framework : <https://www.vmm.be/water/riolering/evaluatie-saneringsinfrastructuur/indicatoren>

⁵⁵ Synoptic plan : https://www.vmm.be/data/bovengemeentelijk-indicatorenkader/synoptische_plannen_2013_tw.pdf

⁵⁶ Overflow monitoring : <https://www.vmm.be/water/riolering/evaluatie-saneringsinfrastructuur/overstorten>

Available data on storm water overflows	
	the sources. The percentage has been calculated that in average, for a storm water overflow event, 36.9% of the incoming volume is overflowing. Considering that in average, overflows occur during 2.22% of the year, the average annual volume discharged as overflow is $2.22\% \times 36.9\% = 1\%$ of the total influent volume. Calculations done for each of the overflow locations showed a large variability of the overflow volumes.
10. Are storm water overflows monitored in Belgium? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	<i>Walloon Region</i> It seems there is no monitoring of storm water overflow for the moment in Wallonia. However, some institutions have initiated some pilot projects regarding this specific issue. The SPGE and OAA (Organisme d'Assainissement Agréé) are in the process of listing all storm water overflows (around 6000 in Wallonia) and specifying for each one a sensitivity value (depending on the level of water pollution, the potential impact on receiving waters, etc.). For some "critical" overflows, the objective will be to monitor the occurrence of overflows (with sensors), the volume of overflows (meters) and/or the water quality of overflows (automatic sampler/tester). By the end of 2017, they hope to be able to estimate the untreated flow (in terms of quantity and quality) reaching the receiving water body. For this task they are helped by a specialised consultant in statistics (for the definition of sampling requirements). <i>Brussels-Capital Region</i> The monitoring programme of the Brussels-Capital Region does not refer to storm water overflows. There is no systematic monitoring programme in place, but some information is available. The issue should be addressed in the next Water Management Plan for Brussels (Plan de Gestion de l'Eau pour la Région Bruxelloise numéro 2). It suggests monitoring seven of the most important storm water overflows with automatic meters. The objective is to evaluate the polluting charge leaking in the environment. <i>Flanders⁵⁷</i> Storm water overflows are monitored in real-time since 2003. The number of locations and monitoring technology varied over time. In 2014, real-time monitoring is available for 400 storm water overflow infrastructures, out of more than 6,000 in total. 300 are monitored by the Flemish Environment Agency. 100 are monitored by waste water operator Aquafin. The monitoring network represents 80% of the population equivalents. The parameters monitored in real-time are duration and water level. Flow and volume is estimated. At some locations, also pH, suspended solids and conductivity is measured by means of a multi-parameter probe. A measurement is made every 10 minutes. When an overflow event starts, the monitoring frequency increases to a measurement every minute. The data is stored in the monitoring device and transferred

⁵⁷ Information given during the meeting with the Flemish Environmental Agency (Filip Verhalle).

Available data on storm water overflows	
	by the mobile network to a central database, named SCADA, once a day. The costs to setup and manage a real-time monitoring system for overflows are largely related to operational costs and amount to 200,000 Euro/year. The operational costs are broken down in 100,000 Euro for the transfer of real-time data (telephone costs). Other costs are related staff costs to operate and manage the database and to maintain the monitoring devices. Investment costs are 5,000 Euro for a smaller monitoring station (only water levels and duration) and 10,000 Euro for a larger monitoring station (also water quality).

FACTSHEET FOR BULGARIA⁵⁸

1. BASIC INFORMATION

Basic information	
General Information	
15. What are the competent authorities for wastewater treatment and management in Bulgaria?	The authorities with general competencies on wastewater treatment and management are relevant for issues related to storm water overflows. These authorities are the following: The Minister of Regional Development⁵⁹ conducts the state policy in the water supply and sewage sector at national level by: developing and proposing to the Council of Ministers a strategy for development and management of water supply and sanitation in the Republic of Bulgaria⁶⁰, and exercising coordination and control over its implementation; developing the legislative framework on the management and development of the water supply and sewer sector; creating and maintaining a unified information system and register of water supply and sewer (WSS) operators, and exercising control in the cases stipulated by the law. The Minister also coordinates the management of WSS systems at national level, and provides methodological guidance on the preparation of WSS regional master plans. The mayors of municipalities are responsible for the construction, maintenance and proper operation of the sewer systems and the urban wastewater treatment plants – municipal property. The Water supply and sewage Companies implement the management of water supply and sewerage systems in designated territories⁶¹. They are public operators, which can be district companies - providing services to more than one municipality (which are owned by the state or jointly by state and municipality) and municipal companies - providing services to a single municipality (municipal property), as well as private water operators. Outside Sofia (where the operator is private), the Bulgarian WSS sector predominantly features public operators. The majority of operators are owned by the state, a municipality or jointly by the state (51%) and municipalities (49%). The Ministry of Environment and Water⁶² (MOEW) is the competent body responsible for the elaboration of the national policy in the water management area, including the drafting of legislation, strategies and programs, coordination of international projects, and development of mechanisms for regulating the activities of the public and private sector. The immediate competencies of the Minister of

⁵⁸ Mr George Terzov, Head of Water basins management of the Ministry of Environment and Water, was interviewed for this report.

⁵⁹ www.mrrb.government.bg.

⁶⁰ Strategy for development and management of water supply and sanitation in the Republic of Bulgaria 2014-2013, available at: <http://www.mrrb.government.bg/docs/24e7666f6785ee40bfb094bec3ad5f45.pdf>.

⁶¹ According to the Water Act, for the purpose of management, planning and delivery of water and sewerage services, the territory of the country is divided into “designated territories”. These territories correspond to the regions served by the existing WSS operators. The act requires that Water Supply and Sanitation Companies (WSSC) are established when the ownership of the WSS assets in the designated territory is separated between the state and one or more municipalities.

⁶² www.moew.government.bg.

Basic information

Environment and Water, directly related to the implementation of waste water treatment and management are: drafting national legislation in the area of water protection, including pollution by urban wastewater; (the Council of Ministers); issuing permits for discharging wastewater from the urban collection systems into (the Basin Directorates) complex and important dam lakes; which are state ownership, preparation of the National Water Sector Strategy⁶³, which provides the general framework for the water sector management and development; preparation of an annual report on the environmental situation (including on waters) aiming at informing the public; the implementation of the Operational Programme Environment (OPE), under which water supply and sewer (WSS) infrastructure can be co-funded in accordance with the OPE guidelines.

The Basin Directorates for Water Management⁶⁴ (BD) are MOEW bodies. There are four BDs, one for each of the four regions for basin water management in Bulgaria, as defined in the Water Act. The BDs perform the following main functions, directly related to the implementation of the waste water treatment and management: organize the development of plans for management of the respective basin; issue permits for discharging wastewater from urban collection systems (which include requirements to the storm overflows, e.g. not to overflow during dry weather) and the enterprises into the receiving waters in the cases, envisaged in the Water Act implement, at the basin level, the activities for maintaining the National System for Water Monitoring; keep registers of the issued permits for discharging wastewater from the urban collection systems;; pollution of the receiving waters.

The **Director of the Regional Inspectorate of Environment and Water** controls the observance of the terms and conditions in the wastewater discharge permits.

The Director of the Executive Environmental Agency⁶⁵ organises and guides the national system for surface waters monitoring.

The Energy and Water Regulatory Commission⁶⁶ (EWRC) is an independent specialized state body consisting of seven members, of which two are to have a certain minimum number of years of experience in the sphere of WSS. The competences of the EWRC include: drafting statutory instruments for the water sector; approving the business plans of the WSS companies; approving the water-supply and sewerage service tariffs in response to applications by WSSCs; controlling the achievement of target values for service level indicators by WSS companies; and considering complaints filed by consumers, etc.

There is no separate licensing procedure and licensing authority for storm water overflows. Storm water overflows from sewer systems are regulated and licensed within the licensing process for waste water treatment plants and collecting systems. In accordance with the Water Act, activities related to discharges of waste water (in Bulgaria, the definition of waste water includes also rain water) to surface waters require a water permit. The water permit determines all conditions for the planned discharges, e.g. the amount and composition of waste water discharged into waters and the manner and extent of monitoring of the amount and composition of waste water discharged into waters. The Water Act does not specifically require a water permit to contain conditions related directly to storm water overflows, however, in practice such conditions are included in the permit. The application for the permit shall contain inter alia opinion of the owner

⁶³ <http://www.moew.government.bg/?show=top&cid=48>.

⁶⁴ http://earbd.org/index.php?sys_lang=en; <http://www.bd-dunav.org>; <http://www.wabd.bg/bg/>; <http://www.bsbd.org.uk/index.html>.

⁶⁵ www.eea.government.bg.

⁶⁶ <http://www.dker.bg>.

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	of the water body on the impact study on the water body of the volume requested for discharging wastewater and/or storm water, in order to ensure protection from the harmful effects of water ⁶⁷ .
16. What is the transposing law(s) of the UWWTD in Bulgaria?	The main transposing act is Ordinance No 6 from 9 November 2000 on the emission standards for admissible contents of harmful and dangerous substances in wastewater discharged in water bodies⁶⁸ (promulgated in SG, issue 97/28.11.2000, as amended and supplemented in SG, issue 24/23.03.2004) - <i>Наредба № 6 от 9.11.2000 г. за емисионни норми за допустимото съдържание на вредни и опасни вещества в отпадъчните води, зауствани във водни обекти.</i> Other relevant legislative acts are the Water Act⁶⁹ (WA) – <i>Закон за водите</i> (in force as of 28 January 2000, promulgated in State Gazette (SG) No 67/1999, last amended by SG No17/06.03.2015) and Ordinance № 2 from 8 June 2011 on issuance of permits for discharging wastewater in water bodies and setting individual emission limits for spot pollution sources⁷⁰ (promulgated in SG, issue 47/21.06.2011, as amended and supplemented in SG, issue 14/17.02.2012, last amended in SG issue 44/17.05.2013) - <i>Наредба № 2 от 8.06.2011 г. за издаване на разрешителни за заустване на отпадъчни води във водни обекти и определяне на индивидуалните емисионни ограничения на точкови източници на замърсяване.</i> For the purposes of this study, a reference is also made to: The Spatial Planning Act (SPA)⁷¹ - <i>Закон за устройство на територията</i> - promulgated in SG of 2.01.2001, in effect as of 31.03.2001, in particular Chapter Four “Networks and facilities of the physical infrastructure” - which regulates the investment process and the requirements for construction of WSS systems and facilities. Noteworthy is Article 87, which requires watertight tanks as the only wastewater collection solution for buildings in settlements without sewer networks. And Ordinance No RD-02-20-8/17 May 2013 on design, construction and operation of collection systems, issued by the Minister of Regional Development and Public Works⁷² (promulgated in SG, issue 49/04.06.2013 in force as of 05.07.2013, as amended and supplemented in SG, issue 82/03.13.2014) - <i>Наредба № РД-02-20-8 от 17.05.2013 г. за проектиране, изграждане и експлоатация на канализационни системи.</i> Although these acts do not transpose the provisions of UWWTD, their provisions regulate construction and operation of combined and separated sewer systems.
17. What is the national provision transposing Section A of Annex I to the	Section A of Annex I to the UWWTD is effectively transposed by Section A of Annex III to the Ordinance No 6.

⁶⁷ Ordinance No 2, Article 11(3), point 8.

⁶⁸ http://www3.moew.government.bg/files/file/Water/Legislation/Naredbi/vodi/Ordinance_6.pdf.

⁶⁹ http://www.moew.government.bg/files/file/Water/Legislation/Zakoni/English_versions/Water_act.pdf.

⁷⁰ http://www3.moew.government.bg/files/file/Water/Legislation/Naredbi/vodi/NAREDBA_2.pdf.

⁷¹ <http://lex.bg/laws/ldoc/2135163904>.

⁷² <http://www.lex.bg/bg/laws/ldoc/2135858719>.

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UWWTD, in particular the third item which refers expressly to storm water overflows?	<i>“ANNEX III - Requirements to the waste water from settlements</i> <i>A. Sewerage networks</i> <i>The sewerage networks shall comply with the requirements for waste water treatment.</i> <i>The design, construction and operation of sewerage networks shall be conducted in accordance with the best technical knowledge not entailing excessive costs with regards to:</i> <i>- Volume and characteristics of waste water from settlements;</i> <i>- Prevention of leaks;</i> <i>- Limitation of pollution of water bodies from rainy overflow.”</i> The expression “storm water overflows” is transposed as “rainy overflow”, which is correct in view of the terminology used in the national legislation. In addition, Ordinance No RD-02-20-8 also lays down requirements to the design, construction and operation of combined and separated sewer systems and expressly refers to rain overflows. Article 3 (3) of the Ordinance provides that the sewage systems shall be designed and constructed taking into account the elements of the corrected riverbeds in urban areas to ensure the normal operation of rain overflows during rain and to prevent the introduction of river water into the sewer network. Article 6 provides that the period of single overload of sewer networks carrying rainy wastewater shall be determined depending on the type of urban area and drainage object and refers to Table 1 of Annex № 2. Article 9 explicitly provides that sewerage networks shall be designed in such a way as to receive and transport rainy wastewater. Articles 31-33 states that the rainy overflows are provided for combined sewer networks in order to alleviate their hydraulic load water quantities larger than dimensioning and taking into account the perceived degree of dilution. They further set out technical requirements to the rainy overflows design and construction in order to avoid overflows. Article 37, item 4 provides that tanks are obligatory designed for separate sewer networks and for combined mixed sewage networks, when technically justified as necessary for the reduction of the flow to treatment plants during rain.
18. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	Footnote 1 in Sections A and B of Annex I to the UWWTD refers to the measures, which Members States shall undertake to limit pollution from storm water overflows. It further specifies that such measures could be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable numbers of overflows per year. The Bulgarian legislation refers to the dilution rates in relation to dry weather flow. Ordinance No RD-02-20-08 lays down requirements to the size of the rainy overflows. Their purpose is to reduce the hydraulic pressure on combined collecting systems when the wastewater quantity exceeds the designed infrastructure. It further specifies the maximum water quantity, which shall not lead to overflow during rain. The following formula is used for this calculation: $Q = (1 + N_o) Q_{\max, h},$ Where

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Q = quantity of the water, which shall not overflow during rain

$Q_{\max, h}$ = maximum hourly flow of waste water in dry weather conditions

N_o the ratio of the amount of rainy waste water under and the maximum hourly amount of waste water in dry weather in the not-overflowing part of the mixed stream

Article 33 (4) of Ordinance No RD-02-20-08 lays down the dilution ratio between the rain water and waste waters.

Article 33 (4) The dilution ratio shall be determined by the quantitative and qualitative characteristics of the waste water and the receiving water body. If there are no other higher requirements, the following values can be adopted for the dilution ratio:

1. for rainy overflow shafts within the settlement - at least 5;
2. for rainy overflow shafts in front of pumping stations - 1 or 2;
3. for rainy overflow shafts outside urban areas or to the treatment plant - 1.

Annex № 2 of the Ordinance refers to the determination of rainy water quantity in hydraulic design of gravity sewer networks, using the rational method

2. A method for determining the intensity of rain

2.1. Depending on the intensity of rain at the same repetition the country is divided into two zones - I and II, which are shown on the map. The zone I covers the mainly the central part of Bulgaria.



In a period of a single overflow of sewer networks one year $q_5 = 255 \text{ l/s.ha}$ - for Zone I, and $q_5 = 225 \text{ l/s.ha}$ - for Zone II.

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	2.2. The intensity of rain q_t in l / s.ha for the respective zones is determined by the following formulas: a) Zone I: $q = [9,4771 - 3,1359 \lg(t + 5)]^3 (1 - \lg p) + [11,2883 - 3,5422 \lg(t + 5)]^3 \lg p$, l / s.ha; (3) b) Zone II: $q = [9,0899 - 3,0077 \lg(t + 5)]^3 (1 - \lg p) + [10,8270 - 3,3974 \lg(t + 5)]^3 \lg p$, l / s.ha, (4) wherein: t - is the duration of the rain, in min; p - the return period of the rain in years, respectively the period of single overflow of sewage networks. Formulas (3) and (4) are in force for t 5 to 90 min and for p. - from 0.5 to 100 years. When the settlement is located on the border between the two zones, the intensity of rain shall be equal to the average of the data of the two zones.
19. What is the terminology used to refer to storm water overflows in Bulgaria? Is there more than one term used?	The term 'overflow' is translated into Bulgarian as '<i>предиране</i>'. The transposing legislation uses the following terminology when referring to storm water overflows: 1) 'rainy water'⁷³ (<i>дъждовни води</i>) 2) 'rainy overflow'⁷⁴ (<i>дъждопредирици</i>) 3) 'overflow waters'⁷⁵ (<i>предирици води</i>) 4) 'highly intensive rainfall'⁷⁶ (<i>силно интензивни валежи от дъжд</i>) 5) 'rainy wastewaters'⁷⁷ (<i>дъждовни отпадъчни води</i>)
20. Is there a definition of storm water overflow in Bulgaria?	No definition of storm water overflows is contained in the transposing legislation. The term used in the Bulgarian legislation –“rainy overflow” refers to the actual installation/device allowing for an overflow from a combined sewer system, i.e. a section of a sewer system where rainy waste water mixed with sewage can overflow in the case of heavy rain/storm. The terms used to describe the actual event that causes the overflow are-‘highly intensive rainfalls’ (Ordinance No 6 in terms of the wastewater treatment plant capacity calculation) and ‘overflow water’ (Ordinance RD-02-20-08 in terms of storm overflow design).
21. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Bulgaria have a definition of extreme or unusual rainfall event?	Bulgarian legislation uses the term 'highly intensive rainfall' (<i>силно интензивни валежи от дъжд</i>). There is no explicit definition of this term; however, the national law defines the notion of 'rainfall intensity'⁷⁸ as height of rainfall per unit time, or volume of rainfall per unit time per unit area.

⁷³ Term used in Water Act, Additional provisions, §1, item 33 – in relation to the definition of “sewer systems”

⁷⁴ Term used in Ordinance No 6, Annex III, Section A and in Ordinance No RD-02-20-8.

⁷⁵ Term used in Ordinance No RD-02-20-08, Art. 33(2).

⁷⁶ Term used in Ordinance No 6, Articles 11 and 19.

⁷⁷ Term used in Ordinance No RD-02-20-8.

⁷⁸ Additional provisions, para.1, item 10 of Ordinance No RD-02-20-8.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
<i>Overview of legal and policy framework</i>	
5. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	Special general policy framework exists in Bulgaria to control or limit storm water overflows in terms of the dilution rates. The Water Act and its implementing Ordinances and in the legislation related to the technical requirements to sewer systems contain requirements to the design and operation of overflows. According to Article 46 (1), point 3 of the Water Act, the activities related to discharges of waste water (in Bulgaria, the definition of waste water includes also rain water) to surface waters require a water permit. The water permit set out conditions regarding the rain waters and their monitoring (Annex No 2 of Ordinance No 2). It is an obligation of the owner of the water body to respect these conditions and to carry on own monitoring. During the application for the water permit he has to present to the competent authorities an opinion on the impact study on the water body of the volume requested for discharging wastewater and/or storm water, in order to ensure protection from the harmful effects of water ⁷⁹ . In addition, the excess of water overflow during rain is subject of regulation in Ordinance No RD-02-20-08. It sets out the technical requirements to the design, construction and operation of the sewerage systems, in order to limit rainy water overflow (these provisions are given in the table below).
6. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	The standards to the overflows are set up in the water permits, issued by the competent authorities. As already noted the water permit set out conditions regarding the rain waters and their monitoring. No standards are set relating to the number or volumes of the overflow. The only relevant information is found in Ordinance No RD-02-20-08 which lays down requirements to the size of the rainy overflows. In order to prevent rainy wastewater overflow. It further specifies the dilution ratio between the rain water and waste waters as follows⁸⁰: 1. for rainy overflow shafts within the settlement - at least 5; 2. for rainy overflow shafts in front of pumping stations - 1 or 2; 3. for rainy overflow shafts outside urban areas or to the treatment plant - 1. Annex № 2 of the same Ordinance lays down requirements to the sewer systems capacity during the rain. The amount of the rain water (Qd) shall be calculated, using the following formula: $Qd = qt \psi av F, (1)$ wherein: qt - is the intensity of rain, l / s.ha; ψ av - average drainage coefficient channeled territory; T - the period of single overload the sewerage network (P) is provided in Table. 1 of the Ordinance. Table 1

⁷⁹ Ordinance No 2, Article 11(3), point 8.

⁸⁰ Ordinance No RD 02-20-08, Article 33 (3).

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Type of urban area and its elements period once network congestion * / Period of single overload of the sewerage network (P yr.)

1. Rain sewerage - 0.5
2. Settlements with 10 000 inhabitants 1-2; Settlements with more than 10 000 inhabitants
3. Residential areas 2-3
4. Industrial Areas 1-3
5. Mixed central areas, areas for public services in urban areas 2-5
6. Underground road facilities 10

* For the sizing rain should not occurs hydraulic overload .

The period of single overloading of sewerage networks shall be chosen depending on the type of sewer system, construction, terrain configuration and the specific local conditions, taking into account the initial capital investments against damage from overloading and the need for any future unforeseen extensions.

2.2. The intensity of rain q_t in l / s.ha for the respective zones is determined by the following formulas:

a) Zone I:

$$q = [9,4771 - 3,1359 \lg(t + 5)] 3 (1 - \lg p) + [11,2883 - 3,5422 \lg(t + 5)] 3 \lg p, \text{ l / s.ha; (3)}$$

b) Zone II:

$$q = [9,0899 - 3,0077 \lg(t + 5)] 3 (1 - \lg p) + [10,8270 - 3,3974 \lg(t + 5)] 3 \lg p, \text{ l / s.ha, (4)}$$

wherein:

t - is the duration of the rains, min;

p - the period of repetition of the rains in years, respectively the period of single overflow of sewage networks.

Formulas (3) and (4) are in force for t 5 to 90 min and for p. - from 0.5 to 100 years.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Yes	Ordinance No 6 ⁸¹ , Annex III, section A	Приложение No 3 към чл. 11, ал. 3 чл. 11, ал. 3 Изисквания към отпадъчните води от населените места	ANNEX III - Requirements to the waste water from settlements

⁸¹ http://www3.moew.government.bg/files/file/Water/Legislation/Naredbi/vodi/Ordinance_6.pdf

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		Ordinance No RD-20-02-8⁸² Art.3, 6, 9, 31, 32, 33, 37 and 156,	А. Канализационни мрежи Канализационните мрежи се съобразяват с изискванията за пречистване на отвежданите от тях отпадъчни води. Проектирането, изграждането и експлоатацията на канализационните мрежи се осъществява в съответствие с най-добрите технически познания, които не водят до необосновано свръхголеми разходи, по отношение на: - обема и характеристиките на отпадъчните води от населените места; - предотвратяване на течове; - ограничаване на замърсяването на водните обекти от дъждопреливниците. Чл. 3. (1) При проектирането, изграждането и експлоатацията на канализационните системи се осигуряват: 1. защита на прилежащите територии от наводняване и намаляване на риска и евентуалните щети от наводнения при екстремални условия; 2. опазване на чистотата на водоприемниците в съответствие с изискванията на издаденото за съответната канализационна система разрешително за заустване; 3. спазване на нормативните изисквания за опазване на подземните води от замърсяване; 4. дълготрайност на строителните конструкции на сградите и съоръженията и устойчивост на земната основа при отчитане на влиянието на географските, климатичните и сеизмичните въздействия; 5. защита на ПСОВ от хидравлично претоварване, водещо до намаляване на пречиствателния им ефект; 6. предотвратяване на загиването на	A. Sewerage networks The sewerage networks shall comply with the requirements for waste water treatment. The design, construction and operation of sewerage networks shall be conducted in accordance with the best technical knowledge not entailing excessive costs with regards to: - Volume and characteristics of waste water from settlements; - Prevention of leaks; - Limitation of pollution of water bodies from rainy overflow. Art. 3. (1) During the design, construction and operation of sewerage systems shall be provided: 1. protection of the adjacent areas from flooding and reduce the risk and potential damage from flooding under extreme conditions; 2. preservation of the purity of the water intakes in accordance with the requirements of the permit issued for the sewer system discharge permit; 3. compliance with the statutory requirements for the protection of groundwater contamination; 4. durability of structures of buildings and facilities and ground stability taking into account the impact of geographic, climatic and seismic impacts; 5. protection of WWTP hydraulic overload, leading to a reduction of their treatment effect; 6. preventing the decay of waste water and measures against odours; 7. necessary measures against harmful impacts (noise, vibration, release of dangerous substances, etc.); 8. implementation of energy efficiency measures; 9. achievement of the requirements for economically

⁸² <http://www.lex.bg/bg/laws/ldoc/2135858719> .

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		отпадъчните води и предприемане на мерки срещу отделянето на миризми; 7. необходимите мерки срещу вредни въздействия (шум, вибрации, отделяне на опасни вещества и др.); 8. прилагане на енергоефективни мерки; 9. постигане на изисквания икономически обоснован експлоатационен срок на системата и отчитане на бъдещи разширения и промени; 10. хидравлична проводимост и функционалност на системата при реконструкции, преустройства и/или основни ремонти; 11. необходимите условия за поддържане и достъп до елементите на системата; 12. нормативните изисквания за здравословни и безопасни условия на труд на персонала при експлоатацията; 13. рационално използване на предвижданите и влаганите в канализационната система строителни продукти при отчитане на минималното използване на енергия по време на експлоатацията на системата и на възможността за повторно използване на строителните продукти при минимално въздействие върху околната среда. (2) Канализационните системи се проектират за икономически обоснования експлоатационен срок, определен от възложителя, за който следва да се осигурят хидравличното и технологичното функциониране на системата и функционирането по отношение на околната среда и целостта на конструкцията. (3) Канализационните мрежи се проектират и изграждат при отчитане на елементите на коригираните речни корита в урбанизираните територии за осигуряване на нормалната работа на дъждопреливниците при дъжд и за предотвратяване на навлизането на речни води в канализационната мрежа.	reasonable working life of the system and take into account future expansions and changes; 10. hydraulic conductivity and functionality of the system in renovations, conversions and / or major renovations; 11. necessary conditions for the maintenance and access to system components; 12. regulatory requirements for health and safety of personnel in the operation; 13. rational use of planned and input into the sewage system construction products, taking into account the minimum use of energy during the operation of the system and the possibility of re-use of construction products with minimal environmental impact. (2) Sewer systems shall be designed to economically reasonable working life by the contracting entity, which should provide technological and hydraulic system functions and operation on the environment and the integrity of the structure. (3) Sewer networks shall be designed and built taking into account the elements of the revised riverbeds in urban areas to ensure the normal operation of rain overflow and to prevent the introduction of river water into the sewer network.

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		Чл. 6. (1) Хидравличната проводимост (капацитетът) на канализационните системи в сухо време (битови и производствени) се съобразява с капацитета (потреблението на вода) на съответните водоснабдителни системи, както и с резултатите от извършените конкретно за всеки случай измервания. (2) Периодът на еднократно претоварване на канализационните мрежи, провеждащи дъждовни отпадъчни води, се определя в зависимост от вида на урбанизираната територия и отводнявания обект съгласно табл. 1 на приложение № 2. Чл. 9. Канализационните мрежи и отвеждащите канализационни колектори се проектират така, че да приемат и транспортират следните видове отпадъчни води: 1. битови отпадъчни води; 2. производствени отпадъчни води, които отговарят на нормативните изисквания за максимално допустими концентрации на вещества в такива води при заустването им в канализационните системи на населените места и които осигуряват спазването на изискванията в разрешителното за заустване на канализационната система; 3. дъждовни отпадъчни води; 4. инфилтрирани (дренажни и други) води. Чл. 31. (1) Дъждопреливните шахти (дъждопреливниците) се предвиждат при смесени канализационни мрежи с цел облекчаване на хидравличното им натоварване при водни количества, по-големи от оразмерителните, и при отчитане на възприетата степен на разреждане. (2) Броят и местоположението на	Art. 6. (1) The hydraulic conductivity (capacity) of sewerage systems in dry weather (municipal and industrial) shall comply with the capacity (water consumption) of the respective water systems, and the results of the particular case measurements. (2) The period of single overloading of sewerage networks carrying storm waste water shall be determined depending on the type of urban area and drainage object under the table. 1 of Annex № 2. Art. 9. The sewerage networks and transport sewer collectors shall be designed so as to receive and transport these types of waste water: 1. household waste water; 2. industrial waste water that meet the legal requirements for maximum permissible concentrations of substances in such water discharges into the sewer systems of settlements and providing compliance with the requirements of the permit for discharge of the sewage system; 3. rainy waste water 4. infiltrated (drainage, etc.) waters. Art. 31. (1) The rainy overflow shafts shall be provided for mixed sewerage networks in order to alleviate their hydraulic load in cases of water quantities larger than the dimensioning one and taking into account the perceived degree of dilution. (2) The number and location of rainy overflow shafts shall be determined on the basis of techno-economic analysis and comparisons of variants with different

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		дъждопреливните шахти се определят въз основа на технико-икономически анализи и сравнения на варианти с различен брой дъждопреливни шахти и в зависимост от характерните особености на терена, местоположението на водоприемника и нормативните изисквания към него с цел намаляване на замърсяването върху водоприемниците. Чл. 32. (1) Котата на преливния ръб в дъждопреливните шахти се проектира по-висока от котата на водното ниво в повърхностното водно тяло (водоприемника) при максимално средногодишно водно количество с обезпеченост 1 %. При обосновка се допуска тази обезпеченост да бъде и по-малка. (2) При проектиране на заустването на вливния канализационен провод или канал в открит водоприемник се предвиждат мерки срещу опасността от разрушаване на дъното и брега на водоприемника. Чл. 33. (1) Хидравличното оразмеряване на дъждопреливните шахти се извършва при отразяване на хидравлично-конструктивните характеристики на преливника, на вида и параметрите на неравномерното движение на потока в съоръжението и в прилежащите тръбни участъци. (2) При хидравличното оразмеряване на дъждопреливните шахти се отчитат водното количество на преливащите води, пълнежните височини в довеждащия и отвеждащия канализационен участък, съответстващи на непреливащото водно количество и на съответните оразмерителни водни количества, както и хидравлично-конструктивните	numbers rain overflow shafts, depending on the characteristics of the terrain, the location of water and of the regulatory requirements to it in order to reduce pollution on water intakes. Art. 32. (1) The elevation of the crest in rainy overflow shafts shall be designed higher than the water level in the surface water body (recipient) at a maximum average amount of water with 1% probability. This probability could be less, if dully justified. (2) The design of the discharge of sewage flow or channel in an open water receiver shall envisage measures against the threat of destruction of the bottom and banks of the receiving water. Art. 33. (1) The hydraulic sizing of the rainy overflow shafts shall be done in covering hydraulic-construction characteristics of the overflow, the type and parameters of uneven traffic flow in the facility and in adjacent pipe sections. (2) In the dimensioning of the rainy overflow shafts shall take into account the amount of water flowing, filling heights in the inlet and outlet sewer section corresponding to no overflow water quantity and the respective dimensional water flow and hydraulic-construction characteristics of the spillway. Art. 33. (3) No overflow water quantity during rain (Q) shall be determined by the maximum amount of

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		характеристики на преливника. (3) Непреливащото водно количество по време на дъжд ($Q_{\text{непр.}}$) се определя в зависимост от максималното часово водно количество в сухо време и степента на разреждането му с дъждовни води (n_0 - отношението на количеството на дъждовните отпадъчни води и максималното часово количество на отпадъчните води в сухо време в непреливащата част на смесения поток) по формулата: $Q_{\text{непр.}} = (1 + n_0) Q_{\text{max.h}}$ (3) където $Q_{\text{max.h}}$ е максималното часово количество на отпадъчните води. (4) Степента на разреждане се определя в зависимост от количествените и качествените характеристики на отпадъчните води и на водоприемника. Ако няма други по-високи изисквания, за степента на разреждане може да се приемат следните стойности: 1. при дъждопреливни шахти в границите на населеното място – най-малко 5; 2. при дъждопреливни шахти пред помпени станции – 1 или 2; 3. при дъждопреливни шахти извън границите на урбанизираните територии или пред пречиствателната станция – 1. (5) Проектите за корекция на речните корита в урбанизираната територия и инвестиционните проекти за канализационната мрежа с дъждопреливници трябва да са взаимно обвързани и съгласувани така, че отливните канали на дъждопреливниците да са с минимална дължина и да заустват след прага на коригираното речно легло.	water in dry weather and the degree of dilution by rainwater ($No.$ - ratio of the amount of rain waste water and the maximum hourly amount of waste water in dry weather in no-overflowing part of the mixed stream) according to the formula: $Q = (1 + No.) Q_{\text{max.h}}$ where $Q_{\text{max.h}}$ is the maximum hourly amount of waste water. (4) The dilution ratio shall be determined by the quantitative and qualitative characteristics of the waste water and the receiving water body. If there are no other higher requirements, the following values can be adopted for the dilution ratio: 1. for rainy overflow shafts within the settlement - at least 5; 2. for rainy overflow shafts in front of pumping stations - 1 or 2; 3. for rainy overflow shafts outside urban areas or to the treatment plant - 1. (5) The projects for correction of river beds in the urban area and investment projects for sewerage network rainy overflows should be interconnected and coordinated so that the outflow channels of the rainy overflows shall have a minimum length and discharged after the adjusted threshold river bed.

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		Чл. 37. Задържателни резервоари се проектират при разделни канализационни мрежи за дъждовни отпадъчни води и при смесени канализационни мрежи, когато е технически обоснована необходимостта за: 1. намаляване на хидравличното натоварване на канализационен колектор след определен пункт посредством задържане на част от водното количество в резервоар по време на дъжд и продължителното му изпускане в мрежата след спиране на дъжда за период не по-голям от 24 часа; 2. задържане на част от суспендираните вещества в отпадъчните води, изпускани от канализационната мрежа във водоприемника, с оглед спазване на изискванията към него; 3. облекчаване на претоварени съществуващи колектори или включване на нови при разширяване на урбанизираната територия; 4. намаляване на притока пред пречиствателните станции по време на дъжд; 5. защита на прилежащите територии от наводнение въз основа на анализите и проучванията за въздействието и последствията при наводнение върху хората и тяхното имущество. Чл. 156. При експлоатацията и поддържането на канализационните мрежи и съоръжения се осигурява изпълнението на следните изисквания: 1. гарантиране на безопасна и икономически ефективна експлоатация при допустими неблагоприятни въздействия върху околната среда; 2. експлоатация без запушвания; 3. ограничаване на честотата на хидравлично претоварване до определените в проекта и	Art. 37. Storage tanks shall be designed for the separate sewerage networks for sewage and rainwater mixed with sewage networks when technically justified as necessary for: 1. reducing the hydraulic load of sewer after a certain point by holding a portion of the volume of water in the tank during rain and its prolonged release in the network after stopping the rain for a period not exceeding 24 hours; 2. retention of suspended matter in the waste water from the sewage network in the receiving water body, to meet the requirements for it; 3. relieve of overburdened existing collectors including new extensions of the urban area; 4. reducing of the flow to treatment plants during rain; 5. protection of adjacent areas from flooding based on analyses and studies on the impact and consequences of flooding on people and their property. Art. 156. In the operation and maintenance of sewerage networks and facilities the fulfilment of the following requirements shall be ensured: 1. safe and cost-effective operation in eligible adverse environmental impacts; 2. operation without clogging; 3. limitation of the frequency of hydraulic overload determined to project and operating instructions values in accordance with Table. 1 Application № 2; 4. limitation of the frequency of overflow in rainy overflow shifts to the values, specified in the project

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		инструкциите за експлоатация стойности в съответствие с табл. 1 на приложение № 2; 4. ограничаване на честотата на преливане през дъждопреливниците до определените в проекта и инструкциите за експлоатация стойности, както и отсъствие на преливане на отпадъчни води в сухо време; 5. опазване на здравето и живота на населението; 6. осигуряване на здравословни и безопасни условия на труд на персонала при поддръжката и експлоатацията; 7. предпазване на околните сгради и съоръжения от наводняване с отпадъчни води от канализационната мрежа (подприщване); 8. запазване на целостта и функционалността на системата в предвидения с проекта експлоатационен срок; 9. осигуряване и поддържане на водонепропускливостта на тръбопроводите и съоръженията; 10. предотвратяване на образуването на миризми, агресивни и токсични вещества; 11. осигуряване на подходящ достъп до елементите на системата за оглед, поддръжка и експлоатация; 12. осигуряване на естествена вентилация на мрежата през дъждоприемните шахти и отворите на капците на ревизионните шахти. Приложение № 2 към чл. 6, ал. 2, чл. 18 и чл. 156, т. 3 Определяне на дъждовното водно количество при хидравлично оразмеряване на гравитационни канализационни мрежи по рационалния метод 1. При прилагане на рационалния метод	and operating instructions and the absence of overflow of wastewater during dry weather; 5. The health and lives of the population; 6. ensuring a healthy and safe working conditions for personnel during the maintenance and operation; 7. protection of the surrounding buildings and facilities from flooding by sewage from the sewerage network (backing up); 8. maintaining the integrity and functionality of the system within the project lifetime; 9. ensuring and maintaining water from pipelines and facilities; 10. prevention of the formation of odours, aggressive and toxic substances; 11. provision of appropriate access to system components for inspection, maintenance and operation; 12. provision of natural ventilation network in rain overflow shafts and the open the covers of revision shafts. Annex № 2 of the Ordinance lays down requirements to the sewer systems capacity during the rain. It provides method for calculation of the rain water, periods of single overload of the sewerage network (table 1), surface values of drainage coefficient (table 2) and methods

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оразмерителното количество на дъждовните отпадъчни води (Q_d) се определя по формулата:

$$Q_d = q_t \psi_{cp} F,$$

където:

q_t е интензивността на оразмерителния дъжд, l/s.ha;

ψ_{cp} – средният отточен коефициент за канализираната територия;

F – площта на канализираната територия, ha.

1.1. Интензивността на оразмерителния дъжд се определя въз основа на оразмерителен хиетограф с определена повтораемост, получен чрез съответно обработени данни от най-близкия плювиограф от националната мрежа от дъждомерни станции с период на наблюдение не по-малък от 40 години. При липса на такива данни се допуска оразмерителният дъжд да се определя и по съответно обработени и публикувани данни и емпирични зависимости, валидни за територията на Република България, както и по метода, даден в края на това приложение.

1.2. Периодът на еднократно претоварване на канализационната мрежа (P) се определя съгласно табл. 1.

Таблица 1

№ по ред	Вид на урбанизираната територия и нейните елементи	Период еднократно претоварване мрежата* P, год.
1.	Дъждовна канализация	0,5
2.	Населени места с до 10 000 жители	1 - 2
Населени места с над 10 000 жители		

for calculation of the rain intensity.

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3.	Жилищни територии	2 - 3
4.	Производствени територии	1 - 3
5.	Смесени централни територии, територии за обществено обслужване в урбанизираните територии	□ 2 - 5
6.	Подземни пътни съоръжения	10

* За оразмерителния дъжд не трябва да се взема предвид хидравлично претоварване.

Забележки:

1. Периодът на еднократно претоварване на канализационните мрежи се избира в зависимост от вида на канализационната система, застрояването, конфигурацията на терена и конкретните местни условия, като се отчитат началните капиталови вложения спрямо щетите от препълване и необходимостта от евентуални бъдещи непредвидени разширения.

2. При обосновка се допуска отклонение от посочените стойности.

1.3. Стойността на интензивността на оразмерителния дъжд за разглежданото сечение от канализационната мрежа q_t се определя от оразмерителния хидрограф чрез времеоттичането (t_0) на дъждовната вода от най-отдалечената точка на водосборната област до разглежданото сечение. Времеоттичането (t_0) в min се определя по формулата:

$$t_0 = 5 + a \sum t_k,$$

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			(2) където: a е ретензионен коефициент, отразяващ задържащата способност на мрежата; $a = 1,2 \div 2$, като за по-стръмни терени се препоръчва по-малката стойност; $\sum t_k$ - сумата от изчислителните времеоттичания по участъците от канализационната мрежа по пътя на водата от най-отдалечената точка на съответната водосборна област до оразмеряваното сечение. 1.4. Средният отточен коефициент ψ_{cp} се определя въз основа на стойностите на отточния коефициент за отделните видове повърхностни покрития и тяхната площ в канализираната територия. При липса на конкретни данни за стойностите на отточния коефициент ψ за отделните видове покрития неговата стойност се приема по табл. 2. Таблица 2 № по ред Вид на повърхностното покритие Стойности на отточния коефициент ψ 1. Покриви – всички видове 0,90 - 0,95 2. Плътни покрития – асфалтови, фугирани паважи, тротоари и заплочени терени 0,85 - 0,90 3. Паважи с незапълнени фути и грундирани трошенокаменни настилки 0,50 - 0,70 4. Калдъръм 0,35 - 0,50 5. Трошенокаменни настилки 0,30 – 0,40 6. Незаплочени дворове, гарови, складови и спортни терени 0,15 – 0,30	

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			7. Тревни площи, паркове и градини, включително алеите и пътеките в тях 0,10 – 0,20 8. Обработваеми терени 0,10 2. Метод за определяне на интензивността на оразмерителния дъжд. 2.1. В зависимост от интензивността на оразмерителните дъждове при една и съща повторяемост страната се разделя на две зони - I и II, които са дадени на картата. При период на еднократно препълване на канализационните мрежи една година $q_5 = 255$ l/s.ha - за I зона, и $q_5 = 225$ l/s.ha - за II зона. 2.2. Интензивността на оразмерителния дъжд q_t в l/s.ha за съответните зони се определя по формулите: а) за I зона: $q^{I,p} = [9,4771 - 3,1359 \lg(t+5)]^3 (1 - \lg p) + [11,2883 - 3,5422 \lg(t+5)]^3 \lg p, \text{ l/s.ha}; \quad (3)$ б) за II зона: $q^{II,p} = [9,0899 - 3,0077 \lg(t+5)]^3 (1 - \lg p) + [10,8270 - 3,3974 \lg(t+5)]^3 \lg p, \text{ l/s.ha}; \quad (4)$ където: t е времетраенето на дъждовете, min; p - периодът на повторяемост на дъждовете в години, респ. периодът на еднократно препълване на канализационните мрежи. Формули (3) и (4) са в сила за t от 5 до 90 min и за p - от 0,5 до 100 години. Когато населеното място се намира на границата между двете зони, интензивността на оразмерителния дъжд е равна на	

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			средноаритметичното от данните на двете зони.	
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR				
HELCOM				
Barcelona Convention				
Conv. on the Protection of the Black Sea	N			
Danube Convention	N			
Rhine Convention				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			

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Other direct references to storm water overflows

Type of document	Title of document	Summary description
Policy Municipal	Water Management plan of Balchik Municipality ⁸³	Very little information is found in the water management plan of Balchick Municipality. The plan analyses the current situation of the water management on the territory of the Municipality and identifies the main problems and solutions. It is noted that sewer system is combined and separate. Particular attention is paid to the rain overflow and one of the measures envisaged in the plan is construction of separate sewer system, which to cover the whole Balchik.
Policy Regional ⁸⁴	Regional general plan for the territory of Pernik ⁸⁵	51 Regional General Plans for Water Supply and Sewerage covering the whole of Bulgaria are developed/to be developed. Their main objective is to plan the development of water and sewer infrastructure in short-term and long-term planning and in conformity with the EC Directives in this sphere. The implementation includes the assessment of water supply and sewerage systems, identification of investment needs, and the proposal of the most suitable technical options, economically feasible and acceptable opportunities for their development by 2035. In the Regional general plan for the territory of Pernik, it is noted that 94% of the sewer system in the region is combined. Only 13 rainy overflows exist in unsatisfactory condition. Storm water overflow are indicated as a cause of floods.
Policy Regional	River Basin Management Plans	Like in the previous examples, the information found is limited to identification of the problems related to the rain overflows. In a document named the “Review of the significant problems of water management in East Aegean Region” – which is a basis for up-date of the plan, it is highlighted the flooding due to intensive rainfalls and lack of storm water overflow sewer systems, incorrect size of the pipe system and extremely intensive rainfalls. (East Aegean River Basin Directorate ⁸⁶)

⁸³ <http://www.balchik.bg/bg/infopage/574>.

⁸⁵ www.pk.government.bg/images/stories/rgp.doc

⁸⁶ http://earbd.org/files/File/PURB/Mejdinen%20pregled%202014/za%20ka4vane/Mejdinen_pregled%20na%20znachimite%20problemi%20v%20upravlenieto%20na%20vodite%20IBR.pdf.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
11. Which types of sewer system does Bulgaria have?	Several types of sewer systems exist in Bulgaria: combined, separate, mixed and half-separate ⁸⁷ . Most common are combined and separate systems ⁸⁸ . According to the data of the National Statistical institute ⁸⁹ in 2013, there were 10463 km of sewers in Bulgaria.
12. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	According to the information in the National Strategy for Management and Development of Water Sector in Bulgaria ⁹⁰ , almost everywhere in the country the sewer system is combined, which leads to the problems with storm waters. However, no data about the percentage or length is provided. There is no database containing quantitative information on the different type of sewer system in Bulgaria.
13. How many storm water overflows infrastructures exist in Bulgaria?	There is no database containing quantitative information on storm water overflows in Bulgaria.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
14. Is there information on the occurrence of storm water overflows?	There is no database containing quantitative information on the occurrence of storm water overflows in Bulgaria. Information on the precipitation can be found as the National Institute of Meteorology and Hydrology ⁹¹ monitors the rain quantities.
15. Are storm water overflows monitored in Bulgaria? If yes, please describe the monitoring programme. Refer to: - What is measured; - How often; and - At how many locations	The water permit set out conditions for the owner of the water body to provide self-monitoring on the storm water overflows. The permit conditions identify what to be measured and frequency and the locations of the monitoring. In the most cases this should be done during the actual overflow.

⁸⁷ Article 10 (2) of Ordinance RD 02-20-8.

⁸⁸ Information from the National Strategy for Management and Development of Water Sector in Bulgaria.

⁸⁹ <http://www.nsi.bg/en/content/5154/water-supply-and-sewage-network-total-country>.

⁹⁰ <http://www3.moew.government.bg/?show=top&cid=569> (Infrastructural analysis, page 58 and 59).

⁹¹ <http://www.meteo.bg/>.

FACTSHEET FOR CROATIA⁹²

1. BASIC INFORMATION

Basic information	
General Information	
22. What are the competent authorities for waste water treatment and management in Croatia?	Summary of the answer: With regard to waste water, local communities (municipalities and cities such as the City of Ilok⁹³) are the competent authorities for waste water treatment and management⁹⁴. The activity of waste water treatment and management itself is carried out by public legal entities or by a concessionaire on the basis of and in accordance with a contract between local communities and a concessionaire⁹⁵. The administrative supervision is carried out by the competent ministry⁹⁶, i.e. the Ministry of Agriculture⁹⁷. The Ministry of Agriculture has the overall policy and legislative competencies regarding water management and water protection. The main implementing authority for water management and water protection in Croatia is the Hrvatske vode⁹⁸, a public institution competent for the implementation of the water legislation. The inspection supervision is carried out by the inspectorate within the competent ministry⁹⁹, i.e. Water Inspectorate¹⁰⁰. With regard to run-off rain water, local communities are competent for the construction and maintenance of run-off rain water infrastructure¹⁰¹. In the case of private property and transport infrastructure (roads, railways, ports and airports), the construction and maintenance of run-off rain water infrastructure is the responsibility of owners and legal persons competent for management of the transport infrastructure¹⁰². Additional information supporting the summary of the answer: “Local self-government units shall through water service providers ensure the performance of <u>public wastewater collection activity</u> (Article 196, paragraph 3 of the Water Act, “WA”) which is performed as a public service (WA paragraph 196, paragraph 1). Water supply and wastewater structures (in this case mixed or combined sewers) are a public good in public use and in the ownership of a public

⁹² Davor Malus, Professor at the Faculty of Civil Engineering of the University of Zagreb has been interview for the purposes of this study (knowledgeable, inter alia, on the following issues: water treatment; water protection; water supply and waste water collection and treatment) on 18 May 2015.

⁹³ <http://www.ilok.hr/>, accessed on 28 April 2015.

⁹⁴ Articles 196 and 3, item 28 of the Water Act (*Zakon o vodama*) (“O.G.”, No. 153/09, 63/11, 130/11, 56/13 and 14/14).

⁹⁵ Articles 201 and 202 of the Water Act (*Zakon o vodama*) (“O.G.”, No. 153/09, 63/11, 130/11, 56/13 and 14/14).

⁹⁶ Article 223 of the Water Act (*Zakon o vodama*) (“O.G.”, No. 153/09, 63/11, 130/11, 56/13 and 14/14).

⁹⁷ <http://www.mps.hr/default.aspx?id=8454>, accessed on 28 April 2015.

⁹⁸ <http://www.voda.hr/>, accessed on 28 April 2015.

⁹⁹ Article 224 of the Water Act (*Zakon o vodama*) (“O.G.”, No. 153/09, 63/11, 130/11, 56/13 and 14/14).

¹⁰⁰ <http://www.mps.hr/default.aspx?id=8657>, accessed on 28 April 2015.

¹⁰¹ Article 125 of the Water Act (*Zakon o vodama*) (“O.G.”, No. 153/09, 63/11, 130/11, 56/13 and 14/14).

¹⁰² Article 125 of the Water Act (*Zakon o vodama*) (“O.G.”, No. 153/09, 63/11, 130/11, 56/13 and 14/14).

Basic information	
	water service provider (WA Article 23, paragraph 3). Water supply and wastewater structures are managed by the public water service provider (WA Article 24, paragraph 3). A concessionaire <u>may perform only the service of wastewater treatment and of emptying and transport of wastewater from septic tanks and sump pits</u> (WA Article 171, paragraph 3). Water supply and wastewater structures are constructed and maintained in accordance with the plan adopted by the management board or the board of directors of the public water service provider, and water supply and wastewater structures under concession are constructed and maintained in accordance with a concession agreement (WA Article 26, paragraph 3). Structures for stormwater drainage from public surfaces and structures to connect stormwater drainage from residential, office and other buildings within construction area, covered dry channels which flow through construction areas of towns and municipalities and are used for stormwater drainage (WA Article 125, paragraphs 2 and 4) are constructed and maintained by local self-government units). Pursuant to WA Article 125, paragraph 3, local self-government units may assign construction and/or maintenance of the structures for stormwater drainage from public surfaces to water service providers under conditions laid down by the Water Act.¹⁰³
23. What is the transposing law(s) of the UWWTD in Croatia?	The Urban Waste Water Treatment Directive (91/271/EC)¹⁰⁴ is transposed in the Croatian legislation in the following acts: - Water Act (<i>Zakon o vodama</i>) ("O.G.", No. 153/09, 63/11, 130/11, 56/13 and 14/14)¹⁰⁵; - Water Quality Standard Regulation (<i>Uredba o standardu kakvoće voda</i>) ("O.G.", No. 73/13 and 151/14)¹⁰⁶; - Waste Water Emissions Limit Value Ordinance (<i>Pravilnik o graničnim vrijednostima emisija otpadnih voda</i>) ("O.G.", No. 80/13, 43/14 and 27/15)¹⁰⁷; - Decision on Establishment of Sensitive Areas (<i>Odluka o određivanju osjetljivih područja</i>) ("O.G.", No. 81/10)¹⁰⁸.
24. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Article 7(4) of the Waste Water Emissions Limit Value Ordinance transposes Section A, Paragraph 2 of Annex I to the UWWTD. The English translation of the transposing provision is indicated below: "The design, construction and maintenance of waste water public sewage system shall be undertaken in accordance with the best technical knowledge taking into account costs of construction and maintenance bearing in mind: 1. volume and characteristics of urban waste water, 2. impermeable characteristic of the waste water collection and drainage systems, 3. limitation of pollution of receiving waters due to its reception capabilities." Although the term storm water overflows, used in Section A, Paragraph 2, item 3 of Annex I to the UWWTD, has not been transposed in Croatia, the overall transposition of Section A, Paragraph 2 of Annex I to the UWWTD is satisfactory.

¹⁰³ Information provided by the authority competent for water management in Croatia.

¹⁰⁴ [http://eur-](http://eur-lex.europa.eu/search.html?qid=1430131843777&or0=DN%3D71991L0271*.Dnold%3D71991L0271*&type=advanced&SUBDOM_INIT=MNE&DTS_SUBDOM=MNE&AU_CODED=HRV)

[lex.europa.eu/search.html?qid=1430131843777&or0=DN%3D71991L0271*.Dnold%3D71991L0271*&type=advanced&SUBDOM_INIT=MNE&DTS_SUBDOM=MNE&AU_CODED=HRV](http://eur-lex.europa.eu/search.html?qid=1430131843777&or0=DN%3D71991L0271*.Dnold%3D71991L0271*&type=advanced&SUBDOM_INIT=MNE&DTS_SUBDOM=MNE&AU_CODED=HRV), accessed on 27 April 2015. Please note that the most up-to-date versions of the communicated legal instruments are presented in the answer to the question in the table.

¹⁰⁵ <http://propisi.hr/print.php?id=9886>.

¹⁰⁶ <http://www.propisi.hr/print.php?id=3919>.

¹⁰⁷ <http://www.propisi.hr/print.php?id=8402>.

¹⁰⁸ <http://www.propisi.hr/print.php?id=10430>.

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	Item 3 of the cited transposing provision refers to the limitations of reception capabilities of receiving waters regardless of what the cause of additional pressure may be. Therefore, indirectly, the pressure from storm water overflows is encompassed by the wording of the transposing legislation. Also, item 2 of the cited transposing provision effectively transposes Section A, Paragraph 2, item 2 of Annex I to the UWWTD. In other regard, the transposition is almost literal. Please note that pursuant to comment expressed as part of the EU Pilot (Ref.: 7437/15/ENVI) – Transposing Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment (OJ L 135, 30.05.1991.), the Croatian authorities are planning to improve the transposition of Section A, Paragraph 2 of Annex I to the UWWTD¹⁰⁹.
25. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	Footnote 1 in Sections A and B of Annex I to the UWWTD is currently not transposed in the Croatian legislation. Please note that pursuant to comments expressed as part of the EU Pilot (Ref.: 7437/15/ENVI) – Transposing Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment (OJ L 135, 30.05.1991.), the Croatian authorities are planning to transpose the footnote into the Croatian legislation¹¹⁰.
26. What is the terminology used to refer to storm water overflows in Croatia? Is there more than one term used?	The state level legal and policy documents do not contain the term used to refer to storm water overflows. However, the Croatian Professional and Academic Community mostly use, when referring to storm water overflows, the term “<i>kišni preliv</i>”, although the term “<i>kišno rasterećenje</i>” is also used¹¹¹. The term “<i>kišni preliv</i>” is also used in local communities’ legal documents¹¹². “In addition to the terms mentioned above,” in practice “the following terms are also used: “<i>rasterećenje</i>”, “<i>rasterećene vode</i>” and “<i>prelivne vode</i>”. When talking about structures, the term “<i>rasteretne građevine</i>” is also used.¹¹³”
27. Is there a definition of storm water overflow in Croatia?	The state level legal and policy documents do not define the term storm water overflows, i.e. “<i>kišni preliv</i>” or “<i>kišno rasterećenje</i>”. The term is defined in the Dictionary of Construction Terminology, i.e. an academic publication used by the Professional and Academic community, as: “overflow as part of the combined or semi-combined drainage method which is constructed on an appropriate place on a

¹⁰⁹ Information provided by the authority competent for water management in Croatia.

¹¹⁰ Information provided by the authority competent for water management in Croatia.

¹¹¹ Please see: <http://struna.ihjj.hr/naziv/kisni-preliv/9677/>, accessed on 28 April 2015 and Hydraulic properties of U-shaped stormwater overflows (*Hidrauličke karakteristike kišnog preljeva U oblika*), Lončar, G. et al. GRAĐEVINAR 57 (2005) 4, 237-245.

¹¹² Please see Article 8 of the Decision on Waste Water Sewage on the Territory of City of Ilok (*Odluka o odvodnji otpadnih voda na području grada Iloka*) (“O.G. of Vukovar-Srijem County”, No. 8/13).

¹¹³ Information provided by the authority competent for water management in Croatia.

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	sewage network close to the recipient”¹¹⁴. According to the information obtained during the interview, in practice the term storm water overflow, i.e. “<i>kišni preljev</i>” or “<i>kišno rasterećenje</i>” is used when referring to both: a spill event and an overflow discharge point. Also the term is used when referring to stormwater relief structures¹¹⁵.
28. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Croatia have a definition of extreme or unusual rainfall event?	Croatia does not have a definition of extreme or unusual rainfall event used with regard to urban waste water collection/drainage.

¹¹⁴ Please see <http://struna.ihjj.hr/naziv/kisni-preljev/9677/>, accessed on 28 April 2015 and Dictionary of Construction Terminology (*Leksikon građevinarstva*), Simović V., Masmedia, Zagreb (2002).

¹¹⁵ Information provided by the authority competent for water management in Croatia.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
7. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	On 1 July 2013, Croatia joined EU therefore becoming EU's most recently acceded Member State. The challenges related to the implementation of the Urban Waste Water Treatment Directive (91/271/EC)¹¹⁶, as one of the Investment-Heavy Directives¹¹⁷, were recognised during the negotiation phase. The related challenges are so significant that the Treaty on the Accession of the Republic of Croatia to the European Union¹¹⁸ granted derogations from application of the UWWTD to various agglomerations in Croatia, stretching until 31 December 2023¹¹⁹. The challenges related to implementation of the UWWTD are significant having in mind that, according to the data collected in the 2007 - 2009 period, app. 44% of Croatia's population was covered by public sewerage systems; app. 27% of Croatia's population was provided with a waste water treatment service; app. one third of the collected waste water quantity was discharged into the environment without any treatment¹²⁰. Aware of the gravity of the situation, the Croatian Government adopted a plan for meeting the requirements of the UWWTD for each of the agglomerations larger than 2,000 pe, including the estimate of the costs¹²¹. This could explain the complete lack of reference to storm water overflows in Croatian state level legal and policy documents. Even the River Basin Management Plan¹²² does not mention separately pressures from storm water overflows¹²³. However, since in Croatia the dominant type of the sewage system is the Combined Sewer System (containing mixture of sanitary water and technological waste water and run-off rain water)¹²⁴, the storm water runoff may be an issue. Nevertheless, it seems that it is not the issue that has the priority at the moment. The policy, practice or legal framework to directly control or limit storm water overflows does not exist in Croatia at the state level. There are a few references to storm water overflows at the level of local communities¹²⁵, which are competent for management and

¹¹⁶ (OJ L 135, 30.5.1991, p. 40–52).

¹¹⁷ Communication from the Commission the Challenge of Environmental Financing in the Candidate Countries (COM/2001/0304 final).

¹¹⁸ (OJ L 112, 24.4.2012 p. 10-110).

¹¹⁹ For more information on the granted derogations, please see: Annex V, Section 10, Part IV, item 1 of the Treaty on the Accession of the Republic of Croatia to the European Union.

¹²⁰ p. 9 of the Government of the Republic of Croatia's Implementation Plan for Water Utility Directives (2010). English version of the Plan is available on the following link: http://www.voda.hr/sites/default/files/dokumenti/plan_provedbe_vodno-komunalnih_direktiva_-_engleski.pdf, accessed on 28 April 2015.

¹²¹ Please see Table 5 of the Government of the Republic of Croatia's Implementation Plan for Water Utility Directives (2010).

¹²² Decision on Issuance of the River Basin Management Plan (*Odluka o donošenju plana upravljanja vodnim područjima*) ("O.G.", No. 82/13).

¹²³ Table 2.12 and p. 41 and 42 of the River Basin Management Plan.

¹²⁴ Section 3.5.2 of the Water Management Strategy (*Strategija upravljanja vodama*) ("O.G.", No. 91/08).

¹²⁵ E.g. Decision on Waste Water Sewage on the Territory of City of Ilok (*Odluka o odvodnji otpadnih voda na području grada Iloka*) ("O.G. of Vukovar-Srijem County", No. 8/13).

Overview of legal and policy framework. Relevant references to storm water overflows.

treatment of waste water. According to the information obtained during the interview, some local communities¹²⁶ implemented a waste water retention infrastructure which enables storage and later treatment in the waste water treatment plant of the first batch of storm water run-off, usually containing higher concentrations of pollutants, whereas the reminder of the storm water run-off is released into the environment without any treatment. Also, according to the information obtained during the interview, some local communities are implementing green infrastructure measures limiting the inflow of storm water into sewer systems. Implementation of both grey and green infrastructure is not a common practice and is not stipulated in any policy or legal documents at the state level.

Regarding general waste water framework in Croatia, urban waste water includes sanitary waste water, rain water run-off or waste water consisting of mixture of sanitary water and technological waste water and/or rain water run-off¹²⁷. The local communities (municipalities and cities) are required to collect and treat urban waste waters prior to their discharge into the environment, in accordance with the issued water permit¹²⁸. The waste water may be discharged only if it meets the emission limit values¹²⁹. The emission limit values are set for pollutants or groups of pollutants¹³⁰ in the Waste Water Emissions Limit Value Ordinance. More specifically, this Ordinance sets: emission limit values¹³¹; criteria and conditions for collection, treatment and discharge of urban waste water¹³²; monitoring conditions¹³³. According to the information obtained during the interview, in practice the storm water overflow discharge points are not permitted or monitored, therefore, the emission limit values are not applicable to storm water overflows discharged through these points.

The River Basin Management Plan¹³⁴ does not mention separately pressures from storm water overflows¹³⁵. The River Basin Management Plan covers the 1st cycle.

"In addition to the documents mentioned above, the Draft Long-Term Programme for Construction of Water and Wastewater Structures is available on the website of Hrvatske vode. A public consultation procedure for this Programme hasn't been completed yet. This document identifies an indicative programme of investment in public water supply and public wastewater systems and makes the implementation system operational. It updates the data mentioned in the Implementation Plan for Water Utility Directives (DWD and UWWTD) prepared in 2010 in terms of the data collected for the purpose of reporting under Articles 15 and 17 of the UWWTD in the year 2014. A quote from the Draft Programme: "The average coverage rate for the public wastewater collection service on the national level is 47% (2012). However, identical to water supply, the differences in the coverage with sewer systems between counties are

¹²⁶ E.g. Karlovac – Water Supply and Water Drainage Systems and Waste Water Treatment Plant in Karlovac (*Vodoopskrbni i odvodni sustav te uređaj za pročišćavanje u Karlovcu*), Nadilo, B., GRAĐEVINAR 63 (2011) 3, 273-284.

¹²⁷ Article 3, item 35 of the Water Act (*Zakon o vodama*) ("O.G.", No. 153/09, 63/11, 130/11, 56/13 and 14/14).

¹²⁸ Article 62 of the Water Act (*Zakon o vodama*) ("O.G.", No. 153/09, 63/11, 130/11, 56/13 and 14/14).

¹²⁹ Article 60(1) of the Water Act (*Zakon o vodama*) ("O.G.", No. 153/09, 63/11, 130/11, 56/13 and 14/14).

¹³⁰ Article 60(2) of the Water Act (*Zakon o vodama*) ("O.G.", No. 153/09, 63/11, 130/11, 56/13 and 14/14).

¹³¹ Articles 4 - 6 of the Waste Water Emissions Limit Value Ordinance (*Pravilnik o graničnim vrijednostima emisija otpadnih voda*) ("O.G.", No. 80/13, 43/14 and 27/15).

¹³² Article 7 of the Waste Water Emissions Limit Value Ordinance (*Pravilnik o graničnim vrijednostima emisija otpadnih voda*) ("O.G.", No. 80/13, 43/14 and 27/15).

¹³³ Title III of the Waste Water Emissions Limit Value Ordinance (*Pravilnik o graničnim vrijednostima emisija otpadnih voda*) ("O.G.", No. 80/13, 43/14 and 27/15).

¹³⁴ Decision on Issuance of the River Basin Management Plan (*Odluka o donošenju plana upravljanja vodnim područjima*) ("O.G.", No. 82/13).

¹³⁵ Table 2.12 and p. 41 and 42 of the River Basin Management Plan.

Overview of legal and policy framework. Relevant references to storm water overflows.

significant, and in particular between towns and municipalities. Higher rates of the population covered with public water supply services characterize the settlements with bigger population... Wastewater from app. 35% of the population or app. 60% of the population connected to the public sewer system is treated.”

Croatia is putting forth massive efforts to meet the requirements of the Directive within the set deadlines. Within these activities, the existing conceptual solutions for wastewater collection are analysed and the existing system is optimized, including stormwater overflows, taking into account the achievement of the water protection objectives specified under Article 40 of the WA. When defining conceptual solutions, efforts are made to retain pretty heavily polluted wastewater generated during run-off from roads at the start of a rain event, by retaining it in the pipes or special retarding structures, in order for it to subsequently undergo treatment at an urban wastewater treatment plant, while the less polluted water is released into the receiving water body. Some released wastewater is subject to mechanical treatment procedures, depending on local conditions.

This segment of wastewater is regulated with the process of issuing of water rights acts (more specifically: water rights conditions to be met by a project and/or a certificate confirming that the detailed design was prepared in accordance with water management regulations, i.e. water rights conditions and water rights permit for wastewater discharge). The issuing of these water rights acts is regulated by Articles 143 through 154 of the Water Act and by Articles 4 through 17 of the Ordinance on issuing of water rights acts (OG 78/10, 79/13 and 09/14).

For the projects for which special regulations regulating environmental protection require implementation of environmental impact assessment (EIA), during such procedure the impact of the project on the receiving body is analysed and protection measures or requirements are established.

When extending public sewer systems and defining new conceptual solutions, combined sewer systems are exceptionally applied when other solutions represent high costs compared to the set objectives. Regulations don't explicitly regulate the prevention of discharge of the “conditionally” clean stormwater into the public sewer system, but based on the objectives defined in the legislation (Article 40 of the Water Act and Article 7 of the Ordinance on wastewater emission limit values) water rights acts specify that such water shall be discharged into the environment, where possible (e.g. runoff from rooftops, runoff from parking lots for cars, etc.). The same thing is also required as a measure in EIA and through spatial planning documents. Furthermore, the construction of separate sewer systems is encouraged in such a way that the funds collected from the water protection fee don't co-finance the part of the price of construction of combined sewer system which represents an increasing cost due to stormwater drainage, by means of which the costs of financing such solution are covered exclusively with local resources.¹³⁶

8. If standards are set, please provide quantitative values where available. Is any of the following

Standards are not set in any legally binding document.

¹³⁶ Information provided by the authority competent for water management in Croatia.

Overview of legal and policy framework. Relevant references to storm water overflows.

type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	According to the information obtained during the interview, in practice, the Croatian relevant Professional Community is relying on STANDARD ATV - A 128E Standards for the Dimensioning and Design of Storm water Structures in Combined Sewers ¹³⁷ , which refers to overflows on various occasions.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision ¹³⁸	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			
BWD	N			
DWD	N			

Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives

EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			
BWD	N			
DWD	N			

Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions

International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR				

¹³⁷ [http://www.dwa.de/dwa/shop/produkte.nsf/4C8CE159B0F5CA13C125753C00334F59/\\$file/vorschau_ATV-A_128E.pdf](http://www.dwa.de/dwa/shop/produkte.nsf/4C8CE159B0F5CA13C125753C00334F59/$file/vorschau_ATV-A_128E.pdf), accessed on 18 May 2015. The English version of the full document is not available on line. The provided link contains Table of Contents of the document which refers to: requirements on storm water treatment; planning principles; planning scope; calculation principles (e.g. critical combined water flow; mean mix ration in overflow water); determination of the necessary total storage volume; dimensioning of individual structures with overflow; construction and operation of structures with overflow; dimensioning examples.

¹³⁸ The Croatian national implementation measures communicated to the Commission and available on EUR-LEX were checked for reference to storm water (overflows).

Overview of legal and policy framework. Relevant references to storm water overflows.				
HELCOM				
Barcelona Convention	N			
Conv. on the Protection of the Black Sea				
Danube Convention	N			
Rhine Convention				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Legal Municipal	Article 8 of the Decision on Waste Water Sewage on the Territory of City of Ilok (<i>Odluka o odvodnji otpadnih voda na području grada Iloka</i>) (“O.G. of Vukovar-Srijem County”, No. 8/13) ¹³⁹		The Decision establishes the conditions and methods for drainage of waste water on the territory of the City of Ilok. The storm water overflows are mentioned in one provision of the Decision. The reference to storm water overflows is, in fact, a reference to the place of discharge of excess water from the sewage system. Please see the translation of the relevant provision below: “... Storm water overflow is located prior to the place of discharge in order to release waste water during raining periods...”. The Decision describes the public sewer system in place at a time of its adoption. The Decision also explains that part of the system including this stormwater overflow wasn’t at the time of adoption of the Decision connected to the planned part of the system with an urban WWTP, and as such couldn’t serve as a stormwater overflow, but rather as a temporary outlet. In the meantime, this catchment area was connected to the other part of the sewer system with the urban WWTP, with this stormwater overflow serving for the release of excess stormwater. The Decision will be revised and updated based on the current status. ¹⁴⁰	
There are various other references to storm water runoff but these are limited to newer sewer systems which are separate sewer systems. Please see below the example from Orebić Municipality:				

¹³⁹ available at: http://www.vusz.hr/Cms_Data/Contents/VSZ/Folders/dokumenti/sluzbeni_vjesnik/~contents/DKD2ZT3LZV5EQYCB/vjesnik08-13w.pdf, accessed on 28 April 2015.

¹⁴⁰ Information provided by the authority competent for water management in Croatia.

Overview of legal and policy framework. Relevant references to storm water overflows.

Legal Municipal	Article 27 of the Decision on Issuance of the Spatial Plan for the Touristic Zone “Bili Dvori” (<i>Odluka o donošenju Urbanističkog plana uređenja turističke zone „Bili Dvori“</i>) (“O.G.” of Orebić Municipality”, No. 12/12)¹⁴¹	The Decision concerns the Spatial Plan of the part of Orebić Municipality. According to the Decision, the road rainwater run-off shall be drained to the storm water overflow and the oil separator. Furthermore, according to the Decision, the storm water overflow will be large enough to accept the excess water amounting to a 25 minute storm. The reminder of the water will be released into the environment without any treatment. According to the content of the Decision, the storm water overflow in a separate sewage system is used to discharge first “batch” of rainwater run-off, whereas the reminder is released into the environment without any treatment.

¹⁴¹ available at: <http://www.zzpudnz.hr/LinkClick.aspx?fileticket=ELQ5eps8kjc%3D&tabid=169>, accessed on 8 June 2015.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows				
<i>Types of sewer system</i>				
16. Which types of sewer system does Croatia have?	In Croatia the dominant type of the sewer system is the Combined Sewer System (containing mixture of sanitary water and technological waste water and run-off rain water). The Combined Sewer System is more dominant in the continental part of the country, whereas the separate sewer system is more dominant on the coast¹⁴². According to the information presented in the table below, this means that app. 41% of sewer systems in Croatia are separate, app. 50% are combined and app. 9% consists of both separate and combined sewer systems.			
17. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	Agglomeration size	Type of sewer system		
		Separate	Combined	Separate and Combined
	Population	Number of agglomerations		
	500 – 2.000	79	59	17
	2.000 – 10.000	33	62	7
	10.000 – 50.000	7	23	1
	>50.000	2	3	2
	Total	121	147	27
Source¹⁴³ No information on length of pipelines in km was found. ”The combined sewer system is dominant in Croatia because of the way in which the systems were built. By the 1980s, this method of wastewater collection was considered the most suitable solution in urban areas in terms of construction costs. In the process of complying with the UWWTD requirements, the established conceptual solutions are re-analysed, optimized and updated accordingly. By establishing a system for collecting such data within the Water Information System (WIS), comprehensive data on urban wastewater collection systems and their operation and maintenance on the national level will be collected, analysed and systematized. At present, the relevant data can be obtained directly from the public water service providers.”¹⁴⁴				
18. How many storm water overflows	No information on the number of storm water overflows infrastructures was found in Croatia.			

¹⁴² Section 3.5.2 of the 2008 Water Management Strategy (*Strategija upravljanja vodama*) (“O.G.”, No. 91/08).

¹⁴³ Picture 3.28 of the 2008 Water Management Strategy (*Strategija upravljanja vodama*) (“O.G.”, No. 91/08). This information may not be fully accurate due to the methodology used to collect the information (survey disseminated to the local waste water utility companies). The information dates from or before 2008. Updated information is not available.

¹⁴⁴ Information provided by the authority competent for water management in Croatia.

Available data on storm water overflows	
infrastructures exist in Croatia?	“At present, there is no systematic collection of data on stormwater overflows on the national level. For the time being, such data can be obtained directly from individual water service providers. It is foreseen that such data, as well as data on the quantity and quality of overflow water, will be collected within the WIS, in order for their functionality to be checked occasionally.”¹⁴⁵
<i>Available quantitative data on the occurrence of storm water overflows</i>	
19. Is there information on the occurrence of storm water overflows?	No information on the occurrence of storm water overflows was found in Croatia. “At present, there is no systematic collection of data on stormwater overflows on the national level. For the time being, such data can be obtained directly from individual water service providers. It is foreseen that such data, as well as data on the quantity and quality of overflow water, will be collected within the WIS, in order for their functionality to be checked occasionally.”¹⁴⁶
20. Are storm water overflows monitored in Croatia? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	No information on a separate monitoring of storm water overflows was found in Croatia. For example, the Register of Environmental Polluters (<i>Registar onečišćivača okoliša</i>)¹⁴⁷ does not contain information on storm water overflows. According to the information obtained during the interview, in practice the storm water overflow discharge points are not permitted or monitored. In slight contrast to the information obtained during the interview, the relevant authority in Croatia claims that “he” water rights permits for wastewater discharge issued in the last several years lay down provisions, among other things, concerning stormwater overflows within public sewer systems.”

¹⁴⁵ Information provided by the authority competent for water management in Croatia.

¹⁴⁶ Information provided by the authority competent for water management in Croatia.

¹⁴⁷ <http://www.azo.hr/RegistarOneciscenjaOkolisa>, accessed on 28 April 2015.

FACTSHEET FOR CYPRUS¹⁴⁸

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
29. What are the competent authorities for waste water treatment and management in (Cyprus)?	In Cyprus, no specific authority in relation to storm water overflows exists. However, there are three main authorities with competences in waste treatment and management. These authorities are the following: - The Department of Environment¹⁴⁹ within the Ministry of Agriculture, Natural Resources and Environment. The Department of Environment has the responsibility for the control and prevention of water pollution arising from the operation of wastewater treatment plants and discharges of the treated urban wastewater according to the UWWTD. The Department of Environment is also responsible for issuing Waste Discharge Permits including Permits to Waste Water Treatment Plans. This authority ensures, through inspections and annual reports as well as through the Monitoring Program, that the permit conditions are met, in order to achieve a high level of water protection. In addition, the Technical Committee of the Department of Environment, based on the Environmental Impact Assessment Law, assess the potential environmental effects of planned development activities related to the design, construction and operation of Sewerage Systems and Urban Waste Water Treatment Plants as well as the Management of the Recycled Water. An Environmental Approval is issued by the Department of Environment setting specific terms for the protection of Environment. Finally, the Department of Environment is the responsible Authority for the submission of reports under Article 15 and 16 of the UWWTD to the European Commission. - The Government water policy is focused on the maximum utilization of other non-conventional water resources, such as the recycled water, which can replace equal quantities of potable water. The recycled water, which is produced from treated domestic wastewater, is used for irrigation of the existing agricultural cultivations and for re-charge of underground aquifers. The Water Development Department¹⁵⁰ and the Waste Water and Reuse Division¹⁵¹ handle these matters. The responsibilities and accountabilities of the Division are the following: - Implementation of the UWWTD, as far as the preparation and implementation of the National Implementation Program of the Directive is concerned, which includes planning, preparation of studies, promoting, managing and supervising the construction of sewerage systems and monitoring the operation and maintenance in the rural communities and municipalities, with population equivalent greater than 2.000. Furthermore, it involves coordination with the Urban Sewerage Boards for their contribution to the implementation of the Directive in the major towns and touristic resorts and preparation of status and progress reports for submission to the European Commission, as well as for public awareness, - Implementation of the Sewerage Systems Laws 1971-2010 concerning the preparation of studies, promotion of

¹⁴⁸ A short phone call and a short meeting (5-10 minutes) with Lia Georgiou - Senior Sanitary Engineer Head of Sewage Service, Water Development Department and telephone call with Technical Assistant in Paphos Sewerage Board have been carried out for the purposes of this report. During this exchange, Lia Georgiou explained that in Cyprus no storm overflows exist and that the Cypriot sewerage collection system is separate, i.e. it excludes storm water

¹⁴⁹ http://www.moa.gov.cy/moa/environment/environment.nsf/index_en/index_en?OpenDocument.

¹⁵⁰ http://www.moa.gov.cy/moa/wdd/wdd.nsf/index_en/index_en?OpenDocument.

¹⁵¹ http://www.moa.gov.cy/moa/wdd/wdd.nsf/sewage_schemes_en/sewage_schemes_en?OpenDocument.

Basic information	
	construction and monitoring of the operation and maintenance of the sewerage systems in small rural communities with population equivalent smaller than 2,000, as well as in military camps, - Monitoring of Operation and Maintenance of Wastewater Treatment Plants, - Management of Vathia Gonia Wastewater Treatment Plant for Domestic and Industrial wastewater, - Handling of sanitary engineering specialized matters concerning public health and the protection of the environment, - Signing Contract Agreements of Upgrading Sewage Treatment Plants. c. The Sewerage Boards¹⁵² are responsible for the installation of sewer networks and treatment plants in urban centers. The Sewerage Boards are established and operated in accordance with the Cyprus Sewerage Systems Law and the respective regulations of each Council. There are six main Sewerage Boards: in Nicosia¹⁵³, Limassol¹⁵⁴, Larnaca¹⁵⁵, Paphos¹⁵⁶, Paralimni and Ayia Napa.
30. What it the transposing law(s) of the UWWTD in Cyprus?	The main transposing laws are the following: - The Water Pollution Control Law, N 106 (I) 2002 and its Regulations RAA (Regulatory Administrative Act) 772/2003 on discharges and RAA (Regulatory Administrative Act) 111/2004 on sensitive areas. / Ο περί Ελέγχου της Ρύπανσης των Νερών Νόμος Ν 106 (Ι) 2002¹⁵⁷ και Οι περί Έλεγχου της Ρύπανσης των Νερών (Απόρριψη Αστικών Λυμάτων) Κανονισμοί του 2003 (ΚΔΠ 772/2003)¹⁵⁸ και το Περί Ελέγχου της Ρύπανσης των Νερών (Ευαίσθητες Περιοχές σε Απορρίψεις Αστικών Λυμάτων) Διάταγμα του 2004 ΚΔΠ 111/2004¹⁵⁹. - The Sewerage System Law 1971-2007 and the Amendments to the Sewerage Systems Law, N 108 (I) 2004 / Οι περί Αποχετεύσεων Συστημάτων Νόμοι 1971-2007 και ο Τροποποιητικός Νόμος Αρ.108 (Ι)/2004¹⁶⁰. There are also two decrees based on the Water and Soil Pollution Control Law 2002. The decree based on the Article 7(2)(e) of the Law which is Code of Good Agriculture Order 2007 (RAA 263/2007) and the order of General Terms Waste Disposal (RAA 269/2005) based on the Article 5 (1)(e) / Κώδικας Ορθής Γεωργικής Πρακτικής (ΚΔΠ 263/2007¹⁶¹) και Γενικοί Όροι Απόρριψης Αποβλήτων (ΚΔΠ 269/2005¹⁶²).

¹⁵² <http://www.moi.gov.cy/moi/moi.nsf/All/71FAF471582E84D1C2257AAF002FCB16?OpenDocument>.

¹⁵³ www.sbn.org.cy.

¹⁵⁴ www.sbla.com.cy.

¹⁵⁵ www.lldb.org.cy.

¹⁵⁶ www.sapa.org.cy.

¹⁵⁷ http://www.cylaw.org/nomoi/enop/non-ind/2002_1_106/full.html.

¹⁵⁸ [http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/79D02ABC733BB56BC225793D0039F560/\\$file/K.D.P.277_2003.pdf?openelement](http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/79D02ABC733BB56BC225793D0039F560/$file/K.D.P.277_2003.pdf?openelement).

¹⁵⁹ [http://www.moa.gov.cy/moa/environment/environment.nsf/All/ED590D30A707D5E6C225793D002B9C2A/\\$file/KDP111-2004.pdf](http://www.moa.gov.cy/moa/environment/environment.nsf/All/ED590D30A707D5E6C225793D002B9C2A/$file/KDP111-2004.pdf).

¹⁶⁰ [http://www.moa.gov.cy/moa/wdd/wdd.nsf/All/6C633E021ED619C8C22576200026EA4A/\\$file/Page1_28.pdf?OpenElement](http://www.moa.gov.cy/moa/wdd/wdd.nsf/All/6C633E021ED619C8C22576200026EA4A/$file/Page1_28.pdf?OpenElement).

¹⁶¹ <http://www.moa.gov.cy/moa/environment/environment.nsf/All/17764B172710BE65C22578D3002CB665>.

¹⁶² <http://www.moa.gov.cy/moa/environment/environment.nsf/All/6BA330AC5DFD7BCAC22578D3002DD6FB>.

Basic information	
31. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	The national provision transposing Section A of Annex I to the UWWTD is the Amendments to the Sewerage System Law N 108 (I) 2004 Annex / Παράρτημα, Τροποποιητικός Νόμος Αρ. 108 (I) 2004 των Περί Αποχετεύσεων Νόμων 1971-2007¹⁶³. The transposition of the third item, which refers expressly to storm water overflows, is a direct (literal) transposition of the Section A of Annex I of the UWWTD. According to Annex of Amendment Sewerage System Law N 108 (I) 2004, the collecting systems shall take into account waste water treatment requirements. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding: - volume and characteristics of urban waste water, - prevention of leaks, - limitation of pollution of receiving waters due to storm water overflows. However, it is noteworthy that the footnote has not been directly transposed.
32. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	There is no direct provision in Cyprus law which transposes footnote 1 in Section A and B of Annex I to the UWWTD. There are some references in the national legislation which are (indirectly) relevant to storm water overflows and the limitation of pollution. However, there is no provision or legal reference which has the direct meaning of the footnote 1 of Annex I of UWWTD. <u>Water Pollution Control Law, N 106 (I) 2002</u> a. In the Regulation RAA (Regulatory Administrative Act) 772/2003¹⁶⁴ of Water Pollution Control Law, N 106 (I) 2002, Article 4 regarding the points of discharge, states that the points of discharge of urban waste water shall be chosen, as far as possible, so as to minimize the effects on receiving waters. This is a direct transposing of the provision of Point 5, Section B, Annex I of UWWTD. b. According to Article 8(1) of the Water Pollution Control Law, N 106 (I) 2002¹⁶⁵, the operation of any facility that causes or may cause pollution to water or land is prohibited, unless its operator holds a license for disposal of waste according to the provisions of this Law. <u>Protection and Management of Water Law N. 13(I)/2004</u> a. The Protection and Management of Water Law N. 13(I)/2004¹⁶⁶ in Article 3 refers to the purpose of this Law, which is the protection of inland surface waters, transitional waters, coastal waters and groundwater, with the appropriate provisions which aim to ensure the progressive reduction of pollution of groundwater and prevent further pollution and to mitigate the effects of floods and droughts and contribute in this way to significant reduction in pollution of groundwater. b. Pursuant to Section 15(1) of Protection and Management of Water Law N. 13(I)/2004, any temporary deterioration in the status of any water body due to -(a) circumstances of natural cause or force majeure which are exceptional or could not reasonably be foreseen, including in cases of extreme floods or prolonged drought, or (b) accidents which could not reasonably be foreseen, is

¹⁶³ [http://www.moa.gov.cy/moa/wdd/wdd.nsf/All/6C633E021ED619C8C22576200026EA4A/\\$file/Page1_28.pdf?OpenElement](http://www.moa.gov.cy/moa/wdd/wdd.nsf/All/6C633E021ED619C8C22576200026EA4A/$file/Page1_28.pdf?OpenElement)

¹⁶⁴ [http://www.moa.gov.cy/moa/environment/environment.nsf/All/3A07DE89AF384C0AC22578D1003E03B5/\\$file/KDP772-2003.pdf](http://www.moa.gov.cy/moa/environment/environment.nsf/All/3A07DE89AF384C0AC22578D1003E03B5/$file/KDP772-2003.pdf)

¹⁶⁵ http://www.cylaw.org/nomoi/enop/non-ind/2002_1_106/full.html

¹⁶⁶ http://www.cylaw.org/nomoi/enop/non-ind/2004_1_13/full.html

Basic information	
	not regarded as a breach of this Law. c. According to Section 15(2), in any of the cases referred to in subsection (1), the competent authority shall endeavour to take all practicable steps to prevent further deterioration of the status of the water body that is affected and not to compromise the achievement of objectives of this Law with respect to other bodies of water not affected. d. Section 20 refers to the measures in relation to the purpose of the Protection and Management of Water Law. In accordance with Section 20(j) , the Council shall take measures to prevent significant leakages of pollutants from technical installations, and to prevent or reduce the impact of pollution incidents due to accidents, such as floods, including detection systems or early warning systems and measures to reduce the risk to aquatic ecosystems which could not reasonably be foreseen. <u>The Law of Evaluation , Management and Control of Flood Risk 2010 (70 (I) / 2010) and Amendment Law of Evaluation Management and Control of Flood Risk 2012 (N. 153(I)/2012)</u> This particular Law refers to measures for flood risk management. However there is no direct reference to storm water overflows due to heavy rainfall. The Law of Evaluation, Management and Control of Flood Risk 2010 (70 (I) / 2010)¹⁶⁷ states that the responsible authority shall prepare maps in relation to the flood risk. These maps according to Section 7(4)(C) need to include the installations that might cause accidental pollution in case of flooding.
33. What is the terminology used to refer to storm water overflows in Cyprus? Is there more than one term used?	The exact translation of overflows in Greek is “υπερχειλίσσεις”, however there is no specific terminology for storm water overflows exists in the Cyprus Law. a. However, in the transposing provision of Section A Annex I of UWWTD which is Annex of the Amendment Sewerage System Law N 108 (I) 2004, the term ‘storm water overflows’ is translated as - <i>υπερχειλίσσεις από νεροποντές</i>.¹⁶⁸ b. In Sewerage System Law 1971-2007 there is term ‘storm water’ which translated as – <i>όμβρια ύδατα</i>.¹⁶⁹ c. In Protection and Management of Water Law N. 13(I)/2004 there is a term ‘overflows’ which translated as – <i>πλημμύρες</i>.¹⁷⁰

¹⁶⁷ http://www.cylaw.org/nomoi/enop/non-ind/2010_1_70/full.html.

¹⁶⁸ http://www.cylaw.org/nomoi/enop/non-ind/1971_1_1/full.html.

¹⁶⁹ http://www.cylaw.org/nomoi/enop/non-ind/1971_1_1/full.html.

¹⁷⁰ http://www.cylaw.org/nomoi/enop/non-ind/2004_1_13/full.html.

Basic information	
34. Is there a definition of storm water overflow in Cyprus?	No definition of storm water overflows is contained in the transposing legislation, however there are references to the floods which can be caused by overflows of rainwater drainage systems, storm sewers or overflows of stream. In the Amendment Law of Evaluation Management and Control of Flood Risk 2012 (N. 153(I)/2012)¹⁷¹ there is a term "Flood of Sewerage System". The meaning of this term is 'the temporary covering of land by sewage, caused exclusively by failure or blockage of the drainage network and not associated with any load on the system by external hydraulic factors such as, for example, by high intensity rainfall greater than usual or higher than normal river flow pressure levels'. In the Law of Evaluation, Management and Control of Flood Risk 2010 (70 (I) / 2010) the definition of "Flood" means the temporary covering by water of land which, under normal circumstances, it is covered by water and include floods from rivers, mountain torrents, dam failure, Mediterranean ephemeral water courses, and floods from the sea in coastal areas, and may exclude floods from sewerage systems.
35. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Cyprus have a definition of extreme or unusual rainfall event?	There is no definition for the extreme or unusual rainfall event in Cyprus legislation. However, in a document¹⁷² of the Water Development Department regarding the European Directive 2007/60/EC on the Assessment and Management of Flood Risks, the term extreme rainfall (<i>ακραίες έντονες βροχοπτώσεις</i>) is used, but it is not defined in the document. Also in the Law of Evaluation, Management and Control of Flood Risk 2010 (70 (I) / 2010), there is a phrase 'high-intensity rainfall' (<i>βροχοπτώσεις μεγάλης έντασης</i>) which may refer to the extreme rainfall event, however there is no definition of this term either.

¹⁷¹ http://www.cylaw.org/nomoi/arith/2012_1_153.pdf.

¹⁷² [http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/61E183C48ADEC795C2257DCF0032DD7C/\\$file/Odigia_nomos_plimiron_March_15.pdf?openelement](http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/61E183C48ADEC795C2257DCF0032DD7C/$file/Odigia_nomos_plimiron_March_15.pdf?openelement).

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
9. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	There is no legal framework concerning specifically the control or limitation of storm water overflows. There are only separate sewerage systems in Cyprus.¹⁷³ Regarding the storm waters and the limitation of overflows, in Cyprus the storm water belongs to the owner of the property where rain fall¹⁷⁴. Based on this and according to the Article 33(3) of the Sewerage System Law 1971-2007¹⁷⁵, the owner of every property is responsible to limit and control any possibility of storm water overflows and must build suitable facilities for channelling storm water.¹⁷⁶ According to Water Pollution Control Law, N 106 (I) 2002¹⁷⁷, the operation of any facility that causes or may cause pollution to water or land is prohibited, unless its operator holds a permit for disposal of waste according to the provisions of this Law. According to Section 9 of this Law for authorization for disposal into surface water, soil or subsoil, an application to the Minister is required. The Minister may impose, upon granting of the discharge license, any conditions regarding the discharge of waste, including terms regarding the following: - the place and manner of disposal or storage of waste from the establishment; - the rate of discharges and their total quantity in any period specified in the authorization; - the total amount of substances or microorganisms rejected; - the nature, composition and any physical, chemical and microbiological characteristics of substances discharged. The Minister may at any time declare that it is justified or necessary for the protection of public health, public safety or the environment; - to revoke the authorization; - shorten the period of validity; - to add any new conditions; - amend any of the conditions imposed. In Cyprus, urban waste water treatment plants and collection networks are constructed by the Sewerage Boards, whereas rural waste water treatments plants and collection networks are constructed by the Rural Municipalities.¹⁷⁸ Moreover, in two cities the Sewerage

¹⁷³ [http://www.cyprus.gov.cy/moa/wdd/Wdd.nsf/0/B0F71983A2F1678CC225771100273471/\\$file/meleti.pdf](http://www.cyprus.gov.cy/moa/wdd/Wdd.nsf/0/B0F71983A2F1678CC225771100273471/$file/meleti.pdf).

¹⁷⁴ Paragraph 1.5 of the Published Study for the storm water management 2009, [http://www.cyprus.gov.cy/moa/wdd/Wdd.nsf/0/B0F71983A2F1678CC225771100273471/\\$file/meleti.pdf](http://www.cyprus.gov.cy/moa/wdd/Wdd.nsf/0/B0F71983A2F1678CC225771100273471/$file/meleti.pdf).

¹⁷⁵ Article 33(3) of the Sewerage System Law 1971-2007.

¹⁷⁶ Article 33(3) of the Sewerage System Law 1971-2007.

¹⁷⁷ http://www.cylaw.org/nomoi/enop/non-ind/2002_1_106/full.html.

¹⁷⁸ <http://www.sbla.com.cy/en/>.

Overview of legal and policy framework. Relevant references to storm water overflows.

Boards had constructed the Sustainable Urban Drainage Systems which are Systems for the management of the storm waters and for the limitation of overflows¹⁷⁹. According to the Study for the storm water management for year 2009¹⁸⁰, the storm waters are the cause of the risk of overflows in Cyprus. In this study, which was published by the Ministry of Agriculture, Natural Resources and Environment, it is mentioned that the institutional framework for the management of storm waters in Cyprus is not favourable. The Sustainable Urban Drainage System, according to this study, covers the general management of storm waters, including treatment of storm waters and the control of pollution. Specific measures to limit storm water overflows are mentioned in the document, such as construction of retention ponds or drains for the drainage of storm waters. The advantages of the Sustainable Urban Drainage Systems will be: the decrease of the risk of overflows, the improvement of the water quality and the enrichment of the ground waters.

Pursuant to Article 12(3) of the Sewerage System Law 1971-2007- Amendments to the Sewerage System Law N 108 (I) 2004, the Council which is responsible for the design, construction and maintenance of the collecting systems must comply with the requirements set out in Annex of the same Law. The Annex of the Amendment Sewerage System Law N 108 (I) 2004 is a direct transposition of Annex I of the UWWTD. According to that Annex, the collecting systems shall take into account waste water treatment requirements. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding:

- volume and characteristics of urban waste water,
- prevention of leaks,
- limitation of pollution of receiving waters due to storm water overflows.

Evaluation, management and control of flood risk Law N.70(I)/2010 is the harmonizing Cyprus legislation with Directive 2007/60/EC on the Assessment and Management of flood risks. According to a published document¹⁸¹ in relation to this Directive, the main benefit of the implementation of the Directive in Cyprus is the prevention, as the main cause of flooding is extreme rainfall which, as natural phenomena, cannot be predicted.

Pursuant to Section 15(1) of Protection and Management of Water Law N. 13(I)/2004, any temporary deterioration in the status of any water body due to: (a) circumstances of natural cause or force majeure which are exceptional or could not reasonably be foreseen, including in cases of extreme floods or prolonged drought, or (b) accidents which could not reasonably be foreseen, is not regarded as a breach of this Law. According to Section 15(2), in any of the cases referred to in subsection (1), the competent authority shall endeavour to take all practicable steps to prevent further deterioration of the status of the water body that is affected and not to compromise the achievement of objectives of this Law with respect to other bodies of water not affected.

¹⁷⁹ http://www.sbla.com.cy/sites/default/files/apofasi_olomelias.pdf.

¹⁸⁰ Published Study for the Storm Water management 2009, [http://www.cyprus.gov.cy/moa/wdd/Wdd.nsf/0/B0F71983A2F1678CC225771100273471/\\$file/meleti.pdf](http://www.cyprus.gov.cy/moa/wdd/Wdd.nsf/0/B0F71983A2F1678CC225771100273471/$file/meleti.pdf).

¹⁸¹ [http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/61E183C48ADEC795C2257DCF0032DD7C/\\$file/Odigia_nomos_plimiron_March_15.pdf?openelement](http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/61E183C48ADEC795C2257DCF0032DD7C/$file/Odigia_nomos_plimiron_March_15.pdf?openelement).

Overview of legal and policy framework. Relevant references to storm water overflows.

	Section A in Annex I of the Regulation RAA (Regulatory Administrative Act) 772/2003¹⁸² of the Water Pollution Control Law, N 106 (I) 2002 is related to the discharge from urban waste water treatment plants to receiving waters. According to this Section: Waste water treatment plants shall be designed or modified so that representative samples of the incoming waste water and of treated effluent can be obtained before discharge to receiving waters. Cyprus adopted their River Basin Management Plan on 9 June 2011. In June 2014 the consultation for the implementation of the second Plan for the period 2015 -2021 has started.¹⁸³ In the Water Framework Directive Implementation/ Assessment of the first RBMP, as reported by Cyprus, it is mentioned that the issues concerning storm water overflows will be examined in the second Cyprus River Basin Management Plan.
10. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	According to the Regulation RAA (Regulatory Administrative Act) 772/2003¹⁸⁴ of Water Pollution Control Law, N 106 (I) 2002 regarding the urban waste water discharges, discharges of urban waste water must meet the requirements of Part A of this Regulation. Part A provides the requirements for the discharges from the Urban Waste Water Treatment Plants which are: for the BOD the volume is 25mg, O2, for COD is 125mg/O2 and for the solids is 35mg (from 10000 pe), 60 mg (2000-10000 pe). No other information has been identified in the legislation and policy documents.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Sewerage System Law 1971-2007- Amendments to the Sewerage System Law N 108 (I) 2004¹⁸⁵	ΠΑΡΑΡΤΗΜΑ-Απαιτήσεις για συστήματα αποχετεύσεως λυμάτων: 1. Τα συστήματα αποχετεύσεως λυμάτων πρέπει να λαμβάνουν υπόψη τις απαιτήσεις της επεξεργασίας των λυμάτων, όπως αυτές καθορίζονται με βάση τις διατάξεις του παρόντος ή οποιαδήποτε άλλου νόμου ή κανονισμού. 2. Ο σχεδιασμός, η κατασκευή και η συντήρηση	Annex-Requirements for Urban Waste Water: 1. The Collecting systems shall take into account waste water treatment requirements. 2. The design, construction and maintenance of

¹⁸² [http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/79D02ABC733BB56BC225793D0039F560/\\$file/K.D.P.277_2003.pdf?openelement](http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/79D02ABC733BB56BC225793D0039F560/$file/K.D.P.277_2003.pdf?openelement).

¹⁸³ http://www.moa.gov.cy/moa/wdd/Wdd.nsf/guide_gr/guide_gr?OpenDocument.

¹⁸⁴ [http://www.moa.gov.cy/moa/environment/environment.nsf/All/3A07DE89AF384C0AC22578D1003E03B5/\\$file/KDP772-2003.pdf](http://www.moa.gov.cy/moa/environment/environment.nsf/All/3A07DE89AF384C0AC22578D1003E03B5/$file/KDP772-2003.pdf).

¹⁸⁵ http://www.cylaw.org/nomoi/enop/non-ind/1971_1_1/full.html.

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		των συστημάτων αποχετεύσεως λυμάτων, πρέπει να διενεργείται σύμφωνα με τις καλύτερες τεχνικές γνώσεις, που δεν συνεπάγονται υπερβολικό κόστος, ιδίως όσον αφορά - (α) Τον όγκο και τα χαρακτηριστικά των λυμάτων· (β) την πρόληψη διαρροών· και (γ) τον περιορισμό της ρύπανσης των νερών υποδοχής λόγω υπερχειλίσεων από νεροποντές. Παράρτημα Ι - Απόρριψη από σταθμούς επεξεργασίας αστικών λυμάτων στα ύδατα υποδοχής (') Regulation RAA (Regulatory Administrative Act) 772/2003¹⁸⁶ of the Water Pollution Control Law, N 106 (I) 2002.¹⁸⁷	collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding: a. volume and characteristics of urban waste water, b. prevention of leaks, c. limitation of pollution of receiving waters due to storm water overflows. Annex I - Discharge from urban waste water treatment plants to receiving waters (') 5. The points of discharge of urban waste water shall be chosen, as far as possible, so as to minimize the effects on receiving waters.	
WFD	Y	Protection and Management of Water Law N. 13(I)/2004¹⁸⁸	15. Τυχόν προσωρινή υποβάθμιση της κατάστασης οποιουδήποτε υδατικού συστήματος που οφείλεται (α) Σε περιστάσεις που απορρέουν φυσικά αίτια ή ανωτέρα βία και είναι εξαιρετικές ή δε μπορούσαν εύλογα να προβλεφθούν, περιλαμβανομένων περιπτώσεων ακραίων πλημμυρών ή παρατεταμένης ξηρασίας ή (β) σε ατυχήματα που δε μπορούσαν εύλογα να προβλεφθούν δε συνιστά παράβαση των απαιτήσεων του παρόντος Νόμου, νοουμένου ότι πληρούνται οι προϋποθέσεις και τηρούνται οι όροι των κατωτέρων εδαφίων του παρόντος άρθρου. (2) Σε οποιαδήποτε από τις περιπτώσεις που αναφέρονται στο εδάφιο (I), η αρμόδια αρχή μεριμνά ώστε να ληφθούν όλα τα	15. Any temporary deterioration in the status of any water system due to (a) situations arising from natural causes or force majeure which are exceptional or could not reasonably be predict, including cases of extreme floods or prolonged drought or (b) accidents which could not reasonably be foreseen, is not regarded as a breach of this Law. (2) In any of the cases referred to in subsection (I) the competent authority shall ensure to take all practicable steps to prevent further deterioration of

¹⁸⁶ [http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/79D02ABC733BB56BC225793D0039F560/\\$file/K.D.P.277_2003.pdf?openelement](http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/79D02ABC733BB56BC225793D0039F560/$file/K.D.P.277_2003.pdf?openelement).

¹⁸⁷ [http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/79D02ABC733BB56BC225793D0039F560/\\$file/K.D.P.277_2003.pdf?openelement](http://www.moa.gov.cy/moa/wdd/wdd.nsf/all/79D02ABC733BB56BC225793D0039F560/$file/K.D.P.277_2003.pdf?openelement).

¹⁸⁸ http://www.bio.auth.gr/river/law/El/49_13_2004.pdf.

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			πρακτικώς εφικτά μέτρα για να προληφθεί η περαιτέρω υποβάθμιση της κατάστασης του υδατικού συστήματος που έχει επηρεαστεί και να μην υπονομευθεί η επίτευξη των στόχων του παρόντος Νόμου αναφορικά με άλλα υδατικά συστήματα που δεν έχουν επηρεαστεί. 20. Τα βασικά μέτρα που περιλαμβάνονται στο πρόγραμμα μέτρων που καταρτίζεται με βάση το άρθρο 19, αποτελούν στοιχειώδεις απαιτήσεις που πρέπει να ικανοποιούνται και συνίστανται στα ακόλουθα, ια. Σε μέτρα που αποσκοπούν στην πρόληψη σημαντικών διαρροών ρύπων από τεχνικές εγκαταστάσεις και στην πρόληψη ή τη μείωση των επιπτώσεων από περιστατικά ρύπανσης λόγω ατυχημάτων, όπως στις περιπτώσεις πλημμυρών.	the status of the water body that is affected and not undermine achieving the objectives of this Act with respect to other aquatic unaffected systems. 20. The key measures included in the program of measures established pursuant to Article 19 are minimum requirements that must be met and consist in the following , k. In measures intended to prevent significant leakage of pollutants from technical installations, and to prevent or reduce the impact of pollution incidents due to accidents, such as floods.
MSFD	N			
BWD	Y	Water Pollution Control Law, N 106 (I) 2002	8(1) απαγορεύεται η λειτουργία οποιασδήποτε εγκατάστασης η οποία προκαλεί ή δυνατό να προκαλέσει ρύπανση στα νερά ή στο έδαφος, εκτός εάν ο φορέας εκμετάλλευσης της εγκατάστασης κατέχει άδεια απόρριψης αποβλήτων σύμφωνα με τις διατάξεις του παρόντος Νόμου.	8(1)¹⁸⁹, the operation of any facility that causes or may cause pollution to water or land is prohibited, unless its operator holds a license for disposal of waste according to the provisions of this Law.
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	Y	Report by the Water Development Department in 2009 regarding the urban storm water management ¹⁹⁰	Η απορροή των όμβριων υδάτων μεταφέρει μαζί της τυχόν ρύπους που υπάρχουν στη διαδρομή της ροής. Στόχος και με βάση την οδηγία της ΕΕ για τα νερά, είναι η αποφυγή ρύπανσης εκεί όπου	The runoff of rainwater carries with it any contaminants potentially present in the route it flows in. The objective, also on the basis of the EU Directive on water, is to prevent pollution where the

¹⁸⁹ http://www.cylaw.org/nomoi/enop/non-ind/2002_1_106/full.html.

¹⁹⁰ [http://www.cyprus.gov.cy/moa/wdd/Wdd.nsf/0/B0F71983A2F1678CC225771100273471/\\$file/meleti.pdf](http://www.cyprus.gov.cy/moa/wdd/Wdd.nsf/0/B0F71983A2F1678CC225771100273471/$file/meleti.pdf).

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			καταλήγουν οι απορροές.	[rainwater] run-off ends up.
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR				
HELCOM				
Barcelona Convention	N			
Conv. on the Protection of the Black Sea				
Danube Convention				
Rhine Convention				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Public assessment / Report prepared by Cyprus to EC	Water Framework Directive Implementation/ Assessment of the RBMP as reported by Cyprus ¹⁹¹		In Cyprus not all collecting systems and treatment plants were fully operational in the reported period (year 2009), however, significant progress has been made since then and recent compliance rates are much higher. Cyprus participates in the Pilot Exercise for the UWWTD SIIF, and a revised National Implementation Plan is currently under preparation. Cyprus will make every effort to implement all UWWTD measures using EU funds so as to achieve compliance with UWWTD by the 2 nd cycle. Regarding Article 9 of the Water Framework Directive and according to this particular assessment in relation	

¹⁹¹ http://www.moa.gov.cy/moa/wdd/Wdd.nsf/guide_gr/guide_gr?OpenDocument .

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		to the storm water overflows, this issue will be examined in the second Cyprus River Basin Management Plan .
Report October 2014 for the Consultation of the Implantation of the Second RBMP	Report for the Significant Issues for the Management of Water in Cyprus ¹⁹²	By the end of 2015, the Risk of Flood Management Plans will be prepared and they will include measures reducing the likelihood of floods and reducing their potential impact on human health, the environment, cultural heritage and economic activity. It is important to ensure adequate implementation of this Plan as the urban centers of Cyprus and particularly Larnaca, Nicosia and Limassol are susceptible to flooding because of the dense building and diminishing green space , elimination of natural watercourses to build roads , incomplete or nonexistent systems for rainwater drainage (for storm water) and coverage of flows and wells with rubbish.

¹⁹² [http://www.moa.gov.cy/moa/wdd/Wdd.nsf/all/9BE633B8768DE12CC2257CEF00440B31/\\$file/Entypo_Oct_2014.pdf?openelement](http://www.moa.gov.cy/moa/wdd/Wdd.nsf/all/9BE633B8768DE12CC2257CEF00440B31/$file/Entypo_Oct_2014.pdf?openelement) .

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
21. Which types of sewer system does Cyprus have?	The sewer system in Cyprus consists of separate sewerage system. ¹⁹³
22. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	Number of km of collecting systems for the year 2010 ¹⁹⁴ : - Urban Agglomerations: Total km : 2770 km, - Rural Agglomerations Total km: 1543 km.
23. How many storm water overflows infrastructures exist in Cyprus?	No information concerning the number of infrastructures has been obtained. Concerning the storm water there are two Sustainable Urban Drainage Systems in Limmasol and Larnaca. These are Systems for the management of the storm waters and the control of the overflows. ¹⁹⁵
<i>Available quantitative data on the occurrence of storm water overflows</i>	
24. Is there information on the occurrence of storm water overflows?	No information about the occurrence of storm water overflows is available. Storm water overflows are not usual phenomena in Cyprus. ¹⁹⁶
25. Are storm water overflows monitored in Cyprus? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	No monitoring programmes exist in Cyprus. Neither the legislation prescribes the relevant monitoring conditions. This is mostly due to the fact that rainfall happens in Cyprus mainly as unexpected thunderstorms. ¹⁹⁷

¹⁹³ According to the interview with Lia Georgiou - expert person - Senior Sanitary Engineer Head of Sewage Service, Water Development Department.

¹⁹⁴ [http://www.moa.gov.cy/moa/wdd/wdd.nsf/All/66CB0BE5921E67F9C2257704002FBA6C/\\$file/Sewerage_grk%20.pdf](http://www.moa.gov.cy/moa/wdd/wdd.nsf/All/66CB0BE5921E67F9C2257704002FBA6C/$file/Sewerage_grk%20.pdf).

¹⁹⁵ According to the interview with Lia Georgiou - expert person - Senior Sanitary Engineer Head of Sewage Service, Water Development Department.

¹⁹⁶ According to the interview with Lia Georgiou - expert person - Senior Sanitary Engineer Head of Sewage Service, Water Development Department.

¹⁹⁷ According to the interview with Lia Georgiou - expert person - Senior Sanitary Engineer Head of Sewage Service, Water Development Department.

FACTSHEET FOR THE CZECH REPUBLIC¹⁹⁸

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
36. What are the competent authorities for waste water treatment and management in the Czech Republic?	The competences for waste water treatment and management are organised in a three level structure. They are divided between municipalities, regions and ministries. The competent ministry is in most of the cases the Ministry of Agriculture, but some competences are allocated to the Ministry of Environment. All of the mentioned authorities are designated as the water authorities when executing their competences under the relevant law. The Czech Environmental Inspectorate is the central supervisory authority in some of the matters. The law on wastewater treatment and management is embodied into two main acts, Act No. 254/2001 Coll., on water (the Water Law) and Act No. 274/2001 Coll., on water pipelines and sewers for public use (the Water Pipelines and Sewers Law). Below are listed the competences of different authorities. Only the main competences with close relation to wastewater treatment and management are listed. Municipal authorities Under the Water Pipelines and Sewers Law, the municipal authorities - are responsible for the development of sewers and its implementation into land use plans in accordance with sewers development plans - approve sewer rules for individual sewers Under the Water Law, the municipal authorities - issue construction permits for waterworks, incl. sewers and small treatment plants - issue permits to handle water, incl. discharge of wastewater into sewers and into surface water - supervise adherence to obligations set by the law in their area of competence Regional authorities Under the Water Pipelines and Sewers Law, the regional authorities - draft, update and approve sewers development plans for regional territories - issue permits to operate sewers - prepare systemic securing of wastewater draining during crisis situations - act as appeal authority against decisions of municipal authorities Under the Water Law, the regional authorities - issue construction permits for waterworks, incl. large treatment plants and treatment plants to treat toxic wastewater, and set rules for their use - issue permits to handle water, incl. discharge of wastewater, from larger towns or with toxic content into surface water - act as the appeal authority against decisions of municipal authorities

¹⁹⁸ Dr. Ing. Ivana Kabelková, from Czech Technical University in Prague, was interviewed for this report.

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	- supervise adherence to obligations set by the law in their area of competence The Ministry of Agriculture - http://eagri.cz/public/web/en/mze/water/, contacts: http://eagri.cz/public/web/en/mze/contacts/ Under the Water Pipelines and Sewers law, the Ministry of Agriculture: - drafts and updates sewer plans for the territory of the State - discusses regional sewer plans and keeps their records - secures international cooperation in the field of sewers - keeps the list of technical auditors authorised to audit sewers and decides on conducting the audits and on cancelling permits to run sewers - secures regulation of economic relations, consumer relations and price supervision in the field of sewers, provision of information and supervision of financing of sewers development - acts as the appeal authority against decisions of regional authorities Under the Water Law, the Ministry of Agriculture: - acts as the appeal authority against decisions of regional authorities in all matters but the ones dedicated to the Ministry of Environment The Ministry of Environment - http://www.mzp.cz/en/water , contacts: http://www.mzp.cz/en/contact_information Under the Water Law, the Ministry of Environment acts as the appeal authority against decisions of regional authorities in the matters of: - permits to discharge wastewater into surface water or groundwater - permits to discharge toxic wastewater into surface waters The Czech Environmental Inspectorate - http://www.cizp.cz/lang/12 , contacts: http://www.cizp.cz/Kontakty/Dulezita-cisla Under the Water Law, the Inspectorate supervises adherence to obligations set by the Water Law.
37. What is the transposing law(s) of the UWWTD in the Czech Republic?	The Czech transposing laws of the Urban Waste Water Treatment Directive (UWWTD) is the following: - Act No. 274/2001 Coll., on water pipelines and sewers for public use (the Water Pipelines and Sewers Law), <i>zákon č. 274/2001 Sb., o vodovodech a kanalizacích pro veřejnou potřebu a o změně některých zákonů (zákon o vodovodech a kanalizacích)</i> - link - Act No. 254/2001 Coll., on water (the Water Law), <i>zákon č. 254/2001 Sb., o vodách a o změně některých zákonů (vodní zákon)</i> - link - Act No. 185/2001 Coll., on wastes (the Waste Law), <i>zákon č. 185/2001 Sb., o odpadech a o změně některých dalších zákonů (zákon o odpadech)</i> - link - Decree No. 428/2001 Coll., to implement the Act No. 274/2001 Coll., on water pipelines and sewers for public use (<i>vyhláška č. 428/2001 Sb. kterou se provádí zákon č. 274/2001 Sb., o vodovodech a kanalizacích pro veřejnou potřebu a o změně některých zákonů</i>) - link - Governmental Regulation No. 61/2003 Coll., on indicators and values of acceptable pollution of surface water and wastewater, on content requirements for permits to discharge wastewater into surface water and into sewers and on sensitive areas (<i>nařízení vlády č. 61/2003 Sb., o ukazatelích a hodnotách přípustného znečištění povrchových vod a odpadních vod, náležitostí povolení k vypouštění odpadních vod do vod povrchových a do kanalizací a o citlivých oblastech</i>) - link

Basic information	
38. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	The provisions of the Czech Water Pipelines and Sewers Law and of the Water Law transpose the wording of the Section A of Annex I to the UWWTD on a general, abstract level. The implementing legislation to those Laws, unfortunately, does not give further binding guidance on how to interpret the transposing provision. The Water Pipelines and Sewers Law, Sec 12 (1): (1) The sewers shall be designed and constructed in such a manner that they do not negatively influence the environment, that sufficient capacity is secured for collection and treatment of wastewater from the sewered area and that a continuous collection of wastewater from consumers of this service is secured. At the same time it must be secured that the pollution of the receiving water caused by storm water overflows is restricted. The sewers shall be constructed as waterproof constructions, they shall be protected from freezing and from damage by outer influences. Further requirements on wastewater treatment, including requirements on project documentation, construction and operation of the sewers and treatment plants, are set out by an implementing law. The Water Law, Sec 38 (2,3): (2) Water from drainage systems of drained agricultural plots, cooling water used for vessels and for water turbines, which was only heated, and unused mineral water from natural healing sources or sources of natural mineral water is not wastewater under this law. Rainwater from rainwater separators is not considered to be wastewater as well, if the water separator complies with the conditions set by the approval of the water authority. Rainwater from surface road communications is also not wastewater, if the pollution with harmful substances of such water is taken care of with technical measures according to the regulation, which implements the surface communications law. (3) Whoever discharges wastewater into surface water or groundwater is obliged to render it harmless in accordance with the conditions set in the permit for their discharge. When setting down those conditions, the water authority is obliged to take into consideration the best available technologies in the field of wastewater disposal, which means the most effective and most advanced level of technology of disposing or treating wastewater, developed in such a scale that it allows its introduction under economically and technically acceptable conditions and that it is most effective for the protection of water at the same time.
39. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	The national expert has identified no legal provisions that transpose the footnote 1 in Sections A and B of Annex I to the UWWTD directly. There are state-issued technical standards of storm water overflows though. Those standards are not legally binding, but they can be taken into account by the water authorities when they interpret the aforementioned provision of the Water Pipelines and Sewers Law (“...it must be secured that the pollution of the receiving waters caused by the storm water overflows is restricted...”) for the purpose of permitting any proposed sewer rules. These rules provide the detailed description of a sewer and they must be issued for each of the sewers by its owner and permitted by the water authority. The technical standard ČSN EN 752 Drain and sewer systems outside buildings¹⁹⁹, page 74, states in regards to combined sewer overflowsthat: “Various methods such as flow detention and sedimentation can be used to assist in limiting pollution inputs to receiving waters. Factors to be considered include: ☐ flow rates;

¹⁹⁹ The Czech technical standards are not publically available and have to be purchased from the The Czech Office for Standards, Metrology and Testing. However a decision of the Supreme Administrative Court of the Czech Republic has been issued recently which states that standards which are made binding by reference in legislation should be made made publicly available free of charge.

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	☐ volume, duration and frequency of discharges; ☐ pollution concentrations and loads; ☐ hydro-biological stress; ☐ aesthetic impacts.” On page 85, the technical standard states that: “The main objective of combined sewer overflow design, therefore, is to protect the receiving water without causing hydraulic overload of the sewer or reduced treatment efficiency of downstream wastewater treatment plant.” “.....” Two relatively simple approaches are available. A combined sewer overflow may be designed to begin overflow discharge only after reaching a critical rainfall intensity, generally in a range of rates of 10 l/s ha (impermeable area) to 30 l/s ha (impermeable area), depending on the degree of protection required. Alternatively, when the self-purifying capacity is not at risk, a single criterion (commonly a dilution of 5 to 8 times dry weather flow before spill) may be used as an emission standard. Associated storage in, for example, a detention tank, or length of tank sewer, can greatly reduce the environmental impact of combined sewer overflows. Further reductions in environmental impact can be achieved by partial treatment (e.g. settling). If the retained flow in a combined system exceeds the capacity of the treatment works, it will be necessary to incorporate storage or partial treatment of the retained flow. This may be sited at the treatment works or within the sewer system. In the design of a combined sewer overflow, steps shall be taken to keep the discharge of floating solids and other unsightly material to acceptable levels. This can require the provision of baffles, screens or other means of control.” Technical standard TNV 756262 Relief chambers and separators, page 6, provides technical recommendations on relief chambers design that should “reduce pollution to the water receiver by the overflowing polluting substances from the relief chambers”.
40. What is the terminology used to refer to storm water overflows in the Czech Republic? Is there more than one term used?	The terminology used to refer to storm overflows in the Czech republic is not unified. The following terms are used throughout the legal and other documents: <i>odlehčovací komory a separátory</i> – relief chambers and separators – term used by Decree No. 428/2001 Coll. <i>oddělovací komora</i> – separation chamber – this is the literal translation of the term used by technical standard ČSN EN 752 Drain and sewer systems outside buildings. The technical standard provides its own English translation of the term: combined sewer overflow. <i>nadměrné průtoky</i> – excess flow – the term is used by the technical standard ČSN EN 752 Drain and sewer systems outside buildings <i>znečištění z dešťových přívalů</i> – literally ‘pollution caused by storm events’ – term is used by the Czech translation of the Urban Wastewater Treatment Directive <i>znečišťování recipientů způsobované dešťovými přívaly</i> – literally ‘polluting of receiving waters caused by storm events’- term used by the Water Pipelines and Sewers Law <i>srážkové vody z dešťových oddělovačů</i> – rainwater from rainwater separators – term used by the Water Law <i>odlehčené odpadní vody</i> – relieved wastewater- term used by technical standard TNV 756262 Relief chambers and separators
41. Is there a definition of storm water overflow in the Czech Republic?	There is no definition of storm water overflow in the Czech legal documents, except for the Water Law, Sec. 38 (2), which states that “rainwater from rainwater separators is not considered to be wastewater if the water separator complies with the conditions set by the approval of the water authority.” The relevant technical standards contain the following definitions: Technical standard ČSN EN 752 Drain and sewer systems outside buildings describes the combined sewer overflow as “a device, on a combined system that relieves the system of excess flow” Technical standard TNV 756262 Relief chambers and separators provides further detailed technical specifications of storm water

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	overflow devices. In chapter 4, the general provisions, it states the following: 4.1. The purpose of relief chambers and separators is relieving of mixture of wastewater and rain water from a combined sewer system into a receiving water (usually a river) 4.2. Separators divide wastewater flow as well as its mechanical pollution. They decrease or prevent the discharge of pollution through rainwater or diluted wastewater into a water receiver. Regarding the storm water overflows in the meaning of water discharged from overflow devices, technical standard TNV 756262 Relief chambers and separators describes the “relieved wastewater” as “diluted wastewater, flowing over an overflow of a relief chamber out of the sewer system (into a receiving water, stormwater tank and so on)”.
42. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does the Czech Republic have a definition of extreme or unusual rainfall event?	The Wussov method (WUSSOW G.: Untere Grenze dichter Regenfälle (1922), Meteorologische Zeitung) is used in several studies to benchmark the intensity of rain. Technical standard ČSN EN 752 Drain and sewer systems outside buildings, page 85, defines “critical rainfall intensity ” as follows: “ generally in a range of rates of 10 l/s ha (impermeable area) to 30 l/s ha (impermeable area), depending on the degree of protection required”. Technical standard TNV 756262 Relief chambers and separators provides the following definitions: ▪ block rain – rain of constant intensity, defined by its duration and periodicity of occurrence ▪ critical duration of rain – duration of rain of given periodicity which causes maximal flow rate in the monitored section ▪ critical rain – block rain of intensity corresponding to the critical duration of rain ▪ limit rain – fictive rain which determines the maximum limit outflow that must not be discharged through the relief chambers or separators from a sewer system into a water recipient. The standard further provides equations to calculate the different rain intensities in different situations and different sewer systems. The Czech Hydrometeorological Institute runs the System of Integrated Warning Service. Part of this system is a methodology to distinguish between different unusual or extreme weather types, including rainfall events. The system is not legally anchored.

Overview of legal and policy framework. Relevant references to storm water overflows.

sewer overflow may be designed to begin overflow discharge only after reaching a critical rainfall intensity, generally in a range of rates of 10 l/s ha (impermeable area) to 30 l/s ha (impermeable area), depending on the degree of protection required. Alternatively, when the self-purifying capacity is not at risk, a single criterion (commonly a dilution of 5 to 8 times dry weather flow before spill) may be used as an emission standard.

The Evaluation Guidance also sets **environmental quality standards (EQS) in receiving waters**- limits that have to be – in specific cases – applied together with the above mentioned emission criteria. The EQS focus on the state of the receiving water and include hydraulic stress, acute toxicity of ammonia, oxygen deficit and impacts of suspended solids.

- Regarding the hydraulic stress, the maximum discharge from the overflow devices with the frequency once a year should not exceed 10-50 % of the natural one year river discharge above the outlet.
- Regarding the acute toxicity of ammonia, the concentration of NH₃-N should not even for a short time (1 hour) exceed 0,1 mg/l for salmon waters and 0,2 mg/l for carp waters. Maximum occurrence time is 1 year.
- Regarding the oxygen deficiency, the concentration of oxygen in river water should not fall under 5 mg/l as the result of an overflow.
- Regarding suspended solids, the indicative criteria for assessing critical cases is the concentration of 50 mg/l of suspended solids in the receiving water below the overflow outlet.

Detailed equations are provided to calculate all of the aforementioned criteria.

Similar criteria are proposed by the older [Evaluation Guidance 2](#):

Key indicator		Recommended value (emission criterion)				
Individual overflow structure	Dilution ratio*	1:5 to 1:8				
	Critical rain intensity*	10 to 30 l/s/ha				
	Chemical oxygen demand**	250 kg/(ha.year)				
	Discharged water volume ***	450 to 870 m3/(ha.year)				
	Overflow duration**	0 to 20 hours per year				
Whole urban catchment	Minimum drainage efficiency of dissolved (DS) substances and total suspended solids (TSS) in the catchment of a combined sewer system ****	Rainfall intensity (mm/12h)*****	Treatment plant category (I.E.)			
			5000		50000	
			DS	TSS	DS	TSS
		≤ 30	50	65	60	75
		> 50	40	55	50	65

Overview of legal and policy framework. Relevant references to storm water overflows.

*technical standard EN 752
 **emission criteria in Germany
 ***emission criteria in Switzerland
 ****emission criteria in Austria
 *****the determinative rainfall total is the rainfall height (mm) with rain duration of 12 hours and a recurrence 1x/year

The Evaluation Guidance 2 further compares the EQS used in Switzerland, Germany and Austria (increase in receiving water discharge, critical shear stress for streambed erosion, critical concentration of ammonia and oxygen).

In addition, specific standards may be recommended by the different **drainage master plans**. For example the Drainage Master Plan of the Town of Brno uses three criteria to assess the overflow devices. The basic criteria are the number of overflows during an average year and the dilution ratio for a model rainfall. Additional criterion is the total volume of overflow. According to the Master Plan, the values were set in concordance with opinions of the authorities concerned. The number of overflows was set as 7, the dilution ratio as 1+20 (dilution ratio of wastewater and rainwater at the outlet). The value of the additional criterion is not mentioned.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD		The Water Pipelines and Sewers Law, Sec 12 (1)	(1) Kanalizace musí být navrženy a provedeny tak, aby negativně neovlivnily životní prostředí, aby byla zabezpečena dostatečná kapacita pro odvádění a čištění odpadních vod z odkanalizovaného území a aby bylo zabezpečeno nepřetržité odvádění odpadních vod od odběratelů této služby. Současně musí být zajištěno, aby bylo omezeno znečišťování recipientů způsobované dešťovými přívaly. Kanalizace musí být provedeny jako vodotěsné konstrukce, musí být chráněny proti zamrznutí a proti poškození vnějšími vlivy. Další požadavky na čištění odpadních vod včetně požadavků na projektovou dokumentaci, výstavbu a provoz kanalizací a čistíren odpadních vod stanoví prováděcí právní předpis. (3) Vlastník kanalizace je povinen před podáním žádosti o vydání kolaudačního souhlasu pro stavbu	(1) The sewers shall be designed and carried out in such a manner that they will not negatively influence the environment, that sufficient capacity is secured for collection and treatment of wastewaters from the sewered area and that a continuous collection of wastewaters from consumers of this service is secured. At the same time it must be secured that the pollution of the receiving water caused by the storm water overflows is restricted. The sewers shall be carried out as waterproof constructions, they shall be protected from freezing and being damaged by outer influences. Further requirements on wastewater treatment, including requirements on project documentation, construction and operation of the sewers and treatment plants, are set out by an implementing law. (3) Before requesting the final operation approval for
		Sec 14 (3)		

Overview of legal and policy framework. Relevant references to storm water overflows.

		The Water Law, Sec 38 (2,3): <i>kanalizace zajistit zpracování kanalizačního řádu, který stanoví nejvyšší přípustnou míru znečištění odpadních vod vypouštěných do kanalizace, popřípadě nejvyšší přípustné množství těchto vod a další podmínky jejího provozu. Kanalizační řád je vlastník kanalizace povinen předložit před podáním žádosti o vydání kolaudačního souhlasu stavby kanalizace vodoprávnímu úřadu ke schválení. Kanalizační řád schvaluje rozhodnutím vodoprávní úřad.</i> <i>(2) Vody z drenážních systémů odvodňovaných zemědělských pozemků, chladicí vody užitá na plavidlech a pro vodní turbíny, u nichž došlo pouze ke zvýšení teploty, a nepoužitá minerální vody z přírodního léčivého zdroje nebo zdroje přírodní minerální vody nejsou odpadními vodami podle tohoto zákona. Za odpadní vody se dále nepovažují srážkové vody z dešťových oddělovačů, pokud oddělovač splňuje podmínky, které stanoví vodoprávní úřad v povolení. Odpadními vodami nejsou ani srážkové vody z pozemních komunikací, pokud je znečištění těchto vod závadnými látkami řešeno technickými opatřeními podle vyhlášky, kterou se provádí zákon o pozemních komunikacích</i> <i>(3) Kdo vypouští odpadní vody do vod povrchových nebo podzemních, je povinen zajišťovat jejich zneškodňování v souladu s podmínkami stanovenými v povolení k jejich vypouštění. Při stanovování těchto podmínek je vodoprávní úřad povinen přihlížet k nejlepším dostupným technologiím v oblasti zneškodňování odpadních vod, kterými se rozumí nejúčinnější a nejpokročilejší stupeň vývoje použité technologie zneškodňování nebo čištění odpadních vod, vyvinuté v měřítku umožňujícím její zavedení za ekonomicky a technicky přijatelných podmínek a zároveň nejúčinnější pro ochranu vod...</i>	the construction of a sewer, the sewer owner is obliged to ensure drafting of sewer rules which set the highest permissible level of pollution of wastewater discharged into the sewer, alternatively the highest permissible amount of the water and other conditions of its operation. Before requesting the final operation approval for the construction of the sewer, the sewer owner is obliged to present the sewer rules to the water authority in order to have them approved. The sewer rules shall be approved by the water authority by a decision. (2) Water from drainage systems of drained agricultural plots of land, cooling water used for vessels and for water turbines which was only heated, and unused mineral water from natural healing source or source of natural mineral water is not wastewater under this law. Rainfall water from rainwater separators is not considered to be wastewater as well if the water separator complies with the conditions set by an approval of a water authority. Rainwater from surface communications is also not wastewater if the pollution with harmful substances of such water is treated by technical measures according to the Decree which implements the surface communications law. (3) Whoever discharges wastewater into surface or ground water is obliged to render it harmless in accordance with the conditions set in the permit to their discharge. When setting down those conditions, the water authority is obliged to take into consideration the best available technologies in the field of wastewater disposal which means the most effective and most advanced level of technology of disposing or treatment of wastewater, developed in such a scale that it allows its introduction under economically and technically acceptable conditions and provided it is most effective for the protection of

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				water at the same time...
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR		N/A		
HELCOM		N/A		
Barcelona Convention		N/A		
Conv. on the Protection of the Black Sea		N/A		
Danube Convention	N			
Rhine Convention		N/A		
Oder Convention	N			
Elbe Convention	N			
Conv. Transboundary Watercourses and International Lakes	N			
<i>Other direct references to storm water overflows</i>				

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Type of document	Title of document	Summary description
Legal Municipal	Sewer rules (<i>Kanalizační řád</i>)	Sewer owners, usually municipalities, enact their Sewer rules to further implement provisions of the Water Law and of the Water Pipelines and Sewers Law. According to the latter Law, the owner of the sewer is obliged to secure the drafting of the sewer rules before the final operation approval for the sewer's construction is issued. The sewer rules set the highest admissible level of pollution of wastewater discharged into the sewer, alternatively the highest admissible amount of water and other conditions of the sewer's operation. The rules have to be approved by the water authority. The office has to take into account the aforementioned provision of the Water Pipelines and Sewers Law (Sec. 12 (2): "...At the same time it must be secured that the pollution of the recipients caused by the storm water overflows is restricted...") The implementing legislation does not set further conditions on how to restrict the pollution caused by the overflows. The water authority thus has to make its opinion based upon the general aims of the laws concerned. The technical standards mentioned below can be taken into consideration.
Guidance National	Assessment of Stormwater Overflows in Combined Sewer Systems in Urbanized Areas, guidance, issued by the State Environmental Fund of the Czech Republic (governmental institution), 2010 (<i>Posuzování dešťových oddělovačů jednotných stokových systémů v urbanizovaných územích, metodická příručka, 2010, Státní fond životního prostředí</i>)	Non-binding guidance published to guide authorities when evaluating EU funded environmental projects, specifically projects involving sewers with overflows. It is also intended as a basis for drafting drainage concepts and for water authorities when assessing sewers under Czech law. It is focused on the protection of the receiving waters by the combined approach (combining emission criteria and environmental quality standards for key indicators relevant for the wet weather situation). The guidance claims that its methodology is based on the fact that the mathematical simulation of drainage processes in urbanized areas has become the current level of knowledge in the field. Thus, the minimal requirements on handling rainwater in combined sewers should not only be based on the requirements on the overflow devices' construction, but they should also take into account that a certain share of polluting substances should be drained into the biological treatment of the treatment plants during rain. By means of the key indicators and their values the methodology also provides tools to identify critical disturbances of receiving waters resulting from the storm water overflows. For these cases, biological assessment of the receiving water based on benthic invertebrates is recommended.
Guidance National	Evaluation of Sewer Systems in Urban Catchments, guidance, issued by the State Environmental Fund of the Czech Republic (governmental institution), 2009 (<i>Posouzení stokových systémů urbanizovaných povodí, metodická příručka, 2009, Státní fond životního prostředí</i>)	Non-binding guidance published to guide authorities when evaluating EU funded environmental projects, mainly sewer projects studies. The aim of the guidance is to assess the sewer systems' function. It combines a methodology based on the combination of monitoring and mathematical simulations of the whole rainfall-runoff process in the urban catchment. It discusses a wide range of issues from data quality and its interpretation to economical evaluation rules. Included in the guidance is a reference guide allowing for quick indicative project assessment.
Guidance National	ČSN EN 752 (75 6110), Drain and sewer systems outside buildings, technical standard, 2008 (<i>ČSN EN 752 (75 6110) Odvodňovací systémy vně budov, 2008</i>)	The Czech harmonised standard based on the European standard EN 752 sets targets for drain systems outside of buildings, functional requirements to achieve those targets, as well as principles of strategies, policies and procedures related to planning, designing, conducting, operating and remediation.
Guidance National	Relief chambers and separators, technical standard, 2003, (<i>TNV 756262 - Odlehčovací komory a separátory, 2003</i>)	The standard recommends technical characteristics of storm overflow devices. It applies to designing, constructing and operating of relieving chambers and separators in combined sewer systems of urban catchments and in separate rainfall sewer systems of industrial plants or transport constructions. It does not

Overview of legal and policy framework. Relevant references to storm water overflows.

		apply to separate sewer systems. The standard names related legislature and standards, defines key terms and describes relief chambers and separators generally and their different types. It provides methods for flow volume calculation and hydraulic calculation. Technical details of overflow devices' design, construction and operation are provided.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
26. Which types of sewer system does the Czech Republic have?	Both separate and combined sewer systems are used in the Czech Republic. According to the interview with Dr. Kabelková, combined systems were used in the past (town centres nowadays), separate systems came into use later on.
27. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	According to the <u>Czech Statistical Office</u> , the total length of pipelines of both system types is 43.618 km. According to Dr. Kabelková, this number may not include the separate sewer systems, as they do not fall under the provisions of the Water Pipelines and Sewers Law and thus it is possible that not all of them are registered. Dr. Kabelková estimated that combined systems take up between 2/3 or ¾ of the whole length of all sewer systems.
28. How many storm water overflows infrastructures exist in the Czech Republic?	According to Dr. Kabelková, the estimate number of storm water overflow structures is 5000.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
29. Is there information on the occurrence of storm water overflows?	According to Dr. Kabelková, it is very difficult to obtain such data. She claims that accurate information might be available only in the drainage master plans which are not publicly available. She states that every overflow structure is different and it discharges with different frequency (one overflow to tens of overflows per year) and different volume (thousands to hundreds of thousands cubic meters per year). She estimates that 40% to 70% of the rain flow in catchments of a combined sewer systems might be drained to a treatment plant, the rest is an overflow. Dr. Kabelková and her colleagues have created <u>the Information System of Combined Sewer Overflows and Their Impacts on Receiving Waters</u> (ISOK). As its name suggests, the software is designed to store, evaluate, visualize and link data from the assessment of emissions from combined sewer overflows and of environmental quality standards in receiving waters including biological survey (methodology according to the <u>The Evaluation Guidance 1</u>). Pilot tests have been conducted and the project has been described in the Water Management Review (http://www.vodnihospodarstvi.cz/eVH/2014/eVH-2014-02.pdf , http://www.vodnihospodarstvi.cz/eVH/2014/eVH-2014-03.pdf).
30. Are storm water overflows monitored in the Czech Republic? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	According to Dr. Kabelková, operational monitoring of storm water overflows is very individual and rather rare. It happens only in bigger cities (e.g. Prague, Brno) and only selected overflow devices are monitored. She states that monitoring campaigns lasting several weeks are conducted when preparing the drainage master plans.

Available data on storm water overflows

Table 7.2.1

Discharge and treatment of waste waters from sewerage systems in the years 1989 and 2006–2012

Indicator	Measurement unit	Year							
		1989	2006	2007	2008	2009	2010	2011	2012
Inhabitants (mean)	thousands of inhabitants	10,364	10,267	10,323	10,430	10,491	10,517	10,495	10,509
Inhabitants living in buildings connected to sewerage systems	thousands of inhabitants	7,501	8,215	8,344	8,459	8,530	8,613	8,672	8,674
	%	72.4	80.0	80.8	81.1	81.3	81.9	82.6	82.5
Waste waters discharged to sewerage systems (excluding rain water) in total	million m ³	877.8	542.0	519.3	508.8	496.4	490.3	487.6	473.2
	% as of 1989	100.0	61.7	59.2	58.0	56.6	55.9	55.5	53.9
Treated waste waters including rain water ¹⁾	million m ³	897.4	857.4	841.2	807.5	842.9	957.9	871.0	836.7
Treated waste waters in total excluding rain water	million m ³	627.6	510.6	497.6	485.0	472.7	471.5	472.2	459.4
	% as of 1989	100.0	81.4	79.4	77.3	75.4	75.2	75.3	73.2
Percentage of treated waste waters excluding rain water ²⁾	%	71.5	94.2	95.8	95.3	95.2	96.2	96.8	97.1

Source: Czech Statistical Office

Note: ¹⁾ In the year 1989 the data relate to sewerage systems run by the main operators.

²⁾ This percentage relates to waters discharged to sewerage systems.

FACTSHEET FOR DENMARK²⁰⁰

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
43. What are the competent authorities for wastewater treatment and management in Denmark?	In Denmark, no specific authority for storm overflows exists. The relevant authorities are the ones with general competencies in wastewater treatment. <u>The Ministry of the Environment and Food²⁰¹</u> The Ministry monitors the aquatic environment²⁰² and prepares water plans and action programs. The water plans²⁰³ set environmental objectives for all waters subject to water planning and the action programs describe how these objectives will be achieved. The Minister for the Environment serves as the water district authority. The minister is responsible for ensuring that water plans are prepared and that environmental goals are met²⁰⁴. <u>The Nature Agency²⁰⁵</u> The Nature Agency is an institution under the Ministry of Environment and Food that implements the Government's environmental policy in areas such as the following: a) Ensuring clean water, b) Care, protection and restoration of nature, and c) General planning of cities and landscapes²⁰⁶. The Agency handles the practical task of preparing water plans and action programs²⁰⁷. <u>The Municipalities</u> The municipalities are responsible for ensuring that wastewater and rainwater is disposed of properly. The actual wastewater treatment and management is handled by wastewater utilities, which are typically owned by the municipalities. According to the Environmental Protection Act and the Water Sector Act, each Municipal Council must develop a Wastewater Plan²⁰⁸. The Wastewater Plan describes existing and planned sewage areas and treatment measures - private and municipal - including how wastewater and rainwater is handled outside the sewage areas²⁰⁹. The Wastewater Plan is revised regularly taking into account maintenance, renewal and upgrading plans.

²⁰⁰ A representative from the Department of Climate Adaptation, Water Sector and Groundwater in the Nature Agency has been contacted for the purposes of the report (Helle Mirjam Petersen, direct phone: (+45) 72 54 25 48, e-mail: hempe@nst.dk).

²⁰¹ <http://mfvm.dk/>.

²⁰² <http://mfvm.dk/natur/vand/>.

²⁰³ Water plans are a key element in the implementation of the EU Water Framework Directive. More detailed info available here: <http://naturstyrelsen.dk/vandmiljoe/vandplaner/>.

²⁰⁴ <http://naturstyrelsen.dk/vandmiljoe/vandplaner/om-vandplanerne/organisering/>.

²⁰⁵ <http://naturstyrelsen.dk/>.

²⁰⁶ <http://naturstyrelsen.dk/om-os/>.

²⁰⁷ <http://naturstyrelsen.dk/vandmiljoe/vandplaner/om-vandplanerne/organisering/>.

²⁰⁸ The Nature Agency: 'Who is responsible for the sewers?', <http://naturstyrelsen.dk/vandmiljoe/klima/skybrud/hvem-har-ansvaret-for-kloakkerne/>.

²⁰⁹ Klimatilpasning.dk: 'Spildevandsplaner', February 2015, <http://www.klimatilpasning.dk/sektorer/plan/klimatilpasning-i-kommunerne/spildevandsplaner.aspx>.

Basic information		
	Based on the water plans developed by the Nature Agency, the municipalities must also develop local action plans for how water plans and action programs should be implemented²¹⁰. Contact info for each of the 98 municipalities in Denmark can be found here: http://www.kl.dk/Vejledninger-og-varktojer/Kommunefakta/. Greater Copenhagen Utility (<i>Hovedstadsområdets Forsyningsselskab - HOFOR</i>²¹¹) is responsible for the handling of wastewater and rainwater in eight municipalities in the capital region: Albertslund, Brøndby, Dragør, Herlev, Hvidovre, Copenhagen, Rødovre and Vallensbæk.	
44. What is the transposing law(s) of the UWWTD in Denmark?	The Urban Waste Water Treatment Directive has been transposed into Danish law by the following legal acts:	
	Danish Title	English Translation
	BEK nr. 1448 af 11/12/2007 Bekendtgørelse om spildevandstilladelser m.v. efter miljøbeskyttelseslovens kapitel 3 og 4 (Spildevandsbekendtgørelsen) ²¹²	Statutory Order No. 1448 of 11 December 2007 Statutory Order on wastewater permits etc. according to the Environmental Protection Act, chapters 3 and 4 (The Wastewater Statutory Order)
	BEK nr. 332 af 25/03/2010 Bekendtgørelse om ændring af bekendtgørelse om spildevandstilladelser m.v. efter miljøbeskyttelseslovens kapitel 3 og 4 (Ændringer som følge af implementering af grundvandsdirektivet) ²¹³	Statutory Order No. 332 of 25 March 2010 Statutory Order amending the Statutory Order on wastewater permits etc. according to the Environmental Protection Act, chapters 3 and 4 (Changes due to implementation of the Groundwater Directive)
	BEK nr. 231 af 05/03/2014 Bekendtgørelse om kvalitetskrav til miljømålinger ²¹⁴	Statutory Order No. 231 of 5 March 2014 Statutory Order on quality requirements for environmental measurements
	BEK nr. 1399 af 15/12/2014 Bekendtgørelse om overvågning af overfladevandets, grundvandets og beskyttede områders tilstand og om naturovervågning af internationale naturbeskyttelsesområder ²¹⁵	Statutory Order No. 1399 of 15 December 2014 Statutory Order on monitoring of the condition of surface water, groundwater and preserved areas and on natural surveillance of international protected areas

²¹⁰ <http://naturstyrelsen.dk/vandmiljoe/vandplaner/om-vandplanerne/organisering/>.

²¹¹ <http://www.hofor.dk/>.

²¹² <https://www.retsinformation.dk/Forms/R0710.aspx?id=113752>.

²¹³ <https://www.retsinformation.dk/Forms/R0710.aspx?id=130949>.

²¹⁴ <https://www.retsinformation.dk/Forms/R0710.aspx?id=160496>.

²¹⁵ <https://www.retsinformation.dk/Forms/R0710.aspx?id=166586>.

Basic information	
45. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I has not been transposed into Danish law. However, direct reference to Section A is made in Annex 1 to the publication ‘Guidelines for Development of Action Plans’ in connecting with the water plans for the period 2010-2015 ²¹⁶ . The ‘Guidelines for Development of Action Plans’ describe the foundation that has been applied in the preparation of water plans and associated action programs for the period 2010-2015. Please see the section ‘Other direct references to storm water overflows’ for more information.
46. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	The Annex I footnote has not been transposed into Danish law.
47. What is the terminology used to refer to storm water overflows in Denmark? Is there more than one term used?	The terminology used in the Danish translation of the Urban Waste Water Treatment Directive is ‘<i>overløb efter voldsomt uvejr</i>’. This can be translated into ‘overflow after extreme weather condition’. The term ‘<i>regnbetingede udledninger/overløb</i>’ has also been identified, e.g. in publications issued by the Nature Agency. This can be translated into ‘rain conditioned discharges/overflows’. Sometimes the slightly longer term ‘<i>regnvandsbetingede udledninger/overløb</i>’ is used. This can be translated into ‘rainwater conditioned discharges/overflows’.
48. Is there a definition of storm water overflow in Denmark?	According to the Nature Agency, the term ‘storm water overflows’ means the wastewater released via storm water discharges into rivers, lakes and the sea from areas such as roofs, roads, paths and squares that are connected to a sewerage system. Storm water overflows are divided into two types: The separate sewer discharges containing only rainwater from surfaces, and the combined sewerage discharges, consisting of a mixture of surface water and wastewater ²¹⁷ .
49. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Denmark have a definition of extreme or unusual rainfall event?	The Danish Meteorological Institute uses three different terms to define extreme or unusual rainfall events: 1. A cloudburst/torrential rainstorm is defined as a rainfall intensity of 15 mm or more in 30 minutes or less²¹⁸. 2. Heavy rain is defined as a rainfall amount that exceeds 24 mm during 6 hours locally within the warning area²¹⁹. 3. Extreme precipitation is defined as a rainfall amount that exceeds 60 mm during the course of 24 hours (There is no Danish climatological definition of how many millimetres of precipitation that must fall within 24 hours for it to be classified as extreme precipitation. The 60 mm limit is selected because it is an event that does not occur too often)²²⁰.

²¹⁶ The Nature Agency: ‘Retningslinjer for udarbejdelse af indsatsprogrammer, Bilag 1 – Punktkilder’, p. 18, <http://naturstvrelsen.dk/vandmiljoe/vandplaner/vandplaner-2009-2015/retningslinjer/>.

²¹⁷ The Nature Agency: ‘Point Sources 2013’, 2015, p. 29, <http://naturstvrelsen.dk/media/133688/punktkilderapport-2013.pdf>.

²¹⁸ The Danish Meteorological Institute: ‘Warnings about hazardous weather in Denmark’, <http://www.dmi.dk/service-menu/varsel-beskrivelse/>.

²¹⁹ *ibid.*

²²⁰ The Danish Meteorological Institute: ‘More - and more intense - rain over Denmark’, 30 August 2010, <http://www.dmi.dk/nvheder/arkiv/nvheder-2010/mere-og-mere-intens-regn-over-danmark/>.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
13. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	The legal review shows that the relevant legal requirements from UWWTD have not been explicitly transposed. The relevant Danish legislation tends to use general terms like ‘discharge of wastewater’ without specifying in how or when the discharge takes place. Direct references to storm water overflows are mostly found in policy and guidance documents as well as in water management plans and regional plans. Generally, it appears as if Denmark is aware of the problems caused by storm water overflows, including the potential impact caused by climate change, and is working actively to decrease the number of overflows. <u>Control of Storm Water Overflows:</u> The Nature Agency oversees the water utilities' emissions. In addition to this, the Nature Agency is charged with supervision of storm water overflows and dealing with specific cases regarding storm water overflows, e.g. if notified of a disruption from sewage supplies, reports from municipalities or citizens, or if the Nature Agency by other means have become aware of a problem. <u>Wastewater Emission Permits:</u> The municipalities are authorized to issue emission permits according to the Environmental Protection Act (<i>Miljøbeskyttelsesloven</i>), paragraph 28(1). The permits are typically based on statistic calculations and have requirements in the form of a statistically derived acceptable overflow frequency and functional requirements, such as a retention or collection basin with a storage volume corresponding to the overflow frequency. The permits very rarely have requirements on sampling and measuring. <u>Data on Storm Water Overflows:</u> The municipalities are responsible for ensuring that data on storm water overflows are entered and maintained in a database on the National Environmental Portal (<i>Danmarks Miljøportal</i>)²²¹. Storm water overflows in Denmark are described annually in the report on ‘Point Sources’ published by the Nature Agency. The publication compiles the monitoring results of different point sources: treatment plants, industry, storm water overflows, sparsely built areas, freshwater aquaculture, and saltwater aquaculture. The latest report can be found here: http://naturstyrelsen.dk/media/133688/punktkilderapport-2013.pdf. <u>Improvements to the Sewer System:</u> In the period from 2007-2012, the municipalities have made several amendments to the sewage system by adding basins and separating wastewater²²².

²²¹ <http://www.miljoportal.dk/>.

²²² The Nature Agency: ‘Point Sources 2013’, 2015, p. 33, <http://naturstyrelsen.dk/media/133688/punktkilderapport-2013.pdf>.

Overview of legal and policy framework. Relevant references to storm water overflows.

	<u>National Targets:</u> No national targets for reducing the load from storm water overflows have been set. However, in the drafts for the water management plans about 790 storm water overflows infrastructures have been identified, and preventative efforts are to be made over the first and second plan periods, which run until 2015 and 2022, respectively²²³. <u>Climate Change Adaptation Plans:</u> In the Economic Agreement for 2013, the Government agreed with the municipalities that they should have climate change adaptation plans ready by the end of 2013. The plans had to identify risks of flooding and highlight any capacity problems in the sewage treatment plants²²⁴. <u>Direct References to Storm Water Overflows:</u> Direct references to storm water overflows in guidance documents, technical documents etc. on the relevant EU directives can be found in the following publications: ■ Guidance no. 11058 of 1/1/1999 to the Order on wastewater permits etc. Environmental Protection Act Chapters 3 and 4 ■ A permit is needed to discharge diluted wastewater from combined sewerage systems in connection with rainfall. The dimensioning of the individual overflow must be based on a specific assessment of the overflow and the receiving waters. ■ Better Aquatic Environment – Why River Basin Management Plans? ■ A publication intended to promote a common understanding of Denmark's aquatic environment problems. According to the publication, storm water overflows are one of the main water management challenges in Denmark. ■ Implementation of the new bathing water directive to the Danish bathing water system ■ In relation to the regional plans and the first generation of water management plans, it is noted that substantial expansions of treatment facilities by storm water discharges and non-sewered properties are still lacking. ■ Guidance no. 9628 of 12/11/2010 on the development of bathing water profiles ■ Storm water overflows are listed as a source of pollution that often give rise to fecal contamination. It is noted that recirculation data is relevant to take into consideration when assessing polluted sites and tracing pollution. ■ Quality Assurance of Public Water Supplies ■ A brief mention of storm water overflows as a source of pollution.
14. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g.	<u>Standards in Wastewater Emission Permits:</u> According to the Guidance on the Wastewater Statutory Order, the emission permit standards must ensure that biological or chemical water quality requirements can be met after a certain dilution zone. The permit authority shall set such a dilution zone. In streams, for example, a continuous discharge will typically be assessed in relation to the median minimum streamflow, calculated with full immersion in the stream and taking into account background concentrations in the stream of the substances desired discharged. When it comes to discharges that only happen in conjunction with rain events, it must be taken into account that water flow in the stream in these situations

²²³ The Nature Agency: 'Point Sources 2013', 2015, p. 30, <http://naturstyrelsen.dk/media/133688/punktkilderappport-2013.pdf>.

²²⁴ The Ministry of Environment: 'Answer to Question S 2116', 8 August 2013, <http://www.ft.dk/samling/20121/spoergsmaal/s2116/svar/1067377/1271974.pdf>.

Overview of legal and policy framework. Relevant references to storm water overflows.

comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other		is greater than the median minimum. The emission permit states the permissible amount of wastewater and concentrations and/or amounts of pollutants and any variations per hour, day or week ²²⁵ . <u>Standards in the Water Management Plans:</u> During national water planning, the recipient load from overflows is calculated. In locations where it is estimated that overflows will impede the environmental targets of the receiving water bodies from being met, specific actions are laid out in the water management plans. These specific actions shall reduce emissions of oxygen-consuming substances into waterways and consists of the establishment of first-flush basins connected to storm water overflow infrastructures. The estimate is associated with large uncertainties and may be overestimated. The current water management plans can be found on the Nature agency's home page ²²⁶ . Proposals for the Danish River Basin Management Plans for the period 2015-2021 have been in a six month public hearing until 23 June 2015. They must be completed and adopted by December 22, 2015. They are also available on the Nature Agency's website ²²⁷ .		
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	Guidance no. 11058 of 1/1/1999 to the Order on wastewater permits etc. Environmental Protection Act Chapters 3 and 4 (<i>Vejledning til bekendtgørelse om spildevands-tilladelser m.v. efter</i>	<u>7.4.4 Overløb fra fælleskloakker</u> Tilladelse til udledning af opspædet spildevand (en blanding af overfladevand og spildevand) fra fælleskloakerede områder i forbindelse med regnskyl meddeles af amtsrådet. Overløb kan ske enten direkte fra et overløbsbygværk, der er placeret	<u>7.4.4 Overflow from Combined Sewers</u> A permit to discharge diluted wastewater (a mixture of surface water and wastewater) from combined sewerage systems in connection with rainfall is granted by the county council. The overflow can happen either directly from a storm water overflows

²²⁵ Vejledning til bekendtgørelse om spildevandstilladelser m.v. efter miljøbeskyttelseslovens kapitel 3 og 4 (Vejledning nr. 11058 af 01/01/1999), '7.6 Bestemmelser i udledningstilladelser', <https://www.retsinformation.dk/forms/R0710.aspx?id=12629>.

²²⁶ The Nature Agency: 'Adopted water management plans (2009-2015)', <http://naturstvrelsen.dk/vandmiljoe/vandplaner/vandplaner-2009-2015/vedtagne-vandplaner-2009-2015/>.

²²⁷ The Nature Agency: River basin management plans (2015-2021), <http://naturstvrelsen.dk/vandmiljoe/vandplaner/vandomraadeplaner-2015-2021/forslag-til-vandomraadeplaner/>.

Overview of legal and policy framework. Relevant references to storm water overflows.				
		<i>miljøbeskyttelseslovens kapitel 3 og 4²²⁸</i> .	på en spildevandsledning, eller fra bassiner, der er placeret i tilknytning til spildevandsledningen. Interne overløb på renseanlæg, herunder delvist rensset spildevand, skal enten reguleres med renseanlæggets udledningstilladelse eller med en særskilt udledningstilladelse for overløbet. Dette kan f.eks. være et mekanisk- biologisk anlæg, hvor der er overløb efter den mekaniske rensning. Almindeligvis vil magasinering af de første 4-6 mm af afstrømningen kunne sikre, at kloaksedimenter afledes til renseanlæg. Dimensionering af det enkelte overløb skal ske udfra en konkret vurdering af overløbet og det modtagende vandområde.	infrastructure, or from pools that are located in connection to the sewer. Internal overflow on wastewater treatment plants, including partially treated wastewater, must either be regulated by the treatment plant's discharge permit or by a separate discharge permit for the overflow. This can for example be a mechanical biological facility where there is overflow after the mechanical cleaning. Normally, the collection of the first 4-6 mm of the run-off will ensure that sewer sediments will be directed to wastewater treatment plants. The dimensioning of the individual overflow must be based on a specific assessment of the overflow and the receiving waters.
WFD	Y	Better Aquatic Environment – Why River Basin Management Plans? (<i>Bedre vandmiljø - hvorfor vandområdeplaner?</i>) ²²⁹		Summary: The publication was issued by the Nature Agency in 2014 and is intended to promote a common understanding of Denmark's aquatic environment problems. It is explained that one of the factors that negatively affects the aquatic environment are storm water overflows (p. 12). In a chapter on point sources, storm water overflows are said to be one of the main water management challenges. Initiatives dealing with storm water overflows are costly, as they involve the establishment of collection basins in densely populated areas. Instead, municipalities often choose to install separate sewers so rainwater and wastewater are not mixed, and to increase the size of the sewers.

²²⁸ Ministry of Environment: 'Vejledning til bekendtgørelse om spildevandstilladelser m.v. efter miljøbeskyttelseslovens kapitel 3 og 4, 1999, <https://www.retsinformation.dk/Forms/R0710.aspx?id=12629#B2>.

²²⁹ <http://naturstyrelsen.dk/media/nst/89700/Bedre%20vandmilj%C3%B8.pdf>.

Overview of legal and policy framework. Relevant references to storm water overflows.

				Initiatives dealing with pollution from point sources are established in the water management plans. When these initiatives are carried out Denmark will be very far ahead in relation to the limitation of emissions of organic material from wastewater treatment plants, storm water overflows and non-sewered properties in sparsely build areas. The initiatives will significantly improve the environmental state of aquatic bodies (p. 15). In a chapter on climate adaptation, it is explained that more heavy rain means that the conditions are changing for the aquatic environment. This involves an increase in the risk of storm water overflows (p. 17).
MSFD	N			
BWD	Y	Implementation of the new bathing water directive to the Danish bathing water system (<i>Implementering af det nye badevandsdirektiv til det danske badevandsystem</i>²³⁰).	4.3 Gennemgang af planlægningsgrundlag 4.3.1 Regionplaner/Vandplaner I regionplanen for HUR er der således forholdsvis detaljeret stillet krav til rensning af spildevand, reduktion af belastningerne fra regnbetingede udledninger og ukloakerede ejendomme. Renseanlæggene er stort set færdigudbyggede efter regionplanens retningslinier, hvorimod der fortsat mangler væsentlige reduktioner af belastningerne fra de regnbetingede udledninger og ukloakerede ejendomme (p. 39). Renseanlæggene i hele Danmark vurderes generelt stort set at være færdigudbyggede for opfyldelse af regionplanernes målsætninger. Derimod mangler der fortsat væsentlige udbygninger af renseforanstaltninger ved regnvandsbetingede	Summary and conclusions of the report can be found on p. 11-14. The main references to storm water overflows are: 4.3 Review of the Planning Foundation 4.3.1 Regional Plans/Water Management Plans In the regional plan for HUR²³¹, there is relatively detailed demand for wastewater treatment, reduction of the impacts from storm water overflows and non-sewered properties. The expansions of the wastewater treatment plants are almost completed according to the guidelines for the regional plan, while significant reductions from the impacts of storm water overflows and non-sewered properties are still lacking (p. 39). The wastewater treatment plants in Denmark are

²³⁰ The Nature Agency: 'Implementering af det nye badevandsdirektiv til det danske badevandsystem', 2009, <http://naturstyrelsen.dk/publikationer/2009/apr/implementering-af-det-nye-badevandsdirektiv-til-det-danske-badevandsystem/>.

Overview of legal and policy framework. Relevant references to storm water overflows.

			udledninger og ukloakerede ejendomme. Disse indgreb vil ofte kunne have væsentlig indflydelse på nedstrøms beliggende vandområder med krav om badevandskvalitet, som anført i afsnit 4.1 (p. 39). 4.3.2 Basisanalyse del 2 Det må antages, at det for at opfylde vandløbsmålsætningerne vil det blive nødvendigt at reducere udledningen af organisk stof betydeligt udover, hvad der allerede er besluttet (i kommunernes investeringsplaner), specielt på Sjælland og Lolland Falster. Dette vil primært omfatte en bedre rensning ved ukloakerede ejendomme og reduceret belastning fra regnbetingede udledninger - specielt fra overløbsbygværker. Begge disse typer af indgreb kan have væsentlig indflydelse på den faktiske badevandskvalitet i et nedstrømsliggende badevandsområde (p. 40).	generally assessed to be largely finished for fulfilment of the performance objectives of the regional plans. By contrast, substantial expansions of treatment facilities by storm water discharges and non-sewered properties are still lacking. These interventions will often have a significant impact on downstream water bodies requiring bathing water quality, as stated in section 4.1 (p. 39). 4.3.2 Basic Analysis Part 2 ... It must be assumed that in order to meet the environmental water quality targets it will be necessary to reduce emissions of organic matter significantly beyond what has already been decided (in municipal investment plans), especially on Zealand and Lolland Falster. This will primarily include improved treatment by non-sewered properties and reduced pollution from storm water discharges - especially from combined sewer overflows. Both of these types of interventions can significantly affect the actual quality of bathing water in a downstream bathing area (p. 40).
	Y	Guidance no. 9628 of 12/11/2010 on the development of bathing water profiles (<i>Vejledning om udarbejdelse af badevandsprofiler</i> ²³²).	Eksempler på forureningskilder ... Kilder der ofte giver anledning til fækal forurening: – Udløb fra vandløb – Udløb fra overløbsbygværker for fælleskloakerede områder – Udløb fra separatkloakerede områder – Udløb fra spildevandsudledninger, placeret i havledninger – Diffus afstrømning over stranden (typisk fra markdræn etc.) (p. 5).	This guidance document on the development of bathing water profiles has information on what is required to meet the Bathing Water Order's requirements for bathing water profiles. A profile mainly consists of a summary of already known or available knowledge, possibly supplemented by a simple visual inspection of the beach. The main references to storm water overflows are: Examples of sources of pollution

²³² The Ministry of Environment: Guidance no. 9628 of 12 November 2010, <https://www.retsinformation.dk/forms/R0710.aspx?id=133837>.

Overview of legal and policy framework. Relevant references to storm water overflows.				
			Opsporing og nærmere vurdering af kilder til forurening Nedbør: En anden faktor, som er vigtig at inddrage i vurderingen af betydningen af de mulige kilder, er nedbør. Er der en sammenhæng mellem nedbør og forhøjede bakterietal? I givet fald er sandsynlige kilder regnbetingede udledninger fra kloaksystemet. Hvis der findes data om f.eks. overløb fra bygværker i afløbssystemet eller aflastning via renseanlæg – varighed, vandaflastning – vil det forbedre vurderingen. Hvis der ikke findes sådanne detaljerede oplysninger, er det tilstrækkeligt at anvende nedbørsmængder fra DMI (p. 6).	Sources that often give rise to fecal contamination: - Discharge from streams - Storm water overflows from combined sewers - Storm water overflows from separate sewers - Wastewater discharges located in sea pipes - Diffuse runoff over the beach (typically from field drains etc.) (p. 5) Tracing and further evaluation of sources of pollution Precipitation: Another factor that is important to include in the evaluation of the significance of the possible sources is precipitation. Is there a relationship between rainfall and elevated bacteria count? If so, likely sources are storm water overflows from the sewer system. If there is data on for example overflows from combined sewers or relief through treatment plants - duration, water relief - it will improve the assessment. If no such detailed information exist, it is sufficient to use precipitation data from DMI (p. 6).
DWD	Y	Quality Assurance of Public Water Supplies (<i>Kvalitetssikring på Almene vandforsyninger</i> ²³³)	Nedenfor er til inspiration nævnt en række eksempler på steder, der kan give anledning til forurening. Listen er ikke udtømmende: f. Gulvafløb og afløb for spildevand, som afledes til kloaksystemet enten via den fælles spildevandsledning eller den separate regnvandsledning, udgør en risiko, hvis der under f.eks. et skybrud vil ske en tilbagestuvning af spildevand fra kloaksystemet, som kan risikere at løbe ind i vandværket.	For inspiration, several examples of places that may cause pollution are cited below. The list is not exhaustive: f. Floor drains and sewer drains, which are drained to the sewer system via either the common sewer or the separate storm water drain, pose a risk if during a cloudburst there will be a damming of wastewater from the sewer system that risk running into waterworks.
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International	Direct reference	Title of document	Text in MS language	Translation into English

²³³ The Nature Agency: 'Kvalitetssikring på almene vandforsyninger', 2014, http://naturstyrelsen.dk/media/nst/11036340/vejledning_kvalitetssikring_juli_2014.pdf.

Overview of legal and policy framework. Relevant references to storm water overflows.				
conventions or commissions	(Y/N)			
OSPAR	N			
HELCOM	N			
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Report National	Point Sources 2013 (<i>Punktkilder 2013</i>) ²³⁴		Storm water overflows in Denmark are described annually in the report on 'Point Sources' published by the Nature Agency. The 2013 publication compiles the monitoring results of different point sources: treatment plants, industry, storm water overflows, sparsely built areas, freshwater aquaculture, and saltwater aquaculture. According to the data, the discharge of organic matter and nutrients in storm water overflows in a normal year has reduced by 20-30% since the early 1990s, but has stagnated since 2000. The reports from 2009-2013 can be found here: http://naturstyrelsen.dk/vandmiljoe/vand-i-hverdagen/spildevand/punktkilder-udledning-og-overvaagning/ .	
Policy National	The Commission's assessment of the Danish River Basin management plans, SWD (2012)379 ²³⁵ . This report refers to water plans that were canceled in 2012. The existing water plans for the period 2009-2015 was published on October 30 2014.		Denmark has four river basin districts (River Basin District 1: Jutland and Fyn, River Basin District 2: Sjaelland, River Basin District 3: Bornholm, River Basin District 4: International RBD), out of which the latter is sharing water courses with Germany to the south. River Basin Management Plans have been issued for 15 sub districts to RBD 1, and 6 sub districts of RBD 2. All the 23 Danish River Basin Management Plans for the period 2009-2015 were approved by the Danish Government and were subsequently adopted and published by the Danish Nature Agency on 30 October 2014 and entered into force on the same day. The plans can be found on the Nature agency's home page: http://naturstyrelsen.dk/vandmiljoe/vandplaner/vandplaner-2009-2015/vedtagne-vandplaner-2009-2015/ Proposals for the Danish River Basin Management Plans for the period 2015-2021 have been in a 6 month public hearing until 23 June 2015. The proposals can be found here: http://naturstyrelsen.dk/vandmiljoe/vandplaner/vandomraadeplaner-2015-2021/forslag-til-vandomraadeplaner/ . Storm water overflows are briefly mentioned in the assessment twice. First time is in section 12.1	

²³⁴ The Nature Agency: 'Point Sources 2013', 2015, <http://naturstyrelsen.dk/media/133688/punktkilderapport-2013.pdf>.

²³⁵ http://ec.europa.eu/environment/water/water-framework/pdf/3rd_report/CWD-2012-379_EN-Vol3_DK.pdf.

Overview of legal and policy framework. Relevant references to storm water overflows.

		‘Programme of measures (PoM) – general’, where it is stated that “The municipalities are responsible for most measures on wastewater, and there are additional measures in the RBMPs to reduce point sources from scattered dwellings, storm water overflows and discharges from smaller public wastewater treatment plants. The information on responsibility of different authorities is not easily accessible in the RBMPs.” Second time is in section 13.2 ‘Flood Risk Management’, where it is noted that “Floods are addressed as a significant water management pressure related to intensive rain episodes causing flooding of riparian areas and urban areas, large run-off from paved surfaces in urban areas, sewage overflows, and deterioration of environmental status. Traditional flood protection measures have been used for many years and include land drainage, regulation and physical modifications of the rivers in the form of embankments and channelization. Several potential new flood protection measures are listed, e.g. allow flooding of riparian areas whilst giving economic compensation to farmers, enhancing the capacity in the sewage networks, building water retention ponds along roads and other paved surfaces.”
Report National	Contaminants Stemming from Storm Water Overflows Infrastructures in Combined Sewerage Systems (<i>Forurenende stoffer fra overløbsbygværker fra fælleskloakerede områder</i>) ²³⁶	This scientific report from 2010 was developed by COWI for the Urban and Environmental Planning Agency (now the Nature Agency). It deals with contaminants stemming from storm water overflows infrastructures in combined sewerage systems. A short description of the background, objective, and conclusion of the study is available in English on page 6-7 of the report.
Guidance National	Guidelines for Development of Action Plans (<i>Retningslinjer for udarbejdelse af Indsatsprogrammer</i>) ²³⁷	The ‘Guidelines for Development of Action Plans’ describe the foundation that has been applied in the preparation of water plans and associated action programs for the period 2010-2015. It is a very comprehensive, technical document. Pollution from point sources are dealt with in Annex 1, and section 2 deals specifically with storm water overflows. It is stated that the action plans must encompass the necessary measures to control storm water overflows from combined sewers. The measures are related to the reduction of organic matter to the aquatic bodies, but also affect the level of nitrogen, phosphorus, heavy metals, hazardous substances, the hydraulic impact on streams, and infection risk at bathing sites. Emission permits must ensure that emissions do not prevent the receiving waters from reaching their designated environmental standards.
Guidance National	Practical Tools Catalogue (<i>Virkemiddelkatalog</i>) ²³⁸	An overview of the practical tools included in the water plans. Storm water overflows are mentioned in section 4.7, which provides a brief technical description of retention basins as a type of tool to prevent and/or mitigate storm water overflows. The section also deals with the costs of establishment.

²³⁶ https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.cowi.dk%2Fmenu%2Fservice%2FVandogmiljoe%2FVandforsyningogspildevand%2FDocuments%2FBLSTrapportover1%25C3%25B8b.pdf&ei=Bcl0VYO-G8at7gaU-IAQ&usq=AFQjCNGmPvzStcVLA5Ovj8pZ30PLhloNUQ&sig2=1tab_i5g0_VW98jC9bZpGw&bvm=bv.91071109.d.ZGU.

²³⁷ The Nature Agency: ‘Retningslinjer for udarbejdelse af indsatsprogrammer’, May 2012, <http://naturstyrelsen.dk/vandmiljoe/vandplaner/vandplaner-2009-2015/retningslinjer/>.

²³⁸ The Nature Agency: ‘Virkemiddelkatalog’, December 2011, http://naturstyrelsen.dk/media/nst/66504/Katalog%20over%20virkemidler%20211211_Endelig%20version%20.pdf.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows																				
Types of sewer system																				
31. Which types of sewer system does Denmark have?	Both combined and separate systems are in place. Combined sewerage systems are typically found in the older urban areas, while the separate sewer systems are found in the newer urban areas ²³⁹ .																			
32. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	The total sewerage area is currently 70,000 hectares or approximately 5% of the territory of Denmark. The distribution between combined and separate sewer areas is about 50% of each²⁴⁰. A report from 2004 states that the public sewage system (combined and separate) is about 57.000 km long. In addition, the connecting pipes have a total length of 10.800 km. The public sewerage system is thus approximately 70.000 km long if connecting pipes are included²⁴¹.																			
33. How many storm water overflows infrastructures exist in Denmark?	The available data is slightly inconsistent. The previously mentioned report from 2004 states that there were 5.069 storm water overflow infrastructures ('<i>overløbsbygværker</i>') registered in Denmark²⁴². The 2012 Point Source Report published by the Nature Agency in 2013 states that there were 5.069 of these infrastructures and that 1.498 of them were connected to a basin²⁴³. The 2013 Point Source Report published by the Nature Agency in 2015 states that there were 4.370 storm water overflow infrastructures of which 33% were connected to a basin. The difference in numbers is most likely due to problems with the data quality, something that is also mentioned in the 2013 report. The latest available number (the one for 2013) may be larger, as the report states that another 503 infrastructures of unknown type has been identified. These infrastructures could belong to either combined or separate sewer systems²⁴⁴. <table><tr><th colspan="3">Storm Water Overflows Infrastructures in 2013</th></tr><tr><th>Sewer Type</th><th>Total</th><th>% of storm water overflows infrastructures with a basin</th></tr><tr><td>Combined</td><td>4.370</td><td>33</td></tr><tr><td>Separate</td><td>12.675</td><td>17</td></tr><tr><td>No information</td><td>503</td><td>0</td></tr><tr><td>Total</td><td>17.548</td><td>21</td></tr></table>		Storm Water Overflows Infrastructures in 2013			Sewer Type	Total	% of storm water overflows infrastructures with a basin	Combined	4.370	33	Separate	12.675	17	No information	503	0	Total	17.548	21
Storm Water Overflows Infrastructures in 2013																				
Sewer Type	Total	% of storm water overflows infrastructures with a basin																		
Combined	4.370	33																		
Separate	12.675	17																		
No information	503	0																		
Total	17.548	21																		

²³⁹ The Nature Agency: 'The Sewerage System', 2015, <http://naturstvrelsen.dk/vandmiljoe/vand-i-hverdagen/spildevand/kloaknettet/>.

²⁴⁰ *ibid.*

²⁴¹ The Ministry of Environment: 'Environmental Project No. 919, 2004: Examination of municipal sewer renewal', p. 14, <http://mst.dk/service/publikationer/publikationsarkiv/2004/maj/undersogelse-af-kommunernes-kloakfornvelse/> (download link).

²⁴² *ibid.*

²⁴³ The Nature Agency: Punktkilder 2012, 2013, p. 27, <http://naturstvrelsen.dk/vandmiljoe/vand-i-hverdagen/spildevand/punktkilder-udledning-og-overvaagning/> (see link at the bottom). In the accompanying text it is stated that "Part of the storm water overflows are connected to a basin before discharge to streams, lakes or seas. The purpose of the basins is to reduce the discharge of nutrients and organic matter by sedimentation, and to create a delay in relation to the rain, so that any hydraulic impact, particularly in streams, is minimised."

²⁴⁴ The Nature Agency: Punktkilder 2013, 2015, p. 29, <http://naturstvrelsen.dk/publikationer/2015/feb/punktkilder-2013/>.

Available data on storm water overflows

Available quantitative data on the occurrence of storm water overflows

34. Is there information on the occurrence of storm water overflows?

No information on the occurrence of storm water overflows has been identified. In a note from the Minister of Environment it is explained that in Denmark, there is no annual registration of the total number of storm water overflows from combined sewers. This is because in practice the number of annual overflows is rarely detected at the individual overflow infrastructures²⁴⁵. Instead, the yearly amount of storm water overflows is calculated based on the amount of precipitation. The above mentioned note from the Minister of the Environment states that sewage systems' dimensions are adjusted to a capacity, so that the system can comply with the established requirements of a given number of overflows per year. Guidelines for the max. number of overflows that can be allowed per year are mapped out in the regional plans. The number of allowed overflows depends on how robust the receiving water area is.

35. Are storm water overflows monitored in Denmark? If yes, please describe the monitoring programme. Refer to:

- what is measured;
- how often; and
- at how many locations

The municipalities are responsible for ensuring that data on storm water overflows are entered and maintained in a database on the National Environmental Portal (*Danmarks Miljøportal*). They must calculate the yearly wastewater amount and the amount of organic matter²⁴⁶. Currently, only information on the outlet location is publicly available. Information in English about the Danish Natural Environment Portal can be found here: <http://www.miljoportal.dk/English/Sider/default.aspx>.

The discharge of nutrients, organic matter and wastewater from storm water overflows (combined and separate sewers) in the years 2007-2013 is listed in the latest report on point sources²⁴⁷:

Parameter	Discharged Amount						
	2007	2008	2009	2010	2011	2012	2013
Nitrogen, total-N ton	866	751	712	762	703	729	1.045
Phosphorus, total-P ton	214	186	177	186	185	177	239
Organic Matter, COD ton	17.668	15.312	14.515	13.528	13.596	12.978	16.514
Waste water, 1000 m3	249.573	216.388	205.240	213.726	210.994	203.080	257.301
Precipitation, mm	867	783	733	726	779	818	669

The numbers are calculated based on the yearly amount of precipitation. The increase in emissions from 2012 - 2013 has not been as large as indicated. Instead, the increase is due to a considerable improvement of the data. Graphs showing the development over the years 1991-

²⁴⁵ The Ministry of Environment: 'Answer to Question no. 463 from the Danish Parliament's Environment Committee', 24 September 2013, <http://www.ft.dk/samling/20121/almdel/miu/spm/463/svar/1075537/1283274/index.htm>.

²⁴⁶ Dataansvarsftalen Bilag 4 - Punktkilder, <http://www.miljoportal.dk/Dokumenter%20alle/Dataansvarsftalen%20Bilag%204%20-%20Punktkilder.%20Pdf.pdf>.

²⁴⁷ The Nature Agency: 'Point Sources 2013', 2015, p. 30, <http://naturstyrelsen.dk/media/133688/punktkilderapport-2013.pdf>.

Available data on storm water overflows

2013 are available on p. 31-33 in the latest report on point sources. The graphs show that the discharge of organic matter and nutrients in a normal year has reduced by 20-30% since the early 1990s, but has stagnated since 2000.

FACTSHEET FOR ESTONIA²⁴⁸

1. BASIC INFORMATION

Basic information	
General Information	
50. What are the competent authorities for waste water treatment and management in Estonia?	There are no authorities in Estonia specifically designated to deal with storm water overflows. Therefore authorities with general competencies on waste water treatment and management are relevant for dealing with storm water overflows. Ministry of the Environment²⁴⁹ is the competent body responsible for ensuring proper waste water treatment and management in Estonia. The Ministry of the Environment is assisted in its work by the following supporting bodies: ▪ Environmental Board²⁵⁰ (<i>Keskkonnaamet</i>) is the body under the Ministry of the Environment, responsible for implementing the state's policy in the field of environment, nature protection, radiation protection and to support the Ministry with the drafting and improvements to environmental legislation and applicable requirements. The Environmental Board's work includes supporting the Ministry on issues related to the implementation of wastewater legislation. It issues permits for the special use of water (<i>vee erikasutustuba, water permit</i>) to keep activities that may have an impact of all forms of water bodies under control²⁵¹. Water enterprises dealing with waste water treatment are required to obtain a permit for their activities. ▪ Environment Agency (<i>Keskkonnamagistruur</i>) operates under the ministry of the Environment and is responsible for executing the monitoring program for environment, including weather forecasting, drafting environmental assessments, maintenance and upgrades to monitoring and forecasting facilities. ▪ The Environmental Inspectorate²⁵² (<i>Keskkonnainspeksiioon</i>) is an administrative unit under the Ministry of Environment that exercises supervision in all areas of environmental protection. It coordinates and executes supervision regarding the use of natural resources and the protection of the environment. It is the institution dealing with environmental violations and also carries out investigations in criminal cases. ▪ Technical Regulatory Authority²⁵³ (<i>Tehnilise Järevalve Amet</i>) is responsible for overseeing safety and compliance with applicable requirements in construction works (including public water supply and public sewerage system), use of chemicals, gas installations, electrical works etc. ▪ Health Board²⁵⁴ (<i>Terviseamet</i>) is the Government Agency providing advice in the fields of health care, health protection, and safety of chemicals. The health Board also deals with environmental health and oversees the quality of public drinking water.

²⁴⁸ Ms Raili Niine, advisor at the Ministry of the Environment responsible for wastewater treatment was interviewed for the report.

²⁴⁹ www.envir.ee The head of the Water Department, Mr Rene Reisner, can be reached at: rene.reisner@envir.ee or by + 372 626 2855.

²⁵⁰ <http://www.keskkonnaamet.ee/>.

²⁵¹ Permits for the special use of water are required from companies and individuals who are seeking, for example, to lower the level of a water body or to construct a dam or turn a water body into a reservoir, also to discharge wastewater to a receiving water body or to ground water.

²⁵² <https://www.kki.ee>.

²⁵³ <http://www.tja.ee/>.

²⁵⁴ <http://www.tervisamet.ee/>.

Basic information	
	The development of the public water supply and sewerage infrastructure is done according to the Plan for the Development of Public Water Supply and Sewerage Infrastructure (<i>Development Plan</i>). The Development Plan is prepared for a minimum period of 12 years and needs to be designed by the local municipality, who is also responsible for its implementation. The Ministry of the Environment has issued a guidance document to support local municipalities in drawing up the plan. To enter into force, the Development Plan needs to be approved by the Environmental Board and the Health Board. The local municipalities are also responsible for, based on the requirements set by legislation, establishing the specifications for the treatment and removal of waste and precipitation water in their locality. It is the local municipality that issues construction permits according to the construction plan for the sewer system. If waste water is directed to an individual collecting system (in scarcely populated areas), the tank needs to have a compliance certificate. If the sewer system forms a part of the public sewer system, the owner of the building concludes a contract with the water undertaking. The verification of compliance with the applicable requirements is done according to the national control system. The Environmental Board conducts occasional controls on the quality of waste- and precipitation water discharged across the country. The Environmental Inspectorate also conducts occasional monitoring visits to verify compliance, but in contrast to the Environmental Board's control program, they normally react to a complaint or to an already occurring problem.
51. What is the transposing law(s) of the UWWTD in Estonia?	The law transposing the Urban Waste Water Treatment Directive is the Water Law²⁵⁵ from 11 May 1994 (Water Law, adopted 11 May 1994 O.J. I 1994, 40, 655 entry into force 16 June 1994). <i>Veeseadus (vastu võetud 11.05.1994, jõustumine 16.06.1994 (RT I 1994, 40, 655))</i>. The law is the framework legislation setting the basis for the use and protection of water; it regulates the relations between land owners and water users and the use of public water bodies. It aims to guarantee the quality and ecological balance of surface- and groundwater bodies. There are other implementing acts and regulations that supplement the transposition of the UWWTD in Estonia. For the purposes of this study, the most relevant are the following: ■ Regulation setting the Requirements for Waste Water Treatment and Management, Waste- and Precipitation Water Discharge Management and the Applicable limit Values and Methods for Verification of Compliance²⁵⁶ (Regulation setting the Requirements for Waste Water Treatment and Management) Based on §24 (2) of the Water Law, this Regulation sets the requirements for waste water treatment and management, waste- and precipitation discharge management, the applicable limit values as well as methods for the verification of compliance with these requirements. It must be noted that in the context of this legislation 'precipitation water discharge' covers storm water overflows. The Regulation therefore sets the requirements for the management and treatment of storm water overflows. (Regulation setting the Requirements for Waste Water Treatment and Management, Waste- and Precipitation Water Discharge Management and the Applicable limit Values and Methods for Verification of Compliance, adopted 29 November 2012 nr 99 OJ I 04.12.2012, 1 entry into force 1 January 2013, <i>Reovee puhastamise ning heit- ja sademevee suublasse juhtimise kohta esitatavad nõuded, heit- ja sademevee reostusnäitajate piirmäärad ning nende nõuete täitmise kontrollimise meetmed (Vastu võetud 29 November 2012 nr 99, RT I, 04.12.2012, 1 jõustumine 01 January 2013)</i>).

²⁵⁵ Available at (in Estonian only): <https://www.riigiteataja.ee/akt/104032015011?leiaKehtiv>.

²⁵⁶ Available at (in Estonian only): <https://www.riigiteataja.ee/akt/113062013013?leiaKehtiv>.

Basic information

- **Public Water Supply and Sewerage Act²⁵⁷**

This act regulates the organisation of water supply and the leading off and treatment of waste water, precipitation water, drainage water and other soil and surface water through the public water supply and sewerage system, and provides for the rights and obligations of the state, local governments, water undertakings and clients. The law sets the requirements for the Plan for the Development of Public Water Supply and Sewerage Infrastructure. It states that the Development Plan must contain maps of the collection and treatment area, dimensioned scheme of water supply and sewer facilities, the measures and timescale foreseen for the development and the associated costs. The Development Plan must be in compliance with the RBMP. (Public Water Supply and Sewerage Act, adopted 10 October 1999, OJ I 1999, 25, 363 entry into force 22 March 1999), *Ühisveevärgi ja –kanalisatsiooni seadus (vastu võetud 10 veebruar 1999, RT I 1999, 25, 363, jõustumine 22 märts 1999)*. It must be noted that in 2015 the Ministry of the Environment started work on a new Public Water Supply and Sewerage Act that aims to remove and replace some of the currently used ambiguous terms and issues related with priority substances.

- **Regulation setting the Water Protection Requirements for Sewerage Infrastructure²⁵⁸**

The act sets the water protection requirements applicable for sewerage infrastructure (Regulation setting the Water Protection Requirements for Sewerage Infrastructure, adopted 16 May 2001, OJ I 2001, 47, 261 entry into force 1 January 2002 and 1 March 2005), *Kanalisatsiooniehitiste veekaitsenõuded (vastu võetud 16 mai 2001, RT I 2001, 47, 261, jõustumine 1 jaanuar 2002 ja 1 märts 2005)*.

- **Environmental Charges Act²⁵⁹**

The Act provides the grounds for determining the natural resource charges, the rates of the pollution charge, the procedure for calculation and payment thereof, and the grounds and specific purposes for using state budget revenue obtained from environmental use (Environmental Charges Act, adopted 7 December 2005, OJ I 2005, 67, 512, entry into force 1 January 2006), *Keskkonatasude seadus (vastu võetud 7 detsember 2005, RT I 2005, 67, 512, jõustumine 1 jaanuar 2006)*

- **Requirements for issuing and applying for the permit for special use of water²⁶⁰**

The Regulation specifies the information that has to be contained in the form when applying for the water permit necessary for wastewater treatment and discharge. According to the regulation the wastewater treatment utility has to provide the estimates for the yearly wastewater and in case the authority requests, also for precipitation water. The applicant has to provide estimates for the yearly/quarterly and daily discharge of wastewater and precipitation water into the water body and describe the systems in place for the collection and treatment of wastewater and precipitation water (Requirements for issuing, changing and withdrawing a permit or a temporary permit for the special use of water, list of necessary documentation for the application and application forms, adopted 26 March 2002, OJ 2002, 48, 664 entry into force 1 June 2002) *Vee erikasutusloa ja ajutise vee erikasutusloa andmise, muutmise ja kehtetuks tunnistamise kord, loa taotlemiseks vajalike materjalide loetelu ja loa vormid (vastu võetud 23 märts 2002, RTL 2002, 48, 664, jõustumine 1 juuni 2002)*.

²⁵⁷ Available at (in Estonian): <https://www.riigiteataja.ee/akt/126032011003?leiaKehtiv> (in English) at: <http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X30037K7&keel=en&pg=1&ptvvp=RT&tvvp=X&querv=%FCchisveev%E4rgi>.

²⁵⁸ Available at (in Estonian only): <https://www.riigiteataja.ee/akt/13305356>.

²⁵⁹ Available (in Estonian) at: <https://www.riigiteataja.ee/akt/114032011039?leiaKehtiv> and (in English) at: <https://www.riigiteataja.ee/akt/4090/3201/3041/2110123505.attachment.pdf>.

²⁶⁰ Available (in Estonian) at: <https://www.riigiteataja.ee/akt/107052013024?leiaKehtiv>.

Basic information

52. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?

Section A of Annex I to the UWWTD has been transposed into Estonian legal system through the Water Law and other implementing acts and regulations that supplement the transposition. "Storm water overflows" is not referenced directly by the Water Law, but it can be inferred from the following wording and the context of the transposing legislation that this is covered. There is exact reference to the characteristics of urban waste and precipitation water in the transposing legislation. Therefore even if the term "storm water overflows" has not been literally transposed, all elements are correctly reflected.

§24 (2) of Water Law sets the basis for the Government Regulation that provides the requirements and limit values for waste- and precipitation water discharge and the control for the implementation of these rules²⁶¹. It must be noted that in the context of the Regulation setting the Requirements for Waste Water Treatment and Management "water precipitation discharge" covers storm water overflows. Regulation setting the Requirements for Waste Water Treatment and Management §1 (3) states that when discharging waste- and precipitation water it must be guaranteed that the state of receiving water bodies and the state of ecosystems connected with these water bodies would not deteriorate due to pollution.

Regulation setting the Requirements for Waste Water Treatment and Management Art. 4 (3) states that the limit values set for the pollution rate of waste water depend on the type of waste water, the overall pollution load generated in the waste water collection area and the status of the receiving waters. Art.5 (1) stipulates that in case of karst lake the waste water pollution indicators must correspond to the pollution indicator limit values or the degree of treatment applicable to the waste water collection area, with a pollution load beyond 100 000 p.e. The waste water discharged in karst lake cannot contain above 0.1 mg/l of nitrites and above 45mg/l of nitrates.

Art. 5 (3) states that in case of precipitation water drainage the pollution indicators for precipitation discharge to water bodies must remain below limit values set by Annex 1 that apply to waste water collection area with a pollution load of 2000 – 9999 p.e, except for the solid matter that cannot exceed 40 mg/l. The amount of petroleum products in precipitation water discharge cannot exceed 5 mg/l. Art. 5(4) sets that in case the pollution indicators of precipitation water do not comply with the requirements set in section 3 and limit values set for pollution loads, the precipitation water is dealt with as polluted precipitation water that needs to be treated before discharge.

§10 of Regulation Setting the Water Protection Requirements for Sewerage Infrastructure states that when designing the construction project for sewerage systems consideration needs to be given to:

- 1) Using the best technical equipment;
- 2) The real and foreseen amount of waste water and pollution indicators;
- 3) The need to limit discharge of polluted precipitation water into water bodies;
- 4) The need to ensure the functioning of old waste water treatment plants during construction of new waste water treatment plants.

§12 of the Regulation Setting the Water Protection Requirements for Sewerage Infrastructure sets the requirements for sewerage infrastructure to prevent leaks.

According to §15.4 of the Public Water Supply and Sewerage Act supervision over compliance with these requirements is exercised, pursuant

²⁶¹ Regulation setting the Requirements for Waste Water Treatment and Management, Waste- and Rainfall Discharge Management and the Applicable limit Values and Methods for Verification of Compliance, adopted 29 November 2012 nr 99 OJ I 04.12.2012, 1 entry into force 1 January 2013 (*Reovee puhastamise ning heit- ja sademevee suublasse juhtimise kohta esitatavad nõuded, heit- ja sademevee reostusnäitajate piirmäärad ning nende nõuete täitmise kontrollimise meetmed*).

Basic information	
	to their competence, by the local government (rural municipality or city government), the Competition Authority and the Environmental Inspectorate.
53. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	Footnote 1 in Sections A and B of Annex I of the UWWTD has been transposed in §5 (6) of the Regulation setting the Requirements for Waste Water Treatment and Management. It has been transposed for combined sewer systems only. It states that combined sewer systems must be designed in a manner that the discharge of wastewater and precipitation water overflow to a water body can only take place in case the dilution rate is one to four. The transposition therefore correctly reflects the elements in the footnote referring to storm water overflows in Annex I Sections A and B to the UWWTD. There are no further applicable limit values set specifically for storm water overflows.
54. What is the terminology used to refer to storm water overflows in Estonia? Is there more than one term used?	The definition corresponding to ‘storm water overflow’ in §5 (6) of the Regulation setting the Requirements for Waste Water Treatment and Management ²⁶² is ‘ <i>sademevee ülevool vihmavalingu ajal</i> ’.
55. Is there a definition of storm water overflow in Estonia?	The term ‘storm water overflow’ is contained in the Estonian legal terminology database ESTERM, where the Estonian equivalent is ‘ <i>valinguvee otselase</i> ’. ²⁶³ However, the term ‘ <i>valinguvee otselase</i> ’ seems to be used only for the Estonian translation of the UWWTD, there is no sign of this exact term in other relevant policy documents or legal acts. The term corresponding to ‘storm water overflow’ in the Regulation setting the Requirements for Waste Water Treatment and Management is ‘ <i>sademevee ülevool vihmavalingu ajal</i> ’, however there is no definition provided. The term ‘overflow’ (<i>ülevool</i>) is often used in legislation and policy/guidance document together with a reference to ‘combined sewer systems’ (<i>ühisvoolne kanalisatsioon</i>).
56. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Estonia have a definition of extreme or unusual rainfall event?	The definition of ‘extreme or unusual rainfall event’ appearing in Regulation setting the Requirements for Waste Water Treatment and Management is ‘ <i>Vihmavaling</i> ’.

²⁶² <https://www.riigiteataja.ee/akt/113062013013?leiaKehtiv>.

²⁶³ <http://mt.legaltext.ee/esterm/>.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
15. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	There is no national policy document specifically dealing with storm water overflows, the topic is covered in the overall context of urban wastewater treatment in national legislation and local policy documents. The elements of the UWWTD concerning storm water overflows are correctly reflected in the transposing legislation. However, considering that designing and implementing the Plan for the Development of Public Water Supply and Sewerage Infrastructure (<i>Development Plan</i>) is the responsibility of the local municipality, the exact content and how storm water overflows are addressed, depends on the local circumstances and the capacity available. The national guidance document issued by the Ministry of the Environment does not specifically address the question of storm water overflows. The Tallinn precipitation water strategy until 2030²⁶⁴ addresses the question of storm water overflows and states that the Development Plan for sewerage infrastructure has to take this into account. The Development Plan for the municipality of Viimsi does not address storm water overflows. The nationally applicable legal requirement is the obligation to design overflow structures in a manner that the dilution rate 1:4 would be ensured. Legal framework Section A of Annex I to the UWWTD has been transposed into Estonian legal system through the Water Law and other implementing acts and regulations that supplement the transposition. "Storm water overflows" is not referenced directly by the Water Law, but it can be inferred from the following wording and the context of the transposing legislation that this is covered. There is exact reference to the characteristics of urban waste water and precipitation water in the transposing legislation. Therefore even if the "storm water overflows" has not been literally transposed, all elements are correctly reflected. The Water Law sets the basis for further Regulations that provide the requirements and limit values for waste- and precipitation water discharge (covering storm water overflows). An overall requirement is that while discharging waste- and precipitation water it must be guaranteed that the state of receiving water bodies and the state of ecosystems connected with these water bodies would not deteriorate due to pollution. The national provision transposing Section A of Annex I to the UWWTD referring explicitly to storm water overflows is Regulation setting the Water Protection Requirements for Sewerage Infrastructure. Art 10 of the Regulation states that when designing the construction plan for the sewerage system, it needs to be in accordance with: 1) The best available technology; 2) The real and foreseen account of waste water and pollution indicators; 3) The need to limit the discharge of polluted precipitation water into water bodies; Art. 12(2) of this Regulation states that in order to avoid environmental pollution the sewerage piping must be watertight. All of the elements of Section A of Annex I to the UWWTD are correctly transposed. Monitoring of the pollution levels of precipitation water is the responsibility of the owner of the water special use permit. The owner of

²⁶⁴ Available (in Estonian only) at : <https://www.riigiteataja.ee/aktilisa/4090/3201/3041/2110123505.attachment.pdf>.

Overview of legal and policy framework. Relevant references to storm water overflows.

	the water use special permit must ensure the sampling and organise the analysis of the samples to determine waste water and precipitation water pollution indicators, concentration of hazardous substances and pH levels. The frequency and location for sampling the pollution load of precipitation water are specified in the permit. The frequency for precipitation water sampling and testing cannot be less than once per year or more than once per quarter. Footnote 1 in Sections A and B of Annex I of the UWWTD has been transposed in §5 (6) of the Regulation setting the Requirements for Waste Water Treatment and Management. It has been transposed for combined sewer systems only. It states that the overflows of the combined sewer systems must be designed in a manner that the discharge of wastewater and precipitation water overflow to a water body can only take place in case the dilution ratio is one to four. The transposition therefore correctly reflects the elements in the footnote referring to storm water overflows in Annex I Sections A and B to the UWWTD. In addition to the above mentioned, Regulation setting the Requirements for Waste Water Treatment and Management²⁶⁵ Art. 5(5) states that discharge of precipitation water in the case of stagnant water body cannot be located closer than 200m from swimming beach or bathing area or, in the case of flowing water body closer than 200m upstream from swimming beach or bathing area and closer than 50m downstream from the swimming beach or the bathing area.
16. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	A coefficient referring to dilution in case of combined sewer systems is set by Art. 5 (6) of the Regulation setting the Requirements for Waste Water Treatment and Management²⁶⁶: <i>In case of combined sewer systems the discharge of storm water overflows with waste water can take place with dilution ratio of one to four. The overflows of the combined sewer systems must be designed in a manner that they start working only in the case when the discharged waste water contains one part of waste water and at least four parts of precipitation water. The ratio for waste water and precipitation water flow amounts is determined based on calculations in the construction project.</i> The water quality standards for precipitation water discharge in case of separate sewer systems are set by Art. 5 (3) of the Regulation setting the Requirements for Waste Water Treatment and Management and the Annex. The Article 5(3) states that the concentration of pollutants in rain water must remain below limit values set in Annex 1 for agglomerations from 2000 – 9999 p.e. The limit value for solid matter (<i>heljuvaine</i>) is 40 mg/l. The amount of petroleum products in precipitation water discharge cannot exceed 5 mg/l. Art. 5(4) sets that in case the pollution indicators of precipitation water do not comply with the requirements set in section 3 and limit values set for pollution loads, the precipitation water is dealt with as polluted precipitation water that needs to be treated before discharge. Pollution indicator limit values for precipitation water discharge (highlighted in yellow):

²⁶⁵ <https://www.riigiteataja.ee/akt/113062013013?leiaKehtiv>.

²⁶⁶ <https://www.riigiteataja.ee/akt/113062013013?leiaKehtiv>.

Overview of legal and policy framework. Relevant references to storm water overflows.

Reostusnäitaja	Reoveekogumisala reostuskoormus									
	Alla 300 ie		300–1999 ie		2000–9999 ie		10 000–99 999 ie		100 000 ja enam ie	
	Reostusnäitaja piirväärtus, mg/l	Reovee puhastusaste, %	Reostusnäitaja piirväärtus, mg/l	Reovee puhastusaste, %	Reostusnäitaja piirväärtus, mg/l	Reovee puhastusaste, %	Reostusnäitaja piirväärtus, mg/l	Reovee puhastusaste, %	Reostusnäitaja piirväärtus, mg/l	Reovee puhastusaste, %
Biokeemiline hapnikutarve (BHT ₇)	40	Ei kohaldata	25	80	15	80	15	80	15	80
Keemiline hapnikutarve (KHT)	150	Ei kohaldata	125	75	125	75	125	75	125	75
Üldfosfor	Ei kohaldata	Ei kohaldata	2	70	1	80	0,5	90	0,5	90
Üldlämmastik	Ei kohaldata	Ei kohaldata	60	30	45	30	15	80	10	80
Heljuvaine	35	70	35	70	25	80	15	90	15	90

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Water Law ²⁶⁷ Art 24 (2) from 11 May 1994, adopted 11 May 1994 O.J. I 1994, 40, 655 entry into force 16 June 1994.	Art. 24 (2) Reovee puhastamise ning heit- ja sademevee suublasse juhtimise nõuded ja piirmäärad ning nende nõuete täitmise kontrollimise meetmed kehtestab Vabariigi Valitsus määrusega. Kehtestatud nõuded sõltuvad reoveekogumisalal tekkivast reostuskoormusest ning veekogu seisundiklassist. Kui	Art. 24 (2) The requirements for waste water treatment and management, waste- and precipitation water discharge management and the applicable limit values and methods for verifying compliance are set by a Government Regulation. The applicable requirements will depend on the overall pollution load generated in the waste water collection area

²⁶⁷ Available at (in Estonian only): <https://www.riigiteataja.ee/akt/104032015011?leiaKehtiv>.

Overview of legal and policy framework. Relevant references to storm water overflows.

			reoveekogumisala käesoleva seaduse tähenduses puudub, sõltuvad nõuded reoveepuhasti reostuskoormusest ning veekogu seisundiklassist.	and the status of the water body. If there is no waste water collection area in the meaning of the current law, the applicable requirements will depend on the pollution load generated and the status of the water body.
Y	Public Water Supply and Sewerage Act ²⁶⁸ adopted 10 October 1999, OJ I 1999, 25, 363 entry into force 22 March 1999, Art. 4. Construction and development of public water supply and sewerage system (2 ¹)	Art. 4(2¹) Dimensioneeritud vee- ja kanalisatsioonirajatiste põhiskeem peab sisaldama vähemalt: 1) veeallikate ja veehaarete ning pumba- ja puhastusrajatiste asukohti, sanitaarkaitsealade ning rõhutsoonide ulatust ja kirjeldust; 2) tulekustutusvee saamise lahendusi ja veevõtukohti; 3) kanalisatsioonisüsteemide kirjeldust, ülevoolu-, pumba- ja puhastusrajatiste ning pargimissõlmede ja väljalaskude asukohti ja kujasid.	Art. 4(2¹) A basic scheme of dimensioned water and sewerage facilities shall include at least the following: 1) locations of water sources and water intakes and pumping station and purification facilities, the extent and description of sanitary protection zones and pressure zones; 2) solutions for extraction of firefighting water and water abstraction points; 3) description of sewerage systems, locations and clearances of overflow , pumping station and purification facilities and septic sludge receiving stations and outlets.	
Y	Regulation setting the Requirements for Waste Water Treatment and Management, Waste- and Precipitation Water Discharge Management and the Applicable limit Values and Methods for Verification of Compliance ²⁶⁹ , Art1 (1.1, 3), Art.4 (3), Art.5 (1,3-6), Art. 12(5) adopted 29 November 2012 nr 99 OJ I 04.12.2012, 1 entry into force 1 January 2013.	Art.1. Määruse reguleerimisala ja eesmärk (1.1) Määrusega kehtestatakse: nõuded reovee puhastamise ning heit- ja sademevee suublasse juhtimise kohta; (3) Heit- ja sademevee suublasse juhtimisel tuleb tagada, et vee- ja veega seotud maismaaökosüsteemide seisund ei halveneks. Art. 5 (3) Sademeveekanalisatsioonist tohib sademeveelaskme kaudu veekogusse juhtida sademevett, mille reostusnäitajad ei ületa lisas 1 sätestatud reostusnäitajate piirväärtusi, mis kehtivad reoveekogumisala kohta, mille reostuskoormus on 2000–9999 ie, välja arvatud heljuvaine sisaldus, mis ei tohi ületada 40 mg/l.	Art. 1 The scope and aim of the Regulation (1.1) The Regulation sets the requirements for waste- and precipitation water discharge; 1 (3) In case of waste- and precipitation water discharge it must be guaranteed that the status of water bodies and the status of ecosystems connected with water bodies would not deteriorate. Art. 5 (3) In case of separate sewers the pollution indicators for precipitation discharge to water bodies must remain below limit values set by Annex 1 that apply to waste water collection area with a pollution load of 2000 – 9999 p.e, except for the solid matter that cannot exceed 40 mg/l. The amount of petroleum products in precipitation water discharge	

²⁶⁸ Available at (in English): <http://www.legaltext.ee/et/andmebaas/tekst.asp?loc=text&dok=X30037K7&keel=en&pg=1&ptvvp=RT&tvvp=X&query=%FCHisveev%E4rgi>.

²⁶⁹ Available at (in Estonian only): <https://www.riigiteataja.ee/akt/113062013013?leiaKehtiv>.

Overview of legal and policy framework. Relevant references to storm water overflows.

			Naftasaaduste sisaldus sademevees ei tohi ületada 5 mg/l. Art. 5 (4) Kui sademevee reostusnäitajad ei vasta lõikes 3 nimetatud reostusnäitajate ning muude reostusnäitajate poolest kehtestatud piirväärtustele, käsitletakse sademevett saastatud sademeveena, mis vajab enne suublasse juhtimist puhastamist. Art. 5 (5) Sademeveelask ei tohi: 1) seisuveekogu korral asuda lähemal kui 200 meetrit supelranna või supluskoha välispiirist; 2) vooluveekogu korral asuda lähemal kui 200 meetrit supelranna või supluskoha välispiirist ülesvoolu ja lähemal kui 50 m supelranna või supluskoha välispiirist allavoolu. Art. 5 (6) Ühisvoolsest kanalisatsioonist tohib sademevett vihmavalingu ajal ülevoolude kaudu suublasse juhtida koos reoveega vahekorras vähemalt neli ühele. Ühisvoolse kanalisatsiooni ülevoolud peavad olema projekteeritud nii, et need hakkavad tööle vaid siis, kui suublasse juhitas heitvees sisaldub üks osa reovett ja vähemalt neli osa sademevett. Reovee ja sademevee vooluhulkade suhtarv määratakse ehitusprojektiga arvutuslikult. Art. 10 (1) Heitvee ja sademevee reostusnäitajate ning ohtlike ainete sisalduse ja heitvee pH määramiseks peab vee erikasutaja tagama loaga määratud kohtadest proovide võtmise ning korraldama proovide analüüsi.	cannot exceed 5 mg/l. Art. 5(4) In case the pollution indicators of precipitation water do not comply with the requirements set in section 3 and limit values set for pollution loads, the precipitation water is dealt with as polluted precipitation water that needs to be treated before discharge. Art. 5 (5) Precipitation water discharge cannot: 1) In the case of stagnant water body be located closer than 200m from swimming beach or the external frontier of the swimming area. 2) In the case of flowing water body be located closer than 200m upstream from swimming beach or the external frontier of the swimming area and closer than 50m downstream from the swimming beach or the external frontier of the swimming area. Art. 5 (6) In case of combined sewer systems the discharge of storm water overflows with waste water can take place with dilution ratio of one to four. The overflows of the combined sewer systems must be designed in a manner that they start working only in the case when the discharged waste water contains one part of waste water and at least four parts of precipitation water. The ratio for waste water and precipitation water flow amounts is determined based on calculations in the construction project. Art. 10 (1) In order to determine waste water and precipitation water pollution indicators and concentration of hazardous substances and pH levels the owner of the water use special permit must ensure the sampling in the locations foreseen by the permit and organise the analysis of the samples.

Overview of legal and policy framework. Relevant references to storm water overflows.

	N	Regulation setting the Water Protection Requirements for Sewerage Infrastructure²⁷⁰, Art. 10; Art. 12(2) adopted 16 May 2001, OJ I 2001, 47, 261 entry into force 1 January 2002 and 1 March 2005.	<i>Art. 12 (5) Proovivõtu sagedus ja koht sademevee reostusnäitajate määramiseks täpsustatakse loas. Sademevee proove tuleb võtta vähemalt üks kord aastas, kuid loas ei tohi määrata, et proovivõtt peaks toimuma sagedamini kui üks kord kvartalis.</i> <i>Art. 10 Kanalisatsiooniehitise projekt</i> Kanaliseerimisprojekti ehitamiseks vajaliku projekti koostamisel tuleb arvestada: 1) parimat võimalikku tehnikat; 2) reovee tegelikku ja prognoositavat arvutushulka ning reostusnäitajaid; 3) vajadust piirata saastunud sademevee heitmist veekogudesse; 4) vajadust tagada uue reoveepuhasti ehitamise ajal vana reoveepuhasti häireteta töö või reovee puhastamine mingil muul viisil. <i>Art. 12(2) Kanalisatsiooniehitise projekteerimise, lekkekindluse ja pideva elektritoite nõuded</i> 1) Kanalisatsiooniehitise tuleb projekteerida ja ehitada nii, et see tagaks vee erikasutusloa nõuete täitmise. 2) Keskkonnareostuse vältimiseks peavad kanalisatsioonitorustikud olema veetihedad. Kasutusele võetavate kanalisatsioonitorustike veetiheduse hindamiseks kasutatakse Eesti standardit EVS-EN 1610:2007 «Dreenide ja kanalisatsioonitorustike ehitamine ja katsetamine». 3) Uutel suurpuhastitel peab olema pidev elektritoide.	<i>Art. 12(5) the frequency and location for testing the pollution load of precipitation water are specified in the permit. The frequency for precipitation water testing cannot be less than once per year or more than once per quarter.</i> <i>Art 10 The construction plan for the sewerage system</i> When designing the construction plan for the sewerage system, it needs to be in accordance with: 1) The best available technology; 2) The real and foreseen account of waste water and pollution indicators; 3) The need to limit the discharge of polluted precipitation water into water bodies; 4) The need to guarantee the uninterrupted functioning of the old waste water treatment plant or the treatment of waste water in another suitable manner during the construction of a new waste water treatment plant. <i>Art.12(2)The requirements for avoiding leaks and ensuring constant power supply in the design of sewerage infrastructure</i> 1) Sewerage infrastructure must be designed and constructed in a manner that it would ensure compliance with the requirements of special permit for water use 2) In order to avoid environmental pollution the sewerage piping must be watertight. In order to assess the water thickness of the sewerage piping in use, the Estonian standard EVS-EN 1610:2007 "The construction and testing of drainage and sewerage systems" 3) New treatment facilities must have constant power supply.

²⁷⁰ Available (in Estonian) at: <https://www.riigiteataja.ee/akt/13305356>

Overview of legal and policy framework. Relevant references to storm water overflows.

	Y	Environmental Charges Act²⁷¹, § 17(4). Imposing pollution charge upon emission of pollutants into water bodies, groundwater and soil	<i>Art. 17 (4) (4) Saastetasu ei nõuta, kui käesoleva paragrahvi lõikes 1 nimetatud aineid ja ühendeid heidetakse veekogusse, põhjavette või pinnasesse sademevee rohkuse tõttu automaatselt tööle rakenduva ühisvoolse kanalisatsiooni ülevoolu kaudu, kui on tagatud reovee lahjendus sademeveega vähemalt üks neljale.</i>	<i>Art. 17(4) The pollution charge is not imposed if the substances and compounds specified in subsection (1) of this section are emitted into a water body, groundwater or soil via the spillway of a jointly used sewerage system due to a high level of rain water, provided that waste water is diluted with rain water at a ratio of 1:4.</i>
	Y	Requirements for issuing, changing and withdrawing a permit or a temporary permit for the special use of water, list of necessary documentation for the application and application forms²⁷² §7.1 (1,7,12,13,18,22,23), adopted 26 March 2002, OJ 2002, 48, 664 entry into force 1 June 2002	<i>Art. 7.1 (1, 7,11,12,13,18,22,23)</i> (1) Vee erikasutusloa taotlus heitvee ja teisi vett saastavate ainete suublasse juhtimiseks koosneb lisaks §-s 5 loetletule järgmistest materjalidest: 1) prognoositav reovee ning vee erikasutusloa andja nõudmisel ka sademevee kogus aastas, kvartalis ja ööpäevas (m³); /-/ 7) reovee ja sademevee puhastamise kirjeldus (puhastuse liik, skeem, seadme tüüp, projektikohane ja tegelik hüdrauliline jõudlus ja projektikohane ja tegelik orgaaniline reostuskoormus inimekvivalentides, reovee järelpuhastus, puhastusprotsessi projektikohane ja tegelik puhastusaste protsentides ja puhastusvõimsus (mg/l);/-/ 11) prognoositav suublasse juhitava heit- ja sademevee kogus aastas, kvartalis, ööpäevas (m³); 12) suublasse juhitava heit- ja sademevee saasteainete kogused või prognoositavad kogused aastas, kvartalis ja ööpäevas (t); 13) saasteainete sisaldus või prognoositav sisaldus suublasse juhitavas heit- ja sademevees (mg/l); 18) kavandatud või olemasolevad seirepunktide koordinaadid L-Est süsteemis ja analüüsivad näitajad ning seire aeg ja sagedus vee erikasutuse piirkonnas, sealhulgas puhasti sissevoolust ja	<i>Art. 7.1 (1, 7,11,12,13,18,22,23)</i> (1) The application for the special use of water for the discharge of wastewater and other water polluting substances shall in addition to materials listed in §5 contain: 1)The estimated yearly, quarterly and daily amount of wastewater and, in case of a requirement by the issuing authority, of precipitation water(m³) 7) The description of the treatment of waste- and precipitation water (type of treatment applied, type of plant, designed and actual hydraulic performance, designed and actual organic pollution load in human equivalents, secondary treatment, the actual and designed level of treatment in percentages and in actual capacity (mg/l); 11) estimated yearly, quarterly and daily amount of waste- and precipitation water discharge into the receiving waters(m³); 12)The estimated yearly, quarterly and daily amounts of pollutants from waste- and precipitation water discharged into the receiving waters (t); 13) The content or estimated content of pollutants in the discharged waste- and precipitation water (mg/l); 18) The coordinates of the planned or existing monitoring points in the L-Est system and the indicators, the time and frequency of monitoring,

²⁷¹ <https://www.riigiteataja.ee/en/eli/505022015011/consolide>.

²⁷² <https://www.riigiteataja.ee/akt/107052013024?leiaKehitiv>.

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			väljavoolust; 22) suublasse juhitavas heitvees või sademevees sisalduvad ohtlikud ained, sealhulgas prioriteetsed ained ja prioriteetsed ohtlikud ained, nende kogused (t) või prognoositavad kogused aastas, kvartalis ja ööpäevas (t); 23) suublasse juhitavas heitvees või sademevees ohtlike ainete, sealhulgas prioriteetsete ainete ja prioriteetsete ohtlike ainete sisaldus või prognoositav sisaldus (mg või µg /l);	including from the inflow and outflow of the treatment facility; 22) The yearly, quarterly and daily amounts or estimated amounts of dangerous substance, including priority substances and priority dangerous substances in the waste- and precipitation water discharged into the receiving waters(t); (23) The content or estimated content of dangerous substance, including priority substances and priority dangerous substances in the discharged waste- and precipitation water (mg või µg /l);
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR				
HELCOM	N			
Barcelona Convention				
Conv. on the Protection of the Black Sea				
Danube Convention				
Rhine Convention				

Overview of legal and policy framework. Relevant references to storm water overflows.				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			
<i>Other direct references to storm water overflows</i>				
Type of document	Title of document		Summary description	
Guidance document (national)	Guidance document for the preparation of the Development Plan for Public Water Supply and Sewerage Infrastructure ²⁷³		Guidance document prepared by the Ministry of the Environment to help municipalities prepare their Development Plan for Public Water Supply and Sewer Infrastructure. The documents prepared by municipalities set the basis for the development of water supply and sewer infrastructure for a minimum period of 12 years. The guidance document does not provide specific guidance relevant for storm water overflows, but states that the plans for sewers prepared by municipalities must indicate the locations of storm water overflow mechanisms(as set by Public Water Supply and Sewerage Act Art. 4. (2 ¹)) and that the overflow mechanisms must comply with the nationally applicable requirement, i.e.in case of combined sewer systems the discharge of storm water overflows with waste water can take place with dilution ratio of 1:4.	
Strategy Document (local)	Tallinn precipitation water strategy until 2030 ²⁷⁴		The strategy for precipitation water until 2030 for the capital city of Tallinn covers the question of storm water overflows in significant detail, summarizing the relevant recommendations of HELCOM Convention, providing an overview of EU legislation in the matter and bringing out common practices in storm water overflow management in different EU Member States. The Strategy also brings out a comparative overview of the advantages and disadvantages of separate and combined sewer systems. The main requirements for storm water overflow management are as follows: ▪ The overflow mechanism has to be regulated to become operational to guarantee that the treatment system would not have excess hydraulic pressure and the amount of environmental pollution would be taken to a minimum; ▪ The overflow must guarantee that the smallest possible amount of suspended solid material would be discharged to a water body; ▪ The design of the overflow mechanism must guarantee its safety. The design of the overflow mechanism must comply with the nationally applicable legislation²⁷⁵: combined	

²⁷³ Available (in Estonian only) at: <http://www.envir.ee/sites/default/files/2007vvkkoostamisejuhend.pdf>.

²⁷⁴ Available (in Estonian only) at : <https://www.riigiteataja.ee/akti/isa/4090/3201/3041/2110123505.attachment.pdf>.

Overview of legal and policy framework. Relevant references to storm water overflows.

	sewer systems must be designed in a manner that the discharge of wastewater and storm water overflow to a water body can only take place in case the dilution rate is 1:4. The strategy document provides an overview of the collection of precipitation water in separate and combined sewer systems in different neighbourhoods of the city of Tallinn – in the centre the combined sewer systems are used, whereas in the newer neighbourhoods mainly separate collection systems are used. In the residential neighbourhoods the incomplete separate sewer systems are used – ditches are used for discharging precipitation and drainage water. One of the aims of the strategy is to reduce the pressure on marine environment caused by storm water overflows by reconstructing the existing precipitation water discharge and sewer systems. The plan brings out investments foreseen for the reconstruction of combined sewer systems to separate sewer systems. The plan references a study conducted in 2007-2008 on the quality of precipitation water discharged in general, which proved that the main problem lies in the increased amount of solid matter (<i>heljuvaine</i>). The results of the analysis on precipitation water conducted during the project showed that the limit values set in the Annex of the Government Regulation for Wastewater Treatment and Management for dangerous substances were never exceeded. The research results showed that precipitation water pollution directly depends on street cleaning practices. The measures planned for reducing pollution from storm water overflows relate to local low-cost measures such as dry-cleaning of streets, removal of snow, local treatment of precipitation water coming from the territory of industrial sites, and creation of marshes and ponds in case sufficient space is available and lastly, the more expensive option of construction of precipitation water treatment facilities. These project results on the quality of precipitation water discharged gave information for the design and further development of precipitation water sewers.

²⁷⁵ §5 (6) of the Government Regulation for Wastewater Treatment and Management. Available (in Estonian) at: <https://www.riigiteataja.ee/akt/113062013013?leiaKehtiv>.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
36. Which types of sewer system does Estonia have?	In Estonia, the public sewerage systems can be divided as follows: ▪ Combined sewer systems that are comprised of one pipe for all the discharged waste water from domestic and industrial processes, precipitation water and drainage water; ▪ Separate sewer systems that are comprised of separate pipes for waste water sewer and precipitation water; ▪ Semi-separate sewer systems that similarly to separate sewer systems are comprised of two collection pipelines. The collected waste water and a smaller share of precipitation water is directed to treatment through the separate sewer collector; ▪ Incomplete separate sewer systems that are comprised of waste water sewer and precipitation water sewer, where the pipelines have not been constructed fully and are instead established as ditches²⁷⁶.
37. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	In 2012, 82% of the Estonian population was connected to a public sewer system²⁷⁷. As the preparation and implementation of the Plan for the Development of Public Water Supply and Sewerage Infrastructure is the responsibility of each municipality, no nation-wide data on the km of pipelines was available. Based on the Development Plan for the city of Tallinn,²⁷⁸ in 2009, 97% of the city's population was connected to a public sewer system. The plan presents a detailed overview of sewer systems and the main problems by catchment area and by neighbourhood – in the centre the combined sewer systems are used, whereas in the newer neighbourhoods mainly separate collection systems are used. In the residential neighbourhoods the incomplete separate sewer systems are used – ditches are used for discharging precipitation and drainage water. No common overview across neighbourhoods is provided. The Plan foresees, by 2030, the development of a GIS-database on the precipitation water runoff, pollution and discharge in order to obtain a clear overview and direct investments to areas where it is most needed. In the Development Plan for the municipality of Viimsi²⁷⁹, quantitative information is provided for each type of sewer system. The total length of sewerage is 131 km, the total length for combined sewer systems is 1.8 km. There is a plan in the coming years to turn the combined sewers into separate sewer systems.
38. How many storm water overflows infrastructures exist in Estonia?	The location of the storm water overflows infrastructure has to be indicated on the Plan for the Development of Public Water Supply and Sewerage Infrastructure (<i>Development Plan</i>)²⁸⁰. Given that the preparation and implementation of the Development Plan is the responsibility of the local municipality, no nation-wide data on the existing storm water overflow infrastructures was available. The Development Plan for the city of Tallinn presents the plans for each of the neighbourhoods and discusses the existing or necessary overflow structures. However, no combined data on the existing infrastructures for storm water overflows is presented. The development of a GIS-database on the precipitation water, pollution and discharge is foreseen by 2030. The Development Plan for the municipality of Viimsi does not present information on the existing storm water overflow infrastructure.
<i>Available quantitative data on the occurrence of storm water overflows</i>	

²⁷⁶ <http://www.envir.ee/sites/default/files/2007vvkkoostamisejuhend.pdf> p 17.

²⁷⁷ http://www.keskkonnaagentuur.ee/sites/default/files/asulareovee_puhastamise_direktiivi_nouete_taitmine_ee_2014_artikkel_16.pdf p. 5.

²⁷⁸ <https://oigusaktid.tallinn.ee/?id=3001&aktid=118953> (Plan included in Annex).

²⁷⁹ http://www.viimsivald.ee/public/Viimsi_VK_MO_Seletuskiri_220509.pdf.

²⁸⁰ Public Water Supply and Sewerage Act, Art. 4.

Available data on storm water overflows	
39. Is there information on the occurrence of storm water overflows?	All data on storm water overflows exist in national database administered by Environmental Agency. All data are provided by water utilities as a reporting obligation according to the permit for the special use of water. Data on storm water overflows are available in the reports on the following webpage: http://keskkonnaagentuur.ee/et/veekasutuseaastaruanded
40. Are storm water overflows monitored in Estonia? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	All activities that may have an impact on water bodies must obtain a permit for the special use of water (<i>vee erikasutushuba</i>). These permits are issued by the Environmental Board. A wastewater treatment utility that wants to build a sewerage system has to apply for the permit for the special use of water. In the application for the permit, there is no special requirement to monitor the occurrence of storm water overflows, but the water utility has to show the estimated yearly, quarterly and daily amount of waste- and precipitation water discharge into the receiving waters (m ³) and the estimated yearly, quarterly and daily amounts of pollutants from waste- and precipitation water discharged into the receiving waters (t). Once the permit is obtained, this data has to be reported yearly to the Environmental Board/Environmental Agency. The water utility also has to provide details on the monitoring points and frequency of the monitoring programme. According to Art. 12(5) of the Regulation setting the Requirements for Waste Water Treatment and Management ²⁸¹ the frequency of precipitation water testing cannot be less than once per year or more than once per quarter. According to Art. 10 (1) of the Regulation setting the Requirements for Waste Water Treatment and Management ²⁸² in order to determine the waste water and precipitation water pollution indicators and the content of dangerous substances and pH level the owner of the water permit must ensure the testing in the areas foreseen by the permit and arrange the analysis of these tests.

²⁸¹ <https://www.riigiteataja.ee/akt/113062013013?leiaKehtiv>.

²⁸² <https://www.riigiteataja.ee/akt/113062013013?leiaKehtiv>.

FACTSHEET FOR FINLAND²⁸³

1. BASIC INFORMATION

Basic information	
General Information	
57. What are the competent authorities for waste water treatment and management in Finland?	In Finland there is no institution specifically responsible for storm water overflows, therefore bodies competent and relevant for wastewater treatment and runoff-water management are also responsible for storm water management. In Finland municipalities are responsible for ensuring the sustainable development of water supply and wastewater treatment in cooperation with the water utility enterprises and neighbouring municipalities in the context of regional spatial planning. The Ministry of the Environment²⁸⁴ (<i>Ympäristöministeriö</i>) is the main state-level responsible body for wastewater treatment, as it is competent for safeguarding the good environmental status of water bodies and ensuring overall ecologically sustainable development, its responsibilities include reducing risks of soil and groundwater pollution, protection against oil and chemical pollution. It is also responsible for spatial planning. The Ministry closely cooperates on wastewater treatment with the Ministry of Agriculture and Forestry²⁸⁵ (<i>Maa ja metsätalousministeriö</i>), which is responsible for directing and managing the sustainable use of natural resources, including water resources. Centre for Economic Development, Transport and the Environment²⁸⁶ (<i>Elinkeino- liikenne ja ympäristökeskus - ELY</i>). ELY-centres are the responsible bodies for supporting the implementation and development of Government's policy on the regional level, there are 15 ELY centres across Finland. ELY-centres operate under the administrative branch of the Ministry of Employment and the Economy, but also deal with tasks coming under the administrative branches of the Ministry of the Environment and Ministry of Agriculture and Forestry. Its competences cover business and industry, labour and cultural activities, transport and infrastructure, environment and natural resources. ELY centres have permit and supervisory duties under the Environmental Protection Act for water supply and wastewater treatment, they are also responsible for providing guidance to local authorities on water supply planning and allocating financial support. ELY centres are responsible for drafting the River Basin Management Plans (RBMP) for the regions. Finnish Environment Institute²⁸⁷ (<i>Suomen ympäristökeskus - SYKE</i>) A research institute and a centre for environmental expertise that forms part of Finland's national environmental administration, mainly operating under the auspices of the Ministry of the Environment. The institute's work on water resources is also overseen by the Ministry of Agriculture and Forestry. The water-related activities of SYKE focus on the sustainable management of the Baltic Sea and freshwater resources, including performing research, offering support and training to the Government and local administrations, businesses and citizens on aspects that require specialist skills. SYKE is also specialised in gathering and processing information on the state of water bodies.

²⁸³ Ms Saijariina Toivikko, Finnish Water Utilities Association, expert on urban waste water treatment and flooding, was interviewed for the report.

²⁸⁴ <http://www.vm.fi/fi-FI>.

²⁸⁵ <http://www.mmm.fi/fi/index/etusivu/vesivarat.html>.

²⁸⁶ <https://www.ely-keskus.fi/>.

²⁸⁷ <http://www.syke.fi/fi-FI>.

Basic information	
	Finnish Water Utilities Association (FIWA)²⁸⁸ (<i>Vesilaitosyhdistys</i>) FIWA is the co-operation and member association of the Finnish water and wastewater utilities, established in 1956. FIWA's membership includes about 300 Finnish water utilities which cover about 90 % of water services in Finland. In addition FIWA has about 150 collaborating members (companies, institutes, etc.). One of its tasks includes providing guidance and training to its members on water services.
58. What is the transposing law(s) of the UWWTD in Finland?	The main laws transposing UWWTD in Finland are the Government Regulation on Urban Waste Water 12.10.2006/888 (<i>Valtioneuvoston asetus yhdyskuntajätevesistä 12.10.2006</i>)²⁸⁹ and the Environmental Protection Act 27.6.2014/527 (<i>Ympäristönsuojelulaki 27.6.2014/527</i>)²⁹⁰ and other regulations adopted for transposing specific provisions. The Environmental Protection Act is the framework legislation ensuring protection against environmental pollution through permitting. If runoff water is likely to cause damage to receiving water bodies, the management requires an environmental permit. Based on §28 of the Environmental Protection Act, the Government Regulation on Urban Waste Water sets the requirements for environmental permits concerning urban waste water collection, treatment and discharge. It must be noted that in the context of this regulation, urban waste water covers domestic waste water or the mix of domestic and industrial wastewater and runoff water (includes precipitation and snowmelt water, also drainage water). Municipalities can issue supplementary acts due to local circumstances to ensure the implementation of the Environmental Protection Act²⁹¹. The two abovementioned Acts form the framework for wastewater treatment regulation. There are other implementing acts and regulations that supplement the transposition of the UWWTD in Finland. In the context of this study, the most relevant are: ▪ Water Services Act 9.2.2001/119 (<i>Vesihuoltolaki, 9.2.2001/119</i>)²⁹² The Water Services Act transposes the WFD and aims at ensuring the protection and sustainable use of groundwater and surface water. The Water Services Act applies to water management and supply; it also covers runoff waters accumulating on the roof or other parts of the building (precipitation water, snowmelt water, also drainage water) and sewerage. ▪ Land Use and Building Act 5.2.1999/132 (<i>Maankäyttö- ja rakennuslaki, 5.2.1999/132</i>)²⁹³. Articles 103a-o deals with special requirements applicable for runoff water management and discharge in case of separate sewers. ▪ Government Regulation on Environmental Protection 4.9.2014/713 (<i>Valtioneuvoston asetus ympäristönsuojelusta 4.9.2014/713</i>)²⁹⁴ specifies the entities and cases in which an environmental permit is required, specifies the content of the application for environmental permits. ▪ Water Law 27.5.2011/587 (<i>Vesilaki 27.5.2011/587</i>)²⁹⁵ sets the requirements of permits related to water use and management. ▪ Government regulation on municipal waste water treatment outside the sewerage system 209/2011 (<i>Valtioneuvoston asetus talousjätevesien käsittelystä viemäriverkostojen ulkopuolisilla alueilla</i>)²⁹⁶ sets the requirements for waste water treatment

²⁸⁸ <http://www.vvv.fi/>.

²⁸⁹ <http://www.finlex.fi/fi/laki/alkup/2006/20060888>.

²⁹⁰ <http://www.finlex.fi/fi/laki/ajantasa/2014/20140527>.

²⁹¹ Hulevesiopas, 2012, p. 30.

²⁹² Available (in Finnish) at : <http://www.finlex.fi/fi/laki/ajantasa/2001/20010119> unofficial English translation available at: <http://www.finlex.fi/en/laki/kaannokset/2001/en20010119.pdf>.

²⁹³ <http://www.finlex.fi/fi/laki/ajantasa/1999/19990132>.

²⁹⁴ <http://www.finlex.fi/fi/laki/ajantasa/2014/20140713>.

²⁹⁵ <http://www.finlex.fi/fi/laki/ajantasa/2011/20110587>.

Basic information	
	in scattered settlements not connected to the common public sewerage system. ▪ Government regulation on the organisation of water protection 30.11.2006/1040 (<i>Valtioneuvoston asetus vesienhoidon järjestämisestä</i> 30.11.2006/1040)²⁹⁷. Sets the requirements related to the design and content of RBMP, including the standards for assessment of status and monitoring.
59. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	The UWWTD Section A of Annex I that refers to storm water overflows is transposed to national legislation by the Government Regulation on Urban Waste Water 12.10.2006/888 (<i>Valtioneuvoston asetus yhdyskuntajätevesistä</i> 12.10.2006)²⁹⁸. The §3 of the Regulation on Urban Waste Water states: <i>The design, construction and maintenance of wastewater collection plants must be done in accordance with the applicable requirements for waste water treatment and the best available technology. Special attention must be given to:</i> - <i>Volume and characteristics of urban waste water;</i> - <i>Prevention of leaks;</i> - <i>Limitation of pollution of receiving waters due to water overflows.</i> In the context of this law, the “water overflows” is a broader term covering storm water overflows, but also referring to overflows caused by excess precipitation and snowmelt water, drainage water and street wash water. The elements of the Annex I to the UWWTD are literally transposed to national legislation, and therefore all of the elements of Annex I Section A are adequately covered.
60. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	The footnote 1 in Sections A and B of Annex I to the UWWTD has not been transposed. Based on the information available and interviews, there are no specific legally binding requirements on measures to limit storm water overflows. There are no national legal requirements on how to design wastewater and precipitation water sewers. However, the dimensioning of runoff water pipes and sewer systems relevant for storm water is advised through national guidelines by construction engineers and the water protection council. According to these guidelines, the pollution rate of overflows depends on the dilution rate (wastewater: precipitation water) and the situation can be considered good in terms of water protection if the flood protection mechanism allows water overflows once the amount of water has become 5-10 fold compared to the normal situation. This in turn means, that overflows would take place approximately 3-5 days a year and the amount of wastewater directly discharged to water body increases maximum 1% compared to the average amount of wastewater discharged²⁹⁹.
61. What is the terminology used to refer to storm water overflows in Finland? Is there more than one term used?	The terminology used for “storm water overflows” is “<i>hulevesien ylivuoto</i>”. However, the term “<i>hulevesi</i>” is a broader term and can be translated as referring to all runoff water, covering precipitation water, snowmelt water, excess water due to human activity. “<i>Hulevesi</i>” specifically refers to storm water overflow when used in conjunction with the terms overflow (“<i>ylivuoto</i>”) and combined sewer systems (“<i>sekaviemäröinti</i>”).
62. Is there a definition of storm water overflow in Finland?	The term used to translate Annex 1 of the UWWTD translates as “limitation of pollution of receiving water due to storm water overflows” (<i>myrskytulvista aiheutuvan vesien pilaantumisen rajoittaminen</i>). The expression in Finnish refers to avoiding pollution stemming from <i>extreme storm flooding</i>, the explicit reference to <i>overflows</i> as such, is absent. However, the more specific term used in

²⁹⁶ <http://www.finlex.fi/fi/laki/alkup/2011/20110209>.

²⁹⁷ <http://www.finlex.fi/fi/laki/ajantasa/2006/20061040?search%5Btype%5D=pika&search%5Bpika%5D=Vesihuoltolaki>.

²⁹⁸ <http://www.finlex.fi/fi/laki/alkup/2006/20060888>.

²⁹⁹ It must be noted that these figures relate to situations where the whole agglomeration is covered with combined sewer systems, in case the extremities of the agglomeration have separate sewer systems, the figures are lower. https://helda.helsinki.fi/bitstream/handle/10138/38381/SY_31_2008.pdf?sequence=7 pp.10-11.

Basic information															
	following legislation, policy- and guidance documents for runoff/storm water overflows” is ‘ <i>hulevesien ylivuoto</i> ’. As mentioned previously, ‘ <i>hulevesi</i> ’ is a broader term and covers all runoff water, including precipitation, snowmelt water, excess water due to human activity, but also storm water overflows.														
63. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Finland have a definition of extreme or unusual rainfall event?	The term used in the Finnish translation for Annex 1 of the UWWTD refers to extreme rainfall/storm flooding by the term ‘<i>myrskytulva</i>’ that can be translated as ‘storm flooding’. However, the term more commonly used for extreme rainfall event in other relevant policy documents and legislation is ‘<i>rankkasade</i>’. This has been defined in the Runoff water manual (2012) (<i>Hulevesiopus</i>)³⁰⁰: ‘Rainfall, which is unusual for that region’ is defined by the Finnish Meteorological Institute through duration and amount of precipitation in the South-Eastern and Central parts of Finland. <table> <tr> <th>Time</th><th>Amount (mm)</th></tr> <tr> <td>5min</td><td>2,5</td></tr> <tr> <td>30min</td><td>5.5</td></tr> <tr> <td>60min</td><td>7.0</td></tr> <tr> <td>4h</td><td>10</td></tr> <tr> <td>12h</td><td>15</td></tr> <tr> <td>24h</td><td>20</td></tr> </table>	Time	Amount (mm)	5min	2,5	30min	5.5	60min	7.0	4h	10	12h	15	24h	20
Time	Amount (mm)														
5min	2,5														
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<http://www.google.fi/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&cad=rja&ved=0CEAQFjAC&url=http%3A%2F%2Fshop.kunnat.net%2Fdownload.php%3Ffilename%3DLoads%2FHulevesiopus-2012.pdf&ei=KSxmUoT4FqOo0wWFh4HgCO&usg=AFQjCNENSdGf3X4MS6v5pNhVCVpBieiclw&sig2=awnJNN0eHO97EVEEcmA rA&bvm=bv.55123115,d.d2k>

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
<i>Overview of legal and policy framework</i>	
17. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	No specific framework exists for the control and limitation of storm water overflows. However, this is regulated in the context of waste water treatment and dealt with in the wider context of runoff water management and flooding. The §3 of Government Regulation on Urban Waste Water 12.10.2006/888 (<i>Valtioneuvoston asetus yhdyskuntajätevesistä</i> 12.10.2006)³⁰¹ transposes the UWWTD relevant for storm water overflows and states that the design, construction and maintenance of wastewater collection plants must be done in accordance with the applicable requirements for waste water treatment and the best available technology, special attention must be given to limiting pollution caused to receiving waters due to runoff water³⁰² overflows. Land Use and Building Act deals with special requirements applicable for runoff water management and discharge in case of separate sewers. Based on the information available and interviews, there are no specific legally binding requirements on further measures to control or limit storm water overflows. There are no national legal requirements on how to design wastewater and precipitation water sewers. However, the dimensioning of runoff water pipes and sewer systems relevant for storm water is advised through national guidelines by construction engineers and the water protection council. There are no specific standards for storm water overflows, the applicable limit values for discharge into water bodies are the same as for waste water discharge provided by Government Regulation on Urban Waste Water 12.10.2006/888³⁰³. According to the Environmental Protection Act the environmental permit has to specify the methods used to avoid environmental pollution and to secure the capacity of the plant. The water utilities are responsible for ensuring compliance with the set limit values. There is no national monitoring programme specifically in place for storm water overflows; this is monitored in the overall context of urban wastewater management. The water utilities are obligated to monitor the water quality. There are a number of guidance and policy documents, both on the national and regional level, dealing with the management of runoff water and flooding. Most of the policy documents deal with rainwater management, but is at least indirectly also relevant for storm water overflows as specific sections of the guidance documents are dedicated to storm water overflows. In addition, municipalities may draft action plans for the management of runoff water. Runoff water management is discussed in some of the RBMP³⁰⁴s, runoff water (including due to heavy rainfall) is seen as an important source of pollution for the water environment. Runoff water overflows are discussed mainly in the context of risk to the water environment due to ageing sewer infrastructure. Special attention is given to scattered

³⁰¹ <http://www.finlex.fi/fi/laki/alkup/2006/20060888>.

³⁰² As stated previously, in the context of this law, the “runoff water” covers precipitation and snowmelt water, also drainage water and street wash water. It can be understood from the context that this encompasses storm water overflows.

³⁰³ <http://www.finlex.fi/fi/laki/alkup/2006/20060888>.

³⁰⁴ For example Kymijoki-Suomenlahde RBMP discusses problems and environmental pollution caused by runoff water file:///C:/Users/mt/Downloads/VHA2_131109_final_www5.pdf, whereas the Kemijoki RBMP does not <file:///C:/Users/mt/Downloads/VHA5%20Kemijoen%20vesienhoitoalueen%20vesienhoitosuunnitelma%20vuoteen%202015%20Osa%201,%20luvut%201-5.pdf>.

Overview of legal and policy framework. Relevant references to storm water overflows.

	population outside the public sewerage system. There have been specific research projects to assess the state of wastewater treatment sewerage, for example in the area of Helsinki (2011-2013)³⁰⁵. The project looked specifically at different factors causing overflows and number and volume of overflows and proposed measures to reduce them. In this study, the volume of overflows is shown by cause (snow melt, electricity cut, heavy rainfall, technical error. According to the study the main cause for overflows in the case of combined sewer systems are technical errors in the pumping station. In case of high-flow (flooding) the overflows can also be caused by capacity problems in pumping stations or in the network. In case of Helsinki the volume of overflows caused by capacity limits during the research project was 520 000 m³ (from which 5% or 26 000m³ was waste water).			
18. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	There are no specific standards set for storm water overflows by the legislation. In case of discharge to a water body, the same standards and limit values apply for wastewater and storm water, indicated in the environmental permit. There is no coefficient applied referring to dilution or volume of overflows or a number of days where overflows are working. According to an interviewee, the Ministry of Environment is currently leading discussions on the possibility and necessity of setting up further standards to limit the pollution due to storm water overflows³⁰⁶. According to the guidelines by the construction engineers and the water protection council., the pollution rate of overflows depends on the dilution rate (wastewater: precipitation water) and the situation can be considered good in terms of water protection if the flood protection mechanism allows water overflows once the amount of water has become 5-10 fold compared to the normal situation. This in turn means, that overflows would take place approximately 3-5 days a year and the amount of wastewater directly discharged to water body increases maximum 1% compared to the average amount of wastewater discharged³⁰⁷.			
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Regulation on Urban Waste Water 12.10.2006/888, §3 (Valtioneuvoston asetus yhdyskuntajätevesistä 12.10.2006	3 § Jätevesien keräys Taajamat on sisällytettävä vesihuoltolain (119/2001) 8 §:n 3 momentissa tarkoitettuihin vesihuoltolaitoksen toiminta-alueen jätevesiviemäriverkoston piiriin saatettaviin alueisiin. Jätevesiviemärien suunnittelussa, rakentamisessa ja ylläpidossa on otettava huomioon jäteveden käsittelyvaatimukset sekä käytettävä parasta käyttökelpoista tekniikkaa ja kiinnitettävä huomiota	§3 Collection of wastewater Agglomerations must contain the waste water sewerage systems as defined by the Water Services Act (119/2001) 8 §:n subsection 3. The design, construction and maintenance of collecting systems shall be undertaken in accordance with waste water treatment requirements and the best technical knowledge, notably regarding: 1) volume and characteristics of urban waste water,

³⁰⁵ http://www.vhysy.fi/files/upload_pdf/2052/Tulvariski%20Vantaa%20Fred%20%5BYhteensopivuustila%5D.pdf.

³⁰⁶ Interview with Saijariina Toivikko, 22.05.2015.

³⁰⁷ It must be noted that these figures relate to situations where the whole agglomeration is covered with combined sewer systems, in case the extremities of the agglomeration have separate sewer systems, the figures are lower. https://helda.helsinki.fi/bitstream/handle/10138/38381/SY_31_2008.pdf?sequence=7 pp.10-11.

Overview of legal and policy framework. Relevant references to storm water overflows.

	Y	Land Use and Building Act 5.2.1999/134, §103a-m (<i>Maankäyttö- ja rakennuslaki</i>, 5.2.1999/132)³⁰⁸	<i>erityisesti:</i> 1) yhdyskuntajätevesien määrään ja ominaisuuksiin; 2) vuotojen estämiseen; 3) ylivuotovesistä aiheutuvaan vesien pilaantumisen rajoittamiseen Hulevesiä koskevat erityiset säännökset 103 a § (22.8.2014/682) Soveltamisala Tämän luvun säännöksiä sovelletaan rakennetulla alueella maan pinnalle, rakennuksen katolle tai muulle pinnalle kertyvän sade- tai sulamisveden (hulevesi) hallintaan. Mitä tässä luvussa säädetään hulevesistä, koskee myös perustusten kuivatusvesiä. 103 b § (22.8.2014/682) Määritelmät Tässä laissa tarkoitetaan: 1) hulevesien hallinnalla hulevesien imeyttämiseen, viivyttämiseen, johtamiseen, viemäröintiin ja käsittelyyn liittyviä toimenpiteitä; 2) kunnan hulevesijärjestelmällä hulevesien hallintaan tarkoitettujen alueiden ja rakenteiden kokonaisuutta lukuun ottamatta vesihuoltolain (119/2001) 17 a §:ssä tarkoitettuja vesihuoltolaitoksen hulevesiviemäriverkostoja; ja 3) kunnan hulevesijärjestelmän vaikutusalueella	2) prevention of leaks, 3) limitation of pollution of receiving waters due to storm water overflows 103 a § Special requirements applicable for runoff water Scope This chapter applies to ground surface, street or building roof or other surface construction related precipitation or melt water (runoff water) management. When this chapter refers to runoff waters, it equally covers drainage waters. 103 b § (22.8.2014 / 682) Definitions For the purposes of this Act: 1) runoff water management means management of runoff water, the infiltration, delay, leading it to sewerage and related treatment measures; 2) municipal runoff water management involves the totality of structures and territory involved in runoff water management with the exception of water supply plant runoff water sewerage networks as provided by the Water Services Act (119/2001) 17 a §; and

³⁰⁸ <http://www.finlex.fi/fi/laki/ajantasa/1999/19990132>.

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			aluetta, jolla sijaitsevia kiinteistöjä kunnan hulevesijärjestelmä palvelee. 103 c § (22.8.2014/682) Hulevesien hallinnan yleiset tavoitteet Hulevesien hallinnan yleisenä tavoitteena on: 1) kehittää hulevesien suunnitelmallista hallintaa erityisesti asemakaava-alueella; 2) imeyttää ja viivyttaa hulevesiä niiden kerääntymispaikalla; 3) ehkäistä hulevesistä ympäristölle ja kiinteistölle aiheutuvia haittoja ja vahinkoja ottaen huomioon myös ilmaston muuttuminen pitkällä aikavälillä; ja 4) edistää luopumista hulevesien johtamisesta jätevesiviemäriin. 103 d § (22.8.2014/682) Valvonta Kunnan määräämä monijäseninen toimielin valvoo tämän luvun säännösten noudattamista. Toimielimen toimivallan siirtämiseen sovelletaan, mitä kuntalaissa säädetään. Hallintopakkoa ja oikaisuvaatimusta koskevaa asiaa ei kuitenkaan saa siirtää viranhaltijan ratkaistavaksi. 103 e § (22.8.2014/682) Hulevesien hallinta kiinteistöllä Kiinteistön omistaja tai haltija vastaa kiinteistönsä hulevesien hallinnasta.	3) the municipal storm water catchment area means the area, which is served by the municipalities runoff water management system. 103 c § (22.8.2014 / 682) The general objectives of runoff water management The general objectives for runoff water management are: 1) develop the runoff water management plans according to local plans 2) absorb and hold back runoff water in the accumulation spot 3) prevent the damages to the environment and property due to runoff waters, while considering the long-term impacts of climate change; and 4) promote the abandonment of runoff water management through waste water sewers. 103 d § (22.8.2014/682) Supervision It is for the municipality to designate a multi-member body who will supervise compliance with the provisions in this chapter. The transfer of powers shall apply to the body as foreseen by the Municipality Act. However, the issue of administrative coercion and request for rectification will not be dealt with by the head of the body. 103 e § (22.8.2014/682) Management of runoff water in properties It is the owner or the holder of the property who is responsible for runoff water management on the property.

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		103 f § (22.8.2014/682) Kiinteistön hulevesien johtaminen Kiinteistön omistajan tai haltijan on johdettava kiinteistön hulevedet kunnan hulevesijärjestelmään, jos niitä ei voi imeyttää kiinteistöllä tai jos niitä ei johdeta vesihuoltolain 17 a §:ssä tarkoitettuun vesihuoltolaitoksen hulevesiviemäriverkostoon. Kunnan määräämä viranomainen voi hakemuksesta myöntää vapautuksen 1 momentissa tarkoitettusta velvollisuudesta johtaa kiinteistön hulevedet kunnan hulevesijärjestelmään, jos kiinteistön omistaja tai haltija huolehtii hulevesien hallinnasta asianmukaisesti muilla toimenpiteillä. 103 g § (22.8.2014/682) Kiinteistön hulevesijärjestelmän ja kunnan hulevesijärjestelmän rajakohta Kunnan määräämä viranomainen osoittaa kiinteistön hulevesijärjestelmän ja kunnan hulevesijärjestelmän yhteensovittamiseksi tarpeelliset rajakohdat kiinteistön välittömään läheisyyteen ja antaa hulevesien johtamiseen liittyviä määräyksiä. 103 h § (22.8.2014/682) Kiinteistön hulevesijärjestelmä Kiinteistön omistaja tai haltija vastaa kiinteistön hulevesijärjestelmästä sekä siihen kuuluvista laitteistosta ja rakenteista 103 g §:ssä tarkoitettuun rajakohtaan asti. Järjestelmän, laitteiston ja rakenteiden on sovelluttava tarkoitukseensa ja ylläpidettävä terveellisiä ja turvallisia olosuhteita.	103 f § (22.8.2014/682) Property runoff water management The owner or the holder of the property is responsible for leading the runoff water of the property to the municipal runoff water management system in case the excess water cannot be absorbed on the property or in case the water is not led to the runoff water sewer network of the water utility as given in Water Services Act §17a. The authority appointed by the municipality may grant an exemption on the responsibility to lead the runoff water to the municipal runoff water management system in case the owner or holder of the property takes care of runoff water management by other appropriate measures. 103 g § (22.8.2014/682) Property runoff water management system and municipal storm water cut-off point The municipality appointed authority oversees the property storm water management system and municipal storm water management system to coordinate the necessary boundaries in the immediate vicinity of the property and issue orders related to the management of runoff water. 103 h § (22.8.2014/682) Property runoff water management. The owner or holder of the property is responsible for the management of runoff water in the meaning of paragraph 103 g. The system, equipment and structures used shall be suitable for their intended use and consider the applicable health and safety rules. The owner or holder of the property is responsible for verifying the runoff water management plan is compatible with the municipal runoff water

Overview of legal and policy framework. Relevant references to storm water overflows.

		Kiinteistön omistajan tai haltijan on toteutettava hulevesien hallinta kiinteistöllä kunnan hulevesijärjestelmän kanssa yhteensopivaksi. Ympäristöministeriön asetuksella voidaan antaa tarkempia säännöksiä kiinteistön hulevesijärjestelmästä sekä siihen kuuluvien laitteistojen ja rakenteiden teknistä ja toiminnallisista vaatimuksista sekä kiinteistön hulevesijärjestelmän rakentamisesta. 103 i § (22.8.2014/682) Hulevesien hallinnan järjestäminen asemakaava-alueella Kunta vastaa hulevesien hallinnan järjestämisestä asemakaava-alueella. Kunta voi ottaa järjestettäväkseen hulevesien hallinnan muillakin alueilla. Kunnan tulee huolehtia siitä, että ryhdytään tarvittaessa toimenpiteisiin kunnan hulevesijärjestelmän ja vesihuoltolaitoksen hulevesiviemäriverkoston toteuttamiseksi tai hulevesien hallitsemiseksi muulla tavoin. 103 j § (22.8.2014/682) Hulevesien hallintaa koskevat määräykset Kunnan määräämä monijäseninen toimielin voi antaa kuntaa tai kunnan osaa koskevia tarkempia määräyksiä hulevesien hallinnasta. Määräysten valmistelussa ja laatisemisessa noudatetaan, mitä 15 §:ssä säädetään rakennusjärjestyksen valmistelusta ja laatisemisesta. Määräykset voivat koskea:	management plan. The Minister of Environment may issue specific decrees concerning runoff water management on properties and the systems, equipment and structures used and on the construction of these systems. 103 i § (22.8.2014/682) The management of runoff water in the planning area The municipality is responsible for managing the runoff water in its planning area. The municipality can take further responsibility of runoff water management in other areas. The municipality must take care that the necessary measures and means are available to implement the municipal runoff water management plans and to control the municipal runoff water sewerage network. 103 j § (22.8.2014/682) Regulations concerning runoff water management The multi-member body appointed by the municipality can issue more specific decrees related to runoff water management in the area of the municipality. In the preparation of these decrees compliance with § 15 on the preparation and drawing up of building ordinance. The decrees may touch upon: 1) the amount of runoff water, its quality, ground absorption, delaying and monitoring as well as treatment of runoff

Overview of legal and policy framework. Relevant references to storm water overflows.

		1) hulevesien määrää, laatua, maahan imeyttämistä, viivyttämistä ja tarkkailua sekä hulevesien käsittelyä kiinteistöllä; 2) kiinteistön hulevesijärjestelmän liittämistä kunnan hulevesijärjestelmään; ja 3) muita näihin rinnastettavia, hulevesien hallintaan liittyviä seikkoja. Määräyksiä ei sovelleta, jos oikeusvaikutteisessa yleiskaavassa tai asemakaavassa on asiasta toisin määrätty. 103 k § (22.8.2014/682) Määräys hulevesistä aiheutuvan haitan poistamiseksi Kunnan määräämä monijäseninen toimielin voi antaa kiinteistön omistajalle tai haltijalle määräyksen hulevesistä aiheutuvan haitan poistamiseksi. Jos hulevesistä aiheutuvan haitan poistaminen vaatii usean kiinteistön yhteisiä järjestelyjä, kunnan monijäseninen toimielin voi kiinteistön omistajan aloitteesta ja muita kiinteistön omistajia tai haltijoita kuultuaan määrätä kiinteistön tai kiinteistöjen hulevesien johtamisesta tai muista hulevesien hallinnan toimenpiteistä. Kiinteistöjen yhteisjärjestelyssä noudatetaan, mitä jäljempänä 164 §:n 2–4 momentissa säädetään. Luonnollisen vedenjuoksun muuttamisesta säädetään jäljempänä 165 §:ssä ja ojituksesta vesilain (587/2011) 5 luvussa. 103 l § (22.8.2014/682)	water on the property; 2) the connection of property runoff water management system to the municipal system; and 3) other elements connected to the abovementioned and related to runoff water management. The decrees shall not apply in case it is stated otherwise in the legal act of a development plan or in the area master plan. 103 k § (22.8.2014/682) Decrees on the removal of harm caused by runoff water The multi-member body appointed by the municipality can issue a decree ordering the owner or holder of the property to remove the harm caused by runoff water. If removing the harm arising from runoff waters requires joint arrangements between several properties, multi-member institution of the municipality may, after consulting the owner of the property and other real estate owners or operators to determine the management of the property runoff water management management measures. In the arrangement between properties provisions 164 § 2-4 subsection shall be complied with. Changing the course of a water body is regulated in subsequent §165 and drainage in Chapter 5 of the Water Act (587/2011). 103 l § (22.8.2014/682)

Overview of legal and policy framework. Relevant references to storm water overflows.

		Hulevesisuunnitelma Kunta hyväksyy tarvittaessa hulevesisuunnitelman. Suunnitelmassa esitetään tarpeen mukaan imeytysalueet, kosteikot, ojat, valumavesien reitit, putket ja pumppaamot sekä muut kunnan hulevesijärjestelmään kuuluvat hulevesien hallinnan ratkaisut ja rakenteet. Hulevesisuunnitelma on laadittava siten, että suunnitelmassa otetaan huomioon asemakaava, katusuunnitelma ja yleisten alueiden suunnitelma ja että se täyttää toimivuuden, turvallisuuden ja viihtyisyyden vaatimukset myös sademäärän ja rankkasateiden lisääntyessä. Suunnitelmaa laadittaessa noudatetaan, mitä 62§:ssä säädetään vuorovaikutuksesta kaavaa valmisteltaessa. 103 m § (22.8.2014/682) Kunnan hulevesijärjestelmän toteuttaminen Kunnan on huolehdittava, että kunnan hulevesijärjestelmä toteutetaan asemakaavan mukaisen maankäytön tarpeita vastaavasti, jos hulevesijärjestelmän toteuttamisesta kunnalle tai kiinteistön omistajalle tai haltijalle aiheutuvat kustannukset eivät ole kohtuuttomat. Annex (209/2011) 4) sadevesiä, hulevesiä ja perustusten kuivatusvesiä ei suunnitelmassa esitetä johdettavaksi jätevesijärjestelmään ennen jätevesien käsittelyä;	Runoff water management plan The municipality shall adopt, if necessary, runoff water management plan. The plan shall contain the absorption area, wetlands, ditches, runoff routes, pipelines and pumping stations, as well as other municipal runoff water management systems, including structures and measures used for runoff water management. Runoff water management plan must be drawn up in a way that the plan takes into account the layout, the street plan and a plan of public land and that it meets the performance, security and other requirements also in case of rainfall and heavy rains. Drawing up the plan is done in compliance with, §62 of the Law. 103 m § (22.8.2014/682) Supervision of the municipal runoff water management plan The municipality is responsible for ensuring the implementation of the runoff water management plan according to the needs of the land-use development plan, given that the implementation of the runoff water management plan does not entail excessive costs for the municipality or the owner or holder of the property. Annex (209/2011) 4) Precipitation water, runoff water and drainage water shall not be presented in the plan as conducted to the sewer system

Overview of legal and policy framework. Relevant references to storm water overflows.

		<i>viemäriverkostojen ulkopuolisilla alueilla</i> ³⁰⁹		before waste water treatment.
WFD		Water Services Act 9.2.2001/119 Art. 15 (<i>Vesihuoltolaki</i> 9.2.2001/119) ³¹⁰	Art. 17 a(22.8.2014/681) Huleveden viemäroinnin järjestäminen Kunta voi päättää vesihuoltolaitoksen kanssa neuvoteltuaan, että laitos huolehtii päätöksessä määriteltävällä alueella huleveden viemäroinnistä yhdyskuntakehityksen tarpeita vastaavasti. Viemärointi on osa maankäyttö- ja rakennuslain (132/1999) 103 b §:ssä tarkoitettua hulevesien hallintaa. Edellä 1 momentissa tarkoitettun päätöksen edellytyksenä on, että: 1) vesihuoltolaitos kykenee huolehtimaan huleveden viemäroinnistä taloudellisesti ja asianmukaisesti; ja 2) viemäroinnin kustannusten kattamiseksi perittävät maksut muodostuvat kohtuullisiksi ja tasapuolisiksi. Lisäksi 1 momentissa tarkoitettun päätöksen edellytyksenä on, että kunta ja laitos ovat sopineet huleveden viemäroinnistä tai, jos tällaista sopimusta ei ole, hulevedet viemäroidään päätöksessä tarkoitettulla alueella maankäyttö- ja rakennuslain mukaisen asemakaavan, hulevesisuunnitelman, katusuunnitelman tai yleisen alueen suunnitelman mukaisesti. Päätökseen on liitettävä kartta, jossa esitetään alueet, joilla on vesihuoltolaitoksen	17 a(22.8.2014/681) Organisation of runoff water discharge The municipality can decide in consultation with the water utility, that the utility is responsible, on an agreed territory, for the development of drainage infrastructure according to the needs of the municipality. Sewerage is part of the Land Use and Building Act (132/1999) 103 b § storm water management section. The conditions for the abovementioned decision are, that: 1) the water utility is able to manage the runoff water sewerage in an economically sound and appropriate manner. 2) The taxes applied to cover for the costs of the sewerage are reasonable and fair, In addition, a prerequisite for the decision referred to in subsection 1 is that the municipality and the water utility have agreed on runoff water sewerage or, if no such agreement exists, according to the land use and development plan, runoff water management plan, street plan, or the general plan of the area in accordance with the Building Act. The decision shall be accompanied by a map showing the areas where there is a runoff water sewerage

³⁰⁹ <http://www.finlex.fi/fi/laki/alkup/2011/20110209>.

³¹⁰

Overview of legal and policy framework. Relevant references to storm water overflows.

		hulevesiviemäriverkosto, sekä alueet, joille verkosto rakennetaan. 17 b § (22.8.2014/681) Kiinteistön liittäminen vesihuoltolaitoksen hulevesiviemäriin Kunnan päättämällä vesihuoltolaitoksen hulevesiviemäröinnin alueella oleva kiinteistö on liitettävä laitoksen hulevesiviemäriin. Edellä 1 momentissa säädetyn estämättä vesihuoltolaitos saa kieltäytyä liittämästä laitoksen hulevesiviemäriin kiinteistöä, jolta viemäriin johdettavan huleveden laatu tai määrä vaikeuttaisi laitoksen toimintaa tai laitoksen edellytyksiä huolehtia tyydyttävästi muiden kiinteistöjen huleveden viemäröinnistä. 17 c § (22.8.2014/681) Hulevesiviemäriin liittämismuutoksen vapauttaminen Kunnan ympäristönsuojeluviranomainen myöntää hakemuksesta kiinteistölle toistaiseksi voimassa olevan tai määräaikaisen vapautuksen 17 b §:ssä tarkoitetusta liittämismuutoksesta hulevesiviemäriin. Ennen vapautuksen myöntämistä vesihuoltolaitokselle ja kiinteistön omistajalle tai haltijalle on varattava tilaisuus tulla kuulluiksi. Vapautus liittämismuutoksesta hulevesiviemäriin on myönnettävä, jos: 1) liittäminen hulevesiviemäriin muodostuisi kiinteistön omistajalle tai haltijalle kohtuuttomaksi, kun otetaan huomioon kiinteistön hulevesien hallinnasta aiheutuneet kustannukset, liittamisestä aiheutuvat kustannukset, vesihuoltolaitoksen	managed by the water utility or areas where the network will be built. 17 b § (22.8.2014/681) Connecting property to a water utility runoff water sewerage Based on the decision of municipality according to the area sewerage plan the property has to be connected to a runoff water sewerage of a water utility. The abovementioned water utility can refuse connecting a property to the runoff water sewerage system in case the quantity or quality of runoff water would complicate the operation of the plant or would complicate the conditions for the plant to satisfy the demands of other properties connected to the runoff water sewerage. 17 c § (22.8.2014/681) Exemption from the requirement to connect to a runoff water sewerage The Environment Protection Department of the municipality decides on the exception of the obligation to connect to runoff water sewerage. Before granting an exemption the water supply department and the property owner or holder shall be given an opportunity to be heard. The exemption can be given if: 1) connecting to a runoff water sewerage would cause unreasonable costs to the property owner in terms of storm water management; and there is a minimal need for runoff water drainage or a similar special reason, 2) the exemption does not jeopardize the

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		hulevesiviemäröinnin vähäinen tarve tai muu vastaava erityinen syy; 2) vapauttaminen ei vaaranna huleveden viemäröinnin taloudellista ja asianmukaista hoitamista 17 a §:ssä tarkoitetulla vesihuoltolaitoksen hulevesiviemäröinnin alueella; ja 3) liittamisestä vapautettavan kiinteistön hulevesi voidaan poistaa muutoin asianmukaisesti. 17 d § (22.8.2014/681) Kielto johtaa kiinteistön hulevesiä jätevesiviemäriin Kiinteistöltä ei saa johtaa vesihuoltolaitoksen jätevesiviemäriin hulevesiä. Jos kiinteistön hulevesiä ei poisteta kiinteistöltä muulla tavalla, kiinteistö voidaan kuitenkin liittää jätevesiviemäriin huleveden poisjohtamiseksi, jos: 1) jätevesiviemäri on rakennettu ennen vuotta 2015 ja se on mitoitettu myös huleveden poisjohtamiseen; 2) alueella ei ole huleveden viemäriverkostoa, johon kiinteistö voidaan liittää; ja 3) vesihuoltolaitos kykenee huolehtimaan jätevesiviemäriin johdettavasta hulevedestä taloudellisesti ja asianmukaisesti. 17 e § (22.8.2014/681) Muut säännökset huleveden viemäröinnin hoitamisesta Vesihuoltolaitoksen hulevesiviemäröinnin hoitamisessa on noudatettava lisäksi, mitä 12, 13, 16 ja 17 §:ssä säädetään.	economically sound and proper management of runoff water management in the region; and 3) rainwater can be removed in an appropriate manner without connecting to a runoff water sewerage. 17 d § (22.8.2014/681) Prohibition to drive the property runoff water to waste water sewerage The property must not lead runoff water to waste water sewerage. If the runoff water is not removed in any other way from the property, the property can nevertheless be connected to the waste water sewerage in order to discharge the runoff water, if: 3) the waste water sewerage is constructed before 2015 and it is also designed to discharge runoff water; 4) the area does not have a runoff water sewerage where the property could connect to; and 5) the water utility is able to manage the discharged runoff water in an economically sound and appropriate manner. 17 e § (22.8.2014/681) Other rules applicable to the maintenance of sewerage. In case of runoff water sewerage the water utility must comply with the requirements of §12, 13, 16 and 17.
MSFD	N		

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BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR				
HELCOM	N			
Barcelona Convention				
Conv. on the Protection of the Black Sea				
Danube Convention				
Rhine Convention				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			
<i>Other direct references to storm water overflows</i>				
Type of document	Title of document		Summary description	

Overview of legal and policy framework. Relevant references to storm water overflows.

Guidance document (national)	Runoff water manual (2012) (<i>Hulevesiopas</i>) ³¹¹	Storm water manual (2012) was issued by The Association of Finnish Local and Regional Authorities (<i>Kuntaliito</i>). The manual deals with management of runoff water, which covers precipitation and snowmelt water, storm water, drainage water and street wash water. It also covers overflows caused by heavy rainfalls. It explains and schematises the mechanisms relevant for management of runoff water, explains the relevance of runoff water management from the hydrological, environmental and planning aspects.
Guidance document (national - upcoming)	Runoff water management practices as green infrastructure – HULEGREEN (<i>Hulevesien hallintamenetelmien toimivuus vihreänä infrastruktuurina - HULEGREEN</i>) ³¹²	Carried through by the Finnish Environment Institute (SYKE) the project runs between 2012-2016 and looks at ways of using green infrastructures to manage runoff water and deliver ecosystem services. The aim is to expose the efficiency and cleaning capacity of green infrastructures for storm water management and promote the development and use of green infrastructure in cities.
Policy document (local)	Storm water strategy for the city of Helsinki (<i>Helsingin kaupungin hulevesistrategia</i>) ³¹³	The capital city storm water strategy provides an overview of the occurrence and volume of overflows – overflows represent approximately 0.1 % of the total sewerage water; there are altogether 250km of combined sewerage systems in the city. It underlines the importance of storm water overflows in the case of combined sewer systems, where it can potentially cause health risks and pollution to the environment.
Policy document (local)	Action Plan for runoff water management for the city of Vantaa – basic background information document for architects and constructors (<i>Vantaan Kaupungin Hulevesien Hallinnan Toimintamalli. Perustietoa suunnittelijoille ja rakentajille</i>) ³¹⁴	It explains the main concepts and responsibility structure relevant for runoff water management. It introduces green solutions to runoff water management. The plan's approach to runoff water management is applicable to all new constructions and extensions; the plan does not include specific standards.
Guidance document (national)	Climate-Proof City – The Planner's Workbook (<i>Ilmastokestävän kaupungin suunnitteluopas</i>) ³¹⁵	The planner's workbook for climate-proof cities provides a collection of tools, best practices and reports on the impacts of climate change and how to implement the different adaptation activities. It is designed for urban planners, city officials, but also land owners, city residents and companies operating in fields of construction and green buildings. One of the topics of the workbook is storm water management. Topics covered include how to consider storm water early on in planning and designing stage of buildings, rainwater control at the source, watertight surfaces in built-up areas. Ample links to further sources of information on storm water management are also provided.
Guidance/best	Best available techniques for wastewater treatment in	The document exposes best available techniques for wastewater treatment in municipalities. It aims to

³¹¹

http://www.google.fi/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&cad=rja&ved=0CEAQFjAC&url=http%3A%2F%2Fshop.kunnat.net%2Fdownload.php%3Ffilename%3DLoads%2FHulevesiopas-2012.pdf&ei=KSxmUoT4FqOo0wWFh4HgCO&usg=AFOjCNENSdGf3X4MS6v5pNhVCVpBieiclw&sig2=awnJNN0eHO97EVEEcmA_rA&bvm=bv.55123115,d.d2k

³¹² <http://www.svke.fi/hankkeet/hulegreen>

³¹³ http://www.hel.fi/static/hkr/julkaisut/2008/hulevesistrategia_2008_9.pdf

³¹⁴ http://www.vantaa.fi/instancedata/prime_product_julkaisu/vantaa/embeds/vantaawwwstructure/100509_Hulevesien_hallinnan_toimintamalli.pdf

³¹⁵ <http://ilmastotyokalut.fi/hulevesien-hallinta/>

Overview of legal and policy framework. Relevant references to storm water overflows.

practice document (national)	municipalities (<i>Paras käyttökelpoinen tekniikka (BAT) Yhdyskuntien jätevedenpuhdistamot</i>) ³¹⁶	support and facilitate the process for applying for environmental permits. It exposes the relevant European and national legislation and policy documents related to waste water treatment and management of runoff water, the applicable limit values, the guidance provides an overview of water status in Finland and discusses the possible impacts of climate change.

³¹⁶ Laitinen, J.; Nieminen, J.; Saarinen, R.; Toivikko, S., “Paras käyttökelpoinen tekniikka (BAT) - Yhdyskuntien jätevedenpuhdistamot”, Suomen ympäristö 3/2014. Available at: <https://helda.helsinki.fi/handle/10138/43199>.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
41. Which types of sewer system does Finland have?	In Finland both separate and combined sewers are used. The latter is said mostly to be used in tensely populated and constructed urban areas. Combined sewers used to be the main type of sewer systems formerly, whereas now more and more separate sewers are used ³¹⁷ .
42. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	In Finland combined sewer systems represent approximately 5% of the overall sewerage and the length of sewerage is approximately 50000 km ³¹⁸ . The design and construction of sewer systems is in the hands of local municipalities and water utilities, the data on sewer system infrastructures is presented in local storm water strategy documents or on the website of the water utilities association. For example, for the capital city of Helsinki, it is reported that in 2006 there were 800km of precipitation water pipelines and 250km of combined sewer systems ³¹⁹ . For the Helsinki metropolitan area, the total length of sewerage is approximately 4900km, from which 2700km represent waste sewerage and combined sewerage systems and 2200 precipitation water pipelines ³²⁰ . For the city of Lappeenranta, it is reported that in 2009 the total length of precipitation water pipelines was 259 km. There is no data on the length of combined sewer systems. For the city of Tampere, the total length of sewerage is 1336 kilometres, there is no separate data shown for individual and combined sewer systems ³²¹ .
43. How many storm water overflows infrastructures exist in Finland?	Storm water overflow infrastructures have to be reported as a part of the wastewater treatment facility in the reporting under the environmental permit ³²² . Under the Environmental Protection Act ELY-centres are responsible for overseeing the monitoring and reporting. There are no national figures available on the occurrence of storm water overflows.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
44. Is there information on the occurrence of storm water overflows?	As the preparation of runoff water management plans is the competence of local municipalities, the information and data is mainly contained in the local management plans. For example, for the city of Helsinki, the amount of overflows is stated to account for 0.1% of the total amount of sewage water ³²³ . There are no national figures available on the occurrence of storm water overflows.
45. Are storm water overflows monitored in Finland? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	There is no monitoring programme specifically for storm water overflows, monitoring takes place in the context of monitoring for wastewater collection and treatment, in addition specific research projects deal with monitoring precipitation water and overflows. According to § 6 of The Regulation on Urban Waste Water, the impact of urban wastewater treatment on receiving water bodies must be constantly monitored. The frequency of the monitoring and the applicable requirements are set in Annex B of the regulation, these depend on the size of the agglomeration. Water utilities are responsible for ensuring compliance with the requirements. In addition, several specific research projects have dealt with storm water overflows and their monitoring. For example, a research project

³¹⁷ https://helda.helsinki.fi/bitstream/handle/10138/38381/SY_31_2008.pdf?sequence=7 pp.10.

³¹⁸ Interview with Saijariina Toivikko, 22.05.2015. This data is confirmed by a report published in 2008, which estimates the total length of sewers at approximately 46 000km, the average growth rate estimated was 950km per year (http://www.mmm.fi/attachments/vesivarat/5xAhDyJGF/YVES2008-raportti_300408.pdf).

³¹⁹ http://www.hel.fi/static/hkr/julkaisut/2008/hulevesistrategia_2008_9.pdf pp. 6, 8.

³²⁰ <https://www.hsv.fi/fi/asukkaalle/kodinvesiasiat/vesihuoltoverkostot/Sivut/default.aspx>.

³²¹ <http://www.tampere.fi/vesi/toiminta/jatevedet/viemarointi.html#Viemariverkosto>.

³²² Interview with Saijariina Toivikko, 21.05.2015.

³²³ http://www.hel.fi/static/hkr/julkaisut/2008/hulevesistrategia_2008_9.pdf pp.7-8.

Available data on storm water overflows

was carried out during 2011-2014 where sampling of storm water overflows was performed 4-7 times a year in four monitoring sites covering two industrial sights and two residential areas³²⁴. Substances monitored covered phosphorous, pH levels, solid substances, acidity levels, chloride and sulphate levels. The aim of the project is to gain an understanding of the volumes of overflows and propose measures to reduce overflows and pollution caused due to them. The monitoring of storm water overflows is to be continued during 2015. SYKE research project on Extreme rainfall events and urban flooding (*Rankkasateet ja taajamatulvat* (RATU)³²⁵ during 2005-2008 aimed at establishing the current and future frequency of extreme rainfall events, taking into account climate change scenarios. The project's goal was to feed into the runoff water management plans to be developed by cities.

³²⁴ Presentation of the project is available (in Finnish) at: http://www.vhvsy.fi/files/upload_pdf/4364/KorhonenHulevesiseminaari%202014-11-25%20seurantatietojen%20hv%F6dynt%E4minen.pdf.

³²⁵ https://helda.helsinki.fi/bitstream/handle/10138/38381/SY_31_2008.pdf?sequence=7.

FACTSHEET FOR FRANCE³²⁶

1. BASIC INFORMATION

Basic information	
General Information	
1. What are the competent authorities for waste water treatment and management in France?	No authority is specifically designed to deal with storm water overflow in France. Therefore, authorities with general competencies on waste water treatment and management are relevant for issues related to storm water overflows as follows: ▪ Ministry of Ecology, Sustainable Development and Energy (<i>Ministère de l'écologie, du développement durable et de l'énergie</i>) ('MEDDE' thereafter): As required by Article R.2224-11 of the Local Authorities General Code (<i>Code général des collectivités territoriales</i>), the MEDDE³²⁷ establishes regulatory minimum technical requirements for the collection and treatment of wastewater, excluding storm water overflow pursuant to 'unusual or exceptional circumstances' (including heavy rain) from treatment. This is done through the 2015 Order (see the following row). ▪ Local authorities (<i>collectivités locales</i>)³²⁸ at the municipalities or group of municipalities level: waste water collection and treatment are provided by local authorities at the municipalities (<i>communes</i>) or group of municipalities (<i>coopération intercommunale</i>) level. Each local authority therefore operates its wastewater system, they are moreover obliged to monitor the water flows and discharges as well as control the water spills. ▪ The water police mission³²⁹ - multidisciplinary actors: Different State Services support the mission of the 'water police' in each French department and receive self-monitoring data from operators networks. The mission undertaken pursuant to the 'classified installations police' (e.g. inspectorate) and 'fisheries police' may also intervene. Some of the actors involved encompass: the different local and national State services on water (water agencies, national water agency), on territory and the environment (territorial directorate, regional environment agencies), the local 'administrative police' and 'judiciary police' authorities (mayors, prefects, police forces, public prosecutors). All of these actors are regrouped under the 'water interservice mission' piloted by the Departmental Prefect (i.e. the State authority at the local level).
2. What is the transposing law(s) of the UWWTD in France?	Basic transposing provisions of the UWWTD are found in the Local Authorities General Code (<i>Code général des collectivités territoriales</i>)³³⁰. However, it is considered that the main transposing act is the 'Order of 21 July on collective sanitation systems and non-collective sanitation facilities, with the exception of individual sewerage systems receiving a gross load of organic pollution less than or equal to 1.2 kg / day of BOD5' (<i>Arrêté du 21 juillet 2015 relatif aux systèmes d'assainissement collectif et aux installations d'assainissement non collectif, à l'exception des installations d'assainissement non collectif recevant une charge brute de pollution organique inférieure ou égale à 1,2 kg/j de DBO5</i>) (thereafter the '2015 Order')³³¹ which implements the provisions of the aforementioned

³²⁶ Stakeholders interviewed: Christophe Venturini (Ministry of Ecology, Sustainable Development and Energy) and Nicolas Vernandet (Rhin-Meuse Water Agency).

³²⁷ Ministry's page on rain water regulation and management: <http://www.developpement-durable.gouv.fr/Contexte.14546.html> (last access May 2015).

³²⁸ Government webpage on local authorities: <http://www.collectivites-locales.gouv.fr/> (last access May 2015).

³²⁹ Water agency's webpage on water police: http://www.eaufrance.fr/s-informer/agir-et-participer/reglementer/?id_article=104 (last access May 2015).

³³⁰ Available at: <http://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000006070633&dateTexte=20150608> (last access June 2015).

³³¹ Available at: <http://www.legifrance.gouv.fr/eli/arrete/2015/7/21/DEVL1429608A/jo> (last access May 2015).

Basic information	
	Code at the regulatory level from 1 January 2016 onward. Until this date, 'Order of 22 June 2007 on the collection, transport and treatment of wastewater agglomerations and the supervision of their operation and efficiency, and individual sewerage systems receiving a gross load of organic pollution than 1.2 kg / day of BOD5' (<i>Arrêté du 22 juin 2007 relatif à la collecte, au transport et au traitement des eaux usées des agglomérations d'assainissement ainsi qu'à la surveillance de leur fonctionnement et de leur efficacité, et aux dispositifs d'assainissement non collectif recevant une charge brute de pollution organique supérieure à 1,2 kg/j de DBO5</i>) ³³² will be in place.
3. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD, in particular the third item, can be considered transposed by Article R.2224-11 of the Local Authorities General Code and then more specifically by the implementing 2015 Order. However, the French law completely excludes the third item from treatment, therefore in case of such “unusual situations” in France, there are no measures in place apart. The 2015 Order only requires with regard to these “unusual situations” that the project owner to take measures to limit pollution during conception of the sanitation system (Article 4) and other measures in general with regard to design of the overflow network (such as ensuring it does not discharge outside of these unusual situation, or that only collected water, as opposed to water from a river or other natural medium, enters this overflow system – Article 5) and that extra monitoring is achieved in such circumstances (Article 17-IV). All other elements are correctly reflected. ▪ Local Authorities General Code <u>Article R.2224-11</u> Summary: this Article provides that water entering a collection system must be treated, to the exception of unusual situations, including in particular heavy rain. It also requires Ministers to adopt technical prescriptions at the regulatory level, which led to the adoption of the 2007 Order. <i>« Les eaux entrant dans un système de collecte des eaux usées doivent, sauf dans le cas de situations inhabituelles, notamment de celles dues à de fortes pluies, être soumises à un traitement avant d'être rejetées dans le milieu naturel, dans les conditions fixées aux articles R. 2224-12 à R. 2224-17 ci-après.</i> <i>Un arrêté des ministres chargés de la santé et de l'environnement fixe les prescriptions techniques minimales qui permettent de garantir l'efficacité de l'épuration des eaux usées, en ce qui concerne notamment la "demande biochimique en oxygène" (DBO), la "demande chimique en oxygène" (DCO), les matières en suspension (MES), le phosphore et l'azote. »</i> ▪ 2015 Order <u>Article 2</u> <u>Summary: this Article provides for definitions, including that of excessive costs, design rate, storm water overflow and unusual situations (which include heavy rainfall).</u>

³³² Available at: <http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000000276647> (last access May 2015).

Basic information

5. « Coût excessif » : se dit d'un coût qui justifie d'une dérogation aux obligations imposées par la directive eaux résiduaires urbaines 91/271/CEE en matière de collecte des eaux usées, notamment pour la gestion des surcharges dues aux fortes pluies. Ce caractère excessif est examiné au cas par cas, par le préfet.

6. « Débit de référence » : débit journalier associé au système d'assainissement au-delà duquel le traitement exigé par la directive du 21 mai 1991 susvisée n'est pas garanti. Conformément à l'article R. 2224-11 du code général des collectivités territoriales, il définit le seuil au-delà duquel la station de traitement des eaux usées est considérée comme étant dans des situations inhabituelles pour son fonctionnement. Il correspond au percentile 95 des débits arrivant à la station de traitement des eaux usées (c'est-à-dire au déversoir en tête de station).

7. « Déversoir d'orage » : tout ouvrage équipant un système de collecte en tout ou partie unitaire et permettant, en cas de fortes pluies, le rejet direct vers le milieu récepteur d'une partie des eaux usées circulant dans le système de collecte. Un trop-plein de poste de pompage situé à l'aval d'un secteur desservi en tout ou partie par un réseau de collecte unitaire est considéré comme un déversoir d'orage aux fins du présent arrêté.

23. « Situations inhabituelles » : toute situation se rapportant à l'une des catégories suivantes :

- fortes pluies, telles que mentionnées à l'article R. 2224-11 du code général des collectivités territoriales ;
- opérations programmées de maintenance réalisées dans les conditions prévues à l'article 16, préalablement portées à la connaissance du service en charge du contrôle ;
- circonstances exceptionnelles (telles que catastrophes naturelles, inondations, pannes ou dysfonctionnements non directement liés à un défaut de conception ou d'entretien, rejets accidentels dans le réseau de substances chimiques, actes de malveillance).

Article 3

Summary : this Article replaces Article 2 of the 2007 Order insofar as it deals with design rules common to the collection systems. It also designates the mayor or president of the grouping of municipalities as in charge of the water police in this regard. "Unusual situations" are excluded from consideration for design.

« Principes généraux.

*Le maître d'ouvrage met en place une installation d'assainissement non collectif ou un système d'assainissement collectif permettant la collecte, le transport et le traitement avant évacuation des eaux usées produites par l'agglomération d'assainissement, **sans porter atteinte à la salubrité publique, à l'état des eaux** (au sens des directives du 23 octobre 2000 et du 17 juin 2008 susvisées) et, le cas échéant, aux éventuels usages sensibles mentionnés à l'article 2 ci-dessus.*

Les systèmes d'assainissement sont implantés, conçus, dimensionnés, exploités en tenant compte des variations saisonnières des charges de pollution et entretenus, conformément aux dispositions des chapitres I et II ci-dessous, de manière à atteindre, hors situations inhabituelles, les performances fixées par le présent arrêté.

*Le maître d'ouvrage met en place un **dispositif d'autosurveillance** et en transmet les résultats au service en charge du contrôle, et à l'agence de l'eau ou office de l'eau conformément aux dispositions du chapitre III. »*

Basic information

Article 4

Summary : this Article deals with standards on design rules common to sanitation systems, in particular ensuring the system is designed to cope with the design rate and associated pollution. With regard to these “unusual situations”, it requires that the project owner takes measures to limit pollution during conception of the sanitation system. It also includes the only provision relating to *basins d'orage*

« Règles générales de conception des systèmes d'assainissement.

Les systèmes d'assainissement sont conçus, réalisés, réhabilités comme des ensembles techniques cohérents.

Les règles de dimensionnement, de réhabilitation, d'exploitation et d'entretien de ces systèmes tiennent compte :

1° Des effets cumulés des ouvrages constituant ces systèmes sur le milieu récepteur, de manière à limiter les risques de contamination ou de pollution des eaux, particulièrement dans les zones à usage sensible mentionnées à l'article 2 ci-dessus. Ils ne doivent pas compromettre l'atteinte des objectifs environnementaux de la ou des masses d'eau réceptrices des rejets et des masses d'eau situées à l'aval au titre de la directive du 23 octobre 2000 susvisée, ni conduire à une dégradation de cet état sans toutefois entraîner de coût disproportionné. Le maître d'ouvrage justifie le coût disproportionné par une étude détaillée des différentes solutions possibles en matière d'assainissement des eaux usées et, le cas échéant, des eaux pluviales, jointe au document d'incidence ;

2° Du volume et des caractéristiques des eaux usées collectées et de leurs éventuelles variations saisonnières ;

3° Des nouvelles zones d'habitations ou d'activités prévues dans les documents d'urbanisme.

Ils sont conçus et implantés de façon à ce que leur fonctionnement et leur entretien minimisent l'émission d'odeurs, le développement de gîtes à moustiques susceptibles de transmettre des maladies vectorielles, de bruits ou de vibrations mécaniques susceptibles de compromettre la santé et la sécurité du voisinage et de constituer une gêne pour sa tranquillité.

Le maître d'ouvrage prend des mesures visant à limiter les pollutions résultant des situations inhabituelles telles que définies à l'article 2 ci-dessus.

Les bassins d'orage, destinés à stocker une partie des volumes d'eaux usées générés par temps de pluie avant de les acheminer à une station de traitement, ou de stockage d'eaux usées sont conçus et implantés de manière à préserver les riverains des nuisances de voisinage (olfactives, sonores, visuelles) et des risques sanitaires. Ces bassins sont étanches et équipés d'un dispositif de prévention pour éviter toute noyade du personnel d'exploitation ou d'animaux (rampes, échelles, câbles...). Les bassins d'orage sont dimensionnés afin de pouvoir réaliser leur vidange en moins de vingt-quatre heures.

Les ouvrages du système d'assainissement sont conçus de manière à permettre la mise en œuvre du dispositif d'autosurveillance prévu au chapitre III ci-dessous.

En cas de travaux fractionnés sur la station de traitement des eaux usées, le préfet établit la liste des travaux, sur la base des éléments fournis par le maître d'ouvrage, complétée par un échéancier. »

Article 5

Summary : this Article replaces Article 5 of the 2007 Order insofar as it deals with standards with design rules common to the collection systems, in particular ensuring the system respects the design rate and reduces pollution. With regard to storm water overflow, it requires to ensure that there is no discharge outside of “unusual situation”, or that only collected water, as opposed to water from a river or other natural medium, enters the overflow system.

Basic information

« Règles spécifiques applicables au système de collecte.

Le système de collecte est conçu, réalisé, réhabilité, exploité et entretenu, sans entraîner de coût excessif, conformément aux règles de l'art et de manière à :

1° Desservir l'ensemble des immeubles raccordables inclus dans le périmètre d'agglomération d'assainissement au sens de l'article R. 2224-6 du code général des collectivités territoriales ou des immeubles à raccorder à l'installation d'assainissement non collectif ;

*2° **Eviter tout rejet direct ou déversement d'eaux usées en temps sec, hors situations inhabituelles** visées aux alinéas 2 et 3 de la définition (23) ;*

*3° **Eviter les fuites** et les apports d'eaux claires parasites risquant d'occasionner le non-respect des exigences du présent arrêté ou un dysfonctionnement des ouvrages ;*

*4° **Ne pas provoquer, dans le cas d'une collecte en tout ou partie unitaire, de rejets d'eaux usées au milieu récepteur, hors situation inhabituelle de forte pluie.***

Les déversoirs d'orage respectent les règles mentionnées aux 2° et 4° ci-dessus et sont aménagés de manière à répondre aux obligations de surveillance visées à l'article 17-II ci-dessous et à ne pas permettre l'introduction d'eau en provenance du milieu naturel.

Les points de déversement du système de collecte sont localisés à une distance suffisante des zones à usages sensibles, de sorte que le risque de contamination soit exclu.

Les ouvrages de rejet en rivière sont aménagés de manière à éviter l'érosion du fond et des berges, ne pas faire obstacle à l'écoulement de ses eaux, ne pas y créer de zone de sédimentation ou de colmatage et favoriser la dilution du rejet. Ces rejets sont effectués dans le lit mineur du cours d'eau, à l'exception de ses bras morts.

Le système de collecte des eaux pluviales ne doit pas être raccordé au système de collecte des eaux usées, sauf justification expresse du maître d'ouvrage et à la condition que le dimensionnement du système de collecte et celui de la station de traitement des eaux usées le permettent.

*Dans le cas de systèmes de collecte en tout ou partie unitaires, les solutions de gestion des eaux pluviales le plus en amont possible sont étudiées afin de limiter les apports d'eaux pluviales dans le système de collecte. **Chaque fois qu'elles sont viables sur le plan technico-économique, celles-ci sont prioritairement retenues.**»*

Articles 6, 7 and 8

Summary: these Article replace Article 9 of the 2007 Order insofar as they deals with standards on design rules and location common to the sewage treatment plants, in particular ensuring the system is designed to cope with the design rate and associated pollution. Storm water overflow, or rather “unusual circumstances, are excluded from such considerations.

« Règles d'implantation des stations de traitement des eaux usées.

Les stations de traitement des eaux usées sont conçues et implantées de manière à préserver les riverains des nuisances de voisinage et des risques sanitaires. Cette implantation tient compte des extensions prévisibles des ouvrages de traitement, ainsi que des nouvelles zones d'habitations ou d'activités prévues dans les documents d'urbanisme en vigueur au moment de la construction.

Les stations de traitement des eaux usées sont implantées à une distance minimale de cent mètres des habitations et des bâtiments recevant du public.

Basic information

Sans préjudice des dispositions fixées par les réglementations de portée nationale ou locale (périmètres de protection des captages d'eau destinée à la consommation humaine, règlements d'urbanisme, règlements communaux ou intercommunaux d'assainissement), les ouvrages sont implantés hors des zones à usages sensibles définies au point (31) de l'article 2 ci-dessus.

Après avis de l'agence régionale de santé et, dans le cas d'une installation d'assainissement non collectif, du service public d'assainissement non collectif, il peut être dérogé aux prescriptions des deux alinéas ci-dessus, par décision préfectorale, sur demande du maître d'ouvrage accompagnée d'une expertise démontrant l'absence d'incidence.

Les stations de traitement des eaux usées ne sont pas implantées dans des zones inondables et sur des zones humides. En cas d'impossibilité technique avérée ou de coûts excessifs et en cohérence avec les dispositions d'un éventuel plan de prévention des risques inondation, il est possible de déroger à cette disposition.

Ces difficultés sont justifiées par le maître d'ouvrage, tout comme la **compatibilité du projet avec le maintien de la qualité des eaux** et sa conformité à la réglementation relative aux zones inondables, notamment en veillant à :

- 1° Maintenir la station hors d'eau au minimum pour une crue de période de retour quinquennale ;
- 2° Maintenir les installations électriques hors d'eau au minimum pour une crue de période de retour centennale ;
- 3° Permettre son fonctionnement normal le plus rapidement possible après la décrue. »

« Règles spécifiques applicables à la station de traitement des eaux usées.

Les stations de traitement des eaux usées sont conçues, dimensionnées, réalisées, exploitées, entretenues et réhabilitées conformément aux règles de l'art. Elles sont aménagées de façon à répondre aux obligations de surveillance visées au chapitre III ci-dessous.

Les stations sont dimensionnées de façon à :

1° Traiter la charge brute de pollution organique de l'agglomération d'assainissement ou des immeubles raccordés à l'installation d'assainissement non collectif et **respecter les performances minimales de traitement mentionnées à l'annexe 3, hors situations inhabituelles** ;

2° **Traiter l'ensemble des eaux usées reçues et respecter les niveaux de rejet** prévus à l'annexe 3, pour un volume journalier d'eaux usées reçues inférieur ou égal au débit de référence.

Le préfet peut renforcer ces exigences pour satisfaire aux objectifs environnementaux du schéma directeur d'aménagement et de gestion des eaux. Dans ce cas, les niveaux de rejet des stations de traitement des eaux usées permettent de satisfaire aux objectifs environnementaux.

L'ensemble des ouvrages de la station de traitement des eaux usées est délimité par une clôture, sauf dans le cas d'une installation enterrée dont les accès sont sécurisés, et leur accès interdit à toute personne non autorisée.

Avant leur mise en service, les stations de traitement des eaux usées de capacité nominale supérieure ou égale à 12 kg/j de DBO5 font l'objet d'une **analyse des risques de défaillance, de leurs effets ainsi que des mesures prévues pour remédier** aux pannes éventuelles. Cette analyse est transmise au service en charge du contrôle et à l'agence de l'eau ou l'office de l'eau.

Pour les stations de capacité nominale supérieure ou égale à 120 kg/j de DBO5 en service au 1er juillet 2015 et n'ayant pas fait l'objet d'une analyse de risques, les maîtres d'ouvrages se conforment aux prescriptions du précédent alinéa au plus tard deux ans après la publication du présent arrêté.

En fonction des résultats de cette analyse, le préfet peut imposer des prescriptions techniques supplémentaires.

Afin de **protéger le réseau public d'eau potable de toute contamination par retour d'eau**, sans préjudice des dispositions prévues par l'arrêté d'application de l'article R. 1321-57 du code de la santé publique, la canalisation d'arrivée d'eau potable à la station est équipée de manière à assurer un niveau de protection équivalent à celui du disconnecteur à zones de pression réduites contrôlables

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(type BA).

A l'exception des lagunes, les stations d'une capacité nominale de traitement supérieure à 600 kg/j de DBO5 sont munies d'équipements permettant le dépotage de matières de vidange des installations d'assainissement non collectif.

Le préfet peut déroger à cette obligation dans le cas où le plan relatif à la prévention et la gestion des déchets non dangereux ou un plan départemental des matières de vidange approuvé par le préfet prévoit des modalités de gestion de ces matières ne nécessitant pas l'équipement de la station.

Les équipements décrits aux deux alinéas ci-dessus sont mis en place pour les stations de traitement des eaux usées nouvelles ou à réhabiliter et vérifiés lors de l'analyse des risques de défaillance. »

Article 17

Summary : this Article includes measurement rules for the network. With regard to storm water overflow it requires extra monitoring during “unusual circumstances” and in general for certain *déversoirs d'orage*.

II. - Autosurveillance du système de collecte

Sont soumis à cette autosurveillance les déversoirs d'orage situés à l'aval d'un tronçon destiné à collecter une charge brute de pollution organique par temps sec supérieure ou égale à 120 kg/j de DBO5. Cette surveillance consiste à mesurer le temps de déversement journalier et estimer les débits déversés par les déversoirs d'orage surveillés.

Pour les agglomérations d'assainissement générant une charge brute de pollution organique supérieure ou égale à 120 kg/j de DBO5, le préfet peut remplacer les dispositions du paragraphe précédent par la surveillance des déversoirs d'orage dont le cumul des volumes ou flux rejetés représente au minimum 70 % des rejets annuels au niveau des déversoirs d'orage visés au paragraphe précédent.

En outre, les déversoirs d'orage situés à l'aval d'un tronçon destiné à collecter une charge brute de pollution organique par temps sec supérieure ou égale à 600 kg/j de DBO5, lorsqu'ils déversent plus de dix jours par an en moyenne quinquennale, font l'objet d'une surveillance permettant de mesurer et d'enregistrer en continu les débits et d'estimer la charge polluante (DBO5, DCO, MES, NTK, Ptot) rejetée par ces déversoirs. Sous réserve que le maître d'ouvrage démontre leur représentativité et leur fiabilité, ces données peuvent être issues d'une modélisation du système d'assainissement.

Le maître d'ouvrage justifie le choix des ouvrages visés dans les deux alinéas précédents. *L'argumentaire peut être construit sur la base des résultats de simulations issues d'une modélisation de son système d'assainissement collectif et d'une étude technico-économique démontrant les coûts excessifs générés par la mise en place de cette surveillance en continu au regard de l'amélioration de cette connaissance du système escomptée.*

Les trop-pleins équipant un système de collecte séparatif et situés à l'aval d'un tronçon destiné à collecter une charge brute de pollution organique par temps sec supérieure ou égale à 120 kg/j de DBO5 font l'objet d'une surveillance consistant à mesurer le temps de déversement journalier.

« IV. - Paramètres à mesurer et fréquence des mesures

[...]

En outre, des dispositions de surveillance renforcée doivent être prises par le maître d'ouvrage, dans les situations décrites aux

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	<i>alinéas 2 et 3 de la définition 23 de l'article 2 ci-dessus, hors inondations, pendant lesquelles le maître d'ouvrage ne peut pas assurer la collecte ou le traitement de l'ensemble des eaux usées.</i> <i>Le maître d'ouvrage estime alors le flux de matières polluantes rejetées au milieu dans ces circonstances. Cette évaluation porte au minimum sur le débit, la DBO5, la DCO, les MES, le NTK, le NH4, le Ptot aux points de rejet, et l'impact sur le milieu récepteur et ses usages sensibles, notamment par une mesure de l'oxygène dissous. »</i>
4. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	Footnote 1 in Sections A and B of Annex I to the UWWTD can be considered transposed by elements of the 2015 Order whereby imposed regulatory performance level can be derogated upon in exceptional circumstances, including ‘unusual rainfall’ (<i>précipitations inhabituelles</i>). France opts for the dry weather flow rate which it entitles “design rate” (<i>débit de référence</i>). The 2015 Order provides for a definition of “design rate” and “unusual situation”, relying on these definitions in different instances. Furthermore, for large networks, France requires automonitoring of storm water overflow in the case of recurring “unusual situations” (Article 17-II) At the end of the day however, France excludes “unusual circumstances” entirely from its treatment system, ensuring that no water is redirected to <i>déversoirs d'orage</i> (which is the storm water overflow sewer system) unless there are these unusual circumstances. Therefore, apart from redirecting water to these <i>déversoirs</i> which in fact directly reject the water received into the environment, France does not appear to “decide on measures to limit pollution from storm water overflows” apart from a generic requirement for the project owner on the design of this network to limit pollution and monitoring requirements contrary to Footnote 1 in Sections A and B of Annex I to the UWWTD. 2015 Order <u>Article 2</u> 6. « Débit de référence » : débit journalier associé au système d'assainissement au-delà duquel le traitement exigé par la directive du 21 mai 1991 susvisée n'est pas garanti. Conformément à l'article R. 2224-11 du code général des collectivités territoriales, il définit le seuil au-delà duquel la station de traitement des eaux usées est considérée comme étant dans des situations inhabituelles pour son fonctionnement. Il correspond au percentile 95 des débits arrivant à la station de traitement des eaux usées (c'est-à-dire au déversoir en tête de station). 7. « Déversoir d'orage » : tout ouvrage équipant un système de collecte en tout ou partie unitaire et permettant, en cas de fortes pluies, le rejet direct vers le milieu récepteur d'une partie des eaux usées circulant dans le système de collecte. Un trop-plein de poste de pompage situé à l'aval d'un secteur desservi en tout ou partie par un réseau de collecte unitaire est considéré comme un déversoir d'orage aux fins du présent arrêté. 23. « Situations inhabituelles » : toute situation se rapportant à l'une des catégories suivantes : - fortes pluies, telles que mentionnées à l'article R. 2224-11 du code général des collectivités territoriales ; - opérations programmées de maintenance réalisées dans les conditions prévues à l'article 16, préalablement portées à la connaissance du service en charge du contrôle ; - circonstances exceptionnelles (telles que catastrophes naturelles, inondations, pannes ou dysfonctionnements non directement liés à un défaut de conception ou d'entretien, rejets accidentels dans le réseau de substances chimiques, actes de malveillance).

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Article 3

[...] Les systèmes d'assainissement sont implantés, conçus, dimensionnés, exploités en tenant compte des variations saisonnières des charges de pollution et entretenus, conformément aux dispositions des chapitres I et II ci-dessous, de manière à atteindre, hors situations inhabituelles, les performances fixées par le présent arrêté. [...]

Article 4

Règles spécifiques applicables au système de collecte.

Le système de collecte est conçu, réalisé, réhabilité, exploité et entretenu, sans entraîner de coût excessif, conformément aux règles de l'art et de manière à :

[...]

2° Eviter tout rejet direct ou déversement d'eaux usées en temps sec, hors situations inhabituelles visées aux alinéas 2 et 3 de la définition (23) ;

Article 5

Règles spécifiques applicables au système de collecte.

Le système de collecte est conçu, réalisé, réhabilité, exploité et entretenu, sans entraîner de coût excessif, conformément aux règles de l'art et de manière à :

[...]

2° Eviter tout rejet direct ou déversement d'eaux usées en temps sec, hors situations inhabituelles visées aux alinéas 2 et 3 de la définition (23) ;

[...]

4° Ne pas provoquer, dans le cas d'une collecte en tout ou partie unitaire, de rejets d'eaux usées au milieu récepteur, hors situation inhabituelle de forte pluie.

Les déversoirs d'orage respectent les règles mentionnées aux 2° et 4° ci-dessus et sont aménagés de manière à répondre aux obligations de surveillance visées à l'article 17-II ci-dessous et à ne pas permettre l'introduction d'eau en provenance du milieu naturel.

Article 7

Règles spécifiques applicables à la station de traitement des eaux usées.

[...]

Les stations sont dimensionnées de façon à :

1° Traiter la charge brute de pollution organique de l'agglomération d'assainissement ou des immeubles raccordés à l'installation d'assainissement non collectif et respecter les performances minimales de traitement mentionnées à l'annexe 3, hors situations inhabituelles;

Article 14

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Traitement des eaux usées et performances à atteindre.

[...]

Ce traitement doit au minimum permettre d'atteindre, pour un volume journalier entrant inférieur ou égal au débit de référence et hors situations inhabituelles décrites à l'article 2, les rendements ou les concentrations figurant :

1° Au tableau 6 de l'annexe 3 pour les paramètres DBO5, DCO et MES ;

2° Au tableau 7 de l'annexe 3 pour les paramètres azote et phosphore, pour les stations de traitement des eaux usées rejetant en zone sensible à l'eutrophisation.

Article 17

II. - Autosurveillance du système de collecte

Sont soumis à cette autosurveillance les déversoirs d'orage situés à l'aval d'un tronçon destiné à collecter une charge brute de pollution organique par temps sec supérieure ou égale à 120 kg/j de DBO5. Cette surveillance consiste à mesurer le temps de déversement journalier et estimer les débits déversés par les déversoirs d'orage surveillés.

Pour les agglomérations d'assainissement générant une charge brute de pollution organique supérieure ou égale à 120 kg/j de DBO5, le préfet peut remplacer les dispositions du paragraphe précédent par la surveillance des déversoirs d'orage dont le cumul des volumes ou flux rejetés représente au minimum 70 % des rejets annuels au niveau des déversoirs d'orage visés au paragraphe précédent.

En outre, les déversoirs d'orage situés à l'aval d'un tronçon destiné à collecter une charge brute de pollution organique par temps sec supérieure ou égale à 600 kg/j de DBO5, lorsqu'ils déversent plus de dix jours par an en moyenne quinquennale, font l'objet d'une surveillance permettant de mesurer et d'enregistrer en continu les débits et d'estimer la charge polluante (DBO5, DCO, MES, NTK, Ptot) rejetée par ces déversoirs. Sous réserve que le maître d'ouvrage démontre leur représentativité et leur fiabilité, ces données peuvent être issues d'une modélisation du système d'assainissement.

IV. - Paramètres à mesurer et fréquence des mesures

[...]

En outre, des dispositions de surveillance renforcée doivent être prises par le maître d'ouvrage, dans les situations décrites aux alinéas 2 et 3 de la définition 23 de l'article 2 ci-dessus, hors inondations, pendant lesquelles le maître d'ouvrage ne peut pas assurer la collecte ou le traitement de l'ensemble des eaux usées.

Le maître d'ouvrage estime alors le flux de matières polluantes rejetées au milieu dans ces circonstances. Cette évaluation porte au minimum sur le débit, la DBO5, la DCO, les MES, le NTK, le NH4, le Ptot aux points de rejet, et l'impact sur le milieu récepteur et ses usages sensibles, notamment par une mesure de l'oxygène dissous.

Article 19

III. - Conformité du système de collecte

Au plus tard le 31 décembre 2015, **le ou les maîtres d'ouvrage des systèmes de collecte équipent les déversoirs d'orage** et transmettent au service en charge du contrôle et à l'agence ou office de l'eau **les données d'autosurveillance**, conformément aux dispositions de l'article

Basic information	
	17 ci-dessus. Hors situations inhabituelles décrites à l'article 2 ci-dessus, les eaux usées produites par l'agglomération d'assainissement sont collectées et acheminées à la station de traitement des eaux usées. Ces effluents y sont épurés suivant les niveaux de performances figurant à l'annexe 3 ou, le cas échéant, ceux plus sévères fixés par le préfet.
5. What is the terminology used to refer to storm water overflows in France? Is there more than one term used?	As mentioned above, the Local Authorities General Code refers to <i>eaux pluviales</i> (rainwater) or <i>eaux usées</i> (waste water) in some instances, and to <i>réseaux de collecte des eaux pluviales</i> (rainwater collection systems). It is reminded that the Local Authorities General Code requires water entering a collection system, including rainwater, to be treated, to the exception of unusual situations, including in particular heavy rain, therefore excluding storm water. The different storm water overflow infrastructures are referred to in the 2015 Order in French as: ▪ <i>déversoirs d'orage</i> which is defined in the Order as 7. « Déversoir d'orage » : tout ouvrage équipant un système de collecte en tout ou partie unitaire et permettant, en cas de fortes pluies, le rejet direct vers le milieu récepteur d'une partie des eaux usées circulant dans le système de collecte. Un trop-plein de poste de pompage situé à l'aval d'un secteur desservi en tout ou partie par un réseau de collecte unitaire est considéré comme un déversoir d'orage aux fins du présent arrêté. ▪ <i>bassins d'orage</i> which is not defined. Contrary to the 2007 Order, pursuant to the definition of <i>déversoir</i>, the <i>déversoir</i> does not redirect to these basins as the system rejects directly in the environment the overflow. However, Article 4 of the 2015 Order provides that these basins are for “storing a portion of wastewater volumes generated during rainfalls before redirecting it for treatment to a station”. It is therefore now unclear how these basins would function; ▪ <i>by-pass</i> is defined as: 18. « Ouvrage de dérivation (by-pass) en cours de traitement » : tout ouvrage, au sein de la station de traitement des eaux usées, permettant de dériver vers le milieu récepteur des eaux usées qui n'ont suivi qu'une partie de la filière de traitement.
6. Is there a definition of storm water overflow in France?	No definition of storm water overflow was available in the legislation, policy documents, guidance documents or other relevant documents prior to the 2015 Order. The definition of <i>déversoirs d'orage</i> together with the definition of “unusual circumstances” provided by this Order can be acknowledged as representing a definition of storm water overflow and the circumstances under which the system comes to operate. In addition, the MEDDE provides a definition of the ‘design rate’, i.e. the rate for normal situation. http://www.assainissement.developpement-durable.gouv.fr/recueil/03_AC/note_debit_de_reference_version2-2-1.pdf Annexes to the 2015 Order provide for thresholds for different sizes of networks for this design rate. SDAGE can provide this information for their own basin, for instance the SDAGE Loire Bretagne : http://www.eau-loire-bretagne.fr/sdage/sdage_2010_2015/Sdage-LB2010-2015.pdf (page 37)
7. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does France have a definition of extreme or unusual	No definition of extreme or unusual rainfall event was available in the legislation, policy documents, guidance documents or other relevant documents before the 2015 Order.

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rainfall event?

- **The Local Authorities General Code (*Code général des collectivités territoriales*) however provides for the following reference**

Article R.2224-11

« [...] except in unusual situations, including those due to heavy rain [...] »

« [...] sauf dans le cas de situations inhabituelles, notamment de celles dues à de fortes pluies [...] »

NB. see complete the provision's translation in section 2.

- **The 2015 Order now provides for a definition of « unusual situations »**

Article 2

23. « Situations inhabituelles » : toute situation se rapportant à l'une des catégories suivantes :

- fortes pluies, telles que mentionnées à l'article R. 2224-11 du code général des collectivités territoriales ;
- opérations programmées de maintenance réalisées dans les conditions prévues à l'article 16, préalablement portées à la connaissance du service en charge du contrôle ;
- circonstances exceptionnelles (telles que catastrophes naturelles, inondations, pannes ou dysfonctionnements non directement liés à un défaut de conception ou d'entretien, rejets accidentels dans le réseau de substances chimiques, actes de malveillance).

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
<i>Overview of legal and policy framework</i>	
1. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	The French system functions in an interplay of provisions and responsibility. On the one hand operators need to have their installation authorised or declared to the local State authorities, and then monitored by the local authorities (and the Water Police Services) (Code of Environment & Local Authorities General Code). On the other hand, the MEDDE sets out objectives and technical requirements to which the systems must obey (2015 Order). The implementation of these requirements is partly ensured thanks to the authorisation or declaration process. This process will indeed be based in consideration of the local context, including the respect of water quality objectives, yearly rainfall, and community needs (Code of Environment, Public Health Code). The municipalities are also in charge of devising a plan and network, in collaboration with the relevant local authorities (Local Authorities General Code). This plan has to fit within other plans pursuant to the applicable legislative and regulatory requirements, in particular the water development and management plans (regional – ‘SDAGE’ – or local – ‘SAGE’) – i.e. the River Basin Management Plans (Code of Environment). These plans usually mention the importance of managing the sanitation network properly (including setting of storm water basins) in order to be able to store polluted water and protect sensitive areas, as well as in relation to waterproofing in order to reduce the load of rainwater entering collection systems. These elements concern storm water overflows mostly indirectly, as these systems must ensure treatment of rainwater to the exception of heavy rain (“unusual situations”).
2. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	The MEDDE sets out minimal objectives and technical prescriptions relating to volumes of overflow. Presently, there is no quantitative value at a national level set in official documents. However, the technical instructions attached to the 2015 Order which were disclosed during interview with the MEDDE before the publication of this Order, suggested new potential criteria for stating if a collection system during rainfall is compliant or not. Local authorities were to elect one of the three following criteria: - Discharges during rainfall amount to less than 5% of the volume of wastewater produced by urban sanitation during the year; - Discharges during rainfall amount to less than 5% of products pollution flows by urban sanitation during the year; - Less than 20 calendar days of discharge during the year are observed at each combined storm water overflow subject to regulatory self-monitoring. However, an analysis of the 2015 Order has not revealed these elements. Only standards are set for the automonitoring of storm water overflow depending on the size of the facility/network under Article 17 and related reporting requirements under Article 20. A text has however been disclosed by the authorities that refers to the auto-monitoring system and the need for the prefect to make a choice

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among the three possibilities enunciated above, as well as modalities therein. This text is the 'Technical note of 7 September 2015 on the implementation of certain provisions of [the 2015 Order]' (thereafter the '2015 Technical Note') and is the legal equivalent to a circular, i.e. it is a guidance document addressed to state authorities, it is not published in the official journal and it is not bearing any normative or positive law content. This text is available online³³³.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Local Authorities General Code, Article R.2224-8 ³³⁴	<i>Les communes ou leurs établissements publics de coopération délimitent, après enquête publique réalisée conformément au chapitre III du titre II du livre Ier du code de l'environnement : [...] 3° Les zones où des mesures doivent être prises pour limiter l'imperméabilisation des sols et pour assurer la maîtrise du débit et de l'écoulement des eaux pluviales et de ruissellement ; 4° Les zones où il est nécessaire de prévoir des installations pour assurer la collecte, le stockage éventuel et, en tant que de besoin, le traitement des eaux pluviales et de ruissellement lorsque la pollution qu'elles apportent au milieu aquatique risque de nuire gravement à l'efficacité des dispositifs d'assainissement.</i>	Municipalities or their public establishments for cooperation delimit, after a public inquiry pursuant to Chapter III of Title II of Book I of the Environment Code: [...] 3. Areas where action must be taken to limit soil sealing and to ensure control of flow of rainwater and runoff; 4. The areas where it is necessary to provide facilities to ensure the collection, storage potential and, as appropriate, treatment of rainwater and runoff pollution when they bring to the aquatic environment could seriously harm to effective sanitation.
		Local Authorities General Code, Article R.2224-11	<i>Les eaux entrant dans un système de collecte des eaux usées doivent, sauf dans le cas de situations inhabituelles, notamment de celles dues à de fortes pluies, être soumises à un traitement avant d'être rejetées dans le milieu naturel, dans les conditions fixées aux articles R. 2224-12 à R. 2224-17 ci-après.</i>	The water entering a sewage collection system must, except in unusual situations, including those due to heavy rain , be subject to treatment before being discharged into the environment, under the conditions laid down in Articles R.2224-12 to R. 2224-17 below.
		2015 Order, Article 1	<i>Objet et champ d'application de l'arrêté. [...] Les dispositions du présent arrêté s'appliquent en particulier aux stations de traitement des eaux usées et aux déversoirs d'orage inscrits à la nomenclature annexée à l'article R. 214-1 du code de</i>	

³³³ Tedhncial note available at: http://www.assainissement.developpement-durable.gouv.fr/recueil/03_AC/Note%20technique%20du%207%20septembre%202015.pdf.

³³⁴ Local Authorities General Code, Article R.2224:

http://www.legifrance.gouv.fr/affichCode.do;jsessionid=B68788895AC1AFF3F8444A443AC631B1.tpdila19v_1?idSectionTA=LEGISCTA000006181439&cidTexte=LEGITEXT000006070633&dateTexte=20070912.

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		2015 Order, Article 2	<i>l'environnement.</i>	
		2015 Order, Article 5	7. « Déversoir d'orage » : tout ouvrage équipant un système de collecte en tout ou partie unitaire et permettant, en cas de fortes pluies, le rejet direct vers le milieu récepteur d'une partie des eaux usées circulant dans le système de collecte. Un trop-plein de poste de pompage situé à l'aval d'un secteur desservi en tout ou partie par un réseau de collecte unitaire est considéré comme un déversoir d'orage aux fins du présent arrêté. « Règles spécifiques applicables au système de collecte. Le système de collecte est conçu, réalisé, réhabilité, exploité et entretenu, sans entraîner de coût excessif, conformément aux règles de l'art et de manière à : [...] 2° Eviter tout rejet direct ou déversement d'eaux usées en temps sec, hors situations inhabituelles visées aux alinéas 2 et 3 de la définition (23) ; 4° Ne pas provoquer, dans le cas d'une collecte en tout ou partie unitaire, de rejets d'eaux usées au milieu récepteur, hors situation inhabituelle de forte pluie. Les déversoirs d'orage respectent les règles mentionnées aux 2° et 4° ci-dessus et sont aménagés de manière à répondre aux obligations de surveillance visées à l'article 17-II ci-dessous et à ne pas permettre l'introduction d'eau en provenance du milieu naturel.	
		2015 Order, Article 9	Documents d'incidences, dossier de conception et information du public. I. - Documents d'incidences des systèmes d'assainissement destinés à collecter et traiter une CBPO supérieure à 12 kg/j de DBO5 Ainsi, la demande d'autorisation ou la déclaration comprend a minima : Concernant le système de collecte : 1° La description et le plan du système de collecte ; 2° La localisation des déversoirs d'orage et des points de rejets au milieu récepteur. Leurs principales caractéristiques techniques et les modalités de	

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		surveillance en place ou prévues seront précisées ; [...] IV. - Information du public Pour tout projet d'assainissement (station de traitement des eaux usées, bassins d'orage, déversoirs d'orage soumis à autorisation) [...] 2015 Order, Article 12 Diagnostic du système d'assainissement. En application de l'article R. 2224-15 du code général des collectivités territoriales, pour les agglomérations d'assainissement générant une charge brute de pollution organique inférieure à 600 kg/j de DBO5, le maître d'ouvrage établit, suivant une fréquence n'excédant pas dix ans, un diagnostic du système d'assainissement des eaux usées. Ce diagnostic permet d'identifier les dysfonctionnements éventuels du système d'assainissement. Le diagnostic vise notamment à : 1° Identifier et localiser l'ensemble des points de rejets au milieu récepteur et notamment les déversoirs d'orage cités à l'article 17-II ; 2015 Order, Article 17-II II. - Autosurveillance du système de collecte Sont soumis à cette autosurveillance les déversoirs d'orage situés à l'aval d'un tronçon destiné à collecter une charge brute de pollution organique par temps sec supérieure ou égale à 120 kg/j de DBO5. Cette surveillance consiste à mesurer le temps de déversement journalier et estimer les débits déversés par les déversoirs d'orage surveillés. Pour les agglomérations d'assainissement générant une charge brute de pollution organique supérieure ou égale à 120 kg/j de DBO5, le préfet peut remplacer les dispositions du paragraphe précédent par la surveillance des déversoirs d'orage dont le cumul des volumes ou flux rejetés représente au minimum 70 % des rejets annuels au niveau des déversoirs d'orage visés au paragraphe précédent. En outre, les déversoirs d'orage situés à l'aval d'un tronçon destiné à collecter une charge brute de pollution	

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		2015 Order, Article 20 2015 Order, Article 22	organique par temps sec supérieure ou égale à 600 kg/j de DBO5, lorsqu'ils déversent plus de dix jours par an en moyenne quinquennale, font l'objet d'une surveillance permettant de mesurer et d'enregistrer en continu les débits et d'estimer la charge polluante (DBO5, DCO, MES, NTK, Ptot) rejetée par ces déversoirs. Sous réserve que le maître d'ouvrage démontre leur représentativité et leur fiabilité, ces données peuvent être issues d'une modélisation du système d'assainissement. Production documentaire. I. - Cas des agglomérations de taille supérieure ou égale à 120 kg/j DBO5 et des stations de traitement des eaux usées de capacité nominale supérieure ou égale à 120 kg/j de DBO5 1. Manuel d'autosurveillance du système d'assainissement Ce manuel spécifie : [...] et décrit : 1° Les ouvrages épuratoires et recense l'ensemble des déversoirs d'orage (nom, taille, localisation de l'ouvrage et du ou des points de rejet associés, nom du ou des milieux concernés par le rejet notamment) ; Contrôle annuel de la conformité du système d'assainissement par le service en charge du contrôle. III. - Conformité du système de collecte Au plus tard le 31 décembre 2015, le ou les maîtres d'ouvrage des systèmes de collecte équipent les déversoirs d'orage et transmettent au service en charge du contrôle et à l'agence ou office de l'eau les données d'autosurveillance, conformément aux dispositions de l'article 17 ci-dessus.	
WFD	Y	COMPETENCY OF MUNICIPALITIES TO SET TECHNICAL PRESCRIPTIONS TO CONNECTIONS	<i>La commune peut fixer des prescriptions techniques pour la réalisation des raccordements des immeubles au réseau public de collecte des eaux usées et des eaux pluviales.</i> The municipality may establish technical requirements for carrying out the connections of buildings to the public network collecting waste water and rainwater.	

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	Public Health Code (Code de la santé publique), Article L.1331-1³³⁵ GOOD WATER OBJECTIVES Code of Environment (Code de l'environnement), Article L.212-1-IV & VI³³⁶	<i>IV.-Les objectifs de qualité et de quantité des eaux que fixent les schémas directeurs d'aménagement et de gestion des eaux correspondent :</i> <i>1° Pour les eaux de surface, à l'exception des masses d'eau artificielles ou fortement modifiées par les activités humaines, à un bon état écologique et chimique ;</i> <i>2° Pour les masses d'eau de surface artificielles ou fortement modifiées par les activités humaines, à un bon potentiel écologique et à un bon état chimique ;</i> <i>3° Pour les masses d'eau souterraines, à un bon état chimique et à un équilibre entre les prélèvements et la capacité de renouvellement de chacune d'entre elles ;</i> <i>4° A la prévention de la détérioration de la qualité des eaux ;</i> <i>5° Aux exigences particulières définies pour les zones visées au 2° du II, notamment afin de réduire le traitement nécessaire à la production d'eau destinée à la consommation humaine.</i> <i>VI.- Lorsque la réalisation des objectifs mentionnés aux 1°, 2° et 3° du IV est impossible ou d'un coût disproportionné au regard des bénéfices que l'on peut en attendre, des objectifs dérogatoires peuvent être fixés par le schéma directeur d'aménagement et de gestion des eaux en les motivant.</i>	IV.- The objectives of quality and quantity of water set by the water development and management scheme correspond to: 1. For surface waters, with the exception of artificial water bodies or heavily modified by human activities, a good ecological and chemical status; 2. For artificial surface water bodies or bodies heavily modified by human activities, good ecological potential and good chemical status; 3. For groundwater bodies in good chemical status and a balance between abstraction and renewal capacity of each of them; 4. To prevent the deterioration of the water quality; 5. For the special requirements defined for the areas referred to in 2 ° of II, in particular to reduce the treatment required for the production of water for human consumption. VI.- When the achievement of the objectives mentioned in 1, 2 and 3 of IV is impossible or disproportionately expensive in view of the benefits that can be expected, derogatory objectives may be set by the water development and management scheme upon a reasoned decision.

³³⁵ Public Health Code (Code de la santé publique), Article L.1331-1:

http://www.legifrance.gouv.fr/affichCodeArticle.do;jsessionid=1594E682AEF48D4EC3833986051A4928.tpdila19v_1?idArticle=LEGIARTI000020533836&cidTexte=LEGITEXT000006072665&dateTexte=20150608 (last access June 2015).

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http://www.legifrance.gouv.fr/affichCodeArticle.do;jsessionid=BE52804AA164CF2841425F739C163466.tpdila13v_1?idArticle=LEGIARTI000025560295&cidTexte=LEGITEXT000006074220&dateTexte=20150512.

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MSFD	N	2015 Order now refers to sensitive use (including seashells culture, fish farming, cressiculture, shore fishing , swimming, water sports, ...) and to sensitive use zones including SDAGE/SAGE		
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	Circular of 4 May 2011 on the implementation of water development and management scheme (Circulaire du 4 mai 2011 relative à la mise en oeuvre des schémas d'aménagement et de gestion des eaux)	«Annexe 4: la compatibilité des documents d'urbanisme avec les SDAGE et les SAGE [...] les schémas de cohérence territoriale (SCOT), plans locaux d'urbanisme (PLU) et cartes communales devront principalement porter leur attention sur les éléments du SAGE qui correspondent à: [...] - la maîtrise des eaux pluviales et des ruissellements, [...] «Annexe 10: Support pratique pour la rédaction du règlement d'un SAGE [...] Principe n°3: Identification de l'objet de la règle et du destinataire [...] Il est important, pour garantir l'effectivité de chaque règle, que son objet mais également le destinataire soient identifiés. Dans le cas où la règle vise une activité particulière (par exemple, les déversoirs d'orage qui seront construits après l'entrée en vigueur du SAGE), cela doit être indiqué explicitement. Exemple : «la règle s'applique à tous les déversoirs d'orage situés sur un système de collecte des eaux usées destinés à collecter un flux polluant journalier». [...] Principe n°6: Qualité de la rédaction [...] Quelques exemples de formulation: [...]	“Appendix 4: compatibility of planning documents with the SDAGE and SAGE [...] the territorial coherence schemes (SCOT), local urban plans (PLU) and communal maps should mainly focus their attention on SAGE items that match: [...] - Control of rainwater and runoff, [...] Annex 10: practical support for the drafting of a SAGE regulation [...] Principle 3: Identifying the purpose of the rule and the recipient [...] It is important to guarantee the effectiveness of each rule, its object but also that the recipients are identified. If the rule targets a particular activity (e.g. combined storm water overflow sewer to be built after the entry into force of SAGE), this should be stated explicitly. Example: "the rule applies to all combined storm water overflow sewers located on a wastewater collection system for collecting daily pollutant flows". [...] Principle 6: Quality of drafting [...]

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			<i>Exemple 3: «Sur le bassin versant de la rivière X, afin de ne pas aggraver le risque d'inondation par ruissellement, les rejets d'eaux pluviales des opérations d'aménagement soumises à autorisation ou à déclaration sous la rubrique 2.1.5.0 de la nomenclature annexée à l'article R.214-1 du code de l'environnement doivent satisfaire les conditions suivantes :</i> ▪ <i>sauf impossibilité, les eaux pluviales doivent être infiltrées,</i> ▪ <i>- dans le cas où les eaux pluviales ne pourraient pas être infiltrées, le débit de fuite de l'aménagement est limité, soit à la valeur du débit de fuite du terrain naturel avant aménagement, soit à Y l/s si le projet se situe en zone urbaine.»</i>	Some examples of wording: [...] Example 3: "On the watershed of the river X, so as not to aggravate the risk of flooding by runoff, discharges of rainwater management operations subject to authorisation or declaration under 2.1.5.0 of the nomenclature annexed to Article R.214-1 code the environment must meet the following conditions: - Where possible, rainwater should be infiltrated, - Where rainwater could not be infiltrated, the development of leakage flow is limited either to the value of natural land leak rate before development, or Y l / s if the project is located in urban areas. "
UWWTD	Y	2015 Technical Note	Numerous references to performance objectives and the Directive itself. Such as: <i>La présente note vise à rappeler ou préciser</i> <i>les dispositions à respecter en matière de surveillance des rejets directs au milieu naturel par temps de pluie (voire par temps sec) au niveau des systèmes de collecte</i> <i>les performances à atteindre en matière de collecte des eaux usées, dans le respect des règles édictées par la directive 91/271/CE et au regard d'enjeux environnementaux et/ou sanitaires.</i> [...] <i>Chaque année, vos services en charge de la police de l'eau évalueront la conformité du système de collecte de chaque agglomération d'assainissement au regard des objectifs fixés par la</i>	

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			<i>directive 91/271/CEE sur la base des données issues de l'autosurveillance rappelée plus haut concernant les points réglementaires AI (voir schéma en annexe).</i>	
WFD	Y	As above in relation to the UWWTD: water development and management scheme ('SDAGE' or 'SAGE') are integrated tools, designed to implement the different requirements of these EU laws. <i>2015 Technical Note</i>	Numerous references to performance objectives and the Directive itself. Such as : <i>Il convient également de s'assurer que les éventuels rejets du système de collecte ne remettent pas en cause l'état du milieu récepteur au regard des objectifs fixés par la directive cadre sur l'eau ou d'autres directives sectorielles (baignade,...).</i>	
MSFD	Y	Storm water are referred to and taken into consideration in diverse manners at the regional level as part of the MSFD action plan and other steps. For instance, here in the Initial assessment of the Marine Action Plan for the Bay of Biscay, in the part on chemical pressures and associated impacts, section on chemical substances, subsection	<i>1.4.4. Pollution des eaux pluviales urbaines</i> <i>Les zones urbaines fortement imperméabilisées sont à l'origine lors d'événements pluvieux d'un accroissement du ruissellement de surface, dont 80 % est collecté dans les réseaux de type séparatif (de l'ordre de 35 % du total collecté) ou unitaire (mélange eaux usées/eaux pluviales- 65 % du total collecté). Il s'en suit des déversements importants de matières polluantes dans les eaux superficielles. Cette pollution diffuse provient principalement des retombées atmosphériques, de l'usure des pièces automobiles pneus, etc.), de la corrosion des matériaux utilisés en milieu urbain et de l'entretien des espaces publics.</i> <i>[...]</i> <i>sur les 88 substances recherchées au total dans les eaux pluviales urbaines depuis 2007 dont 45 ciblées</i>	1.4.4. Pollution from urban rainwater Highly impermeable urban areas are the source of increased surface runoff during rainfall events, 80% is collected in separate network (of the order of 35% of the total collected) or combined unit (mixing wastewater / rainwater - 65% of the total collected). This results in significant spills of pollutants in surface water. This diffuse pollution comes mainly from atmospheric deposition, wear tires auto parts, etc.), corrosion of materials used in the urban environment and maintenance of public spaces. [...] of the 88 substances searched for in total in popular urban rain water since 2007 including 45

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		on direct and chronic sources of hazardous substances to the marine environment.	<i>par la DCE ou par la directive Substances dangereuses de 2006: – 38 sont détectées sur les réseaux pluviaux séparatifs.</i>	targeted by the DCE or the Priority Substances Directive of 2006: - 38 are detected on separate rainwater networks.
BWD	Y	As above in relation to the WFD: water development and management scheme ('SDAGE') are integrated tools, designed to implement the different requirements of these EU laws. <i>2015 Technical Note</i>	<i>Incidental reference: Il convient également de s'assurer que les éventuels rejets du système de collecte ne remettent pas en cause l'état du milieu récepteur au regard des objectifs fixés par la directive cadre sur l'eau ou d'autres directives sectorielles (baignade,...). [...] ✓ Les objectifs sanitaires liés à certains usages sensibles (baignade, conchyliculture, production d'eau potable par exemple).</i>	
DWD	Y	As above in relation to the WFD: water development and management scheme ('SDAGE') are integrated tools, designed to implement the different requirements of these EU laws. <i>2015 Technical Note</i>	<i>Incidental reference: Il convient également de s'assurer que les éventuels rejets du système de collecte ne remettent pas en cause l'état du milieu récepteur au regard des objectifs fixés par la directive cadre sur l'eau ou d'autres directives sectorielles (baignade,...). [...] ✓ Les objectifs sanitaires liés à certains usages sensibles (baignade,</i>	

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			<i>conchyliculture, production d'eau potable par exemple).</i>	
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N			
HELCOM	N/A			
Barcelona Convention	N			
Conv. on the Protection of the Black Sea	N/A	-		
Danube Convention	N/A	-		
Rhine Convention	N			
Oder Convention	N/A			
Elbe Convention	N/A			
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Legal, national	Code of Environment (<i>Code de l'environnement</i>), Articles R.214-1 ³³⁷ , R.214-6 ³³⁸ and R.214-32 ³³⁹		Classified installations regime, list of installations concerned, and application file required for such installations:	

³³⁷ Code of Environment (*Code de l'environnement*), Articles R.214-1:

http://www.legifrance.gouv.fr/affichCode.do;jsessionid=BE52804AA164CF2841425F739C163466.tpdila13v_1?idSectionTA=LEGISCTA000006189058&cidTexte=LEGITEXT000006074220&dateTexte=20150512.

³³⁸ Code of Environment (*Code de l'environnement*), Articles R.214-6:

http://www.legifrance.gouv.fr/affichCode.do;jsessionid=BE52804AA164CF2841425F739C163466.tpdila13v_1?idSectionTA=LEGISCTA000006189059&cidTexte=LEGITEXT000006074220&dateTexte=20150512.

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		France has an authorisation procedure and a declaration procedure in place with regard to certain installations, including water treatment facilities and sewage system. A summary table of which procedure is applicable to which type of installation is contained in Article R.214-1. This table is expressly applicable to operations related to Article L.214-2 to 214-3, including those operations mentioned above in relation to the WFD. The regulatory part of the Code of Environment thereafter requires the application file (see Article R.214-6-I, III and IV below) or declaration file for such facilities to include an assessment of the flow of pollutants including its variations in relation to heavy rains, the maximum threshold of rains received above which water treatment objectives can no longer be guaranteed, and estimated impact on the receiving environment. Similar information must be provided in relation to <i>déversoirs d'orage</i>. Similar texts are used, <i>mutatis mutandis</i>, for both procedure in different Articles. Below, the provisions relating to the authorisation procedure: Article R.214-6-I, III and IV <i>«I.- Toute personne souhaitant réaliser une installation, un ouvrage, des travaux ou une activité soumise à autorisation adresse une demande [...]</i> <i>III.- Lorsqu'il s'agit de stations d'épuration d'une agglomération d'assainissement ou de dispositifs d'assainissement non collectif, la demande comprend en outre:</i> <i>1° Une description du système de collecte des eaux usées, comprenant:</i> <i>[...]</i> <i>c) L'évaluation des charges brutes et des flux de substances polluantes, actuelles et prévisibles, à collecter, ainsi que leurs variations, notamment les variations saisonnières et celles dues à de fortes pluies ;</i> <i>[...]</i> <i>2° Une description des modalités de traitement des eaux collectées indiquant :</i> <i>[...]</i> <i>b) Les valeurs limites des pluies en deçà desquelles ces objectifs peuvent être garantis à tout moment ;</i> <i>IV.- Lorsqu'il s'agit de déversoirs d'orage situés sur un système de collecte des eaux usées, la demande comprend en outre :</i>

³³⁹ Code of Environment (Code de l'environnement), Articles R.214-32:

http://www.legifrance.gouv.fr/affichCode.do?jsessionid=BE52804AA164CF2841425F739C163466.tpdila13v_1?idSectionTA=LEGISCTA000006188720&cidTexte=LEGITEXT000006074220&dateTexte=20150512.

Overview of legal and policy framework. Relevant references to storm water overflows.

		<i>1° Une évaluation des charges brutes et des flux de substances polluantes, actuelles et prévisibles, parvenant au déversoir, ainsi que leurs variations, notamment celles dues aux fortes pluies ;</i> <i>2° Une détermination du niveau d'intensité pluviométrique déclenchant un rejet dans l'environnement ainsi qu'une estimation de la fréquence des événements pluviométriques d'intensité supérieure ou égale à ce niveau ;</i> <i>3° Une estimation des flux de pollution déversés au milieu récepteur en fonction des événements pluviométriques retenus au 2° et l'étude de leur impact.»</i>
Policy, River Basin level	Water development and management schemes: SDAGE (basin committee level) or SAGE (declines SDAGE at a lower level, e.g. river level), i.e. River Basin Management Plans.	As explained above, every SDAGE (there are six 'water agencies' in France and therefore six SDAGE) or SAGE would contain references to storm water overflows and/or rainwater in direct application of the Code of Environment and Local Authorities General Code. As an example, the revised version of the Rhin Meuse SDAGE (currently under public consultation) refers to storm water overflows / rainwater: ■ When mentioning that the waterproofing of surface should be avoided and infiltration encouraged in order to have lower volumes of water to treat; ■ When mentioning the importance of managing the sanitation network properly (including setting of storm water basins) in order to be able to store polluted water and protect sensitive areas; ■ When encouraging the infiltration instead of direct run off to watercourses (new orientation).
Policy, Municipal	Plan Local d'Urbanisme	As explained above, municipalities or group of municipalities must deal with rain water in relation to flow control and treatment, and they may act in relation to technical conditions on connexion to the network. There is however no set legal deadline or document explicitly specified for the adoption and outlining of such requirements. In practice, it is anticipated that the management of rain water would be included in the <i>Plan Local d'Urbanisme</i>. There are thousands of such documents in France (i.e. as many municipalities or group of municipalities). Indeed, this document "can fix the networks feeding conditions" and furthermore "can delineate areas referred to in Article L.2224-10 of the Local Authorities General Code on rain water" (cf. Article L.123-1-5 of the Urban Planning Code (<i>Code de l'urbanisme</i>)).

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
1. Which types of sewer system does France have?	Both systems are being used as mentioned in the legislation and confirmed through interviews.
2. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	No According to Mr. Venturini, about 45% of the waste water agglomerations above 2000 PE have a combined sewer system. 45% have a separated system. However, if we consider that in 2008 there was 97 000 km of combine system and 200 000 km of separate sewer system we can estimate the percentage of combine system to 32% of the total ³⁴⁰ .
3. How many storm water overflows infrastructures exist in France?	No figures available.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
4. Is there information on the occurrence of storm water overflows?	Each municipality operates its wastewater system and must statutorily know the flows and loads discharged and control its discharges, under the 2007 Order. This information is then sent to the different local water police services. Information is therefore scattered at the different local levels, and not all accessible online. Information is defined as partial by the MEDDE desk officer and demonstrating a wide diversity of situation. There is no definition of unusual rainfall at a national level because of the disparities between regions (mainland France). This is why criteria on volumes of overflow or number of days of overflows are preferred.
5. Are storm water overflows monitored in France? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	Monitoring must be ensured by the operator, municipality and the different water police services. During the authorisation or declaration procedures, the water police services must assess the impacts of local discharge points pursuant to the 2007 Order. “What is measured” and “how often” is however decided upon at the local level and depends on the receiving environment in view of achieving good ecological status in application of the Code of Environment (transposition of EU laws). It seems that the way these overflows are monitored and reported through the regions are not consistent. However, partial data are reported to the Water Agencies and the water police.

³⁴⁰ Figures obtained from the following source: http://www.eaufrance.fr/IMG/pdf/assainissement_201104.pdf.

FACTSHEET FOR GERMANY

1. BASIC INFORMATION

Basic information	
General Information	
64. What are the competent authorities for waste water treatment and management in Germany?	A distinction must be made between legislative powers, the competence to enforce regulations, and financial responsibility. Expenditure incurred while exercising their duties is borne separately by the Federal Government and the Laender³⁴¹. Description of different levels: Federal Level: The Federal Government has legislative competence with regard to the hydrological regime. This means that the Federal Government is authorised to adopt more detailed regulations on water resources management. The Federal Government made use of its competence and subjected the 2009 Federal Water Act to a thorough overhaul; the updated version entered into force on 1 March 2010. By contrast, the Laender may only adopt regulations for as long as and insofar as the Federal Government has not completely exhausted its legislative competence in adopting the Federal Water Act, and has left scope for provisions by the Laender, and does not remove this scope during the course of future updates to the Federal Water Act. Furthermore, the Laender may adopt alternative provisions from the provisions of the Federal Water Act, except for regulations on substances and installations. Laender Level Enforcement of the provisions relating to water, including the Federal laws, and hence the exercising of executive powers in water resources management, is the responsibility of the Laender. The Federal Government also performs important functions in the fields of research and data collection. The data are provided by the Laender The enforcement of water resources management regulations is the sole responsibility of the Laender and the municipalities. In most Laender, water resources management follows the three-tier structure of general administration, although the assignment of tasks varies from state to state: • Supreme authority: Ministry with a water resources department; predominantly ministry for the environment; duties: water management control and superior administrative procedures • Intermediate tier: District government, offices of the district government presidents, Laender authorities; duties: regional water resources management planning, important procedures under the water acts • Lower tier: Lower water authorities (districts and towns not belonging to a district) as well as technical authorities (e.g. water resources authorities, environmental protection authorities); duties: procedures under the water acts as well as technical advice, monitoring of waters and water use, especially wastewater discharges. Exceptions exist in some smaller Laender which have a two-tier administration with no intermediate tier (e.g. city states).

³⁴¹ For more details see pages 28 ff of document on water resource management in Germany by the Federal Office for Environment: http://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/wawi_teil_01_englisch_barrierefrei.pdf

Basic information	
	In addition to water resources authorities or environmental protection authorities, most Laender possess central state entities with various designations (Land authorities for environmental protection, water resources management, water and waste etc.) which are tasked with handling the extensive scientific aspects of water management. These entities perform various functions in the fields of hydrology, monitoring of waterbodies, water resources management planning, offering technical advice in their capacity as official experts, preparing technical guidelines, education and training; these vary from Land to Land. They are subsidiary to the supreme authorities. In some cases the Land authorities are also charged with enforcement functions (e.g. monitoring of waters and dischargers, wastewater charges). Municipalities: By implementing the environmental legislation of the Federal Government and of the Laender, and particularly within the context of their constitutionally guaranteed self-administration, the municipalities perform a number of important environmental protection-related tasks. Their task is to make the legal requirements operable, that means that they will be the entities which plan, build, and operate the installations for storm water overflow. Under the Water Acts of the individual Laender, central water supply and wastewater disposal are traditional responsibilities of the local authorities. In order to meet the costs incurred in this respect, they levy charges on users (contributions and fees). Technical/Scientific Associations: Technical organisations cannot enact regulations, but they have prepared a great number of technical guidelines, most of which are recognised and applied as generally accepted technical standards where the general abstract regulations on federal and Laender Level do not specify the technical requirements. <u>List of authorities:</u> <u>Federal authorities:</u> • The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (potentially Directorate-General WR Water Management, Resource Conservation) (<i>Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit BMUB</i>)³⁴² • Federal Environment Agency (<i>Umweltbundesamt UBA</i>)³⁴³ <u>Laender authorities:</u> <u>North Rhine-Westphalia (NRW):</u> • Ministry for Climate Protection, Environment, Agriculture, Conservation and Consumer Protection of the State of North Rhine-

³⁴² The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety <http://www.bmub.bund.de/>

³⁴³ The Federal Office for Environment: <http://www.umweltbundesamt.de/>

Basic information	
	Westphalia (<i>Ministerium für Klimaschutz, Umwelt, Landwirtschaft, Natur- und Verbraucherschutz des Landes Nordrhein-Westfalen</i>)³⁴⁴ • North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection (<i>Landesamt für Natur, Umwelt und Verbraucherschutz NRW</i>)³⁴⁵ • District Governments (<i>Bezirksregierungen</i>) • Regional state offices for Water Management (<i>Untere Wasserbehörden</i>) • Local municipalities (operator) (<i>Kommunen und sondergesetzliche Wasserverbände</i>) <u>Bavaria:</u> • Bavarian State Ministry for Environment and Consumer Protection (<i>Bayerisches Staatsministerium für Umwelt und Verbraucherschutz</i>)³⁴⁶ • Bavarian Environment Agency (<i>Bayerisches Landesamt für Umwelt</i>)³⁴⁷ [general technical advice] • District governments (incl. intermediate water authority) • District council (incl. lower tier water authority) [issuing permits, e.g. for storm water overflow] • State offices for Water Management (Wasserwirtschaftsaemter) [technical advice, authorised expert in due course of issuing a permit] • Local municipalities (operator) [applying for and carrying out permits, operating sewer incl. stormwater overflow] <u>Associations:</u> • The German Association for Water Economy, Waste Water and Waste (<i>Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall e.V. DWA</i>)³⁴⁸, is a politically and economically independent organisation, which aims at developing secure and sustainable waste water management. It has about 14.000 members which represent specialists, executives from municipalities, universities, engineering offices, authorities and companies. Federation of Engineers for Water Resources Management, Waste Management and Agricultural Engineering, (<i>Bund der Ingenieure für Wasserwirtschaft, Abfallwirtschaft und Kulturbau e.V., (BWK)</i>) • German Institute for Standardisation, (<i>Deutsches Institut für Normung (DIN)</i>), represented by the Water Sector Standards Committee, (<i>Fachnormenausschuss Wasserwesen - NAW</i>)
65. What is the transposing law(s) of the UWWTD in Germany?	<u>Federal legislation:</u> The German Federal Water Act (<i>Wasserhaushaltsgesetz – WHG</i>) has been in force since 1 March 2010. The Act (full title: Federal Act on Regulation of the Water Household (WHG) Water Household Regulation of 31 July 2009 (BGBl. I S. 2585), which has last been

³⁴⁴ The Ministry for Climate Protection, Environment, Agriculture, Conservation and Consumer Protection of the State of North Rhine-Westphalia: <https://www.umwelt.nrw.de/umweltschutz-umweltwirtschaft/umwelt-und-wasser/abwasser/>

³⁴⁵ The North Rhine-Westphalia State Agency for Nature, Environment and Consumer Protection: <http://www.lanuv.nrw.de/wasser/abwasser/abwasser.htm>

³⁴⁶ The Bavarian State Ministry for Environment and Consumer Protection: <http://www.stmuv.bayern.de/>

³⁴⁷ State Office of Bavaria for environment: <http://www.lfu.bayern.de/index.htm>

³⁴⁸ The German Association for Water Economy, Waste Water and Waste: <http://en.dwa.de/main-activities.html>

Basic information	
	amended through Article 2 of the law of 15 November 2014 (BGBl. I S. 1724) - <i>Gesetz zur Ordnung des Wasserhaushalts (Wasserhaushaltsgesetz - WHG) Wasserhaushaltsgesetz vom 31. Juli 2009 (BGBl. I S. 2585), das zuletzt durch Artikel 2 des Gesetzes vom 15. November 2014 (BGBl. I S. 1724) geändert worden ist</i>³⁴⁹), provides general principles and technical requirements on water and waste water management, while the actual transposition of the UWWTD occurs at the Laender level. According to § 8 WHG the use of waters shall require an official permit or license. § 9 WHG states that the introduction or discharge of substances into water bodies is defined as a use of water. § 54 WHG defines wastewater to be composed of sewage and precipitation (i.e. rain and storm) water. § 56 WHG defines that the duty and responsibility of wastewater disposal lies within the responsibility of the Laender. § 57 WHG refers to the discharge of wastewater into waters, and states that the discharge permission is based on a limitation of volume and harmful components in wastewater according to best available technology (BAT). Nevertheless, no detailed technical standards for BAT are defined in the WHG regarding storm water runoff. As long as these technical specifications are not regulated within the Federal Waste Water Ordinance (<i>Abwasserverordnung</i> 2004³⁵⁰) the technical regulations of the Laender build the framework for the regulation of storm water overflow. Furthermore the Federal Water Act (§ 55) does state a preference for separated wastewater systems compared to combined systems and states that precipitation water shall seep and trickle away locally and be emitted directly into water systems, without mixing before sewage water provided this does not contravene water legislation or other provisions under public law or water management interests. <u>Laender legislation:</u> Both Laender have transposed the UWWTD into their legislation: <u>NRW:</u> Regulation on the implementation of Directive 91/271 / EEC of 21 May 1991 concerning urban waste water treatment of 30 September 1997. <i>Die Ministerin für Umwelt und Forsten: Landesverordnung über die Beseitigung von kommunalem Abwasser (KomAbwVO) vom 27. November 1997; Gesetz- und Verordnungsblatt für das Land Nordrhein-Westfalen S. 372, geändert durch die Verordnung vom 20. Juni 2001 (GV. NRW. S. 454) und Art. 140 des Gesetzes vom 5. April 2005 (GV. NRW. S. 332.)</i>³⁵¹ <u>Bavaria:</u>

³⁴⁹ The German Federal Water Act: http://www.gesetze-im-internet.de/bundesrecht/whg_2009/gesamt.pdf

³⁵⁰ North Rhine-Westphalia: Regulation on the implementation of Directive 91/271 / EEC: <http://www.gesetze-im-internet.de/bundesrecht/abwv/gesamt.pdf>

³⁵¹ Official Gazette of North Rhine-Westphalia: https://recht.nrw.de/lmi/owa/br_text_anzeigen?v_id=10000000000000000665

Basic information	
	Regulation on the implementation of Directive 91/271 / EEC concerning urban waste water treatment of 23 August 1992. <i>Bayerisches Staatsministerium des Innern: Verordnung zur Umsetzung der Richtlinie 91/271/EWG über die Behandlung von kommunalem Abwasser (Reinhalteordnung kommunales Abwasser- ROkAbw-) vom 23. August 1992; Bayerisches Gesetz- und Verordnungsblatt Nr. 18, S. 402.³⁵²</i>
66. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Since the Federal Water Act only represents a framework legislation, section A of Annex I to the UWWTD is not literally transposed there. On the other hand, the Laender legislations of North Rhine-Westphalia and Bavaria have almost literally transposed Section A of Annex I to the UWWTD into their legislations as described below (the sections in italics are the provisions that have been added or modified by the Laender to Section A of Annex I to the UWWTD). NRW: Reference: Official Gazette of North Rhine-Westphalia Page 926³⁵³ (Ordinance for the Implementation of EC-Directive 91/271/EWG (<i>Kommunalabwasserverordnung - KomAbwV</i>)) § 4 (Fn 4) Sewage system (1) ... (2) ... (2a) ... (3) Collecting systems (') Collecting systems shall take into account waste water treatment requirements. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge <i>according to the requirements of § 18 b of the Federal Act on Regulation of the Water Household and § 57 of the State Water Act</i>, not entailing excessive costs, notably regarding : • volume and characteristics of urban waste water, • prevention of leaks, • limitation of pollution of receiving waters due to storm water overflows Furthermore § 6 relates specifically to the discharge of waste water from storm water overflows and defines that sewage systems and waste water treatment installations should be constructed and operated in a way that the requirements stated in § 57 of the German Federal Water Act, regarding the retention of harmful substances for the discharge of storm water from public sewers are being respected. Decree of the NRW-Ministry of Environment of 3.1 1995 (IV B 6 - 031001 2102/IV B 5 - 673/4/2-32602): Requirements for the public storm water discharge in combined systems (3) Requirements for the construction of buildings

³⁵³ Official Gazette of North Rhine-Westphalia: https://recht.nrw.de/lmi/owa/br_text_anzeigen?v_id=10000000000000000665

Basic information	
	Specifications for a critical rain yield factor where a storm water overflow is allowed to start working Bavaria: Reference: ROkAbw in Law and Ordinance Gazette 1992, Nr. 18, Page 402³⁵⁴ ROkAbw Annex 2: Requirements for collecting wastewater systems Expert comment on the above mentioned Bavarian regulation: • Minimum requirements for storm water storage capacity within the sewer network are in place • Failing the minimum requirements will impose an additional waste water levy onto the operator • Besides minimum requirements on storage and hence on reducing events of storm water overflow the sewer system still has to comply with the general standards regarding wastewater • A permit is required for discharges of storm water overflow, storm water, or treated wastewater into surface waters • A permit for discharge is limited in validity and has to be renewed at the end of the validity period • There is an expert assessment of every discharge into surface waters while (re-) issuing the permit • (EU-WFD provides additional assessment of influences that storm water outlets impose on water bodies) • Expert assessment includes evaluation of emission and immission aspects according to the respective discharge, the surface water conditions, and the summarising effect of existing discharges in the vicinity of the respective discharge • Conclusion: existing provisions adequately ensure limitation of pollution of receiving waters due to storm water overflows
67. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	The footnote is neither literally transposed into German federal nor Laender legislation for North Rhine-Westphalia or Bavaria But there is an indirect implementation introduced into the Federal Water Act, when it states in § 60 that waste water installations shall be constructed, operated and maintained in such a way that the requirements governing the disposal of waste water are met. In addition, waste water treatment installations may only be constructed, operated and maintained in accordance with the best available technology (BAT), other waste water installations in accordance with the generally accepted rules of technology. These rules and the BAT are concretized in technical regulations issued by technical/scientific associations or by specific Laender-regulations on water quality. These result in requirements for storm water overflow discharges which have to be regularly controlled within the licensing procedures according to the water law. See also answers on question 3. Technical regulations by associations dealing with storm water overflows are: • DWA worksheet A-117: Dimensioning of retention areas • DWA worksheet A 138: Infiltration • DWA worksheet A 128: Guidelines for dimensioning and design of storm water overflows of combined sewer systems • DWA- technical bulletin M-153: Handling of storm water • DWA worksheet A 166: Buildings of central rainwater treatment and rainwater storage – structural design and equipment • DWA technical bulletin M 176: References to structural design und equipment for structures of central rainwater treatment and rainwater storage

³⁵⁴ Bavarian Law and Ordinance Gazette 1992: <http://www.gesetze-bayern.de/jportal/?quelle=jlink&docid=jlr-ReinKommAbwBYrahmen&psml=bsbavprod.psml&max=true&aiz=true>

Basic information	
	BWK technical bulletin M3: Derivation of discharge-oriented demands on mixing and rainwater discharges, taking into account local conditions
68. What is the terminology used to refer to storm water overflows in Germany? Is there more than one term used?	Regenüberlauf (plural: Regenüberläufe)^{355,356}, meaning storm water overflow(s), is the term used in the translated EU Directive and the transposing German Federal and regional legislation when referring to storm water overflows. Storm water overflow basins (special form: sewer with storage capacity and overflow) are installations which are arranged within the sewer system and which are combined with a storm water overflow to reduce the frequency of discharges. Discharge from storm water overflows = <i>Einleiten von Niederschlagswasser aus einer Kanalisation im Mischsystem</i> (BayAbwAG Art 6 Abs. 1 und 2). However, additional relevant terms found on the internet and on specialised publications could be <i>Überläufe</i> (overflows), <i>Überläufe aus dem Mischsystem</i> (overflows out of combined sewers), <i>Mischwasserüberläufe</i> (combined sewer overflows), <i>Niederschlagsabflüsse</i> (precipitation discharges), <i>Regenwasserabflüsse</i> (rainwater discharges) etc. <u>Basis for definitions in NRW are:</u> Decree of the NRW-Ministry for the Environment of 3.1 1995 (IV B 6 - 031001 2102/IV B 5 - 673/4/2-32602) (see answer to question 3) Decree of the NRW-Ministry for the Environment of 26.05.2004 (IV-9 031 001 2104); Requirements for the storm water discharge in separate systems (<i>Trennerlass</i>) For mixed sewage systems, combined sewer overflows exist, such as storm water overflow basins (i.e. pass-, composite and catch basins), storage sewer, storm water overflows, rainwater retention basins or retention soil filter systems and for separate sewage systems rainwater drains such as storm water sedimentation tanks, storm water overflows, rainwater retention basins, retention soil filter plants or direct discharges of rainwater from surfaces. Storm water overflows are installations without storage volume - they are to be dimensioned, organised and operated according to the mixing water decree or respectively to worksheet ATV 128. Usually, in NRW the storm water overflow occurs via a storage installation. About 2/3 of installations in combined sewer systems have a retention volume.
69. Is there a definition of storm water overflow in Germany?	No explicit definition of storm water overflows exists in German Federal or Laender (NRW and Bavaria) legislation. But there is a definition in the technical worksheet of the association DWA-A 128: Discharge structures in the mixing system are installations with overflow into a body of water, such as storm water overflows, storm water overflow basins and storage channels. The object of the storm water treatment is to limit the rain runoff to the treatment plant so that the desired flow values at treatment plants are complied with, while the intermittent loads of waters from storm water overflows remain within reasonable limits. The aim of the storm water treatment must be the best possible reduction of the total emissions from storm water overflows and sewage treatment plants in the context of water management requirements. An effective protection of water and wastewater treatment plants against excessive loads can be expected, if the necessary storm water treatment is carried out in accordance with these guidelines. <u>Additional definition in NRW:</u> Decree of the NRW-Ministry for the Environment of 3.1 1995 (IV B 6 - 031001 2102/IV B 5 - 673/4/2-32602)

³⁵⁵ The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety:

http://www.bmub.bund.de/fileadmin/Daten_BMU/Download_PDF/Binnengewasser/kommunalabwasserrichtlinie_91_271_ewg_bf.pdf

³⁵⁶ Bavarian Waste Water Charges Act: <http://www.gesetze-bayern.de/jportal/?quelle=jlink&docid=jlr-ReinKommAbwBYrahmen&psml=bsbayprod.psml&max=true&aiz=true>

Basic information	
	Requirements for the public storm water discharge in combined systems (<i>Mischwassererlass</i>) (1) Definitions (2) Treatment of storm water run off Expert opinion (NRW): „Storm water overflow“ is existent if the discharge happens from the extraordinary construction into the water body.
70. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Germany have a definition of extreme or unusual rainfall event?	In Germany different definitions for heavy precipitation are used. Germany's National Meteorological Service (Deutscher Wetterdienst - DWD) starts warning of storms up to an amount of rain exceeding 25 mm / 1 hour or exceeding 35 mm / 6 hours. DWD warns of extreme storms up to an amount of rain exceeding 40 mm / 1 hour or exceeding 60 mm / 6 hours³⁵⁷. In studies and evaluations concerning climate change the DWD uses the parameter “Days with heavy precipitation with more than 30 mm“. For planning and dimensioning of water infrastructure e.g. urban drainage, pumps, waste water treatment or storm water retention basins often statistical evaluations of heavy precipitation including the probability of return are used, that means further thresholds for heavy precipitation depending on the regional conditions are existing in Germany. The technical Worksheet DWA-A 128 calculates an “admissible discharge rate” and a “admissible annual discharge rate“, independently of the hydraulic design of drainage systems (DWA-A 118) inter alia on the basis of a statistical assessment of heavy precipitation events and refers to an atlas of the DWD „<i>Starkniederschlagshöhen für Deutschland</i> – KOSTRA“³⁵⁸ NRW: “Storm water overflow“ with discharges from the extraordinary construction into the water body is assigned regularly to storm water events according to DWA-A 128, DWA A 118. The term “extreme rainfall events” is used in expert practice in a way that it describes events beyond the assessment threshold according to DWA-A 128, DWA A 118.
71. Could you identify an expert on storm water overflows in Germany?	Mr. Dr. Viktor Mertsch from the Ministry for Climate Protection, Environment, Agriculture, Conservation and Consumer Protection of the State of North Rhine-Westphalia

³⁵⁷ Germany's National Meteorological Service definitions:
http://www.dwd.de/bvbw/appmanager/bvbw/dwdwwwDesktop;jsessionid=1BMvV2nctCpfb9ffYVFJtRhrHW3nK2v1DM4jJ6ThK2269hpHcLNp0!-1499139467!-1134704226?_nfpb=true&_windowLabel=dwdwww_main_book&portletMasterPortlet_i1gsbDocumentPath=&switchLang=de&_pageLabel=dwdwww_result_page

³⁵⁸ Germany's National Meteorological Service coordinated heavy precipitation regionalisation: <http://www.dwd.de/kostra>

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
19. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	All the relevant abstract regulation for the treatment of waste water are contained within the Federal Water Act, especially the provision that waste water installations shall be constructed, operated and maintained in such a way that the requirements governing the disposal of waste water are met. In addition, waste water treatment installations may only be constructed, operated and maintained in accordance with the best available technology (BAT), other waste water installations in accordance with the generally accepted rules of technology. The details are laid down in the Laender provisions and within technical regulations of associations which concretize the “generally accepted rules of technology. <u>NRW:</u> Legal basis are: • Federal Water Act (WHG) • NRW-Water Act • NRW-statutory ordinance on municipal water (KomAbwV), • Decree of NRW-Ministry of the Environment of 3.1 1995 (IV B 6 - 031001 2102/IV B 5 - 673/4/2-32602), Requirements for the public storm water discharge in combined systems (<i>Mischwassererlass</i>) • Decree of the NRW-Ministry for the Environment of 26.05.2004 (IV-9 031 001 2104); Requirements for the storm water discharge in separate systems (<i>Trennerlass</i>) • ATV A 128, 1992
20. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	Standards are set nationwide by the technical association “DWA” (German Association for Water, Wastewater and Waste) [http://de.dwa.de/]. Technical bulletins and worksheets of the DWA define the generally accepted rules of technology (<i>Allgemein anerkannte Regeln der Technik</i>). For every individual case the authorities have to make an individual expertise and order on the basis of these generally accepted rules of technology or in some cases the best available technology (<i>Stand der Technik</i>). DWA-A128 • Storm water overflows must on constructed on a critical rainfall intensity between $r_{krit} = 7,5$ and $15 \text{ l/(s} \cdot \text{ha)}$ • Minimum mixing ratios before discharges should be determined as a function of dry weather / rain weather shares in the channel and COD concentrations (i.e. Chemical oxygen demand). • The allowable discharge rates are determined by CSB-mixed concentrations and mean low water discharge in the receiving water. • In sensitive river sections additional requirements may exist. <u>NRW:</u> Decree of NRW-Ministry of the Environment of 3.1 1995 (IV B 6 - 031001 2102/IV B 5 - 673/4/2-32602), Requirements for the public

Overview of legal and policy framework. Relevant references to storm water overflows.				
		storm water discharge in combined systems (<i>Mischwassererlass</i>) (2) Treatment of storm water runoffs 2.1Requirment: According to ATV A 128 the admissible yearly rate of load relieving is relevant		
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	<u>Germany Federal legislation:</u> German Federal Water Act ³⁵⁹	<u>Germany Federal legislation:</u> Gesetz zur Ordnung des Wasserhaushalts (Wasserhaushaltsgesetz - WHG) Wasserhaushaltsgesetz vom 31. Juli 2009 (BGBl. I S. 2585), das zuletzt durch Artikel 2 des Gesetzes vom 15. November 2014 (BGBl. I S. 1724) geändert worden ist.	<u>Germany Federal legislation:</u> Federal Act on Regulation of the Water Household (WHG) Water Household Regulation of 31 July 2009 (BGBl. I S. 2585) which has last been amended through Article 2 of the law of 15 November 2014 (BGBl. I S. 1724).
		Status 		

³⁵⁹ German Federal Water Act: http://www.gesetze-im-internet.de/bundesrecht/whg_2009/gesamt.pdf

Overview of legal and policy framework. Relevant references to storm water overflows.				
	Y	§ 60 waste water installations <u>Laender legislation:</u> <u>North Rhine-Westphalia</u>³⁶⁰	3. Abwasseranlagen oder sonstige Einrichtungen errichtet und betrieben werden, die erforderlich sind, um die Einhaltung der Anforderungen nach den Nummern 1 und 2 sicherzustellen. (2) Durch Rechtsverordnung nach § 23 Absatz 1 Nummer 3 können an das Einleiten von Abwasser in Gewässer Anforderungen festgelegt werden, die nach Absatz 1 Nummer 1 dem Stand der Technik entsprechen. Die Anforderungen können auch für den Ort des Anfalls des Abwassers oder vor seiner Vermischung festgelegt werden. (1) Abwasseranlagen sind so zu errichten, zu betreiben und zu unterhalten, dass die Anforderungen an die Abwasserbeseitigung eingehalten werden. Im Übrigen müssen Abwasserbehandlungsanlagen im Sinne von Absatz 3 Satz 1 Nummer 2 nach dem Stand der Technik, andere Abwasseranlagen nach den allgemein anerkannten Regeln der Technik errichtet, betrieben und unterhalten werden. (2) Entsprechen vorhandene Abwasseranlagen nicht den Anforderungen nach Absatz 1, so sind die erforderlichen Maßnahmen innerhalb angemessener Fristen durchzuführen. <u>Laender legislation:</u> <u>North Rhine-Westphalia</u> Die Ministerin für Umwelt und Forsten: Landesverordnung über die Beseitigung von kommunalem Abwasser (KomAbwVO) vom 27. November 1997; Gesetz- und Verordnungsblatt für	3. Sewage systems or other installations are being constructed and operated, which are necessary to secure the compliance of the requirements as mentioned in number 1 and (2) After the legislation of § 23 paragraph 1 number 3, requirements can be linked to the discharge of waste water into waters, which according to paragraph 1 number 1 corresponds to the latest technological advancements. Waste water installations shall be constructed, operated and maintained in such a way that the requirements governing the disposal of waste water are met. In addition, waste water treatment installations may in the meaning of para. 3 s.1 no. 2 only be constructed, operated and maintained in accordance with the best available technology (BAT), other waste water installations in accordance with the generally accepted rules of technology. Where existing waste water installations do not meet the requirements pursuant to paragraph (1), the required measures must be carried out within a reasonable period of time. <u>North Rhine-Westphalia</u> The Minister for Environment and Forests: State Ordinance on the disposal of urban waste water (KomAbwVO) of 27 November 1997; Law and Ordinance Gazette for North Rhine-Westphalia P. 372, amended through the Regulation of 20 June 2001 (GV.

³⁶⁰ North Rhine-Westphalia: Regulation on the implementation of Directive 91/271 / EEC: https://recht.nrw.de/lmi/owa/br_text_anzeigen?v_id=10000000000000000665

Overview of legal and policy framework. Relevant references to storm water overflows.

	Y	§ 4 Sewage system	das Land Nordrhein-Westfalen S. 372, geändert durch die Verordnung vom 20. Juni 2001 (GV. NRW. S. 454) und Art. 140 des Gesetzes vom 5. April 2005 (GV. NRW. S. 332.) § 4 Kanalisation (1) Die nach § 53 LWG zur Abwasserbeseitigung Verpflichteten haben gemeindliche Gebiete 1. mit mehr als 10.000 EW bis zum 31. Dezember 1998, 2. bis 10.000 EW bis zum 31. Dezember 2005 mit einer Kanalisation auszustatten. (2) Die Verpflichtung nach Absatz 1 Nr. 2 gilt nicht für Grundstücke außerhalb im Zusammenhang bebauter Ortsteile, wenn der zur Abwasserbeseitigung Verpflichtete nach Maßgabe des § 53 Abs. 4 LWG von seiner Pflicht freigestellt worden ist. (2a) Ist die Ausstattung mit einer Kanalisation für Grundstücke außerhalb im Zusammenhang bebauter Ortsteile mit einem innerhalb der Frist des Absatz 1 Nr.2 unzumutbaren Aufwand verbunden, kann der zur Abwasserbeseitigung Verpflichtete im Abwasserbeseitigungskonzept (§ 53 Absatz 1 Satz 4 LWG) eine weitergehende Frist vorsehen. Diese Frist ist verbindlich, wenn die zuständige Behörde sie gemäß § 53 Absatz 1 Satz 9 LWG nicht beanstandet. (3) Die Kanalisation muß den Anforderungen an die Abwasserbehandlung Rechnung tragen. Bei Entwurf, Bau und Unterhaltung sind die optimalen technischen Kenntnisse nach Maßgabe der Anforderungen des § 18 b des Wasserhaushaltsgesetzes und des § 57 LWG zugrunde zu legen, die keine unverhältnismäßig	NRW. S. 454) and article 140 of the act of 5 April 2005 (GV. NRW. P. 332.) § 4 Sewage system (1) The communal areas, obliged to waste water disposal after § 53 of State Water Act, which have 1. more than 10.000 inhabitants until 31 December 1998, 2. up to 10.000 inhabitants until December 2005 shall be equipped with a sewage system. (2) The obligation according to paragraph 1 nr 2 does not apply for land plots which lie outside of constructed communal areas, if the waste water disposal responsible has been exempted from this responsibility according to § 53 paragraph 4 State Water Act. (2a) If the equipment with a sewage system within the deadline as defined by paragraph 1 number 2 for land plots outside of constructed communal areas represents an unreasonable effort, the sewage disposal responsible may foresee an extended deadline for its waste water disposal concept (§ 53 paragraph 1 sentence 4 SWA). This deadline is binding, if the responsible authority does not object to it according to § 53 paragraph 1 sentence 9 SWA. (3) Collecting systems shall take into account waste water treatment requirements. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge <i>according to the requirements of § 18 b of the Federal Act on Regulation of the Water Household and § 57 of the State Water Act</i>, not entailing excessive costs, notably

Overview of legal and policy framework. Relevant references to storm water overflows.			
	Y	§ 6 Discharge of waste water from storm water overflows Bavaria:³⁶¹ Bavarian State Ministry of the Interior: Regulation on the implementation of Directive 91/271/EEC Annex 2	hohen Kosten verursachen; dies betrifft insbesondere: - die Menge und Zusammensetzung der kommunalen Abwässer, - die Verhinderung von Leckagen, - die Begrenzung einer Verschmutzung der aufnehmenden Gewässer durch Regenüberläufe. § 6 Einleitung von Abwasser aus Regenüberläufen Kanalisationen und Abwasserbehandlungsanlagen sind so zu errichten und zu betreiben, daß die auf Grund des § 57 LWG erlassenen Anforderungen an die Schadstoffrückhaltung für das Einleiten von Niederschlagswasser aus öffentlichen Kanalisationen eingehalten werden. Bavaria: Bayerisches Staatsministerium des Innern: Verordnung zur Umsetzung der Richtlinie 91/271/EWG über die Behandlung von kommunalem Abwasser (Reinhalteordnung kommunales Abwasser- ROkAbw-) vom 23. August 1992; Bayerisches Gesetz- und Verordnungsblatt Nr. 18, S. 402. Anlage 2 Anforderungen an Kanalisationen Kanalisationen sollen den Anforderungen an die Abwasserbehandlung Rechnung tragen. Bei Entwurf, Bau und Unterhaltung der Kanalisation sind die optimalen technischen Kenntnisse zugrunde zu legen, die keine regarding : — volume and characteristics of urban waste water, — prevention of leaks, — limitation of pollution of receiving waters due to storm water overflows. § 6 Discharge of waste water from storm water overflows Sewage systems and Waste water treatment plants are supposed to be constructed and operated to allow compliance of requirements on retention of harmful substances for the discharge of storm water from public sewers, as defined by § 57 SWA. Bavaria: Bavarian State Ministry of the Interior: Regulation on the implementation of Directive 91/271/EEC concerning urban waste water treatment (pollution prevention regulation urban waste water sewage clean-order ROkAbw-) on 23 August, 1992; Bavarian Official Gazette no. 18, p 402. Annex 2 Requirements for collecting systems Sewer systems are designed to meet the requirements for wastewater treatment. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding :

³⁶¹ Bavarian Law and Ordinance Gazette 1992: <http://www.gesetze-bayern.de/jportal/?quelle=jlink&docid=jlr-ReinKommAbwBYrahmen&psml=bsbavprod.psml&max=true&aiz=true>

Overview of legal and policy framework. Relevant references to storm water overflows.				
			unverhältnismäßig hohen Kosten verursachen; dies betrifft insbesondere: - Menge und Zusammensetzung der kommunalen Abwässer, - Verhinderung von Leckagen, - Begrenzung einer Verschmutzung der aufnehmenden Gewässer durch Regenüberläufe; hierbei sollen mindestens die Anforderungen des Art. 6 Abs. 1 und 2 des Bayerischen Gesetzes zur Ausführung des Abwasserabgabengesetzes (BayAbwAG) beachtet werden.	— volume and characteristics of urban waste water, — prevention of leaks, — limitation of pollution of receiving waters due to storm water overflows; whereas the minimum requirements of Article 6 paragraph 1 and 2 of the Bavarian legislation of the execution of the Bavarian Waste Water Charges Act³⁶² (BayAbwAG), shall be respected.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	Bavaria³⁶³: <u>Lagebericht 2012 zur Umsetzung der EG-Kommunalabwasserrichtlinie</u>	Bavaria: In der Mischwasserkanalisation werden heute in Bayern rund 6.000 Regenbecken mit einem Gesamtnutzvolumen von circa 3 Mio. Kubikmeter betrieben. Im Mischsystem werden überwiegend Regenüberlaufbecken eingesetzt. Sie sind so konstruiert, dass sie im Regenfall zum einen nur so	Bavaria: In the Bavaria's combined sewer system today, currently 6,000 storm water basins are operated with a total useful volume of about 3 million cubic meters. In mixed systems mainly rainwater overflow basins are used. On one hand, in the event of rainfall they are designed to only pass the amount of mixing water

³⁶²Bavarian Law and Ordinance Gazette 1992: <http://www.gesetze-bayern.de/jportal/?quelle=jlink&docid=jlr-AbwAGBY2003rahmen&psml=bsbayprod.psml&max=true&aiz=true>

³⁶³State Office of Bavaria for environment, Implementation of the EC Urban Wastewater Treatment Directive in Bavaria - Management Report 2012: [http://www.bestellen.bayern.de/application/applstarter?APPL=STMUG&DIR=stmug&ACTIONxSETVAL\(artdtl.htm,APGxNODENR:84,AARTxNR:lfu was 00084,USERxBODY URL:artdtl.htm,KATALOG:StMUG,AKATxNAME:StMUG,ALLE:x\)=X](http://www.bestellen.bayern.de/application/applstarter?APPL=STMUG&DIR=stmug&ACTIONxSETVAL(artdtl.htm,APGxNODENR:84,AARTxNR:lfu was 00084,USERxBODY URL:artdtl.htm,KATALOG:StMUG,AKATxNAME:StMUG,ALLE:x)=X)

Overview of legal and policy framework. Relevant references to storm water overflows.				
	N	<u>NRW:</u> <u>Lagebericht 2012 zur Umsetzung der EG-Kommunalabwasserrichtlinie</u>	viel Mischwasser weitergeben, wie die Kläranlage aufnehmen und reinigen kann, zum anderen aber die Gewässerbelastung durch den Beckenüberlauf möglichst gering halten. Gesetzliche Vorgaben sorgen dafür, dass die Mischwasserentlastung auf ein gewässerträgliches Maß beschränkt wird. <u>NRW:</u> Im Jahr 2012 waren 6.944 Regenbecken mit einem Gesamtvolumen von 11.588.708 m³ in der öffentlichen Niederschlagswasserbehandlung in Nordrhein-Westfalen erfasst. Darüber hinaus wurden 1.781 Regenüberläufe, die kein Speichervolumen aufweisen, im Misch- oder Trennsystem betrieben. 71 % des Gesamtspeichervolumens stehen im Mischsystem zur Verfügung. Von den insgesamt 8.725 Sonderbauwerken sind 22 % als Regenüberlaufbecken und 17 % als Stauraumkanäle im Mischsystem ausgebildet. Weitere 20 % der Bauwerke sind Regenüberläufe. Vom Gesamtspeichervolumen wird 24 % in Regenüberlaufbecken und 13 % in Stauraumkanälen bereitgestellt. In Trennsystemen wurden bisher 788 Regenklärbecken mit einem Gesamtspeichervolumen von 359.191 m³ für die zentrale Regenwasserbehandlung in REBEKA erfasst. Dies sind 9 % der Regenbecken insgesamt mit einem Anteil am Gesamtvolumen von 3 %.	that can be absorb and purified by the wastewater treatment plant and on the other hand to keep the pollution through basin overflows as low as possible. Legal requirements ensure that the mixed water discharges are reduced to tolerable water levels. <u>NRW:</u> In 2012 North Rhine Westphalia recorded 6.944 rainwater basins with a total volume of 11.588.708 m³ in the public storm water treatment system. In addition, 1,781 rain overflows that have no storage volume, operated in combined or separate systems. 71% of the total storage volume is available in the mixed system. Of the total 8,725 22 special structures 22% are rainwater overflow basins and 17% storage channels in the mixed system. A further 20% of the installations are storm water overflows. Of the total storage volume 24% is provided by rainwater overflow basins and 13% by storage sewers. So far, in separate systems 788 storm water sedimentation tanks with a total storage capacity of 359,191 m³ were recorded for the central storm water treatment in REBEKA. These are 9% of the rainwater basins with a total share in the total volume of 3%.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International	Direct	Title of document	Text in MS language	Translation into English

Overview of legal and policy framework. Relevant references to storm water overflows.				
conventions or commissions	reference (Y/N)			
OSPAR	N			
HELCOM	Y	 HELCOM Recommendations reg		
Barcelona Convention	N/A			
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	Y	<u>Donauschutzkonvention</u>	Art.7 (5) Mit dem Ziel einer wirksamen Emissionsbegrenzung in den ihrer Hoheitsgewalt unterstehenden Gebieten stellen die Vertragsparteien die erforderlichen Vorbedingungen und die Umsetzung sicher. Sie stellen sicher, daß: ... Abwassereinleitungen ausnahmslos auf einer von den zuständigen Behörden zuvor erteilten und befristeten Genehmigung beruhen; ...	Art.7 (5) The Contracting Parties shall ensure necessary preconditions and implementation, with the aim of an effective emission control in the areas under their jurisdiction. They ensure that...Waste water discharges are granted, without exception, on the basis of a previous and temporary approval of the competent authorities; ...
Rhine Convention	N			
Oder Convention	N			
Elbe Convention	N			
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	

Overview of legal and policy framework. Relevant references to storm water overflows.

<i>Legal/Policy/ Guidance documents</i> <i>Federal and Regional</i>	<u>Germany Federal level:</u> • DWA worksheet A 128: Guidelines for dimensioning and design of storm water overflows of combined sewer systems • DWA worksheet A 166: Buildings of central rainwater treatment and rainwater storage – structural design and equipment • DWA technical bulletin M 176:References to structural design und equipment for structures of central rainwater treatment and rainwater storage <u>NRW:</u> • Decree of NRW-Ministry of the Environment of 3.1 1995 (IV B 6 - 031001 2102/IV B 5 - 673/4/2-32602), Requirements for the public storm water discharge in combined systems (<i>Mischwassererlass</i>) • Decree of the NRW-Ministry for the Environment of 26.05.2004 (IV-9 031 001 2104); Requirements for the storm water discharge in separate systems (<i>Trennerlass</i>) • DWA worksheet A 128: Guidelines for dimensioning and design of storm water overflows of combined sewer systems • DWA worksheet A 166: Buildings of central rainwater treatment and rainwater storage – structural design and equipment • DWA technical bulletin M 176:References to structural design und equipment for structures of central rainwater treatment and rainwater storage <u>Bavaria:</u> • Technical bulletin of the Bavarian Environment Agency Nr. 4.4/22(15.02.2013): Requirements on the sewage disposal of domestic and municipal waste water and from sewage systems	

Overview of legal and policy framework. Relevant references to storm water overflows.

[http://www.lfu.bayern.de/wasser/merkblattsammlung/teil4_oberirdische_gewaesser/doc/nr_4422.pdf]

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
46. Which types of sewer system does Germany have?	Germany has combined and separate sewer systems. Newly constructed systems are mostly separated. ³⁶⁴
47. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	In 2010 Germany had 43% of combined systems and 57% of separated systems. Overall, the total length of public sewage network represents 540.000km.³⁶⁵ NRW (2012): Altogether, there are 17,369 public sewerage networks. Of which 92% (15,953 subnets) are part of the separation system and 8% (1,416 subnets) are operated in the mixed system. The mixed sewage system has a length of approximately 46,010 km (62%). The separating sewer system (Wastewater sewer) 2012 has a length of around 28,200 km (38%). As a result, the average channel length for the mixing systems lies at about 33 km and for the separate system only at about 2 km – This means that large mixed systems and many small separated systems exist in NRW in the majority. Source: (<i>Lagebericht Abwasser</i> 2012) Bavaria (2013): Total length of public sewage network (<i>Gesamtlänge öffentl. Abwasserkanäle</i>): ca. 99.600 km - combined sewer (<i>Mischwasserkanäle</i>): ca. 55.200 km (55%) - waste water sewer (<i>Schmutzwasserkanäle</i>): ca. 30.500 km (31 %) - rain water sewer (<i>Regenwasserkanäle</i>): ca. 13.900 km (14%) combined systems (<i>Mischsystem</i>): ca. 64 % separated systems (<i>Trennsystem</i>): ca. 36 % Source: <i>Bayern Landesamt für Statistik und Datenverarbeitung</i>.
48. How many	In 2010 round about 66.000 storm water overflows (<i>Regenentlastungsanlagen</i>) were in place in Germany. These systems keep and store storm water until heavy precipitation has stopped to reduce the inflow rate into waste water treatment plants and prevent combined sewage water overflows. ³⁶⁶

³⁶⁴ Federal Association of the Energy and Water Industry – BDEW, Key data on waste water disposal in Germany 2010: [https://www.bdew.de/internet.nsf/id/2478D5D24663492DC1257BC70035D68D/\\$file/Eckdaten%20zur%20Abwasserentsorgung%202010%20%281%29.pdf](https://www.bdew.de/internet.nsf/id/2478D5D24663492DC1257BC70035D68D/$file/Eckdaten%20zur%20Abwasserentsorgung%202010%20%281%29.pdf)

³⁶⁵ Federal Association of the Energy and Water Industry – BDEW, Key data on waste water disposal in Germany 2010: [https://www.bdew.de/internet.nsf/id/2478D5D24663492DC1257BC70035D68D/\\$file/Eckdaten%20zur%20Abwasserentsorgung%202010%20%281%29.pdf](https://www.bdew.de/internet.nsf/id/2478D5D24663492DC1257BC70035D68D/$file/Eckdaten%20zur%20Abwasserentsorgung%202010%20%281%29.pdf)

³⁶⁶ The Federal Office for Environment, Water Management in Germany Water Supply – Waste Water Disposal Flyer: http://www.umweltbundesamt.de/sites/default/files/medien/378/publikationen/wawiflyer_uba_en_web.pdf

Available data on storm water overflows	
storm water overflows infrastructures exist in Germany?	<u>NRW (2012):</u> In 2012 North Rhine Westphalia recorded 6.944 rainwater basins with a total volume of 11.588.708 m³ in the public storm water treatment system. In addition, 1,781 rain overflows that have no storage volume, operated in combined or separate systems. 71% of the total storage volume is available in the mixed system. Of the total 8,725 22 special structures 22% are rainwater overflow basins and 17% storage channels in the mixed system. A further 20% of the installations are storm water overflows. Of the total storage volume 24% is provided by rainwater overflow basins and 13% by storage sewers. So far, in separate systems 788 storm water sedimentation tanks with a total storage capacity of 359,191 m³ were recorded for the central storm water treatment. These are 9% of the rainwater basins with a total share in the total volume of 3%. Source: (<i>Lagebericht Abwasser</i> 2012) <u>Bavaria (2013):</u> • storm water overflow basins (<i>Regenüberlaufbecken mit Entlastung in ein Gewässer</i>): ca. 6 000, total storage volume c. 2 900 000 m³ • storm water overflows (<i>Regenüberläufe</i>): ca. 3700 Source: <i>Bayern Landesamt für Statistik und Datenverarbeitung</i>.
Available quantitative data on the occurrence of storm water overflows	
49. Is there information on the occurrence of storm water overflows?	So far, only information regarding the number of storm water preventing infrastructures could be found for Germany. As mentioned above, about 66.000 storm water discharge systems (<i>Regenentlastungsanlagen</i>) existed in Germany in 2010. <u>NRW (2012):</u> (<i>entnommen aus den Auswertungen für den Lagebericht Abwasser</i> 2012): Based on many years of field rainfall the mean mixed water discharge rate in NRW lies at 30% and the annual discharge volume amounts to 230 million m³/a, which means that annually about 7.900t of TOC are discharged through storm water overflows of mixed sewage system into waters. The storm water runoff from municipal storm water tanks in separation systems introduced into surface waters are calculated to be 109 million m³/a and to represent a TOC pollution load of 2,686 t / a. From other surfaces (industry and other not connected to rainwater tanks) approximately an additional 834 million cubic meters with 21,000 t TOC are annually discharged into rivers. From other than local road surfaces annually 723 million m³ of rainwater flow off, with a cargo of 18,085 t TOC, where the majority seeps into street trenches. <u>Bavaria (2013):</u> In 2013 a study based on the requirements on self-monitoring (<i>Jahresberichte der Eigenüberwachung</i>) came up with the following average results for storm water overflow tanks: • it can be estimated, that there are overflow events during about 15 to 20 days per year. • the average sum of annual overflow time is about 50 hours per year. • within the overflow events the overflow volumes describe a wide range from marginal to close to the design capacity.
50. Are storm water	Storm water overflows have to be monitored regularly by the operators (<i>Eigenüberwachung</i>, i.e. self-monitoring requirements). The operators have to report to the state offices of water management on an annual basis. Some of the storm water overflows have measurement equipment, which meter duration and level of overflows.

Available data on storm water overflows	
overflows monitored in Germany? If yes, please describe the monitoring programme. Refer to: - what is measured ; - how often; and - at how many locations	The Bavarian Environment Agency plans to start a measurement-campaign on storm water overflows to estimate the quality and behavior of the storm water overflow. The campaign will start at the end of the year 2015 and will last about 4 years. <u>NRW (2013):</u> Legal basis: Self monitoring ordinance - <i>Selbstüberwachungsverordnung Abwasser</i> – SÜwVO Abw, 2013 Part 1 Self monitoring of sewer systems and discharges of waste water: § 2 Scope of monitoring: The operator of a sewerage system has to monitor the sewer networks in accordance with § 1 paragraph 1 number 1 on condition and functionality to self-monitor and needs to draw up a statement for self-monitoring in accordance with § 4. The observed installations, the audit scope and frequency of the examination arise from Appendix 1. Tabulated Appendix 1: scope, type and frequency of monitoring of facilities § 3 Monitoring of discharges of waste water from overflow structures For waste water discharges in accordance with § 1 paragraph 1, number 2, which are to be set in the instruction for self-monitoring, technical equipment needs to be installed to allow a continuous monitoring of water levels in storm water overflows and storage sewers of sewerage networks, and major storm water sedimentation tanks. Proper evaluations of the levels and usage times shall allow identifying through overflow volumes, durations, frequencies, and eventually the wastewater volume which has been discharged to the treatment plant. § 5 Monitoring report (3) The monitoring report must be accessible for the competent authorities for at least three years.

FACTSHEET FOR GREECE³⁶⁷

1. BASIC INFORMATION

Basic information	
General Information	
72. What are the competent authorities for waste water treatment and management in Greece?	The national transposition measure for the UWWTD (JMD 5673/400/1997) does not provide a specific definition of which authorities are considered as 'Competent Authorities' within its scope of application. Throughout the text, however, the Ministry of Environment, Urban Planning and Public Works is mentioned, together with the other jointly competent Ministries, namely the Ministry of Interior, Public Administration and Decentralisation, the Ministry of Health and Social welfare and the Ministry of Agriculture. (Note that the names of the Ministries correspond to the administrative organisation of the country in 1997). In present, several central and regional authorities in Greece share competences relevant to waste water treatment and management; none of these authorities appears to be exclusively and explicitly responsible for storm water overflows. Competences directly and indirectly relevant to storm water overflows are shared between central and local government, between elected and appointed local government³⁶⁸, between local government and public water supply and sewage companies as follows: 1) The Ministry of Reconstruction of Production, Environment and Energy (Υπουργεία Παραγωγικής Ανασυγκρότησης, Περιβάλλοντος και Ενέργειας)³⁶⁹ (hereinafter Ministry of Environment) is the hierarchically superior competent authority for the protection and management of water resources, as well as for waste management. 2) The National Water Council (Εθνικό Συμβούλιο Υδάτων)³⁷⁰ is a consultative body in the context of laying down the National Water Policy. Its members (26 stakeholders and NGOs) offer the National Water Committee their opinion on water protection and management programmes and they get informed annually by the National Water Committee about the state of water bodies and the implementation of the relevant legislation. It convenes at least once a year also as a forum of public consultation for the National River Basin Management Plans. 3) The National Water Committee (Εθνική Επιτροπή Υδάτων)³⁷¹ is a high-level inter-ministerial body responsible for formulating the national water policy. It is the authority which, upon recommendation of the Minister of Environment and following an opinion from the National Water Council, approves the National River Basin Management Plans.

³⁶⁷ Stakeholder interviews were conducted between 27th May and 5th June 2015 with representatives of the country's two largest public water and sewage companies, namely EYDAP S.A. (Water Supply and Sewage Company of the Capital -Εταιρεία Ύδρευσης και Αποχέτευσης Πρωτεύουσας ΕΥΔΑΠ) (Water Supply and Sewage Company of Thessaloniki - Εταιρεία ύδρευσης και Αποχέτευσης Θεσσαλονίκης ΕΥΑΘ), as well as a Greek hydraulic engineer.

³⁶⁸ Circular 150673/13.07.2011 of the Special Secretariat for Water of the Ministry of Environment, Energy and Climate Change 'Competences of Decentralized Administrations and Regions of the country in the water sector under Law.3852 / 2010' - Εγκύκλιος Ειδικής Γραμματείας Υδάτων Υπουργείου Περιβάλλοντος, Ενέργειας και Κλιματικής Αλλαγής 'Αρμοδιότητες των Αποκεντρωμένων Διοικήσεων και Περιφερειών της χώρας στον τομέα των υδάτων βάσει του Ν.3852/2010'.

³⁶⁹ Webpage of the Ministry of Environment, available at: <http://www.vpeka.gr/Default.aspx?tabid=245&language=el-GR>. Since the end of January 2015 the former Ministry of Environment, Energy and Climate Change was incorporated in the newly established Ministry of Reconstruction of Production, Environment and Energy.

³⁷⁰ Theme webpage of the Ministry of Environment with information on Water Management, available at: <http://www.vpeka.gr/?tabid=247>.

³⁷¹ Theme webpage of the Ministry of Environment with information on the National Water Committee, available at: <http://www.vpeka.gr/?tabid=247>.

Basic information

- 4) The **Special Secretariat for Water** (*Ειδική Γραμματεία Υδάτων*)³⁷² is the administrative service of the Ministry of Environment responsible for the implementation of all activities and coordination of all involved stakeholders as regards water resources. It is the authority primarily responsible for the implementation of the of the Water Framework Directive³⁷³ and runs all the operational aspects for the implementation of the Marine Strategy Framework Directive³⁷⁴. It is also responsible for monitoring bathing water quality³⁷⁵, preparing and implementing all actions under the Directive on the assessment and management of flood risks³⁷⁶. Urban waste water treatment also falls into the portfolio of the Special Secretariat which is also responsible for the database of urban waste water treatment facilities³⁷⁷.
- 5) The **Water Directorates** of the seven³⁷⁸ Decentralised Administrations³⁷⁹ (*Διευθύνσεις Υδάτων των Αποκεντρωμένων Διοικήσεων*) assist the Special Secretariat for Water in policy making, information, planning, monitoring and evaluation of water resources within the specific boundaries of their geographical jurisdiction.
- 6) The **13 Regions** (*Περιφέρειες*) are also competent authorities in respect of ensuring and maintaining proper operation of the rain water network of roads (except municipal roads which fall under the competence of Municipalities). Within the Regions there are respective Water Departments (*Τμήμα Υδροοικονομίας ή Τμήμα Περιβάλλοντος και Υδροοικονομίας*) which are competent, *inter alia*, for controlling the management of groundwater and surface irrigation water and monitoring the emission of pollutants into water. Complaints and own initiative procedures regarding water degradation or breach of the applicable legislation are followed up by the Water Departments of the Regions.
- 7) **Municipalities** (*Δήμοι*) also share competence in the field of water supply and sewage. According to the Municipal and Communal Code³⁸⁰ Municipalities have respective competences as regards construction, maintenance and management of the sewage networks and biological septic systems (Article 75) and shall determine the terms and conditions for the use and operation of water supply, irrigation and sewage. Moreover, Local Councils are responsible for restoring any damage of urgent character in the internal networks, pump systems and sewage systems (Article 129). Municipalities usually exercise these competences through establishing **Municipal Water Supply and Sewage Companies** (*Δημοτικές Επιχειρήσεις Ύδρευσης και Αποχέτευσης*)³⁸¹, which are also members of the **Hellenic**

³⁷² Theme webpage of the Ministry of Environment with information on the Special Secretariat for Water, available at: <http://www.vpeka.gr/Default.aspx?tabid=246>.

³⁷³ Theme webpage of the Ministry of Environment on the Water Framework Directive, available at: <http://www.vpeka.gr/Default.aspx?tabid=248&language=el-GR>.

³⁷⁴ Theme webpage of the Ministry of Environment on the Marine Strategy Framework Directive, available at: <http://www.vpeka.gr/Default.aspx?tabid=254&language=el-GR>.

³⁷⁵ Theme webpage of the Ministry of Environment on bathing water, available at: <http://www.vpeka.gr/Default.aspx?tabid=253&language=el-GR>.

³⁷⁶ Transposed into the Greek legal order through the Joint Ministerial Decision 31822/1542/E103 (OJ B' 1108/21.07.2010).

³⁷⁷ Portal of the Ministry of Environment/Special Secretariat for Water on Waste Water, available at: <http://astikalimata.vpeka.gr/Default.aspx>.

³⁷⁸ List of Decentralised Administrations, available at: http://www.vpes.gr/el/Regions/programma/apokentrvmenes_dioikhseis/.

³⁷⁹ Law 3852/2010 'New Architecture of Government and Decentralized Administration - Program "KALLIKRATIS"' (OJ A' 87/07.06.2010) – Νόμος 3852/2010 'Νέα Αρχιτεκτονική της Αυτοδιοίκησης και της Αποκεντρωμένης Διοίκησης - Πρόγραμμα "ΚΑΛΙΚΡΑΤΗΣ"' (ΦΕΚ Α' 87/07.06.2010) brought a radical re-organisation as regards the number, the competencies and the means of appointing local authorities. Under "Kallikratis" the previous system of 13 Regions, 54 Prefectures and 1033 municipalities and communities was replaced by 7 Decentralised Administrations, 13 Regions and 325 Municipalities. The Regions and municipalities are fully self-governed (their governing bodies are elected through national, local elections), while the Decentralised Administrations are run by a General Secretary, appointed by the Greek Government.

³⁸⁰ Law 3463/2006 'Ratification of the Code of Municipalities and Communes' (OJ A' 114/08.06.2006) – Νόμος 3463/2006 'Κύρωση του Κώδικα Δήμων και Κοινοτήτων' (ΦΕΚ Α' 114/08.06.2006).

³⁸¹ Law 1069/1980 'Motives for establishing Water Supply and Sewage Companies' (OJ A' 191/23.08.1980) – Νόμος 1069/1980 'Περί κινήτρων δια την ίδρυσιν Επιχειρήσεων Ύδρευσεως και Αποχετεύσεως' (ΦΕΚ Α' 191/23.08.1980) Article 107 of Law 3852/2010.

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	Union of Municipal Enterprises for Water Supply and Sewerage (<i>Ένωση Δημοτικών Επιχειρήσεων Ύδρευσης – Αποχέτευσης – ΕΔΕΥΑ</i> - EDEYA)³⁸². In the country's two largest cities, the Water Supply and Sewerage Companies for the greater areas of Athens (<i>Εταιρεία ύδρευσης και Αποχέτευσης Πρωτευούσης –ΕΥΔΑΠ</i> - EYDAP³⁸³) and Thessaloniki (<i>Εταιρεία ύδρευσης και Αποχέτευσης Θεσσαλονίκης – ΕΥΑΘ</i> - EYATH³⁸⁴) are in charge of waste water treatment. EYDAP and EYATH are responsible for establishing and maintaining the sewage network, e.g. collectors, pipelines, overflow installations. For both cities, the sewage system is a separate system, apart from the city centres where the system is combined. 8) Environmental permit-granting authorities: According to the Greek Environmental Impact Assessment permit granting system, as in force after the adoption of Law 4014/2011³⁸⁵ which transposed Directive 2011/92 into the Greek legal order, waste water treatment projects require a decision of an EIA approval. Urban waste water treatment plants fall under the group 'Environmental Infrastructure systems' (<i>Συστήματα περιβαλλοντικών υποδομών</i>). Depending on the volume of the project, it could be classified in Category A1 (projects with severe/very significant environmental impacts) and Category A2 (projects with significant environmental impacts). In very limited cases of ground disposal of treated waste water (Π<300), such projects fall under category B (local and non-significant environmental effects)³⁸⁶. The competent permit granting authorities for each Category are: ■ A1 projects and activities are licensed by the Minister of Environment ■ A2 projects are licensed by the General Secretary of the competent Decentralized Administration ■ B projects are subject to general requirements, set for the protection of the environment (Standard Environmental Commitments – <i>Πρότυπες Περιβαλλοντικές Δεσμεύσεις</i> -PPD). The competent authority is either the authority granting the operation license, or, if no operation license is required, the Environmental Department of the competent Region. 9) The Directorate of Water Supply, Sewage and Waste Water Treatment Works (<i>Διεύθυνση Έργων Ύδρευσης Αποχέτευσης και Επεξεργασίας Λυμάτων</i>) of the General Directorate for Hydraulic and Buildings Infrastructure (<i>Γενική Διεύθυνση Υδραυλικών και Κτηριακών Υποδομών</i>), under the Ministry of Infrastructure, Transport and Networks, is competent for the design, planning, preparation, oversight, control and approval of engineering studies for water supply, sewage and waste water treatment projects and the drafting of proposals to improve the institutional framework governing such projects³⁸⁷.
73. What is the transposing law(s) of the UWWTD in Greece?	The main transposing act is the Joint Ministerial Decision OIK.5673/400/1997 (hereinafter JMD 5673/400/1997 'Measures and conditions for urban waste water treatment' (OJ B'192/14.03.1997) – <i>Κοινή Υπουργική Απόφαση ΟΙΚ.5673/400/1997 'Μέτρα και όροι για</i>

³⁸² To date, EDEYA represents 118 out of approximately 130 municipal Water Supply and Sewage Companies, <http://www.edeva.gr/edeva/2013-01-16-09-07-37/profile>.

³⁸³ <https://www.evdap.gr/TheCompany/DrainageAndSewerage/>.

³⁸⁴ <http://www.evath.gr/swift.jsp?CMCCode=06010402&extLang>.

³⁸⁵ Law 4014/2011 'Environmental licensing of projects and activities, regulation of illegal constructions in connection with the creation of an environmental balance and other provisions falling under the competence of the Ministry of Environment' (OJ A' 209 /21.9.2011) - Νόμος 4014/2011 '*Περιβαλλοντική αδειοδότηση έργων και δραστηριοτήτων, ρύθμιση αυθαιρέτων σε συνάρτηση με δημιουργία περιβαλλοντικού ισοζυγίου και άλλες διατάξεις αρμοδιότητας Υπουργείου Περιβάλλοντος*' (ΦΕΚ Α' 209 /21.9.2011).

³⁸⁶ Ministerial Decision 1958/2012 'Classification of public and private projects and activities into categories and subcategories in accordance with Article 1(4) of Law 4014/2011' (OJ B' 21/13.01.2012) - ΚΥΑ 1958/2012 '*Κατάταξη δημόσιων και ιδιωτικών έργων και δραστηριοτήτων σε κατηγορίες και υποκατηγορίες σύμφωνα με το Άρθρο 1 παράγραφος 4 του Ν. 4014/21.09.2011 (Φ.Ε.Κ. Α'209/2011)*' (ΦΕΚ Β' 21/13.01.2012).

³⁸⁷ Presidential Decree 109/2014 'Organisational Statute of the Ministry of Infrastructure, Transport and Networks' (OJ A'176/29.08.2014) – Προεδρικό Διάταγμα 109/2014 '*Οργανισμός του Υπουργείου Υποδομών, Μεταφορών και Δικτύων*' (ΦΕΚ Α'176/29.08.2014).

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	<i>την επεξεργασία αστικών λυμάτων (ΦΕΚ Β' 192/14.03.1997).</i>
74. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Article 16 of JMD 5673/400/1997 transposes the Annexes of the UWWTD into the Greek legal order. Section A of Annex I to the UWWTD has been literally transposed with Section A of Annex I to the JMD 5673/400/1997.
75. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	The footnote has been literally transposed as footnote 1 to Section A of Annex I to the JMD 5673/400/1997. However, the footnote is not included to Section B of Annex I to the JMD 5673/400/1997 which transposes (almost literally) Section B of Annex I to the UWWTD. The text of the footnote in the Greek transposing legislation stipulates that during situations such as unusually heavy rainfall, the Competent Authorities shall decide on measures to limit pollution from storm water overflows, and provides the same examples, reproducing verbatim the wording of the Greek language version of the Directive, i.e. measures that could be based on dilution rates or capacity in relation to dry weather flow or on a certain acceptable number of overflows per year. However, Greece did not specify, or provide guidance to, any of these measures in any implementing act.
76. What is the terminology used to refer to storm water overflows in Greece? Is there more than one term used?	Section A of Annex I to the JMD 5673/400/1997 transposing literally Section A of Annex I to the UWWTD uses the term 'υπερχειλίσσεις από νεροποντές' which means overflows from downpours/heavy rainfall. This is also the term used in the Greek language version of the UWWTD. In Greek, the term 'rain water run-off' (όμβρια ύδατα) is used to describe water coming from rainfall, without any differentiation of the amount, intensity etc. of the phenomenon. This term covers 'rainwater' (βρόχινα νερά) in general³⁸⁸. No other specific definition was identified during desk research in legal and policy documents. Stakeholders³⁸⁹ also used the term 'overflows' (of rain water run-off or/and waste water for combined networks), without a mention of the term 'storm water'.
77. Is there a definition of storm water overflow in Greece?	No definition of storm water overflows is included in the transposing legislation. No other legislation, policy document, guidance document or other relevant document containing a definition of storm water overflows was identified. The only relevant term identified is 'rain water run-off' (όμβρια ύδατα) in the approved RBMP for Central Macedonia³⁹⁰, which is defined as run-offs which pass mostly through built areas, such as roofs, roads, airports, industries and often contain a wide variety of pollutants in amounts which may adversely affect the environment mainly the surface recipients as well as underground aquifers.
78. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Greece have a definition of extreme or unusual rainfall event?	No definition of 'extreme or unusual rainfall event' has been identified as such. The webpage of the General Secretariat for Civil Protection (Γενική Γραμματεία Πολιτικής Προστασίας) has a specific section on 'Disasters', including 'Severe Weather Phenomena' (Ακραία Καιρικά Φαινόμενα)³⁹¹. There one can find a presentation of 'Destruction Phenomena' (Φαινόμενα Καταστροφής) including the following definitions:

³⁸⁸ See for example the Sewage Regulation of the Municipal Water Supply and Sewage Company of the city of Larissa, available at: <http://www.deval.gr/apoxeteusi/kanonismos-apoxeteusis.html> which defines 'rain water run-off' (όμβρια ύδατα) as 'rainwater' (βρόχινα νερά) and uses the two terms interchangeably.

³⁸⁹ EYDAP, EYATH, hydraulic engineer, May-June 2015.

³⁹⁰ Special Secretariat for Water, River Basin Management Plan of the Water District of Central Macedonia (Σχέδιο Διαχείρισης των Λεκανών Απορροής Ποταμών του Υδατικού Διαμερίσματος Κεντρικής Μακεδονίας), 2014, available at: https://dl.dropboxusercontent.com/u/94188257/documents/10/SXEDIO_DIAXEIRISHS_GR10.pdf, p.112.

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- Storms (*καταιγίδες*): storms are considered as one of the most violent atmospheric phenomena and are accompanied by rapid rains (*ραγδαίες βροχοπτώσεις*), strong winds with variable intensity and direction, which can reach 50 to 80km / h or even the 100km / h, by powerful electric discharges, i.e. lightning and sometimes hail.
- Snowstorm/blizzard (*χιονοθύελλα*): a strong snowfall with parallel prevalence of very strong winds which drift the snow, resulting in very low visibility.

The same webpage, in the section ‘Floods’ (*Πλημμύρες*)³⁹² gives a comprehensive description of the causes of floods, also mentioning rapid rains (*ραγδαίες βροχοπτώσεις*) defining these as ‘large amounts of rain in a short time’ (*μεγάλα ποσά βροχής σε σύντομο χρονικό διάστημα*).

Circular 6658/21.10.2014 of the General Secretariat for Civil Protection of the Ministry of Public Order and Citizen Protection ‘Design and actions for Civil Protection to address risks from flood events’ – *Εγκύκλιος 6658/21.10.2014 της Γενικής Γραμματείας Πολιτικής Προστασίας του Υπουργείου Δημοσίας Τάξης και Προστασίας του Πολίτη ‘Σχεδιασμός και δράσεις Πολιτικής Προστασίας για την αντιμετώπιση κινδύνων από την εκδήλωση πλημμυρικών φαινομένων*’³⁹³ describes the usual occurrence floods, usually caused by rapid rainfall-powerful storms (*ραγδαίες βροχοπτώσεις-ισχυρές καταιγίδες*) leading to a large increase of river basins. Although a specific definition is not provided, within the context of the Circular, ‘rapid rainfalls’ are described as events of large amounts of rain in a short time. The intensity and duration of the rainfall are mentioned together with other factors such as topography and destruction of natural vegetation, as a main reason leading to a flood.

³⁹¹ Civilprotection.gr/el/έντονα-καιρικά-φαινόμενα-0.

³⁹² Civilprotection.gr/el/πλημμύρες.

³⁹³ Civilprotection.gr/el/«σχεδιασμός-και-δράσεις-πολιτικής-προστασίας-για-την-αντιμετώπιση-κινδύνων-από-την-εκδήλωση-πλημμυρικών-φαινομένων».

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
21. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	No specific policy, practice or legal framework has been identified in Greece as regards storm water overflows³⁹⁴, in addition to what established by the UWWTD transposing regulation. No subsequent, specific quantitative standards were identified. As already mentioned, Greek legislation mainly uses the term ‘rain water run-off’ (<i>όμβρια ύδατα</i>) and policy documents do not differentiate the term when referring to ‘Severe Weather Phenomena’ which could also be events of rapid rainfalls/powerful storms. Extreme or unusual rainfall events that could result to storm water overflows are dealt within the existing, general waste water treatment system and are more often linked to the floods national framework (Directive 2007/60). The Preliminary Flood Risk Assessment for Greece³⁹⁵ includes references to overflows of ditches in cases of rapid rainfall (<i>υπερχείλιση τάφρων σε περιπτώσεις έντονων βροχοπτώσεων</i>)³⁹⁶, to instances where under rapid rainfall the functioning of the overflow installation causes a flood of a specific stream³⁹⁷ and in general attributes floods to abuses of streams and torrents, non-demarcation of streams, irregular building and lack of works for drainage of rain water run-off. National legislation transposing relevant Directives (WFD, MSFD, BWD, DWD) includes no reference to “storm water overflows”. Direct references to “overflows” (although again relevant to rain water run-off in general) and “intensive rainfall” are made in the RBMP for Central Macedonia³⁹⁸, with a focus on the city and Gulf of Thessaloniki. Thessaloniki carries out an ERDF project (Real-t-so) and has set up a pilot system for detection and monitoring of overflows which, during its first year of operation has led to a reduction of dry weather overflows by 50%. Finally, a Guide for integrated rain water run-off management has also been developed under ERDF funding, within the project ‘Integrated Green Cities’.

³⁹⁴ Information obtained through desk research and validated through interviews with relevant stakeholders.

³⁹⁵ Special Secretariat for Water of the Ministry of Environment ‘Implementation of Directive 2007/60 - Preliminary Flood Risk Assessment’ (*Εφαρμογή Οδηγίας 2007/60 – Προκαταρκτική Αξιολόγηση Κινδύνων Πλημμύρας*), December 2012, available at: <http://www.vpeka.gr/LinkClick.aspx?fileticket=T4DDG1hqOMY%3d&tabid=252&language=el-GR>.

³⁹⁶ *ibid*, p.74.

³⁹⁷ *ibid*, p.97.

³⁹⁸ Special Secretariat for Water, River Basin Management Plan of the Water District of Central Macedonia (*Σχέδιο Διαχείρισης των Λεκανών Απορροής Ποταμών του Υδατικού Διαμερίσματος Κεντρικής Μακεδονίας*), 2014, available at: https://dl.dropboxusercontent.com/u/94188257/documents/10/SXEDIO_DIAXEIRISHS_GR10.pdf, pp. 103, 112-114, 210, 241.

Overview of legal and policy framework. Relevant references to storm water overflows.				
		As the majority of existing sewer networks in Greece are separate and newly established networks are required to be separate as well, the Regulations of the respective municipal Water Supply and Sewage Companies ³⁹⁹ set an obligation to the owners of buildings to separate the inner sewerage infrastructure for waste water from the inner infrastructure for rainwater and drain them separately.		
22. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other		Relevant information was not identified through desk research and stakeholder interviews. Stakeholders ⁴⁰⁰ indicated that apart from the general mention in the Annex of JMD 5673/400/1997 which transposes the footnote of Annex I to the UWWTD, no general legal or policy document sets specific quantitative standards relevant to storm water overflows. The Approval Decisions for the EIA of relevant projects are issued on an ad-hoc basis; sometimes (if any) reference to storm water overflows is general and replicates the spirit of the footnote, in other cases a ratio of 1:7 (1 part waste water for 7 parts of rain water run-offs) is set for combined network works, as regards dilution to the recipient in cases of severe weather phenomena. It was noted that there are difficulties in measuring these quantities ⁴⁰¹ .		
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD		Joint Ministerial Decision OIK.5673/400/1997 (hereinafter JMD 5673/400/1997 ‘Measures and conditions for urban waste water treatment’ (OJ B’192/14.03.1997) – Κοινή Υπουργική Απόφαση OIK.5673/400/1997 ‘Μέτρα και όροι για την επεξεργασία αστικών λυμάτων’(ΦΕΚ Β’192/14.03.1997)	ΠΑΡΑΡΤΗΜΑ Ι ΑΠΑΙΤΗΣΕΙΣ ΓΙΑ ΤΑ ΑΣΤΙΚΑ ΛΥΜΑΤΑ Α. Αποχετευτικά δίκτυα (1) Τα αποχετευτικά δίκτυα πρέπει να λαμβάνουν υπόψη τις απαιτήσεις της επεξεργασίας των λυμάτων. Ο σχεδιασμός η κατασκευή και η συντήρηση των αποχετευτικών δικτύων πρέπει να διενεργούνται σύμφωνα με τις τεχνικές γνώσεις που δεν συνεπάγονται υπερβολικό κόστος ιδίως όσον αφορά: - τον όγκο και τα χαρακτηριστικά των αστικών λυμάτων, - την πρόληψη διαρροών, - τον περιορισμό της ρύπανσης των υδάτινων	ANNEX I REQUIREMENTS FOR URBAN WASTE WATER A. Sewage networks (1) Sewage networks should take into account the requirements of waste water treatment. The design, construction and maintenance of sewage networks shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding: - volume and characteristics of urban waste water, - prevention of leaks, - limitation of pollution of receiving waters due to storm water overflows.

³⁹⁹ See for example the Regulations of EYDAP (Athens), available at: <http://www.seva.gr/images/pdfs/eydap.pdf>; of EYAL (Larissa), available at: <http://www.deval.gr/apoxeteusi/kanonismos-apoxeteusis.html>; of DEYAA (Alexandroupoli), available at: <http://www.devaalex.gr/h-devaa-menou/nomoi-menou/kanonismos-apoxeteushs-menou.html>.

⁴⁰⁰ EYATH, hydraulic engineer, May-June 2015.

⁴⁰¹ Information obtained through stakeholder interviews (EYATH).

Overview of legal and policy framework. Relevant references to storm water overflows.				
	Y	Article 16, Annex I, Section A, footnote (1)	αποδεκτών λόγω υπερχειλίσεων από νεροποντές. (1) Δεδομένου ότι στην πράξη, είναι αδύνατο να κατασκευασθούν δίκτυα και σταθμοί επεξεργασίας ούτως ώστε να είναι δυνατή η επεξεργασία όλων των λυμάτων υπό καταστάσεις όπως ασυνήθεις ισχυρές βροχοπτώσεις οι αρμόδιες αρχές αποφασίζουν τη λήψη μέτρων για τον περιορισμό της ρύπανσης από υπερχειλίσες υδάτων λόγω νεροποντής. Τα μέτρα αυτά μπορούν να βασίζονται στο βαθμό αραίωσης, στη χωρητικότητα των σχετικών αποδεκτών σε σχέση με τη ροή κατά την εποχή ξηρασίας ή σε ορισμένο ετήσιο βαθμό υπερχειλίσεων.	(1) Given that in practice it is impossible to construct networks and treatment plants so as treatment of all waste water during situations such as unusually heavy rainfall is possible, the competent authorities shall decide the adoption of measures to limit pollution from storm water overflows. Such measures could be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable number of overflows per year.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	Y	River Basin Management Plan for Central Macedonia⁴⁰² Section 8 (p.103) Section 8.2.2. (p.112)	(...) Οι σημειακές πιέσεις, σχετίζονται με τις ακόλουθες πηγές ρύπανσης: (...) - υπερχειλίσες ομβρίων υδάτων, (...) Οι μη σημειακές πηγές ρύπανσης σχετίζονται με: - αστικές απορροές και υπερχειλίσες ομβρίων υδάτων (στην περίπτωση που τα δεδομένα δεν είναι επαρκή για να αντιμετωπιστούν ως σημειακή πηγή ρύπανσης) (...), 8.2.2. ΔΙΑΧΥΤΕΣ ΠΗΓΕΣ ΡΥΠΑΝΣΗΣ	(...) Point pressures, relate to the following sources of pollution: (...) - rain water run-off overflow, (...) No point sources of pollution, relate to: - urban run-off and rain water run-off overflow (if the data are not sufficient to address these as point sources of pollution) (...) 8.2.2. DIFFUSE SOURCES OF POLLUTION

⁴⁰² Special Secretariat for Water, River Basin Management Plan of the Water District of Central Macedonia (Σχέδιο Διαχείρισης των Λεκανών Απορροής Ποταμών του Υδατικού Διαμερίσματος Κεντρικής Μακεδονίας), 2014, available at: https://dl.dropboxusercontent.com/u/94188257/documents/10/SXEDIO_DIAXEIRISHS_GR10.pdf, pp. 103, 112-114, 210, 241.

Overview of legal and policy framework. Relevant references to storm water overflows.

		8.2.2.1. <i>ΑΣΤΙΚΕΣ ΑΠΟΡΡΟΕΣ ΚΑΙ ΥΠΕΡΧΕΙΛΙΣΕΙΣ ΑΓΩΓΩΝ ΟΜΒΡΙΩΝ ΥΔΑΤΩΝ</i> (...)Καθώς απουσιάζουν στοιχεία διαχείρισης των απορροών όμβριων υδάτων στους οικισμούς της περιοχής μελέτης, η αξιολόγηση επιπτώσεων της πίεσης αυτής συσχετίζεται κυρίως με την έκταση των αστικών περιοχών (ως Πίνακας 8-6), τη γεωγραφική θέση τους, ιδίως σε σχέση με το υδατικό σύστημα που επηρεάζεται ως φυσικός αποδέκτης αυτών και το σύστημα αποχέτευσης. (...) Βάσει των διαθέσιμων στοιχείων, τα επιφανειακά υδατικά συστήματα που δέχονται τις σημαντικότερες πιέσεις από αστικές απορροές και υπερχειλίσες αγωγών ομβρίων υδάτων είναι ως Πίνακας 8-7. (...) 11.2.2.1. <i>ΕΠΙΦΑΝΕΙΑΚΑ ΥΔΑΤΙΚΑ ΣΥΣΤΗΜΑΤΑ</i> (...) [Πίνακας 11-4] (...) Κύριες πηγές ρύπανσης του Κόλπου Θεσσαλονίκης αποτελούν η γεωργία και κτηνοτροφία, η βιομηχανία – οικοτεχνία, τα αστικά κέντρα και οι οικισμοί, μόνιμοι και παραθεριστικοί μέσω εκροών επεξεργασμένων λυμάτων ή υπερχειλίσων ομβρίων παντορροϊκού συστήματος, οι θαλάσσιες μεταφορές καθώς και οι κατακρημνίσεις αιωρούμενων σωματιδίων. (...). 12.3. <i>ΠΡΟΓΡΑΜΜΑ ΣΥΜΠΛΗΡΩΜΑΤΙΚΩΝ ΜΕΤΡΩΝ</i> (...) Πίνακας 12-5: Πίνακας Συμπληρωματικών Μέτρων ΥΔ Κεντρικής Μακεδονίας (...)	8.2.2.1. URBAN RUN-OFF AND OVERFLOWS OF THE RAIN WATER PIPES (...)As management elements of the run-offs of rain water are absent from the settlements of the study area, the impact assessment of the pressure is associated primarily with the extent of urban areas (as Table 8-6), their geographical position, particularly in relation to the body of water that is affected as natural recipient of such run-offs and the sewage system. (...) Based on the available data, surface bodies of water which receive the greatest pressure from urban run-off and from overflows of rain water run-off pipes are [presented] as Table 8-7. (...) 11.2.2.1. SURFACE WATER BODIES (...) [Table 11-4] (...)Main sources of pollution of the Gulf of Thessaloniki are agriculture and livestock, industry - cottage industry, urban centers and settlements, permanent and seasonal, through outflow of treated waste water or overflows of rain water run-offs of a combined system, maritime transport, as well as the precipitation of suspended particles(...) 12.3. PROGRAM OF ADDITIONAL MEASURES (...) Table 12-5: Table of Additional Measures Central Macedonia (...) SM11-80 - Construction of the Central Sewerage
	Section 11.2.2.1. (p.210)		
	Section 12.3. (p.241)		

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			<i>ΣΜ11-80 - Κατασκευή του Κεντρικού Αποχετευτικού Αγωγού Θεσσαλονίκης</i> <i>Το όλο αποχετευτικό σύστημα της πόλης της Θεσσαλονίκης το οποίο περιλαμβάνει το αντλιοστάσιο εισόδου στην εγκατάσταση καθαρισμού, τον υφιστάμενο ΚΑΑ και το εσωτερικό δίκτυο δεν είναι σχεδιασμένο και δεν μπορεί να ανταποκριθεί σε μεγάλης έντασης βροχοπτώσεις. (...)</i>	Pipeline of Thessaloniki The overall sewage system of the city of Thessaloniki which includes the pump inlet to the treatment plant, the existing CSP and the internal network is not designed and cannot respond to intensive rainfall. (...)
MSFD	N			
BWD	N			
DWD	N			

Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions

International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N/A			
HELCOM	N/A			
Barcelona Convention	N	No relevant document identified. Only general mention of the Convention and the fact that Greece has ratified it, in the National Strategy for Biodiversity⁴⁰³		
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	N/A			
Rhine Convention	N/A			
Oder Convention	N/A			
Elbe Convention	N/A			
Conv.	N	No relevant document identified.		

⁴⁰³ Ministry of Environment, Energy and Climate Change, National Strategy for Biodiversity (*Εθνική Στρατηγική για τη Βιοποικιλότητα*), January 2014, available at: <http://www.vpeka.gr/LinkClick.aspx?fileticket=2VfCIB5XfW4%3D&tabid=232&language=el-GR>.

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Transboundary Watercourses and International Lakes		Only general mention of the Convention and the fact that Greece has ratified it, in the National Strategy for Biodiversity⁴⁰⁴. Greece has signed but not yet ratified the Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes⁴⁰⁵		
<i>Other direct references to storm water overflows</i>				
Type of document	Title of document	Summary description		
Research and technical project, Regional	REAL Time Sewerage Overflow (Real-t-so) project. Link: http://realts0.gr/en/index.html	The project, funded under the ERDF, is carried out by the Company of Water supply and Sewerage of Thessaloniki (EYATH), the Aristotle University of Thessaloniki (AUTH), the Democritus University of Thrace (DUTH) and KartECO (environmental and energy engineering consultancy). It aims to produce an operational tool for real-time control of overflows in combined sewage systems in coastal cities. Under this project, the Real-t-SO system will be designed following the strategy INFORM, DETECT/PREDICT, ALERT and DECIDE by performing the following functions: i. Collect Real Time information using online environmental sensors about the current state of the CSO (Combined Sewerage Overflow) network and inform the competent Board and operational staff. ii. Compare in Real Time the current state of the CSO with the desired state and ultimately detect or predict undesired state (e.g. Meteorological forecast that leads to seawater level raise and sea water intrusion). iii. Alert in cases of overflow of wastewater in dry weather conditions and/or in cases of seawater intrusion in the in Urban Wastewater System (UWS). iv. In case of an alarm decide in Real Time appropriate actions of the control elements (e.g. move gates, operate pumps etc.) through a continuous cycle of actions and impacts, till the desired state is re-established.		
Legal, National	Presidential Decree 696/1974 'About the remunerations of engineers for conducting studies, overseeing, receiving	Law containing the minimum requirements for all civil engineering works and projects. Section D' comprises the technical specifications of hydraulic works, including technical criteria for calculating		

⁴⁰⁴ *ibid.*

⁴⁰⁵ List of parties and signatories to the Protocol, available at: https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-5-a&chapter=27&lang=en, accessed on 11 May 2015.

Overview of legal and policy framework. Relevant references to storm water overflows.

	etc. transportation, hydraulic and building projects, as well as for topography, cadastre and cartography services and relevant technical studies (<i>Περί ομοιβών μηχανικών δια σύνταξιν μελετών, επίβλεψιν, παραλαβήν κλπ Συγκοινωνιακών, Υδραυλικών και Κτιριακών Έργων, ως και Τοπογραφικών, Κτηματογραφικών και Χαρτογραφικών Εργασιών και σχετικών τεχνικών προδιαγραφών μελετών</i>), OJ A' 301/1974.	Intensity-Duration-Frequency curve (IDF Curve) and floodwater. Amongst the main principles of drawing up studies of cities and settlements sewer projects (Article 209), PD 696/1974 requires that the impacts of an interruption in the functioning of pumping stations are explored, together with a provision for waste water overflows works.
Guidance, Regional	Guide for integrated rain water run off management, within the project 'Integrated Green Cities'. Link: here .	Technical report for the integrated management of rain water run-off through an ecologically-friendly model. The project was funded from the ERDF, Greece and Bulgaria.
Information, NGO	Webpage information note produced by the NGO 'Mediterranean SOS Network' on the lack of a national, integrated and sustainable management framework for rain water, taking into account the increased severity of weather phenomena due to climate change. Link: <i>'When a storm turns us into ... a misprint of Venice'</i> .	The article gives an overview of the issue of urban floods in Greece, highlighting the fact that their rise is also due to the increasingly frequent heavy rains that occur in a short time because of climate change. The NGO notes that in Greece water management is based on a treatment rather than a prevention logic and that waters from rainfall in the cities are not dealt with in a context of sustainable integrated management. This results, on the one hand, to rain water not being collected, stored and used and, on the other hand, to it being allowed to run on the land surface towards the sea creating floods with adverse effects.
Regulatory, Municipal	Sewage Regulations of the Municipal Water Supply and Sewage Companies	The Regulations of the respective municipal Water Supply and Sewage Companies ⁴⁰⁶ set an obligation to the owners of buildings to separate the inner sewerage infrastructure for waste water from the inner infrastructure for rainwater and drain them separately. Subsequently, it is required that house networks are connected to the respective public network separately, i.e. inner systems for waste water should be connected to the pipelines for waste water (<i>αγωγούς ακαθάρτων</i>) and inner systems for rain water run-off should result to and connect to the rain water pipelines (<i>αγωγούς ομβρίων</i>).

⁴⁰⁶ See for example the Regulations of DEYAP (Patras), available at: <http://www.devap.gr/en/drains>; of EYDAP (Athens), available at: <http://www.seva.gr/images/pdfs/evdap.pdf>; of EYAL (Larissa), available at: <http://www.deval.gr/apoxeteusi/kanonismos-apoxeteusis.html>; of DEYAA (Alexandroupoli), available at: <http://www.devaalex.gr/h-devaa-menou/nomoi-menou/kanonismos-apoxeteushs-menou.html>.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
51. Which types of sewer system does Greece have?	The separate sewage system is currently applied almost exclusively in Greece, as this system had already prevailed in the time when the country started applying and constructing organised modern sewage networks (circa 1980). Therefore, the majority of existing sewer networks in Greece are separate and newly established networks are required to be separate as well. However, in certain cities, parts of the networks -which were established as early as in the 1900s- are combined. In some cities sewerage networks constructed even earlier can be found functioning. For example, in the two biggest cities of Greece (Athens and Thessaloniki), the sewage system is a separate system, apart from both the city centres where the system is combined. Aggregated compiled data on national level were not identified through desk research. The country's two largest public water supply and sewage companies EYDAP and EYATH were contacted and the available data for Athens and Thessaloniki is presented in the sections below. The sewage system is designed in an aggregated manner, i.e. waste water from an entire city is in the end collected in one pipeline, the main collector (<i>κύριος/κεντρικός συλλεκτήρας</i>) which finally leads to the management/processing establishment. On the contrary, the rain water run-off network is planned on a decentralised basis through the construction of independent pipelines which end up in different points of the recipient bodies, or in different recipients. The lack or inadequacy of sewage infrastructures and the phenomenon of irregular connections to the existing separate system are two elements of the Greek sewer infrastructure system that are described in documents, such as: ▪ The Circular of the General Secretariat for Civil Protection on risks from flood events⁴⁰⁷ which notes that severe damages in infrastructures and properties as well threats to human lives in cases of sudden floods are also due to the improper maintenance of structures constructed to facilitate draining of rainwater or sometimes to the complete lack of such structures. ▪ The Organisation of Planning and Environmental Protection of Athens (<i>Οργανισμός Ρυθμιστικού Σχεδίου και Προστασίας Περιβάλλοντος Αθήνας - ΟΡΣΑ</i>), indicated in a working document in 2011, during the preparation of the “Master Plan for Athens-Attica 2021”⁴⁰⁸ that in most areas of Attica the waste water network is constructed prior to the rain water run-off network, or even the construction of rain water run-off networks, where taking place, is fragmentary and focuses where there are usually intense flood problems. The absence of a network for rain water run-off leads many individuals to connecting courtyards and terraces of buildings with the waste water network, or even leads municipalities to build water collection wells and also connect them to the waste water network, converting it in practice from a separate to a combined system. As the waste water network disposes an overflow system, in case of wet weather conditions, the overflows lead waste water into the rain water run-off network. It is estimated that because of unauthorized connections, part of the waste water ends up into the rain water run-off network, even under dry weather conditions⁴⁰⁹.

⁴⁰⁷ Circular 6658/21.10.2014 of the General Secretariat for Civil Protection of the Ministry of Public Order and Citizen Protection ‘Design and actions for Civil Protection to address risks from flood events’ – Εγκύκλιος 6658/21.10.2014 της Γενικής Γραμματείας Πολιτικής Προστασίας του Υπουργείου Δημοσίας Τάξης και Προστασίας του Πολίτη ‘Σχεδιασμός και δράσεις Πολιτικής Προστασίας για την αντιμετώπιση κινδύνων από την εκδήλωση πλημμυρικών φαινομένων’.

⁴⁰⁸ Working Group on the protection and management of waters, Working Document, May 2011, available [here](#).

⁴⁰⁹ Organisation of Planning and Environmental Protection of Athens, Working Group on the protection and management of waters, Working Document, May 2011, available [here](#), p.15.

Available data on storm water overflows	
	Stakeholders ⁴¹⁰ have also indicated that unauthorized connections of household rain water run-offs to the waste water network and parasitic inflows (<i>παρασιτικές εισροές</i>) in practice transform the separate system into a combined system. Due to this fact, in case of heavy rainfall, other installations, mainly the pumping stations (<i>αντλιοστάσια</i>) function as overflow installations, because these were not designed for such large quantities of inflow (see below point 4 on the occurrence of storm water overflows).
52. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	In Attica, there is a network of 8,000 km out of which 250 km are combined and the remaining is separate ⁴¹¹ . In Thessaloniki, the network is approximately 1900 km, out of which 650 km is combined (about 35%) and the remaining is separate. There are also about 300 km of rain water pipes ⁴¹² . Information and data (2011) can be found in a comprehensive way in the book 'Design of Urban Sewer Networks' ⁴¹³ . The Corporate Annual Report of EYATH S.A. (2007) ⁴¹⁴ includes quantitative information regarding the main waste water collection projects in the area of Thessaloniki. Some quantitative information (2004) regarding the combined sewage system of the city of Athens is included in a paper/presentation of the Deputy Director of Project Studies of EYDAP S.A. ⁴¹⁵ .
53. How many storm water overflows infrastructures exist in Greece?	In the Attica region, 9 overflows infrastructures exist within the 250km of the combined network ⁴¹⁶ . In the region of Thessaloniki, approximately 80 overflows infrastructures exist within the 650 km of the combined network. Most of them overflow from the combined system: a) to other combined system or to storm water pipes (70%); b) directly to streams or to the sea (30%) ⁴¹⁷ .
Available quantitative data on the occurrence of storm water overflows	
54. Is there information on the occurrence of storm water overflows?	In Attica there are approximately 2-3 incidents per year ⁴¹⁸ . In Thessaloniki, during average or heavy rainfall most of the overflows (about 60%) are working so to prevent from cover ejections, sewage leaks and risk of accidents. Approximately 15 incidents occur per year ⁴¹⁹ .
55. Are storm water overflows monitored in Greece? If yes, please describe the monitoring programme. Refer to: - what is measured;	In Attica, storm water overflows in the combined network are not monitored. However, overflows that could also arise due to heavy rainfalls are monitored in the pumping stations which include ultrasound sensors in the overflow pipes (see above point 1 information on the types of sewer system in Greece) ⁴²⁰ . This is also the case for most of the large Greek cities with newly constructed pumping stations operated by Municipal companies.

⁴¹⁰ EYDAP, hydraulic engineer, May-June 2015.

⁴¹¹ Information obtained through stakeholder interviews (EYDAP), May-June 2015.

⁴¹² Information obtained through stakeholder interviews (EYATH), May-June 2015.

⁴¹³ Koutsyiannis, D., Design of Urban Sewer Networks, Edition 4, 180 pages, National Technical University of Athens, Athens, 2011.

⁴¹⁴ Water and Sewage Company of Thessaloniki – EYATH S.A., Corporate Annual Report (Ετήσιο Δελτίο Εταιρικής Χρήσης), June 2007, available at: http://www.evath.gr/misc/ENIMEROTIKO_DELTIO_2006.pdf.

⁴¹⁵ Daras A., 'The combined system of Athens' (Το παντοροπικό σύστημα της Αθήνας), contribution to the conference 'Anti-flood protection of Attica' organised by the Technical Chamber of Greece (*Τεχνικό Επιμελητήριο Ελλάδας*), 2 November 2004, available at: http://library.tce.gr/digital/m2022/m2022_daras.pdf.

⁴¹⁶ Information obtained through stakeholder interviews (EYDAP), May-June 2015.

⁴¹⁷ Information obtained through stakeholder interviews (EYATH), May-June 2015.

⁴¹⁸ Information obtained through stakeholder interviews (EYDAP), May-June 2015.

⁴¹⁹ Information obtained through stakeholder interviews (EYATH), May-June 2015.

⁴²⁰ Information obtained through stakeholder interviews (EYDAP), May-June 2015.

Available data on storm water overflows	
- how often; and - at how many locations	In Thessaloniki, storm water overflows in the combined network are not monitored either. Instead the sea front is being checked on a daily basis by EYATH personnel, to avoid problems relevant to overflows and sea pollution following pipe blockages during dry season. The marine recipient (<i>Thermaikos</i>) is also checked every two months, in points near the quay. The Real-t-so project (see above) which is underway, aims to produce an operational tool for real-time control of overflows in combined sewage systems in coastal cities. With the Real-t-so project Thessaloniki has reduced dry weather overflows by 50%, during the first year of operation (there were about 8 incidents per year and in 2014 there were only 4)⁴²¹.

⁴²¹ Information obtained through stakeholder interviews (EYATH), May-June 2015.

FACTSHEET FOR HUNGARY⁴²²

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
79. What are the competent authorities for waste water treatment and management in Hungary?	In Hungary there is no authority responsible specifically for storm water overflows. Authorities with general competences on waste water treatment and management are also responsible for issues related to storm water overflows. Until 01.04.2015, the regional inspectorates for the environment, nature and water were responsible for the protection of water and for the authorization of the activities relating to water. As from 01.04.2015, the regional directorates for disaster management are responsible for water resources management, for the authorization of the activities related to water (like carrying out operations on waters or for the construction, reconstruction, and decommissioning of hydraulic facilities, furthermore, for the commissioning and operation thereof, as well as for all water uses) as well as for the control of and emergency defense operations against the damage caused by water. More details on the division of competence are provided below. Municipal authorities According to the provisions of Article 4 (2) of the Act Number LVII of 1995 on Water Management, it is the responsibility of the local municipalities to ensure, <i>inter alia</i>, the elaboration of a conception plan for the development of local activities related to waterworks, and the implementation thereof. Waterworks activities include: drinking water supply, sewage removal, treatment of the sewage collected, as well as land drainage, the prevention and elimination of water damage, and the draining of floodwater and excess surface waters at the local level. These rules are supplemented with the rules of Act Number CCIX of 2011 on Water Utility Supply which establish the principle of ‘responsibility for supply’, i.e. the obligation and right of the state or the local government (referred together to as ‘responsible entity’) to provide water utility service. According to Article 15 of this Act, the necessary legal relationship concerning the operation of water utilities is based on an agreement that is concluded between the responsible entity (the state or the given municipality) and the water utility supplier and has been approved by the Hungarian Energy and Public Utility Regulatory Authority. At the local level the notaries of the local municipalities are responsible at the first instance for the authorization of small scale (maximum 500 m³/year) waste water storage facilities and for the authorization of small scale (maximum 500 m³/year) household wells. The second instance authorities are then the competent central government offices (19 at the county level and one in the capital of Budapest). In any other cases the regional level authorities are responsible for the authorization of all the establishments and activities listed by the respective national legislation. Regional authorities

⁴²² The experts interviewed for the purposes of this study are: OSZOLY Tamás, Deputy Chief Technical Officer of the Budapest Sewage Works Pte Ltd.; BENYUS Gábor, General Directorate of Water Management, Department of Water Public Utility and the Technical Committee of the Hungarian Water Utility Association.

Basic information

At the regional level **the regional directorates for disaster management** (12 organized at the regional level), and at the second instance the **National Directorate General for Disaster Management, Ministry of the Interior**⁴²³ are the responsible authorities of waste water treatment and management issues. These activities *inter alia* include the authorization of carrying out operations on waters or the construction, reconstruction, and decommissioning of hydraulic facilities, furthermore, the commissioning and operation thereof, as well as for all water uses and the control of and emergency defense operations against the damage caused by water.

Central authorities

The **Hungarian Energy and Public Utility Regulatory Authority**⁴²⁴ has competence on the territory of the whole country; it regulates and supervises the activities of the water public utility service providers in accordance with the rules of Act Number CCIX of 2011 on Water Utility Supply.

Other administrative bodies

Additionally, there are different administrative bodies in the country which aren't authorities (does not authorize any activities or establishments) but have important tasks regarding waste water treatment and management:

- The **National Institute for Environment (NeKI)** (<http://en.neki.gov.hu/>) is the background institution of the Ministry of Agriculture (Ministry of Agriculture, Secretary of State responsible for the Environment, Agricultural Development and Hungaricums⁴²⁵). The NeKI is based in Budapest and has 12 regional branches in the country. The NeKI supports the work of the ministry in the areas of environmental monitoring, status assessment, policy and strategy preparation, regulation and impact assessment. This means preparation of concepts, regulation and legislation and background studies, monitoring activities, data collection and processing, reporting, international co-ordination tasks, collaboration in the design and implementation of EU, international and national projects. The Water Utilities Department of the NeKI performs the collection and analysis of technical and economic data and database maintenance on water supply and sewage among municipal water utility operator organizations and industrial water users. It is also responsible for the preparation of the national and regional programmes for water supply and waste water treatment including the improvement of the quality of drinking water and the municipal waste water treatment and harmless disposal.
- The **General Directorate of Water Management (OVF)**⁴²⁶ is an independently operating institute and a central government body under the direction and supervision of the Minister of Interior. The OVF – as a central governing body – supervises, coordinates and controls the professional activities of the regional water directorates. The OVF coordinates *inter alia* the flood damages related tasks in the plains, mountainous and hilly areas, the agricultural water supply; urban water management; as well as the flood control and drainage and the local water damage tasks, it determines the flood control and water management concept and also the strategy, it works out a set of national and regional water damage control, water management programs and development plans and arranges their implementation and evaluation.
- The 12 **water directorates** are territorial organs of the management of water supplies and water conservancy. They are

⁴²³ http://www.katasztrofavedelem.hu/index2.php?pageid=szervezet_intro&lang=eng.

⁴²⁴ <http://www.mekh.hu/en/>.

⁴²⁵ “Hungaricums are those noteworthy values of Hungary, which characterize the Hungarians by their uniqueness, specialty and quality, and are the peak performance of the Hungarians.”

Source: <http://visit-hungary.com/culture/hungaricums>.

⁴²⁶ <http://www.ovf.hu/en/vizugy-tortenet-en>.

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	independently managed and publicly financed institutions organized at the regional level. They co-operate with municipalities in solving water management tasks, sustain and operate the state owned water facilities, take care on maintenance and development, operate the state owned waters, water basin management, operate laboratories for surface water treatment and water facility management etc. ▪ The Hungarian Water Utility Association⁴²⁷ is a professional organization operating in the field of public water service and water industry. It represents the interests of the water utility companies, members of the association, and, cooperates with other non-commercial organizations, trade-unions, authorities as well as with international organizations.
80. What is the transposing law(s) of the UWWTD in Hungary?	The UWWTD has been transposed into the national legislation of Hungary by the following regulations: ▪ Act Number LVII of 1995 on Water Management. (Original title: <i>1995. évi LVII. törvény a vízgazdálkodásról</i>) Official Journal: Magyar Közlöny Number 53, 23 June 1995. ▪ Act Number LXXI of 2001 on the amendment of the Act on Water Management. (Original title: <i>2001. évi LXXI. törvény a vízgazdálkodásról szóló 1995. évi LVII. törvény módosításáról</i>) Official Journal: Magyar Közlöny Number 118, 25 October 2001. ▪ Government Decree Number 10 of 2000 on the amendment of the Government Decree Number 72 of 1996 on water rights and duties of the water authority. (Original title: <i>10/2000. (II. 2.) Korm. rendelet a vízgazdálkodási hatósági jogkör gyakorlásáról szóló 72/1996. (V. 22.) Korm. rendelet módosításáról</i>) Official Journal: Magyar Közlöny Number 10, 02 February 2000. ▪ Government Decree Number 240 of 2000 on the identification of sensitive surface waters and their catchment areas to communal waste water treatment. (Original title: <i>240/2000. (XII. 23.) Korm. rendelet a települési szennyvíztisztítás szempontjából érzékeny felszíni vizek és vízgyűjtőterületeik kijelöléséről</i>) Magyar Közlöny Number 129, 23 December 2000. ▪ Government Decree Number 203 of 2001 on certain rules of the protection of surface water quality. (Original title: <i>203/2001. (X. 26.) Korm. rendelet a felszíni vizek minősége védelmének egyes szabályairól</i>) Official Journal: Magyar Közlöny Number 119, 26 October 2001. ▪ Government Decree Number 204 of 2001 on sewage system penalty (Original title: <i>204/2001. (X. 26.) Korm. rendelet a csatornabírságról</i>) Official Journal: Magyar Közlöny Number 119, 26 October 2001. ▪ Government Decree Number 205 of 2001 on the amendment of certain regulations regarding water management. (Original title: <i>205/2001. (X. 26.) Korm. rendelet az egyes vízgazdálkodással összefüggő jogszabályok módosításáról</i>) Official Journal: Magyar Közlöny Number 119, 26 October 2001. ▪ Government Decree Number 25 of 2002 on the National Urban Canalization and Wastewater Treatment Implementation Program (Original title: <i>25/2002. (II. 27.) Korm. rendelet a Nemzeti Települési Szennyvízelvezetési és -tisztítási Megvalósítási Programról</i>) Official Journal: Magyar Közlöny Number 27, 27 February 2002. ▪ Government Decree Number 26 of 2002 on the demarcation of wastewater agglomerations in relation to the Urban Canalization and Wastewater Treatment Implementation Program (Original title: <i>26/2002. (II. 27.) Korm. rendelet a Nemzeti Települési Szennyvízelvezetési és -tisztítási Megvalósítási Programmal összefüggő szennyvízelvezetési agglomerációk lehatárolásáról</i>) Official Journal: Magyar Közlöny Number 27, 27 February 2002. ▪ Government Decree Number 27 of 2002 on the record keeping and obligation of reporting in connection with Urban Canalization and Wastewater Treatment Implementation Program (Original title: <i>27/2002. (II. 27.) Korm. rendelet a Nemzeti Települési Szennyvíz-elvezetési és -tisztítási Megvalósítási Program végrehajtásával összefüggő nyilvántartásról és jelentési kötelezettségről</i>) Official Journal: Magyar Közlöny Number 27, 27 February 2002.

⁴²⁷ http://www.maviz.org/eng/hungarian_water_utility_association.

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	- Decree Number 7 of 2002 of the Minister of the Environment on measure, control, data provision of used and wastewater effluent and on the special rules of water pollution fine (Original title: 7/2002. (III. 1.) KöM rendelet a használt és szennyvizek kibocsátásának méréséről, ellenőrzéséről, adatszolgáltatásáról, valamint a vízszennyezési bírság sajátos szabályairól) Official Journal: Magyar Közlöny Number 29, 01 March 2002. - Decree Number 9 of 2002 of the Minister of the Environment and of the Minister of Transport and Water on the Emission Limit Values of Used and Sewage Water and on the Regulation of their Application (Original title: 9/2002. (III. 22.) KöM-KöViM együttes rendelet a használt és szennyvizek kibocsátási határértékeiről és alkalmazásuk szabályairól) Official Journal: Magyar Közlöny Number 38, 22 March 2002. - Government Decree 220 of 2004 on the rules of protecting the quality of surface waters (Original title: 220/2004. (VII. 21.) Korm. rendelet a felszíni vizek minősége védelmének szabályairól) Official Journal: Magyar Közlöny Number 102, 21 July 2004. - Act Number LXV of 1990 on local governments. (Original title: 1990. évi LXV. törvény a helyi önkormányzatokról) Official Journal: Magyar Közlöny Number 80, 14 August 1990. All of the above listed legislation is publicly available (in Hungarian) at the following homepage: http://nit.hu/. Most of the above listed regulations are not in effect any more, as the majority of them (following multiple amendments) are repealed with new regulations.
81. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	The national expert has identified no legal provision that explicitly transposes Section A of Annex I to the UWWTD. Some provisions of Government decree relevant for water management establish specific requirements for water collection and treatment infrastructure, including specific requirements for combined sewage systems, but no specific reference is made to storm water overflows and the impact they have on receiving waters. Article 47 and Article 77 of Government Decree Number 253 of 1997 (XII. 20.) on national urban development and building requirements stipulate certain rules of wastewater and rainwater drainage. These rules however do not refer to storm water overflows, but only regulate how the drainages shall be placed and established on the real estates. According to these rules the rainwater drainage system shall be designed in a way to prevent the water to cause any damage in the field, in the buildings, in the neighbouring properties and buildings and in the public areas and not to prevent the normal use of these. The rainwater may be infiltrated on site if it does not endanger the stability and normal use of the site, the buildings and of the neighbouring sites and buildings. The rainwater from the property may only be drained into the open public rainwater drainage ditch with a hollow section under the pavement. Article 18 of Government Decree Number 147 of 2010 (IV.29.) on general rules regarding activities and facilities serving the utilization, protection and prevention of damages of waters stipulates the basic rules of wastewater drainage. For example it stipulates, that combined systems, which serve the purposes of both wastewater and rainwater drainage may only be established where appropriate, following the consideration of technical, economic and environmental conditions. This is a general provision, the legislation does not stipulate any further details of this requirement. According to Article 85 (5)-(6) of Government Decree Number 58 of 2013 (II. 27.) on the implementation of certain provisions of Act Number CCIX of 2011 on water public utility service it is prohibited to introduce rainwater into the separated drainage system, to

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	introduce sewage to the combined drainage system via the waterhole and to introduce sewage into the separated rainwater drainage system. If there is rainwater introduced into the separated sewage system and the user – following the notice of the service provider – does not stop this practice, the water utility service provider is entitled to terminate this illegal status on the expense of the user. The water utility service provider is also entitled to charge the user with a surcharge calculated on the basis of the amount of the rainwater which was introduced illegally into the wastewater sewage system. The rules of the calculation are specified in the business terms of each of the water utility service providers. Additionally, according Article 87 (7) of the same decree, it is the responsibility of the water utility service provider to ensure the proper draining of wastewater (in the case of combined systems also the rainwater), without causing any harm to the environment and to the surroundings and to ensure the cleaning of this wastewater in accordance with the requirements of the water permit of operation.
82. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	The rules listed at the previous point regulate the collection of waste water and rainwater. In addition to the above cited rules no provisions are found in the national legislation which would explicitly transpose footnote 1 in Sections A and B of Annex I of the UWWTD.
83. What is the terminology used to refer to storm water overflows in Hungary? Is there more than one term used?	Storm water overflows are not mentioned by the national legislation. There is only one instance, which applies the expression ‘<i>záporvíz túlfolyás</i>’ which is the same expression used by the Hungarian official version of the UWWTD at footnote 1 in Sections A and B of Annex I on ‘storm water overflow’. This term can however be found not in the transposing legislation of the UWWTD, but in Article 6 (2) g) ii) of Government Decree 213/2005. (X. 5.) on the promulgation of the Protocol on Water and Health to the Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes. Other expressions which are equal to the expression of ‘storm water overflow’ may be in Hungarian the ‘<i>esővíz-túlfolyás</i>’ or ‘<i>csapadékvíz-túlfolyás</i>’, ‘<i>záporvíz-túlfolyás</i>’ which are all Hungarian synonyms of the expression of ‘storm water overflow’. However these or any similar expressions cannot be found in the national legislation. On the Internet, only the periphrasis of the situation can be found, writing about ‘heavy rain conditions’ ‘<i>heves esőzések</i>’ or ‘stormy weather’ ‘<i>zivatar</i>’, but the definition of these is nowhere specified. The name of the outlet on the sewerage system designed to relieve the system of excess flow collected as a result of heavy rain, is called in Hungarian ‘<i>záporvízkiömlő</i>’, but again, there is no legislation which would apply this word, and it can only be found in the news and different technical descriptions on the Internet.
84. Is there a definition of storm water overflow in Hungary?	No, there is no definition of storm water overflow in Hungary, neither in the legislation, nor in the policy documents.
85. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Hungary have a definition of extreme or unusual rainfall event?	The definition of extreme or unusual rainfall event does not exist in Hungary. Although the expression of ‘extreme’ or ‘unusual weather’ is applied by the national legislation at multiple instances, but the meaning of the expression is nowhere defined. At the same time according to the information available on the homepage of the National Meteorological Service⁴²⁸, there is a national warning system operated by Service, which, according to the weather conditions applies a gradual alert system. Depending on the amount of rainwater expected the National Meteorological Service issues an alert for thunderstorms (thunderstorms involve not only rainfalls but also heavy windy conditions often with hail). There are two degrees of the alerts for thunderstorms:

⁴²⁸ http://www.met.hu/idojaras/veszelyjelzes/omsz_veszelyjelzo_rendszere/.

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- A yellow sign is applied when according to the forecast it is expected to fall locally about 25-30 mm of rainwater or more, in a relatively short period of time (generally in 30-60 minutes or even in 2-3 hours).
- An orange sign is applied when the atmospheric conditions are given to fall locally more than 50 mm rainwater.

It often happens, that the localization of the endangered area is only possible based on the measurements of the weather radars, following the start of the rainfall.

For heavy rainfalls there are three degree of alerts:

- A yellow sign is applied when according to the forecast it is expected to fall more than 20 mm of rain within 24 hours;
- An orange sign is applied when according to the forecast it is expected to fall more than 30 mm of rain within 24 hours;
- A red sign is applied when according to the forecast it is expected to fall more than 50 mm of rain within 24 hours.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

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<i>Overview of legal and policy framework</i>	
23. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	The phenomenon of storm water overflows is known in Hungary, but there is no term or definition for it in the legislation. However in national policy documents (like the River Basin Management Plan of Hungary) and in the different policy documents of the local municipalities (like the Environmental state report of Budaörs municipality, 2011) the phenomenon is described as an existing problem: on the one hand, where there is no separated system for the drainage of rainwater, a significant amount of rainwater is included into the wastewater collection network during heavy rainfalls, overloading it. On the other hand, settlements having a separated wastewater and rainwater collection system often face the problem that the existing rainwater drainage system is not able to drain the large quantities of water, mainly because the drainage system is polluted and is not sufficiently maintained. The Danube River Basin District Management Plan as well as the Tisza River Basin District Management Plan also mentions storm water overflows as source of hazardous substances pollution. In Hungary, the National Meteorological Service is responsible for the monitoring of different meteorological data, including also precipitation. In the framework of the evaluation of the impacts of climate change, the National Meteorological Service monitors the heavy precipitation events as well, according to different international meteorological standards⁴²⁹.
24. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	In Hungary there are several standards which regulate the construction of water drainage systems and sewage treatment plants. There is no specific standard on the design of 'storm water overflow structures'; however, the regulation of the construction of the sewer and water drainage systems, and similarly, the rules on the construction of sewage treatment plants, have an indirect effect also to the potential occurrence of storm water overflows as well. The following standards are -inter alia- available: MSZ EN 1091:2001: Vacuum sewerage systems outside buildings MSZ EN 1124-4:2014: Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for wastewater systems. Part 4: Components for vacuum drainage systems and for drainage systems on ships MSZ EN 12201-1:2012: Plastics piping systems for water supply, and for drainage and sewerage under pressure. Polyethylene (PE). Part 1: General MSZ EN 12380:2003: Air admittance valves for drainage systems. Requirements, tests methods and evaluation of conformity MSZ EN 12889:2001: Trenchless construction and testing of drains and sewers MSZ EN 14654-1:2014: Management and control of operational activities in drain and sewer systems outside buildings. Part 1: Cleaning MSZ EN 1610:2001: Construction and testing of drains and sewers

⁴²⁹ <http://www.met.hu/en/omsz/tevekenysegek/klimamodellezes/szelsosegek/>.

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MSZ 15287:2000: Municipal sewage treatment plants. Small sewage treatment structures and equipment
MSZ EN 1671:2001: Pressure sewerage systems outside buildings
MSZ EN 752:2008: Drain and sewer systems outside buildings.

The application of standards is not mandatory in Hungary, with the exception of those cases, when the legislation explicitly requires the application of a given standard, or when in a civil law contract the contracting parties explicitly stipulate the application of a given standard. Regarding wastewater treatment, there is no legislation at this moment which would include any such stipulation.

Additionally in Hungary there exists a very detailed legislation on the quality of surface waters and ground waters. These are mainly those acts, governmental and ministerial decrees, which implement the provisions of the WFD in the country. In order to achieve and maintain good state of surface waters, the Government Decree Number 220 of 2004 (VII.21.) on the protection of the quality of surface waters contains rules regarding prevention and reduction of contamination. Its implementing regulations (Decree Number 28 of 2004 (XII. 25.) of the minister of environment and water on the emission limit values and certain rules for application of them, and Decree Number 27 of 2005 (XII. 6.) of the minister of environment and water on the detailed rules of the control of used and waste water emissions) contain maximum permitted discharge values and the detailed rules applicable to the measuring of discharge.

Decree Number 28 of 2004 (XII.25.) defines different limit values depending on whether the recipient water body lies on a sensitive area (territorial limit value), and what kind of polluting substances are characteristic of the activity. There are separate threshold values determined for the indirect discharges, the goal of which is the technological protection of the communal waste water treatment plants and of the public sewage canals, as well as the minimisation of the load to the receptive environment. The qualitative requirements for the treated wastewater and the conditions for the letting the treated wastewater into the receiving water bodies are consequently set out in these regulations.

Discharges into water bodies are regularly monitored by the operators of the wastewater treatment plants and by the authorities responsible for the protection of waters as well.

The Convention on Cooperation for the Protection and Sustainable Use of the Danube River (Danube River Protection Convention) invites with its Article 9 (Monitoring Programmes) the Contracting Parties “.... to develop joint or harmonised methods for monitoring and assessment of waste water discharges including processing, evaluation and documentation of data taking into account the branch-specific-approach of emission limitations;...” The Summary of National Practices concerning the Monitoring of Waste Water Discharges⁴³⁰ evaluates the situation concerning the monitoring of waste water discharges within the States of the Contracting Parties by means of a questionnaire.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	N			

⁴³⁰ http://www.icpdr.org/main/sites/default/files/IC30_NATIONAL_PRACTICES_MONITORING_WWD.pdf.

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WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	Y	River Basin Management Plan Hungary – national background material Link: www.vizeink.hu/files/vizeink.hu_0004.pdf and http://ec.europa.eu/environment/water/participation/map_mc/countries/hungary_en.htm	“Azokon a településeken, ahol nem épült ki külön csapadékelvezető rendszer, sok esetben gondot jelent, hogy a szennyvízgyűjtő hálózatba jelentős mennyiségű esővíz kerül. Ez a tisztító-telepek számára fokozott terhelést jelent. Zivatarok idején a csapadékvízzel kevert szennyvíz tisztítatlanul ömlik a befogadóba és ott pontszerű szennyezéseket okozhat. Fokozza a problémát a csapadékvíz illegálisan történő szennyvízcsatornába vezetése.” (p.63.)	“In those settlements, where there is no separated system for the drainage of rainwater, it is a common problem, that significant amount of rainwater is included into the wastewater collection network. This results a significant burden to the treatment plants. During thunderstorms the wastewater mixed with rainwater flows without cleaning into the receptacles and may cause point source pollution there. The problem is even more enhanced by the illegal introductions of the rainwater into the wastewater drainage system”. Hungary has 1 river basin district which is an international water course - the Danube - shared with Slovakia to the north, Austria and Germany to the west, Croatia, Serbia, Romania, Bulgaria, Moldova and Ukraine to the south and east. The National River Basin Management Plan (covering the period 2009-2015) was adopted by the Hungarian Government on 21 May 2010 who issued Governmental Decision No. 1127/2010 putting the RBMP into force. Due to formal legal mandate reasons, the Governmental Decision was later repealed and the RBMP, with unchanged content, was newly adopted on 23 February 2012 with the Governmental Decision No. 1042/2012. The new decision was published again in the Hungarian Official Journal 2012, No 21.

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				There are only indirect references on storm water overflows in the document. The National River Basin Management Plan refers to the topic of urban rainwater drainage as one of the optional (not mandatory) tasks of the local municipalities. The document mentions, that in those territories, where the size of surface water bed where the rainwater is introduced does not make it possible to introduce a relatively large amount of rainwater in a short period of time, it would be necessary to build buffer reservoirs to delay the rainwater runoff (p. 265). It also mentions the necessity to elaborate a national rainwater drainage program (there is no such a program elaborated or adopted yet).
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N/A			
HELCOM	N/A			
Barcelona Convention	N/A			
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	Y	Danube River Basin District Management Plan Link: http://www.icpdr.org/main/sites/default/files/DRBM_Plan_2009.pdf .	There is no Hungarian translation of the document.	"2.1.3. Hazardous substances pollution: Hazardous substances pollution can seriously damage riverine ecology and consequently impact upon water status and affect the health of the human population. Types of hazardous substances include: man-made chemicals, naturally occurring metals, oil and its compounds, endocrine disruptors and pharmaceuticals. Sources of hazardous substances

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				are: industrial effluents, storm water overflow, pesticides and other chemicals applied in agriculture as well as discharges from mining operations and accidental pollution. For some substances atmospheric deposition may also be of significance.” (p.16.) “7.1.3.3. Summary of measures of basin-wide importance. Implementation of measures regarding urban wastewater treatment. Due to the synergies between measures to address organic, nutrient pollution and hazardous substances, the further implementation of the UWWTD for EU MS contributes to the reduction of hazardous substances pollution from urban wastewater and from indirect industrial discharges. For non EU MS, the construction of 47 municipal WWTPs by 2015 will improve the situation (although it should be noted that the construction of new sewerage collecting systems which are not connected to respective WWTPs may have a detrimental effect). A further area of importance is the input from urban areas via storm water overflows. Here, the reduction of emissions requires improved storm water management.” (p. 66.)
Rhine Convention	N/A			
Oder Convention	N/A			
Elbe Convention	N/A			
Conv. Transboundary Watercourses and International Lakes	Y	Government Decree 213/2005. (X. 5.) on the promulgation of the Protocol on Water and Health to the Convention on the Protection and Use of Trans-boundary Watercourses and International Lakes Link: http://njt.hu/cgi_bin/njt_doc.cgi?docid=96061.135522.	“2. A fentiek megvalósítása érdekében a Részes Felek mindegyike köteles meghatározni, nyilvánosságra hozni és időszakonként felülvizsgálni azon szabványokra és teljesülési szintjükre vonatkozó nemzeti és/vagy helyi célkitűzéseket, amelyek a vízzel összefüggő megbetegedések elleni magas színvonalú védelem eléréséhez, illetve fenntartásához szükségesek. A célkitűzéseket időszakonként felül kell vizsgálni. Mindezek során megfelelő gyakorlati, illetve egyéb	“2. For these purposes, the Parties shall each establish and publish national and/or local targets for the standards and levels of performance that need to be achieved or maintained for a high level of protection against water-related disease. These targets shall be periodically revised. In doing all this, they shall make appropriate practical and/or other provisions for public participation, within a transparent and fair framework, and shall ensure that due account is taken of the outcome of the public

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			intézkedéssel kell biztosítaniuk a lakosság részvételét áttekinthető és méltányos keretek között, valamint gondoskodniuk kell arról, hogy nyilvánosság bevonásának eredményét számításba vegyék. Azon esetek kivételével, amikor a vízzel összefüggő megbetegedések megelőzése, szabályozása és csökkentése érdekében teendő országos vagy helyi körülmények azt nem indokolják, a célkitűzéseknek egyebek között ki kell terjedniük: g) Az alábbi kibocsátások előfordulására: (i) kezeletlen szennyvíz, és (ii) kezeletlen <i>záporvíz túlfolyás</i> a szennyvízgyűjtő rendszerekből a jelen Jegyzőkönyv hatálya alá tartozó vizekbe;”	participation. Except where national or local circumstances make them irrelevant for preventing, controlling and reducing water-related disease, the targets shall cover, inter alia: (g) The occurrence of discharges of: (i) Untreated waste water; and (ii) Untreated storm water overflows from waste-water collection systems to waters within the scope of this Protocol;” It has to be noted that the text of the Protocol is literally translated by Government Decree 213/2005. (X. 5.). No further national documents mention storm water overflows.
Carpathian Convention	Y	Integrated Tisza River Basin Management Plan Link: http://www.icpdr.org/main/sites/default/files/Uploaded%20-%20ITRBM%20Plan%20-%20Jan%202011_V2GWcomprev%20Okt2011.pdf	There is no Hungarian translation of the document.	“2.1.5 Hazardous substances pollution: Sources of hazardous substances in the Tisza River Basin are: industrial effluents; storm water overflow; pesticides and other chemicals applied in agriculture; discharges from mining operations and accidental pollution. For some substances atmospheric deposition may also be of significance.” (p.34.) “7.1.3.3.1. Implementation of measures regarding urban wastewater treatment. Due to the synergies between measures to address organic, nutrient pollution and hazardous substances, further implementation of the UWWTD for EU Member States contributes to the reduction of hazardous substances pollution from urban wastewater and from indirect industrial discharges. For non EU Member States, the construction of 18 municipal wastewater treatment plants by 2015 will improve the situation – although it should be noted that the construction of new sewerage collecting systems which are not connected to wastewater treatment plants may have a detrimental effect. A further area of importance is the input from urban areas via storm water overflows.

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			Here, the reduction of emissions requires improved storm water management.” (p.89.)
<i>Other direct references to storm water overflows</i>			
Type of document	Title of document	Summary description	
Policy document, municipal	Environmental state report of Budaörs municipality, 2011 Link: http://www.budaors.hu/?module=news&action=getfile&aid=38044 .	<i>“A dombsági és hegyeségi területen fekvő Budaörs kistérség jelentős veszélyben van, mert a nagy intenzitású csapadékesemények váratlan elöntéseket okozhatnak. Budaörs csapadékvíz elvezető hálózata jelenleg sajnos nem alkalmas, hogy zivatarok esetén elvezesse a dombokról, hegyekről leáramló vizet. Ez a vízben rejlő szennyeződésekkel jelentős környezeti problémát jelenthet Budaörs lakói számára. A csapadékvíz elvezető árkok megfelelő tisztításáról továbbra nagyobb mértékben ajánlott gondoskodni, továbbá szükséges a telektulajdonosok tájékoztatása, esetleges bírságolása, hiszen köztudott, hogy az árkok hulladékkal tömítettek, melynek okozói a helybeli telektulajdonosok.”</i> In these few sentences the document writes about the rainwater situation of Budaörs (a town close to Budapest). According to the description, the town is situated in a hilly area and ‘the high intensity rainwater situations’ cause unexpected flooding. The rainwater drainage system of Budaörs is currently not appropriate to drain the water rising from the hills during thunderstorms. Therefore it is recommended by the municipality for the real estate property owners to clean the drainage ditches regularly, as the ditches are full of waste, which is caused by the local landowners. Similar descriptions can be found also in the different policy documents (environmental programmes, waste water management programmes) of several other municipalities as well; however no definition or further details are available.	
Guidance, national level	Standards regarding the construction of wastewater and rainwater drainage systems Link: http://www.mszt.hu/homepage	In Hungary there are several standards which regulate the construction of water drainage systems. The application of standards is not mandatory in Hungary, with the exception of those cases, when the legislation explicitly requires the application of a given standard, or when in a civil law contract the contracting parties explicitly stipulate the application of a given standard. Regarding wastewater treatment practices, there is no legislation at this moment, which would include any such stipulation. The following standards are -inter alia- available: MSZ EN 1091:2001: Vacuum sewerage systems outside buildings MSZ EN 1124-4:2014: Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for wastewater systems. Part 4: Components for vacuum drainage systems and for drainage systems on ships MSZ EN 12201-1:2012: Plastics piping systems for water supply and for drainage and sewerage under pressure. Polyethylene (PE). Part 1: General	

Overview of legal and policy framework. Relevant references to storm water overflows.

		MSZ EN 12380:2003: Air admittance valves for drainage systems. Requirements, tests methods and evaluation of conformity MSZ EN 12889:2001: Trenchless construction and testing of drains and sewers MSZ EN 14654-1:2014: Management and control of operational activities in drain and sewer systems outside buildings. Part 1: Cleaning MSZ EN 1610:2001: Construction and testing of drains and sewers MSZ 15287:2000: Municipal sewage treatment plants. Small sewage treatment structures and equipment MSZ EN 1671:2001: Pressure sewerage systems outside buildings MSZ EN 752:2008: Drain and sewer systems outside buildings
<i>Legal, municipal</i>	Decree Number 5 of 2009 (III.09.) of the City Council of Szentes municipality on the local building code and zoning plan Link: http://www.szentes.hu/wp-content/uploads/2014/07/hesz20140716.pdf.	Article 59 of the Decree regulates the local rules of waste water drainage and cleaning. According to these rules, in the case of a combined network – taking into account the condition of the recipient as well – a storm water overflow ('záporkiömlő') shall also be established. This shall be installed with a blocking mechanism which must be operable by the time of flooding as well. Such rules are however not common in the legislation of the municipalities, where are only few settlements, which local building code include such regulations.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
56. Which types of sewer system does Hungary have?	In Hungary there are both combined and separated collections systems. In the capital city of Budapest about the half of the collection system is combined and the other half is separated, in the country, the separated rainwater and wastewater systems are more typical, depending on the specific conditions of the settlements. Waste water collection systems built in the recent years are all separated. Sources: ▪ Hungarian Central Statistical Office: Environmental report 2013: https://www.ksh.hu/docs/eng/xftp/idoszaki/ekornyhelyzetkep13.pdf; ▪ Hungarian Central Statistical Office: Municipal waste water discharge and treatment (1990): https://www.ksh.hu/docs/eng/xstadat/xstadat_annual/i_uw005.html; ▪ National implementation report of Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment, as amended by Commission Directive 98/15/EC of 27 February 1998: http://www.kormany.hu/download/e/4b/00000/NMP_Kiadv%C3%A1ny20140627.pdf.
57. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	In 2013 there was 51624 km of sewage collection network in Hungary (excluding Budapest)⁴³¹, of which 1888 km are combined sewers, while 49736 km are separated sewers. Therefore, the majority of the sewer systems are already separated. By the end of 2015 this is expected to be developed to 75.4 thousand km. On 31.12.2012 the ratio of the households connected to the sewage collection system was 74.8%. The newly constructed sewers are in principle separate sewers⁴³². Regarding the capital of Budapest, on the website of the Budapest Sewage Works Ltd. there are very detailed data on the type and length of the drainage system. Table: The distribution of the Budapest sewage network system (in km)

⁴³¹ Information from the General Directorate of Water Management, Head of Department of Water Public Utility by e-mail.

⁴³² National implementation report of Council Directive 91/271/EEC: http://www.kormany.hu/download/e/4b/00000/NMP_Kiadv%C3%A1ny20140627.pdf.

Available data on storm water overflows

Year	Wastewater sewer	Rainwater sewer	Combined system sewer	Total
1996.	890	365	3027	4282
1997.	943	373	3054	4370
1998.	965	376	3072	4413
1999.	999	380	3100	4479
2000.	1047	390	3136	4573
2001.	1098	391	3176	4665
2002.	1189	397	3213	4799
2003.	1275	400	3240	4915
2004.	1380	415	3280	5075
2005.	1467	425	3287	5179
2006.	1549	431	3302	5282
2007.	1574	433	3308	5315
2008.	1588	435	3311	5334
2009.	1600	440	3312	5352
2010.	1609	445	3329	5383

Source: Budapest Sewage Works Ltd. Website:

http://www.fcsm.hu/en/services/drainage_of_wastewater_and_rainwater/sewer_network_operation.

However, this information is only relevant to Budapest, while on the website of the other (smaller) service providers (as mentioned above, there are more than 200 in Hungary) there are no such information available, or much limited information.

Available data on storm water overflows

58. How many storm water overflows infrastructures exist in Hungary?

In the country at the beginning of 2011 there have been more than 200 companies which operated water and sewage utilities⁴³³. Probably the exact data of the individual water utilities are available at each of the service providers, but there is no unified, central, publicly available database which would collect and summarize the data of the individual water/sewage utilities.

On the websites of the sewage network operators there are partial information on those infrastructures, which serve the purposes of trouble-free rainwater drainage. For example on the website of the Budapest Sewage Works Ltd.⁴³⁴, it is mentioned that there are 150,000 pcs of manhole covers and 85,000 pcs of sinkhole grids in the capital of Budapest. In the daily practice of the Budapest Sewage Works these infrastructures are regularly inspected and cleaned as necessary in order to ensure the barrier-free run of the rainwater from the streets and public spaces.

Sewage network operators often publish different guidelines for the public⁴³⁵ in order to raise awareness on the correct use of the separated sewer systems. These guidelines usually refer to the national legislation, which prohibits the introduction of the rainwater into the separated sewer system. They also often draw the attention of the public on those materials which are prohibited to discharge into the sewage network, like gasoline, used cooking oil, waste, etc. because these cause damages and blocking in the sewage network.

In Hungary, three main problems can be highlighted from the point of view of rainwater drainage the illegal connection of the household rainwater networks to the separated sewer system, the high ratio of the built-up of the surface areas and the runoff factor of rainwater.⁴³⁶

Although there are legislative provisions on the build-up of the household rainwater collection systems (please see above at the description of the legislation), the rainwater from the individual real estates is often illegally drained into the separated sewer system. Sewage network operators devote significant resources to explore and sell off such illegal connections. Taking also into account that drainage ditches (which are part of the public land and belong to the local municipalities) are often not maintained in a proper manner (e.g. blocked with waste and plants), the situation leaves room to potential storm water overflows not only in the case of combined but much likely in the case of separated sewer systems.

Additionally, in the case of family houses, household systems for the collection of the rainwater (like rainwater tanks) are very rarely installed, and the domestic as well as the public surface areas are increasingly covered (with concrete, floor tiles and other solid materials). This hinders the leakage of the rainwater into the soil especially when heavy rainfalls occur, where a disproportionately large amount of rainwater falls down within a relatively short period of time. In the case of very heavy rainfalls the rainwater often flows over the sinkhole grids so fast that they cannot even absorb it (which is the question of the so called 'runoff coefficient' and not the question of the capacity of the sewage drainage system).

To prevent the overload of the sewage works and the pollution of the recipient waters by the time of heavy rainfalls, sewage network operators operate 'storm water overflows' (infrastructure), where the diluted sewage may be released to the recipient water bodies. The

⁴³³ Homepage of General Directorate of Water Management: <https://www.vizugy.hu/print.php?webdokumentumid=151>; <https://www.vizugy.hu/index.php?module=content&programelemid=112>.

⁴³⁴ Budapest Sewage Works Ltd. Website: http://www.fcsm.hu/en/services/drainage_of_wastewater_and_rainwater/sewer_network_operation.

⁴³⁵ Homepage of the Bácsvíz Ltd.: <http://www.bacsviz.hu/index.php?id=113>.

⁴³⁶ Based on the information collected by the Technical Committee of the Hungarian Water Utility Association from 13 different member organisations of the Association.

Available data on storm water overflows	
	ratio of the dilution is tenfold; the release is always monitored in terms of water quality and reported to the water protection authority. (As mentioned above in the description of the national legislation, there are water quality standards which have to be taken into account and this requirement is always included in the operation permit of the sewage works). Similarly, sewage network operators often build up storage sites for the excess water, where the rainwater, mixed with sewage is stored and following the heavy rainfall events, it is cleaned as usual. In the case of separated systems, sewage network operators usually count in the practice with 25-30% excess rainwater in the separated sewer system which is usually because of the illegal introduction of the rainwater from the territory of private properties and the excess rainwater which infiltrates from the public places for example via drain covers. At the same time by the planning of the separated systems the excess rainwater usually cannot be taken into account (because of the higher investment and operation costs, because the sewer system shall be calibrated on sewage and not on rainwater and because the oversized sewer systems can cause odour and sedimentation problems etc.). As one of the main problems it can be also mentioned, that although there are huge investments on the construction of modern sewer systems, these cannot fulfil their role by the time of unusual rainfall events, because of the unsolved rainwater collection and drainage system in the settlements. Municipalities usually don't have resources for the planning and construction of rainwater and there are no financial aids available for these purposes at all. The number of 'storm water overflows' (infrastructure) differs from operator to operator depending on the size of the territory where they operate and the number and frequency of overflows is not collected at the national level. According to the estimation of the water utility operators there may be 6-8 unusual rainfall events annually on the territory of each of the operators. In each case these events are reported to the disaster management authorities (which are the water protection authorities in Hungary), which work at the county level in each of the 19 counties and additionally in the capital of Budapest. However as mentioned before, there are no combined data which would be collected at the country level. According to the opinion of the water utility operators there would be a high need for the elaboration of complex national rainwater drainage and management program, which currently does not exist in Hungary.⁴³⁷
<i>Available quantitative data on the occurrence of storm water overflows</i>	
59. Is there information on the occurrence of storm water overflows?	Unfortunately there is no publicly available data in the occurrence of storm water overflows in Hungary. There are only general news in the online newspapers on different individual occurrences, and some information leaflets from the sewage system operators to the public on how to carry out the collection of the rainwater on the properties correctly to prevent any damages in the sewage system during heavy rainfalls.
60. Are storm water overflows monitored in Hungary? If yes, please describe the monitoring programme. Refer to:	The National Meteorological Service is the organization responsible for weather forecast. On their homepage ⁴³⁸ they operate a safety alarm and warning system, serving the purposes of life-and property security. The warning system includes different unusual weather conditions, including heavy rainfalls (heavy rain with harmful wind or large size ice) and rainstorms (intensive rainfall with 25-30 mm / 50 mm of rain

⁴³⁷ source of information: interview with the Deputy Chief Technical Officer of the Budapest Sewage Works Pte Ltd. as well as written answers from 12 water utility operators, members of the Hungarian Water Utility Association.

⁴³⁸ http://met.hu/idojaras/veszelyjelzes/omsz_veszelyjelzo_rendszer/.

Available data on storm water overflows

- **what is measured;**
- **how often; and**
- **at how many locations**

within a short period of time) as well.

However these unusual weather conditions do not necessarily involve storm water overflows at the same time, which is correlated not only with the weather but also with the actual condition of the wastewater drainage network. The storm water overflows may be monitored by the individual waste water treatment plant operators, but there is no data publicly available if this is the case or not and if the individual occurrences are reported somewhere and collected or not.

FACTSHEET FOR IRELAND⁴³⁹

1. BASIC INFORMATION

Basic information	
General Information	
What are the competent authorities for waste water treatment and management in Ireland?	Irish Water⁴⁴⁰ was incorporated in July 2013 as a company under the Water Services Act 2013. Irish Water is a subsidiary of Eirvia which itself is a state owned statutory body. Irish Water has combined the public water and wastewater services of 31 Local Authorities together under one national service provider. Irish Water took over responsibility for public water and wastewater services from the Local Authorities with effect from 1st January 2014. Irish Water is now responsible for the operation of public water and wastewater services, including: - Management of national water and wastewater assets; - Maintenance of the water and wastewater system; - Investment and planning; - Managing capital projects; and - Customer care and billing. As well as responsibility for public water services, Irish Water will also make capital and investment decisions regarding water infrastructure on a national basis. Irish Water is responsible for the collection and treatment of waste water from more than 1,000 separate agglomerations⁴⁴¹. Irish Water are required to report on storm water overflow performance to the Environmental Protection Agency (EPA) in the Annual Environmental Report for each agglomeration as outlined in Section 4.1 of the EPA Guidance note for the Annual Environmental Report⁴⁴². Irish Water is regulated by both the Commission of Energy Regulation (CER) for economic matters and the Environmental Protection Agency (EPA) for environmental matters and drinking water quality standards⁴⁴³. Contact: Colvill House, 24-26 Talbot Street, Dublin 1. Call: 1890 448 448 Int: +353 1 707 2824. The Commission for Energy Regulation (CER)⁴⁴⁴ has been established as the independent economic regulator for water services. The CER acts in accordance with the duties set out under the 'Water Services (No.2) Act 2013'⁴⁴⁵ and the 'Water Services Act 2014'⁴⁴⁶. Its

⁴³⁹ An interview was conducted with the Department of the Environment, Community and Local Government (DECLG) for this report.

⁴⁴⁰ Irish Water Website, available at <http://www.water.ie/about-us/company/about-irish-water/>

⁴⁴¹ **Irish Water Draft Water Services Strategic Plan** available at <http://www.water.ie/docs/Draft-WSSP.pdf>

⁴⁴² Information obtained through consultation with a stakeholder (DECLG), May 2015); Environmental Protection Agency, 'Guidance on the Preparation and Submission of the Annual Environmental Report (AER) for Waste Water Discharge Licences for 2014', 2014, available at <http://www.epa.ie/pubs/advice/wastewater/aerguidance2014.html#.VWRgotKqpBc>.

⁴⁴³ Link to 'Irish Water Draft Water Services Strategic Plan' <https://www.water.ie/docs/WSSP-Challenges.pdf>

⁴⁴⁴ Link to Commission for Energy Regulation's Role as Regulator available at <http://www.cer.ie/customer-care/water/customer-protection>

⁴⁴⁵ Link to 'Water Services (No.2) Act 2013': <http://www.irishstatutebook.ie/pdf/2013/en.act.2013.0050.pdf>

⁴⁴⁶ Link to 'Water Services Act 2014' <http://www.irishstatutebook.ie/pdf/2014/en.act.2014.0044.pdf>

Basic information	
	overall aims are to protect the interests of water customers, ensure water services are delivered in a safe, secure and sustainable manner and that Irish Water operates in an economic and efficient manner. Local Authorities⁴⁴⁷ provided and managed wastewater treatment services for urban areas, before the establishment of Irish Water. The Water Services (No.2) Act 2013 transferred statutory responsibility for water services to Irish Water and provided for Local Authorities to act as agents for Irish Water, with this relationship being expressed through Service Level Agreements (SLA). The SLA is a 12 year plan for the provision of a range of services for the continued provision of public water and wastewater services throughout Ireland. Local authorities manage monitoring of influent and effluent at urban waste water treatment plants on behalf of Irish Water under the SLA. Monitoring results are submitted to the Environmental Protection Agency, by Irish Water, in accordance with the requirements of the relevant waste water discharge authorisations. In addition to their responsibilities under SLA with Irish Water, local authorities are also responsible for regulating small-scale commercial and industrial discharges to waters, including having responsibility for managing the registration of septic tanks and similar waste water treatment systems⁴⁴⁸. A new regime for inspecting domestic wastewater treatment systems (better known as septic tanks) has been established in Ireland. The Environmental Protection Agency is responsible for the development of the National Plan and it published the first 'National Inspection Plan for Domestic Waste Water Treatment Systems' in February 2013⁴⁴⁹. The Environmental Protection Agency (EPA) - Waste Water Discharge Authorisation - all discharges to the aquatic environment from sewerage systems owned, managed and operated by Irish Water require a waste water discharge licence or certificate of authorisation from the EPA. Storm Water Overflows from sewerage systems are also regulated by the EPA's discharge authorisation regime⁴⁵⁰. For households and businesses not connected to a public sewerage system, wastewater is usually treated by septic tanks and/or individual private wastewater treatment plants. The EPA has produced guidance on individual wastewater treatment plants which is available on their website⁴⁵¹. As mentioned above, local authorities arrange for inspections to be carried out. The inspectors are appointed and approved by the EPA⁴⁵². The EPA also licenses discharges by certain industries to public sewers owned by Irish Water through Integrated Pollution Control (IPC)/Industrial Emissions Directive (IED) licensing⁴⁵³. CSOs are also subject to the EPA's discharge licensing regime⁴⁵⁴. The EPA do not monitor storm water overflow discharges⁴⁵⁵. Contact: PO Box 3000, Johnstown Castle Estate, Wexford. Tel: 053-916 0600.

⁴⁴⁷ Link to contact details for all **Local Authorities** in Ireland: <http://www.environ.ie/en/LocalGovernment/LocalGovernmentAdministration/LocalAuthorities/>

⁴⁴⁸ Link to details of Septic Tank Registration and Inspection System <http://www.environ.ie/en/Environment/Water/WaterQuality/SepticTankRegistrationCharge/>

⁴⁴⁹ 'National Inspection Plan for Domestic Waste Water Treatment Systems' available here http://www.epa.ie/pubs/reports/water/wastewater/EPA_National_Inspection_Plan_2013.pdf

⁴⁵⁰ Information obtained through consultation with a stakeholder (Department of the Environment, Community and Local Government, May 2015).

⁴⁵¹ Link to EPA Code of Practice <http://www.epa.ie/pubs/advice/water/wastewater/code%20of%20practice%20for%20single%20houses/Code%20of%20Practice%20Introduction%202010.pdf>

⁴⁵² Citizens Information, 'Inspection of septic tanks and other domestic waste water treatment systems', available at http://www.citizensinformation.ie/en/housing/owning_a_home/home_owners/domestic_wastewater_treatment.html

⁴⁵³ Link to documents related to Integrated Pollution Control (IPC) <http://www.epa.ie/licensing/ipc/legislation/#.Vajtf2xOPmU>

⁴⁵⁴ Information obtained through consultation with a stakeholder (Department of the Environment, Community and Local Government, May 2015).

⁴⁵⁵ ibid.

Basic information	
	The Department of the Environment, Community and Local Government⁴⁵⁶ - has the overall policy responsibility for issues related to water management, including the provision and management of urban waste water services, the shaping of water management legislation and policies, floods protection (in association with the Office of Public Works - OPW) and sustainable use of water resources. It is responsible for the development of policy and legislation for the water sector reform programme, as well as for legislation relating to drinking water standards, urban waste treatment, septic tanks and sewage sludge management⁴⁵⁷. The Department has overall responsibility to ensure compliance with the requirements of the EU Urban Wastewater Treatment Directive and the Drinking Water Directive.
86. What is the transposing law(s) of the UWWTD in Ireland?	The UWWTD was transposed into Irish law by the ‘Urban Waste Water Treatment Regulations 2001 (S.I. 254/2001)’⁴⁵⁸ and amended and/or augmented by S.I. 440/2004⁴⁵⁹, S.I. 684/2007⁴⁶⁰, S.I. 48/2010⁴⁶¹ and S.I. 231/2010⁴⁶². These regulations set specific standards to be achieved for urban waste water treatment, and establish an authorisation regime to manage and monitor discharges from urban waste water treatment plants, including the reporting of monitoring results to the EPA.
87. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD has been transposed into Irish law by the First Schedule of ‘SI. No. 254/2001 Urban Waste Water Treatment Regulations, 2001’. The wording has been literally transposed into the Regulations and is therefore wholly adequate. According to the First Schedule: A collecting system shall take into account waste water treatment requirements. ■ The design, construction and maintenance of a collecting system shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding; ■ volume and characteristics of urban waste water; ■ prevention of leaks, and ■ limitation of pollution of receiving waters due to storm water overflows⁴⁶³.
88. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	Footnote 1 in Sections A and B of Annex I of the UWWTD does not appear to have been transposed into Irish law. It is not transposed into SI No. 254/2001 Urban Waste Water Treatment Regulations, 2001⁴⁶⁴. From desk research conducted, it does not appear to have been transposed into any other piece of Irish legislation. When issuing licences under the ‘Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007)’⁴⁶⁵, the EPA

⁴⁵⁶ Department of the Environment, Community and Local Government Website, ‘Environment’, available at <http://www.environ.ie/en/Environment/>.

⁴⁵⁷ Department of the Environment, Community and Local Government Website, ‘Water Services’, available at <http://www.environ.ie/en/Environment/Water/WaterServices/>.

⁴⁵⁸ S.I. No.254/2001 - Urban Waste Water Treatment Regulations, 2001, available at <http://www.irishstatutebook.ie/2001/en/si/0254.html>.

⁴⁵⁹ Link to S.I. 440/2004 <http://www.irishstatutebook.ie/2004/en/si/0440.html>

⁴⁶⁰ Link to S.I. 684/2007 <http://www.irishstatutebook.ie/2007/en/si/0684.html>

⁴⁶¹ Link to S.I. 48/2010 <http://www.irishstatutebook.ie/2010/en/si/0048.html>

⁴⁶² Link to S.I. 321/2010 <http://www.irishstatutebook.ie/2010/en/si/0231.html>

⁴⁶³ S.I. No.254/2001-Urban Waste Water Treatment Regulations, 2001, available at <http://www.irishstatutebook.ie/2001/en/si/0254.html>.

⁴⁶⁴ *ibid.*

⁴⁶⁵ **Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007)**, available at <http://www.irishstatutebook.ie/pdf/2007/en.si.2007.0684.pdf>

Basic information	
	references the DECLG document ‘ Procedures and Criteria in relation to Storm Water Overflows ’ for any specific requirements or conditions with respect to storm water overflows.
89. What is the terminology used to refer to storm water overflows in Ireland? Is there more than one term used?	Of the various transposing legislation for the UWWTD in Ireland, both ‘SI No. 254/2001 Urban Waste Water Treatment Regulations, 2001’ and ‘S.I. No. 684/2007 - Waste Water Discharge (Authorisation) Regulations 2007’ include a definition for ‘storm water overflows’ and use the term generally when referring to storm water overflows. From policy documents and guidance papers, the term combined sewer overflow (CSO) is sometimes used to refer to storm water overflows from combined sewers ⁴⁶⁶ .
90. Is there a definition of storm water overflow in Ireland?	No definition of storm water overflow is contained in S.I. No. 254/2001 Urban Waste Water Treatment Regulations, 2001⁴⁶⁷. ‘SI No. 684/2007 - Waste Water Discharge (Authorisation) Regulations 2007’, defines ‘Storm Water Overflow’ as “a structure or device on a sewerage system designed and constructed for the purpose of relieving the system of excess flows that arise as a result of rain water or melting snow in the sewered catchment, the excess flow being discharged to receiving waters”⁴⁶⁸. In addition, a waste water treatment manual⁴⁶⁹, produced by the EPA in 1995 which pre-dates S.I. No. 684/2007, defined a storm overflow as “a device on a combined or partially-separate sewerage system, introduced for the purpose of relieving the system of flows in excess of a selected rate, the excess flow being discharged, possibly after removal of gross solids, to a convenient receiving water”. No other definition has been identified from desk research.
91. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Ireland have a definition of extreme or unusual rainfall event?	There is no definition of ‘an extreme or unusual rainfall event’ in Irish legislation, policy documents, technical literature, or other documents. However, all Waste Water Discharge Authorisations/Licences issued by the EPA under SI 684/2007 include the following definition of ‘Unusual Weather Conditions’: “In relation to waste water discharges unusual weather conditions, means any one or combination of the following: (i) heavy rainfall >50 mm in 24 hrs, >40 mm in 12 hrs, >30 mm in 6 hrs (i.e. Met Éireann Orange Alert criteria or greater⁴⁷⁰); (ii) low ambient temperatures as evidenced by effluent temperature of 5° C or less or by the freezing of mechanical equipment in the works; (iii) significant snow deposits; (iv) tidal or fluvial flooding; weather conditions causing unforeseen loss of power supply to the waste water treatment plant which could not be ameliorated by the reasonable provision and operation of standby generation facilities.” The above definition sets the criteria for the exclusion of monitoring results taken during times of unusual weather such as heavy rainfall as per bullet point 5 of Section D of Annex I of the UWWTD.

⁴⁶⁶ Information collected through consultation with a stakeholder (Department of the Environment, Community and Local Government, May 2015).

⁴⁶⁷ S.I. No.254/2001-Urban Waste Water Treatment Regulations, 2001, available at <http://www.irishstatutebook.ie/2001/en/si/0254.html>.

⁴⁶⁸ Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007), available at <http://www.irishstatutebook.ie/2007/en/si/0684.html>.

⁴⁶⁹ EPA ‘Wastewater Treatment Manuals: Preliminary Treatment’, 1995, available at

https://www.epa.ie/pubs/advice/water/wastewater/EPA_water_treatment_manual_preliminary.pdf

⁴⁷⁰ Met Éireann Weather Warning System Explained here: <http://www.met.ie/nationalwarnings/warnings-explained.asp>

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
<i>Overview of legal and policy framework</i>	
25. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	The Urban Waste Water Treatment Regulations 2001 (S.I. No 254/2001) refer to storm water overflows in the First Schedule (Collecting Systems). The Regulations state that a collecting system shall take into account waste water treatment requirements. The design, construction and maintenance of a collecting system shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding ▪ volume and characteristics of urban waste water ▪ prevention of leaks, and ▪ limitation of pollution of receiving waters due to storm water overflows. The Waste Water Discharge (Authorisation) Regulations (SI 684 of 2007) give effect, in relation to discharges, losses and emissions of pollutants from waste water works, to the obligation under Article 11(3)(g) of the Water Framework Directive requiring prior regulation of point source discharges liable to cause pollution. The Regulations define ‘waste water works’ as “<u>sewers and their accessories (or any part thereof)</u> and all other associated structural devices, including waste water treatment plants, which are owned by, vested in, controlled or used by a water services authority for the collection, storage, treatment or discharge of waste water”. SI 684 of 2007 includes the definition of the term ‘storm water overflow’ provided earlier and the definition for ‘waste water discharge’ includes discharges from storm water overflows. These Regulations require that when making an application for a waste water discharge licence or for the review of such a licence, the application should be accompanied by such other particulars, drawings, maps, reports and supporting documentation as are necessary to identify and describe the point or points, including storm water overflows, from which a discharge takes place or will take place. Articles 5 and 6 of these Regulations set out the duties on a Water Services Authority and on the EPA, respectively. Waste Water Discharge Licences issued by the EPA under SI 684 of 2007 require that all SWOs meet the Formula A based minimum criteria as specified in the 1995 DECLG publication 'Procedures and Criteria in Relation to Storm Water Overflows'⁴⁷¹. Section 4 of this publication provides assessment criteria for existing overflows and requires that a SWO does not: 1. Cause significant visual or aesthetic impact and public complaints, 2. Cause deterioration in water quality in the receiving water, 3. Give rise to failure in meeting the requirements of national Regulations on foot of EU Directives(Bathing Waters, etc) 4. Operate in dry weather. Waste Water Discharge Certificates of Authorisation require the holder to conduct an assessment of all discharges and implement any necessary improvements to prevent water pollution.

⁴⁷¹ Link to ‘Procedures and Criteria in relation to Storm Water Overflows’ (DECLG): <http://www.epa.ie/pubs/advice/wastewater/UrbanWasteWater2.pdf>.

Overview of legal and policy framework. Relevant references to storm water overflows.

The EPA issued a waste water treatment manual on preliminary treatment in 1995⁴⁷². It provides information on the storm water overflow setting. It states that the minimum overflow setting, above which overflows might be permitted, is defined as that given by "Formula A", following the report of the Technical Committee on Storm Overflows and the Disposal of Storm Sewage (HMSO 1970) (Ref. 19). This is defined as follows:

Formula A = DWF + 1.36P + 2E m³/day,
where DWF = PG + I + E.

Where "P" is the population served and "G" is the average per capita water consumption (m³/hd-d), "E" is the industrial effluent flow and "I" is the rate of infiltration. The factor 2E should be reconsidered where the industrial effluent is a high strength waste with potentially toxic impacts or where it constitutes a significant proportion of the total flow. In these circumstances, a higher factor would be appropriate. This flow should be regarded as a minimum setting and reference should be made to the DECLG guidelines⁴⁷³ in determining the appropriate setting for each site.

In general, the following criteria also require to be satisfied:

- overflows to minor watercourses should be avoided, where possible;
- the storm overflow structures should satisfy the criteria in WRc publication ER304E with overflow structures confined to high side weir stilling basin or vortex chamber overflows;
- the outlet control at the overflow should maximise the retained flow at a near constant rate within the system capacity and overflow spilling should not occur until the minimum settings have been exceeded. Chamfered or, bevelled outlets should be used to minimise ragging;
- such an overflow should be designed for effective containment of detritus and floating debris, oil and grease. It should be fitted with adequate baffle plates with adequate freeboard and depth of immersion;
- overflow discharge points should be discreetly located and coastal outfalls should be taken, where practical, to below low water level;
- a preliminary assessment should be carried out to establish containment of "first foul flush" flows having regard to the nature of the catchment runoff (time of concentration, extent of sediment in sewers, etc); and
- specific performance objectives in terms of spill frequency are required for discharges to coastal waters, including bathing waters and recreational amenity waters (3 and 7 spills respectively per bathing season).

Similarly, spill frequency and volume limitations may apply to other receiving waters having regard to available dilutions and water quality objectives. Frequencies of 16, 8 or 4 times per year on average might be set, depending on available dilutions. Normally the incoming flow must exceed that calculated from 'Formula A' before the storm water overflow spills unless there are high dilutions available. Discharge flows for bathing waters are required to be screened to at least 10mm and where the frequency of spill is greater than once per year, 80% of the volume should be screened to at least 6mm. It follows, therefore, that the sewer flows above which discharges to watercourses or other

⁴⁷² Link to EPA 'Wastewater Treatment Manuals: Preliminary Treatment', 1995: https://www.epa.ie/pubs/advice/water/wastewater/EPA_water_treatment_manual_preliminary.pdf

⁴⁷³ Link to 'Procedures and Criteria in relation to Storm Water Overflows' (DECLG): <http://www.epa.ie/pubs/advice/wastewater/UrbanWasteWater2.pdf>

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	receiving waters may be permitted will generally exceed the maximum flow permitted to the treatment plant. This requires the provision of storage on the overflow to intercept the spilled flows for return to the inlet works, when storm conditions have abated.
26. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	Bathing waters The 1995 DECLG document on ‘Procedures and Criteria in relation to Storm Water Overflows’⁴⁷⁴ provides guidance on quality standards that should be followed. It states that with regard to the protection of bathing waters, restricted spill frequency and volume of storm water discharged is required during the bathing season from mid-May to August (3 or 7 spills per bathing season, dependant on water use). It refers to the National Rivers Authority in the UK which was a forerunner of the Environment Agency of England and Wales, which had set out standards for consenting storm water overflows into or in close proximity to bathing areas and water contact/recreational use water. These standards are: ▪ The maximum number of independent storm events discharged via the storm water overflows must not, on average, exceed 3 per bathing season for identified bathing waters unless it can be shown that the design will achieve the water quality standards of the Bathing Water Directive for at least 98.2% of the time. ▪ The maximum number of independent storm events discharging via storm water, overflows affecting water contact/recreational use waters must not, on average, exceed 7 times per bathing season. ▪ The soffit level of the overflow outfall must be located below the level of the low water mark of mean spring tides (MLWS); otherwise a spill frequency criterion of 1 spill in 5 bathing seasons will apply. ▪ Normally the incoming flow must exceed that calculated from "Formula A" before the storm water overflow spills unless there are high dilutions available. ▪ Discharge flows are required to be screened to at least 10mm and where the frequency of spill is greater than once per year, 80% of the volume should be screened to at least 6mm. Sensitive areas The 1995 DECLG document on ‘Procedures and Criteria in relation to Storm Water Overflows’ set the requirements for effluent treatment prior to discharge to sensitive areas as a minimum percentage reduction of 80% of total phosphorus and 70-80% of total nitrogen. The volume of overflows as a percentage of rainfall run-off volume to the foul sewer would be a maximum of 20%. Formula A should be considered as the minimum overflow setting in all situations $\text{Formula A} = \text{DWF} + 1.36\text{P} + 2\text{E}$ m³/ day where 'P' is the population served and 'E' is the industrial effluent flow. For sensitive waters, where eutrophication is a potential problem, an overall analysis to limit both the frequency and volume of discharge to the receiving waters is required and can be achieved using Time Series Rainfall in conjunction with a calibrated network model. This can be used to limit the percentage of run-off spilled at the overflow (say 20% max). This will not necessarily ensure that the limit of 2 mg/l P will not be exceeded but will generally be consistent with an 80% reduction target which would be the minimum requirement for treated effluents⁴⁷⁵. <u>Sensitive coastal waters or fresh waters (rivers):</u>

⁴⁷⁴ Link to ‘Procedures and Criteria in relation to Storm Water Overflows’ (DECLG): <http://www.epa.ie/pubs/advice/wastewater/UrbanWasteWater2.pdf>

⁴⁷⁵ Greater Dublin Strategic Drainage Study: Regional Drainage Policies-Volume 3 Environmental Management’, available at <http://www.dublincity.ie/sites/default/files/content/WaterWasteEnvironment/WasteWater/Drainage/GreaterDublinStrategicDrainageStudy/Documents/Vol%203%20-%20Chapter%207%20-%20Intermittent%20Discharges.pdf>.

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- For discharges to sensitive coastal waters or fresh waters classified as clean or with that objective, a higher standard than “Formula A” should be considered with the QUALSOC (mass balance) approach used to set a maximum BOD (Biochemical Oxygen Demand) concentration for normal river low flows.

Rivers:

- Demonstrating compliance with 99%ile standards using a sewer model and a simple mass balance river model is the standard approach adopted. CSOs which spill for less than 1% of the time (i.e. < 88 hours in a year) automatically comply with this water quality standard.
- Demonstrating compliance with fundamental intermittent standards (FIS) requires modelling water quality in sewer systems and rivers and is considerably more complex than using the 99%ile approach. In certain circumstances, however, the FIS approach will lead to cheaper solutions.

Coastal waters:

- In the UK, emission standards are more commonly used than the EQS approach for protecting bathing or shellfish waters. Demonstrating compliance with an emission standard is relatively straightforward and requires only a sewer system model with relevant rainfall data. The EQS approach requires a model of the coastal waters to represent the effects of dilution, dispersion and decay. Where spills from CSOs are directly into shellfish waters or bathing waters, the emission standard approach is normally applied.
- For demonstrating compliance with bathing waters standards, the sewer system model should represent summer conditions. Models verified using winter flow survey data may include higher infiltration than normally occurs in summer. For shellfish waters, all year round compliance is required.
- For bathing waters, the UPM manual states: “Guidance...should be sought to identify agreed interpretations of a spill, in terms of minimum spill size, interspill period and amalgamation of spills from the same or several CSOs.” Recent schemes in the UK have used 50m³ as minimum spill size unless spills are directly into the bathing water in which case 0m³ is used. Several discharges within a 12 hour period are regarded as a single spill. A spill lasting for more than 12 hours is considered as 2 spills, more than 24 hours as 3 spills, and so on.
- A bathing water may be affected by several CSOs, by WwTW storm tank overflows as well as CSOs, or even by CSOs in different catchments. If CSOs are improved in isolation to each meet a 2 spills per bathing season standard, it is possible that the bathing water could be affected on more than two occasions. This is because the rainfall events causing spills for one CSO might not necessarily be the same for another. A judgement on which CSOs should be considered together is normally made on a case by case basis⁴⁷⁶.

Coastal waters and Estuaries:

The UPM indicative impact assessment criteria for storm water overflows to coastal waters and estuaries indicated that:

Low Significance: Estuarial and coastal waters not containing EC identified bathing waters and shellfish waters.

Medium Significance: Population equivalent 2,000-10,000 affects identified bathing waters and shellfish waters only if both criteria apply.

⁴⁷⁶ ibid.

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		High Significance: Population equivalent>10,000 affects identified bathing waters and shellfish waters only if both criteria apply. For coastal discharges the hydraulic network model can be used directly to assess compliance with a spill frequency criterion ⁴⁷⁷ .	
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives			
EU Directive	Direct reference (Y/N)	National provision	Text in MS language
UWWTD	Y	S.I. No. 254/2001 Urban Waste Water Treatment Regulations, 2001 ⁴⁷⁸ 	

⁴⁷⁷ Environmental Protection Agency, ‘Urban Waste Water Treatment Directive (91/271/EEC) Procedures and Criteria in relation to Storm Water Overflows’, available at <http://www.epa.ie/pubs/advice/wastewater/UrbanWasteWater2.pdf>.

⁴⁷⁸ S.I. No.254/2001-Urban Waste Water Treatment Regulations, 2001, available at <http://www.irishstatutebook.ie/2001/en/si/0254.html>.

⁴⁷⁹ Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007), available at <http://www.irishstatutebook.ie/2007/en/si/0684.html>

⁴⁸⁰ ibid

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			important factor in their protection or which is inconsistent with the achievement of environmental quality standards established under national Regulations in relation to designated bathing waters, designated shellfish waters, areas designated for the protection of freshwater fish and areas designated for the abstraction of water intended for human consumption.”
DWD	Y	S.I. No. 684/2007 Waste Water Discharge (Authorisation) Regulations ⁴⁸¹	Purpose of the Regulations Article 2(1) The purpose for which these Regulations are made is to prevent and reduce the pollution of waters by waste water discharges by giving effect to Article 6 of the Dangerous Substances Directive and includes the purpose of implementing the following measures required under the Water Framework Directive— (b) measures required in accordance with the requirements of Article 7(2) and 7(3) of that Directive to ensure the necessary protection of bodies of water used for the abstraction of drinking water; Duties on the Agency Article 6(2) In considering an application by a water services authority, the Agency shall have regard to— (d) the requirement to protect bodies of water used for the abstraction of drinking water, Article 6(3): “The Agency shall not grant an authorisation for a waste water discharge which, in the opinion of the Agency, will- (c) exclude or compromise the achievement of the objectives established for protected species and natural habitats in the case of European sites where the maintenance or improvement of the status of water is an important factor in their protection or which is inconsistent with the achievement of environmental quality standards established under national Regulations in relation to designated bathing waters, designated shellfish waters, areas designated for the protection of freshwater fish and areas designated for the abstraction of water intended for human consumption.”
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives			
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language
UWWTD	Y	1. UWWTD: Procedures and Criteria in relation to Storm Water Overflows ⁴⁸² .	UWWTD: Procedures and Criteria in relation to Storm Water Overflows: 1. Introduction: According to the UWWTD, Member States must decide on measures to limit the pollution from storm water overflows. This paper is intended to assist local authorities and their consulting engineers in the evaluation

⁴⁸¹ ibid

⁴⁸² DECLG ‘Procedures and Criteria in relation to Storm Water Overflows’, available at <http://www.epa.ie/pubs/advice/wastewater/UrbanWasteWater2.pdf>.

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			of requirements for implementation of this aspect of the UWWTD. 2. Directive's Requirements: It requires that collecting systems satisfy the requirements of Annex 1(A), of the Directive which stipulates that "The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding: ▪ volume and characteristics of urban waste water, ▪ prevention of leaks, ▪ the limitation of pollution of receiving waters due to storm water overflows". In a footnote to the above requirements, the Directive recognises that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall. As a result, it requires Member States to decide on measures to limit pollution from storm water overflows and suggests that such measures: (1) could be based on ▪ dilution rates, or ▪ capacity in relation to dry weather flow, or (2) could specify a certain acceptable number of overflows per year. 3.3 Sensitive areas: The requirements for effluent treatment prior to discharge to sensitive areas is for a minimum percentage reduction of 80% of total phosphorus and 70-80% of total nitrogen. It would appear reasonable that a volume reduction in storm sewage spill of this magnitude would be a consistent standard in this area. That is, the volume overflows as a percentage of rainfall run-off volume to the foul sewer would be a maximum of 20%. This will require that a combination of storage and other sewerage improvements be considered to contain 80% of storm water run-off using Time Series Rainfall analysis in the Wallrus models for the contributing catchments. This level of containment (80%) would be a minimum value and should correspond to a proportionately higher percentage containment of nutrients since part of the nutrient load -is carried in suspended solids, retention of which would be maximised in the design of the overflow structures. 4 Assessment Criteria for Existing SWOs requires that a SWO does not: 1. Cause significant visual or aesthetic impact and public complaints, 2. Cause deterioration in water quality in the receiving water, 3. Give rise to failure in meeting the requirements of national Regulations on foot of EU Directives(Bathing Waters, etc) 4. Operate in dry weather. 5. Options following Assessment: The use of storm water storage tanks is increasingly recommended as an alternative to the up-sizing of downstream capacity. 6. Upgrading storm water overflows/New storm water overflows: 6.1 Design Criteria:

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			The general criterion for the future design of storm water overflows is defined as an absence of visible signs of sewage derived debris (e.g. oil slicks, foaming etc.) and of deposits' or algal growths caused by sewage discharge. This requires that the effects of organic/nutrient loads deposited in bed sediments must also be considered. Design criteria for storm water overflows must take into consideration the following: ▪ beneficial uses of receiving waters and corresponding standards and water quality objectives, ▪ the nature and strength of sewage including the effects of re-suspension and "first foul flush" effects which may increase rather than diminish sewage strength 'in the sewer with increasing flow, and policy in relation to industrial discharges to the sewer, ▪ the siting of overflow discharges and their potential for aesthetic nuisance, and ▪ the type of overflow and its efficiency in containing as far as possible floating debris and solids generally, i-e. maximum solids separation. 6.2 Design principles: The main difficulty in relation to setting standards for storm water overflows is the lack of information available on the effects of transient shock loadings on the receiving water and the difficulty of predicting their effects. The minimum setting for storm water overflows has traditionally been six times dry weather flow (6 DWF). Storm overflow structures should be designed in accordance with the WRc publication ER304E acceptable types of overflow structure limited to high side weir, stilling basin and vortex chamber overflows designed to achieve efficient solids separation and retention. 7. Usage of Storage: The use of storm water storage tanks is increasingly recommended as an alternative to the up-sizing of downstream capacity for reducing or eliminating storm water overflows. These tanks can be on-line or off-line and operate on the principle that flows in excess of the downstream capacity can be contained until the storm has sufficiently abated to allow the stored storm water to be returned to the sewer.. The downstream capacity of the system is therefore maximised and overflows are minimised. The tanks are generally sized to contain the overflow that would arise from a storm with a specific return period, the 'design event'. Typically, a storm of one hour duration with a return period of five years is used for a built-up area. Experience has shown that relatively modest storage volumes can appreciably reduce the frequency of overflows. While the reduction in the volume of overflow may not be as significant, overflows from major storm events will be relatively dilute discharges coinciding with relatively high flows in receiving waters. These conclusions are evident from consideration of the pattern of rainfall - occasional extreme events of high intensity and critical duration as compared with the majority of rainfall which tends to be of relatively low intensity. The design of storm water storage tanks to effectively retain floatables and for ease of cleaning out and maintenance is very important. Traditionally, small storm tanks have been circular tanks designed exactly as for settling tanks. Larger storm tanks have tended to be rectangular in shape containing chain driven scraper equipment for cleaning out of settleable solids. A number of methods have now been developed including the "tipping bucket" method to wash out flood deposits at the end of tank use. This system comprises a

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		container fabricated from stainless steel mounted on bearings on the end wall of the tank. The shape of the container is designed so that it automatically tips and empties when full thus flushing the settled deposits on the floor of the tank to the return sump. The number and capacity of tipping buckets required to effectively clean the tank is a function of the dimensions of the tank. 3.2 Bathing Waters: As regards the protection of bathing waters, restricted spill frequency and volume of storm water discharged is required during the bathing season from mid-May to August. The use of Time Series Rainfall for storm events confined to these months allows the determination of frequency and volume of spill using the calibrated hydraulic model of the network. Iterative use of the model with a variety of storage volumes will determine the solution to satisfy the limits adopted. The type of screen used to achieve the requirements should be of the screenings retention type and not of the removal type. That is, the screenings intercepted by the screen should be retained in the sewer system and not removed for separate disposal. This will reduce running and maintenance costs of screening at storm water overflows. Department of the Environment, Heritage and Local Government, 'National Urban Waste Water, Volume 2, Part C, National Guidelines', November 2003: Operation of overflows: The UWWT Directive suggests that storm overflow design may be based on: ▪ dilution rates or capacity in relation to dry weather flow or ▪ a specified number of overflow events per year. Irish national regulations dictate that both spill frequency and volume are restricted as regards the protection of bathing waters whilst screening to prevent the escape of visible debris also requires consideration. The nutrient load is a factor where discharges to sensitive waters are concerned. Performance assessment of existing overflows is based on the visual or aesthetic impact and public complaints, changes in receiving water quality, possible failure to meet the relevant regulations and directives and/or operation under dry weather flow conditions. Frequency of operation or number of overflow events in a specified period is the preferred trigger for corrective action, in the first instance. It can be monitored visually or by means of an electronic counter installed in the overflow and such equipment could also record the duration of spills. This trigger could be enhanced to reflect the aesthetic/environmental sensitivity of receiving waters, noting that SI 254 of 2001 requires the design and maintenance of collecting systems to limit the pollution due to storm overflows. An objective of the Study was to, 'make recommendations as to the appropriate approach to improve the capacity of each scheme by: ▪ Sewer rehabilitation works. ▪ Separation facilities for storm and foul waste water. ▪ Storm water attenuation and disposal.
		2. Department of the Environment, Heritage and Local Government, 'National

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		Urban Waste Water, Volume 2, Part C, National Guidelines’, November 2003⁴⁸³.	A full Drainage Area Study type investigation, leading to the development of a Drainage Area Plan, would be required to make recommendations with respect to: ▪ Sewer rehabilitation works. ▪ Separation facilities for storm and waste water. ▪ Storm attenuation and disposal. Depending on the specific situation, separation facilities for storm and foul waste water may take one of a number of forms. Storm water management options (to reduce surcharge and flooding) are summarised below. ▪ Increase the hydraulic capacity of the sewer route or return the route to its design capacity by means of maintenance activity. ▪ Provide on or off-line storage for excess storm flows – the further upstream the storage can be located to deal with specific flooding and/or surcharge problems, the smaller the required volume and lower the cost. ▪ Reduce storm water inflows by disconnecting surface water connections or reducing the surface run-off rates. This latter approach may involve one of a number of tried and tested 'Sustainable Urban Drainage System' or SUDS options. ▪ • Reduce infiltration through relaying or relining critical sewer lengths from which the majority of the flow originates. Infiltration is commonly very widespread within a sewerage system and eliminating it is unlikely to be an economic option. 3. ‘Guidance on the Preparation and Submission of the Annual Environmental Report (AER) for Waste Water Discharge Licences for 2014’ Section 4.1 ‘Storm water overflow identification and inspection report’ sets out the specific information required to be included in the Annual Environmental Report (AER) submitted by Irish Water to the EPA. The ‘Storm Water Overflow Identification & Inspection Report’ findings should be summarised in the AER and reviewed every three years thereafter. The report should detail progress at achieving compliance with criteria. Additional Storm Water Overflow and/or changes to Schedule A3: Discharges to be discontinued or, Schedule C: Specified Improvement Programme, including compliance dates, must be notified to the EPA. Irish Water is requested to provide the following information for all storm water overflows in each agglomeration regardless of whether the SWO Identification & Inspection Report is required: <table><tr><td>WWDL Name / Code for Storm Water Overflow</td></tr><tr><td>Irish Grid Ref.</td></tr></table>	WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.
WWDL Name / Code for Storm Water Overflow					
Irish Grid Ref.					

⁴⁸³Department of the Environment, Heritage and Local Government, 'National Urban Waste Water Study Volume 2, Part C, National Guidelines', November 2003, available at <http://www.environ.ie/en/Publications/Environment/Water/FileDownload,1537,en.pdf>.

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			<table><tr><td>Included in Schedule A4 of the WWDL</td></tr><tr><td>Significance of the overflow (High / Medium / Low)</td></tr><tr><td>Compliance with DoEHLG Criteria</td></tr><tr><td>No. of times activated in 2014. (No. of events)</td></tr><tr><td>Total volume discharged in 2014 (m3)</td></tr><tr><td>Total volume discharged in 2014 (P.E.)</td></tr><tr><td>Estimated /Measured data</td></tr></table>	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2014. (No. of events)	Total volume discharged in 2014 (m3)	Total volume discharged in 2014 (P.E.)	Estimated /Measured data					
Included in Schedule A4 of the WWDL															
Significance of the overflow (High / Medium / Low)															
Compliance with DoEHLG Criteria															
No. of times activated in 2014. (No. of events)															
Total volume discharged in 2014 (m3)															
Total volume discharged in 2014 (P.E.)															
Estimated /Measured data															
		3. ‘Guidance on the Preparation and Submission of the Annual Environmental Report (AER) for Waste Water Discharge Licences for 2014’,⁴⁸⁴	The preferred format for the ‘SWO Identification and Inspection Summary Report’ is as follows: <table><tr><td>How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?</td><td></td></tr><tr><td>How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?</td><td></td></tr><tr><td>What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2014?</td><td>List the % of load generated that does not enter the WWTP</td></tr><tr><td>Is each SWO identified as non-compliant with <u>DoEHLG Guidance</u> included in the Programme of Improvements?</td><td>Yes/No List the relevant Section of the Programme of Improvements</td></tr><tr><td>The SWO assessment includes the requirements of Schedule A3 & C3</td><td>List the relevant section of the SWO Report</td></tr><tr><td>Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?</td><td>Yes/No Provide details where relevant</td></tr></table>	How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?		How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?		What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2014?	List the % of load generated that does not enter the WWTP	Is each SWO identified as non-compliant with <u>DoEHLG Guidance</u> included in the Programme of Improvements?	Yes/No List the relevant Section of the Programme of Improvements	The SWO assessment includes the requirements of Schedule A3 & C3	List the relevant section of the SWO Report	Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	Yes/No Provide details where relevant
How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?															
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?															
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2014?	List the % of load generated that does not enter the WWTP														
Is each SWO identified as non-compliant with <u>DoEHLG Guidance</u> included in the Programme of Improvements?	Yes/No List the relevant Section of the Programme of Improvements														
The SWO assessment includes the requirements of Schedule A3 & C3	List the relevant section of the SWO Report														
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	Yes/No Provide details where relevant														
			Section 4.2 ‘Report on progress made and proposals being developed to meet the improvement												

⁴⁸⁴ ‘Guidance on the Preparation and Submission of the Annual Environmental Report (AER) for Waste Water Discharge Licences for 2014’ , available at <http://www.epa.ie/pubs/advice/wastewater/aerguidance2014.html#.VWRgotKqpBc>

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			programme requirements’. Condition 5 of the licence requires the licensee to prepare and implement an Improvement Programme to maximise the effectiveness and efficiency of the works as specified in Condition 5.1. The Improvement Programme must be prepared for inclusion in the second AER and reviewed every three years thereafter. A summary of the Improvement Programme report must be included in the 2nd AER and reviewed every 3 years. The Improvement Programme report must address the Specified Improvement Programmes as detailed in Schedules A3 and C of the WWDL. It should also catalogue other improvements identified through assessments required under the licence The EPA will track improvements specified by waste water discharge licenses. Each specific improvement required under the license should be reported on in the AER. Irish Water’s Improvement Programme must include consideration of the requirements of: • Condition 5.2.3 for Secondary Discharges (including Emergency Overflows) • Condition 5.2.4 for Storm Water Overflows, The preferred format for the ‘Specified Improvement Programme (Schedule A and C) Summary Report’, to be submitted annually is as follows: <table><tr><td>Specified Improvement Programmes (under Schedule A and C of WWDL)</td></tr><tr><td>Licence Schedule (A or C)</td></tr><tr><td>Licence Completion Date</td></tr><tr><td>Date Expired? (N/NA/Y)</td></tr><tr><td>Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed;)</td></tr><tr><td>% Construction Work Completed</td></tr><tr><td>Irish Water Timeframe for Completing the Work</td></tr><tr><td>Comments</td></tr></table>	Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed;)	% Construction Work Completed	Irish Water Timeframe for Completing the Work	Comments
Specified Improvement Programmes (under Schedule A and C of WWDL)											
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Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed;)											
% Construction Work Completed											
Irish Water Timeframe for Completing the Work											
Comments											
WFD	N										
MSFD	N										
BWD	N										

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DWD	N		
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>			
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language
OSPAR	N		
HELCOM	N/A		
Barcelona Convention	N/A		
Conv. on the Protection of the Black Sea	N/A		
Danube Convention	N/A		
Rhine Convention	N/A		
Oder Convention	N/A		
Elbe Convention	N/A		
Conv. Transboundary Watercourses and International Lakes	N		
<i>Other direct references to storm water overflows</i>			
Type of document	Title of document		Summary description
Guidance (regional level)	Greater Dublin Strategic Drainage Study (GSDSDS): Regional Drainage Policies-Volume 3 ⁴⁸⁵		The Greater Dublin Strategic Drainage Study (GSDSDS)⁴⁸⁶ was commissioned in June 2001 to carry out a strategic analysis of the existing foul and surface water systems in the local authority areas of Dublin City, Fingal, South Dublin, Dun Laoghaire-Rathdown and the adjacent catchments in Counties Meath, Kildare and Wicklow. The objectives of the Study were to identify policies, strategies and projects for the development of a sustainable drainage system for the Greater Dublin Region. One outcome of the study was to provide suggested design criteria for storm water overflows.

⁴⁸⁵ 'Greater Dublin Strategic Drainage Study (GSDSDS): Regional Drainage Policies - Volume 3 Environmental Management', available at [http://www.dublincity.ie/sites/default/files/content/WaterWaste](http://www.dublincity.ie/sites/default/files/content/WaterWaste%20-%20Intermittent%20Discharges.pdf) Environment/WasteWater/Drainage/GreaterDublinStrategicDrainageStudy/Documents/Vol%203%20-%20Chapter%207%20-%20Intermittent%20Discharges.pdf.

⁴⁸⁶ Link to Technical Paper outlining the GSDSDS: <https://www.engineersireland.ie/EngineersIreland/media/SiteMedia/groups/societies/water-enviro/Greater-Dublin-Strategic-Drainage-Study.pdf?ext=.pdf>

Overview of legal and policy framework. Relevant references to storm water overflows.

		The criteria are reproduced as follows: ▪ Selection of appropriate spill locations and general rationalisation of the high number of existing overflows in order to discharge to receiving waters of adequate capacity (i.e. excluding small streams); ▪ Consideration of the maximum downstream hydraulic capacity in the sewer system and how this can best be exploited during storm conditions; ▪ The efficient design of each CSO to ensure hydraulic control and the maximum separation of gross polluting matters; ▪ Normally a continuing flow equivalent to Formula A is recommended with particular consideration to containment of high strength industrial wastes where these are discharged to the sewer. This requirement might be modified for very high dilutions where there is no adverse environmental impact; ▪ For discharge to bathing waters or water contact/recreational use waters, a restricted spill frequency during the bathing season should apply based on analysis using time series rainfall or other equivalent approach (once per season or three spills per season, as appropriate), unless it can be shown that the design will achieve the water quality standards of the Bathing Water Directive for at least 98.2% of the time; ▪ In general, consideration is required to be given to the containment of the “first foul flush” discharges, particularly to sensitive waters using a critical rainfall approach and time of concentration calculation or other modelling approach; ▪ For discharges to sensitive coastal waters or fresh waters classified as clean or with that objective, a higher standard than “Formula A” should be considered with the QUALSOC (mass balance) approach used to set a maximum BOD concentration for normal river low flows; ▪ For sensitive waters, where eutrophication is a potential problem, an overall analysis to limit both the frequency and volume of discharge to the receiving waters is required and can be achieved using Time Series Rainfall in conjunction with a calibrated network model. This can be used to limit the percentage of run-off spilled at the overflow (say 20% max). This will not necessarily ensure that the limit of 2 mg/l P will not be exceeded but will generally be consistent with an 80% reduction target which would be the minimum requirement for treated effluents.
Guidance (national level)	Environmental Protection Agency, ‘Waste Water Treatment Manuals: Preliminary Treatment’ ⁴⁸⁷	This manual on Preliminary Treatment sets out the general principles and practices which should be followed by those involved in the treatment of wastewater. It provides criteria and procedures for the proper management, maintenance, supervision, operation and use of the processes and equipment required in the preliminary treatment of wastewater. It provides information about storm water in sewage systems: combined systems, partially separate and separate systems. It also provides information on the storm water overflow setting, detailed guidelines for design criteria of the storm overflow structures and information on

⁴⁸⁷Environmental Protection Agency, ‘Wastewater Treatment Manuals: Preliminary Treatment’, 1995, available at https://www.epa.ie/pubs/advice/water/wastewater/EPA_water_treatment_manual_preliminary.pdf.

Overview of legal and policy framework. Relevant references to storm water overflows.		
		storm flow balancing. Recommended overflow structures include high side weir, stilling pod and vortex overflows. It is recommended that storm flow balancing can be achieved by a variety of methods including the following: - in-line storage upstream of the overflow by means of a tank sewer or large diameter sewer in which the flows are backed up before discharge. Such systems have the benefit of automatic operation. Even though fitted with DWF channels, there is a tendency for retention of settled deposits on benching when storm flows have receded, which may result in substantial maintenance; - horizontal rectangular tank with sloping floor and either pumped or gravity facilities for the return flow. Traditionally, such tanks provided for separate sludge draw off, but a modern system would ideally incorporate facilities for resuspension of sediments to avoid separate sludge handling facilities. Tanks would be subdivided into a number of cells; and - circular radial flow tank with sloping conical floor and central sump fitted with scraper mechanism (similar to primary sedimentation tank).
Guidance (national level)	Environmental Protection Agency, 'Guidance on the setting of trigger values for storm water discharges to off-site surface waters at EPA, IPPC and Waste Licensed Facilities' ⁴⁸⁸	Integrated Pollution Control (IPC)/waste licences issued by the Agency require an agreement between the licensee and the Agency on trigger levels of storm water discharges to off-site surface areas. This document provides guidelines on setting trigger levels for storm water discharges to off-site surface waters at EPA, IPC and Waste Licensed Facilities.
Policy document (national level)	<i>River Basin Management Plans:</i> Eastern River Basin District Programmes of Measures 2009-2015⁴⁸⁹ Neagh Bann International River Basin Management Plan (2009-2015)⁴⁹⁰	Eastern River Basin District Programmes of Measures 2009-2015⁴⁹¹: Storm water collection discharges are not currently regulated. Reference is made to combined sewer system overflow (CSOs) but not to storm water overflows. Neagh Bann International River Basin Management Plan (2009-2015)⁴⁹²: There are several categories of urban agglomerations where waste water treatment facilities are to be subject to a range of follow up actions. One of these being agglomerations requiring investigation of Combined Storm Overflows (CSOs). In these cases, the discharge standards for the waste water treatment plant were acceptable, but observed impacts on the receiving waters suggested that untreated waste water discharges were occurring. The measure is to investigate all suspect CSOs. In cases where the investigation identifies maintenance or management issues, they can be readily addressed and may result in early recovery of

⁴⁸⁸Environmental Protection Agency, 'Guidance on the setting of trigger values for storm water discharges to off-site surface waters at EPA IPPC and waste licensed facilities', 7 September 2012, available at <http://www.epa.ie/pubs/advice/licensee/Licensee%20Guidance%20on%20the%20setting%20of%20trigger%20values%20-%20Final%20.pdf>.

⁴⁸⁹Eastern River Basin District, 'Programmes of Measures 2009-2015', available at http://www.wfdireland.ie/docs/1_River%20Basin%20Management%20Plans%202009%20-%202015/ERBD%20RBMP%202010/Programmes%20of%20Measures.pdf.

⁴⁹⁰Neagh Bann International River Basin District, 'Neagh Bann International River Basin Management Plan (2009-2015)', available at http://www.wfdireland.ie/docs/1_River%20Basin%20Management%20Plans%202009%20-%202015/NBIRBD%20RBMP%202010/NBIRBD%20RBMP%202009-2015.pdf.

⁴⁹¹Eastern River Basin District, 'Programmes of Measures 2009-2015', available at http://www.wfdireland.ie/docs/1_River%20Basin%20Management%20Plans%202009%20-%202015/ERBD%20RBMP%202010/Programmes%20of%20Measures.pdf.

⁴⁹²Neagh Bann International River Basin District, 'Neagh Bann International River Basin Management Plan (2009-2015)', available at http://www.wfdireland.ie/docs/1_River%20Basin%20Management%20Plans%202009%20-%202015/NBIRBD%20RBMP%202010/NBIRBD%20RBMP%202009-2015.pdf.

Overview of legal and policy framework. Relevant references to storm water overflows.

		receiving waters. However as the result of the investigation cannot be predicted at this time, and the time scale for any identified capital works is unknown, works are unlikely be in place before the end of the first planning cycle⁴⁹³. While implementation of the first cycle River Basin Management Plans is on-going, preparations are now underway to deliver updated plans (2015-2021). Preparation of the updated plans has been delayed due to the significant reform of the water sector currently underway and briefly described below. This delay means that the updated plans will be delivered in the second half of 2017 instead of by the stipulated target of December 2015⁴⁹⁴.

⁴⁹³ *ibid.*

⁴⁹⁴ DECLG 'Timetable and Work Programme for the Development of the Second Cycle River Basin Management Plans: Consultation Document', 31 July 2014, available at: http://www.google.be/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CB8QFjAA&url=http%3A%2F%2Fwww.environ.ie%2Fen%2FPublications%2FEnvironment%2FWater%2FFileDownload%2C38703%2Cen.docx&ei=N2ZTVZ3_Euee7gbv3IG4Ag&usq=AFQjCNHz8WKc1U4fVX3NUzcC4rD38WqFWQ&bvm=bv.93112503,d.ZGU.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
61. Which types of sewer system does Ireland have?	In Ireland there are three types of sewer systems: ▪ combined systems: A large proportion of Ireland's urban sewer networks function as combined systems carrying both wastewater and surface water runoff from impermeable hard-standings (e.g. roads, pavements, roofs of buildings, car parks)⁴⁹⁵. It is the traditional system where all foul and storm flows discharge to a common pipe network. In this system, sewage flows can increase dramatically following rainfall with peak flows of up to 30 times the average flow (DWF)⁴⁹⁶. ▪ partially separate: These were used during the 1960's and early 1970's. The partially separate system involves draining the storm run-off from the backs of houses and the rear footpaths to the foul system with a separate storm drainage network in the roads to take road and front of house run-off⁴⁹⁷. ▪ separate system: In this system, a dedicated foul sewer is provided for foul flows only, with all storm run-off directed to the separate storm sewers. In all systems, a degree of misconnection occurs and some storm runoff inevitably discharges to the foul system. Typically, 5-10m² per house is connected to the foul sewer, even in nominally separate systems, producing peak flows of 4-5 times DWF⁴⁹⁸.
62. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	No such information has been obtained from desk research. However, as noted above, the combined systems' sewage flows can increase dramatically following rainfall with peak flows of up to 30 times the average flow (DWF)⁴⁹⁹. With the separate system, typically, 5-10m² per house is connected to the foul sewer, even in nominally separate systems, producing peak flows of 4-5 times DWF⁵⁰⁰. Irish Water is responsible for 509 agglomerations serving populations of between 500 and 1.7 million and 560 agglomerations for less than 500⁵⁰¹. From consultation with the Department of the Environment, Community and Local Government, it was found that there are 1,069 waste water agglomerations (around 60% of all waste water agglomerations have been captured in the Geographical Information System (GIS)-the remainder were not held in a digital format (i.e. only paper records or no records are available)⁵⁰². Around 50% of the total number of estimated manholes/sewers for all agglomerations have been captured in the GIS. The captured sewer lengths are detailed in Table 1 below (i.e. estimated 50% of all sewers). On this basis, the total estimated length of sewers is 31,000 km⁵⁰³.

⁴⁹⁵ Irish Water, 'Chapter 5 Objective: Provide Effective Management of Wastewater', available at <http://www.water.ie/docs/WSSP%20-%20Wastewater.pdf>.

⁴⁹⁶ Environmental Protection Agency, 'Wastewater Treatment Manuals: Preliminary Treatment', 1995, available at https://www.epa.ie/pubs/advice/water/wastewater/EPA_water_treatment_manual_preliminary.pdf.

⁴⁹⁷ *ibid.*

⁴⁹⁸ *ibid.*

⁴⁹⁹ *ibid.*

⁵⁰⁰ *ibid.*

⁵⁰¹ North Western International River Basin District, 'Water matters 'have your say!''', available at <http://www.doeni.gov.uk/nica/northwesternriverbasindistrictbooklet.pdf>.

⁵⁰² Information obtained through consultation with a stakeholder (Department of the Environment, Community and Local Government, May 2015).

⁵⁰³ *ibid.*

Available data on storm water overflows		
	Table 1 – Captured sewer lengths⁵⁰⁴	
	Sewer Type	Length (km)
		Proportion (%)
	Combined	2,477
	Foul	6,842
	Overflow	55
	Surface	5,034
63. How many storm water overflows infrastructures exist in Ireland?	Unknown	1,238
	Total	15,646
		100.0%
	No such information has been obtained from desk research. From consultation with the Department of the Environment, Community and Local Government, it was found that for the purposes of this report, storm water overflows are taken to include the following:	
	i. Combined sewer overflows from combined / partially separate sewers discharging into receiving waters;	
	ii. Combined sewer overflows from combined / partially separate sewers discharging into separate storm water sewers;	
	iii. Emergency overflows from combined / partially combined pumping stations; and,	
	iv. Storm water overflows at waste water treatment plants (“secondary discharges”) ⁵⁰⁵ .	
	Irish Water continue to compile and collate existing information on storm water overflows. Substantial data collection of the sewer networks has commenced and will continue on a planned and prioritised basis ⁵⁰⁶ .	
	At present, it is estimated that there are 1,900 storm water overflows ⁵⁰⁷ .	
	<i>Available quantitative data on the occurrence of storm water overflows</i>	
64. Is there information on the occurrence of storm water overflows?	No such information has been obtained from desk research. From consultation with the Department of the Environment, Community and Local Government, it was found that at present, the best available information on the occurrence of storm water overflows is the Annual Environmental Reports (AERs) for 2013, that are submitted under the Waste Water Discharge (Authorisation) Regulations 2007, for licensed waste water agglomerations (i.e. those greater than or equal to 500 population equivalent (p.e.)) ⁵⁰⁸ . Relevant information is as follows:	
	- There are a total of 1,069 waste water agglomerations. 509 no. agglomerations are either licensed or due to be licensed; the remainder (or less than 500 p.e. size) are certified or due to be certified; - Of the 279 no. completed AERs, 258 no. reported on storm water overflows. For the 258 agglomerations, which include the larger agglomerations in the country, 1,042 no. storm water overflows were reported on; 276 of the 1,042 no. storm water overflows were reported to have spilled on at least one occasion;	

⁵⁰⁴ *ibid.*

⁵⁰⁵ *ibid.*

⁵⁰⁶ *ibid.*

⁵⁰⁷ *ibid.*

⁵⁰⁸ *ibid.*

Available data on storm water overflows	
	23 of the 1,042 no. storm water overflows reported measured flows, with spill percentage compared to the total volume of collected waste water ranging from 1% to 14%; - The remainder of storm water overflows gave estimated spill frequency and in some cases spill volume estimates⁵⁰⁹.
65. Are storm water overflows monitored in Ireland? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	According to Article 10 of S.I. No. 254/2001 Urban Waste Water Treatment Regulations, 2001⁵¹⁰ a sanitary authority shall carry out, cause to be carried out, or arrange for, the monitoring of: (a) discharges from urban waste water treatment plants in accordance with the procedures set out in the Fifth Schedule in order to verify compliance with the requirements of these Regulations, as appropriate, and (b) waters subject to discharge from an urban waste water treatment plant where it can be expected that the receiving waters will be significantly affected. (2) the results of monitoring carried out under this article shall be transmitted to the Agency in such manner and at such times as the Agency shall direct. According to the Fifth Schedule: Reference methods for monitoring and evaluation of results: - Sanitary authorities shall ensure that a monitoring method is applied which corresponds at least with the level of requirements described below. Alternative methods to those mentioned in paragraphs 2, 3 and 4 may be used provided that it can be demonstrated that equivalent results are obtained. - Flow-proportional or time-based 24-hour samples shall be collected at the same well-defined point in the outlet and if necessary in the inlet of the treatment plant, in order to monitor compliance with the requirements for discharged waste water specified in these Regulations. Good international laboratory practices aiming at minimising the degradation of samples between collection and analysis shall be applied. - The minimum annual number of samples shall be determined according to the size of the treatment plant and be collected at regular intervals during the year: 2,000 to 9,999 p.e.: 12 samples during the first year: four samples in subsequent years, if it can be shown that the water during the first year complies with the provisions of these Regulations; if one sample of the four fails, 12 samples must be taken in the year that follows. 10,000 to 49,999 p.e.: 12 samples 50,000 p.e. or over: 24 samples. - The treated waste water shall be assumed to conform to the relevant parameters if, for each relevant parameter considered individually, samples of the water show that it complies with the relevant parametric value in the following way: (a) for the parameters specified in Part 1 of the Second Schedule, a maximum number of samples which are allowed to fail the requirements, expressed in concentrations and/or percentage reductions in Part 1 of the Second Schedule, is set out in the Table to this Schedule; (b) for the parameters in Part 1 of the Second Schedule expressed in concentrations, the failing samples taken under normal operating conditions must not deviate from the parametric values by more than 100% but, for the parametric value in concentration relating to total suspended solids, deviations of up to 150% may be accepted; (c) for those parameters specified in Part 2 of the Second Schedule the annual mean of the samples for each parameter shall conform to the

⁵⁰⁹ *ibid.*

⁵¹⁰ S.I. No. 254/2001- Urban Waste Water Treatment Regulations, 2001, available at <http://www.irishstatutebook.ie/2001/en/si/0254.html>.

Available data on storm water overflows

relevant parametric values.

5. Extreme values for the water quality in question shall not be taken into consideration when they are the result of unusual situations such as those due to heavy rain. The Annual Environmental Reports (AER) for 2013 and 2014 for the waste water discharge licences (for plants with population equivalent greater than or equal to 500) include a requirement to report on the no of storm water overflow activations and the volume discharged. The reporting allows for both measured and estimated data to be reported. However, the quality of this data can be poor as, in many cases, it is estimated or not reported at all.

In addition, the EPA has monitoring and inspection obligations with regard to the environment, including the use of waters and management of waste water systems.

The EPA sampling and audit programme for waste water discharge licences included an assessment of storm water overflow / network performance in circa 20 audits during 2014. The authorisation holder is required to address any deficiencies identified during these assessments.

The second Annual Environmental Report for each waste water works should include an assessment of storm water overflows. The EPA report that this assessment was omitted from approximately one third of the reports where it was required. In some reports where an assessment of storm water overflows was provided, the AER did not include an adequate evaluation of compliance with the required criteria for such overflows⁵¹¹.

⁵¹¹Environmental Protection Agency, 'Focus on Urban Waste Water Discharges in Ireland', February 2012, available at https://www.epa.ie/pubs/reports/water/wastewater/uww/UWW_Report.pdf.

FACTSHEET FOR ITALY⁵¹²

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
92. What are the competent authorities for waste water treatment and management in Italy?	The governance framework for waste water treatment and management, as well as for water management more generally, appears to be fragmented. The following summarises the current situation. <i>Background</i> Waste water treatment and management are part of the <i>servizio idrico integrato</i> (SII – integrated water service).⁵¹³ This SII is organised on the basis of <i>ambiti territoriali ottimali</i> (ATO – optimal geographical areas) established by the regions.⁵¹⁴ The regions also identify the governing body of the ATO (<i>ente di governo dell'ambito</i>⁵¹⁵), in which local governments such as municipalities and provinces are required to participate⁵¹⁶ (four regions, however, have not yet implemented the new institutional framework⁵¹⁷). Thus, the relevant governing body varies from region to region. For example, according to a regional law adopted in 2010, in the region of Lombardy there are 13 ATOs, governed by the provinces and the municipality of Milan. In Lazio, a regional law of 2014 foresees that ATOs will be replaced by river basins and the governing body will be the river basin authority.⁵¹⁸ <i>Permitting</i> Regions are also competent to lay down the regime for the authorisation of discharges⁵¹⁹ from sewage systems, whether or not equipped

⁵¹² For the purposes of this study, the following experts were interviewed: Nicola Bazzurro and Claudia Lasagna of IREN (a listed multi-utility company which operates in the sectors of electricity, district heating, gas, water services, environmental services and services for the local authorities) and Ettore Sassi, a chemist and independent consultant with experience as a director in a regional environment protection authority.

⁵¹³ Article 141(2) of the Environment Code.

⁵¹⁴ Article 147(1) of the Environment Code.

⁵¹⁵ The *ente di governo dell'ambito* is defined by Article 74(1)(q) of the Environment Code as 'the form of cooperation between municipalities and provinces for the organisation of the integrated water system'. Pursuant to Decree-Law 25 January 2010, No 2, converted into Law 26 March 2010, No 42, the *enti di governo dell'ambito* replaced the *autorità d'ambito territoriale ottimale* with effect from 31 December 2012.

⁵¹⁶ Article 147(1) of the Environment Code.

⁵¹⁷ AEEGSI, *Relazione annuale sullo stato dei servizi e sull'attività svolta: Volume I Stato dei servizi*, 2014, p. 226, at http://www.autorita.energia.it/allegati/relaz_ann/14/RAVolumeI_2014.pdf

⁵¹⁸ AEEGSI, *Relazione annuale sullo stato dei servizi e sull'attività svolta: Volume I Stato dei servizi*, 2014, pp. 226-228, at http://www.autorita.energia.it/allegati/relaz_ann/14/RAVolumeI_2014.pdf

⁵¹⁹ A discharge (*scarico*) is defined in Article 74(1)(ff) of the Environment Code as 'any introduction carried out exclusively through a stable collecting system that links without interruption the waste water production cycle with the receiving water body on the surface, soil, under soil and in the collecting system, regardless of their polluting nature, including [where they have] undergone prior purification treatment [...]'.

Basic information	
	of urban waste water treatment plants.⁵²⁰ Unless regions have provided otherwise, the discharge permit is granted by the provinces or, if the discharge is from the public collecting system, by the governing body of the ATO.⁵²¹ This also applies to discharges from waste water treatment plants into receiving water bodies. <i>Monitoring</i> The authorities competent on the monitoring of discharges are the provinces.⁵²² In addition to controls by the provinces, the SII operator must organise adequate self-controls of discharges in public collecting systems in accordance with the requirements of the concession.⁵²³ This obligation is understood as including the requirement for an adequate system of data monitoring and transmission to the province.⁵²⁴ <i>AEEGSI</i> There is an independent authority that operates in the field of water⁵²⁵ (as well as electricity and gas): the <i>Autorità per l'energia elettrica il gas e il sistema idrico (AEEGSI)</i>.⁵²⁶ The AEEGSI has several competences in the water sector: regulatory (e.g. on tariffs and access), monitoring, enforcement, advice to the Government and Parliament, data gathering and elaboration.⁵²⁷
93. What is the transposing law(s) of the UWWTD in Italy?	The main measure adopted to transpose Council Directive 91/271/EEC into the legal order of Italy was Legislative Decree 11 May 1999, No 152 (O.J. 29 May 1999, No 124, Ordinary Supplement No 101) <i>Decreto Legislativo 11 maggio 1999, n. 152</i> (GU n.124 del 29-5-1999 - Suppl. Ordinario n. 101). The Legislative Decree has since been repealed. At present, the national provisions transposing Council Directive 91/271/EEC, as well as Directive 98/15/EC, are laid down in Legislative Decree 3 April 2006, No 152 (O.J. 14 April 2006, No 88, Ordinary Supplement No 96) <i>Decreto Legislativo 3 aprile 2006, n. 152</i> (GU n.88 del 14-4-2006 - Suppl. Ordinario n. 96) – the so-called Environment Code. In particular, Section II of the Third Part of the Environment Code ('Protection of water from pollution', Articles from 73 to 140) are relevant. Directive 2013/64/UE does not appear to have been transposed yet. National laws are available, in the original as well as consolidated versions, at the website http://www.normattiva.it/. The Official Journal can be consulted at http://www.gazzettaufficiale.it/
94. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD is transposed by Article 100 of the Environment Code, which reads as follows: Original Translation

⁵²⁰ Article 124(3) of the Environment Code.

⁵²¹ Article 124(7) of the Environment Code.

⁵²² Article 128(1) of the Environment Code, read in conjunction with Article 19(1)(g) of Legislative Decree 18 August 2000, No 267.

⁵²³ Article 128(2) of the Environment Code.

⁵²⁴ Guccione P., *La tutela delle acque*, in AA.VV., *Manuale Ambiente 2012*, 2012, p. 157.

⁵²⁵ Following Article 21(19) of Decree-Law 6 December 2011, No 201, converted with amendments into Law 22 December 2011, No 214.

⁵²⁶ <http://www.autorita.energia.it/it/index.htm>.

⁵²⁷ Article 3(1) of the Decree of the President of the Council of Ministers of 20 July 2012, at www.gazzettaufficiale.it/eli/id/2012/10/03/12A10321/sg

Basic information		
	ART. 100 (reti fognarie)	ART. 100 (collecting systems)
	1. Gli agglomerati con un numero di abitanti equivalenti superiore a 2.000 devono essere provvisti di reti fognarie per le acque reflue urbane. 2. La progettazione, la costruzione e la manutenzione delle reti fognarie si effettuano adottando le migliori tecniche disponibili e che comportino costi economicamente ammissibili, tenendo conto, in particolare: a) della portata media, del volume annuo e delle caratteristiche delle acque reflue urbane; b) della prevenzione di eventuali fenomeni di rigurgito che comportino la fuoriuscita delle acque reflue dalle sezioni fognarie; c) della limitazione dell'inquinamento dei ricettori, causato da tracimazioni originate da particolari eventi meteorici. 3. Per insediamenti, installazioni o edifici isolati che producono acque reflue domestiche, le regioni individuano sistemi individuali o altri sistemi pubblici o privati adeguati che raggiungano lo stesso livello di protezione ambientale, indicando i tempi di adeguamento degli scarichi a detti sistemi. The first subparagraph of Section A of Annex I to the UWWTD provides that '[c]ollecting systems shall take into account waste water treatment requirements'. This is not expressly stated in Article 100 of the Environment Code, which requires built up areas to have collecting systems for urban waste water. This requirement is limited to areas with 2,000 or more inhabitants. The second subparagraph of Article 100 transposes the second subparagraph of Section A almost literally. The only differences are that the national provision adds the adjective 'available' to the reference to 'the best technical knowledge' and replaces the condition 'not entailing excessive costs' with 'entailing economically admissible costs'. Point (a) of Article 100 transposes the first indent of Section A almost literally. The only differences are the added reference to 'the average flow' and the reference to the 'annual' volume of urban waste water. Point (b) of Article 100 is more specific than the second indent of Section A. While the former narrowly refers to leaks from flow back, the latter refers more generally refers to leaks – whatever their cause is.	1. Built up areas with a number of inhabitants equal to or greater than 2,000 shall have collecting systems for urban waste water. 2. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge available entailing economically admissible costs, notably regarding: a) of the average flow, of the annual volume and of the characteristics of urban waste water; b) of the prevention of possible back flow phenomena that result in the leaking of waste water from collecting systems' sections; c) of the limitation of pollution of receiving waters due to overflows caused by particular weather events. 3. For isolated villages, installations or buildings that produce domestic waste water, the regions shall identify appropriate individual systems or other public or private systems that achieve the same level of environmental protection, indicating the time periods for adapting discharges to said systems.

Basic information	
	Point (c) of Article 100 uses a slightly different terminology from that employed by the third indent of Section A. This difference does not however appear to affect the meaning of the provision, and should not therefore raise any problem of conformity.⁵²⁸ The third subparagraph of Article 100 concerns isolated villages, installations or buildings. It is not relevant for the transposition of Section A and is reported only for completeness.
95. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	The footnote does not appear to have been transposed in national legislation. Relevant competences belong to regions. See section 2, under the heading ‘Other direct references to storm water overflows’, examples of regional provisions expressly referring to storm water overflows and some measures referred to in the footnote.
96. What is the terminology used to refer to storm water overflows in Italy? Is there more than one term used?	The term ‘overflow’ is translated into <i>tracimazione</i> (pl. <i>tracimazioni</i>) in Article 100 of the Environment Code, which, as reported above, transposes Section A of Annex I to the UWWTD. However, this is one of only two cases in which that term is used in the Environment Code (the other one being an element in a table setting out a list of useful information for a monitoring site). The word is also used in case law⁵²⁹ and in the literature.⁵³⁰ In general, there seems to be uncertainty on the legal qualification of overflows in general (whether or not from storm water). The uncertainty is between the categories of ‘discharge’ and of ‘liquid waste’, with consequent uncertainty about the legal treatment applicable to each case: water legislation in the former case, waste legislation in the latter. It may also be useful to report that, in Italian, the weir wall is called <i>scolmatore di piena</i> or <i>scaricatore di piena</i> or <i>sforatore di piena</i>.
97. Is there a definition of storm water overflow in Italy?	No such definition has been found.
98. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Italy have a definition of extreme or unusual rainfall event?	No such definition has been found in the law. The literature uses the IPCC definition of extreme weather event, whereby a weather event is considered as extreme where it is far from the central value of the distribution for the variable considered and close to the most extreme values of that distribution,⁵³¹ as well as the indices elaborated by the Expert Team on Climate Change Detection and Indices (ETCCDI) of the CCL/CLIVAR Working Group on Climate Change Detection.⁵³²

⁵²⁸ Note, however, that Article 183(1)(n) of the Environment Code provides that ‘[...] The actions of collection, gathering, sorting and deposit in view of the collection of materials or natural substances deriving from atmospheric or weather events, including coastal storms and overflows, even where mixed with other materials of human origin carried out, in the time period strictly necessary, at the same site at which those events deposited them, shall not constitute waste management activities’. This provision seems to be in direct contrast with the judgement of the Court of Justice in case C-252/05, *The Queen on the application of Thames Water Utilities Ltd v South East London Division, Bromley Magistrates' Court (District Judge Carr)* [2007] ECR I-3883.

⁵²⁹ See, for example, Court of Cassation, judgment of 15 March 2005, No 16274.

⁵³⁰ See, for example, Balossi M.V. and Sassi E., *La gestione degli scarichi: Aspetti giuridici e tecnici*, 2011.

⁵³¹ See, for example, Fioravanti G. (ISPRA), *Analisi statistica degli estremi di precipitazione in Italia*, 2014, at <http://www.isprambiente.gov.it/it/pubblicazioni/stato-dellambiente/analisi-statistica-degli-estremi-di-precipitazione-in-italia>.

⁵³² See, for example, Fioravanti G. et al. (ISPRA), *Variazioni e tendenze degli estremi di temperatura e precipitazione in Italia*, 2013, at <http://www.isprambiente.gov.it/it/pubblicazioni/stato-dellambiente/variazioni-e-tendenze-degli-estremi-di-temperatura-e-precipitazione-in-italia>.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
27. Does a policy, practice or legal framework exist in Italy to control or limit storm water overflows?	At national level, no such measure was found, other than Article 100 of the Environment Code (reported in section I, point 3 above). The following provisions of the Environment Code are also relevant: - Article 103 generally prohibits discharges in the soil, except for, inter alia, water from weir walls in collecting systems⁵³³ and rainwater from separate collecting systems.⁵³⁴ - Article 113 of the Environment Code provides that rainwater (<i>acque meteoriche di dilavamento</i>) is not subject to rules concerning discharges and the protection of water against pollution.⁵³⁵ However, under the Environment Code, regions are competent to regulate the monitoring and, where appropriate, the discharge of rainwater collected through separate collecting systems.⁵³⁶ In addition, the Environment Code mandates regions to regulate the collection and treatment of “early rainwater”, where there is a risk that this rainwater carries hazardous substances or other substances that may pollute water bodies.⁵³⁷ By early rainwater (<i>acque di prima pioggia</i>), the Environment Code means to refer to rainwater that falls on the ground early on in the weather event, and that is therefore likely to come into contact, and carry with its flow, most of the pollutants that were on the ground.⁵³⁸ Examples of regional rules relevant in the context of this study are provided in the row below.
28. If standards are set, please provide quantitative values where available. Is any of the following type used?	No such standard was found at national level. As regards the regional level, it must first be recalled that the Environment Code only requires regions to regulate rainwater which is (either collected through separate collecting system, or) “early rainwater” (see row above). As a consequence, the volume of rainwater that should be captured and not allowed to overflow into water bodies corresponds to the above-mentioned “early rainwater”. There is no definition of the concept of “early rainwater” in the Environment Code, but relevant definitions may be found in regional implementing provisions.⁵³⁹

⁵³³ Article 103(1)(b) of the Environment Code.

⁵³⁴ Article 103(1)(e) of the Environment Code.

⁵³⁵ Article 113(2) of the Environment Code.

⁵³⁶ Article 113(1) of the Environment Code.

⁵³⁷ Article 113(3) of the Environment Code.

⁵³⁸ Costato L. and Pellizzer F., *Commentario breve al codice dell'ambiente*, 2012, pp. 402-405.

⁵³⁹ Costato L. and Pellizzer F., *Commentario breve al codice dell'ambiente*, 2012, p. 403.

Overview of legal and policy framework. Relevant references to storm water overflows.

- Water quality standards of receiving water body - Other

For example, in the region of Lazio, “early rainwater” is defined as the rainwater “corresponding, for each weather event, to a fall of 5 mm equally distributed on the whole surface served by the drainage network. [...]”.⁵⁴⁰ The regional provision goes on to state that subsequent rainfall can be discharged directly in the receiving water body.⁵⁴¹ The rest should be captured by weir walls – see, in this regard, the provision of the region of Lazio reported under the heading ‘Other direct references to storm water overflows’ below. See section 2, under the heading ‘Other direct references to storm water overflows’ for more details.

The region of Abruzzo sets the standard for allowable overflows by reference to the hydraulic and environmental needs of the receiving water body, taking into account environmental quality standards. See section 2, under the heading ‘Other direct references to storm water overflows’ for more details.

The region of Lombardy has adopted a definition of “early rainwater” equivalent to that applicable in Lazio.⁵⁴² The regional measure regulates “early rainwater” insofar as it flows from certain areas which can be considered as being particularly polluted, e.g. large surfaces where chemical industrial activities are carried out.⁵⁴³ Such waters must first be collected in basins of a certain size,⁵⁴⁴ then treated.⁵⁴⁵

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Article 100 of the Environment Code National laws are available, in the original as well as consolidated versions, at the website http://www.normattiva.it/	<i>ART. 100 (reti fognarie)</i> <i>1. Gli agglomerati con un numero di abitanti equivalenti superiore a 2.000 devono essere provvisti di reti fognarie per le acque reflue urbane.</i> <i>2. La progettazione, la costruzione e la manutenzione delle reti fognarie si effettuano adottando le migliori tecniche disponibili e che</i>	ART. 100 (collecting systems) 1. Built up areas with a number of inhabitants equal to or greater than 2,000 shall have collecting systems for urban waste water. 2. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge available entailing

⁵⁴⁰ Regione Lazio – Dipartimento del Territorio, *Piano di tutela delle acque: Norme di adozione*, 2007, Article 24(7), available at http://www.regione.lazio.it/binary/rl_ambiente/tbl_contenuti/01_Norme_di_Atтуazione.1216218942.pdf

⁵⁴¹ Regione Lazio – Dipartimento del Territorio, *Piano di tutela delle acque: Norme di adozione*, 2007, Article 24(8), available at http://www.regione.lazio.it/binary/rl_ambiente/tbl_contenuti/01_Norme_di_Atтуazione.1216218942.pdf

⁵⁴² Article 2(1)(c) of Regional Regulation 24 March 2006, No 4, available at: <http://smtp.consiglio.regione.lombardia.it/NormeLombardia/Accessibile/main.aspx?view=showdoc&iddoc=rr002006032400004>

⁵⁴³ The scope of the regional measure is defined in Article 3 of Regional Regulation 24 March 2006, No 4, available at: <http://smtp.consiglio.regione.lombardia.it/NormeLombardia/Accessibile/main.aspx?view=showdoc&iddoc=rr002006032400004>

⁵⁴⁴ Article 5 of Regional Regulation 24 March 2006, No 4, available at: <http://smtp.consiglio.regione.lombardia.it/NormeLombardia/Accessibile/main.aspx?view=showdoc&iddoc=rr002006032400004>

⁵⁴⁵ Article 6 of Regional Regulation 24 March 2006, No 4, available at: <http://smtp.consiglio.regione.lombardia.it/NormeLombardia/Accessibile/main.aspx?view=showdoc&iddoc=rr002006032400004>

Overview of legal and policy framework. Relevant references to storm water overflows.				
			comportino costi economicamente ammissibili, tenendo conto, in particolare: a) della portata media, del volume annuo e delle caratteristiche delle acque reflue urbane; b) della prevenzione di eventuali fenomeni di rigurgito che comportino la fuoriuscita delle acque reflue dalle sezioni fognarie; c) della limitazione dell'inquinamento dei ricettori, causato da tracimazioni originate da particolari eventi meteorici. 3. Per insediamenti, installazioni o edifici isolati che producono acque reflue domestiche, le regioni individuano sistemi individuali o altri sistemi pubblici o privati adeguati che raggiungano lo stesso livello di protezione ambientale, indicando i tempi di adeguamento degli scarichi a detti sistemi.	economically admissible costs, notably regarding: a) of the average flow, of the annual volume and of the characteristics of urban waste water; b) of the prevention of possible back flow phenomena that result in the leaking of waste water from collecting systems' sections; c) of the limitation of pollution of receiving waters due to overflows caused by particular weather events. 3. For isolated villages, installations or buildings that produce domestic waste water, the regions shall identify appropriate individual systems or other public or private systems that achieve the same level of environmental protection, indicating the time periods for adapting discharges to said systems.
		 Annex 1 to the Third Part of the Environment Code. National laws are available, in the original as well as consolidated versions, at the website http://www.normattiva.it/	 <i>Tabella 1 - Informazioni utili per un sito di monitoraggio</i> [...] Fenomeni di risalite artesiane o di tracimazioni [...]	 Table 1 - Information useful for a monitoring site [...] Artesian rise or overflow phenomena [...]
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				

Overview of legal and policy framework. Relevant references to storm water overflows.				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N/A			
HELCOM	N/A			
Barcelona Convention	N			
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	N/A			
Rhine Convention	N/A			
Oder Convention	N/A			
Elbe Convention	N/A			
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Legal Regional	Regione Lazio – Dipartimento del Territorio, <i>Piano di tutela delle acque: Norme di adozione</i> , 2007 ⁵⁴⁶ Region of Lazio – Department for the Territory, <i>Water protection plan: Adoption measures</i> , 2007		Article 25(1) regulates weir walls by providing that they must be of such a size that the overflows discharged directly into receiving water bodies are compatible with those bodies and with their current or planned use. The provision goes on to specify how the required size must be calculated. In general, the size should be such that the overflow occurs when the total flow exceeds by at least five times the average dry weather flow. The direct discharge of overflows into lakes is forbidden, save where alternatives are not technically feasible. Article 25(2) provides that the weir walls must be adapted to comply with the requirements of Article 25(1) by 31 December 2008, but only where the hydraulic conditions of collecting systems and treatment plants so allow. Otherwise, they must be adapted on the occasion of development or significant renovation of collecting and treatment facilities. Article 25(3) requires that separate collecting systems must be put in place in newly built up areas or in case of restoration of existing ones – save, however, for technical, economic or environmental reasons.	
Legal	Regione Abruzzo – Direzione Lavori Pubblici,		The source states that, during rainfall events, waste treatment plants can accept intakes only slightly above	

⁵⁴⁶ http://www.regione.lazio.it/binary/rl_ambiente/tbl_contenuti/01_Norme_di_Atтуazione.1216218942.pdf

Overview of legal and policy framework. Relevant references to storm water overflows.

Regional	Servizio Idrico Integrato, Gestione Integrata dei Bacini Idrografici, Difesa del Suolo e della Costa – Servizio Acque e Demanio Idrico, <i>Relazione generale: Il piano di tutela delle acque: Quadro programmatico</i>, 2010⁵⁴⁷ Region of Abruzzo – Directorate for Public Works, Integrated Water Service, Integrated Management of Water Basins, Protection of Soil and the Coast – Unit for Water and Public Waters, <i>General report: The water protection plan: Programming framework</i>, 2010a	dry-weather averages and that, therefore, the overflow must be discharged directly into receiving water bodies through weir walls placed throughout the network or at the entrance of a water treatment plant as by-pass. The overflows that may be discharged into water bodies are – the source states – defined on the basis of the hydraulic and environmental needs of the receiving water body, taking into account environmental quality standards. The source provides for tanks for the collection of the first water from a rainfall to be placed at weir walls or treatment plants, so as to provide storage for such water prior to treatment in the water treatment plant, once the rainfall is over. Any excess flow of such water may be directly discharged into the receiving water bodies through weir walls or by-passes of the water treatment plant. Discharge from weir walls requires prior authorisation. The source goes on to require Area authorities to provide information about the location of weir walls, the relevant receiving bodies and the size of overflow areas. It charges Area authorities with drafting plans for giving effect to the rules described above, giving priority to large built up areas (over 10,000 inhabitants), particularly those discharging waste water into rivers. However, a general exception is made for situations in which ‘it is not technically possible to realise those systems at sustainable costs’.
Legal Regional	Regione Friuli Venezia Giulia, <i>Allegato 4 ‘Norme di attuazione’ alla Delibera No 2641/2014</i>⁵⁴⁸ Region of Friul-Venezia Giulia, <i>Annex 4 ‘Adoption provisions’ of Decision No 2641/2014</i>	Article 21(1) provides that weir walls must have a grid over at least 50% of their section with openings no wider than 50 millimetres. Article 21(2) adds that, where it is not technically feasible and economically sustainable to install such grids, technical solutions must be adopted that achieve an equivalent level of environmental protection in the receiving water body, including the periodic cleaning of the nearby environment. Article 21(3) provides that the minimum ratio between the rainfall channelled to the water treatment plant and the average dry weather flow must equal 6. However, in the case of the last overflow before the plant, the ratio is 4. Article 21(4) states that treatment plants servicing combined collecting systems must have a capacity of 4 times the average dry weather flow insofar as pre-treatment and primary treatment are concerned. This is reduced to 2.5 with regard to biologic treatment.

⁵⁴⁷ http://www.regione.abruzzo.it/pianoTutelaacque/docs/elaboratiPiano/R1_4/R1_4RelazioneGenerale_QuadroProgrammatico.pdf

⁵⁴⁸ http://mtom.regione.fvg.it/storage//2014_2641/Allegato%204%20alla%20Delibera%202641-2014.pdf and <http://www.regione.fvg.it/rafv/cms/RAFVG/ambiente-territorio/pianificazione-gestione-territorio/Foglia20/FOGLIA22/>

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
66. Which types of sewer system does Italy have?	The majority of sewer systems seem to be combined. However, no document was found that provided aggregated country-wide information. Relevant information could however be obtained from the AEEGSI ⁵⁴⁹ or from individual ATOs.
67. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	The only figure that could be found concerned the total number of kilometres of sewer pipelines in Italy: 158,001 km (2012 data). ⁵⁵⁰ Relevant information could however be obtained from the AEEGSI ⁵⁵¹ or from individual ATOs.
68. How many stormwater overflows infrastructures exist in Italy?	No document was found that provided aggregated country-wide information. In Lombardy, in 2006, there were 1,639 collecting systems, with 1,899 lifting facilities, 216 sewage settling tanks and 5,699 weir walls. ⁵⁵² Relevant information could however be obtained from the AEEGSI ⁵⁵³ or from individual ATOs.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
69. Is there information on the occurrence of storm water overflows?	No such information was found. According to interviewees, the occurrence of storm water overflows can only be inferred from comparing rainfall data with the capacity of collecting systems / input capacity of treatment plants. In doing this calculation, it is also necessary to consider that not all the capacity of collecting systems may be available due to e.g. manhole covers and other infrastructure being clogged. In order to collect data on the overflows that actually occur, it would be necessary to have a system of sensors throughout all relevant infrastructures. While certain pilot projects exist in this regard (e.g. in Genoa), ⁵⁵⁴ no country-wide monitoring system exists. It may also be added that, according to interviewees, due to the poor maintenance of collecting systems, usually weir walls barely manage to halt “early rainfall”, but nothing more than that.
70. Are storm water overflows monitored in Italy? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and	As mentioned above (section 1, row 1), the authorities competent on the monitoring of discharges are the provinces. In addition to controls by the provinces, the SII operator must organise adequate self-controls of discharges from public collecting systems in accordance with the requirements of the concession. This obligation is understood as including the requirement for an adequate system of data monitoring and transmission to the province.

⁵⁴⁹ While no such information was found on the website of AEEGSI, we are aware that the AEEGSI has gathered information from the local level to produce an inventory of relevant assets.

⁵⁵⁰ Autorità per l'energia elettrica il gas e il sistema idrico, *Relazione annuale sullo stato dei servizi e sull'attività svolta: Volume I Stato dei servizi*, 2014, p. 238, at http://www.autorita.energia.it/allegati/relaz_ann/14/RAVolumeI_2014.pdf

⁵⁵¹ While no such information was found on the website of AEEGSI, we are aware that the AEEGSI has gathered information from the local level to produce an inventory of relevant assets.

⁵⁵² Regione Lombardia – Direzione Generale Reti e Servizi di Pubblica Utilità – Unità Organizzative Regolazione del Mercato e Programmazione, *Programma di tutela e uso delle acque: Relazione generale*, 2006, p. 45, at http://www.reti.regione.lombardia.it/shared/ccurl/496/54/ptua_IL%20QUADRO%20CONOSCITIVO.pdf

⁵⁵³ While no such information was found on the website of AEEGSI, we are aware that the AEEGSI has gathered information from the local level to produce an inventory of relevant assets.

⁵⁵⁴ Interview with Nicola Bazzurro and Claudia Lasagna of IREN.

Available data on storm water overflows

- **at how many locations**

However, as seen above (see footnote 8 above), the concept of ‘discharge’ only covers stable links without interruptions between waste water production and the receiving body. Therefore, what falls beyond this stable link, such as an overflow, would not appear to represent a ‘discharge’.

In the light of this, and based on the information gathered from the interview, it cannot be concluded that storm water overflows are consistently monitored throughout Italy.

FACTSHEET FOR LATVIA⁵⁵⁵

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
99. What are the competent authorities for waste water treatment and management in Latvia?	There is no authority designed specifically to deal with storm water overflows in Latvia. The authorities with general competencies on waste water treatment and management are relevant for issues related to storm water overflows. These authorities are the following: 1) The Ministry of Environmental Protection and Regional Development⁵⁵⁶ – the Ministry has the overall competence for issues related to water management, including waste water, the shaping of water management legislation and policies, floods protection and sustainable use of water resources. Storm water overflows are also under responsibility of two more Ministries: The Ministry of Economics⁵⁵⁷ - performs the general monitoring and coordination of construction in the country. The Ministry's competence in the field of construction includes drawing up the strategies and programs for construction development, preparing proposals for the improvement of the system of regulatory enactments governing construction, drawing up draft regulatory enactments governing construction, etc. The Ministry of Economics is responsible for the development of construction legal acts, including the construction standards. The Ministry of Transport⁵⁵⁸ - The Ministry of Transport is responsible for the road infrastructure and historically the rain water infrastructure is considered as road infrastructure. In reality, there are no particular regulations or prescriptions dealing with storm water issues. 2) The State Environmental Service⁵⁵⁹ (SES) (subordinated institution to the Ministry of Environmental Protection and Regional Development)- implement following tasks: - controls the compliance with the laws and regulations regarding to the output and utilization of the natural resources, the protection of the nature, the emissions of polluting substances, the management of the hazardous and household waste, the activities with the chemical substances and products, the radiation safety and nuclear safety; - issues and coordinates the permits (licenses), the technical requirements and other administrative acts concerning the utilization of the natural resources and the performance of the polluting activities; - controls the compliance with the laws and regulations regarding to the national environmental statistical data base "2-Water" on use of water resource inter alia storm water amount.

⁵⁵⁵ The Head of Water Resources Unit from the Ministry of the Environmental Protection and Regional Development was contacted, and following her suggestion, a representative from the Association of Water and Waste Water Companies was contacted. An interview with the head of the Association of Water and Waste Water Companies - Mrs Baiba Gulbe was carried out for the purposes of the report. Ministry of the Environmental Protection and Regional Development made clarifying comments.

⁵⁵⁶ http://www.varam.gov.lv/lat/darbibas_veidi/udens_aizsardziba/.

⁵⁵⁷ https://www.em.gov.lv/en/sectural_policy/construction/.

⁵⁵⁸ <http://www.sam.gov.lv/satmin/content/?cat=134>.

⁵⁵⁹ <http://www.vvd.gov.lv/eng/jaunumi/2014/12/the-state-environmental-service-of-the-republic-of-latvia?id=252>.

Basic information	
	The SES is split into 8 regional (geographical) units called Regional Environmental Boards and the Radiation Safety Centre; and has one central, coordinating unit based in the capital Riga. A significant portion of the environmental permitting and inspection activity takes place in the Regional Environmental Boards (REBs). 3) The Latvian Environmental Geology and Meteorology Centre⁵⁶⁰ (subordinated institution to the Ministry of Environmental Protection and Regional Development) – is responsible for: ▪ development of environmental monitoring system in line with national and European policy needs, international recommendations and guidelines (including surface water, marine water and groundwater monitoring program); ▪ assessment of environmental quality and natural resources (including water resources); ▪ reporting on environment (including water) quality, meteorological, hydrological phenomena, warnings of dangerous and natural disasters, weather and hydrological forecasting; ▪ environment laboratory testing (including water); ▪ management of environmental data, maintenance of databases on water resources, inter alia storm water, and inland water quality, air emissions, air quality, chemicals, waste management and polluted areas. The Centre acts as the National Focal Point of the European Environment Agency (EEA) within the European environment information and observation network (Eionet). 4) Municipalities Overall, local governments deal with the storm water overflows on everyday basis. The Municipal institutions' responsibilities for this issue varies from a municipality to municipality – in some municipalities the responsibility lies with public utility companies and in capital city Riga the responsibility lies with Department of Transport. In accordance with the Law On the Local Governments, one of the functions of the local government is to organize the public utilities services, including water supply and water treatment services, regardless the ownership of the property. In order to ensure this in the territory of the local government, building regulations are issued by municipal building authorities, as well as the requirements for the engineering constructions that are determined by the binding the regulations of the local Municipalities. Building authorities of municipalities ensure the control of the construction processes by incorporating construction requirements in the architectural and planning order as regards the construction of local collection networks, as well as controlling the construction process in compliance with the requirements of the laws and regulations. According to the regulations of the Riga City Council Transport Department⁵⁶¹, the Transport Department functions are: road infrastructure maintenance, design and construction organization (transport infrastructure - public use of the existing network of streets of Riga city - streets, bridges, flyovers, tunnels, rainwater drainage systems - magistral storm water sewer and pumping station, which pumps the storm water from these collectors, culverts beneath the streets, rainwater capture etc.).
100.	What is the transposing law(s) of the There are a few regulations which ensure the transposition of the UWWTD in Latvia. For the purposes of this study, the most important

⁵⁶⁰ <http://www.meteo.lv/en/lapas/about-centre?id=1473&nid=421>.

⁵⁶¹ <https://www.riga.lv/NR/rdonlyres/B64A9E84-4106-492B-B77F-4BD3CF854B59/43701/rdsdnolikums.pdf>.

Basic information	
UWWTD in Latvia?	are the following: 1) Cabinet Regulation No. 34 of 22 January 2002 “Regulations Regarding Discharge of Polluting Substances into Water”, <i>Ministru kabineta noteikumi Nr.34 Rīgā 2002.gada 22.janvārī (prot. Nr.4 19.§) Noteikumi par piesārņojošo vielu emisiju ūdenī</i>⁵⁶², 2) Cabinet Regulation No. 1082 of 30 November 2010 “Procedure by Which Polluting Activities of Category A, B and C Shall Be Declared and Permits for the Performance of Category A and B Polluting Activities Shall Be Issued”, <i>Ministru kabineta noteikumi Nr.1082 Rīgā 2010.gada 30.novembrī (prot. Nr.69 10.§) “Kārtība, kādā piesakāmas A, B un C kategorijas piesārņojošas darbības un izsniedzamas atļaujas A un B kategorijas piesārņojošo darbību veikšanai”</i>⁵⁶³. 3) Cabinet Regulation No.30 of January 2015 “Procedure by Which the State Environmental Service Proclaim Technical Regulation for Activities Shall Be Issued”, <i>Ministru kabineta noteikumi Nr.30 Rīgā 2015.gada 27.janvārī (prot.Nr. 5 40.§) Kārtība, kādā Valsts vides dienests izdod tehniskos noteikumus paredzētajai darbībai</i>⁵⁶⁴
101. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD was transposed into Latvian legal system by a set of sectorial laws: 1. Cabinet Regulation No. 34 of 22 January 2002 “Regulations Regarding Discharge of Polluting Substances into Water”: § 36. <i>In designing, constructing and maintaining of centralised collecting system, the best technical solutions shall be used which do not cause excessive costs, taking into account:</i> 36.1. <i>the amount and content of urban wastewater to be collected;</i> 36.2. <i>the necessity to eliminate leakage;</i> 36.3. <i>the necessity to restrict surface water pollution, which is caused due to overload of the collecting system or in case of accidents during rainfall, in order that the environmental quality objectives specified for surface waters are observed. The permissible level of dilution and the frequency of overflow shall be determined in accordance with the construction standards of Latvia.</i> 2. Construction Law ⁵⁶⁵. According to this law, the following Latvian construction standards shall be applicable to the construction of networks and structures of water supply and sewage: LBN 222-15 “Structures of Water Supply”⁵⁶⁶ and LBN 223-15 “ Structures of Sewage”⁵⁶⁷. The construction standards are issued by Cabinet of Ministers as regulations that are legally binding upon everyone, including persons constructing networks and facilities for water supply and sewage. 3. Cabinet Regulation No. 1082 of 30 November 2010 “Procedure by Which Polluting Activities of Category A, B and C Shall Be Declared and Permits for the Performance of Category A and B Polluting Activities Shall Be Issued” sets the obligations for polluting activities to obtain an integrated permit, with obligations for performing of monitoring activities and with provisions for reporting with regard to emissions and wastes. When applying for an integrated permit for activities that are a subject of A or B category (for example – A category permit shall be issued for chemical industry enterprise, B category permit shall be issued for food processing industries), the applicant has to provide information about storm water collection, treatment and

⁵⁶² <http://likumi.lv/ta/id/58276-noteikumi-par-piesarnojoso-vielu-emisiju-udeni>.

⁵⁶³ <http://likumi.lv/doc.php?id=222147>.

⁵⁶⁴ <http://likumi.lv/doc.php?id=271841>

⁵⁶⁵ <http://likumi.lv/doc.php?id=258572>.

⁵⁶⁶ <http://likumi.lv/ta/id/274989-noteikumi-par-latvijas-buvnormativu-lbn-222-15-udensapgades-buves>

⁵⁶⁷ <http://likumi.lv/ta/id/274990-noteikumi-par-latvijas-buvnormativu-lbn-223-15-kanalizācijas-buves>.

Basic information					
	discharge from the site; information on storm water treatment facilities, the description of the degree of purification of storm water and storm water discharge point.				
	To conclude, Section A of Annex I to the UWWTD has not been literally transposed, however all elements are correctly reflected in the transposing legislation.				
102. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	In accordance with § 36.3. of Cabinet Regulation No. 34 of 22 January 2002 “Regulations Regarding Discharge of Polluting Substances into Water”, which transposes item three of Section A of Annex I to the UWWTD, the permissible level of dilution and the frequency of overflow shall be determined in accordance with the construction standards of Latvia. Latvian Standard named LBN 223-15 “Structures of Sewage” is applicable to the construction of networks and structures of sewage. Due to the highly technical nature of the Standard, only a general overview of the document will be presented.				
	According to the Latvian Standard LBN 223-15 “Structures of Sewage”, the amount of rainwater q _r (l/s) is determined by the maximum intensity method. The calculation formula is defined in the Standard LBN 223-15.				
	The standard provides formulas for the estimation of the maximum runoff for a specific return period and specific catchment but do not provide comprehensive rainfall data, which has to be collected and organised locally. The frequency of allowed overflows in Latvian Standard LBN 223-15 is defined depending on type of location of manifold.				
	1. Conditions for a favourable location of manifold:				
	1.1. the catchment area does not exceed 150 hectares, flat terrain, an average slope is 0,005 or less;				
	1.2. manifold located at water shed or on the upper part of the slope, not more than 400 m from the border of watershed.				
	2. Conditions for a medium favourable location of the manifold:				
	2.1. the catchment area does not exceed 150 hectares, flat terrain, an average slope is 0,005 or less;				
	2.2. manifold located in the lower part of the slope, in a special tray for surface water collection and drainage (in Latvian –ievalkā) with a slope of 0.02 and less, and catchment area does not exceed 150 hectares.				
	3. Conditions for unfavourable manifold location:				
	3.1. manifold placed at the bottom of the slope, and catchment area is more than 150 ha;				
	3.2. manifold located in a in a special tray for surface water collection with a steep slopes. An average steep of the slope is more than 0.02.				
	4. Conditions for particularly unfavourable manifold location - collector channel water from the closed depression (low place).				
	When calculating a single rainfall intensity exceeding period, the periods specified in a table below shall be followed only for a part of the rain runoff. The part of the run-off may temporarily flood the carriageway part of the street. However, street flooding levels should not be so high that the basements are flooded.				
	Catchment basin	Single rainfall intensity exceeding period P (years), depending on a type of location of manifold			
		favourable location	medium favourable location	unfavourable location	particularly unfavourable
	Residential area and streets	10	10	25	50
	Main streets	10	25	50	100
	The specific measures are later approved by the SES Regional Board during the permitting process – depending on a location, type of				

Basic information	
	sewage system (combined, separated or partly separated) and class of receiving waters.
103. What is the terminology used to refer to storm water overflows in Latvia? Is there more than one term used?	The term ‘overflow’ is not defined in the legislation. The transposing legislation uses the following terminology when referring to storm water overflows: 1) run-off rain water (<i>lietus notekūdeņi</i>) - waters which form atmospheric deposition by flowing down from the roofs of buildings, streets and other territories with a full or partial surface cover; 2) overflow technical construction (<i>pārgāze</i>); 3) storm water overflow (the process) (<i>lietus ūdeņu pārplūde</i>); 4) in Latvian, when referring to storm water, the following term is used: heavy rain (<i>spēcīgs lietus</i>); 5) in Latvian, when referring to storm with heavy rain, the following term is used: rainfall (<i>lietusgāze</i>). All the above terms are contained in Cabinet Regulation No. 34 of 22 January 2002 “Regulations Regarding Discharge of Polluting Substances into Water”.
104. Is there a definition of storm water overflow in Latvia?	There is no explicit definition of this term in legal acts or policy documents.
105. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Latvia have a definition of extreme or unusual rainfall event?	According to the Cabinet Regulation No. 388 “<i>Regulations on the operation of the national hydrometeorological services in the event of danger</i>”⁵⁶⁸, the extreme rainfall event is when precipitation exceeds 50 mm per 12 hours or more. According to the Construction law, standard LBN 003-15 “Construction Climatology” shall be applied to the construction activities (including construction of waste water treatment plants and collection systems). The climatological indicators included in the standard shall be applied in engineering research, construction design and in the performance of construction work, also in the repair, renovation and reconstruction of construction works. In this standard various parameters that have to be considered regarding the air temperature, wind conditions, snow conditions, humidity, ice conditions, soil freezing, sun radiation, precipitations⁵⁶⁹ are defined and regulated. LBN 223-25 “Structures of Sewage” shall be followed during the development of the technical design. The document contains formulas and parameters to be considered in the calculation (for example, at the end of this report some of the parameters from the Standard are presented in tables A and B along with a formula for the calculation of rainwater maximum intensity).

⁵⁶⁸ <http://likumi.lv/ta/id/110219-noteikumi-par-hidrometeorologijas-dienestu-darbibu-valsts-apdraudejuma-gadijuma>

⁵⁶⁹ See table A at the end of the document.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
29. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	Storm water policy in Latvia can be considered relatively outdated due to the lack of attention and financing for this issue from the side of the government. Though 2007 – 2013 financial period assistance from the EU funding to the some projects were also maintained by the government if the project was associated with storm water sewer separation of the total urban waste water collecting system. Waste water management is regulated by the national legislation in the field of environment, construction and land drainage and is enforced at the local (municipal level) through construction control (mainly during the process of technical design and authorisation). Maintenance of the rainwater infrastructures is mainly ensured by local municipalities or municipal water companies. New Water services Law will come into force from January 1, 2016. Water services Law will regulate the legal aspects between water companies, local municipalities, Cabinet of Ministers and water users. According to the New Water services Law municipalities will be entitled to issue binding regulations on storm water management in their administrative territories. Cabinet Regulation No. 34 of 22 January 2002 “Regulations Regarding Discharge of Polluting Substances into Water” apply to all waters, including the rain water - waters which form from atmospheric deposition by flowing down from the roofs of buildings, streets and other territories with a full or partial surface cover. The regulations, among other requirements, prescribe the requirements for wastewater treatment. The amount of pollution expressed in the population equivalents shall be calculated on the basis of the maximum amount of average weekly pollution, which reaches the wastewater treatment plants within a year under normal weather conditions. The load caused due to rain and other atypical conditions shall not be taken into account in these calculations. In designing, constructing and maintaining of centralised collecting system, the best technical solutions shall be used which do not cause excessive costs, taking into account the necessity to restrict surface water pollution, which is caused due to overload of the collecting system or in case of accidents during rainfall, in order that the environmental quality objectives specified for surface waters are observed. The permissible level of dilution and the frequency of overflow shall be determined in accordance with the construction standards of Latvia (i.e. LBN 223-15 “Structures of Sewage”). Treatment plants shall be designed, built, rebuilt and exploited in such a way that it would be possible to take characteristic samples of influent, as well as treated wastewater before discharge thereof into the receiving waters, to keep a register and take samples in rainwater overflow chambers and emergency overflows. Discharge of non-treated industrial wastewater, urban wastewater and sludge into surface waters or into the environment, as well as into the rainwater sewage system is prohibited. In evaluating the conformity of wastewater samples with the requirements specified, parameter values caused due to heavy rain and other unusual situation shall not be taken into consideration. LBN 223-15 “Structures of Sewage” shall be followed during the development of the technical design of sewage systems. The document contains formulas and parameters to be considered in the calculation, including the permissible level of dilution and the frequency of overflow (for examples, see the formula and table A and B at the end of the report). The framework for controlling and limiting of storm water overflows from rainwater collection systems that are part of the activities that are subject to A, B or C category permits is prescribed in Cabinet regulations No. 1082 Procedure by Which Polluting Activities of Category A, B and C Shall Be Declared and Permits for the Performance of Category A and B Polluting Activities Shall Be Issued. In

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	accordance with these regulation, the operator, when applying for the Permit for the performance of category A or B polluting activities, must provide information on rain water collection system (if relevant) when filling the application form. The operator shall provide detailed information regarding the discharge of the polluting substances and groups of substances specified in Annexes 1 and 2 to Cabinet Regulation No.34 of 22 January 2002, Regulations Regarding Discharge of Polluting Substances into Water, as well as regarding substances specified in Annex 2 to Cabinet Regulation No.858 of 19 October 2004, Regulations Regarding Characterisation, Classification, Quality Criteria of the Types of Surface Water Bodies and the Procedures for Determination of Anthropogenic Loads. Following the requirements of the application form, the operator shall report to SES REB on rainwater collection infrastructure or other measures foreseen for rain water management. Once in a year the operator is reporting to the State Bureau of Statistics by filling the Report on Water resources. The operator shall report on the treatment plants congestion or waste water accidents (thousand m3 / year). In the 1st cycle RBMP (covering the period 2009-2015), the storm water issue is included in an additional programme of measures of Gauja and Venta RBMP ⁵⁷⁰ . In the draft 2 nd RBMP, this issue has not been incorporated yet. In the draft Flood Risk Management Plans, the storm water issue is included – an extreme rain event is defined as one of the flood risk factors. According to the information presented by the competent authority – Latvian Environment, Geology and Meteorology Centre, Flood Risk Management Plans are planned to be incorporated in the 2 nd cycle RBMP, so this means that storm water issue will be included therein. The programme of measures of RBMP has not been yet drafted and therefore it is not possible to assess how the storm water issue will be incorporated.			
30. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	LBN 223-15 “Structures of Sewage” shall be followed during the development of the technical design of sewage systems. The document contains formulas and parameters to be considered in the calculation, including the permissible level of dilution and the frequency of overflows (for example, some of the parameters from the Standard are presented in tables A and B at the end of the document).			
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Cabinet Regulation No. 34 of 22	§31. Cilvēku ekvivalentos izteikto piesārņojuma	§31. The amount of pollution expressed in the

⁵⁷⁰ <http://www.meteo.lv/lapas/vide/udens/udens-apsaimniekosana-upju-baseinu-apgabalu-apsaimniekosanas-plani-upju-baseinu-apgabalu-apsaimniekosanas-plani-un-pludu-riska-parvaldiba?id=1107&nid=424>

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		January 2002 “Regulations Regarding Discharge of Polluting Substances into Water”	daudzumu aprēķina, pamatojoties uz maksimālo nedēļas vidējo piesārņojuma daudzumu, kas normālos laikapstākļos komunālo notekūdeņu attīrīšanas iekārtās (turpmāk — attīrīšanas iekārtas) nonāk gada laikā. Spēcīga lietus un citu netipisku apstākļu radīto slodzi šajos aprēķinos neņem vērā. Plānošanas vajadzībām cilvēku ekvivalentos izteikto piesārņojuma daudzumu var aprēķināt, pamatojoties uz iedzīvotāju un uzņēmumu skaitu, kam plānots pieslēgums, un atkarībā no tiem raksturīgā ūdens patēriņa un notekūdeņu biokīmiskā skābekļa patēriņa (BSP5) vērtībām. Cilvēku ekvivalenta viena vienība ir organisko vielu piesārņojuma daudzums, kas atbilst biokīmiskajam skābekļa patēriņam 60 g O₂ dienā. §36. Projektējot, būvējot un ekspluatējot centralizētu kanalizācijas sistēmu, izmanto labākos tehniskos risinājumus, kas nerada pārmērīgas izmaksas, ņemot vērā: 36.1. savācamo komunālo notekūdeņu daudzumu un sastāvu; 36.2. nepieciešamību novērst noplūdes; 36.3. nepieciešamību ierobežot virszemes ūdeņu piesārņojumu, kas rodas kanalizācijas sistēmas pārslodzes dēļ vai avāriju gadījumā lietusgāzu laikā, lai tiktu ievēroti virszemes ūdeņiem noteiktie vides kvalitātes mērķi. Pieļaujamo atšķaidījuma pakāpi un pārplūšanas biežumu nosaka saskaņā ar Latvijas būvnormatīviem. §41. Attīrīšanas iekārtas projektē, būvē, pārbūvē un ekspluatē: 41.1. tā, lai attīrīšanas iekārtas būvei izvēlēta vieta atbilstu visu veidu teritorijas plānojumiem;	population equivalents shall be calculated on the basis of the maximum amount of average weekly pollution, which reach the wastewater treatment plants (hereinafter – treatment plants) within a year under normal weather conditions. The load caused due to rain and other atypical conditions shall not be taken into account in these calculations. The amount of pollution expressed in population equivalents for planning purposes may be calculated on the basis of the number of inhabitants and enterprises for which a connection is planned, and depending on the water consumption characteristic to them and values of wastewater biochemical oxygen demand (BOD₅). One unit of the population equivalent is the amount of pollution of organic substances which conforms to 60 g O₂ of biochemical oxygen demand per day. §36. In designing, constructing and maintaining of centralised collecting system, the best technical solutions shall be used which do not cause excessive costs, taking into account: 36.1. the amount and content of urban wastewater to be collected; 36.2. the necessity to eliminate leakage; 36.3. the necessity to restrict surface water pollution, which is caused due to overload of the collecting system or in case of accidents during rainfall, in order that the environmental quality objectives specified for surface waters are observed. The permissible level of dilution and the frequency of overflow shall be determined in accordance with the construction standards of Latvia. §41. Treatment plants shall be designed, built, rebuilt and exploited: 41.1. in such a way that the place chosen for construction of a treatment plant would comply with

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		41.2. tā, lai attīrīšanas iekārtas atbilstu Latvijas būvnormatīvos noteiktajām prasībām; 41.3. tā, lai attīrīšanas iekārtas kvalitatīvi darbotos Latvijas klimatiskajos apstākļos; 41.4. tā, lai būtu iespējams paņemt attīrīšanas iekārtās ieplūstošo, kā arī attīrīto notekūdeņu raksturīgus paraugus pirms to emisijas pieņemtajos ūdeņos, veikt uzskaiti un ņemt paraugus lietussūdeņu pārgāžu kamerās un avārijas pārgāzēs; 41.5. ņemot vērā ienākošās slodzes nevienmērīgumu attīrīšanas iekārtu sezonas darba rakstura dēļ vai slodzes izmaiņas dažādos gadalaikos; 41.6. izvērtējot visas reāli iespējamās emisijas vietas (tai skaitā iespēju novadīt attīrītos notekūdeņus uz citu tuvumā esošu ūdensobjektu ar mazāku jutību pret piesārņojumu) un emisijas ietekmi katrā vietā, lai izvēlēta emisijas vieta nodrošinātu iespējami mazāku kaitīgo ietekmi uz vidi; 41.7. tā, lai komunālo notekūdeņu attīrīšanas iekārtu izplūžu vietas izvietotu iespējami tālāk vienu no otras, tādējādi mazinot kopējo ietekmi uz attiecīgo ūdensobjektu; 41.8. ņemot vērā: 41.8.1. ūdensobjekta izmantošanas mērķus; 41.8.2. ūdensobjekta eutrofikāciju limitējošos elementus (slāpeklis vai fosfors) un ūdensobjekta jutību pret piesārņojumu; 41.8.3. notekūdeņu emisijas sajaukšanās efektivitāti ar ūdensobjekta ūdeņiem; 41.8.4. esošās kanalizācijas sistēmas (tai skaitā attīrīšanas iekārtas) stāvokli, tehniskās iespējas ieviest papildu kopējā slāpekļa vai kopējā fosfora atdalīšanu un šādas ieviešanas un ekspluatācijas izmaksas; 41.8.5. notekūdeņu dūņu apstrādes un tālākas	all kinds of territorial planning; 41.2. in such a way that the treatment plants comply with the requirements specified in the construction standards of Latvia; 41.3. in such a way that the treatment plants would operate qualitatively under the climatic conditions of Latvia; 41.4. in such a way that it would be possible to take characteristic samples of influent, as well as treated wastewater before discharge thereof into the receiving waters, to keep a register and take samples in rainwater overflow chambers and emergency overflows; 41.5. taking into account fluctuations of the incoming load due to the seasonal work nature of treatment plants or load changes in different seasons; 41.6. evaluating all actually possible discharge sites (including the possibility of discharging the treated wastewater to another water body in the vicinity which is less sensitive to pollution) and the impact of the discharge at each site so that the selected discharge site would ensure as less harmful environmental impact as possible; 41.7. in such a way that the discharge site of urban wastewater treatment plants would be located as far from each other as possible, thus reducing the total impact on the relevant water body; 41.8. taking into account: 41.8.1. the objectives for using the water body; 41.8.2. the elements of the water body limiting eutrophication (nitrogen or phosphorus) and the sensitivity of the water body to pollution; 41.8.3. the efficiency of wastewater discharge getting mixed with waters of the water body; 41.8.4. the condition of the existing sewage system (including treatment plants), technical possibilities of introducing additional separation of the total nitrogen or total phosphorus and costs of such introduction

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		apsaimniekošanas iespējas; 41.8.6. iespēju novadīt attīrītos notekūdeņus uz citu tuvumā esošu ūdensobjektu, piemēram, ar mazāku jutību pret piesārņojumu; 41.8.7. iespēju novadīt neattīrītos notekūdeņus uz citu tuvumā esošu kanalizācijas sistēmu; 41.8.8. iedzīvotāju maksātpēju, lai ieviestu papildu prasības intensīvākai notekūdeņu attīrīšanai un nodrošinātu attiecīgu iekārtu ekspluatāciju. §42. Neattīrītu ražošanas notekūdeņu, komunālo notekūdeņu un notekūdeņu dūņu emisija virszemes ūdeņos vai vidē, kā arī lietus kanalizācijas sistēmā ir aizliegta.	and operation; 41.8.5. the possibilities of processing and further managing of wastewater sludge; 41.8.6. the possibility of discharging the treated wastewater to another water body in the vicinity, with less sensitivity to pollution; 41.8.7. the possibility to discharge the non-treated wastewater to another sewage system in the vicinity; 41.8.8. the solvency of inhabitants for introduction of additional requirements for more intense treatment of wastewater and ensuring operation of the relevant plants. §42. Discharge of non-treated industrial wastewater, urban wastewater and sludge into surface waters or into the environment, as well as into the rainwater sewage system is prohibited.
	Cabinet Regulation No. 1082 of 30 November 2010 “Procedure by Which Polluting Activities of Category A, B and C Shall Be Declared and Permits for the Performance of Category A and B Polluting Activities Shall Be Issued”	Notekūdeņu novadīšana virszemes ūdeņos vai kanalizācijas sistēmās un notekūdeņu attīrīšanas iekārtās (norāda piesārņojošās vielas notekūdeņos, sniedz informāciju par vielu bīstamības veidu, vielas būtisko ietekmi uz vidi un notekūdeņu attīrīšanas iekārtu aprakstu). Novadot notekūdeņus uz cita operatora attīrīšanas iekārtām, sniedz informāciju par līgumā norādīto maksimāli pieļaujamo piesārņojošo vielu koncentrāciju un līgumā noteikto prasību ievērošanu. Pievieno ziņas par lietusūdeņu un sniega un ledus kušanas ūdeņu savākšanu, attīrīšanu un novadīšanu no iekārtas teritorijas – sniedz lietusūdeņu attīrīšanas iekārtu aprakstu, informāciju par lietusūdeņu attīrīšanas pakāpi un lietusūdeņu novadīšanas vietu. Esošām iekārtām pievieno plānu uzlabojumu ieviešanai. Plānā ietver informāciju par specifiskiem mērķiem, to sasniegšanas termiņiem, iespējamiem pārveidojumiem vai rekonstrukciju, vai bīstamo ķīmisko vielu vai produktu aizvietošanu.)	The Regulation sets the obligations for polluting activities to obtain an integrated permit, with obligations for performing of monitoring activities and with provisions for reporting with regard to emissions and wastes. When applying for an integrated permit the applicant has to provide information about storm water collection, treatment and discharge from the site; information on storm water treatment facilities, the description of the degree of purification of storm water and storm water discharge point.

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		Construction Law	Būvniecības likums un uz to pamata izdotie Ministru kabineta noteikumi Nr.327 Rīgā 2015. gada 30. jūnijā (prot. Nr.30 45.§) Noteikumi par Latvijas būvnormatīvu LBN 223-15 "Kanalizācijas būves"	According to this law, the Latvian construction standards shall be applicable for construction of networks and structures of water supply and sewage: LBN 222-15 "Structures of Water Supply" and LBN 223-15 "Structures of Sewage" ⁵⁷¹ .
		Cabinet Regulation No. 327 of 30 June 2015 "Regulations Regarding LBN 223-15 "Structures of Sewage"	Ministru kabineta noteikumi Nr.327 Rīgā 2015.gada 30.jūnijā (prot. Nr.30 45.§) Noteikumi par Latvijas būvnormatīvu LBN 223-15 "Kanalizācijas būves"	LBN 223-15 "Structures of Sewage" shall be followed during the development of the technical design of sewage system, including the permissible level of dilution and the frequency of overflows. The document contains formulas and parameters to be considered in the calculation (for example, some of the parameters from the Standard are presented in tables A and B at the end of the document)
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	Waste Water Guidelines (2005) ⁵⁷²	6. Novērtējot notekūdeņu paraugu kvalitātes atbilstību noteiktajām prasībām, ņem vērā tādas rādītāju vērtības, kas radušās spēcīga lietus un citu netipisku apstākļu dēļ.	6. When assessing the quality of waste water samples, the values of indicators incurred during the heavy rain and other atypical conditions shall not be taken into account.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English

⁵⁷¹ <http://likumi.lv/ta/id/274990-noteikumi-par-latvijas-buvnormativu-lbn-223-15-kanalizacijas-buves->

⁵⁷² http://www.meteo.lv/fs/CKFinderJava/userfiles/files/Vide/Udens/notekudeni/Notekudenu_vadlinijas.pdf.

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commissions				
OSPAR	N/A			
HELCOM	Y	Procedures for Completion Statistical forms "2 - Water. Review of the use of water resources" ⁵⁷³ Reference to the HELCOM Recommendations 11/2	Veidlapas "Nr.2 – Ūdens. Pārskats par ūdens resursu lietošanu" aizpildīšanas kārtība 5.12. 11.ailē norāda attīrīšanas iekārtās pārslodzes vai avāriju gadījumā radušos notekūdeņus (tūkst.m3/gadā). Pārplūdes (overflows) ir izplūdes no kombinētās (jauktās) (combine) kanalizācijas sistēmas ūdens tilpnēs lietusgāzu laikā, kad plūsma sistēmā (kanalizācijas ūdeņu un lietus ūdeņu maisījums) pārsniedz projektēto jaudu. Pārplūžu kontroli nosaka HELCOM ieteikumi 11/2;	Procedures for Completion Statistical forms "2 - Water. Review of the use of water resources" 5.12. In the ail 11 the operator shall report on the treatment plants congestion or waste water accident (thousand m3 / year). Storm water overflow are discharges from combined sewerage systems during the heavy rainfall when the system (combined sewage and storm water) exceeds the design capacity. Storm water overflow control has to be reported following the HELCOM Recommendations 11/2
Barcelona Convention	N/A			
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	N/A			
Rhine Convention	N/A			
Oder Convention	N/A			
Elbe Convention	N/A			
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	

⁵⁷³ <http://likumi.lv/doc.php?id=185796>

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<i>Guidance</i> <i>National</i>	Handbook on sustainable urban drainage systems (2014)⁵⁷⁴	The handbook is prepared within the Estonia-Latvia cross-border cooperation programme 2007-2013 “Promoting Sustainable Urban Drainage Systems in Estonia-Latvia cross-border area to improve the environment for active and sustainable communities”. The handbook summarises general information on Sustainable Urban Drainage Systems (SUDS) and the rationale for the use of these systems, describes feasibility studies prepared within the project as well as provides more detailed information for the choice and design of these systems. It contains the following main sections: ■ general information on SUDS; ■ examples of best international practice; ■ summary of the feasibility studies prepared within the “(D)rain for life” project; ■ outline design for sustainable drainage systems; ■ information on specific SUDS techniques; ■ guidelines for implementation of SUDS. The handbook is included in this assessment in order to show that the storm water issues are included and discussed in this project and the results of this the project could be used to solve the storm water problems in Latvia. In the Handbook, there are presented the suggestions for a rain water drainage systems for two various sizes of Municipalities – Riga and Baldone. There are provided examples for both – the conventional drainage system layout and the sustainable drainage systems layout.
<i>Project</i>	The Baltic Flows project (2013-2016) Particularly: the project report: “Analysis of Potential Regions for Mentoring in Urban Storm water Management”⁵⁷⁵	The Baltic Flows project concerns rainwater monitoring and management in the Baltic Sea catchment areas. This project aims at laying down the foundations for development of new capacities and policies for effective monitoring and managing of the quality and quantities of rainwater. Work Package 3 of this project (“Urban Storm water Management”) is focused on the decentralized urban storm water management solutions in order to improve the existing centralized systems. The general information on urban storm water management status in Latvia is also described in the report. During the project implementation, some of the activities to be performed in Latvia will be as follows: ■ Development of a database - a common platform for rainwater sewage network for Latvia, ■ In-depth analysis of the distribution and efficiency of current urban storm water management techniques, ■ Rain water tariff system development.
<i>Guidance</i>	Sustainable Rainwater Sewerage Management for	The aim of the project is to improve the state of the environment by reducing water pollution in Lielupe

⁵⁷⁴ <http://www.drainforlife.eu/index.php/en/>

⁵⁷⁵ <http://www.balticflows.eu/>

Overview of legal and policy framework. Relevant references to storm water overflows.

<i>Regional</i>	Improved Environmental Quality of the Lielupe River Basin (2013) ⁵⁷⁶	river basin, to reduce the risk of flooding in urban areas, improving rainwater drainage system management in both Latvian and Lithuanian municipalities. There is also information for Lielupe River Basin District⁵⁷⁷ and particularly for Bauska municipality⁵⁷⁸. There is information on Lielupe River basin precipitations (snow and rain) frequency and intensity as well as quality. The presented information is available for all biggest populated places of the basin. In order to choose the best measures for the management of storm water in the Lielupe river basin, this information could be used for calculations of technical parameters. Project reports contain practical formulas and calculation methods on how to calculate the parameters for storm water management system. In the framework of the project, ageing rainwater sewerage management systems in a number of municipalities are being reconstructed and new technical projects are being developed. The developed guidelines for municipalities could be used when local municipalities in Lielupe RBD are planning activities regarding the rainwater management. There is information on innovative and cost effective technologies, as well as examples of best practices. Two pilot projects have been implemented in Lielupe RBD – one in Bauska city⁵⁷⁹ and another in Kalnciems village⁵⁸⁰.
<i>Guidance National</i>	Handbook for municipalities on organisation of water supply and water treatment services in municipalities (2011) ⁵⁸¹	The handbook summarises the general information on water supply and waste water treatment issues that are under responsibility of municipalities. The handbook is included in this assessment in order to show that the storm water issues are included and discussed in this handbook and the handbook could be used to solve the storm water problems in Latvia's municipalities. The handbook provides general principles, main problems and solutions for all water supply and waste water treatment issues. There is information that depending on a waste water treatment system type, an average proportion of a rain water amount in a system is to be as follows: in a combined 70%, in partly separated -50% and separated -30%.

⁵⁷⁶ http://www.meteo.lv/fs/files/CMSP_Static_Page_Attach/00/00/00/02/17/2versija.pdf

⁵⁷⁷ http://www.meteo.lv/fs/files/CMSP_Static_Page_Attach/00/00/00/02/17/2versija.pdf.

⁵⁷⁸ <http://www.bauska.lv/allfiles/files/Projekti/Lietuvass%20parrobezu%20projekti/water/Ilgtspejigas%20lietusudenu%20kanalizacijas%20vadllinijas%20g93-final.pdf>.

⁵⁷⁹ http://rpr.gov.lv/uploads/filedir/Projekti/BalticFlows/RAIN-WATER-MAN_bauska.pdf.

⁵⁸⁰ http://rpr.gov.lv/uploads/filedir/Projekti/BalticFlows/RAIN-WATER-MAN_jelgava.pdf.

⁵⁸¹ http://www.varam.gov.lv/lat/fondi/udenssaimniecibas_projekti/?doc=10283.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
71. Which types of sewer system does Latvia have?	In Latvia, the following types of sewer systems exist: combined, separated and partly separated. ■ In a combined system household, industrial and rainwater water is collected in one pipeline network; ■ Separated system – there is a separate pipeline network for the collection of household, industrial and rainwater water; ■ Partly separated - household and polluted industrial water is collected in one pipeline network and rainwater and relatively clean industrial water in a separate system.⁵⁸²
72. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	The aggregated information was not available, there is information on a municipal scale, but this information is not publicly available. According to the rough estimates of the Latvian Association of Water and Waste Water Companies, currently in Latvia about 20% of sewer systems are combined systems. And they are mainly in old parts of old cities, for example in Old Riga, in Old Cesis, etc. All other sewer systems are separated systems or partly separated systems.
73. How many storm water overflows infrastructures exist in Latvia?	The aggregated information was not available. This information is held by waste water management companies , but is not publicly available. ⁵⁸³
<i>Available quantitative data on the occurrence of storm water overflows</i>	
74. Is there information on the occurrence of storm water overflows?	The aggregated information was not available. This information is held by waste water management companies , but is not publicly available. According to the information from the Latvian Association of Water and Waste Water Companies, in the biggest city of Latvia (Riga) about 1% of discharged waste water are storm water overflows that are discharged into environment without treatment. Latvian Association of Water and Waste Water Companies during the interview informed that the Municipal water management enterprise “Rigas Udens” has been charged a penalty for discharging of untreated storm water into environment.
75. Are storm water overflows monitored in Latvia? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	Storm water overflows are registered at a scale of a sewage system operator (by waste water companies) and reported to the State Bureau of Statistics by filling the Report on Water resources (Statistical forms “2 - Water. Review of the use of water resources”), this information is available for SES inspectors . A country wide monitoring does not exist. There are requirements for water quality monitoring set in water use permits. In application for permitting of an IPPC installation, according to the Cabinet Regulation No. 1082 of 30 November 2010 “Procedure by Which Polluting Activities of Category A, B and C Shall Be Declared and Permits for the Performance of Category A and B Polluting Activities Shall Be Issued”, an applicant must provide information on a planned monitoring (including the rainwater monitoring). The institution issuing the permit (State environmental service or regional Environmental Board) is setting the conditions on necessary self-monitoring that have to be followed by the operator. The

⁵⁸² Latvian construction standard LBN 223-15 “Structures of Sewage”, available at: <http://likumi.lv/ta/id/274990-noteikumi-par-latvijas-buvnormativu-lbn-223-15-kanalizacijas-buves>

⁵⁸³ Waste water management companies were not contacted, but publicly available reports of the Statistical forms “2 - Water. Review of the use of water resources” (<http://parissrv.lv/gmc.lv/#viewType=reportIndexView&type=2W&incrementCounter=1>) were checked and also the website of the Municipal water management enterprise “Rigas Udens” (<https://www.rigasudens.lv/>) was consulted.

Available data on storm water overflows

frequency of monitoring, substances to be monitored and location of monitoring points for storm water monitoring are set individually case by case depending on a type of installation receiving the permit and the receiving water body.

For example, for plywood factory in Riga, B category enterprise – rainwater monitoring shall be performed once per 6 months at inflow point to the receiving rain water systems and parameters to be monitored area – suspended substances (limit 35mg/l), COD (125 mg/l) and oil products (1 mg/l).

Table A

Monthly and Annual Sum of Precipitation (mm) in Latvia (source: Annex 1 of the standard LBN 003-15 “Construction Climatology”)

No.	Place	Month												Total
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	per year
1.	Ainaži	37	25	30	35	43	54	65	76	80	70	71	55	641
2.	Alūksne	40	32	36	40	53	74	84	85	70	62	61	54	691
3.	Daugavpils	36	27	34	40	51	73	83	74	66	52	52	46	634
4.	Dobele	31	22	28	39	43	51	79	76	59	52	55	39	574
5.	Liepāja	46	31	36	35	40	46	74	80	78	74	83	67	690
6.	Mērsrags	38	25	30	37	40	52	72	75	75	60	65	48	618
7.	Priekulji	31	22	31	40	51	66	90	92	81	64	61	46	674
8.	Rīga	33	25	31	39	43	61	79	79	76	60	61	49	636
9.	Stende	40	26	35	37	42	56	83	79	77	68	70	53	666
10.	Zīlāni	39	30	38	42	52	65	75	79	69	58	59	55	662

Table B

Meteorological observations (source: Latvian construction standard LBN 223-15 “Structures of Sewage”)

Nr. p.k.	Place	Average precipitations (mm)	Parameter n, if P (year) repetition is		Intensity of rain q ₂₀ (l/h ha), if P is			Average precipitation during the day in warm season (mm)	Average number of rain events during the warm season (number of events)	γ
			0,7-1,4	< 0,7	1	0,5	0,33			
1.	Cēsis	35	0,66	0,69	75,9	53,2	48,0	532	167	1,54
2.	Dagda	35,6	0,62	0,42	63,5	34,3	30,1	509	123	1,54
3.	Daugavpils	38,1	0,62	0,42	67,9	35,9	28,0	470	126	1,54
4.	Gulbene	32,9	0,66	0,69	73,2	50,8	41,0	477	157	1,54
5.	Jelgava	32,3	0,72	0,57	73,8	43,6	37,0	435	155	1,54
6.	Kolka	31,4	0,57	0,43	48,7	27,4	23,0	398	155	1,54
7.	Kuldīga	31,4	0,68	0,49	67,2	37,8	34,0	480	152	1,54
8.	Liepāja	28,8	0,57	0,43	48,7	30,6	25,8	458	115	1,54
9.	Rēzekne	33,3	0,62	0,42	59,1	34,3	30,0	475	124	1,54
10.	Rīga	33,1	0,72	0,57	79,5	47,9	41,0	486	118	1,54
11.	Saldus	30,9	0,68	0,49	64,4	34,2	31,0	502	218	1,54
12.	Ventspils	29,6	0,57	0,43	50,8	32,2	27,0	446	123	1,54

γ – coefficient

Formula for calculation of the amount of rainwater q_r (l/s) by the maximum intensity method

$$q_r = \frac{Z_{mid} A^{1.2} F}{t_r^{1.2n-0.1}}$$

Z_{mid} – coefficient characterising an average drainage basin surface (determined according to tables 7 and 8 of the Standard);

A – parameter is calculated according to the formula at the point 30 of the Standard;

n – parameter is calculated according to the table 2 of the Standard;

F – drainage area size (ha), calculated according to the point 33 of the Standard;

t_r – period of the rain, calculated according to the surface water flow time (in minutes), calculated according to the formula at the point 30 of the Standard.

FACTSHEET FOR LITHUANIA⁵⁸⁴

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
106. What are the competent authorities for waste water treatment and management in Lithuania?	In Lithuania there is no authority designed specifically to deal with storm water overflows. The Ministry of Environment (MoE) is responsible for the preparation and approval of legal acts establishing the environmental requirements for waste water management as well as the rules for preparing waste water infrastructure development plans. By identifying those elements of the drinking water supply and the waste water management infrastructure which pose a threat to human health and/or the environment, these legal acts set the quality requirements for public waste water management facilities and the rules for the use and maintenance of waste water management infrastructure, etc. The Environmental Protection Agency (EPA) is responsible for the implementation of the state policy in the field of water and waste water, in particular with regard to the environmental monitoring and the collection of statistical information on water and waste water management. According to paragraph 30 of Article 6 of the Law on Local Self-Government⁵⁸⁵, the 60 Lithuanian municipalities are responsible for drinking water supply and wastewater treatment services at the local level. Wastewater treatment and management covers storm water management as well.
107. What is the transposing law(s) of the UWWTD in Lithuania?	The main transposing act of the UWWTD is Order No. D1-193 of the Minister of Environment of the Republic of Lithuania of 2 April 2007 on approval of Regulation on Surface Waste Water Management (O.J. 2007, No. 42 item 1594), <i>Lietuvos Respublikos aplinkos ministro 2007 m. balandžio 2 d. įsakymas Nr. D1-193 dėl Paviršinių nuotekų tvarkymo reglamento patvirtinimo</i> (Žin., 2007, Nr. 42-1594)⁵⁸⁶. Among other implementing acts there is one act supplementing transposition of the UWWTD and directly related to this study, i.e. Order No. 390 of the Minister of Environment of 21 July 2003 on approval of Construction Technical Regulation STR 2.07.01:2003 “Water supply and waste water management. Engineering systems of a structure (building). Outdoor engineering networks”, <i>Lietuvos</i>

⁵⁸⁴ Contacts interviewed for this report: Ramunas Geguzis, lecturer, Aleksandras Stulginskis University, e-mail: ramunas.geguzis@asu.lt.

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Irmantas Valunas, Head of Water Policy Unit, Ministry of Environment, e-mail: i.valunas@am.lt.

⁵⁸⁵ Available in Lithuanian at http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=494124.

⁵⁸⁶ Available in Lithuanian at http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=295779.

Basic information	
	<i>Respublikos aplinkos ministro 2003 m. liepos 21 d. įsakymas Nr. 390 dėl Statybos techninio reglamento STR 2.07.01:2003 "Vandentiekis ir nuotekų šalinimas. Pastato inžinerinės sistemos. Lauko inžineriniai tinklai" patvirtinimo</i>⁵⁸⁷. Another relevant act is the Order No. D1-1120 of the Minister of Environment of 28 December 2012 on approval of Order on Accounting of Water Use and Waste Water Management (O.J. 2013, No. 3 item 88), <i>Lietuvos Respublikos aplinkos ministro 2012 m. gruodžio 28 d. įsakymas Nr. D1-1120 dėl Vandens naudojimo ir nuotekų tvarkymo apskaitos tvarkos aprašo patvirtinimo (Žin., 2013, Nr. 3-88)</i>⁵⁸⁸.
108. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Some provisions of the Construction Technical Regulation STR 2.07.01:2003 "Water supply and waste water management. Engineering systems of a structure (building). Outdoor engineering networks" adequately transpose Section A of Annex I to the UWWTD. The quotation: "430. ... The outdoor collecting system must be designed so that receiving waters do not receive discharge exceeding the receiving water's loading capacity" "431. Designed outdoor collecting system must be protected from the overflow and overload in cases of heavy rainfalls of defined intensity and frequency".
109. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	One provision of the Regulation on Surface Water Management is indirectly related to the protection of receiving waters from pollution by storm water overflows: "7. ... during designing of storm water management systems ... technical solutions that reduce surface water pollution have to be examined and, if possible, applied (for example, dry cleaning of potentially contaminated areas, establishment of awnings at the most dangerous places in regard to pollution, etc.)". Such a transposition does not seem fully adequate, as prevention measures are not listed.
110. What is the terminology used to refer to storm water overflows in Lithuania? Is there more than one term used?	Definition of storm water overflow is provided only in the Construction Technical Regulation STR 2.07.01:2003 "Water supply and waste water management. Engineering systems of a structure (building). Outdoor engineering networks": <i>"14.8 ištvėnimasis – būklė, kai vartotas vanduo ir (arba) paviršinės nuotekos išsiveržia iš nuotakyno arba negali į jį įtekėti ir lieka paviršiuje ar išsilieja pastatuose"</i> Translation into English: "Overflow – a condition when used water and (or) surface (storm) wastewater escapes from the sewerage (collecting system) or cannot flow into it and stays on the surface or spills over in buildings." Available in Lithuanian at http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=216857&p_tr2=2.
111. Is there a definition of storm water overflow in Lithuania?	No more definitions have been observed except for the definition provided above.
112. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Lithuania have a definition of extreme or unusual rainfall event?	Some definitions are provided in the Governmental Resolution No. 241 of 9 March 2006 on approval of Extreme Events Criteria⁵⁸⁹: "2.1.2. Heavy rainfall is defined as amount of precipitation of 50÷80 mm falling in 12 hours and less" "2.2.2. Very heavy rainfall – amount of precipitation of more than 80 mm falling in 12 hours and less" "2.2.3. Long lasting very heavy rainfall – case when amount of precipitation which has fallen during 5 days exceeds average monthly rainfall".

⁵⁸⁷ Available in Lithuanian at http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=216857&p_tr2=2.

⁵⁸⁸ Available in Lithuanian at http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=441019&p_tr2=2.

⁵⁸⁹ Available in Lithuanian at http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=271723.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
31. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	The Regulation on Surface Waste Water Management is the main national legal act establishing general environmental requirements for the surface water management, requirements for the management of surface water from potentially contaminated areas, requirements for the surface water discharge into the environment and into the sewerage, as well as provisions for obtaining pollution permits for the surface water discharge. The related legal act does not specifically refer to storm water overflow, but it concerns all surface water, which includes storm water. Design of surface water management systems, calculation of storm water flow, etc. has to be carried out according to the Construction Technical Regulation STR 2.07.01:2003 “Water supply and waste water management. Engineering systems of a structure (building). Outdoor engineering networks”. The current legal act establishes essential requirements for the water supply and waste water management engineering systems located in the building as well as outdoor. It refers directly to the storm water overflow and provides for its definition. The RBMPs developed in accordance with the Water Framework Directive for the 1st and 2nd cycles indicate storm water as a pressure. The Plans provide some information about the total amounts of surface water discharges and the water bodies where the storm water discharge is a reason for not reaching good water status. For example, in the Programme of Measures (PoM) of the 1st cycle Nemunas RBMP the pollution load from storm water runoff was estimated to account for about 22 % of total BOD7, 23 % of total phosphorus and 16 % of the total nitrogen load generated by point pollution sources. Additional studies for the purpose of identifying the presence of hazardous substances, nutrients, and suspended matter and oil products in storm water discharges in problematic areas were conducted during the 1st cycle. The necessity for the expansion of the surface runoff treatment systems on the basis of study findings was assessed. Similar measures are foreseen also in the draft PoM of the 2nd cycle RBMP. However, there are no measures foreseen to manage storm water overflows specifically.
32. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	According to the Regulation on Surface Waste Water Management, concentrations of pollutants in the storm water that is discharged into the environment must not exceed the following values: ■ The annual average concentration for suspended solids – 30 mg/l; ■ The annual average concentration for biochemical oxygen demand (BOD5) – 25 mg/l; ■ The annual average concentration for oil products – 5 mg/l; ■ Maximum concentrations for priority hazardous substances are set out in Annex I and hazardous substances – in Annex II to the Regulation on Waste Water Management approved by the Order No. D1-515 of the Minister of Environment of the Republic of Lithuania on 8 October 2007 (link: http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=307075).
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives	

Overview of legal and policy framework. Relevant references to storm water overflows.

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Construction Technical Regulation STR 2.07.01:2003 “Water supply and waste water management. Engineering systems of a structure (building). Outdoor engineering networks” approved by Order No. 390 of the Minister of Environment on 21 July 2003 Link: http://www3.lrs.lt/pls/inter3/dokpai.eska.showdoc_l?p_id=216857&p_tr2=2. Order on Accounting of Water Use and Waste Water Management approved by Order No. D1-1120 of the Minister of Environment of 28 December 2012 Link: http://www3.lrs.lt/pls/inter3/dokpai.eska.showdoc_l?p_id=441019&p_tr2=2.	Ištvvinimas – būklė, kai vartotas vanduo ir (arba) paviršinės nuotekos išsiveržia iš nuotakyno arba negali į jį įtekėti ir lieka paviršiuje ar išsilieja pastatuose. Išsiliejimas į aplinką (no definition, only translation provided).	Overflow – a condition when used water and (or) surface (storm) wastewater escapes from the sewerage (collecting system) or cannot flow into it and stays on the surface or spills over in buildings. Overflow (no definition, only translation provided).
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			

Overview of legal and policy framework. Relevant references to storm water overflows.				
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N/A			
HELCOM	N			
Barcelona Convention	N/A			
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	N/A			
Rhine Convention	N/A			
Oder Convention	N/A			
Elbe Convention	N/A			
Conv. Transboundary Watercourses and International Lakes	N			
<i>Other direct references to storm water overflows</i>				
Type of document	Title of document		Summary description	
<i>Legal, national level</i>	Construction Technical Regulation STR 2.07.01:2003 "Water supply and waste water management. Engineering systems of a structure (building). Outdoor engineering networks" approved by Order No. 390 of the Minister of Environment on 21 July 2003 Link: http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=216857&p_tr2=2 .		STR 2.07.01:2003 sets up provisions regarding the design of surface wastewater collection systems, calculation of storm water flow, etc. It also establishes essential requirements for the water supply and waste water engineering systems located in the building as well as outdoor. It refers directly to the storm water overflow and provides its definition. However, it does not provide any special measures for storm water overflows. There is only one provision to some extent related to this issue: "seeking to reduce heavy rainfall discharges, discharge control devices can be installed in catchment areas".	
<i>Legal, national</i>	Regulation on Surface Waste Water Management		Regulation on Surface Waste Water Management establishes environmental requirements for surface water	

Overview of legal and policy framework. Relevant references to storm water overflows.

<i>level</i>	approved by Order No. D1-193 of the Minister of Environment of the Republic of Lithuania of 2 April 2007 Link: http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_i d=295779.	collection, treatment and discharge seeking to protect environment from pollution. As it was indicated in Part 1 of the report, one provision of the Regulation on Surface Water Management is indirectly related to the measures for storm water overflows: “7. ... during designing of storm water management systems ... technical solutions that reduce surface water pollution have to be examined and, if possible, applied (for example, dry cleaning of potentially contaminated areas, establishment of awnings at the most dangerous places in regard to pollution, etc.)”
<i>Legal, national level</i>	Order on Accounting of Water Use and Waste Water Management approved by Order No. D1-1120 of the Minister of Environment on 28 December 2012 Link: http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_i d=441019&p_tr2=2.	Order on Accounting of Water Use and Waste Water Management sets up requirements for economic entities regarding accounting of water use and waste water management and annual reporting to the Environmental Protection Agency. Waste water (including domestic, industrial and storm water) management accounting includes accounting of the amount of waste water discharged, amount of pollutants discharged, etc. Waste water management entities are obliged to report on the length of waste water management systems, their types (separate, mixed or both). It is worth to point out that related Regulation refers directly to overflows asking entities to indicate whether they have prepared plans for the maintenance of waste water collection system in order to avoid waste water penetration and overflow to the environment. Moreover, companies are asked to indicate what measures they apply during the construction and maintenance of waste water management systems seeking to avoid waste water penetration and overflow to the environment. For example, the entity needs to mark which measure it applies among: ■ Pressure test, ■ Regular video-observing, applying TV diagnostics, ■ Other (indicate). The Regulation entered into force on 1 January 2013. The first reporting year was 2014. However, the related information is not available yet. The first reliable information is expected to be collected in 2016-2017.
<i>Policy, River basin level</i>	Nemunas River Basin District Management Plan approved by Resolution No. 1098 of the Government of the Republic of Lithuania on 21 July 2010 Link: http://vanduo.gamta.lt/cms/index?rubricId=7b119b35-84ac-4d02-8967-287b9918e5c4. Dauguva River Basin District Management Plan approved by Resolution No. 1616 of the Government of the Republic of Lithuania on 17 November 2010 Link: http://vanduo.gamta.lt/cms/index?rubricId=7b119b35-84ac-4d02-8967-287b9918e5c4.	The RBMPs developed in accordance with the Water Framework Directive for the 1st and 2nd cycles indicate storm water as a pressure and provide some information about the total amounts of surface water discharges and the water bodies where the storm water discharge is a reason for not reaching good water status. However, there are no measures foreseen to manage storm water overflows in particular.

Overview of legal and policy framework. Relevant references to storm water overflows.

Lielupe River Basin District Management Plan approved by Resolution No. 1618 of the Government of the Republic of Lithuania on 17 November 2010

Link:

<http://vanduo.gamta.lt/cms/index?rubricId=7b119b35-84ac-4d02-8967-287b9918e5c4>.

Venta River Basin District Management Plan approved by Resolution No. 1617 of the Government of the Republic of Lithuania on 17 November 2010

Link:

<http://vanduo.gamta.lt/cms/index?rubricId=7b119b35-84ac-4d02-8967-287b9918e5c4>.

Drafts of Nemunas, Dauguva, Lielupe and Venta River Basin Districts' Management Plans covering period 2015-2021

Link:

<http://vanduo.gamta.lt/cms/index?rubricId=5add6fc1-6463-4574-b93a-9ef3efd55650>.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
76. Which types of sewer system does Lithuania have?	Lithuania has both types of sewer systems (combined and separate). ⁵⁹⁰ Absolute majority of systems are separate. Combined systems historically remained in old towns of some big cities.
77. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	There is no specific aggregated data provided in the official sources. However, according to the information from the Water Suppliers' Association ⁵⁹¹ and the National Commission for Energy Control and Prices ⁵⁹² , there are more than 10,000 km of sewer networks (without the separate ones for storm water) in Lithuania. No specific numbers on storm water sewers exist; however, according to various sources related to the discharge points and volumes of wastewater and storm water etc., the separate storm water networks could make up approximately half of the wastewater networks. One of the sources, for example, is the Lithuanian study "Development of Feasibility Studies for the Storm water Management Systems in Selected Municipalities and Preparation of Recommendations for the Installation of Such Systems in Typical Cases" of 2009 ⁵⁹³ , prepared by the company <i>Projektų gama</i> . It is stated in the report that, according to a survey on the storm water network carried out among 60 municipalities in Lithuania, 24 responses were received which suggested that 2626 km of the storm water network were available in the municipalities surveyed. According to expert judgement ⁵⁹⁴ , the actual length could be approximately twice that number.
78. How many storm water overflows infrastructures exist in Lithuania?	No specific information found.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
79. Is there information on the occurrence of storm water overflows?	No specific information found.
80. Are storm water overflows monitored in Lithuania? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	No specific information found.

⁵⁹⁰ Source: expert's, who has prepared this report, knowledge, as well as interviews with Irmantas Valunas and Mindaugas Simanskis etc.

⁵⁹¹ *Lietuvos miestų ir rajonų vandentvarkos įmonių 2012 m. veiklos rodikliai, Lietuvos vandens tiekėjų asociacija, Vilnius, 2013.* (Operating Indicators of Water Utilities of Lithuanian cities and districts, statistical publication of Lithuanian Water Suppliers' Association; not available on the Internet).

⁵⁹² Annual reports of the National Commission for Energy Control and Prices: <http://www.regula.lt/Puslapiai/bendra/Veikla/veiklos-rezultatai.aspx> and an interview with Irmantas Valunas, head of Water Policy Unit in the MoE.

⁵⁹³ *Lietaus nuotekų tvarkymo sistemų parinkose gyvenvietėse įrengimo galimybių studijų atlikimas bei rekomendacijų šių sistemų įrengimui atskirais tipiniais atvejais Lietuvoje parengimas. Galutinė ataskaita, UAB Projektų gama, Kaunas, 2009* (Development of Feasibility Studies for the Storm water Management Systems in Selected Municipalities and Preparation of Recommendations for the Installation of Such Systems in Typical Cases. Final Report, prepared for the Environmental Protection Agency by Projektų gama, Kaunas, 2009).

⁵⁹⁴ Source: expert, who prepared this report, and Irmantas Valunas, head of Water Policy Unit in the MoE.

FACTSHEET FOR LUXEMBOURG⁵⁹⁵

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
113. What are the competent authorities for waste water treatment and management in Luxembourg?	The Water Administration (<i>Administration de l'Eau</i>) is the authority in charge of all matters related to water management, including waste water. Its department on the Protection of Water Bodies is competent regarding, a.o.: ▪ The planning of the collection and depollution of urban waste water, the assessment of technical and economic aspects of related projects, the analysis of grant applications relating thereto and the monitoring of the implementation; ▪ The monitoring of the functioning of disposal and treatment plants for urban and industrial waste water. At municipal level, there are 11 wastewater unions each covering the territory of several municipalities. These unions are responsible for controlling the flow of wastewater towards treatment plants, as well as the efficiency of the treatment (through analyses of the discharges).
114. What is the transposing law(s) of the UWWTD in Luxembourg?	Luxembourg has transposed the UWWTD through the Grand Ducal Regulation of 13 May 1994 regarding the treatment of urban waste water (O.J. A 1994, p.931), <i>Règlement grand-ducal du 13 mai 1994 relatif au traitement des eaux urbaines résiduaires</i> (Mémorial A 1994, p. 931) (hereafter GDR UWW) ⁵⁹⁶ .
115. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD is transposed in Annex I, A of the GDR UWW in a literal manner (compared to the French version of the Directive), i.e.: “The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding: ▪ volume and characteristics of urban waste water, ▪ prevention of leaks, ▪ limitation of pollution of receiving waters due to storm water overflows.” The term storm water overflows is translated as “<i>surcharges dues aux pluies d'orage</i>”, as in the French version of the Directive.
116. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	The footnote is literally transposed as “Given that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall, measures shall be taken to limit pollution from storm water overflows. Such measures could be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable number of overflows per year”. Luxembourg did not specify in more detail any of these measures neither in the GDR UWW nor in any other implementing act.
117. What is the terminology used to refer to storm water overflows in Luxembourg? Is there more than one term used?	In the transposing legislation, the term storm water overflows is translated as “ <i>surcharges dues aux pluies d'orage</i> ”, as in the French version of the Directive. Yearly activity reports contain a section on the management of waters refers to “hydraulic overloads” or “ <i>surcharges hydrauliques</i> ” that apply to any type of overflow.

⁵⁹⁵ The expert conducted an interview with Dr. Jean Paul Lickes, Department of Water Management of Luxembourg to support the findings of the study.

⁵⁹⁶ GDR UWW text available here: <http://www.legilux.public.lu/leg/a/archives/1994/0048/a048.pdf#page=3>.

Basic information	
	It stems out of policy documents and official websites ⁵⁹⁷ that the common term used to refer to storm water overflow systems is “ <i>déversoir d’orage</i> ” (pipes) and “ <i>bassin d’orage</i> ” (storm water reservoir). These terms are however not used in any of the related legislations.
118. Is there a definition of storm water overflow in Luxembourg?	No, but they are calculated on the basis of the ATV A 128 (German Association for Water, Wastewater and Waste DWA). ⁵⁹⁸
119. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Luxembourg have a definition of extreme or unusual rainfall event?	No, but the guidance of the ALUSEAU (Association luxembourgeoise des services d’eau) indicates some references about rain intensity (technical instruction ALU-21/01) ⁵⁹⁹

⁵⁹⁷ Official webpage on storm water weirs: http://www.eau.public.lu/eaux_usees_pluviales/assainissement/deversoir_orage/index.html; official webpage on storm water basins: http://www.eau.public.lu/eaux_usees_pluviales/assainissement/bassin_orage/index.html; Waters in Luxembourg (*Les eaux au Luxembourg*), Department of Water Management, 4 November 2013, <https://www.gouvernement.lu/3351141/Annexe-10b.pdf>; Implementation of the Water Framework Directive - Management plan for Luxembourg, December 2009, http://www.eau.public.lu/actualites/2010/03/plan_de_gestion_fr/1_plan_de_gestion_fr.pdf; Draft management plan for the Luxembourg shares in the international river basin Rhine and Maas (2015-2021), http://www.eau.public.lu/directive_cadre_eau/directive_cadre_eau/2015-2021_2e_cycle/Plan-de-gestion/150220-Entwurf-BWP_final.pdf.

⁵⁹⁸ Information added by the Luxembourgish competent authority.

⁵⁹⁹ Information added by the Luxembourgish competent authority.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
<i>Overview of legal and policy framework</i>	
33. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	No specific measure or framework exists, in addition to what established by the UWWTD transposing Regulation. Storm water overflows are regulated as part of the broader regulatory frameworks of the Water Framework Directive and the Urban Waste Water Treatment Directive. The Grand Ducal Regulation of 13 May 1994 regarding the treatment of urban waste water (<i>Règlement grand-ducal du 13 mai 1994 relatif au traitement des eaux urbaines résiduaires</i>) almost literally transposes the Urban Waste Water Treatment Directive. Section A (2) of Annex I to the UWWTD is transposed in Annex I, A of the GDR UWW in a literal manner (compared to the French version of the Directive). The footnote in Sections A and B of Annex I to the UWWTD is literally transposed in Annex I, A of the GDR UWW. The term storm water overflows is translated as “<i>surcharges dues aux pluies d'orage</i>”, as in the French version of the Directive. The Law related to water of 19 December 2008 (<i>la loi du 19 décembre 2008 relative à l'eau</i>) is the main piece of legislation transposing Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. It is only relevant for storm water installations in so far as Article 23 of the Law related to water regulates the permitting of any type of installations related to water - in so included storm water overflows (basins and pipes). Pursuant to Article 23 of the Law related to water, the central administration is in charge of establishing the conditions that must be respected by any installation built for the “direct or indirect discharge of water of some kind into surface waters or groundwater, including artificial recharge or augmentation of groundwater” (Art. 23 (1) (c)). The legislation does not directly refer to storm water overflows. Following an interview with an official from the Department for Water Management of Luxembourg⁶⁰⁰, it appears that the administration is largely basing itself on the German conditions, such as the standards DWA-A-117 (retention basins), ATV-A-128 (storm water basins and storm water overflow) and DWA-A-118 (sewage systems). Regarding other documents, there are two webpages from the water administration of Luxembourg dedicated to storm water basins and storm water pipes. These webpages provide brief description of these systems without specific data on the existing number of overflow structures in Luxembourg. Direct references to storm water overflows were also found in the following documents (please see below for the links to the documents): - Yearly Report 2014 – Directorate Energy – Environment (canalization service), 2014; - Waters in Luxembourg (Les eaux au Luxembourg), Department of Water Management, 2013; - Implementation of the Water Framework Directive - Management plan for Luxembourg, 2009; - Guidelines for handling rainwater in residential areas in Luxembourg, Water Administration, 2013.

⁶⁰⁰ Interview with Dr. Lickes, Department for Water Management of Luxembourg, 18.05.2015.

Overview of legal and policy framework. Relevant references to storm water overflows.

34. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	As above. Following an interview with an official from the Department for Water Management of Luxembourg⁶⁰¹, it appears that the administration is largely basing itself on the German conditions, such as the standards DWA-A-117(storm water basins), ATV-A-128 and DWA-A-118 (sewage systems).

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Grand Ducal Regulation of 13 May 1994 regarding the treatment of urban waste water (O.J. A 1994, p.931), <i>Règlement grand-ducal du 13 mai 1994 relatif au traitement des eaux urbaines résiduaires</i> (Mémorial A 1994, p. 931) (hereafter GDR UWW). Link: http://www.legilux.public.lu/leg/a/archives/1994/0048/a048.pdf#page=3 Section A (2) of Annex I to the UWWTD is transposed in Annex I, A of the GDR UWW in a literal manner (compared to the French version of the Directive), The footnote in Sections A and B of Annex I to the UWWTD is literally	Annex I, A of the GDR UWW <i>“La conception, la construction et l’entretien des systèmes de collecte sont entrepris sur la base des connaissances techniques les plus avancées, sans entraîner des coûts excessifs, notamment en ce qui concerne :</i> <i>— le volume et les caractéristiques des eaux urbaines résiduaires,</i> <i>— la prévention des fuites,</i> <i>— la limitation de la pollution des eaux réceptrices résultant des surcharges dues aux pluies d’orage.”</i> Annex I, A of the GDR UWW. <i>“Etant donné qu’en pratique il n’est pas possible de construire des réseaux de collecte et des stations d’épuration permettant de traiter toutes les eaux usées dans des situations telles que la survenance de précipitations exceptionnellement fortes, des mesures seront prises pour limiter la pollution résultant des surcharges dues aux pluies d’orages. Ces mesures peuvent se fonder sur les taux de dilution ou la</i>	Annex I, A (2) of the GDR UWW prescribes that: “The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding : — volume and characteristics of urban waste water, — prevention of leaks, — limitation of pollution of receiving waters due to storm water overflows.” The footnote states that “Given that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall, measures shall be taken to limit pollution from storm water overflows. Such measures could be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable number of overflows per year”.

⁶⁰¹ Interview with Dr. Lickes, Department for Water Management of Luxembourg, 18.05.2015.

Overview of legal and policy framework. Relevant references to storm water overflows.				
		transposed in Annex I, A of the GDR UWW.	<i>capacité par rapport au débit par temps sec ou indiquer un nombre acceptable de surcharges chaque année.”</i> The term storm water overflows is translated as “ <i>surcharges dues aux pluies d'orage</i> ”, as in the French version of the Directive.	
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	Water Administration Website: The Department for Water Management of Luxembourg provides succinct explanation on the functioning of storm water weirs and storm water basins. The pages contain the paragraphs copied here along with a schematic illustration of those installations. 1. Storm water weirs: Link: http://www.eau.public.lu/eaux_usees_pluviales/assainissement/deversoir_orage/index.html . 2. Storm water basin:	1. <i>Fonctionnement d'un déversoir d'orage</i> <i>Par temps sec, l'ensemble des eaux usées est évacué vers la station d'épuration. En règle générale les déversoirs d'orage sont dimensionnés de façon à évacuer le débit critique. Par temps de pluie le niveau d'eau mixte dépasse le seuil de déversement et les eaux mixtes, fortement diluées, sont évacuées vers le ruisseau récepteur.</i> 2. <i>Fonctionnement d'un bassin d'orage</i>	1. <u>Functioning of a storm water weirs</u> When the weather is dry, all waste waters are evacuated towards the treatment plant. Generally speaking, storm water weirs are dimensioned for evacuating the critical flow. When the weather is rainy, the level of mixed water exceeds the flow threshold, and the mixed waters, significantly diluted, are evacuated towards the receiver stream. 2. <u>Functioning of a storm water basin</u>

Overview of legal and policy framework. Relevant references to storm water overflows.

		Link: http://www.eau.public.lu/eaux_usees_pluviales/assainissement/bassin_orage/index.html.	<i>Par temps sec, le bassin d'orage reste vide. L'ensemble des eaux usées est acheminé vers la station d'épuration biologique. (image 1). Lors d'un événement pluvial la station d'épuration biologique n'est pas en mesure de traiter l'ensemble de l'effluent. C'est pour cela que le premier flot d'eaux usées, dont la charge polluante est très élevée, est entrestocké dans le bassin d'orage. (image2) Lorsque le bassin d'orage est rempli et a atteint le seuil de déversement, les eaux qui arrivent dans le bassin d'orage sont fortement diluées et peuvent être déversées vers le ruisseau. Après l'évènement pluvial les eaux entrestockées sont évacuées vers la station d'épuration biologique. (image 3)</i>	When the weather is dry, the storm water basin remains empty. All waste waters are carried towards the biological treatment plant. (image 1). During storm events, the biological treatment plant is not able to treat the entire effluent. That is why the first flow of waste waters, whose pollutant load is very high, is stored in the storm water basin. (image 2). When the storm water basin is full and has reached the flow threshold, the waters arriving in the storm water basin are highly diluted and can be spilled in the stream. After the storm event, the stored waters are evacuated towards the biological treatment plant. (image 3).
WFD	Y	Waters in Luxembourg (<i>Les eaux au Luxembourg</i>), Department of Water Management, 4 November 2013 Link: https://www.gouvernement.lu/3351141/Annexe-10b.pdf. The document provides a state of play of Luxembourg's waters, and its related management program and programme of measures pursuant to the Water Framework Directive. On the measures to be taken regarding the treatment of wastewater, the document mentions the construction of storm water basins and other retention measures. See text on the right.	<i>“La gestion des eaux usées se caractérise par un défi majeur pour le Luxembourg en raison du retard général dans l'exécution des différentes mesures d'assainissement au niveau communal. La directive relative au traitement des eaux urbaines résiduaires (directive 91/271/CEE) prévoyait l'achèvement des stations d'épurations pour les agglomérations dépassant 10'000 pour le 31 décembre 1998, et l'achèvement des autres stations d'épuration y inclus les réseaux d'assainissement pour le 31 décembre 2005 au plus tard. Alors que cet échéancier n'a pas pu être tenu, et bien qu'un nombre de stations d'épuration ait pu être achevé pendant les dernières années, il reste un nombre important de mesures à réaliser dans le domaine de l'assainissement. Le programme de mesures du plan de gestion fait le relevé des mesures à entreprendre pour atteindre l'objectif du bon état écologique et chimique. Ainsi, il prévoit l'investissement de près de 1.080,85 millions</i>	Translation of the text in French: “Wastewater management is characterized by a major challenge for Luxembourg due to the overall delay in the implementation of the various measures on water treatment at municipal level. The directive on the treatment of urban waste water (Directive 91/271/EEC) provided for the completion of the sewage treatment plant for agglomerations exceeding 10,000 by 31 December 1998 and the completion of other treatment plants including sewerage networks by 31 December 2005 at the latest. While this deadline could not be met, and although a number of sewage treatment plants have been completed in recent years, there remain a significant number of measures to achieve in the field of sanitation. The measures of the management plan take stock of the measures to be undertaken to achieve the objective of good ecological and chemical status. So it will invest nearly 1.080,85 million euros until 2027 in the optimization and expansion of water treatment infrastructures. It is however noteworthy that

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			<i>d'euros jusqu'en 2027 dans l'optimisation et l'extension des infrastructures d'assainissement. Notons toutefois que bien qu'une partie importante de ce montant soit consacrée à la construction de nouvelles stations d'épurations, une importance équivalente a été accordée à la modernisation et extension des stations d'épuration existantes (y compris une optimisation du procédé épuratoire le cas échéant), la construction de bassins d'orages et de rétention, ainsi qu'aux réseaux de collecte des eaux usées et également des eaux pluviales."</i>	although a significant portion of this amount is spent on the construction of new wastewater treatment plants, equal importance has been given to the modernization and expansion of existing wastewater treatment plants (including optimization of the purification process if applicable), the construction of storm basins and retention, as well as wastewater collection networks and also rainwater". The document also refers to the incorporation of green infrastructures in new urban plans, in order to mitigate floods.
	Y	Implementation of the Water Framework Directive - Management plan for Luxembourg (2009-2015), December 2009 Link: http://www.eau.public.lu/actualites/2010/03/plan_de_gestion_fr/1_plan_de_gestion_fr.pdf. The document details the planned measures for the implementation of the Water Framework Directive in Luxembourg. Two mentions are made to the treatment of storm water. In descriptive part of the document, a description of surface waters is provided. It is specified that the provided figures do not include discharges from weirs and storm basins though. In the part of the document dedicated to the economic analysis, it is	District hydrographique Meuse Eaux de surface <i>Des pressions ponctuelles existent encore à ce jour. Cependant toutes les carences actuelles des stations d'épuration seront résorbées d'ici 2015. De même, toutes les localités seront connectées à des stations d'épuration d'ici 2015 (2016) et toutes les stations d'épuration prévues seront en service. Il n'y a pas de problème lié aux rejets salins ou thermiques. Au total, il y a 2 (1) stations d'épuration de capacité comprise entre 10.000 – 100.000 EH.</i> Au total, - 511 (201) t de DCO ; - 116 (62) t d'azote ; - 10 (8,5) t de phosphore sont rejetées en termes de charges annuelles. Ces chiffres ne tiennent pas compte des rejets provenant de déversoirs, de bassins d'orage et, de stations d'épuration mécaniques et biologiques ayant une capacité <2000EH. (les chiffres entre parenthèses se réfèrent au Plan de Gestion actualisé en 2015) Résumé de l'analyse économique des programmes de mesures	Meuse river basin Surface water Occasional pressures still currently exist. However, all the current shortcomings of the treatment plants will be absorbed by 2015. Similarly, all communities will be connected to sewage treatment plants by 2015 (2016) and all treatment plants planned to be in service. There is no problem with saline or waste heat. In total there are 2 (1) treatment plants whose capacity range from 10,000 to 100,000 PE. In total, - 511 (201) t COD; - 116 (62) t of nitrogen; - 10 (8,5) t of phosphorus are released in terms of annual charges. These figures do not include discharges from weirs, storm basins, and mechanical and biological treatment plants with a capacity <2000EH (the numbers in brackets refers to the last update of the 2015 management plan) Summary of the economic analysis of the programmes of measures

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		mentioned that the construction of water treatment plants, collecting networks and storm water basins are the three measures that represent the major part of investments for urban water management. Implementation of the Water Framework Directive – Draft management plan for Luxembourg (2015-2021), March 2015 Link: http://www.eau.public.lu/directive_cadre_eau/directive_cadre_eau/2015-2021_2e_cycle/Plan-de-gestion/150220-Entwurf-BWP_final.pdf The draft document (in German) details the planned measures for the implementation of the Water Framework Directive in Luxembourg. A revised version following the public consultation is not yet available.	<u>Ventilation des investissements pour les mesures en matière de gestion des eaux urbaines</u> Les investissements totaux prévus d'ici 2027 pour les mesures en matière de gestion des eaux urbaines s'élèvent à 1 080,85 millions d'euros. La construction de stations d'épuration et de bassins d'orage passe par l'aménagement des infrastructures des réseaux de collecte ; ces trois mesures représentent la part essentielle des investissements (86 %).	<u>Investment categories for measures for urban water management</u> The total investment planned by 2027 for measures on urban water management amounted to 1 080 850 000 euros. The wastewater treatment plant construction and storm basins through infrastructure development of collection networks; these three measures represent the major part of investments (86%).
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English

Overview of legal and policy framework. Relevant references to storm water overflows.				
OSPAR	N			
HELCOM	N/A			
Barcelona Convention	N/A			
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	N/A			
Rhine Convention	Y	Draft management plan for the Luxembourg shares in the international river basin Rhine and Maas (2015-2021) Link: http://www.eau.public.lu/directive-cadre-eau/directive-cadre-eau/2015-2021_2e_cycle/Plan-de-gestion/150220-Entwurf-BWP_final.pdf This document describes the development of the 'Implementation of urban water management measures from 2009' in Luxembourg. In this context, it includes information on the construction of storm water overflow retention basins. As can be seen in the translated paragraph of this document on the right, Luxembourg sees the construction of these retention basins as the measure to reduce untreated waste water discharge into waters.	„Regenüberläufe werden, wo nötig, durch Regenüberlaufbecken erweitert/ersetzt. Sämtliche Regenüberlaufbecken werden in Luxembourg nach der Norm ATV-A 128 dimensioniert und entsprechen somit dem Stand der Technik. Die verbleibenden Regenüberläufe, die nicht zu Regenüberlaufbecken umgebaut werden müssen, werden nach der Norm ATV-A 128 optimiert (Anpassung des Trockenwetterabflusses und des Mischverhältnis im Überlauf) und mit einem Feinrechen ausgestattet“.	Storm water overflows will be, where necessary, extended/replaced by storm water overflow retention basins. All storm water overflow retentions in Luxembourg are dimensioned after the standard ATV-A 128 and therefore correspond to the state-of-the-art. The remaining storm water overflows, which do not need to be transformed into storm water overflow retention basins, will be optimised according to the standard ATV-A 128 (adaptation of the dry weather flow and the mixing concentration at the overflow) and will be equipped with a fine screen.
Oder Convention	N/A			
Elbe Convention	N/A			
Conv.	N			

Overview of legal and policy framework. Relevant references to storm water overflows.				
Transboundary Watercourses and International Lakes				
<i>Other direct references to storm water overflows</i>				
Type of document	Title of document		Summary description	
Policy, municipal level	Yearly Report 2014 – Directorate Energy – Environment (canalization service) Link: http://download.rtl.lu/2015/03/20/f08bebc3ff032f7dd52e5d5fa657896.pdf		The document is a yearly report of the canalization service of the city of Luxembourg. It provides an overview of the waste water system in place, the piping network, waste water treatment plants and future investments. It mentions the role and number of existing storm water basins in the agglomeration of the city of Luxembourg. Other yearly reports from wastewater unions can be found on their respective webpage (SIDEN, SIDERO, SIACH, SIDEST, STEP and SIVEC)	
Guidance (brochure), national level	Guidelines for handling rainwater in residential areas in Luxembourg, Water Administration, 2013 Link: http://www.eau.public.lu/publications/brochures/Regenwasserleitfaden/Leitfaden_pdf.pdf		The document is a spatial planning guidance manual on handling rainwater in urban areas in Luxembourg. It describes different practices of water management to reduce flooding, which include for example an increase in non-sealed surfaces to allow better percolation of rain water etc. The document also describes the advantages of separate sewage systems over combined systems. In this document, scenarios of urban areas are discussed, based on theoretic examples with varying permeable soil/underground.	

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
81. Which types of sewer system does Luxembourg have?	Both combined and separate sewer systems are used in Luxembourg although the vast majority of the population and of the sewage network is reported to be a combined one⁶⁰². The interview confirmed that about 10% of the sewage system in Luxembourg is a separate one. The objective is for all future works (public infrastructure, private construction) to build separate sewage system in order to gradually move the overall sewage system of Luxembourg from a combined one to a separate one.
82. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	Quantitative information is not centralised at national level, and must be found (if any) at the level of the 11 wastewater unions (municipal level). For the city (and agglomeration) of Luxembourg, the canalization service reports that 71% of the network is a separate sewer system (for 29% of mixed sewer system). It reports that the total length of pipes is 187km (waste water), 215km (rain water) and 182km (mixed water)⁶⁰³. For the city of Esch, the canalization service reported on February 2015 a separate sewer system that amounts to 195km of pipes (55% rain water, 45% wastewater)⁶⁰⁴.
83. How many storm water overflows infrastructures exist in Luxembourg?	Quantitative information is not centralised at national level, and must be found (if any) at the level of the 11 wastewater unions (municipal level). For the city (and agglomeration) of the city of Luxembourg, the canalization service reported in 2014 on the total volume (m3) that can be retained in the existing storm water basins: 16.967 m3 (rain water basins) and 14.626 m3 (unit systems). The reported information does not specify the number of storm water overflows infrastructures⁶⁰⁵.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
84. Is there information on the occurrence of storm water overflows?	No aggregated data is provided at national level on the occurrence of storm water overflow. Data from the official meteorology service highlights the number of storms per month. Per year there were: 28 storms in 2014, 42 in 2013, 31 in 2012 and 39 in 2011. The yearly and monthly reports are available on the meteorology service website⁶⁰⁶.

⁶⁰² Water administration website. Link: http://www.eau.public.lu/eaux_usees_pluviales/assainissement/index.html.

⁶⁰³ Department for Energy and Environment of the City of Luxembourg, Activity Report 2014. Link: <http://download.rtl.lu/2015/03/20/f08bebc3ff032f7dd52e5d5fa657896.pdf>.

⁶⁰⁴ City of Esch website. Link: http://www.esch.lu/tribunes/Documents/Travaux/20150212_CP_service%20canalisation_v2.pdf.

⁶⁰⁵ Department for Energy and Environment of the City of Luxembourg, Activity Report 2014. Link: <http://download.rtl.lu/2015/03/20/f08bebc3ff032f7dd52e5d5fa657896.pdf>.

⁶⁰⁶ Meteorology service website: <http://www.meteolux.lu/climatologie>.

Available data on storm water overflows

85. Are storm water overflows monitored in Luxembourg? If yes, please describe the monitoring programme. Refer to:

- what is measured;
- how often; and
- at how many locations

No aggregated data is provided at national level on the occurrence of storm water overflow.
See above for the monitoring of storms.

FACTSHEET FOR MALTA⁶⁰⁷

1. BASIC INFORMATION

Basic information	
General Information	
120. What are the competent authorities for waste water treatment and management in (Malta)?	In Malta, there is no specific authority for storm water overflows. On the other hand there are a number of authorities with general competencies on waste water treatment. These authorities are the Malta Environment and Planning Authority, the Malta Resources Authority, the Water Services Corporation, and also the Malta Transport Authority. Their roles are further explained below. LN 340/2001 on the Urban Waste Water Treatment Regulations, 2001 as amended by LN 192/2004⁶⁰⁸, transposes Council Directive (91/271/EEC) of 21 May 1991. These Regulations relate to the collection, treatment, and discharge of urban waste water and the treatment and discharge of waste water from certain industrial sectors. The Legal Notice is mainly directed at all the relevant authorities, which are concerned with the treatment of urban waste water and which have a major say in the prevention of damage done to the environment by such urban waste water. Under these regulations the <i>"competent authority"</i> means the <i>Department for Environment Protection under the guidance of the Director for Environment Protection and such other body or person as the Minister responsible for the environment may by order in the Gazette prescribe and different bodies or persons may be designated as the competent authority for different provisions and different purposes of these regulations"</i>. In fact at present the Competent Authority is the Malta Environment and Planning Authority (MEPA). There is also the Water Services Corporation set up under the Water Services corporation Act – Chapter 355 of the Laws of Malta⁶⁰⁹. Under this Act it is specifically stipulated that the Water Services Corporation amongst other things, has to provide for the treatment and for the disposal or reuse, as appropriate, of sewage and waste water, and to provide as appropriate for the use of storm water run-off from urban and rural areas. The Malta Resources Authority set up under the Malta Resources Authority Act – Chapter 423 of the Laws of Malta⁶¹⁰ has regulatory functions of the Malta Resources Authority around water, energy, and mineral resources. In relation to water specifically the Authority shall under provision 4(2)(b) amongst other things “secure and regulate the treatment, storage, disposal, use or re-use, as appropriate, of sewage, waste water, sludge and storm water run-off”. It is good to note that with the creation of the Malta Resources Authority, the responsibility for Local Water Supply and Sewage has been divided between the Malta Resources Authority (MRA) and the Water Services Corporation (WSC). MRA has the functions to regulate

⁶⁰⁷ Dr. Ing. Paul Micallef (Executive Director Water Resources and Structural Projects at the Water Services Corporation) and Ing Stefan Cachia, Manager at the Waste Water Treatment and reuse at the Water Services Corporation were interviewed for this report.

⁶⁰⁸ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11517&l=1>

⁶⁰⁹ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8825&l=1>

⁶¹⁰ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8889&l=1>

Basic information	
	and supervise activities while WSC is responsible for the operations. WSC is currently responsible for the whole water cycle in Malta and Gozo. Then when road construction will take place even the Malta Transport Authority is involved in urban waste water management. This Authority has been set up under the Authority for Transport in Malta Act – chapter 499 of the Laws of Malta⁶¹¹. And under one of the subsidiary laws adopted under this Act referred to as the New Roads and Road Citation Works Regulations (LN 29 of 2010)⁶¹² the following has been stipulated : <i>“10. No new road in an inhabited area, nor any road made with a view that it may form part of an inhabited area which may hereafter be built up, shall be made without the sanction from the Malta Environment and Planning Authority, in consultation with the Authority, as to its course, direction and position, and as to the manner in which the adjoining residential buildings are to be sewered and supplied with water and the surface water is to flow off.”</i>
121. What is the transposing law(s) of the UWWTD in (Malta)?	LN 340/2001 on the Urban Waste Water Treatment Regulations, 2001 as amended by LN 192/2004⁶¹³, transposes Council Directive (91/271/EEC) of 21 May 1991 (Avviz Legali 340/2001 Regolamenti dwar it-Trattament ta' Ilma Urban Mormi).⁶¹⁴ This is the main law which transposes the Urban Waste Water Directive. Nearly all the provisions of the Directive have been literally transposed by LN 340/2001, which entered into force on 1st May 2004, that is the date when Malta became a Member of the EU.
122. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I of the UWWTD has been literally transposed by Annex I of LN 340 of 2001. In fact the relevant provision stipulates the following: ANNEX I REQUIREMENTS FOR URBAN WASTE WATER A. Collecting systems Collecting systems shall take into account waste water treatment requirements. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding: ▪ volume and characteristics of urban waste water, ▪ prevention of leaks, ▪ limitation of pollution of receiving waters due to storm water overflows.
123. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	This footnote has been literally transposed under Annex I of LN 340 of 2001 <i>*Given that it is not possible to construe collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall. Member States shall decide on measures to limit pollution from storm water overflows. Such measures could be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable number of overflows per year.</i> Despite the fact that this footnote has been transposed, in Malta there is still no specific legislation or policy which fix criteria for limiting

⁶¹¹ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8965&l=1>

⁶¹² <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11379&l=1>

⁶¹³ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11517&l=1>

⁶¹⁴ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11517&l=2>

Basic information	
	pollution from storm water overflows.
124. What is the terminology used to refer to storm water overflows in (Malta)? Is there more than one term used?	The word storm water overflow in Malta is mainly used under LN 340 of 2001 as indicated above. In Maltese this term is referred as “<i>ilma urban mormi</i>”⁶¹⁵ Then under LN 525 of 2004 under Article 2 one finds the following definition for the word sewage: <i>"sewage" means domestic sewage and, or wastewater or the mixture of domestic sewage and, or wastewater with industrial sewage and, or wastewater and, or run-off rain water;</i>⁶¹⁶ This indicates that run off rain water or wastewater are considered as sewage, under this particular regulation. Under the LN 295 of 2007⁶¹⁷ as further amended, one also finds and which regulates the environment management on construction sites, there is reference to the term <i>surface run off and storm water run off</i>. The terms are not defined. Then under the Water Services Corporation Act, one finds the following definition: <i>"storm water run-off"</i> shall include rainwater which is not absorbed by the ground or which does not evaporate and which is not collected in cisterns;⁶¹⁸. This same term is used under the Malta Resources Authority Act – Chapter 423 of the Laws of Malta⁶¹⁹.
125. Is there a definition of storm water overflow in (Malta)?	The term storm water overflow is not defined in the law. Instead as already mentioned above under the Water Services Corporation Act, one finds the following definition: <i>"storm water run-off"</i> shall include rainwater which is not absorbed by the ground or which does not evaporate and which is not collected in cisterns;⁶²⁰. This same term is used under the Malta Resources Authority Act – Chapter 423 of the Laws of Malta⁶²¹. And also under LN 525 of 2004 under Article 2 the definition of the sewage includes wastewater or run off rain water.⁶²²
126. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does (Malta) have a definition of extreme or unusual rainfall event?	There is no explicit definition of extreme or unusual rainfall, in the regulations which regulate this matter. But in certain documents, like in the document prepared by the Malta Resources Authority entitled Preliminary Flood Risk Assessment – Final Report May 2013⁶²³, words like <i>intense rainfall events</i> are used. Another word commonly used is “flood” or “flooding”. In fact the report mentioned above is a report which highlights this problem which is mainly caused because of high urbanisation on the island. In fact the problem of flooding is mainly caused due a combination of urbanised areas that don’t incorporate storm water. In 2003, following a major rainfall event, the Government of Malta decided to tackle the problems that arise as a result of uncontrolled street surface water runoff by adopting a catchment based approach to storm water management and as much as possible encourage the re-use of rain water. This led to the formulation and adoption of the Storm Water Master Plan (SWMP)⁶²⁴ in December 2008. Under this

⁶¹⁵ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11517&l=1> – term defined under article 3 of LN 340 of 2001 as further amended.

⁶¹⁶ Water Supply and Sewerage Services Regulations – LN 525 of 2004 - <http://faolex.fao.org/docs/pdf/mlt49327.pdf>

⁶¹⁷ Environmental Management Construction Site Regulations- LN 525 of 2004 as further amended - <http://faolex.fao.org/docs/pdf/mlt49327.pdf>

⁶¹⁸ Article 2(1) of the Water Services Corporation Act – Chapter 355 of the Laws of Malta - <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8825>

⁶¹⁹ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8889>

⁶²⁰ Article 2(1) of the Water Services Corporation Act – Chapter 355 of the Laws of Malta - <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8825>

⁶²¹ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8889>

⁶²² Water Supply and Sewerage Services Regulations – LN 525 of 2004 - <http://faolex.fao.org/docs/pdf/mlt49327.pdf>

⁶²³ http://www.preventionweb.net/files/33946_33946preliminaryfloodriskassessment.pdf

⁶²⁴ Not available online, but a copy was provided by the Water Service Corporation.

Basic information

Plan the problem of flooding is mentioned, and the words “*heavy and intense storms*” are used to describe this problem of flooding in certain areas of Malta.

The aim of this plan which nowadays is being implemented partly through EU funding, is to prevent the risk of floods and to collect storm water for secondary uses, such as irrigation. The project is based on the building of tunnels for storm water collection and storage. Their expected maximum capacity is about 700,000 m³. This infrastructure could potentially help collecting about 5 to 10% of total rainfalls in the island.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
35. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	No particular policy exists in Malta specifically dedicated to control or limit storm water overflows. As indicated above there are several laws which mention this problem and also lay down provisions intended to address this problem. But in 2003, following a major rainfall event, the Government of Malta decided to tackle the problems that arise as a result of uncontrolled street surface water runoff by adopting a catchment based approach to storm water management and as much as possible encourage the re-use of rain water. This led to the formulation and adoption of the Storm Water Master Plan (SWMP) in December 2008. Under this Plan the problem of flooding is mentioned, and the words “heavy and intense storms” are used to describe this problem of flooding in certain areas of Malta. The aim of this plan which nowadays is being implemented partly through EU funding, is to prevent the risk of floods and to collect storm water for secondary uses, such as irrigation. The project is based on the building of tunnels for storm water collection and storage. Their expected maximum capacity is about 700,000 m³. This infrastructure could potentially help collecting about 5 to 10% of total rainfalls in the island. Both under this Storm Water Plan as well as under various laws which mention storm water overflows, one finds different Authorities dealing with this matter. There is the Malta Environment and Planning Authority (MEPA), which is responsible for the implementation of the urban waste regulations. Then there is the Water Service Corporation which is responsible for the treatment, disposal and reuse of sewage and waste water, and also to provide an appropriate use for storm water run-off from urban and rural areas. There is also the Malta Resources Authority which must secure and regulate the treatment, storage, disposal, use or re-use, as appropriate, of sewage, waste water, sludge and storm water run-off. And then there is the Malta Transport Authority which when planning a new road, it has to coordinate with MEPA and this Authority has to be informed about the course, direction and position, and as to the manner in which the adjoining residential buildings are to be sewed and supplied with water and the surface water is to flow off. These type of obligations are very generic in nature and definitely a more coherent legal framework is needed to specify the means of implementation, and avoid overlapping between the authorities. Another important legislation to be taken into consideration is the Code of Police Laws Chapter 10 of the Law of Malta.⁶²⁵ Under Article 97 (1)(f) (i) and (n) (viii) of Part V of this Code it is specifically provided that every house shall have a cistern in good condition, of a capacity of at least three cubic metres, for every five square metres of surface of the floor of each room of such house. Furthermore such cistern shall be made to communicate with the roof of the house by means of pipes sufficient for the passage of the rainwater falling of the said roof. And it is specifically prohibited under these articles to connect such pipe to any sewer or cesspool, septic tank or sewage treatment and disposal plant once the limit of the cistern is exceeded.

⁶²⁵ <http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8575>

Overview of legal and policy framework. Relevant references to storm water overflows.

Article 97 (1)(f)(i) and (n)(viii) of the Code of Police Laws

97. (1) In the construction of any house or part of a house, the owner as well as the mason and the architect employed thereon, shall, unless otherwise provided by any regulations made under article 102, observe the rules contained in the following paragraphs:

(f)(i) the cistern required under paragraph (n)(viii), shall be made to communicate with the roof of the house, by means of pipes sufficient for the passage of the rain-water falling on the said roof: none of such pipes shall be used to act as a ventilator of any privy, sewer, or cesspool, septic tank or sewage treatment and disposal plant; and no overflow pipe or conduit, for the carrying off of the water exceeding the capacity of the cistern, shall be connected with any sewer or cesspool, septic tank or sewage treatment and disposal plant, nor shall any other pipe or conduit for the carrying off of rain-water be, without the permission of the sanitary authority, communicated with any part of the house, so as such rain-water may find its way from such part of the house into a sewer;

(n)(viii) every house shall also have a cistern in good condition, of a capacity of at least three cubic metres, for every five square metres of the surface of the floor of each room of such house;

Furthermore, under **Schedule IV of LN 295 of 2007**⁶²⁶ as further amended, one finds reference to point source pollution from storm water and the following is stipulated:

"In order to ensure that the site under construction does not become a point source of pollution due to the surface run off it generates during construction, the following minimum prevention measures shall be undertaken accordingly in order to mitigate against circumstances such as the:

- a. contamination of road surfaces with particulate matter that is washed out from within the site;
- b. clogging of any public or private storm water drains with suspended solids washed out from within the site;
- c. wash out of hazardous waste and non-hazardous material to the marine environment;
- d. wash out of hazardous waste onto permeable land; and
- e. any other form of pollution caused from the storm water run off generated from the construction site.

Owners are therefore obliged to ensure that the site is equipped with the necessary collection sumps and pumps that enable any water discharged within the site to be collected and pumped there, avoiding the spillage of such waste water onto public or private areas."

- 36. If standards are set, please provide quantitative values where available. Is any of the following type used?**
- Number of overflows
 - Volumes of overflow
 - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow)
 - Number of days when overflows are working
 - Water quality standards of receiving water body
 - Other

No such standards exist.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

⁶²⁶ Environmental Management Construction Site Regulations- LN 525 of 2004 as further amended - <http://faolex.fao.org/docs/pdf/mlt49327.pdf>

Overview of legal and policy framework. Relevant references to storm water overflows.				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	LN 120 of 2005 ANNEX I Section A REQUIREMENTS FOR URBAN WASTE WATER	AL 120 of 2005 Regolamenti dwar Trattament ta' Ilma Urban Mormi. Considering that under the Constitution of Malta, both the Maltese and English language can be used in our laws, this Annex was not translated, and hence there is only the English version.	LN 120 of 2005 ANNEX I REQUIREMENTS FOR URBAN WASTE WATER A. Collecting systems* Collecting systems shall take into account waste water treatment requirements. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding: ▪ volume and characteristics of urban waste water, ▪ prevention of leaks, ▪ limitation of pollution of receiving waters due to storm water overflows. *Given that it is not possible to construe collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall. Member States shall decide on measures to limit pollution from storm water overflows. Such measures could be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable number of overflows per year.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English/Summary
UWWTD	Y	Storm Water Master Plan 2008 (SWMP) ⁶²⁷	(Such documentation is available in the English version only)	The SWMP addresses the twin concerns of flood relief and water conservation, as well as integrates

⁶²⁷ Not available online, but a copy was provided by the Water Service Corporation

Overview of legal and policy framework. Relevant references to storm water overflows.

				the environmental and socio-economic concerns. The Plan sets out the results of an investigation and evaluates the feasibility of identified policies and actions for: (a) A management of the various impacts associated with storm water including flooding, road infrastructure deterioration and traffic management, civil protection and valley management in general, and also with reference to particular flood prone areas and localities. This objective was met by the collection and disposal of storm water for the various basins before it accumulates in flooded areas downstream, thus reducing the negative social and economic impacts it creates. (b) Utilisation of storm water to augment the water resources of the Maltese Islands through harvesting, storage, use, re-use, recycling, distribution of storm water and proper disposal of excess. This objective was met by providing storage of the rainwater runoff in adequate reservoirs and ensuring sustained reuse of this stored water for various purposes, such as irrigation of green areas, agriculture, cleaning of roads in the dry season, recreational parks and sports facilities, and possibly introducing a water aquifer recharge system. In tackling the flooding problem, the proposed engineering solutions also propose measures that will facilitate conservation of water in addition to its removal from where it is a hazard. From a legal perspective this Master Plan clearly highlights that legislation and management for storm water needs to be more coherent. In fact it was pointed out that several ministries and authorities are in some way or another responsible to mitigate this

Overview of legal and policy framework. Relevant references to storm water overflows.				
				problem, but it was recommended that there should be a new single central agency that will accept comprehensive all-inclusive responsibility referred to as COSWMP. As for legislation under the same Storm Water Master Plan of 2008, the following was highlighted: <i>“Limiting the Government’s liability to flood damage to the risk level adopted in the SWMP design criteria (20% or as per case) and the adopted schedule of execution.</i> <i>Prohibition of the connection of drain pipes to the sewerage network.</i> <i>The construction of cisterns for the collection and reuse of rainwater in buildings.</i> <i>Imposing levies on properties releasing storm water to the streets, sewage system or even directly into the public storm water system.</i> <i>Codes including sections prohibiting discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.</i> <i>Regulations adopting substantial penalties for illegal dumping and disposal.”</i>
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR				
HELCOM				
Barcelona Convention	N			
Conv. on the Protection of the				

Overview of legal and policy framework. Relevant references to storm water overflows.				
Black Sea				
Danube Convention				
Rhine Convention				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Policy National	Structure Plan for the Maltese Islands https://www.mepa.org.mt/lpg-structureplan		The Structure Plan is the document that provides strategic guidance on land use in the Maltese Islands. Drawn up in 1990, its goals are three-fold: 1. To encourage further social and economic development of the Maltese Islands and to ensure as far as possible that sufficient land and support infrastructure are available to accommodate it. 2. To use land and buildings efficiently and consequently to channel urban development activity into existing built up areas particularly through rehabilitation and upgrading of urban areas thus constraining further inroads into undeveloped land. 3. To radically improve the quality of all aspects of the environment. Two extensive monitoring studies were carried out (in 1995 and 1997) to gauge progress in the implementation of the Structure Plan. Under the Development Planning Act 1992, as amended in 2001, the Malta Environment and Planning Authority is legally obliged to review the Structure Plan to address issues that are relevant now, or that will become relevant over the next 20 years. This Structure Plan contains policies which try to control and promote sustainable planning and development, and also try to manage and protect natural resources and the environment. In fact the one of the policies states: <i>POLICY PUT 8: In order to conserve potable water resources, the feasibility of using seawater and second class water systems in appropriate circumstances will be investigated. The efficient use and reuse of water will be maximised and integrated, including:</i> ▪ <i>Controlled aquifer recharge from surface water runoff;</i> ▪ <i>Use of treated sewage effluent (TSE) for appropriate industrial, irrigation, and other uses; and</i> ▪ <i>The management of road storm water runoff.</i> This policy is found under the subsection entitled “Utilities” and it is quoted in various environmental impact studies of big projects.	
Policy	North Harbour Local Plans (NHLP)		The NHLP has a number of general policies that are related to the storm water project. In view of the risk of	

Overview of legal and policy framework. Relevant references to storm water overflows.		
Regional	https://www.mepa.org.mt/nhlp-docs then click on North Harbour Local Plans download	flooding, policy NHTU 02 requires that all major developments, including new road schemes, provide adequate measures to collect, store and use storm water runoff. Policy NHTU 03 requires that a Catchment Management Plan is prepared for Msida Valley. This will include a flood risk assessment for the Birkirkara /Msida Valley basin. The Management Plan will need to identify Flood Risk Areas in line with the EU Floods Directive (2007/60/EC). Another requirement is for the plan to elaborate relevant development control criteria, development restrictions and flood mitigation and defence measures that are required so as to ensure the safety of the users of any development located within the identified Flood Risk Areas, and so as to ensure that flooding in the area will be effectively reduced. Policies NHMP 02 and NHMP 04 call for the regeneration and upgrading of Valley Road and Palm Square Area. The policies require, amongst others, the implementation of adequate storm water run off management measures. Policy NHMP 03 seeks to protect the remaining part of Msida Valley against development as part of the drive to reduce the risk of flooding in the Msida-Birkirkara catchment area.
Policy Regional	Central Malta Local Plan https://www.mepa.org.mt/cmlp-docs then click on Central Malta Local Plan	Briefly this policy is highlighting the problem of flooding caused by storm water overflows in the central area, and suggestions are also made on how this problem can be solved and mitigated. Relevant measures are quoted below: <i>“Policy CG30 Catchment Management Plans</i> <i>MEPA supports proposals by relevant government agencies for major improvements to storm water runoff systems in the localities identified below in conjunction with the formulation of Catchment Management Plans (CMPs) for these areas in line with the emergent EU requirements on Flood Risk: Location Area Policy Map</i> <i>Birkirkara watercourse and flood risk prone area BKMI</i> <i>Balzan watercourse and flood risk prone area BZMI</i> <i>Qormi watercourse and flood risk prone area QOMI</i> <i>MEPA will not permit any development or redevelopment within the identified Valley Watercourse areas, and all existing open spaces found within them are to be retained open and unobstructed. In addition, MEPA will not permit any new accesses (including garages) in the facades of buildings that directly front onto these Valley Watercourses.</i> <i>Proposals for development or redevelopment below road level (excluding wells and reservoirs) for sites located within Flood Risk Areas but outside Valley Watercourse areas, shall be permitted by MEPA subject to clearance from the Civil Protection Department.</i> <i>3.8.3 Surface water runoff within residential areas has intensified through the development and surfacing of once permeable spaces. This situation has been magnified through changes in weather patterns that have resulted in heavy storms producing large amounts of storm water run-off in short periods of time. This makes management of storm water runoff a priority. The flooding issue needs to be managed in an integrative manner through catchment management plans for the whole of the water catchment, and MEPA</i>

Overview of legal and policy framework. Relevant references to storm water overflows.

supports immediate proposals for improvement."

3.8.4 Flooding problems are experienced with intensity in the central localities of Balzan, Birkirkara and Qormi. A general study on flooding has been carried out as part of the Hydrology and Geology background studies for Central Malta, and this identifies all flood risk areas and watercourses located within urban areas. This was followed by more detailed additional reports on flooding within Birkirkara and Qormi that dealt with a number of persisting problems including deficiencies in water catchment management. MEPA insists that the following management measures recommended in the mentioned reports are considered in the catchment management plans for the listed localities in order to alleviate existing flooding problems within these urban areas:

A: Birkirkara and Balzan watercourse and flood risk prone area

i ; Upstream

a. The construction of a reservoir in Lija as per policy LJ07 and another reservoir at Is-Saghjtar Quarry as per policy MO03;

b. Provision of a culvert on the east side of Triq il-Mosta;

c. Consideration to be given to the possibility of diverting floodwater before it discharges into Triq Wied Hal-Balzan and Triq in-Naxxar by cutting a tunnel in order to form a drain gallery that would divert storm water to the Bahar icCaghaq area.

ii ; Within the urban area

a. In Triq il-Qasab the subsurface culvert that leads storm water across to Triq Mannarino is to be enlarged;

b. The cutting of a deep trench in order to facilitate the flow of water from Triq il-Wied directly to the watercourse in Triq il-Qasab;

c. Removal of obstructions acting as blockages during the peak risk season, including the restriction of parking in the watercourse;

d. Introduce a hydrographic station in Triq il-Wied to provide comprehensive runoff data to enable better monitoring of future flood behaviour.

B ; Qormi watercourse and flood risk prone area

i ; Upstream

a. The construction of more dams in the Wied Incita area;

b. The use of one of the Wied Incita Quarries as a natural reservoir and drain area as indicated in the Attard Area Policy Map and in Policy CG33;

c. Wied is-Sewda to be cleared of debris and silt behind the existing dams.

ii ; Within the Urban Area

a. Consideration to be given to the widening and deepening of existing culverts by at least 2 metres;

b. Reconstruction of bridges with a wider span than the proposed culverts, built at a higher level, and with minimal supports within the width of the watercourse;

c. Removal of obstructions acting as blockages during the peak risk season, including the restriction of parking in the watercourse;

Overview of legal and policy framework. Relevant references to storm water overflows.		
		<i>d. Introduce a hydrographic station in Triq il-Wied to provide comprehensive runoff data to enable better monitoring of future flood behaviour.</i> <i>iii ; Downstream</i> <i>a. The widening of the culvert at L-Istabal to an adequate width as determined by the Catchment Management Plan for Qormi;</i> <i>b. The widening and deepening of the watercourse from Triq il-Wied down to the discharge point at il-Menqa;</i> <i>c. Reconstruction of bridges with a wider span than the watercourse and with minimal supports within the width of the watercourse;</i> <i>d. Downstream improvements to the Marsa Sports Complex culverts and to the discharge point at Albertown where it is preferable to have the culvert opening directly into Church Creek by means of the development of a bridge instead of the existing road.”</i>
Policy Regional	South Malta Local Plan https://www.mepa.org.mt/smlp-docs then click on South Malta Local Plan	As above this policy is highlighting the problem in certain areas in the southern part of Malta because of flooding and storm water overflows. Apart from indicating the most effected zones, it also lays down measures which have to be followed in order to avoid and mitigate this problem especially when new developments are planned to take place. Relevant sections are quoted below: <i>“SMPU 01 Water runoff Management and Identification of Flood Prone Areas</i> <i>MEPA will cooperate with and support proposals and measures for sustainable drainage systems by entities responsible for the provision of infrastructural services to control surface water run-off, as close to its origin as possible, in the Local Plan Area and particularly in the following Flood Prone Areas, as indicated on the respective Policy Maps, and surrounding areas, particularly with regard to improvements in storm water runoff management, including measures aimed to secure control, management and more efficient collection of surface water run-off.in several areas in the south.</i> <i>In assessing developments within such areas MEPA will consult with the relevant entities. MEPA will also require that proposals for development or redevelopment within flood prone areas are carefully assessed with regard to their impact on increasing flooding and where major developments are concerned. MEPA may require a detailed Flood Risk Assessment Report to be prepared in accordance with the Terms of Reference prepared by MEPA and undertaken by a competent person approved by MEPA. The Assessment Report is to be carried out at the expense of developers and would be expected to highlight the detailed impact of the proposed development on these flood prone areas and support possible mitigation measures to overcome the problems emanating from the development. In the event that the Assessment Report concludes to the satisfaction of MEPA that development could be permitted, development will be allowed subject to any related conditions, restrictions and flood mitigation, including flood defence, measures, that may be required.</i> <i>11.4.1 Flooding occurs in a number of streets within the settlements of the plan area e.g. Tarxien, Zurrieq, Qrendi. This natural condition occurs because of the particular topographic setup of the settlement pattern and that additional development has been allowed without the provision of supporting storm water</i>

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		management measures in these areas. In the plan area, a general and preliminary study on flooding, particularly in rural areas, has been carried out as part of the Hydrological and Geological Resources Environmental Survey. Sites prone to flooding primarily within the urban settlements have been indicated by the respective Local Councils. The policy seeks to ensure that any proposed development within the flood prone areas is backed up by appropriate studies and the findings of such studies are given due attention in the process of determining such proposals. With regard to major developments it may be necessary to request the developer to commission a Flood Risk Assessment Report to ascertain the such impacts. 11.4.2 A wide range of sustainable drainage options is available, as indicated below: i. preventive measures -- eg rain-water recycling, good-practice design and maintenance; ii. filter strips and swales vegetated landscape features with smooth surfaces and a gentle downhill gradient to drain water evenly off impermeable surfaces, mimicking natural drainage patterns; iii. filter drains and permeable and porous pavements permeable surfaces to allow rainwater and run-off to infiltrate into permeable material placed below ground to store water prior to discharge; iv. infiltration devices -- below-ground or surface structures to drain water directly into the ground (soakaways, infiltration trenches, swales with infiltration and infiltration basins), which may be used at source or the run-off may be conveyed to the infiltration area in a pipe or swale; and v. basins and ponds structures designed to hold water when it rains; basins are free from water in dry weather, ponds contain water at all times and are designed to hold more when it rains; examples include detention basins, balancing/attenuation ponds and, flood storage reservoirs."
Other	Preliminary Flood Risk Report of 2013 ⁶²⁸	This report has been prepared to comply with Article 4 and 5 of the Floods Directive, which require all member states to undertake a Preliminary Flood Risk Assessment (PFRA), based on readily or readily derivable information to assess potential significant risks. This report comprises the PFRA for the Malta Water Catchment District. The information used in this report has been derived from the report on the Storm Water Master Plan for Malta, the documentation of the National Flood Relief Project together with newspaper articles. No modelling of current or future flood scenarios was carried out as part of the PFRA as this had already been done as part of the compilation of the Storm Water Master Plan and the National Flood Relief Project.
Other	An Integrated Water Management Approach to Flood Relief (IWMAFR) ⁶²⁹	This Project Description Statement (PDS) describes the proposal to implement a National Flood Relief Project, known as 'An Integrated Water Management Approach to Flood Relief' and, hereby referred to as 'IWMAFR'. The project's primary objective is to manage the impacts of storm water in flood-prone urban areas. A secondary objective is to promote options for storm water harvesting. The project aims to limit the social and economic consequences of major flood events.

⁶²⁸ http://www.preventionweb.net/files/33946_33946preliminaryfloodriskassessment.pdf

⁶²⁹ http://www.mepa.org.mt/EIACMS/documents/////PDS_WSC_stormwater_200808-20_FL.pdf

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
86. Which types of sewer system does Malta have?	Though legally and technically, the wastewater network sewers are not intended to be used as combined sewers, however, the reality is that storm water ends up into the sewer system mainly from illegal connections from households. ⁶³⁰ Experience has shown that to slightly buffer this, certain sewer networks have been so designed as to cater for very low return period storms. ⁶³¹
87. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	WSC has an inventory on its sewer network 1. Only a small percentage of population is not covered by a public sewer 2. Approximately 1600 kms including pipes with various diameters, gravity, rising mains and galleries ⁶³² With regard to the ratio of combined sewers and separate sewers there is no available data. In fact we have what is called a partially separate sewerage system in that our network was designed from the outset as a separate system but urbanization has brought about an increased cross connectivity of surface runoff sources with the sewers. ⁶³³ The following information was also given in the Storm Water Master Plan for the Maltese Islands whereby the following was written down: <i>“Storm-water</i> <i>Along the years, starting from the time the Valletta sewers were constructed, sewers and storm-water system were separated. It has always been the practice to keep them separate up to the present day. Although this has always been the case, not all storm-water can be prevented from entering the sewer system thus creating overflows and flooding. The COWI report proposed to combine increased flow capacities during wet weather with the construction of retention basins and lining of sewer galleries to be used also as retention basins.”</i> ⁶³⁴
88. How many storm water overflows infrastructures exist in Malta?	Approximately 120 wastewater pumping stations exist in Malta and Gozo. Each Pumping station has its own overflow to the sea. Apart from this, Malta has three sewage treatment plants that have an overflow incorporated into the design ⁶³⁵ .
<i>Available quantitative data on the occurrence of storm water overflows</i>	
89. Is there information on the occurrence of storm water overflows?	No records are available.
90. Are storm water overflows monitored in Malta? If yes, please describe the	No records are available.

⁶³⁰ Information included in a storm water master Plan for the Maltese Islands Final Report – Part C-Pg C-35 where there is the following paragraph:

“10.5 Enforcement of Laws in Malta: The effectiveness of the present laws is very limited. A noteworthy example is the widespread use of cheap water supplied by vendors originating from illegal extraction of groundwater. Other examples are the past abandoning of cisterns and the present illegal draining of storm water into the sewage system. Effective enforcement can be achieved only by effective monitoring performed by a competent authority, involvement of police, and lawsuits against violators combined with effective, negative publicity.”

⁶³¹ Information given directly by Dr. Ing Micallef and also Ing. Cachia.

⁶³² Information given directly by Dr. Ing Micallef.

⁶³³ Information given by Ing. Stefan Cachia.

⁶³⁴ Information taken from the Sewerage Network Infrastructure Master Plan For the Maltese Islands.

⁶³⁵ Information given directly by Dr. Ing. Micallef. Also this information is found in the Sewerage Network Infrastructure Master Plan For the Maltese Islands, which is not available online.

Available data on storm water overflows	
monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	

FACTSHEET FOR THE NETHERLANDS⁶³⁶

1. BASIC INFORMATION

Basic information	
General Information	
127. What are the competent authorities for waste water treatment and management in The Netherlands?	In the Netherlands, the municipality is responsible for the collection and transport of urban waste water (Environmental Management Act (Wet milieubeheer, Wm), article 10.33), the water board, and eventual the municipality, is responsible for the treatment of urban waste water (Water Act (Waterwet), article 3.4).
128. What is the transposing law(s) of the UWWTD in the Netherlands?	After a long history of (environmental law) development the main current transposing laws of directive 91/271/EEC based on the Water act, article 3.4 and the Environmental management act, title 10.5, are: - Activities decree Environmental management (<i>Activiteitenbesluit milieubeheer</i>), article 1.17a and articles 3.5e – 3.5g (2007) Article 1.17a of the Activities decree Environmental management concerns data to be delivered for designing or modifying urban waste water treatment plants. Article 3.5 describes requirements on the treatment of waste water in the treatment plants. - Water decree (<i>Waterbesluit</i>), article 2.3 (2009) Article 2.3 of the Water decree describes the enforcement by the competent authorities. - Decree on the discharging of household waste water (2007) The 2007 Decree in principle applies to all types of waste water and all indirect discharges of waste water⁶³⁷ that may occur in a household, both in the urban as in the rural areas⁶³⁸. In the Netherlands, discharges to the sewage system are considered as indirect discards⁶³⁹ (whereas direct discharges concern discard directly to the surface water). - Decree on discharging outside installations (<i>Besluit lozingen buiten inrichtingen</i>), articles 3.14-3.16 (2011) Articles 3.14 to 3.16 of the Decree on Discharging Outside Installations regulate the ‘discharges from municipal facilities for collection and transport of waste water’ and indicate when the discharge of waste water from sewage in surface water is allowed.

⁶³⁶ Interviews were held with the Ministry of Infrastructure and Environment and RIONED. The interviews were held in May and June 2015.

⁶³⁷ It is however noted that most discharges of wastewater from households are not directly into the environment, but through facilities for collection, transport or treatment of waste water, mostly managed by the government.

⁶³⁸ Staatsblad van het Koninkrijk der Nederlanden, Jaargang 2007, nr. 468, Besluit van 15 november 2007, houdende regels met betrekking tot het lozen vanuit particuliere huishoudens (Besluit lozing afvalwater huishoudens), p. 13.

⁶³⁹ RIONED website: <http://www.riool.net/-/eisen-voor-lozingen-in-het-riool-wettelijke-grondslagen>.

Basic information	
	Article 3.14 of the Decree provides that: ‘Discharge into a surface water body or onto or into the bottom of wastewater coming from an public sewage system or a public rainwater system, is allowed if the system is included in the overview included in the municipal sewerage plan of: a. the facilities available in the municipality for the collection and further processing of rainwater provided for in Article 3.5 of the Water act; b. the measures to structurally prevent or limit as much as possible the negative impact of groundwater status for the destination appointed to the ground, provided in Article 3.6 of the Water act; and the system was implemented and is operated in accordance with the municipal sewerage plan.’ ▪ <i>Municipal sewage plan and ‘duty of care’ for rain water</i> The Dutch legislation requires the municipalities to have an adequate sewage system in place. This is to be set out in the municipal sewage plan. No further technical details are required by law. RIONED⁶⁴⁰ developed the Sewage Guidance (<i>Leidraad Riolerings</i>), which functions as a basic document with all generally accepted basics, methods and techniques for sewers in the Netherlands. This guidance document is not part of the legislator framework. It is used by many municipalities and is available for subscribers or after payment. On the basis of Article 4.22 of the Environmental Management Act, the Municipality Council establishes a municipal sewage plan (<i>Gemeentelijk Rioleringsplan, or GRP</i>). Although four years is considered as a common period for a GRP, the Environmental Management Act leaves this period to be established by the municipality⁶⁴¹. The GRP shall indicate where which facilities (separate system, combined system or otherwise) have been installed or are to be installed in the planning period. The GRP contains at least ‘a summary of the provisions for the collection and transport of urban waste water, the collection and treatment of rainwater and the locations of storm water outlets and overflows to the surface water present in the municipality. In addition, the proposed measures to prevent or minimize adverse effects on groundwater are described. Such measures may for example have the form of a public drainage system such as drainage pipes, drainage ditches, drainage crates or percolation facilities’.⁶⁴² Since 2008, a specific duty of care for rainwater is established in article 3.5 of the Water act.
129. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water	The national provision transposing Section A of Annex I tot the UWWTD is article 10.34 of the Environment management act and based on that the Ministerial Regulation Rules about design, construct, modify and maintenance public sewers (Ministeriële Regeling Regels over het ontwerpen, bouwen, aanpassen en onderhouden van openbare riolen), 1996.

⁶⁴⁰ RIONED, a foundation, is the umbrella organization for urban water and sewerage in the Netherlands. All professional stakeholders, including governments (local governments, state and provincial governments), companies (suppliers, consultants, inspection companies and contractors) and educational institutions participate in RIONED. The main task of RIONED is to provide knowledge to professionals. RIONED provides knowledge on the basis of research, combining existing knowledge and information in many ways and bringing together professionals. RIONED also signals problems in the daily practice of the sewer manager and places this on the agenda of administrators and policy makers. RIONED also informs the general public. Available at: <http://www.riool.net/over-rioned/rioned-doel-en-werkwijze>.

⁶⁴¹ INFOMIL website: <http://www.infomil.nl/onderwerpen/klimaat-lucht/handboek-water/wetgeving/wet-milieubeheer/gemeentelijk/>.

⁶⁴² Senter Novem (April 2008) (in opdracht van VROM) Gebiedsgericht beleid voor lozingen van hemelwater en grondwater, p. 12.

Basic information	
overflows?	
130. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	This footnote is not implemented separately, because it is only an explanation of the requirements mentioned in Sections A and B of Annex I to the UWWTD.
131. What is the terminology used to refer to storm water overflows in the Netherlands? Is there more than one term used?	The term ‘overflow’ is translated into Dutch as ‘ <i>overstorting</i> ’. The related infrastructure is called ‘ <i>overstort</i> ’.
132. Is there a definition of storm water overflow in the Netherlands?	The term ‘overflow’ is not defined in the Dutch legislation, but it is defined in generally applied NEN 3300 (1996) Drainage And Sewerage Outside Buildings – Terminology (which is superseded by EN16323, which has not yet been translated into Dutch). It is provided in the GRP3 for the city of Rotterdam as described below. GRP Rotterdam⁶⁴³ The annex to the GRP3 of the city of Rotterdam defines overflow (<i>overstorting</i>) as discharging from an overflow to surface water. The term storm water overflow structure (<i>overstort</i>) is defined as the ‘provision by means of which in case of rainfall (rain water, whether or not mixed with waste water that cannot be placed in the sewage system is discharged into surface waters.⁶⁴⁴ The storm water overflow structure is also listed as part of the definition of the <i>sewage system</i> (the total of facilities - sewers, pumping stations, pressure lines, overflows etc. - for the collection and transport of wastewater and/or storm water with exception of treatment plants).
133. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Do the Netherlands have a definition of extreme or unusual rainfall event?	In the <i>Leidraad Riolerings</i>, the basic document with all generally accepted basics, methods and techniques for sewers in the Netherlands, an extreme rain event is defined as a rain event that cannot be processed by the current, well-functioning sewer system. Current functioning may be ambiguous. Within the jurisdiction of good governance and in accordance with the Water Act, municipalities can set their own norms of maximum frequency of ‘water in the streets’ that determine the design of the sewers. Hence municipalities determine what is functioning locally. When there is more rain than the sewer system can process, extreme rain, the system is overburdened and the water finds other routes. Often this is via streets, initially as puddles, then as ‘water in the street’ and eventually, in cases of very extreme rain, as inundation. Increasing intensity and quantity of rain leads at some point to overflows, preventing serious nuisance or even damage and health risks in urban areas. ‘Water in the street’ is considered unacceptable where: ■ Rainwater flows from the street into buildings (material damage)

⁶⁴³ Website of the city of Rotterdam: <http://www.rotterdam.nl/gemeentelijkrioleringsplangrp>.

⁶⁴⁴ Website of the city of Rotterdam: <http://www.rotterdam.nl/GW/Document/Waterloket/GRP%20bijlagen%202011-2015%20juni2011.pdf>.

Basic information

- Wastewater flows from the sewer system onto the street in high quantities (health risks)
- Important thoroughfares get blocked (hindering emergency services and economic damage).

The classical, general, method for designing sewer systems in the Netherlands determines the size and discharge capacity of a system based on the ability to process a standard rain shower type 08 (repeating time $T = 2$ years) as defined in the *Leidraad Riolering* (module C2100), combined with regular dry weather discharge. Design norms NEN-EN 752 (2005) uses a differentiation of the degree of protection based on the type of land use, in which the desired level of protection increases from rural areas to city centres.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
37. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	■ Policy principles The policy regarding the way the Netherlands deals with (runoff) rainwater and groundwater originates from a variety of backgrounds. An important thought from the perspective of sustainability is that relatively clean rainwater and ground water should not be unnecessarily mixed with wastewater. In addition, the urban water system should be carried out in an efficient manner and should be made future-proof for possible changes of the climate. Finally, the public health and public space needs to be guaranteed. From these backgrounds it is preferred that discharges of rainwater and groundwater water shall as much as possible be returned in the local environment. In June 2004, the government sent a policy letter on 'Rainwater and Sewage' to the Chamber⁶⁴⁵, where the new policy was formulated. In the following years, these announced policy changes have been included into the legislation'.⁶⁴⁶ The four pillars of the rainwater policy (listed in the 2004 policy letter) are:⁶⁴⁷ 1. approach at the source: prevention of pollution of rainwater 2. rainwater retention and storage 3. rainwater drainage separated from wastewater 4. integrated assessment at the local level. For the purposes of these pillars, the following administrative guidelines (listed in the 2004 policy letter) apply: 1. Efficiency of measures is the starting point. Since the National Government Agreement Water (Nationaal Bestuursakkoord Water) in 2011, where all relevant authorities active in water management are involved, it is complemented with the principle that only measures are taken if there is a direct relation with the water quality 2. Responsibilities of the various parties need to be clearly defined 3. Municipalities are in charge. The policy letter on the reassessment of the rain water policy also explicitly addresses overflows. The overflows (with risks) especially in relation to human and animal health were mentioned as one of the issues that led to an increased attention for rainwater management. In several national notes⁶⁴⁸ the key issues on how to deal with rainwater were already established as follows: ■ Minimize contamination of rainwater; ■ Limitation of overflows by adjustments of the sewer systems and disconnection;

⁶⁴⁵ Second Chamber 28 966 no. 2.

⁶⁴⁶ Senter Novem (April 2008) (in opdracht van VROM) Gebiedsgericht beleid voor lozingen van hemelwater en grondwater, p. 7.

⁶⁴⁷ Beleidsbrief Regenwater en Riolerings 2004.

⁶⁴⁸ Notes on Water Management, the National Environmental Policy Plans, Note on 'Different Approach to Water' - Water management in the 21st century.

Overview of legal and policy framework. Relevant references to storm water overflows.

- Deal with the rainwater based on the three-step strategy “retention, storage and disposal”.

- Basic effort**

In the late 1980s, the Dutch government established policies, including the ‘Third note on water management’ (*Derde nota waterhuishouding*⁶⁴⁹) and the ‘National plan for the environment’ (*Nationaal Milieubeleidsplan*)⁶⁵⁰ to arrive at a 50% reduction in emissions to water, soil and air from all sources; with further reductions where possible and necessary. Overflow structures from combined sewer systems needed special permits in accordance to the Law on Pollution of Surface Waters (*Wet verontreiniging oppervlaktewateren*)⁶⁵¹. Municipalities applied for permits granted by the water boards and the Ministry of Infrastructure and the Environment (Department of Rijkswaterstaat).⁶⁵²

In 1992 general guidelines were established by a National Coordination Commission on the Implementation of the Law on Pollution of Surface Waters (*CUWVO, Coördinatiecommissie Uitvoering Wet Verontreiniging Oppervlaktewateren*) to streamline with efforts to achieve 50% reduction in emission. The so-called ‘basic effort’ (*basisinspanning*) is valid in all situations and aims at reducing municipal emissions (*emissiespoor*). It is defined as the implementation of measures to a combined sewer system that ensures the emission is equal to or lower than the pollution emission of the **reference system**⁶⁵³ (see also description and figures under 3.1). Calculating the achievement of the basic effort requires the total annual waste emissions (*vuiluitworp*) as well as the peak emission that occurs once a year. Generally municipalities addressed this requirement by constructing underground retention and settling facilities for 2 mm storage or by de-coupling 20% of the system to maintain pumping capacity. Since the National Government Agreement Water it is complemented with the principle that only measures are taken if there is a direct relation with the water quality.

- Water quality track (*waterkwaliteitsspoor*)**

When the **basic effort** does not lead to the desired (improvement of) water quality, additional measures are taken as part of the **water quality track**. These measures are taken at the source: in the sewer system or the surface water sources, to realise water quality objectives for surface water. Whereas the **basic effort** is aimed at municipal levels, the **water quality track** considers individual overflow structures – or several structures in case these discharge into the same water source (receiving water body – in which at least to storm flows discharge). In the **water quality track** the impacts on the receiving water body are normative and may result in additional requirements to the overflow structures and events. Such requirements may follow from the objectives formulated in the guidelines for surface water bodies.

- High risk overflows (*risicovolle overstort*)**

⁶⁴⁹ Tweede Kamer der Staten-Generaal, Vergaderjaar 1988-1989, Nr. 21250. Derde Nota Waterhuishouding. Information available at ‘helpdesk water’:

<http://www.helpdeskwater.nl/@16516/nota's-0/>.

⁶⁵⁰ Eerste Nationaal Milieubeleidsplan, 1989. Available at: <http://www.milieuloket.nl/9353000/1/i9vvhurbs7rzq9/vhurdvqxq5fvi>.

⁶⁵¹ This Law is expired per 22 December 2009. Available at: http://wetten.overheid.nl/BWBR0002682/geldigheidsdatum_12-06-2015.

⁶⁵² See its home page at: <http://www.rijkswaterstaat.nl/en/>.

⁶⁵³ The reference system in the Netherlands has, in agreement with the design guidelines of the *Leidraad riolering* (after implementation of the basic effort), a storage capacity of 7 mm within the system, 2 mm in the settling basins and a pumping overcapacity of at least 0.7 mm/hour.

Overview of legal and policy framework. Relevant references to storm water overflows.	
	In 1998 a special policy has been formulated to sanitise high risk overflows structures. These are overflow structures discharging into water bodies (1) used for livestock watering, hence potentially affecting animal health, or (2) with increased risk for people, for instance near recreational swimming sites. A joint action program water quality and animal health (<i>waterkwaliteit en diergezondheid</i>)⁶⁵⁴ has been formulated by four ministries, the water boards, the provinces, the municipalities and nature organisations. This programme has been concluded and remedial measures have been taken at all 723 identified overflow structures⁶⁵⁵. The Dutch river basin management plans also address the issue of storm water overflow. <u>River basin management plan ‘Rijndelta’</u> The RBMP provides a table on the ‘Relative importance of pressures for the surface water in the Dutch part of the river basin Rhine Delta’. As part of point sources, the storm overflows are mentioned (43); which are considered ‘less significant’ in terms of pressure.⁶⁵⁶ With regard to point sources, discharges from storm water overflows and areas without a sewage structure in the Rhine Delta together account for less than 5% of the pressure caused by norm-exceeding substances.⁶⁵⁷ For diffuse sources, the storm water overflows in areas without sewage structure, are considered more as significant sources of pressure.⁶⁵⁸ Part of the measures proposed in relation to point sources (for the period 2010-2015) is the adaptation of 23 storm overflows (30m2).⁶⁵⁹ Reference is also made to the GRP, in which these issues are also addressed.⁶⁶⁰
38. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working	A total of 1 600 000 m³ underground retention and settling facilities have been constructed. This is equivalent to 320 litres of storage per residence connected to combined sewers and 1.5 mm storage, assuming houses with a surface area of 200 m². In addition, some 15% of the surface area originally connected to the combined sewer system, has been de-coupled. In 1997, the total cost for the basic effort was more than 2 500 000 000 euros⁶⁶¹. As compared to the basic effort this means that municipalities have carried out an additional 50% of measures to further improve water quality. This continues to reduce the number of overflow structures. The benchmarking study Rioleringszorg 2013⁶⁶² showed that the total investments for reducing emissions from overflows amounted to more than 5 000 000 000 euros. Out of these 2*10⁹ has been invested in underground retention and settling facilities and 3*10⁹ in reconstructing systems from combined to separate sewer systems (decoupling).

⁶⁵⁴ Information available at: <https://zoek.officielebekendmakingen.nl/behandelddossier/25890/kst-25890-11?resultIndex=34&sorttype=1&sortorder=4>.

⁶⁵⁵ RIVM (National Institute for Public Health and the Environment), Briefrapport 630789004, 2010, D.A. Houweling.

⁶⁵⁶ 2009-2015 Stroomgebiedbeheerplan Rijndelta, p. 101 and 105.

⁶⁵⁷ *ibid.*, p. 103.

⁶⁵⁸ *ibid.*, p. 102.

⁶⁵⁹ *ibid.*, p. 164.

⁶⁶⁰ *idib.*, p. 165.

⁶⁶¹ Tweede Kamer, 1997-1998, 25 890, nrs. 1-2, p. 17.

⁶⁶² http://www.riool.net/product?p_p_auth=b4kH1JkS&p_p_id=56_INSTANCE_N1Ki9Et3iC4R&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_pos=1&p_p_col_count=2&_56_INSTANCE_N1Ki9Et3iC4R_groupId=10180&_56_INSTANCE_N1Ki9Et3iC4R_articleId=6251

Overview of legal and policy framework. Relevant references to storm water overflows.				
- Water quality standards of receiving water body - Other				
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Article 10.34 of the Environment management act and based on that the Ministerial Regulation Rules about design, construct, modify and maintenance public sewers (Ministeriële Regeling Regels over het ontwerpen, bouwen, aanpassen en onderhouden van openbare riolen), 1996.	Ministeriële Regeling: Artikel 2: Een openbaar riool is zodanig gebouwd en wordt zodanig onderhouden dat: a. het betrokken openbaar riool zoveel als mogelijk berekend is op de eigenschappen, samenstelling en hoeveelheid van het afvalwater, b. lekkage zoveel als mogelijk wordt voorkomen, en c. het aantal overstortingen zo beperkt is als uit een oogpunt van doelmatig beheer van afvalwater mogelijk.	Article 2 of the Ministerial Regulation: A public sewer is build and maintained in such a way that: a. Public sewer involved is as much as possible calculated on the features, composition and volume og the waste water, b. Leaks is to avoid as much as possible and c. The number of storm water overflows is as limited as possible from the point of expedient management of waste water
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	Y	National Water Plan (Nationaal Waterplan), 2009-2015 ⁶⁶³ . And before the WFD came into force		The National Water Plan refers to the river basin management plans with WFD-measures concerning storm water overflows. The Dutch government drafted the ‘Third

⁶⁶³ Eerste Nationaal Waterplan, 2009. Available at: <http://www.helpdeskwater.nl/onderwerpen/wetgeving-beleid/nationaal/nationaal-waterplan/>

Overview of legal and policy framework. Relevant references to storm water overflows.				
		National plan for the environment' (<i>Nationaal Milieubeleidsplan</i>) ⁶⁶⁴ and Third note on water management' (<i>Derde nota waterhuishouding</i>) ⁶⁶⁵		note on water management' and the 'National plan for the environment' (late 1980's) to arrive at a 50% reduction in emissions to water, soil and air from all sources; with further reductions where possible and necessary.
MSFD	N			
BWD	N			
DWD	N			
International conventions or commissions	Direct reference (Y/N)		Text in MS language	Translation into English
OSPAR	N/A			
HELCOM	N			
Barcelona Convention	N/A			
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	N/A			
Rhine Convention	N/A			
Oder Convention	N			
Elbe Convention	N/A			
Conv. Transboundary Watercourses and International Lakes	N			
<i>Other direct references to storm water overflows</i>				

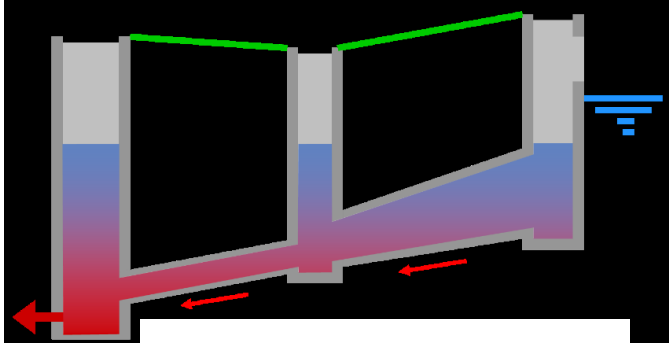
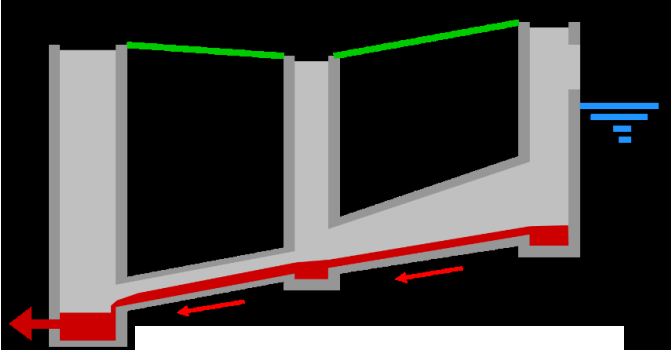
⁶⁶⁴ Eerste Nationaal Milieubeleidsplan, 1989. Available at: <http://www.milieuloket.nl/9353000/1/j9vvhurbs7rzkg9/vhurdivxq5fvi>.

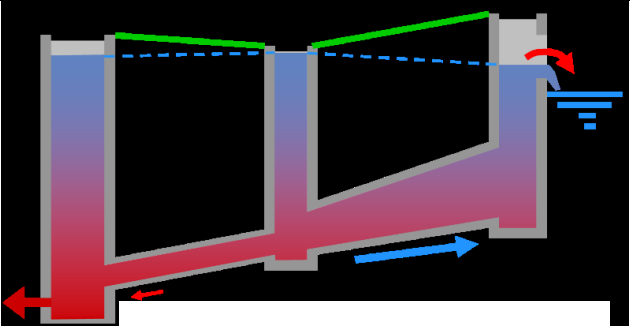
⁶⁶⁵ Tweede Kamer der Staten-Generaal, Vergaderjaar 1988-1989, Nr. 21250. Derde Nota Waterhuishouding. Information available at 'helpdesk water': <http://www.helpdeskwater.nl/@16516/nota's-0/>.

Overview of legal and policy framework. Relevant references to storm water overflows.		
Type of document	Title of document	Summary description
Guidance (national level)	Sewage Guidance (<i>Leidraad Riolerig</i>)	RIONED developed the Sewage Guidance (<i>Leidraad Riolerig</i>), which functions as a basic document with all generally accepted basics, methods and techniques for sewers in the Netherlands. This guidance document is not part of the legislator framework. It is however used by many municipalities and is available for subscribers or after payment. It was confirmed during the stakeholder consultation with the Ministry of Infrastructure and Environment that this guidance documents is generally used by the Dutch municipalities.
Policy (national level)	Policy letter on ‘Rainwater and Sewage’ to the Chamber ⁶⁶⁶	In June 2004, the government sent a policy letter on ‘Rainwater and Sewage’ to the Chamber, in which the new policy was formulated.
Policy (national level)	Notes on Water Management, the National Environmental Policy Plans, Note on ‘Different Approach to Water’ - Water management in the 21st century	Key issues on how to deal with rainwater were already established as follows: - Minimize contamination of rainwater; - Limitation of overflows by adjustments of the sewer systems and disconnection; - Deal with the rainwater based on the three-step strategy “retention, storage and disposal”.

⁶⁶⁶ Second Chamber 28 966 no. 2.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
Types of sewer system	
91. Which types of sewer system do the Netherlands have?	In the Netherlands several types of sewer systems have been applied. The two most important ones are combined and separate sewer systems. With combined systems there is one sewer for joint discharge of wastewater and rainwater (see Figure NL-1) while separate means there are separate systems for wastewater and rainwater. The sewers are laid at a slope of 0.5% to allow for gravity discharge to the lowest lying point in the system. In combined systems, a pump at the lowest point pumps out the water, either to the next system or directly to the wastewater treatment plant. The pump capacity is limited by the capacity of the wastewater treatment installation. When there is more rain than the pump can handle, the system fills with precipitation and a relatively small fraction of wastewater (Figure NL-2). The reference system in the Netherlands has, in agreement with the design guidelines of the <i>Leidraad riolering</i> (after implementation of the basic effort, see under 2.1), a storage capacity of 7 mm within the system, 2 mm in the settling basins and a pumping overcapacity of at least 0.7 mm/hour.  Figure NL-1. Regular functioning of a combined sewer system under dry weather conditions. Discharge to treatment: 0.07 mm/hour. Source: RIONED Figure NL-2. Regular functioning of a combined sewer system under rainy conditions. Filling to system storage capacity of 7 mm. Source: RIONED With intense or prolonged rainfall, the maximum storage capacity of 7 plus 2 mm is reached and the system is full. To prevent backflow of polluted rainwater to public spaces or return flows to sewer connections in houses or businesses, the system overflows via the designated structures into the available surface water (Figure NL-3). Part of the mud settles in the underground retention and settling tanks, incorporated in the system (Figure NL-4). With average rainfall this happens around 6 times annually. In this case an annual total of 37 mm rain (4.6% of annual precipitation) is thus discharged via overflows, which amounts to several hours per year.

Available data on storm water overflows	
	 Figure NL-3. Heavy rains, when combined storage and pumping capacity are insufficient: complete filling of the system, followed by overflow via an emergency valve: 20-40 mm/hour. Source: RIONED
92. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	According to the interviewees: ■ 68.2% of the households in the Netherlands are connected to combined sewer systems, a total of 51,000 km under gravity. ■ 27.3% of the households are connected to separate systems, with 20,500 km sewers and 23 200 km rain drains. ■ The remaining 4.5% of households is connected to mechanical sewers and individual facilities (e.g. IBA - <i>individuele behandeling van afvalwater</i>).
93. How many storm water overflows infrastructures exist in the Netherlands?	In the 2013 benchmark⁶⁶⁷ a total of 13,700 overflow structures was counted, an average of 0.26 overflow structures per kilometre of combined sewer system. This relatively high number can be explained by the specific conditions in the Netherlands with high groundwater tables in soft and flat soils that need a higher slope (0.5%), leading to short transport distances and smaller systems.
Available quantitative data on the occurrence of storm water overflows	
94. Is there information on the occurrence of storm water overflows?	As mentioned above, the average rainfall overflow occurs around six times annually. In this case, an annual total of 37 mm of rain (4.6% of annual precipitation) is thus discharged via overflows, which amounts to several hours per year.
95. Are storm water overflows monitored in the Netherlands? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and	Around 91% of the municipalities do regular measurements at one or more of their overflow structures. Hence, 47% of the overflow structures are being monitored for water height and frequency of flows, and, for 7% of the overflow structure, samples of the receiving water bodies are taken as well (for the purpose of the measurement of water quality as established under the '<i>kaderrichtlijn voor waterlichamen</i>'). The majority of Dutch municipalities measure the functioning of their sewer systems based on the quality of the receiving water bodies (57%) and emissions at the overflow structures (52%).⁶⁶⁸

⁶⁶⁷ RIONED and the Association of Netherlands Municipalities, Benchmark rioleringszorg (Riolering in Beeld 2013).

⁶⁶⁸ Source: interview with RIONED.

Available data on storm water overflows	
- at how many locations	

FACTSHEET FOR POLAND⁶⁶⁹

1. BASIC INFORMATION

Basic information	
General Information	
134. What are the competent authorities for waste water treatment and management in Poland?	No authority designed specifically to deal with storm water overflows exists in Poland. Therefore, authorities with general competencies in waste water treatment and management are relevant for issues related to storm water overflows. These authorities are the following: 1) the Ministry for the Environment⁶⁷⁰ – the Ministry has the overall competence for issues related to water management, including waste water, the shaping of water management legislation and policies, floods protection and sustainable use of water resources. The Ministry oversees the implementation of the National Sewage Treatment Programme (hereinafter NSTP). The Programme was adopted in 2003 in order to support the implementation of the UWWTD and, in particular, to ensure that all agglomerations in Poland are equipped with collection systems and waste water treatment plants. The programme has been updated already 3 times (in 2005, 2010 and 2013), a new amendment is pending at the moment.⁶⁷¹ 2) the President of the National Water Management Authority⁶⁷² – the President is a central administrative body responsible for water conservation, and especially for water management and water use. His competencies are very broad and include, inter alia, (i) developing and monitoring of the implementation of the NSTP, (ii) programming, planning and supervision of the implementation of tasks related to the conservation of water and water works and water management investments, (iii) supervising the performance of the national hydrological and meteorological services. The President is supervised by the Minister for the Environment and carries out his tasks with the support of 7 regional water management authorities. 3) the Inspectorate for Environmental Protection⁶⁷³ – the main environmental inspection authority, including inspections of waste water treatment plants and sewer systems. The Inspectorate carries out its tasks with support of 16 regional inspectorates for environmental protection. Their competencies include inspections of: (i) the compliance of entities with environmental legislation and (ii) meeting conditions of permits and licenses as well as conditions related to the frequency and manner of sampling and monitoring. In executing their tasks, inspectors can: (i) enter, at any time, the inspected property, (ii) carry out the necessary tests and sampling in order to determine compliance of the inspected entity with applicable law, (iii) request the relevant information and documentation and hear persons, if necessary. Inspections are carried out on the basis of an annual inspection plan; ad hoc inspections, commenced on the basis of complaints, are also possible. It is worthwhile that licensing authorities do not have inspection competencies. They are obliged, however, to review (every 4 years) water permits for discharges into waters. The review can take a form of an inspection of the entity in question. The Inspectorate for Environmental Protection is supported by other inspection authorities, such as the Sanitary Inspection.⁶⁷⁴ 4) licensing authorities – There is no separate licensing procedure and licensing authority for storm water overflows. Storm water

⁶⁶⁹ For the purposes of this report, a waste water management expert, Radosław Jurkiewicz, has been consulted (radoslaw.jurkiewicz@ekocentrum.pl).

⁶⁷⁰ https://www.mos.gov.pl/kategoria/2686_gospodarka_wodna.

⁶⁷¹ Information about the National Sewage Treatment Programme available at: <http://www.kzgw.gov.pl/pl/Krajowy-program-oczyszczania-sciekow-komunalnych.html>.

⁶⁷² <http://www.kzgw.gov.pl/en/>.

⁶⁷³ <http://www.gios.gov.pl/?language=2>.

⁶⁷⁴ <http://www.gis.gov.pl/?lang=en&go=news>.

Basic information

overflows from sewer systems are regulated and licensed within the licensing process for waste water treatment plants and collecting systems. In Poland, communes (*gimnas*, the smallest, first-level administrative regions) are responsible for ensuring adequate waste water treatment and management for agglomerations located on their territory. If an agglomeration is located on the territory of a few communes, the communes concerned may enter into inter-commune agreements in order to share their competencies. Communes can delegate their tasks related to waste water management to special waste water utilities (*przedsiębiorstwa wodociagowo-kanalizacyjne*) or can carry out these tasks on their own (by establishing special legal utilities – Communal utilities (*Zakłady komunalne Gminy*)). In practice, communes very often (99% of cases) make use of the possibility to entrust their waste water management tasks to waste water entities. The activities and functioning of waste water entities are regulated in the law on collective provision of water and collective waste water management.⁶⁷⁵ On the basis of this law, these entities are obliged to ensure that waste water treatment carried by them meets the relevant criteria, requirements and conditions set by law. Waste water entities are also responsible for management of rain waters entering sewer systems managed by them. The treated waste water as well as storm water overflows must meet the conditions specified in the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment.⁶⁷⁶

Waste water treatment and management activities, including the construction and operation of waste water treatment plants and collecting systems, require a licence. In short, the licensing process is as follows:

- A localisation decision (*decyzja o ustaleniu lokalizacji inwestycji celu publicznego*) is required. It is issued by the **Head of Commune (Mayor of Town/City)** - (*wójt / burmistrz / prezydent miasta*)⁶⁷⁷;
- an EIA decision (if required by law⁶⁷⁸) - the competent authority is also the **Head of Commune (Mayor of Town/City)**;
- water permit – in accordance with the Water Act, activities related to discharges of waste water (in Poland, the definition of waste water includes also rain water) to waters or soil require a water permit. The water permit must be in conformity with the NSTP, the localisation decision as well as the EIA decision. The water permit determines all conditions for the planned discharges, e.g. the amount and composition of waste water discharged into waters and soil and the manner and extent of monitoring of the amount and composition of waste water discharged into waters and soil. The Water Act does not specifically require a water permit to contain conditions related directly to storm water overflows, however, nothing in the law prohibits including such conditions in a permit. An additional technical document must be enclosed to the application for the water permit. This document must contain, inter alia, the determination of the influence of the licenced activity on receiving waters, the description of all installations for collecting, storing and discharging of waste waters and the assessment of the quality of receiving waters. The water permit is, in the majority of cases, issued by a **starost** (local government authority – head of a county)

⁶⁷⁵ Law of 7 of June 2001 on the collective provision of water and collective waste water management (O.J. 2001, no 72, item 747), *Ustawa z dnia 7 czerwca 2001 r. o zbiorowym zaopatrzeniu w wodę i zbiorowym odprowadzaniu ścieków* (Dz. U. 2001 nr 72, poz. 747), available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20010720747>.

⁶⁷⁶ Regulation of 18 November 2014 on the conditions for discharged waste waters and substances particularly harmful for the environment (O.J. 2014/1800), *rozporządzenie w sprawie warunków, jakie należy spełnić przy wprowadzaniu ścieków do wód lub do ziemi, oraz w sprawie substancji szczególnie szkodliwych dla środowiska wodnego* (Dz.U. 2014 item 1800), available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20061370984>.

⁶⁷⁷ On the basis of Act of 27 March 2003 on spatial planning and management (cons. text O.J. 2015, item 199) - *ustawa z dnia 27 marca 2003 r. o planowaniu i zagospodarowaniu przestrzennym* (tekst jedn.: Dz. U. z 2015 r., poz. 199).

⁶⁷⁸ Regulation of the Council of Ministers of November 2010 on types of projects likely to have significant effects on the environment (O.J. of 2010, No. 213, item 1397 as amended - *Rozporządzenie Rady Ministrów z dnia 9 listopada 2010 r. w sprawie przedsięwzięć mogących znacząco oddziaływać na środowisko*, Dz. U. z 2010, Nr 213, poz. 1397 ze zm.). This law transposes the EIA Directive.

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	construction permit – issued by a starost. It must be highlighted that in Poland combined sewer systems are part of municipal infrastructure whereas separate sewer systems are usually part of road infrastructure. Water permits are required for both types of sewer systems.
135. What is the transposing law(s) of the UWWTD in Poland?	The main transposing act is the Water Act of 18 of June 2001 (O.J. 2001, no 115, item 1229, as amended), <i>Ustawa z dnia 18 lipca 2001 r. Prawo wodne</i> (Dz.U. 2001 nr 115 poz. 1229).⁶⁷⁹ There are a few implementing acts and regulations which supplement transposition of the UWWTD in Poland. For the purposes of this study, the most important is the regulation of 18 November 2014 on the conditions for discharged waste waters and substances particularly harmful for the environment (O.J. 2014/1800), <i>rozporządzenie w sprawie warunków, jakie należy spełnić przy wprowadzaniu ścieków do wód lub do ziemi, oraz w sprawie substancji szczególnie szkodliwych dla środowiska wodnego</i> (Dz.U. 2014 item 1800).⁶⁸⁰ This regulation transposes, inter alia, the footnote to Sections A and B of Annex I to the UWWTD. It should be noted that this regulation has been recently amended (November 2014) in order to regulate in a more comprehensive manner certain issues related to waste water treatment, including storm water overflows. Other relevant pieces of legislation are the following: - The Construction law of 7 of July 1994 (O.J. 2013 no 1409), <i>Ustawa z dnia 7 lipca 1994 r. Prawo budowlane</i> (Dz.U.2013 nr 1409)⁶⁸¹, - Regulation of the Minister of Infrastructure of 12 April 2002 on technical conditions of buildings and their location (O.J. 2002, no 75, item 690), <i>Rozporządzenie Ministra Infrastruktury z dnia 12 kwietnia 2002 r. w sprawie warunków technicznych, jakim powinny odpowiadać budynki i ich usytuowanie</i> (Dz. U. Nr 75, poz. 690)⁶⁸², - Law of 7 of June 2001 on the collective provision of water and collective waste water management (O.J. 2001, no 72, item 747), <i>Ustawa z dnia 7 czerwca 2001 r. o zbiorowym zaopatrzeniu w wodę i zbiorowym odprowadzaniu ścieków</i> (Dz. U. 2001 nr 72, poz. 747)⁶⁸³ - Act of 27 of April on the Protection of the Environment, <i>Ustawa z dnia 27 kwietnia 2001 r. Prawo ochrony środowiska</i> (Dz.U.2013 nr 1232)⁶⁸⁴.
136. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD has been transposed into Polish legal system by a set of sectoral laws. It has not been literally transposed, however all elements are correctly reflected. In particular, the reference to the volume and characteristics of urban waste water is not direct – it can be, however, inferred from the wording and the context of the transposing legislation. 1. The Construction law⁶⁸⁵ (please note that the term ‘construction object’ covers collecting systems)

⁶⁷⁹ Available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20011151229>.

⁶⁸⁰ Available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20061370984>.

⁶⁸¹ Available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU19940890414>.

⁶⁸² Available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20020750690>.

⁶⁸³ Available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU200107207>.

⁶⁸⁴ Available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20010620627>.

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Art. 5. A construction object along with its construction installations must be designed and constructed, taking into account the foreseen time of utilisation, in a way determined in regulations, including technical-construction regulations and in accordance with technical knowledge, in order to ensure:

- 1) the fulfilment of the basic requirements concerning:
 - a. the safety of the construction,
 - b. the safety of utilisation,
 - c. the adequate hygienic and health conditions as well as protection of the environment
- 2) utilisation conditions in accordance with the function of the building, in particular:
 - a. discharges of waste water, rain water and waste,
 - b. the possibility to ensure the appropriate technical conditions.

Art. 62. Constructions objects shall be, during the use of the building, subjected, by the owner or an administrator, to inspections:

- 1) periodical, at least once a year, which shall include the checking of technical conditions of:
 - a) elements of buildings, constructions and installations which are exposed to harmful and destructive weather conditions occurring during the use of the building,
 - b) installations and devices for environmental protection.

2) Regulation on technical conditions of buildings and their location⁶⁸⁶

§122.2. Waste water system of a building shall allow for waste water disposal, as well as rain water, from this building, if they are not discharged on the site of the building, and shall meet the conditions specified in Polish Norms concerning sewer systems.

§123. Sewer system of a building, where waste water does not meet the conditions for the protection of the soil and water and waste water disposal, determined in separate regulations, shall be equipped with installations for the treatment of the water in accordance with these regulations.

3) Law on the collective provision water and collective waste water management⁶⁸⁷

Art. 5. 1. A water and sewage entity has an obligation to ensure the capability of existing water supply and sewerage facilities to supply water in the required quantity and at the appropriate pressure and water supply and sewage disposal in a continuous and reliable way, and

⁶⁸⁵ The Construction law of 7 of July 1994 (O.J. 2013 no 1409), *Ustawa z dnia 7 lipca 1994 r. Prawo budowlane (Dz.U.2013 nr 1409)*, available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU19940890414>.

⁶⁸⁶ Regulation of the Minister of Infrastructure of 12 April 2002 on technical conditions of buildings and their location (O.J. 2002, no 75, item 690), *Rozporządzenie Ministra Infrastruktury z dnia 12 kwietnia 2002 r. w sprawie warunków technicznych, jakim powinny odpowiadać budynki i ich usytuowanie (Dz. U. Nr 75, poz. 690)*, available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20020750690>.

⁶⁸⁷ Law of 7 of June 2001 on the collective provision of water and collective waste water management (O.J. 2001, no 72, item 747), *Ustawa z dnia 7 czerwca 2001 r. o zbiorowym zaopatrzeniu w wodę i zbiorowym odprowadzaniu ścieków (Dz. U. 2001 nr 72, poz.747)*, available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20010720747>.

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	ensure the adequate quality of supplied water and discharged waste water. <u>4) Water Act</u>⁶⁸⁸ Art. 41.3. Discharges into waters and soil of rain water from overflows from separate sewage systems as well as discharges of waste water from overflows from combined sewer systems shall be allowed in accordance with the conditions determined on the basis of provisions issued on the basis of Art. 45 para. 1 point 3. Art. 42. 1. The persons discharging waste water do waters and soil are responsible to ensure the protection of waters against pollution, in particular through the construction and operation of facilities for the protection and, where appropriate, re-use of treated wastewater. Site selection and the use or disposal of waste water should minimize negative impacts on the environment. 2. A construction object or a group of such objects, the use of which is associated with the introduction of sewage into the water or soil, cannot be put into operation, if the requirements referred to in Art. 76 of the Act - Environmental Protection Law have not been fulfilled. <u>5) Act on the Protection of the Environment</u>⁶⁸⁹ Art. 76. 1. A new or rebuilt construction object, a group of such objects or an installation cannot be put into operation, if they do not meet the requirements of the environmental protection referred to in para. 2. 2. The requirements for environmental protection for a new or rebuilt construction object, a group of such objects or an installation are the following: 1) the implementation of technical measures for the protection of the environment, contained in regulations or administrative decisions, 2) the implementation of the technical solutions determined in a law or decisions, 3) to obtain the necessary decisions determining the extent and conditions of the use of the environment. <u>6) Regulation on the conditions for discharged waste waters and substances particularly harmful for the environment</u>⁶⁹⁰ § 22.4. Discharges of rain water from the existing overflows from separate sewer systems to lakes or their inlets as well as other water reservoirs with constant inlet or outlet of surface waters as well as to waters in artificial water reservoirs located on flowing waters, if the annual average number of discharges from separate overflows from individual sewage systems is not bigger than 5. § 22.1. Waste water from storm water overflows of combined sewer systems may be discharged to inland surface flowing waters, coastal waters and transitional waters, if the annual average number of discharges from individual overflows is not bigger than 10.
137. What is the national provision	Footnote 1 in Sections A and B of Annex I to the UWWTD has been transposed in § 21 – 22 of the regulation on the conditions for

⁶⁸⁸ Water Act of 18 of June 2001 (O.J. 2001, no 115, item 1229, as amended), *Ustawa z dnia 18 lipca 2001 r. Prawo wodne* (Dz.U. 2001 nr 115 poz. 1229), available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20011151229>.

⁶⁸⁹ Act of 27 of April on the Protection of the Environment, *Ustawa z dnia 27 kwietnia 2001 r. Prawo ochrony środowiska* (Dz.U.2013 nr 1232), available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20010620627>.

⁶⁹⁰ Regulation of 18 November 2014 on the conditions for discharged waste waters and substances particularly harmful for the environment (O.J. 2014/1800), *rozporządzenie w sprawie warunków, jakie należy spełnić przy wprowadzaniu ścieków do wód lub do ziemi, oraz w sprawie substancji szczególnie szkodliwych dla środowiska wodnego* (Dz.U. 2014 item 1800), available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20061370984>.

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transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	discharged waste waters and substances particularly harmful for the environment⁶⁹¹. It has been transposed separately for separate sewer systems and for combined sewer systems. <u>Separate sewer systems:</u> §21.1. Rain waters or waters from melting of snow, enclosed in open or closed sewer systems, which originate from a polluted impermeable surface: 1) of industrial areas, storages, transport bases, harbours, airports, cities, national roads, regional roads and local roads of category G as well as parking lots of a surface exceeding 0,1 ha, in the amount which originates from precipitation with the intensity of at least 15 l per 1 hour per ha, 2) oil storage and distribution buildings, in the amount which originates from precipitation with the intensity⁶⁹² of at least 77 l per 1 hour per ha, - may be discharged to waters and soil, as long as they do not contain polluting substances exceeding 100mg/l of total suspended solids and 15mg/l of petroleum hydrocarbons. 2. Rain waters or waters from melting of snow which from surfaces other than those referred to in para. 1 may be discharged into wastewaters or soil without treatment. 3. Rain waters or waters from melting of snow in the amount exceeding the values specified in para. 1 may be discharged to waters or soil without treatment, provided that cleaning devices is protected from the flows of rain waters or waters from melting of snow in the intensity greater than the nominal capacity. 4. Discharges of rain water from the existing overflows from separate sewer systems to lakes or their inlets as well as other water reservoirs with constant inlet or outlet of surface waters as well as to waters in artificial water reservoirs located on flowing waters, if the annual average number of discharges from separate overflows from individual sewage systems is not bigger than 5. <u>Combined sewer systems:</u> § 22.1. Waste water from storm water overflows of combined sewer systems may be discharged to inland surface flowing waters, coastal waters and transitional waters, if the annual average number of discharges from individual overflows is not bigger than 10. 2. The average annual number of discharges from storm water overflows shall be determined on the basis of data covering the results of observation of precipitation from a period of at least 10 years or the results of observation of the functioning of the existing storm overflows in at least two past years. 3. The average annual number of discharges from storm water overflows from a waste water treatment plant in an agglomeration of p.e.

⁶⁹¹ <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20061370984>.

⁶⁹² The formula to calculate the intensity is contained in the Guidance concerning waste water management in the context of the enforcement of the National Sewage Treatment Programme, available at: http://www.kzgw.gov.pl/files/file/Wiadomosci/KPOSK/Poradnik_KPOSK.pdf. The details about this document are also included in the table in section 2 of this report.

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	exceeding or equal to 100,000 shall be determined on the basis of simulation models. 4. In the case of lack of simulation models referred to in para 3, average annual number of discharges from a waste water treatment plant in an agglomeration of p.e. exceeding or equal to 100000 shall be determined in accordance with para 2, however, until the time the simulation models have been developed, the average annual number of discharges referred to in para 1 shall be lowered. 5. In the case of lack of data referred to in para 2, waste water from overflows from combined sewer systems may be discharged into waters, if: 1) the system brings the waste water to a waste water treatment plan with p.e. lower than 100000, 2) the intensity of the flow in the combined sewer system before the storm overflow, caused by precipitation, is at least four times greater; this intensity shall be calculated according to the following formula: $(3+1)Q$, where Q is an average intensity in that system in the period of non-precipitation, determined for 24 hours of an average amount of waste water reaching annual a waste water treatment plant. 6. If on the basis of direct analysis of receiving waters to which waters from storm water overflows from combined sewer systems are discharged it is determined that waste waters from those overflows result in the change of the quality of waters which prevents the adequate use of these waters, the average annual number of discharges referred to in para. 1 shall be lowered. <u>Analysis of the transposition</u> Poland chose to adopt measures based on the acceptable number of overflows per year (in the case of overflows from separate systems – 5 overflows to lakes or their inlets; in the case of combined systems – 10 overflows to intercostal surface flowing waters, coastal waters and transitional waters). Since footnote 1 in Sections A and B of Annex I to the UWWTD gives Member States a margin of discretion in shaping their legislation related to storm water overflows, transposition is assessed as effective with respect of the allowed number of overflows. The manner of calculation of the allowed overflows, as determined by § 22.2 of the regulation, can be, however, considered ambiguous. It requires a designer of a sewer system to take into account the results of observation of precipitation from a period of at least 10 years or the results of observation of the functioning of the existing storm overflows in at least two past years. It is observed that, in practice, the availability of this data can be problematic.⁶⁹³ In addition, no generally binding methodology/method for the calculation of the allowed overflows exists. In turn, there exist numerous studies and technical/scientific documents providing different methods for the calculation of precipitation for the purposes of dimensioning of sewer pipes.⁶⁹⁴ For the sake of legal clarity, legislation should be more specific in this regard in order to avoid implementation problems. In accordance with § 22. 5, in case there is no data to calculate the average annual number of discharges in accordance with § 22.2 of the regulation, waste water from combined sewer systems that bring the waste water to a waste water treatment plants with p.e. lower than 100000, does not need to be treated. Such regulation can be considered lenient. In addition, the right to discharge waste water from combined sewer systems without treatment (i) in case there is no data to calculate the average annual number of discharges in accordance with §22.2 and (ii) when the intensity of the flow in the combined sewer system before the storm overflow is at least four times greater than in the period of non-precipitation, can be also considered as questionable in light of the principles of the UWWTD.
138.	What is the terminology used to refer
	The term ‘overflow’ is translated into Polish as <i>‘przelew’</i> . The transposing legislation uses the following terminology when referring to

⁶⁹³ The modelling of precipitation for the design of sewer systems, available at: http://www.pomysl.com/kotowski/zalaczniki/zalacznik_57.pdf.

⁶⁹⁴ The modelling of precipitation for the design of sewer systems, available at: http://www.pomysl.com/kotowski/zalaczniki/zalacznik_57.pdf.

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to storm water overflows in Poland? Is there more than one term used?	storm water overflows: 1) 'rain water'⁶⁹⁵ (<i>woda opadowa</i>) – this term is not defined in the legislation. It is understood that this is water originating from precipitation. 2) 'overflows from separate sewage systems'⁶⁹⁶ (<i>przelewy kanalizacji deszczowej</i>) 3) 'overflows of combined sewer systems'⁶⁹⁷ (<i>przelewy burzowe komunalnej kanalizacji ogólnospławnej</i>) All these terms are contained in the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment.⁶⁹⁸
139. Is there a definition of storm water overflow in Poland?	No definition of storm water overflows is contained in the transposing legislation. It should be, however, noted that Polish legislation, when using the term 'storm water overflows' refers to an actual structure allowing for an overflow from a combined sewer system, i.e. a section of a sewer system where storm water mixed with sewage can overflow in the case of heavy rain/storm.
140. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Poland have a definition of extreme or unusual rainfall event?	Polish legislation uses the term 'intensive rainfall' (<i>intensywne opady</i>). There is no explicit definition of this term, however from the wording of the operational provisions of the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment (e.g §6.3), it can be inferred that an intensive rainfall is a rainfall that causes at least a double increase in the maximum effluent from municipal wastewater treatment plants when compared to a non-precipitation period. Also, a term 'torrential rain' is used by technical literature, however no definition is provided. On the basis of technical documents, it can be concluded that a torrential rain is a rain of 2mm in a period of 1 min.⁶⁹⁹ Technical documents provide that torrential rains should be also taken into account when designing sewer systems.⁷⁰⁰

⁶⁹⁵ Term used in § 21 of the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment.

⁶⁹⁶ Term used in § 21.4 of the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment.

⁶⁹⁷ Term used in § 22.1 of the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment.

⁶⁹⁸ <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20061370984>.

⁶⁹⁹ <http://www.apgw.kzgw.gov.pl/pl/dokumenty-do-pobrania> (e.g. first link on Dniestr RBMP).

⁷⁰⁰ http://www.pomysl.com/kotowski/zalaczniki/zalacznik_57.pdf.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

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<i>Overview of legal and policy framework</i>	
39. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	Regulations concerning storm water overflows are contained in the Water Act and the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment. Art. 41(3) of the Water Act allows for discharges into waters and soil of rain water from overflows from separate sewer systems as well as discharges of waste water from overflows from combined sewer systems in accordance with the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment. § 21 of this regulation regulates the conditions for discharges into waters and soil of rainwater originating from polluted impermeable surfaces, such as parking lots, airports, etc. §21.4 of the regulation regulates overflows from separate sewer systems – they can be discharged to lakes and their inlets if the annual average number of discharges from separate overflows from individual sewage systems is not bigger than 5. §22.1. of the regulation provides conditions for discharges to rivers and coastal waters of waste water from overflows from combined sewer systems – the discharges are allowed if the annual average number of discharges from separate overflows from individual sewage systems is not bigger than 10. §22.2 to 5, of the regulation determine the method for calculating the annual average number of discharges. For comments about this regulation, please see the table in section 1 of this report. §23 of the regulation deals with monitoring and assessment of the fulfilment of the conditions specified in §21 -22 of the regulation. It must be, however, noted that from the wording of this provision it is not clear what entity/person is competent to assess the fulfilment of the conditions specified in §21.4 (overflows from separate systems to lakes and their inlets) and §22.1 of the regulation (overflows from combined sewer systems). In practice, overflows from separate and combined sewer systems are not controlled/monitored either by entities operating sewer systems nor by the Inspectorate for the Environmental Protection (annual reports of the results of monitoring of the environment, published by the Inspectorate on its website, do not refer to the amount of overflows observed in a given year). In practice, the only moment when the fulfilment of the conditions specified in in §21.4 and 22.1. of the regulation is checked, is the licencing process for new waste water treatment plants and sewer systems – the licencing authorities, before issuing a water permit, must ensure that all conditions required by law are fulfilled. It should be noted that in Poland a considerable part of the existing sewer system has been built before entry into force of the discussed legislation. This would mean that the discussed regulations on storm water overflows would not apply to these infrastructures. Combined with the lack of comprehensive monitoring of storm water overflows and relevant infrastructures, the proper functioning of the system could be considered questionable. It should be also noted that currently only separate sewer systems are built in Poland, therefore it seems that the regulation of overflows from combined sewer systems will not be used in practice. In addition to the above-mentioned regulation, Art. 39.2.1. of the Water Act states that discharges of rain water or water from melting of snow, as well as waters from overflows from separate sewer systems are allowed to surface waters or to the soil, in the distance not smaller than 1 km from bathing waters and public beaches. A policy document entitled ‘Guidance concerning waste water management in the context of the enforcement of the National Sewage Treatment Programme’⁷⁰¹ contains a chapter on ‘Management of rain waters’. This document provides, in very general terms, guidance on how overflows from separate and combined sewer systems should be managed. For details about this guidance document, please see

⁷⁰¹ http://www.kzgw.gov.pl/files/file/Wiadomosci/KPOSK/Poradnik_KPOSK.pdf.

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	below. No information on storm water overflows has been identified in the existing RBMPs.
40. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	The regulation on the conditions for discharged waste waters and substances particularly harmful for the environment sets out standards for storm water overflows and discharges to receiving waters. They refer to the number of allowed overflows. In specific: 1) With regards to overflows from separate sewer systems – rainwater from overflows from such sewer systems can be discharged to lakes or their inlets as well as other water reservoirs with constant inlet and outlet of surface waters as well as to waters in artificial water reservoirs located on flowing waters, if the annual average number of discharges from separate overflows from individual sewage systems is not bigger than 5. 2) with regards to overflows from combined sewer systems – waste water from overflows from combined sewer systems can be discharged to intercostal surface flowing waters, coastal waters and transitional waters, if the annual average number of discharges from individual overflows is not bigger than 10. The manner of calculation of the allowed average annual number of discharges is determined by §22.2. of the regulation. In accordance with that provision, it should be calculated on the basis of data covering the results of observation of precipitation from a period of at least 10 years or the results of observation of the functioning of the existing storm overflows in at least two past years. If this data is not available, waste water from overflows from combined sewer systems may be discharged into waters, if: 1) the system brings the waste water to a waste water treatment plan with p.e. lower than 100,000, 2) the intensity of the flow in the combined sewer system before the storm overflow, caused by precipitation, is at least four times greater; this intensity shall be calculated according to the following formula: $(3+1)Q$, where Q is an average intensity in that system in the period of non-precipitation, determined for 24 hours of an average amount of waste water reaching annual a waste water treatment plant. If on the basis of direct analysis of receiving waters to which waters from storm water overflows from combined sewer systems are discharged it is determined that waste waters from those overflows result in the change of the quality of waters which prevents the adequate use of these waters, the average annual number of discharges referred must be lowered. The legislation does not precise how it must be lowered. In addition, with regards to separate sewer systems, rain waters or waters from melting of snow, enclosed in open or closed sewer systems, which originate from polluted impermeable surfaces: 1) of industrial areas, storages, transport bases, harbours, airports, cities, national roads, regional roads and local roads of category G as well as parking lots of a surface exceeding 0,1 ha, in the amount which originates from precipitation with the intensity of at least 15 l per 1 hour per ha, 2) oil storage and distribution buildings, in the amount which originates from precipitation with the intensity⁷⁰² of at least 77 l per 1 hour per ha, - may be discharged to waters and soil, as long as they do not contain polluting substances exceeding 100mg/l of total suspended solids and 15mg/l of petroleum hydrocarbons. Rain waters or waters from melting of snow in the amount exceeding the above values may be discharged to waters or soil without treatment, provided that cleaning devices are protected from the flows of rain waters or waters from melting of snow in the intensity greater than the nominal capacity. Rain waters or waters from melting of snow which from surfaces other than those referred to in para. 1 may be discharged into wasters or

⁷⁰² The formula to calculate the intensity is contained in the Guidance concerning waste water management in the context of the enforcement of the National Sewage Treatment Programme, available at: http://www.kzgw.gov.pl/files/file/Wiadomosci/KPOSK/Poradnik_KPOSK.pdf. The details about this document are also included in the table in section 2 of this report.

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soil without treatment.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Water Act,⁷⁰³ Art. 41.3 (the regulation referred to art. 45 ust. 1 pkt 3 of the Water act is Regulation on the conditions for discharged waste waters and substances particularly harmful for the environment) Regulation on the conditions for discharged waste waters and substances particularly harmful for the environment⁷⁰⁴ § 21-23, §6.3	Art. 41.3. Dopuszcza się wprowadzanie do wód lub do ziemi wód opadowych z przelewów kanalizacji deszczowej lub ścieków z przelewów burzowych komunalnej kanalizacji ogólnospławnej na warunkach określonych w przepisach wydanych na podstawie art. 45 ust. 1 pkt 3. §21. 1. Wody opadowe lub roztopowe, ujęte w otwarte lub zamknięte systemy kanalizacyjne, pochodzące z zanieczyszczonej powierzchni szczelnej: 1) terenów przemysłowych, składowych, baz transportowych, portów, lotnisk, miast, dróg zaliczanych do kategorii dróg krajowych, wojewódzkich lub powiatowych klasy G, a także parkingów o powierzchni powyżej 0,1 ha, w ilości, jaka powstaje z opadów o natężeniu co najmniej 15 l na sekundę na 1 ha, 2) obiektów magazynowania i dystrybucji paliw, w ilości, jaka powstaje z opadów o częstotliwości występowania jeden raz w roku i czasie trwania 15 minut, lecz w ilości nie mniejszej niż powstająca z opadów o natężeniu 77 l na sekundę na 1 ha – mogą być wprowadzane do wód lub do ziemi, o ile nie zawierają substancji zanieczyszczających w ilościach przekraczających 100 mg/l zawiesin ogólnych oraz 15 mg/l węglowodorów ropopochodnych. 2. Wody opadowe lub roztopowe pochodzące z	Art. 41.3. Discharges into waters and soil of rain water from overflows from separate sewage systems as well as discharges of waste water from overflows from combined sewer systems shall be allowed in accordance with the conditions determined on the basis of provisions issued on the basis of Art. 45 para. 1 point 3. §21.1. Rain waters or waters from melting of snow, enclosed in open or closed sewer systems, which originate from a polluted impermeable surface: 1) of industrial areas, storages, transport bases, harbours, airports, cities, national roads, regional roads and locals roads of category G as well as parking lots of a surface exceeding 0,1 ha, in the amount which originates from precipitation with the intensity of at least 15 l per 1 hour per ha, 2) oil storage and distribution buildings, in the amount which originates from precipitation with the intensity of at least 77 l per 1 hour per ha, - may be discharged to waters and soil, as long as they do not contain polluting substances exceeding 100mg/l of total suspended solids and 15mg/l of petroleum hydrocarbons. 2. Rain waters or waters from melting of snow which

⁷⁰³ <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20011151229>.

⁷⁰⁴ <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20061370984>.

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			powierzchni innych niż powierzchnie, o których mowa w ust. 1, mogą być wprowadzane do wód lub do ziemi bez oczyszczania. 3. Wody opadowe lub roztopowe w ilościach przekraczających wartości, o których mowa w ust. 1, mogą być wprowadzane do wód lub do ziemi bez oczyszczania, pod warunkiem że urządzenie oczyszczające jest zabezpieczone przed dopływem wód opadowych i roztopowych o natężeniu większym niż jego przepustowość nominalna. 4. Dopuszcza się wprowadzanie wód opadowych z istniejących przelewów kanalizacji deszczowej do jezior i ich dopływów oraz do innych zbiorników wodnych o ciągłym dopływie lub odpływie wód powierzchniowych, a także do wód znajdujących się w sztucznych zbiornikach wodnych usytuowanych na wodach płynących, jeżeli średnia roczna liczba zrzutów z poszczególnych przelewów kanalizacji deszczowej nie jest większa niż 5. §22. 1. Ścieki z przelewów burzowych komunalnej kanalizacji ogólnospławnej mogą być wprowadzane do śródlądowych wód powierzchniowych płynących, wód przybrzeżnych oraz wód przejściowych, jeżeli średnia roczna liczba zrzutów z poszczególnych przelewów nie jest większa niż 10. 2. Średnią roczną liczbę zrzutów ustala się na podstawie danych obejmujących wyniki obserwacji opadów z okresu co najmniej 10 lat lub wyniki obserwacji działania istniejących przelewów burzowych w ciągu co najmniej 2 lat. 3. Średnią roczną liczbę zrzutów ścieków z oczyszczalni ścieków w aglomeracji o RLM	from surfaces other than those referred to in para. 1 may be discharged into waters or soil without treatment. 3. Rain waters or waters from melting of snow in the amount exceeding the values specified in para. 1 may be discharged to waters or soil without treatment, provided that cleaning devices are protected from the flows of rain waters or waters from melting of snow in the intensity greater than the nominal capacity. 4. Discharges of rain water from the existing overflows from separate sewer systems to lakes or their inlets as well as other water reservoirs with constant inlet or outlet of surface waters as well as to waters in artificial water reservoirs located on flowing waters, if the annual average number of discharges from separate overflows from individual sewage systems is not bigger than 5. §22.1. Waste water from storm water overflows of combined sewer systems may be discharged to intercostal surface flowing waters, coastal waters and transitional waters, if the annual average number of discharges from individual overflows is not bigger than 10. 2. The average annual number of discharges from storm water overflows shall be determined on the basis of data covering the results of observation of precipitation from a period of at least 10 years or the results of observation of the functioning of the existing storm overflows in at least two past years. 3. The average annual number of discharges from storm water overflows from a waste water treatment

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		wyższym lub równym 100000 ustala się na podstawie modeli symulacyjnych. 4. W przypadku braku modeli symulacyjnych, o których mowa w ust. 3, średnią roczną liczbę zrzutów ścieków z oczyszczalni ścieków w aglomeracji o RLM wyższym lub równym 100000 ustala się zgodnie z ust. 2, przy czym do czasu opracowania tych modeli zmniejsza się dla poszczególnych przelewów burzowych średnią roczną liczbę zrzutów, o której mowa w ust. 1. 5. W przypadku braku danych, o których mowa w ust. 2, ścieki z przelewów burzowych komunalnej kanalizacji ogólnospławnej mogą być wprowadzane do wód, jeżeli: 1) kanalizacja doprowadza ścieki do oczyszczalni w aglomeracji o RLM niższym niż 100000; 2) natężenie przepływu w komunalnej kanalizacji ogólnospławnej przed przelewem burzowym, wywołane przez zjawiska opadowe, jest co najmniej czterokrotnie większe; natężenie to jest obliczane według wzoru: $(3+1) Q$, gdzie: Q stanowi średnie natężenie przepływu w tej kanalizacji, w okresach pogody bezopadowej, określonego dla doby o średniej ilości ścieków dopływających w ciągu roku do oczyszczalni ścieków. 6. Jeżeli na podstawie bezpośrednich analiz wód, do których wprowadzane są ścieki z przelewów burzowych komunalnej kanalizacji ogólnospławnej, zostanie stwierdzone, że ścieki z tych przelewów powodują zmianę jakości wód uniemożliwiającą korzystanie z nich zgodnie z ich przeznaczeniem, należy zmniejszyć średnią roczną liczbę zrzutów, o której mowa w ust. 1.	plant in an agglomeration of p.e. exceeding or equal to 100000 shall be determined on the basis of simulation models. 4. In the case of lack of simulation models referred to in para 3, average annual number of discharges from a waste water treatment plant in an agglomeration of p.e. exceeding or equal to 100,000 shall be determined in accordance with para 2, however, until the time the simulation models have been developed, the average annual number of discharges referred to in para 1 shall be lowered. 5. In the case of lack of data referred to in para 2, waste water from overflows from combined sewer systems may be discharged into waters, if: 1) the system brings the waste water to a waste water treatment plant with p.e. lower than 100,000, 2) the intensity of the flow in a combined sewer system before the storm overflow, caused by precipitation, is at least four times greater; this intensity shall be calculated according to the following formula: $(3+1)Q$, where Q is an average intensity in that system in the period of non-precipitation, determined for 24 hours of an average amount of waste water reaching annual a waste water treatment plant. 6. If on the basis of direct analysis of receiving waters to which waters from storm water overflows from combined sewer systems are discharged it is determined that waste waters from those overflows result in the change of the quality of waters which prevents the adequate use of these waters, the average annual number of discharges referred to in para. 1 shall be lowered.

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		§23. 1. Ocenę, czy są spełnione warunki, o których mowa w § 21 ust. 1, przeprowadza się na podstawie dokonywanych przez zakład, co najmniej 2 razy w roku, przeglądów eksploatacyjnych urządzeń oczyszczających; eksploatacja powinna odbywać się zgodnie z instrukcją obsługi i konserwacji urządzeń oczyszczających, a czynności z nią związane odnotowane w zeszycie eksploatacji tego urządzenia. 2. Spełnienie warunków, o których mowa w §21 ust. 1, w stosunku do wód opadowych lub roztopowych wprowadzanych do wód lub do ziemi z urządzeń oczyszczających o przepustowości nominalnej większej niż 300 l/s ocenia się na podstawie przeglądów, o których mowa w ust. 1, oraz na podstawie badań, w zakresie normowanych wskaźników zanieczyszczeń, wykonanych w czasie trwania opadu, co najmniej dwa razy w roku, w okresie wiosny i jesieni; próbkę do badań należy uzyskać przez zmieszanie trzech próbek o jednakowej objętości pobranych w odstępach czasu nie krótszych niż 30 minut. 3. Oceny spełnienia warunków, o których mowa w §21 ust. 4 i §22 ust. 1, dokonuje się na podstawie średniej rocznej liczby zrzutów z poszczególnych przelewów kanalizacji deszczowej lub przelewów burzowych komunalnej kanalizacji ogólnospławnej, określonej na podstawie obserwacji funkcjonowania przelewów przez okres co najmniej 2 lat. §6.3. W ocenie, czy ścieki komunalne [z oczyszczalni ścieków] spełniają wymagane warunki, nie uwzględnia się przekroczeń najwyższych dopuszczalnych wartości wskaźników zanieczyszczeń, jeżeli są	§23.1. The assessment whether the conditions specified in §21.1. have been met shall be carried out on the basis of operation inspections of treatment devices carried out at least two times per year by the [operator of a] plant; the operation shall be carried out in accordance with a manual for operation and conservation of treatment devices and operation activities shall be documented in an operation book for that device. 2. The fulfilment of the requirements referred to in in §21.1, with regard to rain waters and waters from melting of snow discharged to waters or soil from treatment devices with nominal capacity greater than 3000 l/s shall be assessed on the basis of inspections carried out in accordance with para 1 as well as on the basis of analysis, in terms of regulated polluting factors, carried out during the period of precipitation, at least twice a year, in spring and autumn; the sample shall be obtained by mixing of three samples of the same volume taken in a period of time not shorter than 30 min. 3. The assessment of the fulfilment of conditions specified in §21.4. and §22.1. shall be carried out on the basis of the average annual amount of discharges from individual overflows from separate sewer systems or storm water overflows of combined sewer systems, determined on the basis of the observation of the functioning of the overflows for a period of at least two years. §6.3. To assess whether sewage [from waste water treatment plant] meet the required conditions, the exceedances of maximum thresholds of polluting substances shall not be taken into account, if they are the result of intensive rainfall which cause at least a

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		Water Act, ⁷⁰⁵ Art. 39.2	następstwem intensywnych opadów wywołujących co najmniej dwukrotny wzrost maksymalnego odpływu ścieków z oczyszczalni ścieków komunalnych określonego dla okresu bezopadowego. Art.39. 2. Dopuszcza się wprowadzanie: 1) wód opadowych lub roztopowych, wód z przelewów kanalizacji deszczowej oraz wód chłodniczych do wód powierzchniowych lub do ziemi, w odległości mniejszej niż 1 kilometr od granic kąpielisk i plaż publicznych nad wodami, 2) wód opadowych lub roztopowych do jezior oraz do ich dopływów, jeżeli czas dopływu ścieków do jeziora byłby krótszy niż 24 godziny	double increase in the maximum effluent from municipal wastewater treatment plants when compared to a non-precipitation period. Art. 39.2. Discharges of the following are allowed: 1) of rain water or water from melting of snow, waters from overflows from separate sewer systems and cooling waters to surface waters or to the soil, in the distance not smaller than 1 km from bathing waters and public beaches, 2) of rain water or water from melting of snow to lakes and their inlets if the time of the waste water reaching the lake would be shorter than 24 hours.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	Guidance concerning waste water management in the context of the enforcement of the National Sewage Treatment Programme ⁷⁰⁶	$Q = \psi_u \cdot q \cdot A, \text{ dm}^3/\text{s}$ Gdzie : ψ_u - uśredniony współczynnik spływu powierzchniowego, q - natężenie deszczu, $\text{dm}^3/(\text{ha} \cdot \text{s})$ A - powierzchnia zlewni, ha Uśredniony współczynnik spływu jest obliczany jako średnia ważona z uwzględnieniem poszczególnych powierzchni składowych o określonych wartościach współczynnika spływu: $\psi_u = \frac{\psi_1 A_1 + \psi_2 A_2 + \dots + \psi_i A_i}{A_1 + A_2 + \dots + A_i}$	Chapter 4 of the Guidance concerning waste water management in the context of the enforcement of the National Sewage Treatment Programme is entitled 'Management of rain waters'. Due to the length of the document, it is not possible to quote all its provisions, however the most relevant ones will be referred to below. Chapter 4 of the Guidance document refers to §21.1 of the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment and provides a formula for the calculation of the intensity of the amount of precipitation referred to in §21 of the regulation. The

⁷⁰⁵ <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20011151229>.

⁷⁰⁶ http://www.kzgw.gov.pl/files/file/Wiadomosci/KPOSK/Poradnik_KPOSK.pdf.

Overview of legal and policy framework. Relevant references to storm water overflows.

TABELA 11. WSPÓŁCZYNNIKI Ψ ZALÉŻNE OD SPADKÓW TERENU.

Rodzaj zabudowy i użytków	Spadki terenu, %					
	0,5	1,0	2,5	5,0	7,5	10,0
Dzielnice miejskie ze zwartą zabudową	0,60	0,62	0,65	0,70	0,75	0,80
Dzielnice willowe	0,40	0,42	0,45	0,50	0,55	0,60
Parki i ogrody	0,10	0,12	0,15	0,20	0,25	0,30
Grunty orne	0,05	0,08	0,10	0,15	0,20	0,25
Lasy	0,01	0,02	0,04	0,06	0,10	0,15

TABELA 12. WSPÓŁCZYNNIKI SPŁYWU POWIERZCHNIOWEGO Ψ .

Rodzaj zabudowy i użytków rolnych	Współczynnik Ψ
Dachy szczelne (blachy, dachówka, Papa)	0,90-0,95
Zabudowa zwarta	0,70-0,90
Zabudowa luźna z domami w podwórzach	0,50-0,70
Zabudowa luźna blokowa	0,40
Zabudowa luźna o charakterze usługowym	0,30
Zabudowa jednorodzinna	0,25
Ogrody i tereny niezabudowane	0,10-0,20
Parki, sady, łąki zależnie od spadku terenu	0,05-0,25
Nawierzchnia uliczna gładka (bruk, asfalt)	0,50-0,90

4.3.ZAGOSPODAROWANIE WÓD OPADOWYCH

Wody opadowe z dachów. Wody o takim charakterze, o ile warunki terenowe i glebowe pozwalają powinny być infiltrowane do gruntu. Urządzenie do infiltracji wód powinno znajdować się w odległości minimum 1m od ściany budynku. Wody deszczowe odprowadzane z dachu gromadzone w zbiorniku powinny być wykorzystywane do podlewania zieleń lub na podobne cele.

Wody pochodzące z parkingów oraz dróg o dużym

formula is the following:

$$Q = \Psi \cdot q \cdot A, \text{ dm}^3/\text{s}$$

Where:

Ψ - means the average coefficient for surface runoff

q - means the intensity of rain, $\text{dm}^3/(\text{ha} \cdot \text{s})$

A – means the surface of the catchment

The average coefficient for surface runoff is calculated as a weighted average taking into account individual surfaces with certain values of runoff coefficient:

$$\Psi_u = \frac{\Psi_1 A_1 + \Psi_2 A_2 + \dots + \Psi_n A_n}{A_1 + A_2 + \dots + A_n}$$

Specific coefficients are specified in two tables. The first table refers to coefficient with regards to the downslope and the type of land development in the area in question and table two refers to coefficient Ψ , with regards to surface runoff and the type of land development in the area in question.

Overview of legal and policy framework. Relevant references to storm water overflows.

		natężeniu ruchu zawierają zanieczyszczenia mechaniczne i substancje ropopochodne i należy je oczyszczać w układach z separacją grawitacyjną substancji stałych oraz flotacją substancji ropopochodnych tj. w separatorach. Separatory dzielą się na koalescencyjne i lamelowe. Są to studnie betonowe przykryte płytą żelbetową z żeliwnym włazem, wewnątrz których zamontowane są urządzenia technologiczne. Separatory powinny być montowane w układzie: studzienka spełniająca funkcje piaskownika, separator i studzienka do poboru próbek. W studzience przed separatorem montuje się przelew umożliwiający odprowadzenie wód opadowych z ominięciem separatora, gdy ilość wód opadowych dopływających do urządzenia jest większa od jego nominalnej przepustowości. Przy separatorach o małej przepustowości często nie wykonuje się piaskownika a przelew i by-pass montowane są w studzience. Wody deszczowe mogą być odprowadzane do gruntu, wód powierzchniowych lub system kanalizacji. Podczas infiltracji wód deszczowych do gruntu może wystąpić ryzyko zanieczyszczenia wód podziemnych zanieczyszczeniami ropopochodnymi lub metalami ciężkimi. Przemieszczanie się metali ciężkich zależy od rodzaju gruntu, składu i zawartości materiału organicznego w glebie. Jak wynika z dotychczasowych badań metale ciężkie są zatrzymywane w wierzchniej 30 cm warstwie podpowierzchnią chłonną. Najlepsza efektywność oczyszczania wód opadowych występuje wówczas, gdy woda przesącza się przez profil glebowy. 4.4.PROBLEMY EKSPLOATACYJNE Odprowadzanie wód opadowych na oczyszczalnię z pośrednictwem kanalizacji ogólnospławnej w okresie intensywnych opadów może szczególnie negatywnie wpływać na pracę oczyszczalni ścieków. Ilość skratek i piasku usuwanego ze	4.3. MANAGEMENT OF RAIN WATERS Rainwater originating from roofs. The water of this nature, as long as the terrain and soil conditions allow, should be infiltrated into the ground. A device for infiltration should be at a minimum distance of 1 m from the wall of the building. Rainwater from the roof collected in a tank should be used for watering the greens or for similar purposes. Water originating from parking lots and roads with heavy traffic pollution contains mechanical and petroleum substances and should be treated by gravity separation systems for solid substances and the flotation of oil derivatives, i.e. in separators. There are two different types of separators: coalescing and lamella. These are concrete wells reinforced with concrete slab covered with cast iron manhole, inside which technical devices are installed. Separators should be installed in the following system: a well which functions as a grit chamber, a separator and a well for taking samples. An overflow allowing water to by-pass the separator shall be installed in the well when the amount of rain water reaching the separator is greater than its nominal capacity. In the case of separators

Overview of legal and policy framework. Relevant references to storm water overflows.

			ścieków w czasie opadów wzrasta 5-10 krotnie w stosunku do okresu bezdeszczowego. Powszechnie występują wówczas trudności w eksploatacji oczyszczalni ścieków. Są to głównie zakłócenia w procesach usuwania azotu i fosforu, wzrastają również koszty eksploatacji z uwagi na zwiększoną ilość przepompowywanych i oczyszczanych ścieków. Z powyższych względów nie powinno się odprowadzać ścieków opadowych do małych systemów kanalizacyjnych. Rozwiązaniem chroniącym oczyszczalnie ścieków przed wpływem deszczy nawałnych są przelewy burzowe, przy czym warunki ich stosowania określa rozporządzenie Ministra Środowiska.	with small capacity, the grit chamber is often not installed and overflow and by-pass are installed in the well. Rainwater can be discharged into the soil, surface waters or sewer systems. During the infiltration of rainwater into the soil, there might be a risk of contamination of groundwater with petroleum products or heavy metals. The infiltration of heavy metals depends on the type of soil, the composition and content of organic material in the soil. As results from previous studies show, heavy metals are retained in the top 30 cm layer of the absorbent surface. The best treatment efficiency of rainwater occurs when water is filtered through the soil profile. 4.4. OPERATION PROBLEMS Transport of rainwater to waste water treatment plants by means of combined sewer systems in the period of intense precipitation might have particularly negative consequences for the functioning of the waste water treatment plant. The amount of big pieces of litter as well as sand flowing with waste water during rainfall increases 5-10 times when compared to a non-precipitation period. During this time, difficulties in the operation of waste water treatment plants may occur. These are mainly disturbances in the process of removal of nitrogen and phosphorus, also the costs of operation increase due to the increased amount of pumped and treated waste water. For this reason, waste water containing rain water shall not be transported in small sewer systems. Storm water overflows are the solution ensuring the treatment of waste water in the period of torrential rain and conditions of the use of storm water overflows are contained in the regulation of the Minister for the Environment.

Overview of legal and policy framework. Relevant references to storm water overflows.				
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
International conventions or commissions	Direct reference (Y/N)		Text in MS language	Translation into English
OSPAR				
HELCOM	N			
Barcelona Convention				
Conv. on the Protection of the Black Sea				
Danube Convention				
Rhine Convention				
Oder Convention	N			
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Guidance (national level)	The modelling of precipitation for the design of sewer systems ⁷⁰⁷		This is a technical document, to be used by designers of collecting systems, providing guidance on how to calculate the dimensioning of sewer pipes with regards to precipitation, issued by the Polish Academy of Science. It discusses different existing models of precipitation and their use for the dimensioning of collection systems. It provides a set of advices on the design of sewer systems, taking into account the regulations included in Polish norm PN-EN 752:2008 (technical conditions for the design of collecting systems). The second part of the document refers to a specific case of a construction of a collection system in one of Polish cities.	

⁷⁰⁷ http://www.pomysl.com/kotowski/zalaczniki/zalacznik_57.pdf.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
96. Which types of sewer system does Poland have?	In 2013, there were almost 288,000 km of sewers in Poland. ⁷⁰⁸ In Poland two types of sewer systems exists: combined and separate.
97. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	In 2012, there were 24.000, km of pipes of a separate sewer system. In the same year, there were 211.000, km of pipes of a combined sewer system. ⁷⁰⁹ This corresponds to 90 % of combined sewers and 10% of separate sewers?
98. How many storm water overflows infrastructures exist in Poland?	In 2012, 971 storm water overflows infrastructures in Poland in combined sewer system were reported. ⁷¹⁰ It would mean that, approximately, one storm water infrastructure per 217 km of sewer pipes exists. It is expected that this data might be underestimated/underreported.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
99. Is there information on the occurrence of storm water overflows?	No such information has been obtained. The summary report on the implementation of the National Sewage Treatment Programme ⁷¹¹ indicates that, in 2012, for all agglomerations in Poland, 5,482,402 m ³ /d of waste water has been delivered to waste water treatment plants during non-precipitation weather, whereas during rainfall this amount increased to 9,752,626 m ³ /d.
100. Are storm water overflows monitored in Poland? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	In accordance with §23.3 of the regulation on the conditions for discharged waste waters and substances particularly harmful for the environment, the assessment of whether the conditions related to the allowed number of discharges from individual overflows from separate and combined systems are met must be carried out. Such assessment must be carried out on the basis of the observation of the functioning of the overflows for a period of at least two years. The regulation does not specify who (which entity) must carry out such assessment; it could be assumed from the overall context of the regulation that this obligation is binding upon the operator of a sewer system/waste water treatment plant. However, no comprehensive monitoring of storm water overflows exists in Poland. In addition, the Inspectorate for Environmental Protection has monitoring and inspection obligations with regards to the environment, including use of waters and management of waste water. No specific monitoring or inspection programme of storm water overflows is carried by the Inspectorate. Inspectors of the Inspectorate may carry out ad hoc and planned inspections where the compliance with water

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http://www.google.pl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCAQFjAA&url=http%3A%2F%2Fstat.gov.pl%2Fdownload%2Fgfx%2Fportalinformacyjny%2Fpl%2Fdefaultaktualnosc%2F5492%2F3%2F11%2F1%2Fikn_infrastruktura_komunalna_2013.pdf&ei=itkvVbKwJMfuaJfUgMAM&usg=AFQjCNEkVymHA3piUXb7MDX9Lw8BOVuOrg&sig2=TmtovQIWOHs_RiP60mHQ0A.

⁷⁰⁹ http://www.google.pl/url?sa=t&rct=j&q=&esrc=s&source=web&cd=9&sqi=2&ved=0CFMQFjAI&url=http%3A%2F%2Fwww.kzgw.gov.pl%2Ffiles%2Ffile%2FMaterialy_i_Info_rmacje%2FProgramy%2FKPOSK%2FsprawozdanieKPOSK2012.xls&ei=Yt8vVY72AaGx7OaOpoEg&usg=AFQjCNEa1JFrwWYdCqQA4LySRIX_B-GvDA&sig2=6vXkKsl_mQ4ZU_V-uMhRxA&bvm=bv.91071109,d.ZWU.

⁷¹⁰ As above.

⁷¹¹ As above.

Available data on storm water overflows

permit and applicable legislation can be checked. Such inspections may also include storm water overflows. On the basis of a summary report on the implementation of the National Sewage Treatment Programme⁷¹² it can be assumed that, in practice, overflows are not monitored in the majority of cases. From out of more than 2000 agglomerations existing in Poland, in 2012, monitoring of overflows was reported only in around 80 of them. The manner and frequency of carrying out the monitoring also differs substantially between those plants. In very few (around 5) plants automatic and electronic systems of constant monitoring of overflows exist. Some plants carry out controls during and/or after big rainfall, such controls are documented in so called 'storm water overflow documentation' kept by the operator of the plant. In many plants the inspection is visual and is carried out by workers of a given plant, in some monitoring is carried out by laboratory examinations of samples of waste water; a few plants reported to have in place a special device for monitoring of overflows. This shows that the monitoring of storm water overflows is in Poland still uncoordinated and regulated in an insufficient manner.

⁷¹² As above.

FACTSHEET FOR PORTUGAL⁷¹³

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
141. What are the competent authorities for waste water treatment and management in Portugal?	In Portugal, waste water treatment and management services are considered public interest services. Therefore, these services are ensured by management entities which are usually owned by the municipalities (but can also be delegated or granted by concession to third entities).⁷¹⁴ The main competent authorities in this sector are the following: ▪ The <i>Ministério do Ambiente, Ordenamento do Território e Energia</i> (Ministry of Environment, Spatial Planning and Energy)⁷¹⁵, which is presently the government body in charge of defining and coordinating environmental policy towards sustainable development. It is in charge of defining, coordinating and implementing policies on environment, spatial planning, cities, housing, climate, nature conservation, energy, geology and eco-innovation in the context of sustainable development and social and territorial cohesion. ▪ The <i>Agência Portuguesa do Ambiente - APA</i> (Portuguese Environmental Agency)⁷¹⁶ is a service integrated in the direct administration of the State and functioning under the umbrella of the Ministry of Environment, Spatial Planning and Energy. The APA is currently the National Water Authority in charge of proposing, developing and supporting the implementation of the water resources policy in view of their protection and improvement. The APA, through the competent Departments of River Basin District Administration, is in charge of licensing the water uses namely in what concerns to water abstractions and the discharge of wastewater. APA is also the authorised WISE data provider for UWWTD in Portugal. ▪ The <i>Entidade Reguladora dos Serviços de Água e Resíduos – ERSAR</i> (the Regulatory Authority for Water and Waste Services)⁷¹⁷ is an independent regulatory authority in charge of regulating and supervising the public water supply, sanitation of urban waste water and urban waste management services. Since 2011, ERSAR monitors the quality of the services provided to consumers; it is within this task that ERSAR collects some relevant data on storm water overflows in Portugal.
142. What is the transposing law(s) of the UWWTD in Portugal?	The UWWTD was transposed in Portugal mainly by Decree-Law 152/97 of 19 June (DL 152/97), as amended by Decree-Laws 348/98 of 9 November, 149/2004 of 22 June, 198/2008 of 8 October and recently 133/2015 of 13 July. Some of the requirements of the UWWTD, which are relevant for storm water overflows, were already in place, as required by Regulatory Decree 23/95 of 23 August (RD 23/95). ▪ <i>Decreto-Lei n.º 152/97 de 19 Junho. D.R. n.º 139, Série I de 19-06-1997. Transpõe para o direito interno a Diretiva n.º 91/271/CEE, do Conselho, de 21 de maio de 1991, relativamente ao tratamento de águas residuais urbanas</i> (Decree-Law

⁷¹³ Ms Paula Freixial, Department of Engineering and Water at ERSAR, was interviewed for this report.

⁷¹⁴ For more information please see

<http://www.ersar.pt/website/ViewContent.aspx?GenericContentId=0&SubFolderPath=&Section=MenuPrincipal&FolderPath=%5cRoot%5cContents%5cSitio%5cMenuPrincipal%5cSector>.

⁷¹⁵ For more information please see www.portugal.gov.pt/pt/os-ministerios/ministerio-do-ambiente-ordenamento-do-territorio-e-energia.aspx.

⁷¹⁶ For more information, please see www.apambiente.pt.

⁷¹⁷ For more information, please see www.ersar.pt.

Basic information	
	152/97 of 19 June. D.R. no. 139, Series I of 19-06-1997. Transposing into national law Directive 91/271/EEC of the Council, of 21 May 1991, concerning the treatment of urban waste water).⁷¹⁸ Decreto Regulamentar n.º 23/95 de 23 de Agosto. D.R. n.º 194, Série B de 23-8-1995. Aprova o Regulamento Geral dos Sistemas Públicos e Prediais de Distribuição de Água e de Drenagem de Águas Residuais. (Regulatory Decree 23/95 of 23 August. D.R. no. 194, Series B of 23-8-1995. Approves the General Regulations of the Public and Building Systems of Water Distribution and Wastewater Drainage).⁷¹⁹
143. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD has been literally transposed by Section A of Annex I to DL 152/97.
144. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	Footnote 1 in Sections A and B of Annex I to the UWWTD has not been expressly transposed into national law (DL 152/97 transposing Sections A and B of Annex I to the UWWTD does not include any provision explicitly transposing the footnote), but nonetheless, it is reflected in national law. Two provisions of RD 23/95 – Articles 167 and 168 –, which had been already in force before the transposition of the UWWTD in Portugal, reflect the content of the provisions of the footnote, mentioning explicitly dilution rates and dry weather flow. <i>Article 167 – Purpose</i> <i>Dischargers are used to regulate and distribute the flow; their use is more frequent in combined systems.</i> <i>Article 168 – Design criteria</i> <i>The design flow rate of the dischargers must have into account the following elements:</i> <i>Dilution rate of the effluent discharged that is acceptable by the receiving environment;</i> <i>The performance of downstream installations is not affected;</i> <i>Ensure the routing of floating solids to the treatment plant;</i> <i>The economy of the overall cost of the system is not affected;</i> <i>Average dry weather flow is not exceeded more than six fold</i>
145. What is the terminology used to refer to storm water overflows in Portugal? Is there more than one term used?	DL 152/97 uses the term “<i>inundações provocadas por tempestades</i>”, which is a literal translation of “storm water overflow”. This term is only used once – for the transposition of the third item of Section A of Annex I to the UWWTD. When referring to the devices which allow the discharge of an overflow from a combined sewer system in the case of heavy rain/storm, technical and guidance documents in Portugal normally use the term “<i>descarregadores de tempestades</i>”, which could be translated as “storm water dischargers”.
146. Is there a definition of storm water overflow in Portugal?	No definition of storm water overflows is contained in Portuguese legislation.
147. Storm water overflows occur as a	According to the information available on the website of the <i>Instituto Português do Mar e Atmosfera</i> (Portuguese Institute of Sea and

⁷¹⁸ Available in Portuguese at: <http://dre.pt/pdf1sdip/1997/06/139A00/29592967.pdf>.

⁷¹⁹ Available in Portuguese at: <https://dre.pt/application/file/431921>.

Basic information

consequence of an extreme or unusual rainfall event. Does Portugal have a definition of extreme or unusual rainfall event?

Atmosphere) a storm is a “severe weather event, characterised by strong winds and very strong gusts, thunderstorms and heavy precipitation”.

The same source divides precipitation events in rainfall, which can be classified as light (under 0,5mm/h), moderate (0,5 mm/h - 4mm/h) and heavy (above 4 mm/h); and rain showers, which can be classified as light (under 2 mm/h), moderate (2 mm/h - 10 mm/h), heavy (10 mm/h - 50 mm/h) and violent (above 50 mm/h).⁷²⁰

⁷²⁰ Please see <http://www.ipma.pt/pt/educativa/faq/meteorologia/previsao/>.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
41. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	The existing legal framework in Portugal does not include detailed provisions for the control and limitation of storm water overflows. The relevant provisions of the UWWTD have been well transposed, and some of its requirements which are relevant for storm water overflows had been actually already in place before transposition (please see section 1 of this report for more details). Therefore, as required by the UWWTD, the design, construction and maintenance of collecting systems must take into account <i>inter alia</i> the limitation of pollution of receiving waters due to storm water overflows. The Portuguese legislation refers also explicitly to acceptable dilution rates and dry weather flow capacity, two of the examples of measures taken to control storm water overflows provided in the UWWTD. In addition, it should be noted that since 1946 the construction of separate sewers for wastewater and rain water is mandatory. The only standards currently available in Portugal for the control and limitation of storm water overflows exist in the form of guidance, and therefore are not binding. The ERSAR, an independent regulatory authority in charge of regulating and supervising the public water supply, sanitation of urban waste water and urban waste management services, has published together with the National Laboratory of Civil Engineering a guidance document which recommends a maximum number of overflows, taking into account the type of receiving water body (please see the row 2.2 below for more details). The ERSAR, in its <i>Guia de avaliação da qualidade dos serviços de águas e resíduos prestados aos utilizadores</i>,⁷²¹ has also developed a quality indicator (to assess the sustainability of the waste water management system in terms of pollution prevention. This indicator intends to show the percentage of monitored dischargers which discharge directly into the environment and with a satisfactory performance⁷²² and it still is being further developed. Currently, operators are only required to report to ERSAR the number of emergency discharges,⁷²³ independently of the cause and volume discharged. Storm water overflows do not appear to have been specifically addressed in the first cycle River Basin Management Plans (RBMPs); the second cycle RBMPs are still being developed.
42. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows	While RD 23/95 refers only to a number of elements that need to be taken into account for the design flow rate of the dischargers, without providing specific details (please see below for more details), the <i>Guia de avaliação da qualidade dos serviços de águas e resíduos prestados aos utilizadores</i>,⁷²⁴ a non-binding document produced by the National Laboratory of Civil Engineering and the ERSAR, recommends a maximum number of overflows:

⁷²¹ Available in Portuguese at

<http://www.ersar.pt/website/ViewContent.aspx?SubFolderPath=%5cRoot%5cContents%5cSitio%5cMenuPrincipal%5cDocumentacao%5cPublicacoesIRAR&Section=MenuPrincipal&FolderPath=%5cRoot%5cContents%5cSitio%5cMenuPrincipal%5cDocumentacao&BookTypeID=32&BookCategoryID=1>

⁷²² According to ERSAR, the data for 2012 revealed that, for the indicator described, 81% of operators were not providing a “satisfactory service”; in most of the cases, this was due to a lack of daily monitoring of their dischargers.

⁷²³ Emergency discharges include not only discharges due to storm water overflows but also discharges in case of malfunction and other situations not directly related to rain.

⁷²⁴ Available in Portuguese at

<http://www.ersar.pt/website/ViewContent.aspx?SubFolderPath=%5cRoot%5cContents%5cSitio%5cMenuPrincipal%5cDocumentacao%5cPublicacoesIRAR&Section=MenuPrincipal&FolderPath=%5cRoot%5cContents%5cSitio%5cMenuPrincipal%5cDocumentacao&BookTypeID=32&BookCategoryID=1>

Overview of legal and policy framework. Relevant references to storm water overflows.

- Volumes of overflow
- Coefficient referring to dilution (e.g. comparing to Dry Weather Flow)
- Number of days when overflows are working
- Water quality standards of receiving water body
- Other

- Less or equal to 30 overflows/year, if the receiving water body is not a sensitive area
- Less or equal to 10 overflows/year, if the receiving water body is not a sensitive area but may be used for leisure purposes or crosses public areas
- Less or equal to 6 overflows/year, if the receiving water body is a sensitive area
- Less or equal to 3 overflows, if the receiving water body may be used for bathing purposes

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Section A of Annex I to DL 152/97 http://dre.pt/pdf1sdip/1997/06/139A00/29592967.pdf Articles 167 and 168 of RD 23/95 https://dre.pt/application/file/431921	<i>A) Sistemas de drenagem</i> <i>Os sistemas de drenagem devem ter em conta os requisitos de tratamento das águas residuais urbanas. A concepção, construção e manutenção dos sistemas de drenagem deve obedecer aos melhores conhecimentos técnicos que não acarretem custo excessivos, nomeadamente quanto:</i> ▪ <i>ao volume e características das águas residuais urbanas;</i> ▪ <i>a prevenção de fugas;</i> ▪ <i>a limitação da poluição das águas receptoras, no caso de inundações provocadas por tempestades.</i> <i>Artigo 167.º Finalidade</i> <i>Os descarregadores destinam-se a regular e repartir o escoamento, sendo a sua utilização mais frequente nas redes unitárias.</i> <i>Artigo 168.º Critérios de dimensionamento</i> <i>O caudal de dimensionamento dos descarregadores deve ter em conta os seguintes factores:</i> <i>a) Grau de diluição do efluente descarregado, susceptível de ser aceite pelo meio receptor;</i> <i>b) Não perturbar o bom funcionamento das</i>	<i>A) Collecting systems</i> <i>Collecting systems shall take into account waste water treatment requirements. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding:</i> ▪ <i>volume and characteristics of urban waste water</i> ▪ <i>prevention of leaks</i> ▪ <i>limitation of pollution of receiving waters due to storm water overflows.</i> <i>Article 167 – Purpose</i> <i>Dischargers are used to regulate and distribute the flow; their use is more frequent in combined systems.</i> <i>Article 168 – Design criteria</i> <i>The design flow rate of the dischargers must have into account the following elements:</i> <i>a) Dilution rate of the effluent discharged that is acceptable by the receiving environment;</i> <i>b) The performance of downstream installations is not affected;</i>

Overview of legal and policy framework. Relevant references to storm water overflows.				
			<i>instalações a jusante;</i> c) <i>Assegurar o encaminhamento de sólidos flutuantes para a estação de tratamento;</i> d) <i>Não afectar a economia do custo global do sistema;</i> e) <i>Não ultrapassar seis vezes o caudal médio de tempo seco.</i>	c) <i>Ensure the routing of floating solids to the treatment plant;</i> d) <i>The economy of the overall cost of the system is not affected;</i> e) <i>Average dry weather flow is not exceeded more than six fold</i>
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N			
HELCOM				
Barcelona Convention				
Conv. on the Protection of the Black Sea				
Danube Convention				
Rhine Convention				
Oder Convention				
Elbe Convention				

Overview of legal and policy framework. Relevant references to storm water overflows.				
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Guidance document (national level)	<i>Guia de avaliação da qualidade dos serviços de águas e resíduos prestados aos utilizadores (2ª geração do sistema de avaliação), Laboratório Nacional de Engenharia Civil e Entidade Reguladores dos Serviços de Água e Resíduos, Outubro 2017⁷²⁵</i>		This document, produced by the National Laboratory of Civil Engineering and the ERSAR - the Regulatory Authority for Water and Waste Services, provides the guidelines to assess the quality of public water supply, sanitation of urban waste water and urban waste management services as well as services related to waste management. Concerning storm water overflows, and making express reference to the requirements of the UWWTD, the document recommends a maximum number of overflows per year, taking into account the characteristics of the receiving water body. The frequencies recommended are based on the methodology <i>Urban Pollution Management</i> developed in the UK and also on the frequencies adopted by the UK and the Netherlands.	

⁷²⁵ <http://www.ersar.pt/website/ViewContent.aspx?SubFolderPath=%5cRoot%5cContents%5cSítio%5cMenuPrincipal%5cDocumentacao%5cPublicacoesIRAR&Section=MenuPrincipal&FolderPath=%5cRoot%5cContents%5cSítio%5cMenuPrincipal%5cDocumentacao&BookTypeID=32&BookCategoryID=1>

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
101. Which types of sewer system does Portugal have?	There are four types of sewer systems in Portugal. These are expressly mentioned in Article 116 of RD 23/95: (i) separated, (ii) combined, (iii) mixed (i.e. part of the network is composed of separated sewers and part is composed by combined sewers), and (iv) partially separated or “pseudo”-separated (i.e. when the connection of rain water from interior courtyards to the collector of domestic waste water is allowed in exceptional circumstances). Since 1946, the year of adoption of Ordinance 1138 of 8 May (no longer in force), the construction of separate sewers for waste water and rain water is mandatory.
102. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	Taking into account that the construction of separate sewers in Portugal is now mandatory for almost 70 years, it is estimated that about 2/3 of the existing sewers are separate and 1/3 are combined or mixed. Therefore, approximately 34.000 km of the 51.000 km of sewer pipelines in Portugal (data from 2013) are for separate systems and the remaining 17.000 km are for combined or mixed systems. ⁷²⁶ In terms of population, it is estimated that in 2008, 49% of the population was served by combined or mixed systems (mostly mixed systems), 46% by separated systems and the remaining 5% by partially-separated systems. Naturally, most of the combined or mixed sewers are located in great urban areas. ⁷²⁷ It should be noted, however, that even though there is a substantial percentage of separated systems (and of population served by separated systems), the functioning of separate systems is affected by a number of illegal connections to the network. ⁷²⁸
103. At how many locations do storm water overflows occur in Portugal?	Only the number of storm water overflows infrastructures (“ <i>descarregadores de tempestade</i> ”) is available. In 2013, there were 6.432 storm water overflows infrastructures i.e. 65% of the wastewater treatment plants were equipped with overflow infrastructures. ⁷²⁹
<i>Available quantitative data on the occurrence of storm water overflows</i>	
104. Is there information on the occurrence of storm water overflows?	This information is currently not available. At this stage, operators are only required to report to ERSAR the number of emergency discharges, independently of the cause and volume discharged. ⁷³⁰
105. Are storm water overflows monitored in Portugal? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	At this stage, operators are only required to report to ERSAR (on an annual basis) the number of emergency discharges, independently of the cause and the volume discharged. In addition, most of the operators still do not have the means (i.e. automatic mechanisms) to control emergency discharges occurring in their systems, which would require daily monitoring; the data reported are usually based on visual inspection. ⁷³¹

⁷²⁶ Information available at:

<http://www.ersar.pt/website/ViewContent.aspx?SubFolderPath=%5cRoot%5cContents%5cSítio%5cMenuPrincipal%5cDocumentacao%5cPublicacoesIRAR&BookCategoryID=1&BookTypeID=3>

⁷²⁷ Information available at <http://insaar.apambiente.pt/>

⁷²⁸ Interview with ERSAR.

⁷²⁹ Interview with ERSAR.

⁷³⁰ Interview with ERSAR.

⁷³¹ Interview with ERSAR.

FACTSHEET FOR ROMANIA⁷³²

1. BASIC INFORMATION

Basic information	
General Information	
148. What are the competent authorities for waste water treatment and management in Romania?	There is no authority designed specifically for dealing with storm water overflows in Romania. Therefore, authorities having general competence on waste water treatment and water management are also competent for issues related to storm water overflows. These authorities are as follows: 1. The Ministry of Environment, Water and Forests⁷³³ is the main competent central public authority responsible for: strategic planning, sustainable development, environment infrastructure, water management, meteorology, hydrology, hydrogeology, climate change, natural protected areas, waste management, management of hazardous substances and materials, biodiversity conservation, bio-security, management of air quality and environmental noise, industrial pollution, management of forest fund and game. MoEWF is responsible for developing the national policies in the environment, water management and forest management fields. Referring to the competence related to water management, including waste water, MoEWF has the overall competence of designing the policies and legislation on water management, floods protection and sustainable use of water resources, as well as regarding the protection of the marine environment. The ministry oversees the implementation of the National Strategy on Management of Flooding Risks on medium and long term, the National Strategy and National Action Plan for water management, and, respectively, the Strategy on Integrated Management of Coastal Zone and the Strategic Plan of Action for the rehabilitation and protection of Black Sea. More precisely⁷³⁴, MoEWF is establishing the regime of use of water resources and ensures the elaboration of researches, studies, prognosis and strategies concerning the quantitative and qualitative water management, as well as drafting the programmes of development of works, installations and facilities of water management; coordinates the drafting and updating the river basins management plans; is attesting the private and legal persons entitled to draft the meteorological, hydrological and hydro geological studies; ensures the methodological basis for the studies and projects on water management, to the view of assessing the state of safety in operating the dams and other hydro-technical works; coordinates the activity of permitting and authorising, from the water management point of view, of the documentations concerning the state of safety in operating the existing dams and of projects of new dams, as well as the activity of issuing the functioning authorisations, under safety conditions, of the operating dams and of the safety functioning permits for the new dams; establishes the strategy of organisation, at national level, of the activities on meteorology, hydrology and hydrogeology, of the information, prognosis and warning system on dangerous hydro-meteorological phenomena, as well as the warning system in case of accident occurring at the hydro-technical works; coordinates the implementation of the Danube Management Plan on the Romanian territory; orders measures to establish the special survey or the cessation of the activity of the polluter or the installation that is polluting the waters; coordinates the drafting activity for the protection plans against floods, flood hazards maps and management plans for flooding risks; organises and certifies the group of experts for assessing the safety state of operation for the dams qualified as pertaining

⁷³² Ms Adriana Pienaru, Faculty of Land Reclamation and Environmental Engineering - University of Agronomic Sciences and Veterinary Medicine in Bucharest, was interviewed for this report.

⁷³³ <http://mmediu.ro/categorie/minister/6>

⁷³⁴ GD no. 38/2015 on organization and functioning of the Ministry of Environment, Water and Forest (Of.J.No.58/23.01.2015), Article 6, Section IV, points 47 – 62 included

Basic information	
	to A and B categories of importance, as well as the activity of approving the specialists for ensuring the safety state of operation of the dams qualified as pertaining to the categories of importance C and D; approves the definitive list of the dams, by publicly declaring the general specifications, category of importance, associated risk degree, list of the dams with increased risk and pertaining to the category of major importance, as well as the fiches of evidence of the dams held by the any titleholders; certifies the management and coordination staff for the monitoring of the operation of the dams, and controls their activity; elaborates the technical specifications and standardised methods for the assessment and monitoring of water state; elaborates and follows the implementation of the Programme for gradual phasing out of the emissions and discharges of dangerous substances into water; organises the informational system on water management and evidence of the right of quantitative and qualitative use of water; elaborates and promotes the norms for the quality of the water resources, necessary for the quality of the drinking water, and sustaining fish and crustaceous life; coordinates the activity of the river basin committees. 2. The National Administration ‘Romanian Waters’⁷³⁵ is the national competent authority for implementation of water management in Romania (according to the Emergency ordinance no. 107/2002 regarding establishment of National Administration “Romanian Waters” with further amendments and has the following main attributions: unitary and long lasting water resources management both for the surface and for the underground waters, and their protection against exhaustion and degradation like rational and balanced sharing of these resources; administration, operation and maintenance of the National System of Water Management infrastructure, found within its own administration; administration, operation and maintenance of minor water river beds, lakes and ponds, in their natural or fitter condition, of the sea wall and beach, wetlands and other areas protected under heritage; administration, operation and maintenance of the National Hydrological and hydro-geological infrastructure system; administration, operation and maintenance of the National System of Water Resources Quality Supervision; realising the informatics and telecommunications systems within the Water Management System units, developing software products in the field of water management, hydrology and hydro-geology; ensuring the functions of being a single operator for the natural water resources found on the surface or which have just been upgraded, regardless of any title holder of the arrangement, and for the underground water resources, regardless of their nature and related facilities, with their natural potential ,with the exception of the living aquatic resources that are found under the law provisions, except the ones expressly provided for in the specified rules; allocating the right to use the resources of the surface waters and groundwater in all its forms, for use with their natural potential, with the exception of living aquatic resources, based on subscriptions and in accordance wit the provisions of Water Law no. 107/1996, as amended; defence against floods through the work of the Water Management units found in its administration and manage the stock of materials and specific means of defence against floods; maintenance and operation works of water management of the public domain of the state, as a defence against floods, found in administration; the approval and authorisation from the viewpoint of the water management works and activities that take place on waters or related to waters; staff training and improvement within the field of water management in their own training units and / or in collaboration with other specialised institutions; yearbooks development, synthesis, studies, projects, instructions, books and publications in the field of water; developing the directory schemes for planning and managing river basins; fulfilling the commitments made by the Romanian State through international agreements and conventions in the field of water; implementation of the EU directives and legislation in the field of water.

⁷³⁵ <http://www.rowater.ro/sites/en/Site%20Content/Home/About%20us.aspx>

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The competence for issuing water management permits and licenses is exercised by NARW and its subordinated branches – **11 Water Basin Administrations**⁷³⁶ (Dobrogea-Litoral, Buzau-Ialomita, Prut-Barlad, Siret, Somes-Tisa, Crisuri, Banat, Jiu, Olt, Arges-Vedea, Mures) and 42 Water Management Systems at county level, in accordance with the national legislation⁷³⁷. The same bodies are competent also to modify or withdraw the water management permit, and to temporary suspend it.

The **Water Inspection Service**⁷³⁸ is functioning within NARW and has as main attributions the following: controls within the national territory the observance by the legal and natural persons of the applicable legislation and regulations regarding the qualitative and quantitative water management (including checking the compliance with the provisions of the water management licenses), as well the safety of the dams and other hydro-technical works; establishes the contraventions (breaches of the legal rules), and applies the contravention sanctions specific to water management; may propose to the minister the establishment, under the law requirements, of the special surveillance regime; is involved into common controlling actions carried out by the National Environmental Guard; coordinates, trains and controls the competent personnel for the water inspection in the territory; coordinates and solves the requests received from the water users (private and legal persons), including municipalities owners of the sewer systems and waste water treatment plants; carries out thematic controls to water suppliers, water treatment facilities, hydro-technical works, river bed material exploitations, etc; controls the Water Basin Administrations.

3. The **National Environmental Guard**⁷³⁹ is the main environmental inspection body, including inspections of waste water treatment plants and sewer systems. NEG, also known as the Central / General Commissary, carries out its tasks with the support of 41 County Commissaries, Municipal Commissary of Bucharest, and the ‘Danube Delta’ Biosphere Reservation Commissaries. None of these 43 subordinated bodies is having legal personality. The commissioners working in the 43 subordinated Commissaries have inspection and controlling responsibilities within the regional territorial competence, whereas the commissioners working within the Central / General Commissary have responsibilities of inspection and control within the national territory. Among the attributions of NEG, it shall be nominated the inspections of: compliance of natural and legal persons with the environmental and water management legislation; meeting conditions of permits and authorisations as well as conditions regarding the frequency and manner of sampling and monitoring; the functioning of the waste water treatment facilities, as well as the observance of the how quality requirements for waste water discharged are met. In performing their tasks, the inspectors are entitled by the law to: have full access to, under the law, and in any situation, the sites and locations where it is carried out, or it is presumed that it is carried out, an activity adversely impacting the environment; take samples to be analysed by authorised laboratories, in accordance with the law; verify the compliance with the requirements of the water management permits and authorisations, having full access to the documentation which served as basis for their issuance; may

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<http://www.rowater.ro/Continut%20Site/Documente.aspx?RootFolder=%2fDocumente%20Consularea%20Publicului%2fObiective%20de%20implementare%20in%20Romania%20a%20Protocolului%20Apa%20si%20Sanatatea&FolderCTID=0x012000E7E603FCF67D1F409530C037DC7788B5&View=%7bCFE2B68B-E693-4D8A-A8FB-D6665F53FBF6%7d>

⁷³⁷ MO no. 662/2006 on the Procedure and competences to issue the water management permits and licenses (Of.J.No.661/01.08.2006); MO no. 799/2012 approving the Normative Content of the technical documentations necessary to obtain the water management permit and licenses (Of.J.No.151/07.03.2012); MO no. 15/2006 approving the Procedure for temporary suspension of the water management licenses and Procedure for modifying or withdrawing of the water management licenses (Of.J.No.108/03.02.2006).

⁷³⁸ <http://www.rowater.ro/Lists/Inspectia%20apelor/AllItems.aspx>

⁷³⁹ <http://www.gnm.ro/sitenou/>

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	accompany, only in the presence of the police forces, the persons which are presumed / suspected of committing certain facts that are inflicting the legislation, to the police stations, and, as well, upon request, they may be involved into the investigation over the suspected persons. 4. Licensing Authorities – there is no separate licensing procedure and licensing authority for storm water overflows. Storm water overflows from sewer systems are regulated and licensed within the licensing process for waste water treatment plants and collecting systems. In Romania, local authorities of public administration have competence and exclusive responsibilities in relation to establishing, organisation, monitoring and control of the functioning of public services for water supply and sewage (including, thus, waste water treatment). In some cases, in Romania, counties and not municipalities will have the competence and exclusive responsibility regarding the public service for water supply and sewage, depending on the number of the inhabitants of certain localities. Public services for water supply and sewage include, inter alia, the collection, transportation and discharging of the waste water from the users to the treatment facilities, treatment of the waste water and discharging of the treated water into water recipients/resources, collection, discharging and appropriate treatment of the residual water from pluvial water collection systems, discharging of the rainfall water and surface water collected in the urban areas of the municipalities. Several territorial administrative units (municipalities and counties) may establish an Inter-Community Development Association⁷⁴⁰ (ADI) to the view of jointly developing certain projects of regional or local interest, or for jointly providing certain public services. Such territorial administrative units are the ones that are delegating the management of water service sewage to CRO. Currently, there are many IDAs established by the local and county level authorities, but only some of them are directly related to the provision of public service of waste water treatment and sewage⁷⁴¹. ROC is the Regional Operator Company, a trading company, which is established by all or part of the municipalities that forms IDA, to which the water and sewage services management is delegated. ROC is the key element for achieving the ambitious targets of investments established for renewing, extension, operation and maintenance of the water and sewage infrastructure at national level, and respective at regional level, in view of complying with the targets for water and sewage set for 2015 and 2018, according to the provisions of Drinking Directive and Urban Waste Water Treatment Directive. 5. NARCS / ANRSC (National Authority for Regulation of Public Utilities Community Services / Autoritatea Nationala de Reglementare pentru Serviciile Comunitare de Utilitati Publice) is a public institution of public interest, with legal personality, functioning on the basis of Law no. 51/2006 of public utilities community services (republished), and its Regulation of organisation and functioning, approved by GD no. 527/2013; its main attributions are to regulate, monitor and control, at national level, the activities related to the public utilities services under its competence; inter alia, NARCS is competent for the following public utilities services: ‘water provision’, ‘sewage and treatment of waste water’, ‘collection, sewage and discharge of rainfall water.

⁷⁴⁰ According to the GD no. 855/2008 for approval of legal framework of the inter-community development associations in the public water services field, with further amendment in 2014, and Law no. 246/2005 regarding the associations and foundations, ADI is an association with legal personality and public utility.

⁷⁴¹ <http://www.dezvoltareintercomunitara.ro/baza-de-date.html>: at least 620 IDAs have been identified, but only some of them are directly related to the waste water treatment and sewage systems

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	NARSC has the following competences and attributions related to the public utilities services, that fall under its regulating competence: a) elaborates and establish sectoral regulations of secondary and tertiary level, with mandatory character; b) grants, modifies, suspends or withdraws the licenses of authorisations, where the case may be; c) requests, from the local public administration authorities, programmes for the rehabilitation, modernisation and development of the public utilities community services, and the related technical-urban infrastructure, where the case may be; d) prepares calculation methodologies for establishing, adjustment and modification of the prices and tariffs; e) issues, according to the competences established by laws specific to each service of public utility, the speciality consent regarding the establishment, adjustment and modification of the prices and tariffs for the services of public utility, when / if such consent is requested by the specific laws; f) approves drafts of normative acts elaborated and promoted by other authorities of central public administration, having impact on its activity field; g) organises the informational system for the collection, aggregation and synthesis of data regarding the services of public utilities under its regulating competence, the related technical-urban infrastructure, as well as the activity of the (water) operators
149. What is the transposing law(s) of the UWWTD in Romania?	The main transposing act is the Governmental Decision no. 188 of 28 February 2002 approving the norms for discharging waste water into aquatic environment (Of.J.No.187/20.03.2002), as amended by Governmental Decision no. 352 of 21 April 2005 (Of.J.No.398/11.05.2005) and Governmental Decision no. 210 of 28 February 2007 (Of.J.No.187/19.03.2007); <i>Hotărâre nr. 188 din 28 Februarie 2002 pentru aprobarea unor norme privind condițiile de descărcare în mediul acvatic a apelor uzate (M.Of.Nr.187/20.03.2002), cu modificările și completările ulterioare: Hotărâre nr. 352 din 21 aprilie 2005 privind modificarea și completarea Hotărârii Guvernului nr. 188/2002 pentru aprobarea unor norme privind condițiile de descărcare în mediul acvatic a apelor uzate (M.Of.Nr.398/11.05.2005) and Hotărâre nr. 210 din 28 februarie 2007 pentru modificarea și completarea unor acte normative care transpun acquis-ul comunitar în domeniul protecției mediului (M.Of.Nr.187/19.03.2007);</i> It should be highlighted that Romania obtained transition periods for implementing the UWWTD, according to the Accession Treaty of Bulgaria and Romania⁷⁴², as follows: <i>By way of derogation from Articles 3,4 and 5(2) of Directive 91/271/EEC, the requirements for collecting systems and treatment of urban waste water shall not fully apply in Romania until 31 December 2018, in accordance with the following intermediate targets:</i> - <i>By 31 December 2013, compliance with Article 3 of the Directive shall be achieved in agglomerations with a population equivalent of more than 10 000;</i> - <i>By 31 December 2015, compliance with Article 5(2) of the Directive shall be achieved in agglomerations with a population equivalent of more than 10 000.</i> <i>Romania shall ensure a gradual increase of provision of Article 3 collecting systems in accordance with the following minimum overall population equivalent rates:</i> - <i>61% by 31 December 2010,</i> - <i>69% by 31 December 2013,</i>

⁷⁴² <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12005S/TXT&from=EN>, pg. 158-159

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	- 80% by 31 December 2015. Romania shall ensure a gradual increase of provision of Articles 4 and 5(2) waste water treatment in accordance with the following minimum overall population equivalent rates: - 51% by 31 December 2010, - 61% by 31 December 2013, - 77% by 31 December 2015.
150. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD has been transposed by the Article 3 of Annex no. 1 to the Governmental Decision no. 188/2002 approving the norms for discharging waste water into aquatic environment (GD no. 188/2002), as amended⁷⁴³, prescribing the Technical Norms NTPA-011 of 28 February 2002 on the collection, treatment and discharge of urban waste water. In particular, the third item, which refers expressly to storm water overflows, has been transposed by letter c) of Article 3(1) of Annex no. 1 to the GD no. 188/2002, and it reads as follows: I. Collection of waste water <i>Art. 3 (1) Design, construction and maintenance of the collecting systems shall be done according to the ‘most advanced technical knowledge in the field, not entailing excessive costs regarding:</i> <i>a) Volume and characteristics of urban waste water;</i> <i>b) prevention of leaks;</i> <i>c) limitation of pollution of natural receivers due to unusual hydro-meteorological phenomena.</i> <i>(2) Collection of urban and industrial waste water into the collecting systems of the localities or the urban waste water treatment facilities shall be done in accordance with the conditions established in the Annex no. 2 to this Government Decision – Normative regarding the discharging conditions of waste water into sewage systems of the localities, and directly into waste water treatment facilities, NTPA-002/2002.</i> Assessment of the transposition – in particular the third item, which refers expressly to storm water overflows: First of all, it is to be noted that, unlike the Directive’s provision, which is referring to ‘receiving waters’ in general, without mentioning whether it is a natural or human-designed water receiver, Romanian transposing measure is referring to ‘natural receiving waters’ which could be a limitation of the application of the Directive’s purpose. Moreover, the list of definitions provided by the same Annex no. 1 to the GD no. 188/2002 indicates, at position 18, the definition for the ‘natural receiver’ – which is the water resources which receives the waste water discharged either directly or treated. According to this definition, results that the scope is not limited. Another important comment is referring to the fact that Romanian transposing measure did not ensure an appropriate transposition of the wording ‘storm water overflow’, which, in Romanian, would have been translated as (approximately) ‘revărsări datorate furtunilor’, but preferred to use instead a more general term which is translated into English as: ‘unusual hydro-meteorological phenomena’.

⁷⁴³ Subsequently amended by GDs no. 352/2005 and 210//2007

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	There are two more references to the phrase ‘unusual hydro-meteorological phenomena’ within the same Annex, first of them referring to the meaning of the pollutants load in waste water, that shall be expressed as ‘inhabitant equivalent’⁷⁴⁴, and ‘shall be calculated on the basis of the weekly maximum average load of CBO₅ that entered the treatment plant within one year, excepting the situations of unusual hydro-meteorological phenomena, such as abundant rain falls’. An indirect and partial reference to the phrase ‘unusual hydro-meteorological phenomena’ is contained in the list of definitions provided at Article 2 of the same Annex, point 1, where the ‘urban waste water’ are defined as ‘domestic waste water or the mixture of domestic waste water with industrial waste water and / or meteoric water’. The meteoric water is actually the water resulted from the rain fall water. The reference is only indirect and partially linked to the phrase ‘unusual hydro-meteorological phenomena’ as the first one refers to the generic rainfall water, whereas the latter one refers to a special circumstance of the generic rainfall water – which is the ‘unusual hydro-meteorological phenomena’⁷⁴⁵. Therefore, it may be noticed that the first reference exemplifies what ‘unusual hydro-meteorological phenomena’ could mean, ‘such as abundant rain falls’, whereas the second one refers directly to ‘meteoric water’, which means that is water resulted from hydro-meteorological phenomena, but not necessarily indicating an overflow of such water. The transposition has not been accurately carried out, being too ambiguous when using the wording ‘unusual hydro-meteorological phenomena’.
151. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	There is no transposing provision (gap in transposition) for the footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows.
152. What is the terminology used to refer to storm water overflows in Romania? Is there more than one term used?	As detailed at point 3 above, in the main transposing act, which as GD no. 188/2002, the term ‘storm water overflow’ does not have an appropriate corresponding wording / translation / transposing measure, as it is transposed by a more general and vague/ ambiguous term, such as ‘unusual hydro-meteorological phenomena’. However, there is complementary legislation which is referring to the obligation of collecting and discharging of the water resulted from the rains / storm water, where other terms are used, as follows: - Water Law no. 107/1996, as amended, which is the main transposing act for the Water Framework Directive and also Directive 2007/60/EC on the assessment and management of flood risks, is using the term ‘meteoric waters’; however, there is no definition of what ‘meteoric water’ is actually referring to; there are two articles which employ this term, Article 9(1) –

⁷⁴⁴ It is to be noted though that the official version in Romanian of the Directive employs the wording ‘inhabitant-equivalent’ instead of ‘population-equivalent’. While the translation of the ‘population equivalent’ in ‘inhabitant equivalent’ is different, from the technical point of view, the two are the same (see the definition in pct. 2(9) Annex 1- NTPA 011), according to the requirements of UWWTD.

⁷⁴⁵ According to the Governmental Decision no. 293/2015, the unusual / unfavourable hydro-meteorological phenomena are defined as hail, rainfall, flash floods and floods, snowfall, drought, etc. The unusual hydro-meteorological phenomena are the most probable to produce significant water storm overflows, especially in combining sewer systems.

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	which is detailing the right to use the water, which includes the discharging, into water receivers / resources, of waste waters, waters resulted from drainages, <i>meteoric waters</i>, mining-related waters, after use. The other article – Article 19 – is establishing the obligation for the authorities of local public administration to ensure the efficient management of the water distributed in the localities, as well as the collection of the <i>meteoric waters</i>, sewage and treatment of waste water; - Law no. 241/2006 on the service of water provision and sewage (republished, Of.J.No.85/08.02.2013), is using the same term ‘<i>meteoric waters</i>’, as well as the term ‘<i>pluvial waters</i>’; for the latter one, the normative act is actually providing a definition; ‘<i>pluvial waters</i>’ is referring to the waters that enter the collection system / sewer which are resulted from raining. It is not referring to water storm overflows expressly, though. - Law no. 51/2006 on the community services of public utilities (republished, Of.J.No.121/05.03.2013), is using only the term ‘<i>pluvial waters</i>’, without providing for a definition or an explanation of its meaning. According to the general understanding in Romanian, it is actually referring to the water resulted from raining, and not referring to water storm overflows. - Ministerial Order no. 88/2007, no. 89/2007, no. 90/2007, issued by the ANRSC, they all refer to the obligation of water operators to collect rain water (<i>defined as: rain water – water from the sewerage system which are from precipitations</i>), and discharge the rain waters and surface water from the territory of the localities.
153. Is there a definition of storm water overflow in Romania?	There is no definition of storm water overflow in Romanian legislation.
154. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Romania have a definition of extreme or unusual rainfall event?	As detailed at point 3 above, Romanian main transposing measure for UWWTD is actually using the wording ‘unusual hydro-meteorological phenomena’ as the corresponding term for ‘storm water overflow’, without providing an explanation, though. Moreover, although the national transposing measure is using the wording ‘unusual hydro-meteorological phenomena’, it does not provide for a definition of what these phenomena would mean. In addition to that, whenever Romanian legislation and policies are referring to the ‘<i>pluvial waters</i>’, ‘<i>meteoric waters</i>’, are actually referring to the water that results from such raining that do not fall under the category of ‘extreme’ or ‘unusual’ rainfall event.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
43. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	Given the fact that the national transposing measure for UWWTD does not provide for an accurate transposition of the wording ‘storm water overflow’, taking into account the transitional periods that Romania has obtained to the view of full implementation of the provisions of the afore-mentioned Directive, particularly for Articles 3, 4 and 5(2), taking into consideration that the relevant legislation itself does not include the term ‘storm water overflow’ or an equivalent of it, it is impossible to identify such measures in the legal, policy or practice-related framework, too. Following a thorough desk research of the most important documents available online on the websites of the relevant authorities and institutions and other stakeholders for urban waste water treatment, it resulted that the only documents actually referring to the storm water overflows are the following documents: • Guide for preparing the feasibility study for the water and waste water projects, available at http://www.posmediu.ro/axaprioritara1; • Guide for preparing the master plans for the water supply and sewerage projects, also available at: http://www.posmediu.ro/axaprioritara1. According to the first document mentioned above⁷⁴⁶, the Feasibility Study (FS) shall reveal, in relation to flows of waste water and loads, the detailed methodology used for the calculation of, inter alia: for the (partially) combined waste water systems, the FS should indicate the measures necessary to stop the rainfall water influx (for example, the storm water overflow); the measure should be based on an assessment of the options, taking into account the impact on the environment of the subsequent discharges / overflows. For the separate systems, the FS should identify the necessary measures to avoid the illegal / wrong connections (pluvial waters into the sewage system), particularly for the main systems in the future. The second document⁷⁴⁷, the Master Plan (MP) requires, at Section 2.10.2 Infrastructure for waste water, that an assessment shall be conducted on the current collection systems for waste water and waste water treatment at regional/ county / national level, including the following components: • Existing installations and systems, including neighbouring area, length, diameter of the main sewers, either separate or combined, pumping stations, points of discharges and <i>pluvial water overload</i>, etc. The guideline for preparing the Master Plans⁷⁴⁸ investigates and assesses the current wastewater collection systems and wastewater

⁷⁴⁶ Guide for preparing the feasibility study for the water and waste water projects / Ghid SF Axă 1 – Ro.doc, available at: <http://www.posmediu.ro/axaprioritara1>, pg. 14 and following

⁷⁴⁷ Guide for preparing the general plans for the water supply and sewerage projects / Water_Master Plan_Guide MESD_RO.doc, available at: <http://www.posmediu.ro/axaprioritara1>, pg. 17

⁷⁴⁸ <http://www.posmediu.ro/axaprioritara1>

Overview of legal and policy framework. Relevant references to storm water overflows.	
	treatment system at county/regional level, including the components: existing systems and facilities, area served, length, diameter and type of main sewers, whether separate or combined, pumping stations, discharge points and storm water overflows, location of major wastewater contributors (industry). However it is noted that the term 'pluvial water overloads' is used instead of storm water overflows. These recommendations have been taken into consideration on elaboration of Master Plans starting in 2009 and became conditions for elaboration of the European financial application projects. Consequently, in the Master Plans and projects there are information about water storm overflows, especially for those reviewed during 2013-2014.
44. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	For water quality standards of receiving water the reference document is the regulation normative NTPA 011, also approved by GD no. 188/2002, revised by GDs no. 352/2005 and 210/2007, regarding collection, treatment and conditions for discharge of wastewater in the receiving water body. The aforementioned Standard is supplemented by the provisions of technical normative / standards, as follows: • SR 1846 – 2: 2007: Sewages outside the buildings. Design specifications. Part. 2: Calculation of storm water flows⁷⁴⁹ • STAS 9470 – 73: Hydro-technical constructions. Maximum rainfalls. Intensities, durations, frequencies⁷⁵⁰ Regarding the quality of the meteoric water that is to be discharged into the collecting system, SR 1846-2:32007 establishes the following (pg. 10) : General remarks: The locality has to be managed in order to prevent that the meteoric waters discharged would not contain dangerous substances (toxic, pathogen, etc.) into the collection receiver. The collection of such substances shall be undertaken using specific ways (mechanical and mechanical – chemical). In particular, special attention shall be paid to the collection with specific ways / tools existing at the site of discharging. However, when the quality of the meteoric waters collected from polluted sites/ surfaces exceeds the accepted pollutants limit values provided by the technical regulations in force, such waters shall be totally or partially treated. In the case of small rain falls, the entire quantity of the meteoric waters may be treated. Partial treatment represents that the first part of the collected water, usually the most polluted, is treated. This means that retention basins shall be ensured. The treatment of meteoric waters shall be done separately or in common with other waste water. The retention of the meteoric water and of biodegradable pollutants at the provenience site shall constitute the basic strategy for designing the sewage system. Discharging of meteoric waters into the sewage system : Discharging the meteoric water into the sewage system shall be done only through mouths or specific systems that are provided with dense grills; the water collected into the retention basins or coming from the pre-treatment stations may enter the sewage systems shall abide the same requirement. Discharging of meteoric waters into the receiving body: Discharging the meteoric water from the sewage system to the receiving body shall be done as soon as possible when there are no issues related to its quality. The number and position of the sewage mouths shall be established based on an economic analysis.

⁷⁴⁹ <http://www.scribd.com/doc/131403585/STAS-1846-2-Canalizare-Exterioara#scribd>; <http://www.academia.edu/6311118/SR-1846-2>

⁷⁵⁰ http://www.academia.edu/4915228/STAS_9470-73_-_Romanian

Overview of legal and policy framework. Relevant references to storm water overflows.				
		Regarding the volume of the water rainfall / flow, it is calculated, according to SR 1846-2:2007 separately for the three types of sewage systems that exist, for surfaces < 10km2, surfaces in between 10 – 50 km2, and > 10 km2. For each of them calculation formulas are provided to determine the volume for the sewage / collection basins; for the second one more details shall be used in the calculation, such as, for example, the hydrograph of the high flood (which is also calculated). For the latter one, the calculations shall be done for sub-basins covering maximum 50km2. For calculating the volumes of the retention / water storage basins – that are to be provided only for two situations : where the pollutants load is exceeding the admitted ELVs, and when the volume of the storm water overflow / peak rain fall is exceeding the transportation capacity of the collection system or the receiving body. Therefore, the risk of producing flooding shall be reduced by temporary caption of a certain water volume and its discharge within a longer period of time.		
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y		Hotărârea Guvernului nr. 188 din 28 februarie 2002 pentru aprobarea unor norme privind condițiile de descărcare în mediul acvatic a apelor uzate (Of.J.No.187/20.03.2002), as amended, Annex no. 1 – Norme Tehnice NTPA-011 din 28 februarie 2002 privind colectarea, epurarea și evacuarea apelor uzate orășenești, Articolul 3(1)(c): <i>‘c) limitarea poluării receptorilor naturali determinate de fenomene hidrometeorologice neobișnuite.’</i>	Section A of Annex I to the UWWTD has been transposed by the Article 3 of Annex no. 1 to the Governmental Decision no. 188/2002 approving the norms for discharging waste water into aquatic environment (GD no. 188/2002), prescribing the Technical Norms NTPA-011 of 28 February 2002 on the collection, treatment and discharge of urban waste water. In particular, the third item which refers expressly to storm water overflows has been transposed by letter c) of Article 3(1) of Annex no. 1 to the GD no. 188/2002, and it reads as follows: <i>‘c) limitation of pollution of receiving natural waters due to unusual hydro-meteorological phenomena’.</i>
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	N			

Overview of legal and policy framework. Relevant references to storm water overflows.

WFD	Y	1. First National Management Plan 2009-2015 (Romania) http://www.rowater.ro/TEST/Planul%20National%20de%20Management%202010%20-%20Sinteza%20planurilor%20de%20management%20la%20nivel%20de%20bazine-spatii%20hidrografice/Plan%20National%20Management%20-%20sinteza%20-%20vol.I%20%20final(februarie).pdf (Romanian) 2. Draft of the second National Management Plan 2016-2012 http://www.rowater.ro/Continut%20Site/Documente.aspx?RootFolder=%2fDocumente%20Consularea%20Publicului%2fProiectul%20Planului%20National%20de%20Management%202016%2d2021&FolderCTID=0x012000E7E603FCF67D1F409530C037DC7788B5&View=%7bCFE2B68B%2dE693%2d4D8A%2dA8FB%2dD6665F53FBF6%7d (Romanian)	HOTARARE nr. 80 din 26 ianuarie 2011 pentru aprobarea Planului national de management aferent portiunii din bazinul hidrografic international al fluviului Dunarea care este cuprinsa in teritoriul Romaniei (Of.J.No.265/14.05.2011), Pg. 63: 3.4.1. Surse punctiforme de poluare semnificative: ‘Aglomerările umane (identificate în conformitate cu cerințele Directivei privind epurarea apelor uzate urbane - Directiva 91/271/EEC), ce au peste 2000 locuitori echivalenți (l.e.) care au sisteme de colectare a apelor uzate cu sau fără stații de epurare și care evacuează în resursele de apă; de asemenea, aglomerările < 2000 l.e. sunt considerate surse semnificative punctiforme dacă au sistem de canalizare centralizat; de asemenea, sunt considerate surse semnificative de poluare, aglomerările umane cu sistem de canalizare unitar care nu au capacitatea de a colecta și epura amestecul de ape uzate și ape pluviale în perioadele cu ploi intense; Pg. 69: Se precizează că la nivelul anului 2007, pe parcursul perioadelor cu ploi intense, s-au înregistrat un număr de 373 de evenimente, în care un număr de 102 sisteme de colectare și epurare a apelor uzate și pluviale nu au putut funcționa corespunzător.	In the River Basin Management Plans (Annex of Governmental Decision no. 80/2011, Part I, nr. 265 bis) human agglomerations (identified in conformity with the requirements of the Directive on urban waste water treatment – Directive 91/271/EEC) with /combined sewage system, which do not have the capacity to collect and treat the waste water and storm water overflows, are considered to be significant pollution sources: Pg. 63: 3.4.1. Point Sources of significant pollution: ‘Human agglomerations (identified in conformity with the requirements of the Directive on urban waste water treatment – Directive 91/271/EEC) having more than 2000 p.e., which have waste water collection systems with or without treatment plants, and are discharging into the water resources; also, agglomerations < 2000 p.e. are considered as significant punctual sources if they have centralised sewage system; also, human agglomerations with unitary sewage system, which do not have the capacity to collect and treat the waste water and storm water overflows, are considered to be significant pollution sources; Pg. 69: ‘It shall be noticed that in 2007 during intense raining periods, have been recorded 373 events of overflowing of the collection system of waste and rainfall waters, when 102 collecting and treatment systems doesn’t adequate functioned.

Overview of legal and policy framework. Relevant references to storm water overflows.				
			Pg. 54: 3.4.1. Surse punctiforme de poluare semnificative: ‘Aglomerările umane (identificate în conformitate cu cerințele Directivei privind epurarea apelor uzate urbane - Directiva 91/271/EEC), ce au peste 2000 locuitori echivalenți (l.e.) care au sisteme de colectare a apelor uzate cu sau fără stații de epurare și care evacuează în resursele de apă; de asemenea, aglomerările < 2000 l.e. sunt considerate surse semnificative punctiforme dacă au sistem de canalizare centralizat; de asemenea, sunt considerate surse semnificative de poluare, aglomerările umane cu sistem de canalizare unitar care nu au capacitatea de a colecta și epura amestecul de ape uzate și ape pluviale în perioadele cu ploi intense; Pg. 56: ‘Se precizează că pe parcursul perioadelor cu ploi intense, s-au înregistrat evenimente de depășire a capacității sistemelor de colectare a apelor uzate și pluviale, în cazul a 67 rețele de canalizare’.	Pg. 54: 3.4.1. Point Sources of significant pollution: ‘Human agglomerations (identified in conformity with the requirements of the Directive on urban waste water treatment – Directive 91/271/EEC) having more than 2000 p.e., which have waste water collection systems with or without treatment plants, and are discharging into the water resources; also, agglomerations < 2000 p.e. are considered as significant punctual sources if they have centralised sewage system; also, human agglomerations with unitary sewage system, which do not have the capacity to collect and treat the waste water and storm water overflows, are considered to be significant pollution sources; Pg. 56: ‘It shall be noticed that during intense raining periods, there have been recorded events of overflowing of the collection system of waste and rainfall waters, in the case of 67 sewers’.
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR				
HELCOM				
Barcelona Convention				
Conv. on the Protection of the Black Sea	Y	Black Sea Project ⁷⁵¹ : Annex 6: Assessment of Nutrient Emissions and Loads Discharged into the Black		Pg. 136: Generally, the countries considered that diffuse pollution sources include direct discharges of private households (not connected to sewers), storm

⁷⁵¹ http://www.blacksea-commission.org/projects_observers_partners.asp, The Commission on the Protection of the Black Sea Against Pollution, Completed Projects Section

Overview of legal and policy framework. Relevant references to storm water overflows.				
		Sea, Summarizing conclusions, pages 136, 190 and 193 http://www.undp-drp.org/pdf/Principal_Documentation/Anx%206%20-%202010_DRP%20phase2.pdf (English)		water overflow, direct discharge of manure, base flow (percolation of human waste, agriculture land), erosion run-off from forests, air depositions and ground water flow. However, agricultural production and livestock farming represent the main diffuse sources of pollution. Pg. 190: 11 Romania. 11.1. Verification of Data and Information on Nutrient Emissions / Loads According to the Romanian legislation, the contribution of the diffuse sources to the pollution in the nutrient balance is provided by (i) direct discharges of private households (not connected to sewers), (ii) storm water overflow, (iii) direct discharge of manure, (iv) base flow (percolation of human waste, agriculture land), (v) erosion run-off from forests and others, (vi) air depositions and, (vii) ground water flow. Pg. 193: 11.6 Summary of Main Country Specific Particularities (1) Main particularities regarding 'non-point source' issues The first particularity of Romania is related to the approach of considering the diffuse pollution sources as being provided by diversified causes which include: direct discharges of private households (not connected to sewers), storm water overflow, direct discharge of manure, base flow (percolation of human waste, agriculture land), erosion run-off from forests and others, air depositions and, ground water flow.
Danube Convention	Y	1. International Commission for the Protection of the Danube River /		Pg. 30: Sources of hazardous substances are: industrial effluents, storm water overflow, pesticides

Overview of legal and policy framework. Relevant references to storm water overflows.				
		ICPDR, Danube River Management Plan (2009) ⁷⁵² (http://www.icpdr.org/main/activities-projects/danube-river-basin-management-plan-2009), pages: 30 (2.1.3. Hazardous substances pollution) and 80 (7.1.3.3. Summary of measures of basin-wide importance / Implementation of measures regarding urban wastewater treatment) (English)		and other chemicals applied in agriculture as well as discharges from mining operations and accidental pollution. For some substances atmospheric deposition may also be of significance. Pg. 80: Due to the synergies between measures to address organic, nutrient pollution and hazardous substances, the further implementation of the UWWTD for EU MS contributes to the reduction of hazardous substances pollution from urban wastewater and from indirect industrial discharges. For Non EU MS, the construction of 47 municipal WWTPs by 2015 will improve the situation (although it should be noted that the construction of new sewerage collecting systems which are not connected to respective WWTPs may have a detrimental effect). A further area of importance is the input from urban areas via storm water overflows. Here, the reduction of emissions requires improved storm water management.
Rhine Convention				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	Y	Protocol National Report 2013 (http://www.rowater.ro/Continut%20Site/Documente.aspx?RootFolder=%2fDocumente%20Consularea%20Publicului%2fObiective%20de%20implementare%20in%20Romania%20a%20Protocolului%20Apa%20si%20Sanatatea&FolderCTID=0x012000E7E603FCF67D1F40)	‘Reducerea evacuărilor de ape netratate provenite din revărsări ale apelor pluviale netratate din sistemele de colectare a apelor uzate, în resursele de apă, prin realizarea de bazine tampon/bazine de stocare temporară.’- Obiectiv propus; termen limita 31.12.2021.	‘Reduction of the untreated water discharges resulted from the pluvial waters overflows untreated from the collection systems for waste water, into the water resources, by developing buffer basins / temporary storage basins’ – Proposed objective; deadline 31.12.2021

⁷⁵² Please note that the Danube River Basin Management Plan update is established for 2015, and currently a public consultation is undergoing to this respect : <http://www.icpdr.org/main/draftplans-2015>. It is also important to notice that ‘storm water overflow’ is not referred at all in the draft of the DRBMP.

Overview of legal and policy framework. Relevant references to storm water overflows.

		9530C037DC7788B5&View=%7bCFE2B68B-E693-4D8A-A8FB-D6665F53FBF6%7d , pg. 2-3, Measure X: Accidental discharges of untreated waters resulted from untreated rainfall waters overflows from the collection systems for waste waters, into the water resources (Art. 6 para. 2 (g)(ii)) (Romanian)		
<i>Other direct references to storm water overflows</i>				
Type of document	Title of document		Summary description	
<i>Guidance</i> <i>National</i>	STAS 1846- 2:2007 : Determination of the sewage water debits. Prescription of design (<i>Romanian: STAS 1846 / SR 1846-2:2007 – Determinarea debitelor de apa de canalizare. Prescriptii de proiectare</i>)		As detailed in Section 2.2, STAS 1846 – 2:2007 provides for the technical specifications for designing the sewages outside the building’s design specifications and, in particular, the calculation of storm water flows. However, this Standard does not refer to the calculation of the storm water overflows, as such.	
<i>Guidance</i> <i>National</i>	STAS 9470 : 73– Hydro-technical constructions. Maximum rain falls, intensity, durations, frequency (<i>Romanian: STAS 9470- Hidrotehnica. Ploi maxime, intensitate, durate, frecvente</i>)		This Standard establishes, based on statistics, the relations (diagrams) between the intensities and the durations of the maximum rainfalls with certain frequencies, valid within the Romanian territory. It should be mentioned that this Standard has been drafted back in 1973 and has been valid ever since. It definitely needs amendment and updating, so as to take into consideration the current hydro-meteorological and climate-related changes occurred within Romanian territory and the corresponding European region. Moreover, it should also take into consideration the evolution of the land-change use, river basin corrections, other hydro-technical constructions that have been realised since then.	
<i>Guidance</i> <i>National</i>	Guide on preparation of master plans for water and wastewater projects (Ghid master plan apa.doc http://www.posmediu.ro/axaprioritar1)		The guide on preparation of master plans for water and wastewater projects was prepared first of all with ISPA support EuropeAid/119086/D/SV/RO and recommend the content of Master Plan (MP) for water and wastewater projects is a strategic long-term planning tool to help meet future demand (usually 20 or more years) for water and wastewater. There are requirements for investigation and assessment of the current wastewater collection system/s and wastewater treatment system at county/regional level, including discharge points and storm water overflows.	

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
106. Which types of sewer system does Romania have?	According to the existing legislation, combined sewer systems (rain and domestic waste water in one pipe) are used. The connection to the sewage system is of at least 95% identified in relation to 44 agglomerations (24 agglomerations with more than 10000 p.e., whereas in agglomerations of 2000-10000 p.e., are only 20). In the 1 st Semester of 2014, the connection to the sewers for the agglomerations of more than 2000 p.e. is of 62.5%, increasing compared to the 2 nd Semester of 2013, where only 59,95% of such agglomerations were connected to a sewage system. The highest connection rate to the sewage system (more than 80%) has been noticed in the counties Brasov, Constanta, Sibiu and Bucharest agglomeration, whereas the smallest has been noticed in the counties: Giurgiu, Calarasi, Ialomita and Dambovita (below 30%). ⁷⁵³
107. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	At present, there are 1,246 sewer systems, among which only 774 are functional (732 in agglomerations bigger than 2,000 p.e. and 42 in agglomerations smaller than 2,000 p.e.), the remaining 474 undergoing various phases of execution or have not been connected yet, due to the fact that are still under development. The total length of the executed sewers (pipelines) is 31.189 km (and 992 km of sewers in various phases of execution).
108. How many storm water overflows infrastructures exist in Romania?	This information could not be identified.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
109. Is there information on the occurrence of storm water overflows?	There are not frequent information on the occurrence of storm water overflows, but there are available information in the first River Basin Management Plan 2009-2015 and the draft of the draft National Management Plan 2016-2021. In addition, every two years Romania reported to the European Commission the occurrence of storm water overflows (under requirement of art. 15 of UWWTD) within Questionnaire UWWTD exercises (data for 2007, 2009 and 2012, further for 2014 in June 2016).
110. Are storm water overflows monitored in Romania? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	No such information has been obtained.

⁷⁵³ <http://apepaduri.gov.ro/wp-content/uploads/2014/07/Stadiul-implementarii-Directivei-912014ANAR.pdf>

FACTSHEET FOR SLOVAKIA⁷⁵⁴

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
155. What are the competent authorities for waste water treatment and management in Slovakia?	In Slovakia, the Ministry of Environment is the main state authority responsible for dealing with waste water management including storm water overflows. The division within the Ministry is “Ministerstvo životného prostredia SR, sekcia vôd, odbor vodnej politiky” (Ministry of Environment, Directorate for Water Protection, Water Policy Department - Link: http://www.minzp.sk/o-nas/mzp-sr/organizacny-poriadok/sekcia-vod.html). The structure of the Ministry and its divisions, including the water policy department, is available in a diagram at the following link: http://www.minzp.sk/files/o-nas/mzp-sr/organizacny-poriadok/08.08/organizacna-struktura.pdf. At the regional administration level, there are 8 regions (districts) in Slovakia of which each has a responsible water authority dealing with the issues of water structures permits, environmental and water protection, including waste water management and relief structures in combined sewer systems, partially separate systems or WWTPs. Each municipality has an obligation to provide public utility services, including sewage systems and wastewater management in accordance with §4, section 3(g) of the Act 369/1990 Coll. regarding the municipal establishment structure as amended.
156. What is the transposing law(s) of the UWWTD in Slovakia?	The national legislation adequately transposed the UWWTD. The transposing laws are: - Water Act no 364/2004 Coll (zákon č. 364/2004 Z. z. o vodách a o zmene zákona Slovenskej národnej rady č. 372/1990 Zb. o priestupkoch v znení neskorších predpisov (vodný zákon) https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2004/364/20150115 - Government Order no 269/2010 Coll prescribing the requirements for the achievement of good water status (Nariadenie vlády SR č. 269/2010 Z. z., ktorým sa ustanovujú požiadavky na dosiahnutie dobrého stavu vôd v platnom znení – Link: http://www.zakonypreludi.sk/zz/2010-269 - Act no 442/2002 Coll concerning public water system and public sewage system and concerning the amendment of the Act no 276/2001 Coll (Zákon č. 442/2002 Z. z. o verejných vodovodoch a verejných kanalizáciách a o zmene a doplnení zákona č. 276/2001 Z. z. o regulácii v sieťových odvetviach v znení neskorších predpisov – Link: https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2002/442/20131001 - Act no 369/1990 Coll regarding the municipal establishment structure (Zákon č. 369/1990 Zb. o obecnom zriadení)– Link: https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/1990/369/20150701 - Government Order no 617/2004 Coll concerning the establishment of sensitive and vulnerable areas (Nariadenie vlády SR č. 617/2004 Z. z., ktorým sa ustanovujú citlivé oblasti a zraniteľné oblasti - Link: https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2004/617/20050101).
157. What is the national provision	In Slovakia, section A of Annex I to the UWWTD is adequately transposed in two pieces of national legislation. The specific transposing

⁷⁵⁴ This report benefited from the interviews conducted via email and telephone with Ing. Peter Belica, national expert from Water Management Research Institute (Vyskumny Ustav Vodneho hospodarstva). Ing. Ivana Mahrikova from the Association of Water companies (Asociacia Vodarenskych spoločností) also provided a written reply to several research questions.

Basic information	
transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	provisions are detailed below. <u>§ 11 – Act 442/2002 concerning public water systems and public sewage systems as amended</u> <u>§ 11 Public sewers - Verejné kanalizácie</u> This provision refers to technical requirements for the sewage system, the need to construct them in a manner so they do not negatively affect the environment and that the capacity is ensured for continuous collection and treatment of waste waters, bearing in mind changeable climatic conditions during different seasons. It also refers to technical requirements for wastewater discharge spelled out in different acts and government orders. Although the pollution from rain waste water is not specifically mentioned, the provision refers to best technical standards and the requirements to take into account variable climatic conditions during the year when constructing the sewage system. <u>§ 36, section 13) of the Water Act</u> <u>§ 36 discharge of waste waters and other waters into the receiving surface water - Vypúšťanie odpadových vôd a osobitných vôd do povrchových vôd</u> Wastewater from relief objects may be discharged into surface water within the authorized wastewater discharges from public sewerage during heavy rains. The measures to mitigate adverse impacts of discharges on receiving body shall be taken in construction and operation of sewage system, bearing in mind local conditions - Government Regulation no. 269/2010 Coll. (especially § 6 and 9) Heavy rainfall is rain of short duration with high intensity having a small areal extent.
158. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	In Slovakia, footnote 1 in sections A and B of Annex I is also transposed in two pieces of legislation. The specific transposing provisions are detailed below <u>§ 36 of Water Act 364/2004 Coll as amended</u> <u>Discharge of waste waters and other waters into the receiving surface water - Vypúšťanie odpadových vôd a osobitných vôd do povrchových vôd</u> The first sentence of this provision permits the discharge of waste waters into the surface water within the set limits during the excessive rain periods. It refers specifically to waste waters from so called relief structures (odlahcovací objekty), defined as “an object or structure of sewage system or treatment plant used to separate a part of wastewater discharged through the sewers into surface water. The purpose of relief structures is to reduce the amount of storm water conveyed to wastewater treatment plant and to reduce unb WWTP loading by rain wastewater. (Source: http://www.zmos.sk/katalog-opatreni-rieseni-a-prikladov-z-praxe.phtml?id_menu=49905&module_action_121553_id_op=69#m_121553_). <u>§ 6 of the Government Order no 269/2010 Coll prescribing the requirements for the achievement of good water</u> <u>Specific conditions for the discharge of waste waters from the relief structures -</u> This paragraph describes in detail the requirements for the discharge of waste waters from the relief structures (the 1st and 2nd points refer to the description of such object. Point 3): wastewater outlets from relief structures must meet the basic criterion for their discharge - the dilution rate. The dilution rate is a ratio of the average daily flow of wastewater treatment in non-rainy period and the flow of the water from surface runoff that is discharged into wastewater treatment plants in rain periods. Point (4): the relief structures cannot be used in non-rainy periods. Minimum dilution of urban wastewater must attain a dilution rate of 1:4 which can be even stricter in locations with more stringent requirements for surface water quality – (dilution rate) up to 1:8. In determining the dilution rate the current state of

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	knowledge and economically sustainable technical solutions of wastewater collection are taken into account. The limit values of pollution parameters are not set for wastewater discharged from the relief structures. Point(5): the basis for determining the number of cases of storm water overflows per year is the requirement for an expert judgement on the rainfall and runoff conditions in large sewage networks with more than 10 relief structures and, based on this information, it is set how many times the overflows can occur in a year, i.e. if the travel time of storm water in sewer system to relief structure lasts longer than 15 minutes, the relief structure can only be used 15 times a year in the long-term average, if the travel time is shorter than 15 minutes, the relief structure can be used max 20 times a year in the long-term average. As the UWWTD specifically suggests establishing either dilution rates or acceptable number of overflows per year, national transposing legislation is adequate given that it provides for dilution rates and maximum numbers for the use of relief structures per year.
1. What is the terminology used to refer to storm water overflows in Slovakia? Is there more than one term used?	In Slovakia, there are several terms which refer to rain waste waters and subsequent overload of the sewage systems. The decisive and binding terminology for permitting and controlling water structures (i.e. public sewer systems and relief structures) is that contained in the following legal regulations: § 6, section 1 of the Government Regulation no. 269/2010 Coll. as amended in relation to § 36, section 13 of the Act no. 364/2004 Coll. as amended. Specific terminology is also defined in the relevant technical standards, intended mainly for design and civil engineers. Below are a few phrases which are used in connection to storm water overflows in Slovakia: some are more general and some are specifically used in the context of UWWTD or transposing national legislation. ▪ <i>zrážkové odpadové vody</i> - rain-waste waters - general terminology ▪ <i>výpusty dažďovej vody</i> – Annex I(A) , third paragraph – outlets of rain waters, UWWTD (Link: http://eur-lex.europa.eu/legal-content/SK/TXT/PDF/?uri=CELEX:31991L0271&from=EN) ▪ <i>pretazenie sposobene pretekaním dažďovej vody</i> - overload of the sewage systems caused by excess rain water - general terminology The following terms are defined in the Slovak Technical Standard STN EN 752 ‘Drain and sewer systems outside buildings’: ▪ <i>zaplavenie</i> – flooding: wastewater and/or storm water from surface runoff leaks from a sewer system, or cannot enter the sewer system and either remains on a land surface or flows into the buildings ▪ <i>preťaženie</i> – surcharge: wastewater and/or storm water from surface runoff is held under the pressure inside the gravity sewer system but does not leak on the surface and does not cause flooding ▪ <i>povrchové zaplavenie</i> - surface flooding: wastewater and/or storm water from surface runoff leaks from a sewer system, or cannot enter the sewer system and either remains on a land surface or flows into the buildings ▪ <i>odlahčovacie objekty/komory</i> – relief structures – terminology used in the Government Order no 269/2010 Coll prescribing the requirements for the achievement of good water status.(terminology used in the Government Regulation no. 269/2010 Coll.) ▪ <i>odpadová voda z odľahčovacích objektov</i> – wastewater from relief structures (terminology used in § 6, section. 1 of the Government Regulation no. 269/2010 Coll. in relation to § 36, section 13 of the Act no 364/2004 Coll. - as mentioned above;
2. Is there a definition of storm water overflow in Slovakia?	<i>odpadová voda z odľahčovacích objektov</i> – wastewater from relief structures (terminology used in § 6, section. 1 of the Government Regulation no. 269/2010 Coll.
3. Storm water overflows occur as a	The Water Act no. 364/2004, § 36 section 13 establishes the term “ <i>storm rainfall</i> “ which represents an extreme or unusual rainfall event –

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consequence of an extreme or unusual rainfall event. Does Slovakia have a definition of extreme or unusual rainfall event?

it is used by national water authorities in control and water pricing procedures.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
<i>Overview of legal and policy framework</i>	
45. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	The issues related to water are generally dealt with in the Water Act (no 364/2004 Coll). Conditions related to the discharge of waste water are governed by Article 21 of this Act. Paragraph 2(d) states that the national water authority will set the conditions for the discharging of waste waters and the allowed pollution rates caused by their discharge. The details are set in the Government Regulation of the Slovak Republic no. 269/2010 Coll. as explained above. Paragraph 36 (13) of the Water Act deals with the discharge of waste waters from relief structures during excess rain fall. Subsequently, paragraphs 6 (1) - (6) of the Government Order 269/2010 Coll describe relief structures, and the conditions which the discharged waste water must satisfy before released into the recipient water body. It also sets the dilution rates between 1:4 and 1:8 as a ratio between communal waste water and rain waste water. When relief structures are in use, the law does not prescribe the water quality standards of the discharged water meaning that no values of pollution parameters are set in the case of heavy rain events. As the dilution rates are set when the pipes and relief structures are designed and constructed, there is no monitoring of wastewater quality during heavy rainfall. Permit for the use of sewer systems in Slovakia is issued by regional state water authorities which includes the water quality standard for the discharged waste water after the treatment in the WWTP as well as conditions for the discharge from relief structures (dilution rates) In the RBMP for Slovakia – 2009-2015 (Link: http://www.vuvh.sk/download/RSV/00_VPS/Vodny_plan_Slovenska.pdf, – <i>Vodny Plan Slovenska</i>) the monitoring system is described, which calculates emissions polluting river systems based on several types of polluting agents. One of them refers to rain waste water and pollution caused by the discharge of waste water from relief structures. In the same document, a specific measure for ‘identification and research into quantity and quality of the waste water from relief structures’ is mentioned in table 9.1. There is not specific reference to storm water overflows though. The RBMP for 2016-2021 is not yet publicly available and will be issued in December 2015.
46. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	In general, there is a limited number of quantitative data available regarding the storm water overflow events in Slovakia. In particular, there are no pollution limits set for the recipient water body when relief structures are used in case of excessive rain falls. As stated by the national expert Ing. Belica, the owner/operator of sewer system keeps records on operational conditions of sewer systems and WWTPs, including rainfall events. The information available in national legislation on dilution rates and maximum number of the use of relief structures per years is described below: <u>Government Order no 269/2010 Coll. prescribing the requirements for the achievement of good water status</u> <u>§ 6 Specific conditions for the discharge of waste waters from the relief structures</u> This paragraph specifies in (3) that relief structures are built in so called <i>Jednotny</i> (combined) sewer system and the criterion for the discharge of waste waters is the dilution rate. This is the ratio between the waste water in the sewage system and the rain water received into the system.

Overview of legal and policy framework. Relevant references to storm water overflows.

In (4) the dilution rates are specified – 1:4 as a minimal dilution rate and 1:8 in locations where stricter water quality requirements apply. The last sentence of this point states that when waste waters are discharged from relief structures, the pollution limits of these waste waters are not established. Under the normal circumstances, however, the pollution limits are set up for all waste waters discharged into the environment (paragraph 21 2(d) and paragraph 36 (8) of the Water Act).

Point (5) refers to the requirements of an expert judgement on the precipitation in the area and outflow conditions and based on this information sets how many times the overflows can occur in one year (if the travel time of storm water in sewer system lasts longer than 15 minutes, the relief structure can only be used 15 times a year, if the travel time of storm water in pipe is shorter than 15 minutes, the relief structure can be used max 20 times a year).

In Slovakia, water companies and/or municipalities possess the information on the type of sewage system used in their district. Partial information on how many relief structures are used and where is available. A type of relief structure is dealt with at the design stage of the sewer system (taking into account climatic conditions of the area, technical capacities of the existing sewage system) and further monitoring was not deemed necessary.

Importantly, when the relief structures are used, the law does not prescribe the quality of the diluted waste and rain water to be discharged into the receiving water body, but only the dilution rate as agreed when the sewage system was constructed (§6 (4) of the Government order 269/ 2010 Coll).

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	Water Act no 364/2004 Coll. 364 <i>ZÁKON z 13. mája 2004 o vodách a o zmene zákona Slovenskej národnej rady č. 372/1990 Zb. o priestupkoch v znení neskorších predpisov (vodný zákon)</i> Link: http://www.svp.sk/svp/media%5Cpdf%5Cz%C3%A1kon%20o%20vod%C3%A1ch.pdf	(13) Odpadové vody z odľahčovacích objektov možno vypúšťať do povrchových vôd v rámci povoleného vypúšťania odpadových vôd z verejnej kanalizácie počas rvania prívalových dažďov. Pri výstavbe a prevádzke stokovej siete treba vykonať s prihliadnutím na miestne pomery opatrenia na zmiernenie nepriaznivého vplyvu vypúšťaných odpadových vôd na recipient podľa vykonávacieho predpisu č. 269/2010 Z.z.	First sentence of this paragraph permits the discharge of waste waters into surface water within the set limits during the excessive rain periods. It refers specifically to waste waters from so called “odľahčovacie objekty” (relief structures). Second sentence of this paragraph specifically refers to the construction of public sewage system and the requirement to bear in mind local conditions in order to reduce the negative impacts of releasing waste waters into the recipient body.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			

Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives

EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English

Overview of legal and policy framework. Relevant references to storm water overflows.

UWWTD	Y	'Report regarding communal waste water treatment in Slovakia between 2011 and 2010, including evaluation for 2012' (<i>Situačná správa o zneškodňovaní komunálnych odpadových vôd a čistiarenských kalov v Slovenskej republike za roky 2011 a 2012 - vrátane vyhodnotenia roku 2012</i>) Link: http://www.sazp.sk/public/index/go.php?id=1167&idl=1167&idf=1062&lang=sk	... Riešením väčších aglomerácií sa eliminujú najvýraznejšie negatívne vplyvy znečistenia na kvalitu povrchových a podzemných vôd, vodných zdrojov a zdravia ľudí, ktoré je dôsledkom nečistených alebo nedostatočne čistených komunálnych odpadových vôd a nežiaduceho odľahčovania najmä v bezdažďovom období a nadmerného odľahčovania počas dažďových udalostí.	...By dealing with big agglomerations, the negative impact of the pollution on the quality of surface water and groundwater, water sources and human health are limited. These negative impacts are the direct consequence of not-treated or insufficiently treated waste waters and non-desired use of relief structures during non-rainy periods and extensive use of relief structures during heavy rainfall.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N/A			
HELCOM	N/A			
Barcelona Convention	N/A			
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	N			
Rhine Convention	N/A			
Oder Convention	N/A			
Elbe Convention	N/A			

Overview of legal and policy framework. Relevant references to storm water overflows.				
Conv. Transboundary Watercourses and International Lakes	N			
<i>Other direct references to storm water overflows</i>				
Type of document	Title of document		Summary description	
Policy document, river basin level	RBMPs for 2009-2015 in Slovakia - <i>Vodny Plan Slovenska</i> Link: http://www.vuvh.sk/download/RSV/00_VPS/Vodny_plan_Slovenska.pdf		The monitoring system is described, which calculates emissions polluting river systems based on several types of polluting agents. One of them refers to rain waste water and pollution caused by the discharge of waste water from relief structures. There is no further reference regarding this issue in this section. A specific measure for 'identification and research into quantity and quality of the waste water from relief structures' is mentioned in table 9.1. There is not specific reference to storm water overflows.	

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
111. Which types of sewer system does Slovakia have?	In larger towns and cities a combined sewer system prevails - a sewer system that collects sewage and storm water in a single pipe system. This type of sewage system is common mainly in the central parts of towns and cities and cities with higher population density. In the outskirts of towns with the character of rural settlements and villages a single sewage system prevails and rain water is transferred to the receiving water body by street gutters. A combined sewer system in rural settlements occurs sporadically, especially in the central parts of villages.
112. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines -	In Slovakia, there is centrally managed monitoring system comprising partial information on type and length of sewers. The monitoring system is developed and improved continually and the data are collected and updated gradually. Owners of sewer systems (municipalities or water companies) possess detailed information on sewage systems. However, the national expert gave his estimates on percentages of different sewage system used in Slovakia: ■ Agglomerations above 10 000 p.e. - 90 – 95 % of combined sewer systems with relief structures and 5 – 10 % of separate sewer system (collecting wastewater and rainwater separately) or only single sewage system; ■ Agglomerations between 2000- 10000 p.e. - 60 – 90 % of combined sewer system and 10 – 40 % of separate sewer system or only single sewage system; ■ Agglomerations below 2000 p.e. - 0 – 60 % combined sewer system, 40 – 100 % of separate sewer system or only single sewage system (in these areas the most commonly used type is single pipe with no access for the rain water which is transferred to the recipient water body by street gutters). Total length of sewage system in Slovakia was in 2013 was 12,044 km and the length of sewer system connections 3,292 km. This information was provided by the national expert Ing. Belica during the phone interview. There is a monitoring system containing partial information on how many kilometres of these have combined pipe (with relief structures) and how many constitute separate sewage system (with two separated pipes). The relevant data are collected and updated gradually.
113. How many storm water overflows infrastructures exist in Slovakia?	As stated above, in the central parts of towns and cities a combined sewer system is normally used with the relief structures built in to enable the storm water overflow mixed with the waste water to go directly into the receiving water body and do not overload the treatment plant. In smaller towns combined and separate sewerage is used, while a single sewage system prevails in small municipalities and rain waters are transferred directly into water body through street gutters. There is a centrally managed database containing partial information on how many pipes have built-in relief structures. The system is developed continually and the data are collected and updated gradually. All information about sewage system in a given district is possessed by the owner/manager of the sewage system which is either the municipality or water company (<i>vodaren</i>). They are also obliged to report on basic information such as number and type of relief structures to the Water Research institution (Vyskumy Ustav Vodneho Hospodarstva – Link: http://www.vuvh.sk/) as prescribed in the Government Proclamation 605/2005 Coll. (Link: https://www.slovlex.sk/pravne-predpisy/SK/ZZ/2005/605/20060101). However, as stated by the national expert, the quality of these reports is poor as the municipalities and water companies do not have the capacity and the necessary technology to monitor heavy rain periods and subsequent use of relief structures, and, most importantly, the amount of water not treated in case of heavy rain fall. One of the reasons for this is that the relief structures are built in, designed and tested during the canalization planning for each given city/municipality and subsequent monitoring of their use is scarce. The amount of water going through relief structures is predetermined by a design of the relief structure

Available data on storm water overflows	
	itself (with the dilution rate set) and not further monitored.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
114. Is there information on the occurrence of storm water overflows?	As explained above, there is a lack of technology which would monitor the occurrence of heavy rainfalls as a trigger for relief structure use in combined pipes. It was explained by the national expert interviewed that the pipes are designed according to technical criteria which takes into account precipitation in the area and the expert (designer) sets the dilution rates. This is also approved by the regional state water authority. However, the expert explained, as sewer systems grow intensely, there are cases that existing structures/systems do not satisfy new conditions. The solution lies in reconstruction of a sewer systems and relief structures adapting it to new circumstances – new determination of dilution rate, however, this often proves difficult due to financial constraints. Particular solutions regarding the wastewater and rainwater collection are dealt with in the project documentation of agglomerations proposed in accordance with the current legislation. The wastewater/rainwater management is costly and time-consuming, and therefore the construction of sewer systems is a gradual process.
115. Are storm water overflows monitored in Slovakia? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	See explanation above: storm water devices (relief structures) are not centrally monitored but it would be possible to request the information on their use in different regions of Slovakia from water companies or municipalities. The events when their use is triggered are also not monitored.

Note: Only printed version of legal regulations are published in the exact wording. The links mentioned above may display legal documents containing slight difference in the text or structure.

FACTSHEET FOR SLOVENIA⁷⁵⁵

1. BASIC INFORMATION

Basic information	
General Information	
159. What are the competent authorities for waste water treatment and management in Slovenia?	There is no authority established specifically to deal with storm water overflows in Slovenia. Therefore, authorities responsible for urban wastewater collection and treatment and water management are also responsible for issues related to storm water overflows. These authorities are the following: 1) There are 212 local authorities responsible for urban wastewater collection and treatment. They are obliged to carry out urban wastewater collection and treatment as a compulsory public service. Such a service can also be undertaken by a public commercial institution, a public company, a municipal installation ("režijski obrat") or a private company with concession. 2) The Ministry of Environment and Spatial Planning⁷⁵⁶ has an overall responsibility in the areas of water protection, water use and flood protection, and performs regulatory tasks with regard to potable water supply and treatment of urban and drainage waste water. It proposes legal regulations, performs monitoring of implementation of rules and reports on the actual implementation of regulatory requirements coming from the EC related to water resources protection. 3) The Government Office for Development and European Cohesion Policy coordinates the preparation of development documents of the Republic of Slovenia in the area of urban wastewater collection and treatment. It monitors their implementation and is responsible for the coordination and coherence between national development planning documents and development documents of the European Union in this area. It also performs management tasks for the purposes of European structural and cohesion funds that are the most important financial resources for the construction and reconstruction of sewerage and water treatment plants⁷⁵⁷. 4) The Inspectorate for the Environment and Spatial Planning⁷⁵⁸ is the main environmental inspection authority, including inspections of sewerage systems and wastewater treatment. The Inspectorate carries out its tasks with the support of 8 regional inspectorates and 10 inspectorate offices for environmental protection. Their competencies include inspections of: (i) the compliance of entities with environmental legislation and (ii) the meeting of conditions of permits and licences as well as conditions related to the frequency and manner of sampling and monitoring. In executing their tasks, inspectors can: (i) enter, at any time, the inspected property, (ii) carry out the necessary tests and sampling in order to determine compliance of the inspected entity with applicable law, (iii) request the relevant information and documentation and interview persons, if necessary. Inspections are carried out on a basis of inspection plans, ad hoc or by request from other state bodies. The licensing authorities do not have inspection competencies.

⁷⁵⁵ The following were interviewed for the purposes of this report: Uroš Kranjc, IEI Maribor; Marko Cvikel, VO-KA Celje;; Janez Kastelic, MOP ARSO.

⁷⁵⁶ http://www.mop.gov.si/en/areas_of_work/water/.

⁷⁵⁷ http://www.svrk.gov.si/si/kako_crpamo_eu_sredstva/.

⁷⁵⁸ <http://www.iop.gov.si/en/>.

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	5) Licensing authorities – There is no separate licensing procedure and licensing authority for storm water overflows. This licensing is included in regulatory processes for wastewater treatment plants and sewage collecting systems construction and operation. The Agency of the Republic of Slovenia for the environment (ARSO) is the responsible governmental body. It issues an environmental permit or a water license for the discharge of wastewater and heat dissipation in the water, where water licence is an equivalent to an environmental permit. Before the installation starts, an environmental consent is obligatory, for which the same agency is also responsible. All installations that have the environmental permits must report annually, on emissions and loads to water environment, to the Agency of the Republic of Slovenia for the environment (ARSO), . There is no legislation with specific requirement for an environmental or water permit for storm water overflows. However, nothing prohibits including such conditions in a project development phase or in the permit itself. Under such a condition, documents should contain the description of a possible impact of an intervention on receiving waters, the description of all installations for collecting, storing and discharging of wastewaters and the assessment of the quality of receiving waters.
160. What is the transposing law(s) of the UWWTD in Slovenia?	The main transposing act is the Environmental Protection Law (Uradni list RS, št. 39/06 uradno prečiščeno besedilo, 49/06 – ZMetD, 66/06 – odl. US, 33/07 – ZPNačrt, 57/08 ZFO-1A, 70/08, 108/09, 48/12, 57/12 in 92/13)⁷⁵⁹. The law regulates the protection of the water environment against pollution and provides the basic principles of the protection measures, monitoring and information, economic and financial instruments of water protection, public utilities and other water protection related issues. Besides the Environmental Protection Law, two other implementing acts supplement transposition of the UWWTD in Slovenia. For the purposes of this study, the most important is the regulation of 1. September 2012 on the emission of substances and heat in the wastewater discharged into waters and into public sewerage systems (Uredba o emisiji snovi in toplote pri odvajanju odpadnih voda v vode in javno kanalizacijo, Uradni list RS, št. 64/12, 64/14)⁷⁶⁰. This regulation applies to storm water in a sense that, together with the wastewater from buildings, storm water forms municipal wastewater. This regulation is general, and lays down general emission limits for heat and substances into the receiving water and sewage system, and the method of valuation of these emissions. It also lays prohibitions, restrictions and other measures to reduce emissions into water and sets the content of the environmental permit. This act stipulates that the results of measurements of emissions at the outlet of the reservoir of storm water, or at the effluent of a wastewater treatment plant that treats storm water along with the municipal wastewater, be disregarded. This also applies to cases where pollution of wastewater is a result of natural adverse weather conditions or natural or other disasters. The act states that an operator of land with drained storm water with a pollution level over the limiting standards, must retain and treat storm water before discharging it into a public sewer system. Environmental Impact Assessment (EIA) and an environmental permit are required for facilities for collection and disposal of urban wastewater with drainage water when longer than 5 000 m and when they could have a significant impact on the environment. The second is the implementing act for wastewater management until 2017 according to the Waste Water Treatment Directive. It is the Operational programme for the discharging and treating of urban wastewater (Operativni program odvajanja in čiščenja komunalne odpadne vode (novelacija za obdobje od leta 2005 do leta 2017))⁷⁶¹. The Slovenian government on 11 November 2010

⁷⁵⁹ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO1545>.

⁷⁶⁰ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED6070>

⁷⁶¹ http://www.mop.gov.si/si/zakonodaja_in_dokumenti/veljavni_predpisi/okolje/zakon_o_varstvu_okolja/programi_in_nacrti_varstva_okolja/#c17902).

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	approved the programme (Government Decision RS, No. 35401-2/2010/3) and on 14 July 2011 approved its amendments (Government Decision RS, No. 35401-2/2010/8). The structure of the operational programme for collection and treatment of urban wastewater is determined in accordance with the prescribed deadlines in the UWWTD. The programme has basic and an additional sub-programme.
161. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	The Slovene legal system has included provisions of Section A of Annex I to the UWWTD by the regulation of 1 September 2012 on the emission of substances and heat in the wastewater discharged into waters and into public sewerage systems and indirectly by other laws. The first one stipulates the prohibition that polluted storm water enters public sewerage systems and the leaching of wastewater from sewerage installations, whereas other laws have elements that reflect volume and characteristics of urban wastewater and construction elements of the installation in a manner to protect the water environment. 1. Decree on the emission of substances and heat when discharging wastewater into waters and the public sewage system (<i>Uredba o emisiji snovi in toplote pri odvajanju odpadnih voda v vode in javno kanalizacijo</i>, Uradni list RS, št. 64/12, 64/14)⁷⁶² Article 14: Excessive pollution of storm wastewater is determined using the regulations governing the discharge of drainage water from public roads. Article 15: An operator of land with drained storm water with a pollution level over the limiting standards must retain and treat storm water before discharging it into a public sewer system. The operator must obtain environmental permit for an operation of storm water reservoir, wastewater or oil trap as well as for any substantial change in these devices. Article 17 regulates measures for polluted rainwater runoff, i.e. treatment of polluted rainwater in wastewater treatment plant. Unpolluted rainwater from roofs should be discharged into surface or ground water, if possible. 2. Decree on the emission of substances in waste water discharged from urban waste water treatment plants (<i>Uredba o emisiji snovi pri odvajanju odpadne vode iz komunalnih čistilnih naprav</i> (Uradni list RS, št. 45/07, 63/09 in 105/10) Article 8 regulates measures for the owner and operator of the public sewage systems as regards appropriate construction of sewage system and retention of the storm water and its treatment after the rain event. 3. Decree on the discharge and treatment of urban wastewater and meteoric water from 27.october 2011 (<i>Uredba o odvajanju in čiščenju komunalne in padavinske odpadne vode</i>; Uradni list RS, št. 88/11, 8/12 in 108/13). Article 9: regulates (in more detail) measures on retention of the storm water and its treatment after the rain event in the waste water treatment plant. 4. The law on Construction⁷⁶³ (Zakon o graditvi objektov, Uradni list RS, št. 102/04, updated 2005, 2007, 2009, 2010, 2011, 2012, 2013,

⁷⁶² <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED6070>

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2014, the last update in 2015, Uradni list št. 19/15). This law regulates the conditions for the construction of all facilities, provides the essential requirements to comply with them as regards the characteristics of objects, regulates inspection supervision, establishes sanctions for offences in the field of construction and regulates other issues related to the construction of buildings. Transferring the requirements of Section A of Annex I to the UWWTD is indirect through the requirements relating to obtaining approvals and permits for the construction of sewerage systems and associated infrastructure.

Art. 7 and Art 8. The Government of the Republic of Slovenia set the uniform classification of types of buildings and civil engineering structures and classify constructions with regard to their complexity as simple, unpretentious (not demanding), less demanding and demanding⁷⁶⁴ (Regulation issued on 28 February 2013). A building permit is not obligatory for simple constructions and obligatory for the others. Regulation on the uniform classification of types of buildings⁷⁶⁵ is from 13 December 2011. Systems for the collection and treatment of wastewater are civil engineering structures belonging to the category “Pipelines for wastewater” (no. 22231) and wastewater treatment plants (22232). Pipelines for wastewater are a) channel for the discharge of wastewater and rainwater water, b) pumping stations for pumping wastewater, and c) associated infrastructure sewerage network. There is no specific declaration of retention basins for storm water as part of the sewerage network. They are an associated infrastructure. The mentioned legal acts indicate that “water tanks” in the ground are simple objects, if they have a capacity of up to 100 m³ and have no impact on the environment (Decree amending the Regulation on classification of construction with regard to their complexity⁷⁶⁶, Article 6). Pipelines for wastewater (22231) with a diameter of 1,000 mm and over, and wastewater treatment plants (22232) with the capacity of 50,000 PE and more, are demanding facilities.

Art. 9. Building codes specify the technical properties of constructions. Buildings must be designed and constructed so that they:

- are mechanically resilient and stable,
- are safe from fire,
- comply with hygiene and health protection and protection of the environment,
- are safe to use,
- give protection against noise and
- save energy and preserve heat.

Building codes may refer to standards or technical guidelines relating to a particular type of construction and determine its mandatory use. Building codes also define the procedure for the adequacy of the facility, if the standards and technical guidance are not used. This applies in cases where solutions from the state of the art are used and at least the same level of safety as directed by standards or technical guidelines is provided.

Art. 145. Building inspector under the supervision of the inspection controls in particular a) whether the conditions for the start of construction or other works are satisfied; b) if the construction or change of use is conducted in accordance with the issued building

⁷⁶³ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO3490>.

⁷⁶⁴ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED6200>.

⁷⁶⁵ <http://www.uradni-list.si/1/content?id=106984>.

⁷⁶⁶ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED6200>.

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	permit; c) if the facilities are maintained so as to ensure reliability and meet the essential building requirements . <u>5) Water Act</u>⁷⁶⁷ Article 51. The Ministry issues water consent if the facility does not significantly affect the water regime and the natural balance of aquatic and riparian ecosystems and jeopardise the safety of others against harmful effects of water. Article 91. The state is responsible for the protection of people, the environment, economic activities and cultural heritage from adverse effects of water. The scope of protection takes into account the sensitivity of the water body due to the possibility of sudden pollution. The local community itself may also provide such protection with the consent of the Ministry. Article 92. The local community is responsible for protection against the harmful effects of rainwater in the regulatory areas of settlements. This includes measures to reduce storm water runoff from urban areas and measures to limit the leakage of urban and rainwater. The Minister prescribes detailed measures and the manner of protection. Art. 150. A water consent is an obligatory for the construction of facilities that might affect the water regime or water status. This is a prerequisite for a building permit. <u>6) The Environment Protection Act</u>⁷⁶⁸ Article 70. The operator must a) ensure measures to prevent environmental pollution using the best available techniques; b) prevent large-scale environmental pollution; c) ensure waste prevention and recovery or waste disposal; d) ensure energy efficiency; e) prevent accidents and limit their consequences and f) establish a satisfactory state of the environment at the place of the device upon definitive cessation of its operation. Article 74. The environmental permit must provide measures and conditions to meet the general requirements of environmental protection (Article 70). It contains a description of the facilities and activities, performance and features of the site devices, permissible values for emissions into water and the operator's obligations in respect of the implementation of monitoring and reporting to the Ministry. Permissible emission values are determined taking into account the best available techniques, the technical characteristics of the device, the possibility of leakage of emissions, the geographical features of the area and the quality of the environment in the area of the device. Article 76 The operator of the device (a new or rebuilt construction object) must, before the start of operation, fulfil the conditions of the environmental permit, which is a subject of inspection in the process of obtaining an operating licence under the Law on Construction.
162. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly	Measures to limit pollution from storm water overflows are set by the decree on the discharge and treatment of urban wastewater and meteoric water. The two other decrees are the decree on the emission of substances in wastewater discharged from urban wastewater treatment plants and the decree on the emission of substances in the discharge of meteoric water from public roads give technical

⁷⁶⁷ Water Act of 18 of June 2001 (O.J. 2001, no 115, item 1229, as amended), *Ustawa z dnia 18 lipca 2001 r. Prawo wodne* (Dz.U. 2001 nr 115 poz. 1229), available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20011151229>.

⁷⁶⁸ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO4844>. Relevant here as the environment Protection act is a bases for all legislation concerning Section A of Annex I.

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to storm water overflows?

standards.

- 1) Decree on the discharge and treatment of urban wastewater and meteoric water⁷⁶⁹ from 27.october 2011 (Uredba o odvajanju in čiščenju komunalne in padavinske odpadne vode; Uradni list RS, št. 88/11, 8/12 in 108/13).

Article 6: Settlement areas must have public sewers and guaranteed treatment of urban wastewater in accordance with the regulations governing the emission of substances in wastewater discharges from municipal wastewater treatment plants.⁷⁷⁰

Article 9: An owner of a public sewer system must reduce the quantity of drained storm water entering into the system. In the area of mixed sewage, the owner shall ensure that an appropriate technical measure for containment of storm water (precipitation wave) and mechanical cleaning. The owner shall ensure treatment of contained (retained) storm water in the wastewater treatment plant. In the area of separate sewerage system and if drained storm water is excessively polluted, the owner must ensure the implementation of technical measures for storm water containment in the reservoir with oil separator and its cleaning in the waste water treatment plant. The pollution level is defined by the regulation of the Decree on the emission of substances in the discharge of storm water from public roads⁷⁷¹ from 13.5.2005 (*Uredba o emisiji snovi pri odvajanju padavinske vode z javnih cest. Ul. l.RS, št. 47/2005*).

- 2) Decree on the emission of substances in waste water discharged from urban waste water treatment plants (Uredba o emisiji snovi pri odvajanju odpadne vode iz komunalnih čistilnih naprav (Uradni list RS, št. 45/07, 63/09 in 105/10)⁷⁷²

Art. 8: The owner and operator of a public sewer shall ensure proper retention of the first rain (storm wastewater) and facilitates mechanical cleaning. Captured storm water must be transferred to the treatment plant.

Art. 9. The owner and operator of a public sewer must ensure cleaning of urban wastewater before discharge directly or indirectly into recipient water so that the parameters of urban waste water shall not exceed the limits for secondary treatment under Art. 5 of this Regulation (see table below).

⁷⁶⁹ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED5707>.

⁷⁷⁰ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED4442>.

⁷⁷¹ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED3607>.

⁷⁷² <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED4442>.

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Preglednica 1: Mejne vrednosti pri sekundarnem in terciarnem čiščenju

Parameter	Izražen kot	Enota	Zmogljivost čistilne naprave, izražena v PE		
			≥ 2.000 < 10.000	≥ 10.000 < 100.000	≥ 100.000
neraztopljene snovi	-	mg/L	60	35	35
amonijev dušik ⁽¹⁾	N	mg/L	10	10	10
KPK	O ₂	mg/L	125	110	100
BPK ₅	O ₂	mg/L	25	20	20
celotni dušik ^{(1) (2)}	N	mg/L	(3)	(3)	(3)

⁽¹⁾ Mejna vrednost za amonijev in celotni dušik se uporablja pri temperaturi odpadne vode 12 °C in več na iztoku aeracijskega bazena.

⁽²⁾ Celotni dušik je vsota dušika po Kjeldahlu (Norganski + N-NH₄), nitratnega dušika (N-NO₃) in nitritnega dušika (N-NO₂).

⁽³⁾ Mejna vrednost ni določena; prve meritve in meritve obratovalnega monitoringa se izvaja.

3) Decree on the emission of substances in the discharge of storm water from public roads (*Uredba o emisiji snovi pri odvajanju padavinske vode z javnih cest* (Uradni list RS, št. 47/05))⁷⁷³

Article 4: The operator of public roads must provide for rainwater run-off from public roadways into public sewerage system containment reservoirs and appropriate cleaning of retained storm water. When planning, designing, constructing or reconstructing reservoirs, oil traps and wastewater treatment plants of drained storm water, an investor must choose technical solutions at a reasonable cost and ensure the smallest possible impact on soil pollution and chemical and ecological status of water. The cleaning of storm water shall be established when the outflow from the containment reservoir exceeds the limits set out in Annex 2 (see table below). The size for the containment reservoir must be large enough to retain storm water with a duration of 15 minutes and precipitation intensity of 15 l/s ha.

⁷⁷³ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED3607>

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Mejne vrednosti parametrov za padavinsko odpadno vodo

Parameter	Izražen kot	Enota	MEJNE VREDNOSTI	
			za odvajanje posredno ali neposredno v vode	za odvajanje v javno kanalizacijo
I. SPLOŠNI PARAMETRI				
1. Neraztopljene snovi		mg/l	80/160 (a)	(b)
2. Usedljive snovi		ml/l	0,5/10 (a)	10
III ANORGANSKI PARAMETRI				
3. Kadmij*	Cd	mg/l	0,1	0,1
4. Baker*	Cu	mg/l	0,5	0,5
5. Cink*	Zn	mg/l	2,0	2,0
6. Celotni krom*	Cr	mg/l	0,5	0,5
7. Nikelj*	Ni	mg/l	0,5	0,5
IV. ORGANSKI PARAMETRI				
8. Celotni ogljikovodiki* (mineralna olja)		mg/l	10/50 (a)	20
9. Lahkohlapani aromatski ogljikovodiki* - BTX (c)		mg/l	0,1	1,0
10. Adsorbiljivi organski halogeni* - AOX	Cl	mg/l	0,5	0,5
11. Fenoli*	C ₆ H ₅ OH	mg/l	0,1	10
12. PAH* (d)		mg/l	0,00006	-

163. What is the terminology used to refer to storm water overflows in Slovenia? Is there more than one term used?

In Slovenia one term is consistently used: “padavinska odpadna voda”. The direct translation is “rain wastewater” or “meteoric waste water”. It is a result of meteoric precipitation draining from polluted paved or coated surface into waters or discharged into public sewers.

164. Is there a definition of storm water overflow in Slovenia.

Yes. Decree on the emission of substances and heat when discharging waste water into waters and the public sewage system (*Uredba o emisiji snovi in toplote pri odvajanju odpadnih voda v vode in javno kanalizacijo* (Uradni list RS, št. 64/12 in 64/14)⁷⁷⁴ (Art 4, alineja 38):

⁷⁷⁴ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED6070>

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	<i>“Meteoric waste water” is waste water that as a result of the rainfall contaminated drains from polluted paved surfaces, cobblestoned surfaces or surfaces coated by other materials in water or is discharged into the public sewer system. Meteoric precipitation discharged from surface of facilities for the storage, processing or disposal of waste is exempted, but not discharge from roofs and functional areas of such facilities.”⁷⁷⁵.</i>
165. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Slovenia have a definition of extreme or unusual rainfall event?	There is no legal definition of an “extreme” or “unusual” rainfall event, but there is a definition of a “first rain-shower” which is rain that last for 15 minutes with the precipitation intensity of 15 l/s ha. In addition an established practice in engineering and sewage system management is that rainfall events which last for 15 minutes and with a 2 -year return period are taken into account when designing sewer systems. Extreme or unusual events in the context of water management are those that are the result of precipitation or water flows (discharges) that have a return period of 10 or 20 years (unusual) or more than 50 years (extreme).⁷⁷⁶

⁷⁷⁵ Art. 4, Decree on the emission of substances and heat when discharging waste water into waters and the public sewage system (Uredba o emisiji snovi in toplote pri odvajanju odpadnih voda v vode in javno kanalizacijo (Uradni list RS, št. 64/12 in 64/14)); <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED6070>

⁷⁷⁶ ATLAS OKOLJA. MOP ARSO (http://gis.arso.gov.si/atlasokolja/profile.aspx?id=Atlas_Okolja_AXL@Arso). Go to “Vode”, “Poplave”, “Opozorilna karta poplav”); Kobolt, M. The influence of climate change on extreme hydrological events. Ujma. Str. 128-135. št. 23/2009 (<http://www.sos112.si/slo/tdocs/ujma/2009/128.pdf>).

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.				
Overview of legal and policy framework				
47.	Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	There is no national legal framework to limit storm water overflows. In Slovenia, there are more than 100 public companies managing public sewage systems as a local public service. By local regulations, they limit the number of overflows to 10 per year. Larger systems have a network of connected storm water reservoirs, but the majority of them do not have regular hydraulic monitoring in place, though they shall reflect the best possible hydraulic performance. Overflows are controlled by inspecting hydraulic conditions in sewage systems at rainfall events and observing overflows from the reservoirs (seen at outflows to recipients). The quantity of overflows is determined from known capacities of reservoirs (volumes), duration of overflows and timing. The public service providers (managers of public sewage systems) report yearly to the Ministry of the Environment and Spatial Planning on the number of storms when overflows were in function. The managers only evaluate the number of overflows from regular inspections, but no systematic monitoring exist. There is no national evidence on the number of overspill events and their duration.		
48.	If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	▪ Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) In the Decree on the Emission of Substances and heat and the discharge of wastewater into waters and public sewage system (http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED3606), in Article 4 the mean low flow of the watercourse is defined as a basic standard to emissions of waste (treated) water: The mean low flow is the arithmetic average of the minimum annual value of the flow of the stream over the observation period. Middle low flow is expressed in l / s and is calculated using the following equation: $sQ_{np} = \sum_{i=1}^{i=N} Q_{np,i} / N$ where “sQnp” is average low flow, “Qnp,i” the minimum flow in the i-th calendar year and N is the number of years in the observation period, usually 30; Article 17 sets standards for measures for drainage waste water such as: The operator of fortified buildings, paved or other material coated surfaces where polluted drainage is formed that is not in accordance with the regulations should not be discharged into water; In an area where there is no public sewer, water is captured in the reservoirs and treated in the oil separator or cleaned in a wastewater treatment plant. ▪ - Water quality standards of receiving water body: <u>there are strict standards for a receiving water body</u>		
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English

Overview of legal and policy framework. Relevant references to storm water overflows.

UWWTD	Y	Decree on the discharge and treatment of urban waste water and meteoric water (Uredba o odvajanju in čiščenju komunalne in padavinske odpadne vode (Uradni list RS, št. 88/11, 8/12 in 108/13))⁷⁷⁷	(člen 6)⁷⁷⁹: Opremljenost z javno kanalizacijo: (1) Območje poselitve mora biti zaradi izvajanja storitev javne službe opremljeno z javno kanalizacijo z zagotovljenim čiščenjem komunalne odpadne vode v skladu s predpisom, ki ureja emisijo snovi pri odvajanju odpadne vode iz komunalnih čistilnih naprav, ali s predpisom, ki ureja emisijo snovi pri odvajanju odpadne vode iz malih komunalnih čistilnih naprav. Člen 9 Na območju iz 6. člena te uredbe, ki je opremljeno z javno kanalizacijo za odvajanje mešanice komunalne in padavinske odpadne vode, mora lastnik javne kanalizacije zagotoviti izvedbo tehničnih ukrepov za ustrezno zadrževanje čistilnega vala v napravah za zadrževanje in mehansko čiščenje ter za zadržan čistilni val po končanih padavinah zagotoviti odvajanje in čiščenje v komunalni ali skupni čistilni napravi v skladu s predpisom, ki ureja emisije snovi pri odvajanju odpadne vode iz komunalnih čistilnih naprav. Na območju iz 6. člena, ki mora biti opremljeno z javno kanalizacijo, mora biti za javno kanalizacijo za odvajanje mešanice komunalne in padavinske odpadne vode zagotovljena izvedba tehničnih ukrepov za ustrezno zadrževanje čistilnega vala v napravah za zadrževanje in mehansko čiščenje ter za odvajanje in čiščenje zadržanega čistilnega vala v komunalni ali skupni čistilni napravi po končanih padavinah v skladu s predpisom, ki ureja emisije snovi pri odvajanju odpadne vode iz komunalnih čistilnih naprav.	(Article 6): (1) The area of settlement shall be equipped with public sewers with guaranteed treatment of urban waste water in accordance with the regulations governing the emission of substances in the discharge of waste water from sewage treatment plants, or the regulations governing the emission of substances in the discharge of wastewater from small municipal wastewater treatment plants. Article 9 In the area of Article 6 of this Regulation, equipped with mixed public sewers of urban and rain (storm) waste water, the owner must provide the public sewage and implement technical measures to adequately contain the cleaning wave, mechanical cleaning and treatment for storm water after completion of precipitation. The drainage and treatment in a municipal or common treatment plant must follow the regulations governing the emission of substances in waste water discharges from municipal wastewater treatment plants. In the area of Article 6, which must be equipped with a mixed public sewer technical measures for containment of first wave ("cleansing wave") or rain water must be implemented, mechanical cleaning of retained water guaranteed and water transferred to treatment plants after completion of precipitation. The installations have to be in accordance with the regulations governing the emission of substances in waste water discharges from municipal wastewater treatment plants.

⁷⁷⁷ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED5707>.

⁷⁷⁹ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED5707>

Overview of legal and policy framework. Relevant references to storm water overflows.

		Na območju iz 6. člena te uredbe morajo biti izvedeni ukrepi za zmanjševanje količin padavinske odpadne vode, ki se odvaja v javno kanalizacijo. Na območju iz 6. člena te uredbe, ki je opremljeno z javno kanalizacijo za odvajanje izključno padavinske odpadne vode, mora lastnik javne kanalizacije zagotoviti izvedbo tehničnih ukrepov za zadrževanje v zadrževalniku padavinske odpadne vode, obdelavo v lovilcu olj ali čiščenje v čistilni napravi padavinske odpadne vode, če je padavinska odpadna voda, ki se odvaja v kanalizacijsko omrežje javne kanalizacije tako onesnažena, da se v skladu s predpisom, ki ureja odvajanje padavinske vode z javnih cest, ne sme odvajati v vode. Določbe prejšnjega odstavka se smiselno uporabljajo tudi za območja, kjer je predvideno opremljanje z javno kanalizacijo za odvajanje izključno padavinske odpadne vode. 8. člen⁷⁸⁰: Upravljavec javne kanalizacije mora zagotoviti ustrezno zadrževanje prvega naliva padavinske odpadne vode v napravah za zadrževanje in mehansko čiščenje ter zajeto padavinsko odpadno vodo po končanem naliivu odvesti na čistilno napravo, kadar gre za mešano javno kanalizacijo.	In the area of Article 6 of this Regulation the reduction of the quantity of storm water when discharged into the public sewer system must be guaranteed. In the area of Article 6 of this Regulation, equipped with a public sewer system, the owner must provide technical measures for the retention of storm water, treatment in the oil separator or cleaning in the sewage treatment plant when the drained wastewater is excessively polluted and not in accordance with the regulations governing the discharge of drainage water from public roads. The provisions of the preceding paragraph shall apply mutatis mutandis to areas with a separate public sewer system. Article 8: The operator of mixed public sewerage needs to ensure proper retention of the first rain wastewater facilities for containment and mechanical cleaning and ensure the flow of retained water to the treatment plant
WFD	N		
MSFD	N		
BWD	N		
DWD	N		

Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives

⁷⁷⁸ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED4442>.

⁷⁸⁰ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED4442>.

Overview of legal and policy framework. Relevant references to storm water overflows.

EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	Uredba o odvajanju in čiščenju komunalne in padavinske odpadne vode https://www.uradni-list.si/1/content?id=105702	4 člen (izrazi): " kanalizacijsko omrežje javne kanalizacije je sistem kanalov in jarkov ter z njimi povezanih objektov in tehnoloških sklopov (npr. peskolovi, lovilniki olj, črpališča in druge naprave za prečrpavanje odpadne vode, zadrževalniki čistilnega vala, razbremenilniki in podobno... "; 18. člen (program odvajanja in čiščenja komunalne in padavinske odpadne vode): Program mora vsebovati opis sistema za zaznavanje izrednih dogodkov in napak v delovanju javnih kanalizacijskih sistemov (...delovanje razbremenilnikov in podobno) in njihovo dokumentiranje); 19. člen (evidenca izvajalca javne službe): Izvajalec javne službe mora voditi evidenco o javnih kanalizacijskih sistemih, komunalnih in skupnih čistilnih napravah ter čistilnih napravah padavinske odpadne vode.	Article 4 (Definitions): "network of public sewerage system is a system of canals and ditches with associated facilities and technological sets (eg. sand traps, oil separators, pumping stations and other equipment for pumping waste water reservoirs, reservoirs for rainwater discharges and similar."; Article 18 (the collection and treatment of urban waste water and rainwater): The programme must include a description of the system for detecting incidents and errors in the operation of public sewerage systems (...operation of reservoirs for rainwater discharges or overflows etc.) and their documentation; Article 19 (Records of public service): The public service must keep records of public sewer systems and waste water treatment plants, including treatment plants for meteoric waste water.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR				
HELCOM				
Barcelona Convention	N			
Conv. on the Protection of the Black Sea				

Overview of legal and policy framework. Relevant references to storm water overflows.

Danube Convention	N			
Rhine Convention				
Oder Convention				
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			
<i>Other direct references to storm water overflows</i>				
Type of document	Title of document		Summary description	
National regulation relevant for waste water collection services in Slovenia	Laws, regulations and standards affecting the design and construction of the sewerage network: the national laws give general requirements for the construction and function of systems (Legislation at municipal level (municipal ordinances) sets detailed regulations): - The Construction Act (ZGO-1) (Official Gazette of RS, no. 110/2002, 55/2003, 97/2003, 47/2004, 102/2004)		The Construction Act (ZGO-1) regulates the conditions for the construction of all facilities; sets out the essential requirements and their compliance with regard to the properties of objects, prescribing the manner and conditions for carrying out activities in the field of construction; governs inspection supervision; establishes sanctions for violations in the field of construction; and regulates other issues related to the construction of buildings.	
National regulation relevant for waste water collection services in Slovenia	Rules on road design (Official Gazette of RS, Nos. 91/05, 26/06)		This law determines the status and categorisation of public roads and sets uniform rules and a professional basis for the construction and maintenance of public roads. In Article 13 it is determined that the component of a public road includes devices for road drainage (drainage ditches, trenches, shallow and deep drainage inflow and inspection chambers, culverts, drainage, wells, underground streams, and the like). The drainage in urban areas is combined with sewage systems.	
National regulation relevant for waste water collection services in Slovenia	The Law on Construction Products (ZGPro) (Official Gazette of RS, no. 52/00).		Article 61 of this Regulation sets out the economic position of the lines of municipal infrastructure. Drainage pipes should be at the greatest possible depth to avoid mixing with other water, so that the minimum depth of the bottom of the tube is 1.50 m below the carriageway for the main stream, the waste water is at a depth of 0.90 m and 0.60 m for meteoric water.	
Technical rules on municipal level- Ljubljana	Pravilnik za projektiranje, tehnično izvedbo in uporabo javnega kanalizacijskega sistema (Uradni list RS, št. 52/1999); Regulation for design, technical implementation and use		In the part containing definitions of elements of sewer systems it is written that the system should protect wastewater treatment plants against "hydraulic overload" and recipients against negative environmental effects. Technical norms for designing, construction and reconstruction of systems are listed, such as "...the major part of polluted drainage of waste water, especially the first wave of highly contaminated rainwater,	

Overview of legal and policy framework. Relevant references to storm water overflows.

	of public sewerage system https://www.uradni-list.si/1/content?id=20458	should be retained in the system and diverted to a central treatment plant" and "when dimensioning overflows in local canal systems dischargers must be dimensioned on the basis of the relevant foreign regulations so as to ensure that discharges of polluted drainage water, especially in the first heavily polluted wave are diverted to a treatment plant." The rules also set that the outflow of rainwater from the discharger before the main waste water treatment plant should not occur more than 10-times per year.
Technical rules on municipal level- Metlika ⁷⁸¹	Tehnični pravilnik za projektiranje, tehnično izvedbo in uporabo javnega kanalizacijskega sistema v občini Metlika (sprejet 4.2.2010 na podlagi 43. člena Odloka o odvajanju in čiščenju komunalnih odpadnih in padavinskih voda na območju Občine Metlika (Uadni list RS, št. 111/09). Technical regulations for the design, technical implementation and use of the public sewerage system in the municipality of Metlika (adopted 4.2.2010 on the basis of Article 43 of the Decree on separation and treatment of waste water and rainwater in the Municipality of Metlika (Official Gazette No. 111/09).	By rules, light liquid separators should be installed in mixed and separate sewerage networks everywhere where waste water consists of light liquids with a specific gravity of less than 0.95 kg /l (which according to the regulations are not allowed to go into sewers and the rainwater sewage network). They are designed and dimensioned to be in compliance with the SIST EN 858. The regulations set methods of measuring flow rates, monitoring the system and also managing sewage information cadastre.
Technical rules on municipal level- Križevci	Tehnični pravilnik o javni kanalizaciji (Uradni list RS, št. 73/2010, Občina Križevci Technical rules on public sewage system (Official Gazette of RS, no. 73/2010), Community Križevci https://www.uradni-list.si/1/content?id=99898	The rules for the public service operation for urban water drainage direct to build dischargers, objects on the canal network to drain rainwater. They should be built to retain "stronger" rainfall in the system and thereby reduce the peak flows in sewers. When dimensioning overflows, one has to consider that the major part of polluted drainage of waste water, especially the first wave of highly contaminated runoff (form rain), should be retained in the system and discharged to a treatment plant. The discharges should provide the outflow of drainage water in a stack on the compensation structures.

⁷⁸¹ A lot of municipalities in Slovenia have adopted same rules as is the case of Metlika (e.g. Mirna, Novo mesto, Rogaška Slatina....).

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
116. Which types of sewer system does Slovenia have?	In Slovenia there are four types of sewer systems⁷⁸²: 1) MIXED WASTEWATER COLLECTING SYSTEM The system whereby all water, urban waste water, “foreign” water (“piped” creeks with water from surrounding - drainage area) and meteoric water is transferred by one tube; 2) SEPARATE WASTEWATER COLLECTING SYSTEM This system consists of two pipes: channels for drainage of waste water (“sewage system” for drought runoff) and channels for drainage of rainwater (they lead straight to a recipient, before release there is often a containment facility in which oil washed by rainwater from pavements is collected); 3) MODIFIED MIXED WASTEWATER SYSTEM In the modified system of mixed sewage, all sewage and polluted storm water is discharged to the wastewater treatment plant in a mixed channel, but less contaminated rainwater is drained into the soil on the site or is directly transferred into surface waters (recipient). In Slovenia, especially in the cities with older sewage systems, these are the most common; 4) MODIFIED SEPARATE COLLECTING SYSTEM In the modified system of separated sewage, all sewage is discharged into a treatment plant, but contaminated rainwater drains to plants treating rainwater and then discharged into surface water (recipient). Less polluted storm water (rainwater from the roofs) is drained into the soil on the site or directly introduced into surface waters.
117. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	Number of km of pipelines is available for public sewage systems in Slovenia. There were 4275 km of sewers in 1992, in 2003 there were 4848 km of sewers in Slovenia, in 2010 the number rose to 7560 km and in 2013 to 8501 km⁷⁸³. Newly built systems are separate, constructed mostly with co-finance of the Cohesion and Structural funds. Old systems are mixed. The information on the length of the sewage system is collected on a yearly basis by two governmental bodies, the Ministry of Environment and Physical Planning and the Statistical Office. They do not collect information of percentage of mixed (combined) or separate systems. The investigation done by obtaining information from public services for collection and treatment of waste water shows that there is 3450 km (41%) of separate sewage system pipelines (separate modified) and 5790 km (59%) of mixed sewage system pipelines. They were mostly constructed in last decade⁷⁸⁴.
118. How many storm water overflows	There is no systematic collection of the number of overflows and other installations in the sewage system at governmental level. The

⁷⁸² Panjan, J. Osnove zdravstveno hidrotehnične infrastrukture. Univerza v Ljubljani, Fakulteta za gradbeništvo in geodezijo. 2005. ISBN: 961-6167-48-0.

⁷⁸³ Statistični urad Republike Slovenije, 2015.

⁷⁸⁴ Only statistics on total length of sewerage in Slovenia exist. The separate systems were mainly build in last decade. Based on statistics on length of sewerage build lately one can than estimate the length of separate sewerage. The information given in this table is an expert judgment (done by Lidija Globevnik) based also on consultation with experts and compiled from available internet sources. Interviews with experts: Borut Železnikar (Hidroinženiring); Inga Waschl (Prodnik, Domžale), Uroš Kranjc (IE, Maribor), Marko Cvikel (Vodovod Kanalizacija Celje); internet sources; Odvajanje in čiščenje odpadne vode v porečju Ljubljance. Investicijski program, Si Consult. 2012. <http://www.postojna.si/dokument.aspx?id=6910>. Operativni program krepitve regionalnih razvojnih potencialov za obdobje 2007–2014; Komunala Ribnica (<http://www.komunala-ribnica.si/kanalizacijski-sistem>); Komunala Kamnik (<http://www.kamnik.si/kohezijski-koticek/kohezijski-projekti-kanalizacije>); Odlok o odvajanju in čiščenju komunalnih odpadnih in padavinskih voda v občini Kočevje (UL RS št. 61/2005);

Available data on storm water overflows	
infrastructures exist in Slovenia.	investigation done by obtaining information from public services for the collection and treatment of waste water indicates that there are 285 storm water overflows infrastructures in Slovenia, ⁷⁸⁵ one for every 18 km of mixed sewage system. The storm water in urban areas, with no sewage systems or with only separate sewage systems (for communal waste water, water utilised in buildings), is mostly drained directly to watercourses (rivers, creeks, open water channels).
<i>Available quantitative data on the occurrence of storm water overflows</i>	
119. Is there information on the occurrence of storm water overflows?	Experience shows that all storms that exceed an intensity of 15-minutes of rain with a 1 to 2 year return period (in Ljubljana it is 155 l/s/ha, Maribor 153 l/s/ha and in Koper 250 l/s/ha) activate the overflow infrastructure.
120. Are storm water overflows monitored in Slovenia? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	There is no monitoring implemented for the occurrence of storm water overflows and therefore no systematic information is available.

⁷⁸⁵ Zbirni kataster gospodarske javne infrastrukture. http://www.e-prostor.gov.si/si/zbirke_prostorskih_podatkov/zbirni_kataster_gospodarske_javne_infrastrukture/

FACTSHEET FOR SPAIN⁷⁸⁶

1. BASIC INFORMATION

Basic information	
General Information	
166. What are the competent authorities for wastewater treatment and management in Spain?	<u>I. Introduction to distribution of competencies between public authorities</u> Spain is a decentralized state organized territorially into municipalities, provinces and autonomous communities. Spain, as defined by the Constitution of 1978, is a unitary state with autonomous regions and nationalities. Its territorial organization is guaranteed by art. 137 of the Constitution, which organizes the state into municipalities, provinces and self-governing communities. Article 140 of the Constitution guarantees the autonomy of the municipalities. Today, there are 17 autonomous communities, 50 provinces, 8111 municipalities and two autonomous cities. This asymmetrical institutional architecture and three levels of governance (national, regional and local) has wider implications on waste water treatment and management, because they are at the same time in charge of developing the necessary infrastructure, of adopting financial measures to meet EU standards, and of ensuring that all waters under their jurisdictions comply with the environmental requirements. The roles and competences of the central state authorities and the autonomous communities are set out clearly in the Spanish Constitution.⁷⁸⁷ Article 148 of the Constitution lists the competences where regions are autonomously empowered to legislate whereas Article 149 enumerates the policy areas where the central state regulates exclusive control. "Autonomous Communities" assume competences over the following matters: (i) management of environmental protection; (ii) planning, construction and exploitation of hydraulic projects, canals and irrigation of interest to the Self-governing Community; (iii) mineral and thermal waters. Autonomous community governments have their own legislation on water issues and in the framework of that competences they have also created their own entities for water treatment. With regard to local entities (i.e. Municipalities and Provinces), the Basic Law for local government (<i>Ley de bases del regimen local</i>) provides (in Article 2) for the distribution of responsibilities. According to this law municipalities are the bodies responsible for providing basic services, among others, providing drinking water supply and sewer systems.⁷⁸⁸ <u>II. Competent authorities</u> 1) <u>Ministry for Agriculture, Food and Environment</u>⁷⁸⁹: the Ministry has the general overall competence in the Spanish system of waste

⁷⁸⁶ For the purpose of this study, members of the River Basin Authority were interviewed, specifically Dionisio Ornia (by phone and email) and Carlos Blanco from the Cantabric Hydrographic Confederation (in person).

⁷⁸⁷ Text of the Constitution: http://www.congreso.es/portal/page/portal/Congreso/Congreso/Hist_Normas/Norm/const_espa_texto_ingles_0.pdf.

⁷⁸⁸ The EU as an Enforcement Patchwork. Paper University of Exeter, 27-29 June 2012, available at: <http://regulation.upf.edu/exeter-12-papers/Paper%202007%20-%20Quesada%202012%20-%20EU%20as%20an%20Enforcement%20Patchwork.pdf>.

Basic information

water management. Through the General Directorate of Water (DGA)⁷⁹⁰, the Ministry coordinates the implementation of the National Hydrological Plan⁷⁹¹, the River Basin Hydrological Plans and the execution of all the Hydrological Infrastructures Plans and it implements the necessary measures to ensure the fulfilment of the international agreements ratified by Spain on water issues. The Ministry is in charge of the coordination water information systems, which are collected by the different River basins authorities and distributed for public information. The Ministry is also the licensing authorizations for concessions and authorizations with regards to the Hydraulic Public Domain⁷⁹² in the inter community basins. The following constitutes the Hydraulic Public Domain (DPH): a) continental waters, surface as well as renewable ground waters, b) the river basins of water streams, continuous and discontinuous, c) bedsides of lagoons and lakes and the surface dams, d) the ground waters to the extent of the disposition acts and of the hydraulic resources.

2) Inter community River Basin Authorities - Hydrographic Confederations (*Confederaciones Hidrográficas*)⁷⁹³: When a watershed includes several autonomous regions, the State Government takes over management through river basin organizations, the Hydrographic Confederations. They are autonomous public entities, administrative and formally dependant of the Ministry for Agriculture, Food and Environment but with autonomous powers in the area of influence. There are nine Hydrographic Confederations. Among their competences, listed in detail below, they are also in charge of authorization and control of discharges of wastewater to public waters:

- granting of licenses and concessions relating to DPH (except for works and activities of state interest, corresponding to the Ministry of Environment),
- inspection and enforcement of conditions of permits and concessions for DPH,
- Conducting appraisals, hydrological studies, information on flood control and water quality,
- Study, design, construction, maintenance and operation and improvement of water works,
- definition of objectives and programs of water quality, according to water planning,
- plans, programs and actions for the proper management of claims, to promote savings and economic and environmental efficiency of different water uses.
- technical services and advice.

3) When a watershed runs entirely within the territory of one region, the powers are exercised by the Autonomous Water Administration⁷⁹⁴ - Intra River Basin Authorities. Each Autonomous Community creates its own water administration that in each territory holds different names. Each water authority within the Community is responsible of meeting the requirements of the UWWTD.

⁷⁸⁹ Ministry for Agriculture, Food and Environment: <http://www.magrama.gob.es/en/agua/temas/default.aspx>.

⁷⁹⁰ The General Directorate of Water (DGA) is a dependent governing body of the Secretariat of State for the Environment. This is the highest organ of the Ministry of Agriculture, Food and Environment, which, under the authority of the Minister, directs and coordinates the execution of the powers of this department in relation to the formulation of policies on environmental quality and pollution prevention, climate change, environmental assessment, promoting the use of clean technologies and habits of cleaner and more sustainable consumption.

⁷⁹¹ The National Hydrological Plan (NHP) was approved by Law 10/2001 of 5 July; it sets out the basic elements for the coordination of the River Basin's Hydrological Plans, the forecast and the conditions of the transfers of water resources between territorial environments of different river Basin Hydrological Plans and the changes predicted in the planning of the use of the resource and which affect current uses of water supply for inhabited areas and irrigation.

⁷⁹² http://boe.es/diario_boe/txt.php?id=BOE-A-1986-10638, Hydraulic Public Domain Royal Decree law 849/1986. (Dominio Público Hidráulico Real Decreto 849/1986).

⁷⁹³ Hydrographic Confederations: <http://www.magrama.gob.es/es/ministerio/funciones-estructura/organizacion-organismos/organismos-publicos/confederaciones-hidrograficas/default.aspx>.

⁷⁹⁴ For more information on the Autonomous Hydrological Authorities, please see: <http://hispagua.cedex.es/en/instituciones/demarcaciones>.

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	Among other things, it establishes the Hydraulic Plan for the sewage systems. This plan aims at extending the sewage systems to all the population within the territory and to design new and update the already existing sewage systems. It coordinates the activities of all the authorities with competences in the sewage system in the territory and plans the timing of the Hydraulic work and its funding.⁷⁹⁵ 4) <u>Local authorities</u>: around 8100 (for the whole of Spain), are responsible for the day-to-day management of wastewater, water treatment plants and sewage systems. Municipalities play an important role in providing sewage services to the final users, however there is an increasing trend of private participation in waste water management through concessions. The activities carried out by municipalities are monitored and subject to enforcement by regional and national governments depending on where they took place: by national government in interregional rivers, by regional authorities in intraregional and coastal waters.
167. What is the transposing law(s) of the UWWTD in Spain?	The UWWTD has been transposed to national legal order by the following instruments: ▪ Royal <u>Decree law</u> 11/1995 of 28th of December (in force) which sets up rules for treatment of urban waste-waters (BOE no. 312, of 30 December 1995), (<i>Decreto-ley que establece las normas aplicables al tratamiento de las aguas residuales urbanas</i>). ▪ Royal Decree 509/1996, of 15 March, (in force) which develops the Royal Decree-Law 11/1995, of 28 December, and establishes the applicable rules on treatment of urban waste-waters (BOE no. 77, of 29 March 1996). - This regulation was considered more rigorous than the UWWTD as it required the total watertightness of sewer systems in order to prevent the pollution from overflows of the run-off water. That requirement was later repealed by Royal Decree 1290/2012. ▪ Royal Decree 1290/2012 of 7 September (<i>por el que se modifica el Reglamento del Dominio Público Hidráulico, aprobado por el Real Decreto 849/1986, de 11 de abril, y el Real Decreto 509/1996, de 15 de marzo, de desarrollo del Real Decreto-ley 11/1995, de 28 de diciembre, por el que se establecen las normas aplicables al tratamiento de las aguas residuales urbanas</i>), (in force) which modifies both the Regulation of the Public Hydraulic Domain and Royal Decree 509/1996.⁷⁹⁶ This regulation transposes the footnote to sections A and B to Annex I of the UWWTD. It should be noted that before this Royal Decree, there was no specific regulation for storm water overflows. ▪ Order AAA/2056/2014 of 7th October of the Ministry of Agriculture, Food and Environment (<i>Order AAA/2056/2014 por la que se aprueban los modelos oficiales de solicitud de autorización y de declaración de vertido</i>)⁷⁹⁷.
168. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD, 3rd item was first transposed by Royal Decree 509/1996. The Spanish authorities recognised that this transposition of the UWWTD had shortcomings and it was considered too rigorous with regards to the technical requirements that sewer system must meet, as Article 2 of the Royal Decree 509/1996 required the total watertightness of sewer systems in the case of storm water overflows. The Spanish authorities also recognised the fact that there was no specific regulation for the storm water overflows and decided, firstly, to amend Art.2 of Royal Decree 509/1996 and secondly, to add to the Regulations on Hydrological Public Domain the necessary provisions to limit the pollution produced by the overflows. Therefore, Royal Decree 1290 /2012, 7th of September was approved to solve ambiguities of the legislation and to harmonize the regulations of the different River Basin organizations.

⁷⁹⁵ In Asturias, that entity is the Junta de Saneamiento (Sewage Body), available at:

<https://www.asturias.es/portal/site/medioambiente/menuitem.1340904a2df84e62fe47421ca6108a0c/?vgnnextoid=fa9287b44a6a2210VgnVCM10000097030a0aRCRD&vgnnextchannel=e8ae4a097eeffb110VgnVCM1000006a01a8c0RCRD&i18n.http.lang=es>.

⁷⁹⁶ http://www.boe.es/diario_boe/txt.php?id=BOE-A-2012-11779.

⁷⁹⁷ https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-11411.

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	For the purpose of this study, it should be noted that Royal Decree 1290/2012 is comprised of two articles. The first article modifies Royal Decree 509/1996, and the second article introduces section 4^{Bis}, chapter II, title II, Art. 259 ter to the Hydrological Public Domain Act – the provision that regulates in a comprehensive manner the criteria to follow in case of storm water overflows. Royal Decree 1290/2012 establishes, in Art. 2, that in order to regulate the technical requirements of the sewer systems, the project, construction and maintenance of sewer/collecting systems have to take into account the volume and characteristics of the urban waste waters using the best technical knowledge available without incurring in excessive costs to avoid overflows in case of unusual storms.
169. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	The footnote 1 in Sections A and B of Annex I of the UWWTD has been literally transposed in the Preamble of Royal Decree 1290/2012, which reads as follows: <i>‘This situation, coupled with the fact that there is no specific legislation governing overflows of sewage systems during rain events, leads to the need to amend Article 2 of Royal Decree 509/1996, of 15 March, as well as to incorporate some articles in the Regulation on Public Hydraulic Domain aimed at limiting the pollution caused by the abovementioned overflows, taking into account that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall, Member States shall decide on measures to limit pollution from storm water overflows’</i> Royal Decree 1290/2012 establishes, in Art. 2, that in order to regulate the technical requirements of the sewer systems, the project, construction and maintenance of sewer/collecting systems have to take into account the volume and characteristics of the urban waste waters using the best technical knowledge available without incurring in excessive costs to avoid overflows in case of unusual storms. For that purpose, it has to follow the technical regulations mentioned in Art 259ter. of the Regulation on Hydrological Public. Art. 259ter of the Regulation on Hydrological Public Domain reads as follows: ▪ For the purpose of issuing discharge authorizations in urban areas, the following criteria must be met: a) New urban developing projects must justify the suitability of using separate or combined sewage systems for wastewater and storm water overflows as well as propose measures to limit the input of rain waters to collecting systems. b) Sewer systems for urban waste waters shall not allow the input of water runoff from outside urban agglomerations or other kind of water for which sewage systems were not designed for, with the exception of justified cases. c) During drought seasons discharge through stormwater overflows shall not be allowed. d) The storm water overflows (aliviaderos) of the sewage system and of the entrance systems to the waste water treatment plant shall have the necessary elements based on its location, antiquity, the size of the area in order to reduce the discharge to the receptive system of at least the solid waste. These elements shall not reduce the hydraulic capacity of the exit of the storm water overflows during normal functioning as well as in the case of flaws. e) To reduce the risk of pollution, in the case of strong rainfall, those urban waste water treatment plants which are authorised to discharge, have the obligation to make all the necessary works or to put in place all the necessary devices with the aim to collect and conduct the urban waste water to the appropriate waste water centres in order to reduce at least the first /initial runoff from rainfall with high level of pollution. ▪ New industrial developing projects should opt for separate sewer systems and put in place a systems for storm water overflows independent from the waste water treatment. ▪ Sewers systems for industrial waste waters shall not allow the input of water runoff from outside urban agglomerations or other

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	<i>kind of water for which sewage systems where not designed for, with the exception of justified cases.</i> The Ministry of Agriculture, Environment and Food will set up the the conditions and establish the technical provisions for discharges authorizations in the case of strong rainfall. To date, the Ministry has not published/approved those standards, it has only published the National Manual on Recommendations for the design of Storm water overflows (water tanks overflow). This was presented to the public on November 6th 2014.⁷⁹⁸ This manual will be the basis for the elaboration of the technical regulations that the Ministry is obliged to publish in order to meet the requirements of the Water legislations, including Royal Decree 1290/2012 This Manual, together with the Royal .Decree. 1290/2012 — and the future technical standards to be adopted in the following months, will form the basic framework to solve the problems of storm water overflows and to unify the design of storm water overflows in Spain.
170. What is the terminology used to refer to storm water overflows in Spain? Is there more than one term used?	▪ The term ‘overflow’ is translated in the national legislation⁷⁹⁹ as ‘<i>desbordamiento or desbordamiento de aguas</i>’,⁸⁰⁰ and the expression “storm water overflow” is translated as “<i>desbordamiento por aguas de escorrentía</i>”⁸⁰¹. ▪ <i>Escorrentía o aguas de escorrentia</i>: Run off waters that circulate through polluted terrains. There is no proper definition in the legislation. ▪ The term “storm water overflow” is used both as the situation (“<i>desbordamiento</i>”) or the device that allows the discharge (“<i>aliviadero</i>”). ▪ The following expressions are used in the context of storm water overflows⁸⁰²: <i>lluvias torrenciales</i> and <i>lluvias torrenciales inusuales</i> or <i>episodios extremos de lluvia</i> – these terms are not defined in the legislation.
171. Is there a definition of storm water overflows in Spain?	Order AAA/2056/2014 of 7th October of the Ministry of Agriculture, Food and Environment⁸⁰³ defines the following terms: • Storm water overflows (<i>desbordamiento del sistema de saneamiento en episodios de lluvias</i>): They are overflows or spills from combined sewer systems or separative ones, functioning correctly, of waste waters that cannot be treated in the WWTP before being discharged to the receiving waters and they should not be confused with overflows or occasional spills that may occur as a result of a malfunction of the sewer system. • Point of storm water overflow (<i>punto de desbordamiento</i>): is the point of overflow of waters from a sewage system, both combined and separate, to a receptive system during a rainfall event.
172. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Spain have a definition of extreme or unusual rainfall event?	The term ‘unusual rainfall’ is used but not specifically defined in the Spanish legislation. In specific, the following terms are used to refer to ‘unusual rainfall’: 1) <i>lluvias torrenciales</i> and <i>lluvias torrenciales inusuales</i> or <i>episodios de lluvia</i> – these terms are not defined in the legislation. It is understood that this is water originating from precipitation.⁸⁰⁴

⁷⁹⁸ Please find the Manual on National Recommendations attached to the current study.

⁸⁰⁰ Royal Decree law 509/1996 art 2. <http://www.boe.es/buscar/doc.php?id=BOE-A-1996-7159>.

⁸⁰¹ Cantabric Hydrological Plan Art. 69.4 http://www.boe.es/diario_boe/txt.php?id=BOE-A-2013-6077

⁸⁰² Cantabric Hydrological Plan Art. 69.4 http://www.boe.es/diario_boe/txt.php?id=BOE-A-2013-6077

⁸⁰³ https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-11411.

⁸⁰⁴ Preamble Royal Decree law 1290/2012 Lluvias torrenciales inusuales, unusual rainfall.

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
49. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	The Royal Decree 1290/2012, in its Art. 2, modifies Royal Decree 509/1996 that establishes the characteristic of the sewer systems. Article 2 of Royal Decree 1290/2012 establishes that the project, construction and maintenance of sewer systems have to take into account the volume and characteristics of the urban waste waters to avoid overflows in the case of unusual storms. For that purpose, it has to follow the requirements referred to in Art 259ter. of the Regulation on Public Hydraulic Domain. The exact text of this provision is provided in section 1.4. of this report. Article 259 ter. Section 3 of the Regulation on Public Hydraulic Domain provides also that the Ministry of Agriculture, Food and Environment shall publish the technical standards that would limit storm water overflows. In addition, Autonomous Communities with competences in intracommunity River Basin waters shall be able to approve additional regulations to meet the environmental goals. To date, none of those technical standards has been published. It should be, however, noted that a National Manual on Recommendations for the design of Storm water overflows (water tanks overflow) was presented to the public on November 6th 2014.⁸⁰⁵ This manual will be the basis for the elaboration of the technical regulations that the Ministry is obliged to publish in order to meet the requirements of the Water legislations.⁸⁰⁶ The Manual is an inventory of the situation of the storm water overflows in Spain that aims to reduce the impact of discharges from the collecting/sewage systems (DSS) during rainfall events. It is also a revision of both the national and international legal framework, the criteria for the design of storm water overflows, and a proposal for the future technical standards of the storm water overflows. This Manual, together with the Royal Decree. 1290/2012 —and the future technical standards to be adopted in the following months, will form the basic framework to solve the problems of storm water overflows and to unify the design of storm water overflows in Spain. Royal Decree 1290/2012, in Art. 1 requires the establishment of an inventory of the overflow points of storm water overflows. It states that industrial sites and urban areas with more than 2000 pe. have to provide information about the overflow points to the River Basin Authorities in order to keep the records update. They have four years since the entry into force of the regulation (the Royal Decree entered into force on 8 of September 2012), to provide information about those overflow points and the measures taken or foresee in order to limit the risk of overflow. The inventory of the overflow points had to be presented to the River basin authorities before 31st December 2014. The River Basin authorities should have the inventory of the storm water overflows systems before 31th December, 2015. Order AAA/2056/2014 of 7th October of the Ministry of Agriculture, Food and Environment establishes the official documents for the application for and authorisation of a discharge declaration. It provides that it is necessary to include in the discharge authorization form

⁸⁰⁵ Please find the Manual on National Recommendations attached to the current study.

⁸⁰⁶ Interview with Carlos Blanco, Head of Department of Discharge and Water Quality.

Overview of legal and policy framework. Relevant references to storm water overflows.

	the information that describes the sewage system, as well as the measures and actions foreseen in order to limit the pollution created by storm water overflows in episodes of unusual rainfall. River Basin management plan refer to storm water overflows⁸⁰⁷. The Cantabric River Basin Management Plan, in Art.69.4 specifically establishes that the owner of the discharge authorization must present a plan detailing, among others, a set of measures to optimize the transport of storm water overflows and waste waters to the waste water treatment plans in order to reduce the impact of the storm wather overflows in the case of unusual rain falls. They must also include the execution timeline and the control systems foreseen. Also the Catalan River Basin Management Plan⁸⁰⁸ asks to install overflow quantification systems, and preparation of detailed technical studies, Minimum Measure Plans and Integral Master Drainage Plans to detail the required measures to reduce impact of storm water overflows to the receiving waters.			
50. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	Quantitative values are set in the RD 849/1986 that approves the Regulation on the Hydraulic Public Domain that develops the titles Preliminar I, IV, V, VI y VII of the Water Act Law 29/1985 (<i>por el que se aprueba el Reglamento del Dominio Público Hidráulico, que desarrolla los títulos preliminar I, IV, V, VI y VII de la Ley 29/1985, de 2 de agosto, de Aguas.</i>), Article 246.2.e) and Art. 246.3.c) and establishes quantitative values .Eexpert of the Confederación Hidrográfica del Cantábrico (<i>Cantabric Hydrographic Confederation</i>)⁸⁰⁹ confirmed that they use a formula similar to the British Standard 8005 (British Standard Sewerage, 1987)⁸¹⁰. They take into consideration the volume of overflow during dry weather flow. In Art. 67. A. of the Hydrologic Plan of the Cantabric Hydrologic Confederation, the criteria for the minimum capacity for the sewage systems are the following: 20 l/s for 1.000 populations equivalent that amounts to a coefficient of dilution 5-8. In any case, when the volume of overflow surpasses 2.500 m3/day and the 20% of the coefficient of dilution, there will be an obligation to set up a minimum of two lines of sewage treatment. Agència Catalana de l'Aigua (Catalan Water Agency) through the Catalan Hydrologic Plan defined water quality standards and procedures based on the English Urban Pollution Management Standards for bathing waters, rivers suitable for fish life and also for non continuous streams. But, as already mentioned in point 1, these standards at a national level will be fixed in the future technical standards described in Article 259 ter. Section 3 of the Royal Decree law 1290/2012.			
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Y	1) Royal decree 1290/2012 ⁸¹¹	Preamble Esta situación, unida al hecho de que no existe	Preamble This situation, coupled with the fact that there is no

⁸⁰⁷ Cantabric Hydrological Plan Art. 69.4 http://www.chcantabrico.es/images/pdf/actuaciones/planificacion_hidrologica/planes_2009_2015/nuevo_phc/dhc_occidental/rd_399_2013.pdf.

⁸⁰⁸ http://www.chcantabrico.es/images/pdf/actuaciones/planificacion_hidrologica/planes_2009_2015/nuevo_phc/dhc_occidental/rd_399_2013.pdf

⁸⁰⁹ Cantabric Hydrographic Confederation. One of the 9 Inter community River Basin Authorities (mentioned in point 1.1 as one of the Authorities with competence in waste water treatments.

⁸¹⁰ <http://www.ciccp.es/ImgWeb/Castilla%20v%20Leon/Normativa/Depositos%20Retencion%20Primera%20escorrentia.pdf>.

⁸¹¹ http://www.boe.es/diario_boe/txt.php?id=BOE-A-2012-11779.

Overview of legal and policy framework. Relevant references to storm water overflows.

		normativa específica que regule desbordamientos de los sistemas de saneamiento en episodios de lluvia, lleva a la necesidad de reformar el artículo 2 del Real Decreto 509/1996, de 15 de marzo, así como a incorporar al Reglamento de Dominio Público Hidráulico artículos que permitan limitar la contaminación producida por dichos desbordamientos, teniendo en cuenta que en la práctica no es posible construir los sistemas colectores y las instalaciones de tratamiento de manera que se puedan someter a tratamiento la totalidad de las aguas residuales en circunstancias tales como lluvias torrenciales inusuales. «Sección 4.a bis. Desbordamientos de sistemas de saneamiento en episodios de lluvia Artículo 259 ter. Desbordamientos de sistemas de saneamiento en episodios de lluvia. 1. En las autorizaciones de vertido de sistemas de saneamiento de zonas urbanas, se tendrán en cuenta los siguientes criterios en relación a desbordamientos en episodios de lluvia: a) Los proyectos de nuevos desarrollos urbanos deberán justificar la conveniencia de establecer redes de saneamiento separativas o unitarias para aguas residuales y de escorrentía, así como plantear medidas que limiten la aportación de aguas de lluvia a los colectores. b) En las redes de colectores de aguas residuales urbanas no se admitirá la incorporación de aguas de escorrentía procedentes de zonas exteriores a la aglomeración urbana o de otro tipo de aguas que no sean las propias para las que fueron diseñados, salvo en casos debidamente justificados. c) En tiempo seco no se admitirán vertidos por los aliviaderos. d) Los aliviaderos del sistema colector de saneamiento y los de entrada a la depuradora	specific legislation governing overflows of sewage systems during rain events, leads to the need to amend Article 2 of Royal Decree 509/1996, of 15 March, as well as to incorporate some articles in the Regulation on Public Hydraulic Domain aimed at limiting the pollution caused by the abovementioned overflows, taking into account that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall, Member States shall decide on measures to limit pollution from storm water overflows. Section 4.a bis. Storm Water overflows of the sewage systems in unusual rainfall episodes. Art. 259ter. Storm water overflows of the sewage systems in unusual rainfall episodes. 1. <i>For the purpose of issuing discharge authorizations in urban areas, the following criteria must be met:</i> a) <i>New urban developing projects must justify the suitability of using separate or combined sewage systems for wastewater and storm water overflows as well as propose measures to limit the input of rain waters to collecting systems.</i> b) <i>Sewer systems for urban waste waters shall not allow the input of water runoff from outside urban agglomerations or other kind of water for which sewage systems were not designed for, with the exception of justified cases.</i> c) <i>During drought seasons discharge through stormwater overflows shall not be allowed.</i>

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		deberán dotarse de los elementos, pertinentes en función de su ubicación, antigüedad y el tamaño del área drenada para reducir la evacuación al medio receptor de, al menos, sólidos gruesos y flotantes. Estos elementos no deben reducir la capacidad hidráulica de desagüe de los aliviaderos, tanto en su funcionamiento habitual como en caso de fallo e) Con el fin de reducir convenientemente la contaminación generada en episodios de lluvia, los titulares de vertidos de aguas residuales urbanas tendrán la obligación de poner en servicio las obras e instalaciones que permitan retener y evacuar adecuadamente hacia la estación depuradora de aguas residuales urbanas las primeras aguas de escorrentía de la red de saneamiento con elevadas concentraciones de contaminantes producidas en dichos episodios. 2. En las autorizaciones de vertido de sistemas de saneamiento de aguas residuales de zonas industriales, se tendrán en cuenta los siguientes criterios en relación a los desbordamientos en episodios de lluvia: a) Los proyectos de nuevos desarrollos industriales deberán establecer, preferentemente, redes de saneamiento separativas, e incorporar un tratamiento de las aguas de escorrentía, independiente del tratamiento de aguas residuales. b) En las redes de colectores de aguas residuales de zonas industriales no se admitirá la incorporación	d) <i>The storm water overflows (aliviaderos) of the sewage system and of the entrance systems to the WWTP shall have the necessary elements based on its location, antiquity, the size of the area in order to reduce the discharge to the receptive system of at least the solid waste. This elements shall not reduce the hydraulic capacity of the exit of the storm water overflows during normal functioning as well as in the case of flaws.</i> e) <i>To reduce the risk of pollution, in the case of strong rainfall, those urban waste water treatment plants which are authorised to discharge, have the obligation to make all the necessary works or to put in place all the necessary devices with the aim to collect and conduct the urban waste water to the appropriate waste water centres in order to reduce at least the first /initial runoff from rainfall with high level of pollution.</i> 2) <i>In discharge authorizations of sanitation systems for wastewater of industrial zones , the following criteria will be considered in relation to overflows during rain :</i> a) <i>The new industrial development projects should preferably separative sanitation networking and incorporate treatment of the runoff , regardless of wastewater treatment .</i> b) <i>In networks of sewage collectors of industrial zones not incorporating runoff from external to the implementation of the industrial activity or other waters other than their own for which they were</i>

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			de aguas de escorrentía procedentes de zonas exteriores a la implantación de la actividad industrial o de otro tipo de aguas que no sean las propias para las que fueron diseñados, salvo en casos debidamente justificados.	<i>designed areas is allowed, except in duly justified cases.</i>
		2) Order AAA/2056/2014⁸¹²	Disposición adicional primera. Inventario de los puntos de desbordamiento de aguas de escorrentía. Los titulares de vertidos industriales y de vertidos urbanos de más de 2.000 habitantes equivalentes, cuyos sistemas de saneamiento originen desbordamientos en episodios de lluvia, deberán presentar el Formulario 5'.1.A antes del 31 de diciembre de 2014.	Additional Provision 1st. Inventory of the Discharge Points of the storm water overflows According to this regulation, holders of sewer systems of urban and industrial spills with a population equivalent of more than 2000, that originate storm water overflows must present form number 5 in order to obtain the authorization before 31 st December 2014.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	Instructions for the Discharge authorization document (<i>Desbordamiento del sistema de saneamiento en caso de lluvia</i>) ⁸¹³ National Manual on Recommendations for the design of Storm water overflows (<i>Manual Nacional de Recomendaciones para del diseño de tanques de tormenta</i>) ⁸¹⁴	FORMULARIO 5'.2 – Medidas, actuaciones e instalaciones para limitar la contaminación por desbordamiento de sistemas de saneamiento en episodios de lluvia ⁸¹⁵	FORM 5.2. Measures, actions and installations in order to reduce pollution by overflow in collecting systems in case of strong rainfall event The main goal of this document is to establish the recommendations for the dimensions and design of storm water tanks in the combined sewage systems. The necessary volume will depend on the technical standards to be set up by the Ministry of Agriculture, Food and Environment that will be defined in

⁸¹² https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-11411.

⁸¹³ http://www.magrama.gob.es/es/agua/publicaciones/2014-11-05_Guia_Formulario_5'_tcm7-352548.pdf.

⁸¹⁴ Text of the Manual is attached to this study.

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				accordance with the regulations of Royal Decree law 1290/2012. ⁸¹⁶
WFD	Y	Cantabric Hydrological Plan ⁸¹⁷ Catalan Hydrologic Plan ⁸¹⁸		The Cantabric River Basin Management Plan, in Art.69.4 specifically establishes that the owner of the discharge authorization must present a plan detailing, among others, a set of measures to optimize the transport of storm water overflows and waste waters to the waste water treatment plans in order to reduce the impact of the storm water overflows in the case of unusual rain falls. They must also include the execution timeline and the control systems foreseen. Catalan River Basin Management Plan asks to install overflow quantification systems, and preparation of detailed technical studies, Minimum Measure Plans and Integral Master Drainage Plans to detail the required measures to reduce impact of storm water overflows to the receiving waters. These measures must fulfill the water quality standards and procedures based on the English Urban Pollution Management Standards for bathing waters and rivers suitable for fish life.
MSFD	N			
BWD	N			
DWD	N			
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions</i>				
International conventions or commissions	Direct reference (Y/N)		Text in MS language	Translation into English
OSPAR				
HELCOM	N			

⁸¹⁵ http://www.magrama.gob.es/es/agua/participacion-publica/2014-03-10_Guia_Formulario_5'_tcm7-321443.pdf.

⁸¹⁶ Those those technical standards have not been yet approved.

⁸¹⁷ http://www.chcantabrico.es/images/pdf/actuaciones/planificacion_hidrologica/planes_2009_2015/nuevo_phc/dhc_occidental/rd_399_2013.pdf.

⁸¹⁸ <http://acanet.gencat.cat/scripts/legislacio/resultatprojectes.asp>

Overview of legal and policy framework. Relevant references to storm water overflows.				
Barcelona Convention				
Conv. on the Protection of the Black Sea				
Danube Convention				
Rhine Convention				
Oder Convention	N			
Elbe Convention				
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Technical Document	Sewer unit : Design criteria and control (<i>Las redes unitarias de saneamiento: Criterios de diseño y control</i>) ⁸¹⁹		Design and Dimension of collecting systems based on capacity and standard (<i>Normas para la redacción de proyectos de abastecimiento y saneamiento de poblaciones, Diseño y dimensiones de sistemas de saneamiento</i>) UNE-EN752-4. In the analysis of combined vs separate sewage systems, the author highlights the disadvantages of a separate systems when there is an episode of unusual rainfall.	

⁸¹⁹ http://hispagua.cedex.es/sites/default/files/hispagua_articulo/op/31/op31_6.htm#redes.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
121. Which types of sewer system does Spain have?	Spain has two types of sewer systems, combined or separate. Most of the systems are combined. In 2005, 92% of the population was connected to the sewer network while in 1991 it was only 60% of the population. ⁸²⁰
122. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	In 2012, there were 105.000 km of the sewer system, of those, 87% of the combined system. ⁸²¹
123. How many storm water overflows infrastructures exist in Spain?	According to data from a European survey in 2012⁸²², Spain has more than 10.000 storm water overflow devices (no information on the exact number of overflow devices is available). This information is an estimate. There are no definite statistics because of the different ownership of those devices and the authorities that control them.⁸²³ As mentioned below, and inventory of overflow devices is being currently created under regulation of Royal Decree 1290/2012 that has to be finalised at the end of 2015. There is no centralized information about the storm water overflows (devices). Each River basin authority controls some of the most important ones in their territory through geo referencial systems. However, due to the division of competences between local authorities, other devices in the River Basin territory are controlled by consortiums such as Cadasa in Asturias⁸²⁴, which is comprised of the Regional Government of Asturias, certain municipalities (not all of them) and the Cantabric Hydrographic Confederation.⁸²⁵
<i>Available quantitative data on the occurrence of storm water overflows</i>	
124. Is there information on the occurrence of storm water overflows?	This information is currently being obtained by the Ministry through Order AAA/2056/2014 that establishes the official documents for the application and authorisation of discharge declaration⁸²⁶ Under this regulation, the operator of the sewer system/waste water plant is required to inform the River Basin authorities of the storm water overflows in order to create an inventory as stated in the Royal Decree 1290/2012. According to this regulation, operators of sewer systems of urban and industrial water plants with a population equivalent of 2000, that originate storm water overflows must present form number 5 in order to obtain the authorization before 31st December 2014.⁸²⁷ The obligation established by this regulation lies upon the operator of the sewer system, to declare among others, all the information that describes the sewer system as well as the measures, actions

⁸²⁰ <http://www.ine.es/revistas/cifraine/0108.pdf>; <http://www.ine.es/jaxi/menu.do?type=pcaxis&path=%2Ft26%2Fp067%2Fp01&file=inebase>.

⁸²¹ <http://www.tecnoaqua.es/media/uploads/noticias/documentos/aeas-aga-encuesta-suministro-agua-potable-saneamiento-tecnoaqua-es.pdf>. Survey by AEAS 2014. (Data for 2012).

⁸²² http://www.riool.net/c/document_library/get_file?uuid=e0ede73d-e130-4dcb-bc94-08f0fc7ee00f&groupId=10180&targetExtension=pdf.

⁸²³ <http://asa-andalucia.es/descargas/presentacionmalaga.pdf>. Technical workshop Málaga 2013, Regulation on Discharge and integral sewage system.

⁸²⁴ Information obtained from Carlos Blanco from the River Basin Authority.

⁸²⁵ <http://www.consorticioaa.com/cmscaa/opencms/index.html> Water Consortium of the Principality of Asturias.

⁸²⁶ Information obtained from Carlos Blanco from the River Basin Authority.

⁸²⁷ <http://www.boe.es/boe/dias/2014/11/05/pdfs/BOE-A-2014-11411.pdf>.

Available data on storm water overflows	
	and installations foreseen in order to limit the pollution caused by storm water overflows. In accordance with additional provision 3rd ⁸²⁸ , authorizations presented after 31st December 2015 shall include the technical documentation and the measures to reduce pollution from storm water overflows,. Also the owners of authorizations must monitor the storm sewer overflows in 4 years time after the approval of the Royal Decree law and always before 31st December 2019 for sewer systems of urban water plants with a population equivalent of 50000.
125. Are storm water overflows monitored in Spain? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	River basin authorities, such as the Cantabrig Hydrographic Confederation, have devices monitoring the river basin under their domain but only in certain points. The information is about hydrology and meteorology (not specifically on storm water overflows) and it is open to the public on their websites. ⁸²⁹ At a Municipal level, the owners /operators of the sewage systems have devices that monitor storm water overflows but in certain points and the information is not available for the public (this is the case for example of Barcelona). The reporting of storm water overflows in Spain is currently being implemented and it is still incomplete with regard to monitoring of storm water overflows and discharge of effluents. The distribution of competences/powers among the different levels of administration complicates even further monitoring and explains, to a certain extent, the delays in the implementation of the UWWTD.

⁸²⁸ http://www.boe.es/diario_boe/txt.php?id=BOE-A-2012-11779 Royal Decree law 1290/2012. Additional provision 3rd.

1. Las nuevas solicitudes de autorización de vertido, en el caso de vertidos urbanos procedentes de aglomeraciones de más de 2.000 habitantes equivalentes y de vertidos procedentes de zonas industriales, presentadas a partir del 31 de diciembre de 2015, deberán incluir la documentación técnica y las medidas, obras e instalaciones, así como el conjunto de medidas que comprendan estudios técnicos de detalle para reducir la contaminación por desbordamiento de aguas de escorrentía de los sistemas de saneamiento a las que hacen referencia los artículos 246.2.e') y, en su caso, 246.3.c).

2. Los titulares de las autorizaciones de vertido vigentes y las que estuvieran en trámite a la entrada en vigor de este real decreto, así como las que se soliciten hasta el 31 de diciembre de 2015, deberán dotar a los puntos de desbordamiento de sistemas de cuantificación de alivios, en un plazo de 4 años desde la entrada en vigor del presente real decreto y deberán presentar la documentación técnica a la que hacen referencia los artículos 246.2.e') y, en su caso, 246.3.c) como máximo antes del 31 de diciembre de 2019, siempre que estén incluidas en alguno de los siguientes grupos:

a) Vertidos procedentes de aglomeraciones urbanas de más de 50.000 habitantes equivalentes.

b) Vertidos procedentes de instalaciones industriales que requieran una autorización ambiental integrada, conforme al artículo 9 de la Ley 16/2002, de 1 de julio, de prevención y control integrados de la contaminación, y zonas industriales donde se ubique alguna de estas instalaciones.

c) Vertidos procedentes de aglomeraciones urbanas de más de 2.000 habitantes equivalentes o zonas industriales diferentes a los anteriores situados en una zona protegida declarada aguas de baño incluida en el Registro de Zonas Protegidas de la Demarcación Hidrográfica a que se refiere el artículo 24.2.d del Real Decreto 907/2007, de 6 de julio.

Para los desbordamientos de aguas de escorrentía de los sistemas de saneamiento no incluidos en los grupos anteriores, el Organismo de cuenca podrá requerir motivadamente, en función de la magnitud del desbordamiento y de su afección a los objetivos ambientales del medio receptor, esta misma documentación.

⁸²⁹ <http://saih.chcantabrico.es/cantabrico/index.php> Public information system of the Cantabrig Hydrographic Confederation.

FACTSHEET FOR SWEDEN⁸³⁰

1. BASIC INFORMATION

Basic information	
General Information	
173. What are the competent authorities for waste water treatment and management in Sweden?	The regulatory authorities designated to deal with storm water overflows from waste water treatment plants are the county administrative board or the municipal environmental committee.⁸³¹ <u>Central level</u> The Ministry of the Environment and Energy, <i>Miljö- och energidepartementet</i>⁸³² is responsible for the Government's environmental policies and for implementing the Government's policies in policy areas such as chemicals, climate, water and seas, nature conservation, biological diversity, sustainable planning, waste and environmental legislation. Agencies such as the Swedish Environmental Protection Agency (SEPA) and The Swedish Agency for Marine and Water Management (SWaM) report to the ministry.⁸³³ Several public and municipal authorities and agencies are involved in the management of waste water treatment in Sweden.⁸³⁴ On a national level, the Swedish Environmental Protection Agency (SEPA or Swedish EPA), <i>Naturvårdsverket</i>⁸³⁵, coordinates supervision according to the Environmental Code.⁸³⁶ SEPA provides guidance to municipalities and county administrative boards and decides on regulations, directions and general advice, including on waste water treatment and management issues. SEPA's main responsibility within the area of wastewater treatment is to provide knowledge and information, to establish requirements and ambition levels and to evaluate ongoing policies and activities. Furthermore, SEPA provides assistance to the Ministry of the Environment and Energy. It participates in relevant EU and Nordic Council of Ministers working groups, and it verifies that certain EU legislation concerning wastewater treatment is transposed into national law. SEPA furthermore maintains a dialogue with organizations and associations, such as Svenskt Vatten, It also provides guidance to municipalities, county administrative boards and operators for waste water treatment plants > 200 pe. The Swedish Agency for Marine and Water Management (SwAM), <i>Havs- och vattenmyndigheten</i>⁸³⁷ has a coordinating role in the administration of waters in Sweden, including the coordination of other central public authorities, guidance, steering and follow-up of the

⁸³⁰ For the purposes of this report Anne Adrup from Svenskt Vatten has been interviewed.

⁸³¹ 49 § Förordning (1998:899) om miljöfarlig verksamhet och hälsoskydd, Miljötillsynsförordning (2011:13).

⁸³² Ministry of the Environment and Energy. Phone: +46 8 405 10 00, Postal address: SE-103 33 Stockholm. Internet: <http://www.government.se/sb/d/2066>.

⁸³³ <http://www.regeringen.se/sveriges-regering/miljo--och-energidpartementet/>.

⁸³⁴ For further information, see <http://www.naturvardsverket.se/Miljoarbete-i-samhallet/Miljoarbete-i-Sverige/Uppdelat-efter-omrade/Avlopp/Avlopp-och-avloppsslam--vem-gor-vad/>.

⁸³⁵ Swedish Environmental Protection Agency. Postal address: Naturvårdsverket SE-106 48 Stockholm. Phone +46 10 698 10 00. E-mail: registrator@swedishepa.se. Internet: <http://www.swedishepa.se/>.

⁸³⁶ Environmental Code (SFS 1998:808) of 1 January 1999 as amended, *Miljöbalk* (SFS 1998:808).

⁸³⁷ Swedish Agency for Marine and Water Management. Postal address: Box 11 930, SE-404 39 Göteborg, Sweden. Phone: +46 (0)10 698 60 00. Fax: +46 (0)10 698 61 11. E-mail: havochvatten@havochvatten.se.

Basic information

Water Authorities and country administrative boards. SwAM is a supervisory guidance authority for waste water treatment up to 200 pe and provides guidance to municipalities concerning collecting systems, including both separate and combined. It also provides guidance to municipalities and country administrative boards on topics such as EQS and water protection areas.⁸³⁸

The **National Board of Housing, Building and Planning**, *Boverket*,⁸³⁹ is a central government authority under the Ministry of Health and Social Affairs, inter alia issuing Swedish Building Regulations (BBR), containing mandatory provisions and general recommendations. In Sweden, town and country planning is mainly a municipal responsibility and Boverket provides guidance to the municipalities in this function.

Associations representing stakeholder interests are involved in the management of waste water treatment and management in Sweden. In particular, the **Swedish Water & Wastewater Association**, Svenskt Vatten⁸⁴⁰, (SWWA) is the national association of the municipal water service activities (*vattentjänstverksamheter*). At present, SWWA has 289 municipalities as its members and it has established ad hoc working groups with experts from member municipalities in the field of municipal water and wastewater activities. Its main function is to collect and evaluate statistical data in the field of municipal water and wastewater activities, to provide technical guidance, to disseminate latest research findings to its members and to consult with political decision-makers, public authorities and other organizations to promote the interest of its members.

The **Swedish Water Supply and Sewage Tribunal**, Statens va-nämnd⁸⁴¹ adjudicates disputes relating to water supply and sewerage under the Public Water Supply and Wastewater Systems Act and the Swedish Water Supply and Sewage Tribunal Act. The Tribunal is the court of first instance for the country as a whole. Appeals against the Tribunal's decisions can be lodged with the Court of Appeal and, in the last instance, the Supreme Court. The parties to disputes relating to water supply and sewerage are: the operator of the system normally, the owner, or leasehold owner, of the property in question.

Regional level

Sweden is divided into five river basin districts (RBD). Each RBD is managed by a **Water Authority** (WA), *Vattenmyndighet*.⁸⁴² The WAs are placed at county administrative boards and are responsible for the coordination and implementation of the EU Water Framework Directive (WFD, 2000/60/EC) within its RBD. The WA establishes proposals for Ecological Quality Standards (EQS) and monitoring and action programmes for the RBDs. These proposals are then determined by **Water Boards** (WB) and are used as a basis for planning by the authorities concerned. Through the programmes of measures, the water authorities may impose requirements on storm water

⁸³⁸ <https://www.havochvatten.se/en/swam/our-organization/about-swam.html> .

⁸³⁹ Boverket. Postal adress: Box 534, 371 23 Karlskrona, Sweden. Phone: 0455-35 30 00. E-mail: registraturen@boverket.se. Internet: <http://www.boverket.se/en/start-in-english/about-boverket/> .

⁸⁴⁰ Svenskt Vatten. Postal address: Box 14057, 167 14 Bromma, Sweden. Phone: +46 (0)8-506 002 00. E-mail: svensktvatten@svensktvatten.se. Internet; <http://www.svensktvatten.se/Om-Svenskt-Vatten/Om-oss/In-English/> .

⁸⁴¹ <http://www.va-namnden.se/summary/default.asp> .

⁸⁴² <http://www.vattenmyndigheterna.se/En/Pages/default.aspx> .

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management. By establishing monitoring programmes, the WAs ensure that the prescribed measures meet the environmental objectives.⁸⁴³

County administrative boards⁸⁴⁴ manage inter alia the regulatory control of water operations (e.g. water extraction and land drainage). The Environmental Permit Offices (*miljöprövningsdelegationer*) housed in 12 of the 21 county administrative boards are competent to issue permits for environmentally hazardous activities, in accordance with the Swedish Environmental Code, including waste water treatment facilities > 2000 pe.⁸⁴⁵ The county administrative boards also have monitoring and enforcement responsibilities for waste water treatment facilities larger than 2 000 pe.⁸⁴⁶ This responsibility may be delegated to the municipal environmental committee within each municipality. The county administrative boards furthermore provide municipal environmental committees with guidance.⁸⁴⁷

Local level

Under the Environmental Code, **municipalities** (*kommuner*, first-level administrative division), as well as other authorities, are responsible for making sure EQS and the programme of measures are complied with in their planning and monitoring activities.

Municipalities are responsible for the establishment and management of public waste water treatment facilities in accordance with *lagen (2006:412) om allmänna vattentjänster* (LAV).⁸⁴⁸ Municipalities, through their municipal environmental committee, are also monitoring and supervisory authorities for small-scale wastewater treatment systems up to 200 pe. As highlighted above, the municipalities may also have delegated responsibility to monitor larger waste water treatment facilities.⁸⁴⁹

VA-huvudmän are the owners of public waste water treatment facilities and sewage systems of public waste water facilities (VA refers to water and sewage services). The ownership of a public waste water or sewage facility may be exercised directly by a municipality or through a company where a municipality has the legally decisive influence. The *VA-huvudman* operates the waste water treatment facilities and sewage systems in accordance with LAV and the Environmental Code. The activities are submitted to monitoring according to SEPA regulation SNSF 1990:14, which includes monitoring of storm water overflow incidents. In cases where one waste water treatment facility serves several municipalities, more than one *VA-huvudman* may share responsibility for the facility.⁸⁵⁰

⁸⁴³ Svenskt Vatten. *Tillsynsmyndigheter för olika verksamheter*, http://www.svensktvatten.se/Vattentjanster/Management/VA-chefens_verktvgslada/Miljokrav/-Tillstand-villkor-och-miljorapport/Tillsynsmyndigheter-for-olika-verksamheter/.

⁸⁴⁴ Länsstyrelserna. Internet: <http://www.lansstyrelsen.se/Sv/Pages/default.aspx>. E-mail: kontakt@lansstyrelsen.se.

⁸⁴⁵ Miljöprövningsförförordning (2013:251) 28:1 and 1:6 §§.

⁸⁴⁶ Miljötillsynsförförordning (2011:13).

⁸⁴⁷ Svenskt Vatten, *Tillsynsmyndigheter för olika verksamheter*, http://www.svensktvatten.se/Vattentjanster/Management/VA-chefens_verktvgslada/Miljokrav/-Tillstand-villkor-och-miljorapport/Tillsynsmyndigheter-for-olika-verksamheter/.

⁸⁴⁸ 6 § Public Water Supply and Waste Water Plant Act. SFS 2006:412. Internet: <http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Lag-2006412-om-allmanna-vat-sfs-2006-412/>.

⁸⁴⁹ <http://www.notisum.se/rnp/sls/lag/20060412.htm>.

⁸⁵⁰ http://www.svensktvatten.se/Vattentjanster/Management/VA-chefens_verktvgslada/Organisation-och-omvarld/VA-organisationen/.

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	The regulatory authorities in Sweden designated to deal with storm water overflows from <u>combined collecting systems</u> are the municipalities through the municipal environmental committee. ⁸⁵¹
174. What is the transposing law(s) of the UWWTD in Sweden?	The UWWTD, in Swedish "Rådets direktiv 1991/271/EEG av den 21 maj 1991 om rening av avloppsvatten från tätbebyggelse", has been incorporated into Swedish legislation mainly through the Environmental Code (MB) and through Swedish EPA regulations for urban waste water treatment.⁸⁵² Legislation ▪ <i>Miljöbalk (SFS 1998:808)</i> (MB) – the Environmental Code⁸⁵³ – sets the legal framework for environmental considerations and regulations in Sweden. Practically all forms of collection of storm water are considered as environmentally hazardous activities by the act. ▪ <i>Förordning (1998:899) om miljöfarlig verksamhet och hälsoskydd</i> (FMH - Ordinance concerning environmentally hazardous activities and the protection of public health (1998:899)⁸⁵⁴ - prohibits the discharge of untreated waste water including storm water from urban areas (12 §). ▪ <i>Miljöprövningsförförordning (2013:251)</i> (MPF) - Ordinance – contains provisions on permit and notification obligations for environmentally hazardous activities.⁸⁵⁵ ▪ <i>Lag (2006:412) om allmänna vattentjänster</i> – Public Water Supply and Waste Water Plant Act – with the purpose to ensure that public water supply and sewerage services, when necessary, are provided for dwellings and households. SEPA regulations for urban waste water treatment ▪ <i>Statens naturvårdsverks kungörelse om föreskrifter om rening av avloppsvatten från tätbebyggelse</i>, SNFS 1994:7, beslutad den 30 maj 1994. Naturvårdsverket.⁸⁵⁶ (Regulations of waste water treatment from agglomerations). ▪ <i>Statens naturvårdsverks kungörelse om föreskrifter om kontroll av utsläpp till vatten- och markrecipient från anläggningar för behandling av avloppsvatten från tätbebyggelse</i>, SNFS 1990:14, beslutad den 24 augusti 1990, senaste ändring SNFS 1998:5. Naturvårdsverket.⁸⁵⁷ (Regulations to control releases to water and land recipients from waste water treatment facilities in agglomerations).

⁸⁵¹ Information provided by the Swedish competent authority.

⁸⁵² <http://www.naturvardsverket.se/Stod-i-miljoarbetet/Rattsinformation/Direktiv/EU-register---forfattningar-inom-miljobalkens-omrade/Vatten/Avloppsvatten/> .

⁸⁵³ http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Miljobalk-1998808_sfs-1998-808/?bet=1998:808 .

⁸⁵⁴ http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Forordning-1998899-om-miljo_sfs-1998-899/?bet=1998:899 . Unofficial translation...

⁸⁵⁵ <http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/sfs-2013-251/> . Unofficial translation.

⁸⁵⁶ http://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/Documents/foreskrifter/nfs1994/SNFS1994_07k.pdf . Unofficial translation.

⁸⁵⁷ http://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/Documents/foreskrifter/nfs1990/SNFS1990_14k.pdf . Unofficial translation.

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	These regulations provide for limit values for levels of nitrogen and oxygen demanding pollutants in effluents and for monitoring and sampling in accordance with the UWWTD.⁸⁵⁸ The reason that phosphorus is not regulated in the Swedish national legislation is that, before joining the EU, Sweden had built a system of waste water treatment plants reducing phosphorus in a way that far exceeded what is required by the UWWTD (typically 0.3 to 0.5 mg / l in outgoing water). Hence, as a nation, Sweden can handle the requirement for the minimum 75% reduction (Article 5.4 91/271 / EEC).⁸⁵⁹ The regulations furthermore require waste water collected in sewage systems of certain dimensions to undergo secondary treatment and encourages the reutilization of sludge.⁸⁶⁰ The requirements for nitrogen removal in the SEPA regulation apply only to agglomerations larger than 10,000 population equivalents (pe) that are situated within catchment areas that drain into nitrogen sensitive marine waters (i.e. coastal or marine environments from the western coastal Norwegian border to Norrtälje Municipality on the east coast).
175. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD has not been literally transposed into Swedish legislation. Instead, it is implemented through the Swedish environmental permit and supervision processes through individual permits considering general rules and environmental considerations. A key rule regarding waste water is provided for in MB 9:7 §: “Waste water shall be diverted and purified or treated in some other way in order to avoid detriment to human health or the environment. Appropriate sewerage systems or other works shall be established for this purpose.” Storm water overflows are also regulated by the general rules of consideration in the Environmental Code concerning environmentally hazardous activities. I.e. MB 2:3 § states: <i>”Persons who pursue an activity or take a measure, or intend to do so, shall implement protective measures, comply with restrictions and take any other precautions that are necessary in order to prevent, hinder or combat damage or detriment to human health or the environment as a result of the activity or measure. For the same reason, the best possible technology shall be used in connection with professional activities.</i> <i>Such precautions shall be taken as soon as there is cause to assume that an activity or measure may cause damage or detriment to human health or the environment.”</i> This general obligation is limited by the provision in MB 2:7 §, stipulating that the rules of consideration such as the best possible technique requirement shall be applicable where compliance cannot be deemed unreasonable: <i>”The rules of consideration laid down in sections 2 to 6 shall be applicable where compliance cannot be deemed unreasonable. Particular importance shall be attached in this connection to the benefits of protective measures and other precautions in relation to their cost. The cost-benefit relationship shall also be taken into account in assessments relating to total defence activities or where a total defence measure is necessary. A decision reached in accordance with the first paragraph must not entail infringement of an environmental quality standard referred to in chapter 5.”</i>

⁸⁵⁸ Naturvårdsverket, *Waste water Treatment in Sweden*, June 2014, pp. 4-5, (<http://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&pid=13165&downloadUrl=/Documents/publikationer6400/978-91-620-8704-3.pdf>).

⁸⁵⁹ Information provided by the Swedish competent authority.

⁸⁶⁰ SNSF 1994:7 §§ 3 and 10.

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	Important to notice is that the Environmental Code covers all parts of the waste water treatment and sewage system, including sewers and collecting systems. Furthermore, FMH prohibits the “<i>discharge of waste water from a water closet or agglomeration into water areas, unless the waste water has not been treated more thoroughly than sludge separation. [/] What is stated in the first paragraph does not apply if it is evident that such discharge may be realized without risk of detriment to human health or the environment.</i>”(§12).⁸⁶¹ LAV obliges municipalities to “<i>organize and operate public water and sewage facilities in a manner that fulfils the requirements that follows from considerations of human health and the environment as well as considerations of the interest of sustainable use of natural resources.</i>”(10 §).⁸⁶² Furthermore, SEPA regulation SNFS 1994:7 § 9 states that waste water treatment plants must be designed, constructed and maintained to function adequately under all normal local weather conditions. Seasonal variations in volume shall then be taken into consideration. § 8 of the same regulation states that the runoff points for waste water from built-up areas shall be located in a way that minimizes the impact on the receiving water. <i>Comment</i> Note that the provisions regulating waste water/storm water discharges are distributed over several different legal acts and that “storm water overflows” have not been legally defined in the legislation. Regulation of storm water overflows is dependent on an active and efficient implementation within the framework of the Swedish permit and supervision process. It might be of interest that the SEPA has proposed amendments to SNSF 1990:14 and SNFS 1994:7. The proposition is currently under review. According to MB 26:19 the operator is obliged to continuously plan and self-monitor its collecting systems. The frequency, volumes and locations of storm water overflows shall be reported for systems connected to facilities > 500 pe (SNFS 1990:14). According to established practice in Sweden, permits include conditions regarding renovation and improvement planning (<i>skötsel- och saneringsplan</i>) concerning the collecting systems.⁸⁶³ SWWA provides a standard for design and construction of collecting systems.⁸⁶⁴
176. What is the national provision	This provision has not been literally transposed into Swedish legislation. The author has not been able to find any national regulatory

⁸⁶¹ Unofficial translation

⁸⁶² Lag (2006:412) om allmänna vattentjänster. (<http://www.notisum.se/rnp/sls/lag/20060412.htm>). Unofficial translation.

⁸⁶³ Information provided by the Swedish competent authority.

⁸⁶⁴ Dimensionering av allmänna avloppsledningar P90.

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transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	measures specifying an acceptable number of storm water overflows per time unit or dilution rates or capacity in relation to dry weather conditions. The provision will in practice be implemented within the permit and supervision processes imposed on environmentally hazardous activities such as waste water treatment systems. According to established practice in Sweden, permits often include conditions regulating the design and construction of waste water treatment plants. In order to minimize storm water overflows the permit regulates that the plants mechanical treatment step normally must be able to receive four times Q_{dim} without an overflow occurring.⁸⁶⁵ In case of overflows and if the operator does not take measures, the supervising authority may issue necessary injunction and prohibitions. These injunctions can be based on specific emission requirements and/or volumes that may overflow.⁸⁶⁶ Each owner/operator of large waste water treatment systems are required to deliver environmental reports, inter alia, about the environmental impact caused by waste water discharges and overflows from their activities. The permit or supervising authority may impose concrete protective measures on the operator or prevent an activity liable to have detrimental effects from being undertaken.
177. What is the terminology used to refer to storm water overflows in Sweden? Is there more than one term used?	In the Swedish version of Section A of Annex I to the UWWTD, the third item, the English term “storm water overflows” is translated into Swedish using the terminology ”dagvattenutsläpp”. In footnote 1, Sections A and B of Annex I, an alternative translation – dagvattenbräddning - is used. <i>Comment</i> This translation is not correct seen to the purpose of the Directive (to regulate urban waste water as defined in UWWTD article 2.1) treatment and such overflows. While “dagvattenbräddning” refers to overflows of run off rain water without any content of domestic water, the term “bräddning” would be the proper translation of the Directive. The term “dagvattenutsläpp” means discharge of run off rain water. One complicating factor is that in Sweden, run off rain water is legally classified as waste water when it originates from local planned areas. SEPA defines ”dagvatten” as “precipitation water, that is rain – or melt water not permeating the ground but running off the land surface.”⁸⁶⁷ With regards to the event or occurrence of storm water overflows, a distinction can be made between “nödutsläpp”, referring to untreated waste water discharges caused by operational disturbances, restorations or maintenance work on collecting pipes (not covered by the regulations) – and “bräddning”, referring to the discharge of storm water due to hydraulic overloading on waste water pumps and collecting systems.⁸⁶⁸

⁸⁶⁵ Information provided by the Swedish competent authority.

⁸⁶⁶ Information provided by the Swedish competent authority.

⁸⁶⁷ SNFS 1994:7, 2 § (unofficial translation).

⁸⁶⁸ AR 93: 6, p. 15. Svenskt Vatten (2014), p. 6.

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	<i>Bräddavlopp</i> (waste water sewer, or rather “spillway overflow” according to TNC 51⁸⁶⁹) refers to the device or infrastructure allowing for discharge or relief of for instance pools or collecting pipes when storm water overflows occur.⁸⁷⁰ To conclude, several terms are related to storm water overflows or the management of storm water overflows in Sweden.
178. Is there a definition of storm water overflow in Sweden?	The term “bräddat avloppsvatten” is defined in SNFS 1990:14, §2: “waste water discharged at singular occasions (for instance due to overloading) in order to relieve the pressure on magazines, pools or pipes.”⁸⁷¹ According to SwAM, <i>bräddning</i> refers to “the discharge from sewers of a mixture of surface water (dagvatten) and untreated spilt water (waste water) to the closest lake or water area.”⁸⁷² SEPA takes into consideration whether the overflow water (“<i>bräddning</i>”) derives from combined systems (combined sewage overflows) or not.⁸⁷³ Sometimes the terminology is specified to refer to waste water overflows due to weather conditions: “<i>Bräddning av avloppsvatten vid kraftiga regn</i>” (waste water overflows due to heavy rain).⁸⁷⁴ Storm water in the sense of the UWWTD is regulated as <i>waste water</i> (avloppsvatten), MB chap. 9 section 2: “Wastewater’ shall mean: 1. discharge water, sewage or other liquid impurities; 2. water used for cooling; 3. water that is diverted for the purpose of draining land included in a detailed development plan, where drainage is not carried out for the benefit of a specific property or properties; or 4. water that is diverted for the purpose of draining a burial ground.”
179. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Sweden have a definition of extreme or unusual rainfall event?	The Swedish transposition of footnote 1 in Sections A and B of Annex I UWWTD uses the term “<i>ovanligt kraftig nederbörd</i>”. The terms “<i>kraftigt skyfall</i>” (heavy rainfall) or “<i>extrem nederbörd</i>” (extreme precipitation) are used.⁸⁷⁵ SMHI, the Swedish Meteorological and Hydrological Institute, defines “<i>skyfall</i>” as the situation when at least 50 mm rainfall occurs during an hour or at least 1 mm during a minute. “<i>Extrem nederbörd</i>” is defined as an amount of precipitation or rainfall that substantially exceeds normal

⁸⁶⁹ TNC 51. 1973. Glossary of water 3 water supply and sewer system. Swedish terms with equivalents in English, French, German and Finnish. Swedish Centre of Technical Terminology. ISBN 91-7196-051-1 (<http://www.rikstermbanken.se/rtb/mainMenu.html?locale=en>)

⁸⁷⁰ AR 93: 6, p. 15.

⁸⁷¹ SNSF 1990:14, § 2 (unofficial translation).

⁸⁷² Havs och Vattenmyndigheten. *Ordbok*. (<https://www.havochvatten.se/funktioner/ordbok/ordbok/a---c.html>) (Unofficial translation).

⁸⁷³ Naturvårdsverket, Allmänna råd 93: 6, *Bräddning från avloppsledningar. Kontroll av bräddning och bräddningsmängder*, (AR 93:6) (http://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/Documents/allmrar/ar_93_6.pdf).

⁸⁷⁴ See for instance Stockholms stad, *Bräddning av avloppsvatten* (<http://miljobarometern.stockholm.se/kev.asp?mo=3&dm=7&nt=40>).

⁸⁷⁵ See for instance Naturvårdsverket, *Faktablad om avloppsreningsverk 200 – 2 000 pe*, fakta 8286 mars 2007, p. 21, <http://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/Documents/publikationer/620-8286-8.pdf> (kraftigt regn). Svenskt Vatten Utveckling. *Bräddning från ledningsnät. Vägledning för att kontrollera, rapportera och bedöma miljöbelastning på recipient*, Rapport 2014-01, (http://vav.griffel.net/filer/SVU-rapport_2014-01.pdf) (extremt regn).

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	precipitation. At least 90 mm rainfall within 1000 km ² during 24 hours is considered as rainfall substantially exceeding normal precipitation. ⁸⁷⁶

⁸⁷⁶ SMHI, *Rotblöta och skyfall*, last updated 23 april 2014, (<http://www.smhi.se/kunskapsbanken/rotblota-1.17339>).

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
<i>Overview of legal and policy framework</i>	
51. Does a policy, practice or legal framework exist in Sweden to control or limit storm water overflows?	<i>Introductory comment:</i> In Swedish national legislation, storm water overflows are not limited by for instance a fixed amount of overflows or permitted volumes of overflows. Existing regulations are based mainly on the general prohibition to discharge untreated waste water and environmental quality standards of receiving waters and on environmental impact assessments, limiting discharges of substances considered detrimental to the environment or human health. According to established practice in Sweden, storm water overflows are normally regulated in the individual permit for the waste water treatment plant. Storm water overflows are also limited through individual decisions from the regulatory authority.⁸⁷⁷ <i>Policy/legal framework</i> As highlighted above, storm water is regulated as waste water in Swedish national legislation (9:2 § MB). Of central importance is that the discharge of waste water is considered environmentally hazardous (9:1 § MB).⁸⁷⁸ The Environmental Code provides for opportunities to regulate storm water overflows. This is done through three pillars: permit assessments, supervision and operator self-monitoring. In addition to this, LAV regulates the obligation of municipalities to deal with waste water. <i>Material rules regulating the discharge of waste water:</i> Since storm water is considered as <i>wastewater</i>, the aims (MB chap. 1), general rules of consideration (MB chap. 2) and environmental quality standards (MB chap. 5) and prohibitions (MB chap. 9) contained in the Environmental Code are applicable. This includes requirements on protective measures, obligations to comply with restrictions laid down in legislation and the obligation to take any precautions necessary to prevent, hinder or combat damage or detriment to human health or the environment and the usage of best possible technique (MB 2:3). Sites used for environmentally hazardous activities must be chosen in a way that minimizes detriment to human health and the environment (MB 2:6). MB 2:7 allows for a reasonability assessment, with particular importance attached to the benefits of protective measures in relation to their cost. Environmental quality standards (EQS) for water are guiding in the assessment of permits for waste water facilities. The Environmental Code chapter 5 and <i>Förordning (2004:660) om förvaltning av kvaliteten på vattenmiljön</i> chapter 4 contains provisions on EQS for water. EQS must be considered in the exercise of public authority and will have a binding effect on individuals through public authority decisions and court rulings. Eutrophication, affected by the discharge of phosphorus and nitrogen, is for instance one of the parameters considered in the status classification of water areas. A fundamental rule is laid down in the Environmental Code 9:7 §, stating that “waste water shall be diverted and purified or treated in some other way in order to avoid detriment to human health or the environment. Appropriate sewerage systems or other works shall be established for this purpose.” <i>Förordning (1998:899) om miljöfarlig verksamhet och hälsoskydd</i>⁸⁷⁹ (FMH) 12 § states a general prohibition to discharge untreated waste water. This

⁸⁷⁷ See more on this topic: Naturvårdsverket, *Formulering av villkor och krav för utsläpp från avloppsreningsverk – vägledning*, 2013-04-23. <http://www.naturvardsverket.se/upload/stod-i-miljoarbetet/vagledning/avlopp/villkor-och-krav-for-utslapp-fran-avloppsreningsverk-20130423.pdf>.

⁸⁷⁸ <http://www.regeringen.se/content/1/c6/02/28/47/385ef12a.pdf>.

⁸⁷⁹ <http://www.notisum.se/rnp/sls/LAG/19980899.htm>.

Overview of legal and policy framework. Relevant references to storm water overflows.

prohibition does not apply if it is evident that such emissions may be achieved without risk for human health or the environment. When assessing the need for precautionary measures, particular regard shall be taken to the occurrence of certain substances in the discharge, such as substances causing eutrophication (FMH 11 a §).

SEPA regulation SNFS 1994:7 states that waste water treatment plants must be designed, constructed and maintained to function adequately under all normal local weather conditions (9 §). Points of discharge of waste water from built-up areas must be selected in a way that minimizes the effects on the recipient (8 §). The regulation furthermore specifies that waste water from built-up areas shall undergo secondary treatment (3 §). The third paragraph uses maximum average weekly load as a basis to calculate pollution rates. SNSF 1994:7 also sets limiting values and guiding values to the concentration of BOD, COD and nitrogen in discharged waste water (4 – 6 §§).

The Public Water Supply and Waste Water Systems Act (LAV)⁸⁸⁰ addresses municipalities as principal owners and operators and competent authorities, of public waste water treatment facilities, i.e. as VA-huvudmän, obliging them to organize and operate public water and sewage facilities in compliance with requirements on considerations of human health and the environment (1, 6 and 10 §§).⁸⁸¹ LAV places obligations on operators as well as users of waste water facilities or of properties causing waste water.

According to § 21 of LAV, an owner of a property may not use a public waste water treatment facility in a way that causes fluids, substances or objects, which could have a detrimental impact on the collecting system or waste water treatment system or in any other way cause harm or nuisance, to be added to the sewer. County administrative boards monitor whether the municipalities fulfil their obligations in accordance with LAV (§ 51).

In accordance with LAV § 23, the municipality may lay down further provisions for the use of a public water- or waste water facility. These are called *Allmänna bestämmelser om vatten- och avlopp* (General provisions on the use of a municipality's public water and waste water facilities), ABVA. In these, further provisions on the management of storm water overflows may be laid down. However, these may only regulate issues concerning the use of waste water facilities and not their technical construction.⁸⁸²

Finally, individual waste water treatment systems may submitted to further requirements laid down in permits in accordance with the Environmental Code.

Permits and notification:

In Sweden, the UWWTD is to a large extent implemented through mandatory permit (*tillståndsprövning*) and notification (*anmälningsplikt*) processes for *environmentally hazardous activities* (9:6 MB).

MPF⁸⁸³ 28:1 and 1:3 §§ specifies that waste water treatment facilities connected to > 2000 pe, or to receiving waters with a level of pollution that corresponds to > 2000 pe, require permits (type B) in accordance with the Environmental Code. The permit applications should be made to the county administrative

⁸⁸⁰ <http://www.notisum.se/rnp/sls/lag/20060412.htm> .

⁸⁸¹ <http://www.notisum.se/rnp/sls/lag/20060412.htm> .

⁸⁸² Ekologen Miljöjuridik AB, *Dagvatten i genomförandeavtal, ABVA och BBR*, 20 December 2013, p. 7

([http://www.oxunda.se/files/contentFiles/dokument/dagvatten/Dagvatten i genomforandeavtal ABVA och BBR.pdf](http://www.oxunda.se/files/contentFiles/dokument/dagvatten/Dagvatten_i_genomforandeavtal_ABVA_och_BBR.pdf)).

⁸⁸³ <http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/sfs-2013-251/K28> .

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boards.

Collecting systems of waste water treatment facilities are not bound by permit or notification obligations. However, the environmental impact of collecting systems shall be taken into consideration within the issuing of a permit for the main activity that is bound by permit requirements (i.e. the waste water treatment plant). Collecting systems constitute *följerverksamheter* (other activities or special structures that are likely to be necessary for efficient operations) according to **MB 16:7 §**. According to SEPA, environmental permits may under certain conditions regulate collecting systems directly linked to the main activity of the permit.⁸⁸⁴

An environmental impact assessment must be submitted together with the permit application and in some cases also for activities not bound by licensing requirements. An individual assessment is made in each case.

With regards to the content of permits, conditions laid down therein may only be stricter than requirements laid down in general laws or regulations. SEPA expresses that an environmental permit for a waste water treatment facility “shall contain the conditions on discharges, limitation values and best possible technique that are necessary from an environmental consideration point of view.”⁸⁸⁵ In the permits, focus is often placed on limiting the emissions causing the most negative effect to recipients. According to SEPA, factors such as the level of a limitation value (concentration or percentage of reduction) should always be provided for with regards to phosphorus, nitrogen and oxygen demanding substance releases. Reduction rates expressed in terms of concentration or percentage of certain substances are provided for in SNSF 1994:7. Limitations to amounts of releases may be regulated through environmental permits and the regulatory authority.⁸⁸⁶

To conclude, the necessity to prescribe measures to prevent or deal with storm water overflows in environmental permits may be derived from these general rules or guidelines. However, explicit requirements to regulate storm water overflows in permits are not stipulated in Swedish legislation.

Failure to comply with environmental permit obligations is sanctioned through criminalization (**MB 29:4**).

Supervision of waste water treatment facilities and operator's control

The Environmental Code **26:19** obliges persons pursuing an activity liable to cause detriment to human health or affect the environment to continuously plan and monitor the activities in order to combat or prevent such effects.⁸⁸⁷ Operators of environmentally hazardous activities shall keep themselves informed about the impact that the activity pursued may have on the environment (**MB 2:2**). Furthermore, **MB 26:20** states that activities bound by permit obligations (i.e. waste water treatment plants > 2000 pe) shall deliver an environmental report (*miljörapport*) to the supervising authority. This obligation may be

⁸⁸⁴ Naturvårdsverket, *Avloppsreningsverk och ledningsnät i provningen*, <http://www.naturvardsverket.se/Stod-i-miljoarbetet/Vagledningar/Avlopp/Avloppsreningsverk-och-ledningsnat-i-provningen/>.

⁸⁸⁵ Naturvårdsverket, *Formulering av villkor och krav för utsläpp från avloppsreningsverk – vägledning*, 2013-04-23, p. 7, <http://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/upload/stod-i-miljoarbetet/vagledning/avlopp/villkor-och-krav-for-utslapp-fran-avloppsreningsverk-20130423.pdf>.

⁸⁸⁶ *ibid.* p. 9-12.

⁸⁸⁷ See also *förordning (1998:901) om verksamhetsutövers egenkontroll* (<http://www.notisum.se/rnp/sls/lag/19980901.HTM>).

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	extended to facilities not bound by permit obligations. <i>Naturvårdsverkets föreskrifter om miljörapport, NFS 2006:9</i>, regulates the form and content of environmental reports.⁸⁸⁸ The environmental report shall, inter alia, provide for information on the environmental impact of the activity and on compliance of conditions laid down in decisions granting permits. SNFS1990:14 further specifies the obligation of environmental reporting in relation to waste water treatment systems. Waste water treatment facilities 501-2000 pe shall report the number of storm water overflows (<i>bräddningar</i>) occurring during the year, the treatment of storm water overflows and volumes per year. Waste water treatment facilities > 2001 pe shall report the number of storm water overflows (<i>bräddningar</i>), flows and rates and amount of specified control parameters, such as nitrogen and phosphorous. Concerning collecting systems, the frequency, volumes and locations of storm water overflows shall be reported for systems connected to facilities > 500 pe. Based on the environmental reports, the supervising authority may decide to submit an individual waste water treatment operator to undertake precautionary or reparative measures to deal with the effects of storm water overflows. The RBMPs generally refer to “<i>bräddning</i>” or “<i>bräddat avloppsvatten</i>” (storm water overflows, alternatively, combined sewer overflows) or ‘<i>dagvatten</i>’ (storm water). In the programme of measures of the water districts, measures needed to address pollution are traced out on a policy level, time periods are set and competences assigned to public authorities or municipalities to undertake specific measures to deal with storm water overflows. These include, for instance, undertaking research on the phenomenon, or recommendations on concrete protective measures. The programmes of measures address municipalities and public authorities and do not directly address private actors. When the actions are implemented by its addressees, individuals and companies may be affected, for instance through the environmental permit procedure.⁸⁸⁹ There are however no specified standards as those mentioned in the next question (2) set in these documents.⁸⁹⁰
52. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to	Storm water overflows are regulated in Sweden by means of water quality standards of receiving waters. As a general point of departure, Water Authorities and local authorities should aim for good water status in their respective RBDs (MB 5:2 and 8 §§). See for instance the SwAM report <i>Vägledning för kommunal VA-planering 2014:1</i>.⁸⁹¹ The Water Authorities have specified EQS for the waters of Sweden and undertaken a status classification, including eutrophication as one of the parameters. More specific requirements are laid down in SNSF 1994:7, limiting concentration levels for specific organic substances (BOD7, CODCr, total nitrogen) (4 and 6 §§). Substances and parameters, methods of analysis and testing and sample frequency are specified in SNFS 1990:14. Methods for evaluating the analyzed test results is regulated in SNFS 1994:7 § 6 lays down limitation values for discharges of total nitrogen. Maximum concentration and minimum reduction in percent is stated. Annex I to the regulation contains further limiting values.

⁸⁸⁸ Naturvårdsverkets föreskrifter om miljörapport. Konsoliderad med NFS 2008:4, NFS 2009:11, NFS 2010:16, NFS 2012:11 och NFS 2013:12 (<http://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/Documents/foreskrifter/nfs2006/nfs-2006-09-k2014-01.pdf>).

⁸⁸⁹ Vattenmyndigheterna, *Åtgärder för bättre vatten*, (<http://www.vattenmyndigheterna.se/Sv/om-vattenmyndigheterna/vattenforvaltningens-arbetscykel/atgarder-for-bättre-vattenatgardsprogram/Pages/default.aspx?keyword=%C3%A5tg%C3%A4rdsprogram>).

⁸⁹⁰ Vattenmyndigheterna, *Åtgärder för bättre vatten*, (<http://www.vattenmyndigheterna.se/Sv/om-vattenmyndigheterna/vattenforvaltningens-arbetscykel/atgarder-for-bättre-vattenatgardsprogram/Pages/default.aspx?keyword=%C3%A5tg%C3%A4rdsprogram>).

⁸⁹¹ Havs- och vattenmyndigheten, *Vägledning för kommunal VA-planering för hållbar VA-försörjning och god vattenstatus*, January 2014, (<https://www.havochvatten.se/download/18.276e7ae81443563a750f41/1392881278482/rapport-2014-01-vagledning-va-planering.pdf>).

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Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other		N.b. The author has not been able to find references to the other standards in the question. For reference see: NV rapport 4480, VA forsk rapport 97:5 and Svenskt Vatten meddelande M134.		
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD		Miljöbalk (1998:8080) (Environmental Code) ⁸⁹²	9 kap. 1 § Med miljöfarlig verksamhet avses 1. utsläpp av avloppsvatten, fasta ämnen eller gas från mark, byggnader eller anläggningar i mark, vattenområden eller grundvatten, 2. användning av mark, byggnader eller anläggningar på ett sätt som kan medföra olägenhet för människors hälsa eller miljön genom annat utsläpp än som avses i 1 eller genom förorening av mark, luft, vattenområden eller grundvatten 9 kap. 2 § Med avloppsvatten avses 1. spillvatten eller annan flytande orenlighet, 2. vatten som använts för kylning, 3. vatten som avleds för sådan avvattnings av mark inom detaljplan som inte görs för en viss eller vissa fastigheters räkning, eller 4. vatten som avleds för avvattnings av en begravningsplats. 9 kap. 7 § Avloppsvatten skall avledas och renas eller tas om hand på något annat sätt så att olägenhet för människors hälsa eller miljön inte uppkommer. För	9 chap. 1 § Environmentally hazardous activities shall mean: 1. the discharge of waste water, solid matter or gas from land, buildings or structures onto land or into water areas or groundwater; 2. any use of land, buildings or structures that entails a risk of detriment to human health or the environment due to discharges or emissions other than those referred to in point 1 or to pollution of land, air, water areas or groundwater 9 chap. 2 § Waste water shall mean: 1. discharge water, sewage or other liquid impurities; 2. water used for cooling; 3. water that is diverted for the purpose of draining land included in a detailed development plan, where drainage is not carried out for the benefit of a specific property or properties; or 4. water that is diverted for the purpose of draining a burial ground. 9 chap. 7 § Waste water shall be diverted and purified or treated in some other way in order to avoid detriment to human health or the environment. Appropriate sewerage systems

⁸⁹² <http://www.regeringen.se/content/1/c6/02/28/47/385ef12a.pdf> .N.b. The translations of legislation in this section are made by the author.

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			detta ändamål skall lämpliga avloppsanordningar eller andra inrättningar utföras. Regeringen får föreskriva att det skall vara förbjudet att utan tillstånd eller innan anmälan har gjorts inrätta eller ändra sådana avloppsanordningar eller andra inrättningar. Regeringen får överlåta åt kommunerna att meddela föreskrifter enligt andra stycket. 10 § En allmän va-anläggning skall ordnas och drivas så att den uppfyller de krav som kan ställas med hänsyn till skyddet för människors hälsa och miljön och med hänsyn till intresset av en god hushållning med naturresurser. När det är förenligt med anläggningens huvudsakliga ändamål, bör den ordnas och drivas så att också andra allmänna intressen som har behov av anläggningen kan tillgodoses. 11 a § För verksamheter och åtgärder med utsläpp till mark, luft, ytvatten eller grundvatten som är tillståndspliktiga enligt avdelning 4 i bilagan eller enligt miljöprövningsförfordningen (2013:251), ska man vid bedömning av behovet av försiktighetsmått och villkor särskilt ta hänsyn till om det i utsläppen förekommer ämnen som anges i avdelning 5 i bilagan.	or other works shall be established for this purpose. The Government may issue rules prohibiting the establishment or alteration of such sewerage systems or other works without prior permission or notification. The Government may delegate the issuance of rules referred to in the second paragraph to a municipality. 10 § A public water and sewage facility shall be organized in such a way as to comply with requirements that may be placed with considerations to human health and the environment and with considerations to the interest of good economizing with natural resources. When consistent with the main purpose pf the facility, it shall be organized and operated in such a way as to meet other public interests. 11 a § For activities and measures emitting discharges into land, air, surface waters or groundwaters under duty of permits according to section 4 in the Annex or according to <i>miljöprövningsförfordningen</i> (2013:251), when assessing the need for precautionary measures, particular consideration shall be taken to whether the discharge contains substances specified in section 5 of the Annex. (Section 5 of the Annex inter alia mentions substances causing eutrophication, in particular nitrates and phosphates, and oxygen-consuming substances measurable by parameters such as BOD and COD). 11 b § specifies how a condition laid down in a permit for an environmentally hazardous activity shall be interpreted

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		Förordning (1998:899) om miljöfarlig verksamhet och hälsoskydd⁸⁹³ (Ordinance concerning environmentally hazardous activities and the protection of public health)	12 § Det är förbjudet att i vattenområde släppa ut avloppsvatten från vattentoalett eller tätbebyggelse, om avloppsvattnet inte har genomgått längre gående rening än slamavskiljning. Vad som sägs i första stycket gäller dock inte om det är uppenbart att sådant utsläpp kan göras utan risk för olägenhet för människors hälsa eller miljön. 13 § Det krävs tillstånd för att 1. inrätta en avloppsanordning som en eller flera vattentoaletter ska anslutas till, eller 2. ansluta en vattentoalett till en befintlig avloppsanordning. Det krävs anmälan till den kommunala nämnden för att inrätta en annan avloppsanordning än som avses i första stycket. 14 § Det är förbjudet att utan anmälan till den	with regards to the measuring of halts of substances and dilution. 12 § It is prohibited to discharge waste water from a water closet or built-up area into water areas, unless the waste water has not been treated more thoroughly than sludge separation. What is stated in the first paragraph does not apply if it is evident that such discharge may be realized without risk of detriment to human health or the environment. 13 § Permits are obligatory for 1. the establishment of a sewage facility if a (or more than one) water closet is connected to it, or 2. the connection of a water closet to an existing sewage facility. Notification to the municipal committee is required for the establishment of any other sewage facility than those referred to in the first paragraph. (Para. 3 specifies competent authorities for the assessment of permits as referred to in para. 1, and para. 4 states that the municipality may prescribe that certain facilities as those referred to in para. 2 shall require permits.) 14 § It is prohibited to modify a sewage facility as those

⁸⁹³ http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Miljotillsynsforordning-2011_sfs-1998-899/ / . Unofficial translation.

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		kommunala nämnden ändra sådana avloppsanordningar som avses i 13 §, om åtgärden kan medföra väsentlig ändring av avloppsvattnets mängd eller sammansättning. 15 § Bestämmelserna i 13 § första och andra styckena ska inte tillämpas på en avloppsanordning som kräver tillstånd eller anmälan enligt miljöprövningsförordningen (2013:251) eller om avloppsanordningen är avsedd att föra avloppsvattnet till enbart en allmän avloppsanläggning. 16 § Ledningarna för en avloppsanordning som avses i 13 § skall vara slutna, om inte den kommunala nämnden medger något annat. 47 a § Naturvårdsverket får [...] 3. i fråga om avloppsledningsnät som är anslutna till en avloppsreningsanläggning som är tillståndspliktig enligt miljöprövningsförordningen meddela föreskrifter om att det i en miljörapport ska lämnas uppgifter om a) det antal bräddningar av avloppsvatten som har skett under året, b) de platser där bräddning har skett, och c) bräddad volym, redovisat som kubikmeter per plats och år, 1 § Dessa föreskrifter omfattar kontroll av utsläpp till vatten- eller markrecipient från anläggningar för behandling av avloppsvatten från tätbebyggelse med mer än 200 invånare eller från sådan bebyggelse med	referred to in § 13, without prior notification to the municipal committee, if the measure might substantially modify the volume or composition of the waste water. 15 § The provisions of § 13 first and second para. shall not apply to sewage facilities that require permits or notification according to <i>miljöprövningsförordningen</i> (2013:251) or if the sewage device is designed to collect the waste water exclusively to a public sewage facility. 16 § The collecting pipes for a sewage facility as referred to in § 13 shall be closed, unless the municipal committee allows anything else. 47 a § The Swedish Environmental Protection Agency may [...] 3. regarding waste water sewage systems connected to a waste water treatment facility under duty of permits according to <i>miljöprövningsförordningen</i>, provide for regulations that an environmental report shall include information on a) the amount of waste water runoff that has occurred during the year, b) the locations where waste water runoffs have occurred, and c) the volumes of the runoffs, accounted for in cubic per location and year, 1 § These provisions cover monitoring of discharges onto water- or land recipients from facilities for the treatment of waste water from built-up areas with more than 200 inhabitants or from such settlement with fewer inhabitants,

SNSF 1990:14 Kungörelse med föreskrifter om kontroll av utsläpp till vatten och markrecipient från anläggningar

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	för behandling av avloppsvatten från tätbebyggelse⁸⁹⁴ (Ordinance on regulations to control releases to water and land recipients from wastewater treatment facilities in built-up areas) Summary: the Ordinance provides for minimum levels for monitoring of discharge at waste water treatment facilities > 200 pe (based on 70 g BOD7/p,d). Monitoring requirements apply to storm water runoff as well as discharge of treated water. Runoff in the collecting system shall be monitored if the collecting pipes connect to a waste water treatment facility > 500 pe. SNSF 1994:7 Kungörelse med föreskrifter om	färre antal invånare, om föroreningsmängden i avloppsvattnet motsvarar minst den mängd som härrör från mer än 200 personekvivalenter (pe). Föreskrifterna omfattar dock inte kontroll av infiltrationsanläggningar och markbäddar. 2 § Bräddat avloppsvatten är avloppsvatten som vid enstaka tillfällen (t.ex. vid överbelastning) avleds (bräddas) för att avlasta magasin, bassäng eller ledning. 1 § Dessa föreskrifter gäller hopsamling, rening, utsläpp och kontroll av avloppsvatten från	if the level of pollution in the waste water corresponds to at least the level that originates from more than 200 pe. The provisions do however not apply to the monitoring of infiltration facilities and land. 2 § Storm water overflows is waste water that is drained off at singular occasions (for instance in cases of overloading) in order to relieve magazines, pools or collecting systems. §§ 3 – 19 further specifies the execution of monitoring of waste water discharged by the facilities covered by the regulation. § 3 specifies what substances are covered by the monitoring of waste water. § 4 specifies different types of monitoring methods for different types of waste water treatment facilities. Inter alia, the provision prescribes continuous measuring and registration of storm water runoff volumes. § 5 specifies the frequency of sampling and analysis. § 20 states that the results of the monitoring activity in accordance with the regulation shall be reported to the county administrative board or to a municipal committee if such a municipal committee is the supervisory authority. 1 § These provisions concern the collecting, treatment, discharge and monitoring of waste water from built-up

⁸⁹⁴ https://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/Documents/foreskrifter/nfs1990/SNFS1990_14k.pdf . Unofficial translation.

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	rening av avloppsvatten från tätbebyggelse⁸⁹⁵ (Ordinance with regulations of wastewater treatment from built-up areas) Summary: the Ordinance applies to waste water treatment systems > 2000 pe. It regulates, inter alia, the collection of waste water in collecting systems, the design and operation of waste water treatment systems, industrial connections, individual control and treatment of sludge. The regulation also contains limiting values for discharge of BOD7, CODCr and in some cases total nitrogen.	tätbebyggelse. 2 § Dagvatten. Nederbördsvatten, dvs. regn- eller smältvatten, som inte tränger ned i marken, utan avrinner på markytan. Sekundär rening. Rening av avloppsvatten från tätbebyggelse, en process som vanligen innebär biologisk eller kemisk rening med sekundärsedimentering eller någon annan process som uppfyller de krav som anges i 4 § eller i bilaga 1. 3 § Avloppsvatten från tätbebyggelse som uppsamlas i ledningsnät skall före utsläpp undergå sekundär rening eller motsvarande rening ▪ senast den 31 december 2000 om utsläppen härrör från tätbebyggelse med mer än 15.000 pe, ▪ senast den 31 december 2005 om utsläppen härrör från tätbebyggelse med mellan 10.000 och 15.000 pe, ▪ senast den 31 december 2005 i fråga om utsläpp i sötvatten eller flodmynningar, om utsläppen härrör från tätbebyggelse med mellan 2.000 och 10.000 pe. Belastningen uttryckt i pe skall beräknas på grundval av den maximala genomsnittliga veckobelastning som tillförs reningsverket under ett år. Hänsyn skall därvid inte tas till exceptionella förhållanden, exempelvis sådana som uppstår vid kraftig nederbörd. För utsläpp av avloppsvatten från tätbebyggelse till vatten i högt belägna bergsregioner eller i andra jämförbara områden, där en effektiv biologisk rening	areas. 2 § (Definitions). Storm water. Precipitation water, i.e. rain- or glacier-water, that does not permeate the ground but instead runs off on the land surface. Secondary treatment. Treatment of waste water from built-up areas, a process that usually implies biological or chemical treatment with secondary sedimentation or any other process that fulfills the requirements laid down in § 4 or in Annex 1. 3 § Waste water from built-up areas collected in sewage systems shall, before being discharged, undergo secondary treatment or corresponding treatment ▪ no later than 31 December 2000 if the discharge originates from built-up areas with more than 15 000 pe, ▪ no later than 31 December 2005 if the discharge originates from built-up areas with between 10 000 and 15 000 pe, ▪ no later than 31 December 2005 regarding discharge into fresh water or mouths of rivers, if the discharge originates from built-up areas with between 2000 and 10 000 pe. The load expressed in pe shall be calculated on the basis of the maximal average weekly load conveyed to the waste water treatment facility during one year. Exceptional conditions, for instance conditions arising from heavy rainfall, shall thereby not be taken into consideration. Regarding discharges of waste water from built-up areas onto water in highly situated mountain regions or other comparable areas, where an efficient biological treatment

⁸⁹⁵ http://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/Documents/foreskrifter/nfs1994/SNFS1994_07k.pdf . Unofficial translations.

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är svår att upprätthålla på grund av låg temperatur, kan mindre stränga reningskrav tillämpas än de som föreskrivs i första stycket, om ingående studier visar att utsläppen inte ogynnsamt påverkar miljön.

4 § Koncentrationen av organiskt material, mätt som biokemisk oxygenförbrukning (BOD7) och kemisk oxygenförbrukning (CODCr), i de avloppsvatten som omfattas av 3 och 5 §§, får som årsmedelvärde inte överstiga begränsningsvärdena i tabell 1.

Tabell 1:

Begränsningsvärden för utsläpp av avloppsvatten från tätbebyggelse

Parameter	Högsta koncentration (årsmedelvärde)	Typ av begränsningsvärde
BOD ₇	15 mg O ₂ /l	Gränsvärde
COD _{Cr}	70 mg O ₂ /l	Riktvärde

Bestämmelser om kontroll av utsläpp av BOD7 och CODCr från avloppsreningsverk finns i Statens naturvårdsverk kungörelse (SNFS 1990:14) med föreskrifter om kontroll av utsläpp till vatten- och markrecipient från anläggningar för behandling av avloppsvatten från tätbebyggelse. Analyser av utsläpp från dammar skall utföras på filtrerade prover. Den totala koncentrationen suspenderad substans i ett ofiltrerat vattenprov får dock inte överstiga 150 mg/l.

Som alternativ till bestämmelserna i tabell 1 får verksamhetsutövaren i stället följa bestämmelserna i bilaga 1. Att de i bilaga 1 föreskrivna begränsningsvärdena inte överskrider skall därvid kontrolleras enligt bestämmelserna i bilaga 2.

is difficult to achieve due to low temperatures, less stringent treatment requirements may be applied than those stated in the first paragraph, if thorough studies show that the discharges do not affect the environment adversely.

4 § The concentration of organic substances, calculated as biochemical oxygen demand (BOD7) and chemical oxygen demand (CODCr), in the waste waters covered by §§ 3 and 5, may as a yearly mean average not exceed the limiting values in table 1.

Table 1. Limiting values for discharge of waste water from built-up areas.

BOD 7

highest concentration (yearly average)

limiting value = 15 mg O₂/l

CODCr

highest concentration (yearly average)

guiding value = 70 mg O₂/l

The provisions on control of discharge of BOD7 and CODCr from waste water treatment facilities may be found in SNSF 1990:14 with provisions on control of discharges to water- and land recipients from facilities for the treatment of waste water from built-up areas. Analyses of discharges from ponds shall be made on filtered samples. The total concentration suspended substances in an unfiltered water sample may, however, not exceed 150 mg/l.

As an alternative to the provisions in table 1, the operator may instead apply the provisions in Annex 1. That the limiting values provided for in Annex 1 are not exceeded shall in such a case be controlled according to the provisions in Annex 2.

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5 § Avloppsvatten från tätbebyggelse som uppsamlas i ledningsnät skall, om det släpps ut i havs- och kustvattenområdet från norska gränsen till och med Norrtälje kommun, med undantag för Himmerfjärden, senast den 31 december 1998 undergå mer långtgående rening än vad som krävs enligt 3 och 4 §§, om det härrör från tätbebyggelse med mer än 10.000 pe.

Undantaget för Himmerfjärden enligt första stycket, gäller under tiden 15 december 2006 till 31 december 2008.

6 § För avloppsvattenutsläpp som avses i 5 § skall i fråga om totalkväve gälla de begränsningsvärden som anges i tabell 2. Kraven på högsta koncentration

Tabell 2. Begränsningsvärden för totalkväve vid utsläpp av avloppsvatten i det område som anges i 5 §

Parameter	Högsta koncentration (årsmedelvärde)	Minsta procentuella reduktion* (årsmedelvärde)	Typ av begränsningsvärde
Totalkväve	15 mg/l N-tot (10.000–100.000 pe)	70	Riktvärde
	10 mg /l N-tot (mer än 100.000 pe)	70	Riktvärde

* Reduktion i förhållande till inflödets belastning. SNFS (1998:7)

eller minsta procentuella reduktion skall följas.

5 § Waste water from built-up areas collected in sewage systems shall, if discharged onto marine water- and coastal water areas from the Norwegian border up to and including Norrtälje municipality, with the exemption of Himmerfjärden, no later than 31 December 1998 undergo more far-reaching treatment than what is required by §§ 3 and 4, if originating from a built-up area with more than 10 000 pe.

The exemption of Himmerfjärden according to the first paragraph applies during the time period 15 December 2006 to 31 December 2008.

6 § For waste water discharges intended in § 5, the limiting values specified in table 2 apply to total nitrogen. The requirements on highest concentration or lowest reduction calculated as a percentage shall be complied with.

Table 2. *Limiting values for total nitrogen.*

Total nitrogen

(10 000-100 000 pe)

Highest concentration (yearly average): 15 mg/l N-tot = guiding value

Lowest reduction percentage (reduction in relation to the load of influx) (yearly average): 70 = guiding value

(More than 100 000 pe)

Highest concentration (yearly average): 10 mg/l N-tot = guiding value

Lowest reduction percentage (reduction in relation to the load of influx) (yearly average): 70 = guiding value

§ 6 para. 2 – 4 and § 7 further specifies how the monitoring and sampling of the waste water shall be conducted.

Overview of legal and policy framework. Relevant references to storm water overflows.

		8 § De avloppsreningsverk som berörs av 3-7 §§ skall utformas eller ändras så att representativa prover kan tas på inkommande vatten och på det renade vattnet före utsläpp i recipienten. Utsläppspunkterna för avloppsvatten från tätbebyggelse skall väljas så att påverkan på recipienten begränsas i största möjliga utsträckning. 9 § De avloppsreningsverk som byggs för att uppfylla kraven 3-8 §§ skall utformas, byggas, drivas och underhållas så att de fungerar tillfredsställande under alla normala lokala klimatförhållanden. Vid utformningen av anläggningarna skall årstidsberoende variationer i belastningen beaktas. 10 § Industrispillvatten som leds till avloppsreningsverk skall ha undergått sådan rening som krävs för att säkerställa dels att driften av avloppsreningsverken och behandlingen av avloppsslam inte störs, dels att slammet kan omhändertas på ett säkert och miljömässigt godtagbart sätt. 11 § Renat avloppsvatten skall återanvändas när det är lämpligt. Utsläppen skall ledas så att skadlig inverkan på miljön minimeras. 12 § Avloppsslam som uppkommer vid rening av avloppsvatten skall återanvändas när det är lämpligt. Bortskaffande skall ske på ett sådant sätt att de ogynnsamma effekterna på miljön minimeras. 13 § Bestämmelser om ansvar på grund av överträdelse av dessa föreskrifter finns i miljöbalken (1998:808). Bilaga 1 - Alternativa krav avseende utsläpp av BOD7 och CODCr enligt 4 §.	8 § The waste water treatment facilities affected by §§ 3-7 shall be designed or modified so that representative samples may be taken of incoming water and of treated water before discharge onto the recipient. The points of discharge for waste water from built-up areas shall be selected so that the effect on the recipient is limited to the largest possible extent. 9 § The waste water treatment facilities constructed to fulfil the requirements in §§ 3-8 shall be designed, constructed, operated and maintained so as to function adequately during all normal local climate conditions. When designing the facility, variations in load dependent on seasons shall be taken into considerations. 10 § Industrial waste water collected in waste water treatment facilities shall undergo the necessary treatment in order to guarantee that the operation of the waste water treatment facilities and the treatment of sludge is not interrupted, as well as to guarantee that the sludge may be taken care of in a safe and environmentally acceptable way. 11 § Treated waste water shall be reused when adequate. Discharges shall be conveyed in a way that detrimental influence on the environment is minimized. 12 § Waste water sludge arising from the treatment of waste water shall be reused when adequate. The removal shall be executed in a way that minimizes adverse effects on the environment. 13 § Provisions on responsibility due to infringement of these regulations may be found in the Environmental Code (1998:808). Annex 1 – Alternative requirements regarding discharge of BOD7 and CODCr according to § 4.

Overview of legal and policy framework. Relevant references to storm water overflows.				
			Bilaga 2 - Kontroll av efterlevnaden av alternativa krav avseende utsläpp av BOD7 och CODCr (bilaga 1) samt totalkväve (6 §).	Annex 2 – Monitoring of the observance of alternative requirements concerning discharges of BOD7 and CODCr (Annex 1) as well as total nitrogen (6 §).
WFD				
MSFD				
BWD				
DWD				
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	Naturvårdverket. Formulering av villkor och krav för utsläpp från avloppsreningsverk – vägledning. (SEPA. Formulation of conditions and requirements for discharges from waste water treatment plant – guidance) ⁸⁹⁶		Summary: Provides guidance for permit and supervision authorities on how to formulate conditions in environmental permits for waste water treatment facilities. For instance, the document states that overflows taking place in or in connection to the waste water treatment plant should be considered as discharges from the plant, while other storm water overflows as overflows from the connecting system. The document furthermore compares different types of conditions/requirements that could be laid down for storm water overflows. It suggests that conditions must be provided for both incoming and outgoing water in order to create incentives to decrease storm water overflows. The guidance document furthermore describes some physical measures that can be implemented to deal with storm water overflows. The document also describes different types of infrastructure that can be used to manage storm water overflows and highlight the difficulty to dimension these in a changed climate with heavy rain scenarios.

⁸⁹⁶ <http://www.naturvardsverket.se/upload/stod-i-miljoarbetet/vagledning/avlopp/villkor-och-krav-for-utslapp-fran-avloppsreningsverk-20130423.pdf> . Unofficial translation.

Overview of legal and policy framework. Relevant references to storm water overflows.

		Boverkets byggregler – föreskrifter och allmänna råd, BBR, Konsoliderad version, BFS 2011:6⁸⁹⁷ (Building regulations of the National Board of Housing, Building and Planning, BFS 2011:6, consolidated version)	6:71 Allmänt Byggnader ska utformas så att det blir möjligt att föra bort föroreningar som uppkommer till följd av byggnadens drift, utan att negativa effekter på hälsa och hygien uppstår för människor som befinner sig i byggnaden eller i byggnadens omgivning. Utsläppen får inte heller medföra en ogynnsam inverkan på mark, vatten eller luft i byggnadens omgivning.	Summary: SEPA manual providing guidance on how the Water Authorities can prepare programmes of measures for the water districts and guidelines on the content of such action programs. The manual states inter alia that attention to the sewage systems is a priority and highlights the responsibility of municipalities to review physical planning within settlements with particular consideration to the need for storm water treatment systems. No specified standards or requirements for storm water overflows are stated in the document. Summary: The SEPA general guidelines offers detailed information on the procedure for monitoring storm water overflows/combined sewer overflows (<i>bräddningar</i>) in accordance with the requirements set forth in SEPA regulations. The document provides guidance on how to describe a specific collecting systems or sewer overflow infrastructures. It underscores that reports shall contain information on 1) the amount of overflows occurred during a year, 2) the locations for overflows and 3) the volumes overflowed. Summary: Applies when constructing or making amendments to buildings. Contains prescriptions and non-binding general advice. Several references to storm water-related issues/storm water infrastructure, for instance: 6:71 General Buildings shall be designed in such a way that pollutants, which may occur as a result of the activities in the building, can be removed without any adverse effects with respect to the health and hygiene of people in the building or in the surroundings of the building. The discharge must not have an adverse effect on the ground, water or air in the surroundings of the building either.

⁸⁹⁷ <http://www.boverket.se/contentassets/a9a584aa0e564c8998d079d752f6b76d/bbr-bfs-2011-6-tom-bfs-2015-3-konsoliderad.pdf>.

Overview of legal and policy framework. Relevant references to storm water overflows.				
			<i>Allmänt råd</i> Med föroreningar avses bl.a. förorenad luft, avloppsvatten och förbränningsgaser.	<i>General recommendation</i> Pollutants refer to contaminated air, waste water and combustible gases, among others.
WFD	N			
MSFD	N			
BWD	N			
DWD	N			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N			
HELCOM	N			
Barcelona Convention	N			
Conv. on the Protection of the Black Sea	N			
Danube Convention	N			
Rhine Convention	N			
Oder Convention	N			
Elbe Convention	N			
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
River Basin Management Plan	Förvaltningsplan 2009 – 2015 Södra Östersjöns vattendistrikt ⁸⁹⁸ (RBMP for Södra Östersjön water district)		The RBMP for Södra Östersjön water district refers to "bräddning via bräddavlopp" (urban waste water overflows via spillway overflow). Under the section <i>Påverkanskällor</i> (Sources of impact), p. 83, urban waste water overflows are pointed out as one out of several sources having an impact on the chemical and biological status of the water. More specifically, urban waste water overflows are listed as "point emissions" (<i>Utsläpp från punktkällor</i>). The meaning and impact of urban waste water overflows is described, numbers on emissions of phosphorous and nitrogen are provided for and it is highlighted, for instance, that waste water containing pharmaceuticals and other types of chemical pollution is a rising environmental problem in the water district. Under section <i>Övriga</i>	

⁸⁹⁸Vattenmyndigheten i Södra Östersjöns vattendistrikt vid Länsstyrelsen Kalmar län, *Förvaltningsplan 2009 – 2015 Södra Östersjöns vattendistrikt*, January 2010, (<http://www.vattenmyndigheterna.se/SiteCollectionDocuments/sv/sodra-ostersjon/beslut-2009/forvaltningsplan-so-2009.pdf>).

		<i>vattenkvalitetsproblem</i> (Other water quality issues), p. 113, the RBMP highlights that increasing rainfall, seasonal changes and extreme rainfall risks causing overloading on sewers and waste water treatment systems, causing overflows of polluted waste water.
River Basin Management Plan	Förvaltningsplan 2009 – 2015 Norra Östersjöns vattendistrikt ⁸⁹⁹ (RBMP for Norra Östersjön water district)	The RBMP for Norra Östersjön water district refers to " <i>bräddning via bräddavlopp</i> " (urban waste water overflows via spillway overflow). Under sections <i>Påverkanskällor</i> (Sources of impact), p. 83, urban waste water overflows are pointed out as one out of several sources having an impact on the chemical and biological status of the water. More specifically, urban waste water overflows are listed as "point emissions" (<i>Utsläpp från punktkällor</i>). The meaning and impact of urban waste water overflows is described, numbers on emissions of phosphorous and nitrogen are provided for and it is highlighted, for instance, that waste water containing pharmaceuticals and other types of chemical pollution is an up-coming environmental problem in the water district.
River Basin Management Plan	Förvaltningsplan 2009 – 2015 Västerhavets vattendistrikt ⁹⁰⁰ (RBMP for Västerhavets water district)	The terms " <i>bräddning</i> " or " <i>bräddat avloppsvatten</i> " are not mentioned in the documents.
River Basin Management Plan	Förvaltningsplan 2009 – 2015 Bottenhavets vattendistrikt ⁹⁰¹ (RBMP for Bottenhavets water district)	The RBMP for Bottenhavets water district refers to " <i>bräddning via bräddavlopp</i> " (overflows via overflow sewers). Under sections <i>Påverkanskällor</i> (Sources of impact), p. 94, storm water overflows (<i>bräddning</i>) are pointed out as one out of several sources having an impact on the chemical and biological status of the water.
River Basin Management Plan	Förvaltningsplan 2009 – 2015 Bottenvikens vattendistrikt ⁹⁰² (RBMP for Bottenvikens water district)	The terms " <i>bräddning</i> " or " <i>bräddat avloppsvatten</i> " etc. are not mentioned in the documents.
Water district Programmes of measures	Åtgärdsprogram 2009 – 2015 Bottenhavetsvattendistrikt ⁹⁰³	The programme of measures of Bottenhavets water district mentions " <i>rening av bräddat avloppsvatten</i> " (treatment of waste water overflows" (p. 27). The Water Authority lists measures to deal with eutrophication in the water areas of the water district (addressed to public authorities and municipalities), including measures to decrease storm water overflows (<i>bräddning</i>) – increased storage of flows and treatment of waste/storm water discharges.

⁸⁹⁹ Vattenmyndigheten i Norra Östersjöns vattendistrikt vid Länsstyrelsen Västmanlands län, *Förvaltningsplan 2009 – 2015 Norra Östersjöns vattendistrikt*, December 2009, (<http://www.vattenmyndigheterna.se/SiteCollectionDocuments/sv/norra-ostersjon/beslut-2009/forvaltningsplan-no-2009.pdf>).

⁹⁰⁰ Vattenmyndigheten i Västerhavets vattendistrikt vid Länsstyrelsen i Västra Götalands län, *Förvaltningsplan 2009 – 2015 Västerhavets vattendistrikt*, January 2010, (<http://www.vattenmyndigheterna.se/SiteCollectionDocuments/sv/vasterhavet/beslut-2009/fp-vasterhavet.pdf>).

⁹⁰¹ Vattenmyndigheten i Bottenhavets vattendistrikt vid Länsstyrelsen i Västernorrlands län, *Förvaltningsplan 2009 – 2015 Bottenhavets vattendistrikt*, January 2010, (<http://www.vattenmyndigheterna.se/SiteCollectionDocuments/sv/bottenhavet/forvaltningsplan/forvaltningsplan-2009-2015.pdf>).

⁹⁰² Vattenmyndigheten i Bottenvikens vattendistrikt vid Länsstyrelsen i Norrbottens län, *Förvaltningsplan 2009 – 2015 Bottenvikens vattendistrikt*, January 2010, (http://www.vattenmyndigheterna.se/SiteCollectionDocuments/sv/bottenviken/beslut-2009/fp-beslut-2009/fp_bv_2009_2015_webb_100126.pdf).

⁹⁰³ Vattenmyndigheten i Bottenhavets vattendistrikt vid Länsstyrelsen i Västernorrlands län, *Åtgärdsprogram 2009 – 2015 Bottenhavets vattendistrikt*, January 2010, (<http://www.vattenmyndigheterna.se/SiteCollectionDocuments/sv/bottenhavet/beslutsdokument/beslut-2009/atgardsprogram-2009-2015.pdf>).

Water district Programme of measures	Åtgärdsprogram 2009 – 2015 Västerhavets vattendistrikt ⁹⁰⁴	The Programme of measures of Västerhavet water district mentions ” <i>rening av bräddat avloppsvatten</i> ” (treatment of waste water overflows) under <i>Föreslagna åtgärder för att nå miljö kvalitetsnormerna</i> (proposed measures to reach environmental quality standards) (p. 24, 32), measures needed to analyse municipal waste water treatment possibilities to the combat of eutrophication (p. 73) and proposals of measures against overflows from waste water treatment plants (p. 116).
Water district programmes of measures	Åtgärdsprogram 2009 – 2015 Bottenvikens vattendistrikt ⁹⁰⁵	The Programme of measures of Bottenviken river basin proposes measures to decrease overflows under <i>Åtgärder för att nå miljö kvalitetsnormerna</i> (Measures to reach environmental quality standards) (p. 23-25). These are addressed to public authorities and municipalities.
Water district programmes of measures	Åtgärdsprogram 2009 – 2015 Södra Östersjöns vattendistrikt ⁹⁰⁶	The programme of measures provides for measures addressed to public authorities and municipalities to combat eutrophication, proposing possible measures to decrease storm water overflows, to treat storm water, to increase storage of storm water during excessive flows etc. (p. 27-28). Storm water overflows are also dealt with under section <i>Klimatförändringar</i> (Climate changes) in relation to extreme weather conditions (p. 51). The Programme of measures also emphasizes the treatment potential of storm water overflows, stating that the treatment potential must be determined for the individual waste water treatment plant, this inter alia in order to determine the costs related to the measures (p. 66). Specific treatment methods are discussed (p. 66). Furthermore, pollution due to storm water is emphasized as an important obstacle to the environmental goal of combating eutrophication (p. 62).

⁹⁰⁴ Vattenmyndigheten i Västerhavets vattendistrikt vid Länsstyrelsen i Västra Götalands län, *Åtgärdsprogram 2009 – 2015 Västerhavets vattendistrikt*, January 2010, (<http://www.vattenmyndigheterna.se/SiteCollectionDocuments/sv/vasterhavet/beslut-2009/ap-vasterhavet.pdf>).

⁹⁰⁵ Vattenmyndigheten i Bottenvikens vattendistrikt vid Länsstyrelsen i Norrbottens län, *Åtgärdsprogram 2009 – 2015 Bottenvikens vattendistrikt*, January 2010 (<http://www.vattenmyndigheterna.se/SiteCollectionDocuments/sv/bottenviken/beslut-2009/ap-beslut-2009/bvvd-100126.pdf>).

⁹⁰⁶ Vattenmyndigheten i Södra Östersjöns vattendistrikt vid Länsstyrelsen Kalmar län, *Åtgärdsprogram 2009 – 2015 Södra Östersjöns vattendistrikt*, January 2010, (http://www.vattenmyndigheterna.se/SiteCollectionDocuments/sv/sodra-ostersjon/beslut-ap/AP_SO_webb.pdf).

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
126. Which types of sewer system does Sweden have?	Essentially, all households in urban areas in Sweden are connected to waste water treatment facilities. In 2014, there were approximately 2000 municipal waste water treatment facilities in Sweden. Approximately 470 of these establishments are designed for > 2000 pe. Approximately 90 % of the Swedish population is connected to municipal waste water treatment facilities. ⁹⁰⁷ The majority of Swedish municipal sewage systems are separate/duplicate (separating efflux and storm water). Combined systems can sometimes be found in older city centers. ⁹⁰⁸ Phosphorous is reduced up to 95-97 %, organic substances 95-97 % and nitrogen between 40-80 % depending on the location (2014). ⁹⁰⁹ The author has not been able to find any information on sewage systems connected to industries or private land.
127. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	The total length of the Swedish municipal waste water collecting system (<i>Sveriges kommunala avloppsledningsnät</i>) is approximately 101 000 kilometers (12,5 meters per connected person). This covers discharge water and separate storm water collecting systems. Approximately 12 %, or 7 900 km of Swedish municipal waste water collecting systems (<i>spillvattenledningsnätet</i>) are combined. Approximately 88 % of Swedish municipal waste water collecting systems are separate sewers. ⁹¹⁰
128. How many storm water overflows infrastructures exist in Sweden?	There are no national statistics on the type of information, however information is available on the municipal level. The number and subsequent reduction of active discharge points is monitored in environmental reports. ⁹¹¹
<i>Available quantitative data on the occurrence of storm water overflows</i>	
129. Is there information on the occurrence of storm water overflows?	Operators of environmentally hazardous activities submitted to permits are obliged to deliver environmental reports (<i>miljörapporter</i>) in accordance with the Environmental Code (26:20 §) and <i>Miljöprövningsförförordning</i> (2013:251). Data on frequency, volumes and locations of storm water overflows can be found in these environmental reports. As an illustrative example, the environmental report of <i>Koholmen avloppsreningsverk Karlskrona kommun</i> (2014), provides information on the points of overflows on the collecting pipes of the waste water

⁹⁰⁷ Svenskt Vatten (<http://www.svensktvatten.se/Vattentjanster/Avlopp-och-Miljo/Vanliga-fragor-om-avlopp-och-miljo/>).

⁹⁰⁸ Anne Adrup, Svenskt Vatten (2015). Svenskt Vatten, *Fakta om Vatten och Avlopp*, January 2014, p. 18, (http://www.svensktvatten.se/Documents/Kategorier/Management/Informationsmaterial/FaktaOmVatten_A5_140220.pdf). SMHI, *Underlag till kontrollstation 2015 för anpassning till ett förändrat klimat*. Klimatologi Nr 12, 2015, p. 154, (http://www.smhi.se/polopoly_fs/1.86329!/Menu/general/extGroup/attachmentColHold/mainCol1/file/Klimatologi%20Nr%2012.pdf). Svenskt Vatten, *Rörnät & Klimat*, 2015, (<http://www.svensktvatten.se/Vattentjanster/Rornat/>).

⁹⁰⁹ Svenskt Vatten (2014) p. 19. As the association Svenskt Vatten represents the municipal sewage and water services, statistical data published by Svenskt Vatten is available for municipal waste water treatment systems.

⁹¹⁰ Anne Adrup, Svenskt Vatten. Svenskt Vatten (2014) p. 18. SMHI (2015) p. 154. Svenskt Vatten (2015). Svenskt Vatten, *Klimatförändringarnas inverkan på allmänna avloppssystem*. *Underlagsrapport till Klimat- och sårbarhetsutredningen*, September 2007, p. 9, 12. (<http://www.svensktvatten.se/Documents/Kategorier/R%C3%B6rn%C3%A4t/Klimat%20o%20dagvatten/Svenskt%20Vatten%20M134.pdf>).

⁹¹¹ See comment, Kerstin Rosén Nilsson.

Available data on storm water overflows	
	treatment facility in question, the localization of registration of overflows, methods of measurement, the frequency of overflows (hydraulic storm water overflows and emergency discharges) during year 2014.⁹¹² Environmental reporting is conducted digitally through <i>Svenska MiljörapporteringsPortalen</i> (SMP)⁹¹³ no later than 31 March every year. This information is used in the supervising of waste water treatment systems, in the follow-up of national and regional environmental goals, in international reporting of Swedish discharges and for statistical purposes.⁹¹⁴ Reported emissions are accessible to the public through the <i>Swedish Pollutant Release and Transfer Register</i> (<i>Utsläpp i siffror</i>).⁹¹⁵ In the public register, reported emissions of substance releases for individual waste water treatment facilities are accessible. A national compilation of pollution releases for the year of 2012 can be found here: (http://www.scb.se/MI0106/).
130. Are storm water overflows monitored in Sweden? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	Reporting and monitoring requirements specific to waste water (including storm water) overflows are specified in national regulations (SNSF 1990:14).⁹¹⁶ The regulation is applicable to waste water treatment facilities connected to agglomerations and dimensioned for > 200 pe (1 §). Overflows (<i>bräddningar</i>) from waste water collecting systems and waste water treatment facilities dimensioned for > 500 pe are submitted to reporting requirements (4 § and 20 §). The operator of waste water treatment plants dimensioned 501 < 2000 pe must continuously measure and report the frequency and volume of overflows. For waste water treatment plants 2000 < 20 000 pe, the frequency and volume of overflows from the treatment plant must be determined on a daily basis and time-proportional samples must be made every tenth minute during ongoing overflows. For waste water treatment systems > 20 000, sampling proportional to flows and continuous measuring and registration of flows are prescribed. Volumes of overflows from connecting pipe systems > 500 pe shall be measured or calculated (§§ 4 and 20). The following shall be reported for overflows from collecting sewers connected to waste water treatment systems > 500 pe: 1) the amount of overflows per year, 2) the locations for overflows and 3) the volumes of overflows, calculated as cubic meters per year. (20 § 5 p). Sampling and water analysis shall be undertaken in accordance with table 2 in SNSF 1990:14 5 §:

⁹¹² MILJÖRAPPORT För Koholmen avloppsreningsverk (1080-50-005) år: 2014.
(<http://www.karlskrona.se/Global/Karlskrona%20kommun/Dokument/Bostad%20och%20miljo/VARenhallning%20dokument/Reningsverk/Miljorapport%20Koholmen%20ARV%202014.pdf>)

⁹¹³ <https://smp.lansstyrelsen.se/>. Most reports are available online, however one must search for the individual waste water treatment facility/municipality (one on-line portal does not exist).

⁹¹⁴ <http://www.naturvardsverket.se/Stod-i-miljoarbetet/Vagledning/Miljorapportering/>.

⁹¹⁵ <http://utslappisiffror.naturvardsverket.se/Sok/>.

⁹¹⁶ https://www.naturvardsverket.se/Nerladdningssida/?fileType=pdf&downloadUrl=/Documents/foreskrifter/nfs1990/SNFS1990_14k.pdf.

Available data on storm water overflows

Tabell 2: Bräddat avloppsvatten enligt 4 § punkt 1 b och 2 b

Kontrollparameter	Provtyp och provtagningsfrekvens vid avloppsreningsverk med olika anslutning (pe)		
	2 001 - 10 000	10 001 - 20 000	> 20 000
COD _{Cr}	1 dp/vecka	1 dp/vecka	1 vp/vecka
BOD ₇	1 dp/vecka	1 dp/vecka	1 dp/vecka
P-tot	1 dp/vecka	1 dp/vecka	1 vp/vecka
N-tot	1 dp/vecka	1 dp/vecka	1 dp/vecka
NH ₄ -N	-	1 dp/vecka	1 dp/vecka
Hg, Cd, Pb, Cu, Zn, Cr och Ni	-	-	1 vp/vecka

(Vecka = week, dp = daily sample, vp = weekly sample)

§ 6 furthermore states that the sampling scheme shall be designed in such a way that the controls will give a result that is representative for discharges throughout the year.

FACTSHEET FOR UNITED KINGDOM (ENGLAND AND WALES)

1. BASIC INFORMATION

Basic information	
<i>General Information</i>	
180. What are the competent authorities for waste water treatment and management in England and Wales?	There is no single competent authority and various duties are divided between different bodies, owing to the privatised nature of the sewerage industry. The environmental regulator for waste water treatment and management is the Environment Agency⁹¹⁷ (EA) in England and the Natural Resources Wales (NRW) in Wales. Duties in relation to urban waste water are placed on the EA and NRW by the Urban Waste Water Treatment (England and Wales) Regulations 1994 (the 1994 Regulations)⁹¹⁸ and the Urban Waste Water Treatment (England and Wales) (Amendment) Regulations 2003 (the 2003 Regulations)⁹¹⁹. References in this document to regulation and guidance used by both the EA and NRW will refer to the EA/NRW. Where there are differences these will be highlighted. The relevant Minister either is the Secretary of State for Environment, Food and Rural Affairs (DEFRA)⁹²⁰ or the Welsh Ministers, depending on the function in question and the geographic area.⁹²¹ sewerage companies
181. What is the transposing law(s) of the UWWTD in England and Wales?	The 1994 Regulations 1994 (amended by the 2003 Regulations) are the main transposing regulations. The 2004 regulations: • require the Secretary of State of Welsh Ministers to identify sensitive areas and less sensitive areas (or “areas of high natural dispersion”) in regulation 3; • require sewerage companies to provide and maintain collecting systems which satisfy the requirements of Annex 1, part A of the UWWTD (regulation 4 and schedule 2); • require sewerage companies to provide and maintain treatment plants which satisfy the requirements of Article 10 (regulation 4(4)(a)); • require that primary, secondary and more stringent treatment of is provided as appropriate (regulation 5, regulation 6 and Part 1 Schedule 3);

⁹¹⁷ The Environment Agency was established under the Environment Act 1995. See the Environment Agency website at <https://www.gov.uk/government/organisations/environment-agency>.

⁹¹⁸ SI 1994/2841. UK legislation is published on www.legislation.gov.uk, however please contact Defra to ensure you have up to date versions.

⁹¹⁹ S.I. 2003/1788.

⁹²⁰ Government department website available at: <https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs>.

⁹²¹ The water and sewerage systems in the UK is owned, maintained and operated, by private regional “water and/or sewerage undertakers” appointed under sections 6 and 7 of the Water Industry Act 1991 (the WIA). Certain requirements under the UWWTD are placed on these undertakers, for example, regulation 4 of the 1994 regulations supplements a general duty on undertakers (in section 94 of the WIA) to keep their areas effectually drained by requiring them to provide and maintain collecting systems and treatment plants. The economic regulator of the water and sewerage industry in England and Wales is the Water Services Regulation Authority (OfWAT). OfWAT’s duties are set out in section 2 of the WIA. OfWAT has different functions and powers to the environmental regulators. In particular, it reviews the prices set by water companies, and paid by their water and sewage services consumers, to fund improvements in water and sewage infrastructure. It is consulted on waste water policy development.

Basic information	
	• set out requirements for industrial waste (regulations 7 and 8); • prohibits dumping sludge from shops (regulation 9); • set out monitoring requirements (regulation 11 and part II of schedule 3); • set out requirements for reporting to the Commission in accordance with articles 16 and 17 of the (regulation 13). Regulations 2 and 3 of the 2003 Regulations also deal with sensitive areas and less sensitive areas. The EA and NRW also have powers to grant discharge permits under Part II of the Environmental Permitting (England and Wales) Regulations 2010⁹²² (the EPRs), and to monitor discharge from combined sewer overflows and waste water treatment plants. Information about discharge permits is made publicly available by the EA on a ‘public register’.⁹²³ Where water and sewage companies are in breach of their permits the environmental regulators can review the permit and/or bring an action for enforcement against the permit holder. The EA and NRW have produced guidance on how to comply with a discharge permit.⁹²⁴ The EA and NRW have also produced guidance⁹²⁵ for water companies to help them assess the health and environment risks of discharge from combined sewer systems when completing an application for a discharge permit under the EPRs. The EPRs also establish offences for the discharge of any waste matter or sewage effluent into inland freshwaters, coastal waters or relevant territorial waters under regulation 38 and Schedule 21. These regulations complement the 1994 Regulations.
182. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	The 1994 Regulations transpose Section A of Annex I to the UWWTD in Schedule 2, paragraph 2(c): <i>“2. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding...(c) limitation of pollution of receiving waters due to storm water overflows.”</i>⁹²⁶ In Guidance “EPRs 7.01”, referred to above, on applying for a discharge permit for waste water activities produced by the EA/NRW, the EA/NRW has interpreted “<i>best technical knowledge not entailing excessive costs</i>” in the context of storm water overflows (the relevant text is examined in Section 2 below).
183. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	Footnote 1 in Sections A and B of Annex I to the UWWTD requires that Member States decide on measures to limit pollution from storm water overflows. It states that the measures could be based on dilution rates or capacity in relation to dry weather flow or could specify a certain acceptable number of overflows per year. Regulation 6(2)(c) of the 1994 regulations places a duty on EA and NRW to secure the limitation of pollution of receiving waters due to storm water overflows, with respect to any discharge from a collecting system or an urban waste water treatment plant. The Regulations do not specify measures to limit pollution from storm water overflows however see sections below which detail the requirements and

⁹²² S.I 2010/675.

⁹²³ <http://epr.environment-agency.gov.uk/ePRInternet/>.

⁹²⁴ ‘How to comply with your environmental permit Additional guidance for: Water Discharge and Groundwater (from point source) Activity Permits (EPR 7.01)’ page 26, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/298081/LIT_7356_4132bc.pdf.

⁹²⁵ Horizontal Guidance Note H1 available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/298234/geho0410bshr-e-e.pdf. Annex E Surface Waters Discharge (complex) available at: http://www.fwr.org/WQreg/Appendices/Horizontal_Guidance_H1_Annex_E_surface_Water_Complex_geho0410bsik-e-e.pdf.

⁹²⁶ UK SI 1994/2841 Reg 6(2)(c).

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	standards for storm water overflows. Measures used by the EA/NRW to secure the limitation of pollution include taking enforcement action against polluters. The Environment Agency can exercise enforcement powers against an operator of a sewer or water treatment system that is in breach of the conditions of its environmental permit due to poor management of storm water discharge. Regulation 11(1)(c) of the 1994 Regulations establishes that the EA/NRW has a duty to monitor water subject to discharges from collecting systems when it can be expected the environment will be significantly affected: <i>“(1) It shall be the duty of the Authority⁹²⁷ ... (c) to monitor or procure the monitoring by a competent authority or appropriate body of waters subject to discharges from urban waste water treatment plants provided in accordance with regulation 5 in cases where it can be expected that the receiving environment will be significantly affected.”</i> Part II of Schedule 3 of the 1994 Regulations outlines the methods for monitoring and evaluation of samples of discharged water in order to assess its quality under the parameters in Tables 1 and 2 of Schedule 3. The guidance “EPR 7.01” mentioned above sets out how a sewerage company should model the impact of storm water overflows as a condition of its application for a discharge permit. The guidance cross-refers to standards and measures to limit pollution from storm water overflows documented in the Urban Pollution Management Manual⁹²⁸ and it is advised that the guidance should be read in parallel with the Urban Pollution Management Manual.
184. What is the terminology used to refer to storm water overflows in England and Wales? Is there more than one term used?	The 1994 Regulations make two references to “<i>storm water overflows</i>”⁹²⁹. Both references are used in the context of discharges of waste water from combined sewers. In general, the policy and guidance documents on waste water treatment and management in England and Wales refer to “<i>combined sewer overflows</i>” (“CSOs”)⁹³⁰. This terminology is in use in the media and by the general public.⁹³¹

⁹²⁷ UK SI 1994/2841 defines the “Authority” as the National Rivers Authority but this body has now been replaced by the Environment Agency.

⁹²⁸ Urban Pollution Management Manual 3rd edition, available at: <http://www.fwr.org/UPM3/>.

⁹²⁹ See regulation 2(c) and regulation 6(2)(c).

⁹³⁰ For example, see ‘National Policy Statement for Waste Water’ March 2012 (available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69505/pb13709-waste-water-nps.pdf); the Environment Agency’s guidance notes on application for a water discharge activity, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/305506/LIT_6754.pdf; ‘Sewage Treatment in the UK’ - a 2002 report published by DEFRA to fulfil the UK’s obligation under Article 16 of the UWWTD. The report refers to “CSOs” at pages 3 and 6. It is available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69582/pb6655-uk-sewage-treatment-020424.pdf. ‘Waste Water Treatment in the UK – 2012’ is a 2012 report published by DEFRA to fulfil the UK’s obligation under Article 16 of the UWWTD. It refers to “combined sewer overflows” at pages 4-6, 9, 16-17, 42 and 45. The report is available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69592/pb13811-waste-water-2012.pdf.

⁹³¹ The campaign group ‘Surfers against Sewage’ provide an explanation of “CSOs” on their website, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69505/pb13709-waste-water-nps.pdf.

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	A storm water overflow is an untreated discharge from a combined sewer at a time when the sewer has reached capacity due to rainfall. Storm water overflows is, in most cases, an overflow from a combined sewer system therefore within the meaning of “combined sewer overflow”. A storm water overflow is an untreated discharge from a combined sewer at a time when the sewer has reached capacity due to rainfall. It is therefore within the meaning of “combined sewer overflow” and falls within the definition of “emissions” in the DEFRA report from 2012⁹³². Emergency overflows occur where there is a mechanical or electrical failure which cannot be mitigated resulting in a discharge to the environment. Emergency overflows are not the same as storm water overflows. In its guidance EPR 7.01, the EA/NRW distinguishes “emergency overflows” from “storm overflows” and outlines the different requirements that apply to each.⁹³³
185. Is there a definition of storm water overflow in England and Wales?	A definition of “storm water overflows” is not provided within the transposed text of the UWWTD for England and Wales though they are described in detail in Horizontal Guidance Notes H1 and E1⁹³⁴. In requesting information from sewerage companies then four categories of storm overflow are identified by the EA/NRW: - Combined Sewer Overflows on the network; - Storm overflows at pumping stations; - Storm tanks at sewage treatment works, and - Inlet overflows at sewage treatment works. A more commonly used phrase is “combined sewer overflow”. This expression and “storm water overflows” fall within the definition of “emissions” in regulation 2 of the EPRs.
186. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does England and Wales have a definition of extreme or unusual rainfall event?	The Met Office has an online record of Rainfall extremes for England and Wales, available on their website⁹³⁵. The average annual rainfall in England and Wales is 927mm (1971 to 2000). However there is considerable geographic variation, the wettest places are in the Lake District (northwest England), receiving an average of over 3000mm of rain a year. Much of eastern England receives less than 700 mm per year and includes some of the driest areas in the country. Increasingly sewer design is being changed to take account of climate change information. In England and Wales, this comes from the Met Office, and we are currently using UKCIP09.⁹³⁶

⁹³² Emissions are defined at page 4 of the ‘Water waste treatment in the United Kingdom – 2012’ report as “discharges of continuous treated discharges from waste water treatment plants, or, lesser treated or untreated intermittent discharges from trunk sewerage combined sewer overflows, treatment plant storm tanks, or pumping station emergency overflows.”

⁹³³ See section 2.3.4, page 46.

⁹³⁴ Horizontal Guidance Note H1 available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/298234/geho0410bshr-e-e.pdf. Annex E Surface Waters Discharge (complex) available at: http://www.fwr.org/WQreg/Appendices/Horizontal_Guidance_H1_Annex_E_surface_Water_Complex_geho0410bsik-e-e.pdf.

⁹³⁵ <http://www.metoffice.gov.uk/public/weather/climate-extremes/#?tab=climateExtremes>.

⁹³⁶ <http://ukclimateprojections.metoffice.gov.uk/>

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
<i>Overview of legal and policy framework</i>	
53. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	The legislative framework for storm water overflows is provided by a number of regulations currently in force in the United Kingdom: - the Urban Waste Water Treatment (England and Wales) Regulations 1994 (as amended)⁹³⁷, transpose provisions on storm water overflows from the UWWTD into UK legislation; - the Environmental Permitting (England and Wales) Regulations 2010⁹³⁸, establish the framework under which the EA/NRW can grant or revoke the permits that sewerage companies require in order to operate waste water services in England and Wales; - the Bathing Water Regulations 2013, under which the EA/NRW must monitor and assess water quality at designated bathing sites around England and Wales and take “appropriate agency management measures”⁹³⁹ to limit pollution to bathing waters - where a sewerage company’s actions result in pollution and a local authority fails to mitigate the pollution, the Secretary of State may exercise its enforcement powers under the regulations.⁹⁴⁰ The 1994 Regulations should be considered in conjunction with the EPRs because, under regulation 6(2) of the 1994 Regulations, the EA/NRW have a duty to reflect requirements of the UWWTD in the permits it grants to sewerage companies and other functions under the EPRs. A discharge permit enables the EA/NRW to set standards and conditions that the sewerage company must meet to comply with the requirements of the UWWTD. The conditions and standards of the permit can include the volume of flow at which it is permitted to discharge waste water from a combined sewer overflow. The EA/NRW have produced specific guidance for waste water discharge activities, including storm water overflow operations.⁹⁴¹ Guidance EPR 7.01 notes that the EA/NRW sets “minimum rates for the amount of flow⁹⁴² that is passed forward to treatment”⁹⁴³ before overflow to storm tanks is allowed and sets out the standards that storm water overflows must be designed to meet. It also sets out the standards for screening, spill frequency, engineering design, monitoring and maintenance of sewerage operations and section 2.3.3 deals specifically with storm water overflows. Permits are only issued for storm water overflows that are deemed to be satisfactory. EA/NRW will take enforcement action or review the permit, as appropriate, where storm water overflows that are not

⁹³⁷ UK SI 1994/2841.

⁹³⁸ UK SI 2010/675.

⁹³⁹ UK SI 2013/1675 Pt 5 reg. 13(1)(a)(i).

⁹⁴⁰ UK SI 2013/1675 Pt 6 reg. 16.

⁹⁴¹ See guidance at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/298081/LIT_7356_4132bc.pdf.

⁹⁴² This flow is usually specified as the ‘flow to full treatment’.

⁹⁴³ section 2.3.1.2.

Overview of legal and policy framework. Relevant references to storm water overflows.

maintained to the satisfactory standard. A sewerage company is expected to produce a study on the impacts of any storm water overflows following the guidance provided in the Urban Pollution Management Manual (UPM)⁹⁴⁴. The Urban Pollution Management Manual has been revised in light of the implementation of the Water Framework Directive (WFD)⁹⁴⁵ and the Bathing Waters Directive⁹⁴⁶. It outlines the requirements for the design, maintenance and monitoring of storm water overflows in England and Wales.

Guidance Note H1, mentioned above, consists of an overview document⁹⁴⁷ and detailed, supplementary Annexes D1 and D2. The EA/NRW applies a “no deterioration” policy for water quality in England and Wales. The burden is placed on the sewerage company to show that, as a result of any changes, to their activities the quality of the water has not deteriorated.

Under the EPRs, the EA/NRW can bring enforcement action against a company that it believes to have breached the conditions of its permit. Bringing enforcement proceedings requires the EA/NRW to establish evidence of a breach of the conditions of the discharge permit and for the evidence to be presented before a criminal court. If the court holds that there has been a breach then it can impose fines or penalties. Pollution incidents which have been the result of water discharging from combined storm water overflows have led to charges being brought against sewerage companies and fines imposed.⁹⁴⁸

Policy is developed and improved through the monitoring and analysis of water quality in each river basin district by the EA/NRW under the WFD1994 Regulations. The results of this work are used to produce a river basin management plan for each river basin district. These plans are subject to the Ministerial approval. For example, the 2009 River Basin Management Plan for the Thames River basin district refers to storm water overflows along the River Thames and the projects being undertaken to limit the impact of pollution.⁹⁴⁹

Many combined sewer overflows that discharge at coastal waters are already monitored to assist with the need to comply with the Bathing Waters Directive and shellfish waters protected area requirements under the WFD. Information on the time of the spill and the duration of the spill is recorded but information on volume and/or load is not recorded. In 2013 the Minister for the Natural Environment and Fisheries⁹⁵⁰ informed all sewerage companies operating in England that the majority storm overflows were to be monitored by 2020.

⁹⁴⁴ Available at: <http://www.fwr.org/UPM3/>. The Urban Management Manual was originally released in 1994 (the result of a 10 year research project on the impacts of wet weather discharges). In 1998 it was updated with a revised set of standards. In 2013 it was further updated and the current edition is the 3rd edition. The original methodology governing plan procedure has remained the same.

⁹⁴⁵ Directive 2000/60/EC.

⁹⁴⁶ Directive 2000/7/EC.

⁹⁴⁷ ‘**Horizontal Guidance Note H1 Overview document**’ available at: <https://www.gov.uk/government/publications/h1-environmental-risk-assessment-for-permits-overview>.

⁹⁴⁸ The Environment Agency brought a charge against Severn Trent Water for an incident where waste water discharged from a combined sewer overflow during dry conditions, which resulted in Severn Trent Water being fined. See: <https://www.gov.uk/government/news/severn-trent-water-given-10000-fine-for-pollution-in-nottinghamshire>. Thames Water was found guilty of breaching the conditions of its discharge permit as a result of discharge from its combined storm water overflows and was fined £220,000, for further information please see: <https://www.gov.uk/government/news/thames-water-fined-220000-for-river-pollution-in-surrey>.

⁹⁴⁹ See: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/289937/geth0910bswa-e-e.pdf.

⁹⁵⁰ Letter from Richard Benyon - to Water and Sewerage Company Chief Executives – July 2013 – Defra.

Overview of legal and policy framework. Relevant references to storm water overflows.

	In Wales, Welsh Ministers requested that all storm overflows will be monitored. Guidance on monitoring combined sewer overflows was published by the Environment Agency in October 2013⁹⁵¹. Similar guidance has been published by NRW in 2014 for Wales. It is expected from 2015 that the EA/NRW will include a spill frequency as a condition in a permits for all combined sewer overflows discharging to bathing waters and shellfish waters, which is not to be exceeded (if it is exceeded then it would be the responsibility of the sewerage company to undertake a study to explain why).														
54. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	Standards for storm water overflows are referenced in Guidance EPR 7.01 produced by the EA/NRW for when a waste water company is applying for a waste water discharge permit. . Guidance EPR 7.01 specifies the required ‘full flow treatment’ calculation⁹⁵² and notes that the full flow treatment is set “<i>to be sufficiently high to ensure that the overflow to the storm tank does not operate in dry weather at any time of the year</i>”. Combined Sewer Overflows are categorized according to three types of significant discharge. A low significant discharge is a discharge into a large watercourse where no other interaction with other discharges or other sewage works. A medium discharge is where the drive of the flow to storm flow is smaller than for a ‘low significant discharge’ so there is less dilution; where a greater number of discharges occur in the area, or where the water supports fisheries. A high significant discharge is a large discharge into a relatively small watercourse, or where there is a population over 10,000 or a designated fishery. A table summarising the design standards required is provided in section 2.3.3.4: <table border="1"> <thead> <tr> <th>Directive</th><th>Design Standard</th></tr> </thead> <tbody> <tr> <td>Revised Bathing Waters</td><td>3 spills per bathing season, for good and sufficient stratus, 2 spills per bathing season for excellent status, 6mm screening or equivalent aesthetics control and discharges below the mark of Mean Low Water Spring tides.</td></tr> <tr> <td>Current bathing waters</td><td>3 spills per bathing season, 6mm screening or equivalent aesthetics control and discharges below the mark of Mean Low Water Spring tides.</td></tr> <tr> <td>Shellfish waters</td><td>10 spills per annum and appropriate aesthetic control where required.</td></tr> <tr> <td>Freshwater fish</td><td>Fundamental Intermittent Standards (FIS), 99%ile standards and relevant Freshwater Fish Directive standards. Appropriate aesthetic control where required based on UPM2 requirements.</td></tr> <tr> <td>CRoW Act or Habitats (BOD or ammonia)</td><td>Fundamental Intermittent Standards (FIS), 99%ile standards and appropriate aesthetic control where required based on UPM2 requirements.</td></tr> <tr> <td>Urban Waste Water treatment</td><td>UPM standards derived using UPM2 methodology. For rivers these will include FIS and 99%iles based on the significance of the discharge.</td></tr> </tbody> </table>	Directive	Design Standard	Revised Bathing Waters	3 spills per bathing season, for good and sufficient stratus, 2 spills per bathing season for excellent status, 6mm screening or equivalent aesthetics control and discharges below the mark of Mean Low Water Spring tides.	Current bathing waters	3 spills per bathing season, 6mm screening or equivalent aesthetics control and discharges below the mark of Mean Low Water Spring tides.	Shellfish waters	10 spills per annum and appropriate aesthetic control where required.	Freshwater fish	Fundamental Intermittent Standards (FIS), 99%ile standards and relevant Freshwater Fish Directive standards. Appropriate aesthetic control where required based on UPM2 requirements.	CRoW Act or Habitats (BOD or ammonia)	Fundamental Intermittent Standards (FIS), 99%ile standards and appropriate aesthetic control where required based on UPM2 requirements.	Urban Waste Water treatment	UPM standards derived using UPM2 methodology. For rivers these will include FIS and 99%iles based on the significance of the discharge.
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⁹⁵¹ Risk Based Approach to the Monitoring of Storm Discharges - September 2013 - K Davis - Environment Agency.

⁹⁵² section 2.3.1.3.

Overview of legal and policy framework. Relevant references to storm water overflows.

	Retained flow of formula 'A' (or equivalent storage) and/or appropriate aesthetic control may be appropriate for low significance discharges. For storm tank discharges the minimum capacity is 68 l/head served or storage equivalent to 2 hours at the maximum flow rate to the storm tanks.
Groundwater	Refer to requirements for groundwater in the groundwater section of this document
WFD (BOD or ammonia)	99%iles or Fundamental Intermittent Standards and appropriate aesthetic control where required.

From the table above it is apparent that standards required vary depending on the categorisation of the receiving water. Standards on screening and frequency of spills are in place for combined sewer overflows situated on the coast. Further specific standards are set for waters where shellfish are located. In the case of shellfish waters, marine modeling is used to determine the microbial standards needed for compliance with the Bathing Waters Directive. Differences in the screening standard reflect the differences in the spill frequency. The higher the spill frequency the smaller the screens (mesh) would need to be.

At present spill frequencies are not set for combined sewer overflows that exist inland, although this is under review. Any future spill frequencies may appear within a discharge permit after tests have been carried out by the sewerage company and the EA/ NRW to determine the frequency of spills that can occur without water quality deteriorating and the combined sewer overflow being deemed unsatisfactory, as a result.

For discharges to freshwaters the permitted level of flow from a combined sewer overflow is “*calculated using Formula A, as specified in Section 3 of Annex (e)⁹⁵³ of the H1 Environmental Risk Assessment^{954,955}*”.

The guidance notes: “*The normal minimum pass forward flow for discharges of unsettled storm sewage from new, improved or altered storm overflows is calculated using Formula A, as specified in Section 3 of Annex (e) of the H1 Environmental Risk Assessment will apply. Where storage is provided at a CSO and in very large sewerage systems where significant smoothing of flows occur, then this shall be taken into account in defining the performance equivalent to "Formula A" without storage.*”⁹⁵⁶

Historically, Combined Sewer Overflows in the UK were constructed to discharge at fixed multiples of the dry

⁹⁵³ Please note that since this Guidance was written Annex E has been replaced by Annex D, D1 and D2 (available at: <https://www.gov.uk/government/collections/horizontal-guidance-environmental-permitting>). Annex D1 and D2 no longer contain guidance that applies to combined sewer overflow discharges, as noted at page 7 of Annex D1. Guidance to assess discharges from combined sewer overflows is now contained in the Urban Pollution Management Manual, available at: <http://www.fwr.org/UPM3/>.

⁹⁵⁴ **Guidance** Note H1

⁹⁵⁵ Guidance EPR 7.01, section 2.3.3.4 on discharges to freshwaters.

⁹⁵⁶ Guidance EPR 7.01, page 31.

Overview of legal and policy framework. Relevant references to storm water overflows.

weather flow (dwf) in the sewer, usually 6 times dwf. Flows in excess of 6 times dwf would be spilled and the remainder carried forward to the treatment plant. Problems arising from this pragmatic approach were recognised as early as the 1960s when the 'Formula A' ⁹⁵⁷ approach was proposed to calculate an acceptable pass forward flow from CSOs. This formula is still in use today as a minimum CSO spill setting criteria.

A calculation for Formula A to determine the normal minimum standard for discharges to freshwaters appear in the guidance as follows:

$$FA \text{ (litres/day)} = DWF + 2PsG + 1360 Pc + 2Et$$

And:

$$DWF \text{ (litres/day)} = PtG + It + Et$$

Where:

Pc = population in areas served by combined and partially separate sewers

Pt = total population

It = total infiltration

Et = trade flows with total area ⁹⁵⁸

Formula A is a proportion of the base flow (totalling a number of factors such as population, input of trade flow and foul water to the sewer). It determines the factor of the base flow (usually 6 – 8 times the base flow) required before the combined sewer overflow is allowed to operate. The formula is intended to represent a significant increase of the base flow to ensure that the combined sewer overflow does not operate unnecessarily.

In addition to Formula A which is a minimum standard, two further standards are also in use in England and Wales and are set out in both the Guidance EPR 7.01 on discharge permits and the Urban Pollution Management Manual. The standards apply to water quality and are known as the 'fundamental intermittent standards' and the '99 percentile' standards. The applicable standard will depend on *"the characteristics of the sewerage system, the characteristics of the receiving water and the environmental problems being addressed by a particular scheme"* ⁹⁵⁹.

Fundamental intermittent standards are directly related to the characteristics of events that cause stress in river ecosystems. These standards are expressed in terms of concentration duration thresholds with an allowable return period or frequency (measures: Dissolved Oxygen, unionised ammonia). High percentile standards (99 percentiles) applied for intermittent discharges are based on a direct extrapolation of the 90/95 percentile thresholds from other standards (measures: BOD, ammonia) that are used for continuous treated

⁹⁵⁷ HMSO (1970). *Ministry of Housing and Local Government Technical Committee on Storm Overflows*. HMSO London.

⁹⁵⁸ Guidance EPR 7.01, page 31.

⁹⁵⁹ page 32.

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discharges from sewage treatment works.

“Two approaches are available to identify standards to protect freshwater aquatic life from wet weather pollution episodes. These are:

- *intermittent standards that are directly related to the characteristics of events that cause stress in river ecosystems. These standards are expressed in terms of concentration-duration thresholds with an allowable return period or frequency; and,*
- *high percentile standards (such as 99 percentiles) based on an extrapolation of the 90/95 percentile thresholds used for protecting ecosystems that receive intermittent polluting discharges”⁹⁶⁰.*

The context for the development of these standards is provided in the Urban Pollution Management Manual:

“In response to the need for wet weather environmental standards that are directly related to conditions that cause stress in freshwater ecosystems, ecotoxicological research was first carried out to develop wet weather standards (Milne et al, 1992 see UPM2 References, Section 1.2). This has led to the formulation of Fundamental Intermittent standards for DO and un-ionised ammonia. These standards are expressed in terms of concentration and duration thresholds for a range of return periods (RPs) for individual pollution episodes. Further consideration of this research led to the development of three sets of standards, relating to different levels of protection for episodes up to a return period of 1 year.”⁹⁶¹

The performance criteria for combined sewer overflows are provided in Section 2.2 of The Urban Pollution Management (UPM) Manual⁹⁶² whilst Section 2.3 sets out the ‘wet weather standards for protecting river aquatic life’⁹⁶³. Table 2.3 in Section 2.3 of the Urban Pollution Management Manual provides the standards set for Dissolved Oxygen. Table 2.4 in Section 2.3 of the Urban Pollution Management Manual provides the standards set for un-ionised ammonia.

Depending on the type of watercourse, the EA/NRW may either require the sewerage company to check both standards or just one. There is often discussion between the EA/NRW and the sewerage company on the applicable standard to use when modeling the impacts of a combined sewer overflow for the purposes of submitting and approving a discharge consent application.

The EA/NRW has classified discharges in terms of level of significance: “low”, “medium” and “high”.⁹⁶⁴ The modeling requirements for a combined sewer overflow will vary depending on the significance level of the discharge. The guidance clearly anticipates the need to vary the standard according to the characteristics and circumstances of a particular combined sewer overflow:

“In cases where FIS standards are routinely exceeded in the receiving waters due to background or natural causes we may accept 99 percentile design standards. Alternatively we may require you to assess, and limit, the increase in FIS exceedances due to storm

⁹⁶⁰ See Section 2.3.1, available at: <http://www.fwr.org/UPM3/Section2.pdf>.

⁹⁶¹ See Section 2.3.2, available at: <http://www.fwr.org/UPM3/Section2.pdf>.

⁹⁶² Available at: <http://www.fwr.org/UPM3/Section2.pdf>.

⁹⁶³ Section 2.3.1, available at: <http://www.fwr.org/UPM3/Section2.pdf>.

⁹⁶⁴ Guidance EPR 7.01, page 33.

Overview of legal and policy framework. Relevant references to storm water overflows.

discharges. This may be the case in slow flowing eutrophic rivers. Similarly where unsatisfactory storm discharges do not routinely cause FIS exceedances in the receiving water we may require the use of 99 percentiles and Formula A to resolve the problem. This may be the case in fast flowing rivers. Also, discharges may not obviously fit into a particular category within the table. In reality there exists a full spectrum of sensitivities. You might not always use simple models with 99 percentiles or use fully complex modelling for FIS."⁹⁶⁵

In terms of activities that impact water quality, the impact must meet the level of standard required by the WFD. The standards (formula A, FIS and high percentile) used in England and Wales pre-date the WFD but are still in use for the WFD's purposes. The Agency undertook a review of UPM standards against WFD requirements through a 2012 Report "*Review of urban pollution management standards against WFD requirements*"⁹⁶⁶. It was concluded that the UPM standards remain "fit for purpose" and this was endorsed by the UK Technical Advisory Group (TAG). UK TAG provides advice to the UK government and devolved administrations in the technical implementation of the WFD. By extension of the WFD objective to protect river aquatic life, these standards are also considered to serve the purposes of the UWWTD.

In addition to the standards for water quality, the Guidance EPR 7.01 also outlines the standards for the "*aesthetic control*" of storm water overflows. Three categories of amenity (high, moderate and low) are used to evaluate the levels of control required; as a minimum the sewerage company must apply "*aesthetic control of storm overflows based upon the combined criteria of amenity use and spill frequency*"⁹⁶⁷ outlined in the guidance.

Standards for the engineering design of storm water overflows are to be "*in accordance with the recommendations of FWR Report No FR0488 'Guide to the Design on Storm Water Overflow Structures', Balmforth DJ, Saul A and Clifforde IT (1994)*"⁹⁶⁸ and meet the minimum measures set out in the guidance⁹⁶⁹. Annex 1⁹⁷⁰ for section 2.3.3 of the guidance on storm water overflow operations establishes the standards required for the engineering work of a storm water overflow to be satisfactory.

A sewerage company must produce an 'Urban Pollution Management' plan in accordance with the Urban Pollution Management Manual⁹⁷¹. The plan must state how the design and operational standards for storm overflows, outlined in the guidance and the manual, are to be met. The plan is subject to approval by the EA/NRW. As each plan is case-specific it follows that the requirements for a specific storm water overflow, detailed in a plan proposed by the sewerage company and agreed by the EA/NRW, may vary.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference	National provision	Text in MS language

⁹⁶⁵ Guidance EPR 7.01, page 34.

⁹⁶⁶ Available at <https://www.gov.uk/government/publications/review-of-urban-pollution-management-standards-against-water-framework-directive-requirements>

⁹⁶⁷ page 20.

⁹⁶⁸ page 21.

⁹⁶⁹ The engineering standards are also outlined in Annex 3 of the DETR (July 1997) Urban Waste Water Treatment Regulations guidance note 'working document for operations and regulators'.

⁹⁷⁰ Guidance EPR 7.01, page 53.

⁹⁷¹ The Urban Pollution Management Manual, 3rd edition is available at: <http://www.fwr.org/UPM3/>.

Overview of legal and policy framework. Relevant references to storm water overflows.			
	(Y/N)		
UWWTD	Y	The Urban Waste Water Treatment (England and Wales) Regulations 1994	Regulation 4 and Schedule 2, make it clear that collecting systems and treatment works must satisfy the requirements of the Directive. Direct transposition of Section A of Annex I to the UWWTD, in particular the third item on requirements for collecting systems is at: <i>Sch. 2 para. 2(c):</i> <i>"2. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding...</i> <i>...(c) limitation of pollution of receiving waters due to storm water overflows."</i> Establishing a duty to limit pollution from storm water overflow discharge from combined sewage systems: Reg. 6(2) (c): <i>"It shall be the [duty of the Environment Agency and of the Natural Resources Body for Wales, in exercising their functions under the Environmental Permitting Regulations to secure--</i> <i>...</i> <i>(c) with respect to any discharge from a collecting system described in regulation 4 or an urban waste water treatment plant described in regulation 5, the limitation of pollution of receiving waters due to storm water overflows;</i> Reg. 11(1)(c), furthermore, establishes a duty to monitor water subject to discharges from collecting systems when it can be expected the environment will be significantly affected: <i>"(1) It shall be the duty of the Authority...</i> <i>...(c) to monitor or procure the monitoring by a competent authority or appropriate body of waters subject to discharges from urban waste water treatment plants provided in accordance with regulation 5 in cases where it can be expected that the receiving environment will be significantly affected."</i>
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>			
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language
UWWTD/WFD/BWD	Y	'How to comply with your environmental permit Additional Guidance for: Water Discharge and	A summary of the guidance document: <i>"In summary it explains our requirement that all storm overflows must comply with relevant design</i>

Overview of legal and policy framework. Relevant references to storm water overflows.			
		Groundwater (from point source) Activity Permits (EPR 7.01)⁹⁷²	<i>standards water quality standards and cause no deterioration to the existing quality of the receiving water. Our no deterioration objective leads to a presumption against new storm overflows unless as part of a wider scheme delivering a net improvement in water quality</i>⁹⁷³. When an overflow will be deemed to be “unsatisfactory”: <i>“The guidance introduces the criteria for unsatisfactory overflows:</i> <i>1. causes significant visual or aesthetic impact due to solids, fungus;</i> <i>2. causes or makes a significant contribution to a deterioration in river chemical or biological class;</i> <i>3. causes or makes a significant contribution to a failure to comply with Bathing Water Quality Standards for identified bathing waters;</i> <i>4. operates in dry weather conditions;</i> <i>5. operates in breach of permit conditions provided that they are still appropriate;</i> <i>6. causes a breach of water quality standards (EQS) and other EC Directives; and/or</i> <i>7. causes unacceptable pollution of groundwater.”</i> Measures to be taken when a storm water overflow is found to be unsatisfactory: <i>“We will not issue permits for existing unsatisfactory storm overflows. You must make sure your existing storm overflows do not become unsatisfactory. Where a storm overflow does become unsatisfactory we will take enforcement action or review your permit as appropriate. We will require you to remedy the problems as soon as reasonably practical. Requirements as result of such permit reviews should be highlighted in change protocol submissions to OFWAT. The only exception to this is where an overflow becomes unsatisfactory due to new legal requirements such as the imposition of new EU Directives or new designations under existing directives. Here we will promote the affected storm overflows within AMP planning procedures.”</i> Evidence used to determine whether a storm water overflow is unsatisfactory is outlined in the guidance along with the storm water overflow standards that the sewer system must be designed to meet. Chapter 2.3.3.3 of the guidance addresses the UWWTD concept of ‘best technical knowledge not entailing excessive costs’:

⁹⁷² Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/298081/LIT_7356_4132bc.pdf. This document refers to requirements for storm water overflows set out in Annex E of the H1 Environmental Risk Assessment but Annex E. However during the online desk-based research Annex E was not located. Please cross-refer text in this table with text appearing in the ‘overview of the legal and policy framework’ section above for completeness.

⁹⁷³ How to comply with your environmental permit Additional Guidance for: Water Discharge and Groundwater (from point source) Activity Permits (EPR 7.01), page 25.

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			<i>“In arriving at the most cost effective solution the UPM procedure takes account of the cost of data collection and modelling as well as the solution cost. The Agency considers this guidance represents ‘best technical knowledge not entailing excessive costs’ (“BTKNEEC”) in respect of improvements to storm overflows. By following its procedures to meet the standards, including no deterioration, required by the Agency you should therefore fulfil the UWWTD requirements for the limitation of pollution by storm overflow.”</i> Chapter 2.3.3.4 of the guidance outlines how standards for storm water overflows vary subject to the type of water (i.e. freshwater, shellfish water or bathing water) that the waste water is being discharged into. Chapter 2.3.3.5 on scheme solutions: <i>“Schemes solutions and the drainage system as a whole should be designed constructed and maintained comply with UWWTD requirements for best technical knowledge not entailing excessive costs. Your solution must comply with these requirements.”</i>
UWWTD/WFD/BWD	Y	Urban Pollution Management Manual Section 2 ⁹⁷⁴	<i>“If a river of a specified ecosystem type meets the appropriate standards, or can be shown to meet them by a suitable planning procedure, aquatic life in the river should have adequate protection against the effects of short term exposure to storm sewage discharges, subject to the following two provisos.</i> <i>The DO thresholds for salmonid spawning grounds should be met not only in the water column but also in the intergravel water where the eggs and larvae are developing. Typically, the intergravel DO can be up to 3 mg/l less than the water column DO. Therefore, in this situation 3 mg O/l should be added to the standards that represent the water column concentration. Further guidance is presented in Appendix A of the dynamic section/document.</i> <i>It is important to check that the storm sewage discharges do not contain high levels of other substances that may be damaging to aquatic life. The standards are based on the objective of no long term detrimental effects on the aquatic ecosystem type and no fish mortality for wet weather pollution episodes of up to one year RP. Events with longer RPs are likely to have a more severe impact on the receiving water. Identification of an acceptable risk (RP) of fish mortality from more extreme episodes will require further investigation before standards for events with longer RPs can be identified (Appendix A).”⁹⁷⁵</i> <i>“Without separating out the non-compliant situations occurring in dry weather conditions from the non-</i>

⁹⁷⁴ Available at: <http://www.fwr.org/UPM3/Section2.pdf>.

⁹⁷⁵ Urban Pollution Management Manual Section 2.3.2.

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			<i>compliant situations occurring after wet weather it is not possible to apply the Fundamental Intermittent standards for DO to these rivers in assessing the impact of storm discharges.</i> ⁹⁷⁶ <i>“Spill frequency emission standards can be used without the need for environmental modelling studies. In the UK, the standard that has been used since 1995 is that:</i> <i>“The maximum number of independent storm event discharges via the CSOs to identified bathing waters, or in close proximity to such waters, must not, on average, exceed the spill frequency standard of 3 spills per bathing season.”</i> ⁹⁷⁷ <i>“These EQSs are also designed to ensure a low risk of non-compliance with the Bathing Water Directives as a result of storm overflows and other discharges.”</i> ⁹⁷⁸ <i>“Spill frequency emission standards can be used without the need for environmental modelling studies. In the UK the following standard for shellfish waters has been used since 2000 and requires that:</i> <i>“The maximum number of independent storm event discharges via the CSOs to identified shellfish waters, or in close proximity to such waters, must not, on average, exceed the spill frequency standard of 10 spills per year.”</i> ⁹⁷⁹
UWWTD/WFD/BWD	Y	Urban Pollution Management Manual Section 1.4 ⁹⁸⁰	<i>“The product of a UPM study is a detailed emission specification for all significant discharges in the urban wastewater system together with an outline form of engineering solution. This may, for example, be expressed in terms of volumes of storage required at a general location or an increase in transport capacity for a selected sewer length. The continuation and spill flow regimes and the required amenity emission standard will also typically be specified at CSOs and other major sewerage discharge points. Required changes in STW performance may also be identified and even, in rare cases, changes to the receiving water configuration could be suggested.”</i>
UWWTD	Y	‘User Guide for assessing the impacts of combined sewer overflows, FR0466, April 1994,’ Summary document ⁹⁸¹	<i>“I BENEFITS</i> <i>A standardised, robust and cost-effective method for assessing and reporting the environmental impact of combined sewer overflow (CSO) discharges is essential for good practice in urban pollution control. Such a methodology is needed for identifying CSOs that perform unsatisfactorily and for prioritising these for improvement schemes intended to limit pollution, as required by the Urban Waste Water</i>

⁹⁷⁶ Urban Pollution Management Manual Section 2.3.2.

⁹⁷⁷ Urban Pollution Management Manual Section 2.4.2.

⁹⁷⁸ Urban Pollution Management Manual Section 2.4.3.

⁹⁷⁹ Urban Pollution Management Manual Section 2.5.2.

⁹⁸⁰ Available at: <http://www.fwr.org/UPM3/Introduction.pdf>.

⁹⁸¹ Available under the ‘Other Sources’ tab on the webpage: <http://www.fwr.org/UPM3/>.

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			<i>Treatment Directive.”</i> <i>“IV CONCLUSIONS</i> <i>This user guide provides details on how to objectively assess and report the impact of combined sewer overflows on receiving waters.</i> <i>Certain factors have been identified and agreed as useful measures of impact. These are dry-weather operation, public complaint, sewage fungus and sewage-derived litter.</i> <i>Biological information does not generally add to the final assessment of impact based on the above factors, and is not included as an assessment methodology in this guide.”</i>	
BWD	Y	Bathing Water Quality explorer ⁹⁸²	<i>The Environment Agency makes a daily prediction of expected water quality at sites in England and Wales where this is possible. These predictions are based on the factors that are known to have an effect on water quality, such as heavy rainfall causing increased runoff from agriculture, urban areas or sewage sources. Predictions are made every day of the bathing water season and warnings issued when conditions that have been shown to affect water quality in the past re-occur.</i>	
DWD	N ⁹⁸³			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N			
Conv. Transboundary Watercourses and International Lakes	N			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
OFWAT and Environment	‘Drainage Strategy Framework for water and sewerage companies to prepare Drainage Strategies’ ⁹⁸⁴		A drainage strategy framework to guide water and sewerage companies to develop drainage strategies as a matter of good practice. The document details 6 guiding principles for developing a drainage strategy. The	

⁹⁸² Available at: <http://environment.data.gov.uk/bwq/profiles/index.html>.

⁹⁸³ A desk-based search for key terms and the Drinking Water Directive did not reveal references to “storm water overflows” in policy and guidance documents relating to the DWD.

⁹⁸⁴ Available at: http://www.ofwat.gov.uk/future/sustainable/drainage/rpt_com201305drainagestrategy.pdf.

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Agency Guidance Document		third principle is that strategies should be risk-based, which is a relevant principle for limiting pollution from storm water overflows. At Chapter 2.4.2 there is a cost-benefit analysis for solutions to sewer flooding. An example of good practice is highlighted where Severn Trent Water opted in one area to separate surface water run-off from the combined sewer in order to reduce the impact of storm water overflow. ⁹⁸⁵ This document refers to research conducted by UKWIR in 2013 that provides a framework for making a business case for separating storm water from combined sewers to limit pollution impacts. ⁹⁸⁶
DEFRA policy document	‘Statement of Obligations Information for Water and Sewerage Undertakes and Regulators on Statutory Environmental and Drinking Water Provisions Applicable to the Water Sector in England October 2012’ ⁹⁸⁷	The Statement of Obligations outlines the government’s understanding of environmental obligations of water and sewerage providers and those who regulate them prior to the start of the 5 year business planning process for water and sewerage companies. At Chapter 3.4 of the most recent edition it addresses the UWWTD and the context in which the Urban Waste Water Regulations 1994 are to be considered. It notes that “ <i>Demonstrating on-going active management of collecting systems is strongly encouraged</i> ” and that this includes “ <i>the monitoring of events from intermittent discharges where appropriate</i> ”, whilst “ <i>Spill frequency trigger levels in permits for discharges impacting on particularly sensitive waters (for example bathing and shellfish waters) would further underline a commitment to protecting such waters and those who use them.</i> ” ⁹⁸⁸ The document also notes that guidance on the implementation of the UWWTD may be reviewed in light of the EUCJ case C- 301/10 (see entry below) regarding pollution in London and Whitburn from storm sewer overflows. ⁹⁸⁹
DEFRA policy document	‘Waste water treatment in the UK – 2012’ ⁹⁹⁰	Report published on the collection and treatment of waste water to meet the UK’s obligations under Article 16 of the UWWTD. The document includes a list of definitions for key policy terms in use in England and Wales. A “ <i>discharge authorisation</i> ” is described as “ <i>A generic term to refer to documentary authorisation issued by environmental regulators allowing emissions to be made to the environment. It is the regulatory, or legal, mechanism for controlling polluting emissions to the environment. Emissions are discharges of continuous treated discharges from waste water treatment plants, or, lesser treated or untreated intermittent discharges from trunk sewerage combined sewer overflows, treatment plant storm tanks, or pumping station emergency overflows. Different terms are used to refer to these documents in the UK: Environmental Permits in England and Wales; Water Order Consents in Northern Ireland; Authorisations in Scotland.</i> ” ⁹⁹¹ The document provides background information on the UK’s sewerage network. It notes the 3 different types of collecting system in the UK and that “ <i>Every day in the UK over 624,200 kilometres of sewers</i>

⁹⁸⁵ Drainage Strategy Framework document, page 29.

⁹⁸⁶ Drainage Strategy Framework document, page 28.

⁹⁸⁷ Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69603/pb13829-statement-obligations.pdf.

⁹⁸⁸ Statement of Obligations, page 9.

⁹⁸⁹ Statement of Obligations, page 10.

⁹⁹⁰ Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69592/pb13811-waste-water-2012.pdf.

⁹⁹¹ Waste water treatment in the UK – 2012’, page 42.

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collect over 11 billion litres of waste water from homes, municipal, commercial and industrial premises and rainwater run-off from roads and other impermeable surfaces.”⁹⁹²

⁹⁹² Waste water treatment in the UK – 2012’, page 2.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
131. Which types of sewer system does England and Wales have?	There are two sorts of public sewer in England and Wales: combined sewers, which carry waste water (this can be a mixture of sewage and rainwater) to waste water treatment plants, and separate surface water drains, which carry rainwater and surface run-off water to water courses or divert it to drain away through land. Private sewers carry household waste water from toilets and kitchen sinks to the public sewer by a connected drainage system. Private households and small businesses may also use small private treatment plants, septic tanks or cesspools. These are not connected to a public sewer; instead, sewage is stored on site and then emptied on a regular basis. Sewerage systems are also in existence at industrial sites to carry waste water and chemical effluent to the public sewer or directly to waste treatment plants for treatment by water companies.
132. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	In England and Wales based on 2012/13 data held by the EA there are about 547,000 km of sewers managed by the ten Water and Sewerage Companies. There are about 34,500 km of sewer in Wales and 512,500 km in England. The total of 547,000 km consist of 233,000km of private sewers transferred to the water companies in October 2011 along with 314,000 km of legacy sewers owned by the water companies at privatization in 1989. For England and Wales the sewerage system is approximately 70% combined and 30% separate sewers. This is from a 1995 report comparing the European Water Industry.
133. How many storm water overflows infrastructures exist in England and Wales?	From the EA and NRW permit databases there are 17,684 permitted overflows in England and Wales with 15,020 in England and 2664 in Wales. These consist of four types: Combined Sewer Overflows on the network, storm overflows at pumping stations, storm tanks at sewage treatment works and inlet overflows at sewage treatment works. Details of these of overflows including the location and permit conditions are recorded on the public register and are available on request from the EA for England and NRW for Wales. By 2020, approximately half (~8,000) of all permitted storm overflows will have been improved by Water and Sewerage Companies (WaSCs) in England and Wales to meet environmental needs through the National Environment Programme (NEP).
<i>Available quantitative data on the occurrence of storm water overflows</i>	
134. Is there information on the occurrence of storm water overflows?	Some information is available on the operation of storm water overflows, where it is requirement of the permit. This is held by EA/NRW on the public register The eight water companies with coastal bathing waters: South West Water, Wessex Water, United Utilities, Northumbrian Water, Dwr Cymru-Welsh Water, Yorkshire Water, Anglian Water and Southern Water provide the public with real-time information on discharge events from combined sewer overflows that affect the quality of bathing waters.
135. Are storm water overflows monitored	

Available data on storm water overflows	
in England and Wales? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	At the end of 2014, 1511 storm overflows in England and Wales had a permit requirement to monitor and report spills. Monitoring takes the form of the frequency and duration of the overflows including annual and bathing season reports provided to the EA/NRW. The majority of monitoring is associated with discharges in the vicinity of bathing and shellfish waters. By 2020, a further 8784 storm overflows in England and 2267 storm overflows in Wales will have monitoring installed and reporting will become a permit requirement at those overflows. Generally, this monitoring will be of the frequency and duration of the overflows, but volume measurement will also be installed where appropriate. Site specific details are currently being worked up between the sewerage companies and EA/NRW. Reporting will be on annual basis. This monitoring data is used to inform future planning.

FACTSHEET FOR UNITED KINGDOM (NORTHERN IRELAND)

1. BASIC INFORMATION

Basic information	
General Information	
187. What are the competent authorities for waste water treatment and management in Northern Ireland?	Discharge of any trade or sewage effluent to any waterway, or any water contained in underground strata is required under Water (Northern Ireland) Order 1999¹, to have the consent of the Department of Environment (DOE). The Northern Ireland Environment Agency (NIEA) (formally known as the Environment and Heritage Service (EHS)), an agency within the DOE⁹⁹⁴ is the competent authority for issuing discharge consents including discharge consents for intermittent discharges from combined sewer overflows (CSOs) or emergency overflows (EOs). The Water Management Unit (WMU) within the NIEA regulates discharges made by the Water Utility Sector. This sector includes Northern Ireland Water (NI Water), Public Private Partnerships (PPP) and private emergency overflows connecting to the Water Utility infrastructure. Both CSOs and EOs are part of Northern Ireland's sewerage system. Along with NI Water, the Water Management Unit has assessed proposed upgrades to the sewerage systems of towns and cities across Northern Ireland through the Price Control Business Plan Capital Investment Prioritisation Process. The most recent Price Control process (PC15) has developed a capital programme for delivery in the 6 year period 2015 to 2021. This includes a programme to improve unsatisfactory intermittent discharges (discharges from CSO's which have been assessed as causing pollution). The majority of Northern Ireland wastewater is collected through the public waste water collection and treatment system operated by NI Water. NI Water⁹⁹⁵ is a government owned company and a non-departmental public body, operated on a commercial basis and subject to independent utility regulation. The Department for Regional Development (DRD)⁹⁹⁶ is NI Water's only shareholder. NI Water as 'Sewerage Undertaker' under the Water and Sewerage Services (Northern Ireland) Order 2006 No. 3336 (N.I. 21)⁹⁹⁷ solely operates, or manages (through its PPP contractors) and maintains all public waste water collection and treatment systems in Northern Ireland including the operation of public combined sewers.
188. What is the transposing law(s) of the UWWTD in Northern Ireland?	The Directive was transposed into legislation in Northern Ireland in March 1995 by the Urban Waste Water Treatment Regulations (NI) 1995, now replaced by the Urban Waste Water Treatment Regulations (NI) 2007 S. R. No 187 ⁹⁹⁸ .
189. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD in Northern Ireland directly transposes through the same text used in Schedule 2 of the Urban Waste Water Treatment Regulations (Northern Ireland) 2007. The text of the transposing provision is indicated below: 1. Collecting systems shall take into account waste water treatment requirements.

¹ The Water (Northern Ireland) Order 1999 No. 662 (N.I. 6). <http://www.legislation.gov.uk/nisi/1999/662/contents/made>

⁹⁹⁴ DOE contact: arlene.mcgowan@doeni.gov.uk

⁹⁹⁵ www.niwater.com Andrew Gee, Information Officer at Northern Ireland Water and John Collins, Head of Corporate Information at Northern Ireland Water were the contacts who provided joint information for this report.

⁹⁹⁶ www.drdni.gov.uk

⁹⁹⁷ The Water and Sewerage Services (Northern Ireland) Order 2006 No. 3336 (N.I. 21) <http://www.legislation.gov.uk/nisi/1999/662/contents/made>

⁹⁹⁸ The Urban Waste Water Treatment Regulations (NI) 2007 S. R. No 187 <http://www.legislation.gov.uk/nisr/2007/187/contents/made>

	2. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding– (a) volume and characteristics of urban waste water; (b) prevention of leaks; (c) limitation of pollution of receiving waters due to storm water overflows.
190. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows? ‘Extract-- footnote 1 in Sections A and B of Annex I : <i>Given that it is not possible in practice to construct collecting systems and treatment plants in a way such that all waste water can be treated during situations such as unusually heavy rainfall, Member States shall decide on measures to limit pollution from storm water overflows. Such measures could be based on dilution rates or capacity in relation to dry weather flow, or could specify a certain acceptable number of overflows per year. ’</i>	Footnote 1 in Section A and B of Annex I of the UWWTD has not been expressly transposed into Northern Ireland legislation. However Regulation 8 of the Urban Waste Water Treatment Regulations (Northern Ireland) 2007 places a duty on the Department (DOE) to secure limitation of pollution of receiving waters due to storm water overflows in respect of any discharge from a collecting system or an urban waste water treatment plant. Whilst the Urban Waste Water Treatment Regulations (Northern Ireland) 2007 do not provide specific measures to limit pollution from storm overflows the requirements of the footnote to Sections A and B of Annex I in Northern Ireland is implemented through guidance issued by the Department of Environment (DOE) specifically Annex 8 of the ‘<i>Framework for registering intermittent discharges</i>’ of the Guidance Notes -<i>Urban Waste Water Treatment Regulations (Northern Ireland) 1995 Guidance Note –working document for dischargers and regulator</i>⁹⁹⁹(UWWTD Guidance Note) . The UWWTD Guidance Note sets out the regulatory method for determining discharge consents and design of storm discharge overflows. This guidance note governs the control and limitation of pollution from storm water overflows and sets out the basis of policy for issuing registered standards for combined sewer overflows (CSOs) discharges. Existing intermittent sewage discharges from CSOs or emergency overflows on sewerage systems in Northern Ireland are granted non-numeric consent and new or upgraded installations will include numeric conditions on the consents. Where discharges are made in the vicinity of bathing and shellfish waters, or in close proximity to such waters, a spill frequency approach is used to design the system; unless the CSO has not historically caused non-compliance, or the Operator demonstrates that the system has been designed to achieve water standards through the use of modelling (this is set out in the UWWTD Guidance Note Appendix 8(ii) Para 5.3.1). The registered standards for these CSO’s set out the design settings or operating conditions that determine when a discharge is allowed to take place and the controls to be applied to it, such as screening, storage, stand-by generators and pump-out connection for tankers. Discharge standards for CSOs applied under the discharge consents include minimum flows that the sewer must be capable of before spilling. For emergency overflows, discharge standards relate to measures to be taken to ensure that there is no spillage following a breakdown¹⁰⁰⁰. The conditions are drawn-up to ensure that the discharge can be absorbed by the receiving waterway without affecting the quality of the aquatic environment, or breaching national or European Commission (EC) standards e.g. Water Framework Directive, Bathing Water Directive etc. Within the programme of measures of the current River Basin Management Plans (2009-2015) which cover all of Northern Ireland, there is a specific measure for NIEA to identify and then require that NI Water rectify unsatisfactory CSOs and to both rationalise sewer systems and limit the pollution of receiving waters by storm overflows through assessment of environmental impact and planned investment.

⁹⁹⁹ Annex 8 ‘Framework for registering intermittent’ of the Guidance Notes -Urban Waste Water Treatment Regulations (Northern Ireland) 1995 Guidance Note –working document for dischargers and regulator .— http://www.doeni.gov.uk/niea/uwwt_gid2_2002.doc

¹⁰⁰⁰ Regulation of Water Service Discharges Report 2006 A report by the Water Management Unit http://www.doeni.gov.uk/niea/pom_collecttreat_sewage.pdf

191. What is the terminology used to refer to storm water overflows in Northern Ireland? Is there more than one term used?	The term “storm water overflows” is used in the Northern Ireland legislation¹⁰⁰¹ and in some policy documents¹⁰⁰² to describe an ‘overflow event’. Northern Ireland uses the term “combined sewer overflows” (CSO) to describe a sewer structure, or a discharge point of storm water overflows from a combined sewer system. A report ‘Environment & Heritage Service Regulation of Water Service Discharges Report 2004-A Report by the Water Management Unit’ defines CSOs as ‘<i>channels which act as sewers during normal flow conditions. Under high flow conditions, such as during or after storms, these channels can either direct increased flows to storm-water storage tanks to prevent sewage treatment works being overloaded or to allow storm waste water to flow into surface waters</i>’¹⁰⁰³. In addition to CSOs in the sewer system, pumping stations used to convey waste water also commonly have an ‘Emergency Overflow’ (EO). The EO is designed to protect a pumping station from damage and to prevent flooding when there is a mechanical or electrical failure of the station, due to circumstances beyond the operator’s control.
192. Is there a definition of storm water overflow in Northern Ireland?	There is no definition set out in legislation or policy. However further to the definition provided in the answer above in response to question 5 Northern Ireland’s publication on Regulation of NI Water Discharges- Water Management 2009 WM003¹⁰⁰⁴ states ‘Most sewer systems are “combined”, that is to say they receive rainwater run-off, as well as domestic and industrial wastewater. In order to prevent sewer flooding in storm conditions such systems are fitted with “combined sewer overflows” which allow storm sewage to discharge to a watercourse during storm events. These discharges are known as “intermittent” discharges and as discussed previously above have been issued consents containing conditions, which specify design settings or operating conditions that determine when a discharge can take place and the controls under which it operates.
193. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Northern Ireland have a definition of extreme or unusual rainfall event?	No definition of an extreme or an unusual rainfall event has been identified in Northern Ireland legislation. The UWWTD Guidance note however defines ‘Unusual weather conditions’ which shall include the following: i) low ambient temperature as evidenced by effluent temperature of 5°C or less, or by the freezing of mechanical equipment in the works; ii) significant snow deposits; iii) fluvial flooding; iv) weather conditions causing unforeseen loss of power to the works which could not be ameliorated by the reasonable provision and operation of standby generator facilities. The Met Office contains an online record of rainfall extremes for Northern Ireland¹⁰⁰⁵.

¹⁰⁰¹ Regulation 8 and Schedule 2 of the Urban Waste Water Treatment Regulations (Northern Ireland) 2007.

¹⁰⁰² Draft River Basin management Plan: Programme of measures <http://www.doeni.gov.uk/nica/diffuse-sewage.pdf>

¹⁰⁰³ Environment & Heritage Service Regulation of Water Service Discharges Report 2004-A Report by the Water Management Unit <http://www.doeni.gov.uk/nica/waterservicedischargereport04.pdf>

¹⁰⁰⁴ Northern Ireland’s publication on Regulation of NI Water Discharges- Water Management 2009 WM003 http://www.doeni.gov.uk/nica/de/03_ni_water_discharges.pdf

¹⁰⁰⁵ <http://www.metoffice.gov.uk/public/weather/climate-extremes/#?tab=climateExtremes>

	Under the Quality of Bathing Water Regulations (Northern Ireland) 2008, an “abnormal situation” is defined as an event or combination of events impacting on bathing water quality which the Department would not expect to occur, on average, more than once every four years ¹⁰⁰⁶ .

¹⁰⁰⁶ The Quality of Bathing Water Regulations (Northern Ireland) 2008 http://www.doeni.gov.uk/index/protect_the_environment/water/bathing_water.htm

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.

Overview of legal and policy framework

55. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?

Legal Framework

The legal framework in Northern Ireland to control or limit storm water over flows primarily consists of the Urban Waste Water Treatment Regulations (Northern Ireland) 2007 S. R. No 187 and specifically refers to storm water overflows.

The Water (Northern Ireland) Order 1999 provides the legal framework for making discharge consents. Water Order Discharge Consents set conditions for CSO's relating to the performance standards that control the flow i.e. minimum flows that the sewer must be capable of holding before spilling, volume of discharge and the spill frequency of intermittent discharges. Further detail is given in Part 1 and in the following paragraphs.

The Water Framework Directive (Priority Substances and Classification) Amendment Regulations Northern Ireland 2015¹⁰⁰⁷ introduces standards for dissolved oxygen, biochemical oxygen demand (BOD), total ammonia and un-ionised ammonia relevant to managing the impacts of intermittent discharges. Intermittent discharges to rivers can occur in wet weather. They include discharges from combined sewer overflows. The standards are intended to assist the NIEA in setting appropriate operating requirements for, (i) proposed new intermittent discharges; and (ii) existing intermittent discharges where such requirements are considered the most cost-effective and proportionate means of improving the status of water bodies. NIEA is currently establishing a programme for the review of consents to implement the requirements of the amended Water Framework Directive (Priority Substances and Classification) Amendment Regulations Northern Ireland 2015.

Practice and Policy

As previously discussed existing intermittent sewage discharges from CSOs or emergency overflows on sewerage systems in Northern Ireland are granted non-numeric consents and new or upgraded installations will include numeric conditions on the consents. Where discharges are made in the vicinity of bathing and shellfish waters, or in close proximity to such waters, a spill frequency approach is used to design the system; unless the CSO has not historically caused non-compliance, or the Operator demonstrates that the system has been designed to achieve water standards through the use of modelling (this is set out in the UWWTD Guidance Note Appendix 8(ii) Para 5.3.1). Discharge standards for CSOs applied under the discharge consents include minimum flows that the sewer must be capable of before spilling, and may include a required attenuation (storm storage) volume. For EOs, discharge standards relate to measures to be taken to ensure that there is no spillage following a breakdown¹⁰⁰⁸. As previously mentioned above (Part 1 Question 4) the determination of Registered Standards for CSOs takes account of the requirements of Annex 8 'Framework for registering intermittent' of the

¹⁰⁰⁷ The Water Framework Directive (Priority Substances and Classification) (Amendment) Regulations (Northern Ireland) 2015 2015 No. 45

<http://www.legislation.gov.uk/nisr/2015/45/contents/made>

¹⁰⁰⁸ Regulation of Water Service Discharges Report 2006 A report by the Water Management Unit http://www.doeni.gov.uk/niea/pom_collecttreat_sewage.pdf

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Guidance Notes -Urban Waste Water Treatment Regulations (Northern Ireland) 1995 Guidance Note –working document for discharges and regulators¹⁰⁰⁹.

Since 2007 NI Water policy has been that an all new development is designed on a separate system, with all new drainage systems constructed on foul only and surface water only systems¹⁰¹⁰.

Studies and Upgrades of Sewerage Systems:

There is an ongoing program of Northern Ireland drainage area studies carried out by NI Water that determines the hydraulic performance of sewers and the extent of any future upgrades. Along with NI Water, the NIEA (DOE) Water Utility Regulation Group is assessing proposed upgrades to the sewerage systems of towns and cities across the region. This is a long-term programme which addresses the impacts of CSOs to complete sewerage systems.

NIEA works closely with NI Water to identify and rectify unsatisfactory combined sewer overflows, to rationalise sewer systems and to reduce the volume spilt from overflows. Drainage area studies are being carried out by NI Water to assess the hydraulic capabilities of the sewer network. The information from the assessments is used by NIEA to establish a Statement of Need for improvements to the system. NIEA issues a letter of formal agreement to NI Water which outlines the preferred solution. The most significant polluting discharges are prioritised and solutions identified and implemented to reduce the polluting effects on the water environment¹⁰¹¹. The formal agreement allows NI Water to draw up detailed construction plans and prepare an implementation programme.

River Basin Management Plans and Bathing Water Quality

River Basin Management Plans (RBMP) are produced for each River Basin District within Northern Ireland under The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003 No. 544¹⁰¹². Part of the programme of measures of the RBMPs is to identify and rectify unsatisfactory CSOs and to both rationalise sewer systems and limit the pollution of receiving waters by storm overflows through assessment of environmental impact and planned investment¹⁰¹³. The first planning cycle covers the period from December 2009 - December 2015, with the second continuing from December 2015 - December 2021. The second planning cycle is currently in draft and a public consultation has been carried out and closed in June 2015). The Shellfish Waters Directive was subsumed into the Water Framework Directive in 2013. Revised Pollution Reduction Programmes for designated shellfish waters have been produced and are now published on the web with planned improvements to waste water infrastructure being recorded here¹⁰¹⁴. Bathing water quality reports are also announced annually and these results contribute to the prioritisation of waste waters investment.

¹⁰⁰⁹ Annex 8 ‘Framework for registering intermittent’ of the Guidance Notes -Urban Waste Water Treatment Regulations (Northern Ireland) 1995 Guidance Note –working document for dischargers and regulator .— http://www.doeni.gov.uk/niea/uwwt_gid2_2002.doc

¹⁰¹⁰ https://www.niwater.com/sitefiles/resources/developers%20services/dssewers/sc-a163_guidance.pdf

¹⁰¹¹ Draft River Basin management Plan: Programme of measures <http://www.doeni.gov.uk/niea/diffuse-sewage.pdf>

¹⁰¹² The Water Environment (Water Framework Directive) Regulations (Northern Ireland) 2003 No. 544 <http://www.legislation.gov.uk/nisr/2003/544/contents/made>

¹⁰¹³ Environment & Heritage Service Regulation of Water Service Discharges Report 2005 <http://www.doeni.gov.uk/niea/wwater-discharge-7.pdf>)

¹⁰¹⁴ http://www.doeni.gov.uk/index/protect_the_environment/water/marine-home/shellfish_waters.htm

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Waste water treatment works and sewerage networks are prioritised for planned investment based on their performance under the NI Water Capital Investment Programme known as the Price Control Process which covers all of Northern Ireland¹⁰¹⁵. NI Water through its PC 15 Business Plan proposes to invest £990 Million in water and wastewater services for the period 2015-2021 in N. Ireland. This investment will, among other things, improve water quality through upgrades to wastewater treatment works, elimination of unsatisfactory intermittent discharges, and improvements to rural wastewater treatment works. A prioritised list of improvements to wastewater treatment works and CSO's has been produced by the Northern Ireland Environment Agency and NI Water for inclusion in the PC15 capital investment programme which will cover the period 2015 to 2021.

The programme of measures for the first River Basin Management Plans cycle included an action to review all consents to ensure the conditions being set were compliant with the Water Framework Directive objectives. The NIEA has commenced a review of all consents and will continue to deliver this review throughout the next 6 year cycle.

Supplementary measures to the above to address CSO's are proposed in the 2015 to 2021 NI Water Capital Investment Programme (PC15) in the Draft Second Cycle RBMP (it should be noted these are still under negotiation) and these include¹⁰¹⁶:-

- Controlling sewage gross solids by using separation devices such as screens in unsatisfactory storm overflows.
- Improve knowledge about the operation of storm overflows through more monitoring.

Sustainable Drainage Systems Northern Ireland:

In 2011 NIEA published "Managing Stormwater - A Strategy for Promoting the Use of Sustainable Drainage Systems (SuDS) within Northern Ireland"¹⁰¹⁷. A Stormwater Management Group (SMG) was set up to take forward recommendations from the Strategy Document. The SMG is an inter-departmental policy coordination and implementation group, jointly chaired by Northern Ireland Environment Agency's (NIEA) Water Management Unit (WMU) and the Department for Regional Development's (DRD) Water Policy Division. The fundamental aim of the SMG group is to examine a range of approaches to develop more integrated stormwater management in Northern Ireland.

The NI Executive launched a draft Long Term Water Strategy (2014-2039) in June 2014. This Strategy presents a clear framework for action which will facilitate implementation of a range of initiatives aimed at delivering the long term vision to have a sustainable water sector in Northern Ireland. To achieve this vision the Strategy encourages a sustainable and integrated approach to managing all our

¹⁰¹⁵ Delivering the programme of measures in the Northern Ireland River Basin Management Plans A progress report for the North Western, Neagh Bann and North Eastern River Basin Districts 2012 <http://www.doeni.gov.uk/niea/delivering-the-programme-of-measures-in-the-northern-ireland-river-basin-management-plans-2012-final-published-version.pdf>

¹⁰¹⁶ Draft River Basin Management Plans: Programme of Measures: <http://www.doeni.gov.uk/niea/diffuse-sewage.pdf>

¹⁰¹⁷ "Managing Stormwater - A Strategy for Promoting the Use of Sustainable Drainage Systems (SuDS) within Northern Ireland http://www.google.co.uk/url?url=http://www.doeni.gov.uk/niea/managing_stormwater_a_strategy_for_promoting_the_use_of_sustainable_drainage_systems_within_ni_september_2011.pdf&rct=j&frm=1&q=&esrc=s&sa=U&ved=0CBYQFjAAahUKEwiKi7ar_pPGAhXGuBQKHbfRAAk&usg=AFQjCNEf4BnYauoigMV-XT1KqWUcs70K7Q

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	different water needs in a way which promotes regional development without compromising the environment or increasing flood risk. It proposes various initiatives to achieve this including; encouraging the use of SUDS and reducing the amount of rainwater in combined sewers through stormwater separation which will lead to a reduction in discharges from CSO's. It is expected that the Strategy will be finalised and published later in 2015. The Department for Regional Development is also currently progressing a Water Bill through the Northern Ireland Assembly. The Bill includes a number of environmental measures, including the promotion of sustainable drainage systems and the power for NI Water to adopt some forms of SuDS, new powers for NI Water to refuse surface water connections where suitable alternatives exist or can reasonably be provided, and requirements for developers to enter into sewer adoption agreements, protected by appropriate bonds to ensure private sewerage is constructed to NI Water's adoption standards, in order to secure a connection to the public sewer network.
56. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	There is currently very limited only volumetric measurement on CSOs. Inland CSOs do not have formal standards set. Since 1995 UWWTD guidance has been made available for industry/dischargers and the Regulator on the implementation and interpretation of the Urban Waste Water Treatment Directive's requirements. The guidance refers to design issues such as CSO design flows, including relevant formulas; storm tank configuration; information to be considered when assessing the potential impact of the CSO discharge on the receiving water; criteria for determining modelling requirements for CSOs discharging to coastal and transitional waters; screening and maintenance requirements; monitoring and telemetry. In addition consideration would have been given to the receiving water quality when sewerage improvement schemes were being designed and built, with provision of storm water retention and storage where deemed necessary by the regulator to protect the receiving water quality. As detailed previously the UWWTD guidance sets out the controls to be applied when designing collection systems in order to limit the impact of discharges made and also a procedure to assess the current performance of the system and to identify improvement. The assessment of collection systems requires an evaluation of the volume of wastewater that the system can carry forward for treatment at a number of locations throughout the collection system and an indication of the volume that is likely to be discharged from CSOs during storm conditions. This assessment is carried out by constructing a mathematical model of the collection system representing the network of pipes and their hydraulic characteristics, the CSOs and their performance and the flows passed forward or pumped forward by pumping stations. This model is calibrated against real life performance data to ensure a realistic representation of the systems behaviour. Using rainfall records covering at least a year and usually ten years, the amount of runoff that is expected to enter the system from the catchment area for each storm event is modelled. This is used to determine the resulting flows at key locations within the system. The computer model predicts where overflows are likely to take place and how much is likely to be discharged. This modelling information together with a plan of the sewer network constitutes a Drainage Area Plan (DAP) and allows NIEA to identify those overflows that pose the greatest risk to the environment. Where a discharge occurs in the vicinity of a bathing or shellfish water and is assessed to adversely impact on the water quality modelling (catchment modelling involving both sewerage network and marine models) or a simplified 'spill frequency' approach may be used when designing any necessary upgrades to the sewerage system. Where the simplified spill frequencies approach is used, the frequencies are;

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	• 3 spills per bathing season/10 spills per annum for shellfish waters. Modelling of CSO spill frequency is based upon verified hydraulic models of the sewerage system and use of time series rainfall data. The models are verified through use of data from short term temporary flow monitoring apparatus. The installation of permanent flow monitoring is planned (subject to funding) to be implemented for all CSOs within 2 km of bathing and shellfish waters during the PC15 investment period (2015 to 2021). In addition flow monitoring will be installed on 65 CSOs discharging to inland water bodies on a prioritised basis. Permanent flow monitoring is to be installed in these locations for a number of reasons as follows: • To assist with management of the sewerage network, by allowing any operational issues to be identified quickly and reported as necessary • Verify that spill frequencies/volumes are as modelled and designed, specifically at bathing/shellfish waters, • Periodically verify that the pass-forward flows comply with consent requirements, • Provide data to assist in the investigation of water quality problems which may have resulted from a CSO discharge • Provide data for future reviews and investment planning. The installation of event recorders and flow monitoring devices can constitute a significant expense to the upgrade of a network. For the majority of schemes, once the collection system has been upgraded, or an existing intermittent discharge has been categorised as satisfactory; the need for monitoring is minimal.			
Direct references to storm water overflows in national law transposing the most relevant EU environmental directives				
EU Directive	Direct reference (Y/N)	National provision	Text in MS language	Translation into English
UWWTD	Yes	The Urban Waste Water Treatment (Northern Ireland) Regulations 2007 No. 187. – http://www.legislation.gov.uk/nisr/2007/187/contents/made	Section A of Annex I to the UWWTD in Northern Ireland is transposed in Schedule 2 of The Urban Waste Water Treatment (Northern Ireland) Regulations 2007 through the direct transposition of the same text: <i>‘1. Collecting systems shall take into account waste water treatment requirements.</i> <i>2. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding–</i> <i>(a) volume and characteristics of urban waste water;</i> <i>(b) prevention of leaks;</i> <i>(c) limitation of pollution of receiving waters due to storm water overflows.</i> <i>Urban Waste Water Treatment Northern Ireland</i>	

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		Water and Sewerage Services (Northern Ireland) Order 2006 http://www.legislation.gov.uk/nisi/2006/3336/contents	2007 <i>Regulation 8(2) 'It shall be the duty of the Department, in exercise of its functions under Part II of the 1999</i> <i>Order (prevention of pollution of water) to secure—</i> <i>.....</i> <i>(2)(c) 'with respect to any discharge from a collecting system described in regulation 6 or an urban waste water treatment plant described in regulation 7, the limitation of pollution of receiving waters due to storm water overflows;</i> <i>Right to communicate with public sewers</i> <i>163.(1) Subject to the provisions of this Article</i> <i>PART VI</i> <i>Water and Sewerage Services</i> <i>141</i> <i>(a) the owner or occupier of any premises, or</i> <i>(b) the owner of any private sewer which drains premises, shall be entitled to have his drains or sewer communicate with the public sewer of any sewerage undertaker and thereby to discharge foul water and surface water from those premises or that private sewer.</i> <i>163 (3) Subject to the provisions of Chapter III of this Part, nothing in paragraph (1)</i> <i>shall entitle any person—</i> <i>(c) to have his drains or sewer made to communicate directly with a stormwater overflow sewer.</i>	
WFD	Yes	The Water Framework Directive (Priority Substances and	Regulations introduce standards for dissolved oxygen; biochemical oxygen demand (BOD), total	

Overview of legal and policy framework. Relevant references to storm water overflows.				
		Classification) (Amendment) Regulations (Northern Ireland) 2015 http://www.legislation.gov.uk/nisr/2015/45/contents/made	ammonia and un-ionised ammonia relevant to managing the impacts of intermittent discharges (include discharges from combined sewer overflows). Regulation text is as follows: <i>“Environmental standards for priority substances, Intermittent Discharge Standards and standards for Shellfish Waters</i> <i>4.(3) The Department shall apply the standards for intermittent discharges specified in Part 4 of Schedule 1”.</i>	
MSFD	No		http://www.doeni.gov.uk/index/protect-the-environment/water/marine-home/msfd-wfd/marine-strategy-framework-directive.htm	
BWD	No	But direct reference to abnormal situations, which could include storm conditions.	http://www.doeni.gov.uk/index/protect-the-environment/water/marine-home/bathing-waters-2/bathing-waters-directive.htm “abnormal situation” means an event or combination of events impacting on bathing water quality which the Department would not expect to occur, on average, more than once every four years;	
DWD	No	.	http://www.doeni.gov.uk/index/protect-the-environment/water/drinking-water-quality.htm	
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives				
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
UWWTD	Y	‘Urban Waste Water Treatment Regulations (Northern Ireland) 1995 Guidance Note –working document for dischargers and regulator.— Annex 8 Framework for registering intermittent.....’ http://www.doeni.gov.uk/niea/uwwt_gid2_2002.doc	-This document is a guidance note and working document for dischargers and the Regulator on the implementation and interpretation of the Urban Waste Water Treatment Regulations (Northern Ireland) 1995. Although these regulations have been revoked and replaced by the Urban Waste Water Treatment Regulations. (Northern Ireland) 2007 the Framework for registering intermittent discharges	

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		-Waste water treatment in the United Kingdom – 2012 Implementation of the European Union Urban Waste Water Treatment Directive – 91/271/EEC; https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69592/pb13811-waste-water-2012.pdf;	set out in Annex 8 of the document still applies. The quantity of relevant information in this document is considerable and could not have been inserted here due to limited space. However in summary the document refers to <u>CSO design flows</u> including relevant formulas; storm tank configuration; information to consider when assessing the <u>potential impact of the CSO discharge</u> on the receiving water; criteria for determining <u>modelling requirements for CSOs</u> discharging to coastal and transitional waters; screening and maintenance requirements; monitoring and telemetry -This publication fulfils the requirement under Article 16 of the European Union Urban Waste Water Treatment Directive to periodically produce reports on the collection and treatment of urban waste water, and on the re-use and disposal of the residual sewage sludge. The document provides a description of CSOs ‘The purpose of combined sewer overflows is to allow excess waste water to be discharged to local waters to avoid sewers being overwhelmed and waste water ‘backing up’ along sewers and flooding streets and properties, or overwhelming waste water treatment plants’. The report also details the Belfast Sewers Project which closed a significant number of combined sewers. <u>-Belfast Sewers Project</u> NI Water invested £160 million in the Belfast Sewers Project, completed in May 2010. The Project involved work to upgrade the existing sewer networks and the construction of a large diameter drainage tunnel to increase storm water capacity. As a result, a significant number of combined sewer overflows were closed, reducing the pollutant load from the sewerage system on the River Lagan and its tributaries by 85%. The project also involved	

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		more than 500 repairs to the sewer network which also contributed significantly towards increasing the city's storm water capacity. <u>Improvements on the collection of waste water:</u> All sewerage systems that also collect rainwater (combined sewers) need overflow outlets (combined sewer overflows) to deal with the extra water collected during some rainstorms. Without these safety valves both domestic, other properties, and sewage treatment works would be at risk of flooding. The Directive recognises that although sewage in these overflow discharges is diluted with significant amounts of rainwater, it can affect the environment. The legislation therefore requires that pollution from these overflows is limited. In the UK we have the necessary regulatory controls and design criteria to limit pollution from combined sewer overflows. <u>NI Water Business Plan</u> NI Water through its PC 15 Business Plan proposes to invest £990 Million in Water and Sewerage services for the period 2015-2021 in N. Ireland. This investment will be prioritised to improve water quality through upgrades to wastewater treatment works, unsatisfactory intermittent discharges, Combined Sewer Overflows and undertake stormwater separation. -This document contains recommendations and strategies for promoting the SuDs and discusses issue in storm water management in which storm water overflows is an element.	
	"Managing Stormwater - A Strategy for Promoting the Use of Sustainable Drainage Systems (SuDS) within Northern Ireland" http://www.doeni.gov.uk/niea/water-home/stormwater_management.htm		

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		-Water Service Discharge Reports, Regulation of Water Services Discharges: http://www.doeni.gov.uk/niea/water/regulation_of_discharges_industrial/reg_sewage.htm -Regulation of NI Water Discharges- Water Management 2009 WM003; http://www.doeni.gov.uk/niea/03_ni_water_discharges.pdf	-This web page link provides access links to the historical progress and compliance reports published by the Environment and Heritage Service (EHS) (which is now the NIEA DOE), provides definitions of CSO's and details the compliance of the Water Service (which is now called NI Water) discharges with relevant European Legislative and EHS discharge standards including requirements of Non-Numeric Registered Standards for Intermittent Discharges. Some of these reports also discuss the assessments on sewer systems to identify and improve unsatisfactory discharges from Combined Sewer Overflows (CSOs). The quantity of relevant information relevant to CSOs in this document is considerable and could not have been inserted here due to limited space. -This document discusses the reform of the water industry in Northern Ireland in 2007 which involved the transfer of the responsibility for delivery of water and sewerage services from the Department for Regional Development (DRD) water service to a government owned company NI Water Limited (NI Water) (previously known as the Water Service). It also discusses the regulation of water utility discharges. Specific text referring to CSO's is: <i>'Most sewer systems are "combined", that is to say they receive rainwater run-off, as well as domestic and industrial wastewater. In order to prevent sewer flooding in storm conditions such systems are fitted with "combined sewer overflows" which allow storm sewage to discharge to a watercourse during storm events. These intermittent discharges</i>	

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		-Storm Water Management Implementation in NI http://www.doeni.gov.uk/niea/stormwater_management_implementation_in_ni_leaflet_april_2012.pdf -Planning Guidance Note: Sewage Pumping Stations: Water Management Unit A Guidance Note for Planning Officers and Applicants for Planning Permission. June 2010 http://www.doeni.gov.uk/niea/planning_guidance_note_sewage_pumping_stations.pdf Sewage treatment in the UK: UK implementation of the EC Urban Waste Water Treatment Directive (planning document)	<i>have been issued consents containing non-numeric conditions, which specify design settings or operating conditions that determine when a discharge can take place and the controls under which it operates.'</i> -This document details the implementation of Stormwater management including SUDs in NI in 2012 and has a reference to CSO's as follows: <i>'Rapid and increased stormwater runoff can also cause downstream flooding, localised erosion, destroy habitats and contribute to combined sewer overflows (CSOs).... It is now recognised that continuing to implement conventional drainage systems in urban areas and ignoring wider issues, is an unsustainable long-term option.'</i> -This document is a quick reference guide for Planning Officers dealing with, and for potential planning applicants intending to make, a planning application for a sewage pumping station. <i>Relevant text:</i> <i>'A Discharge Consent</i> <i>If your proposed sewage pumping station has an emergency overflow, or a storm overflow function, you will require a discharge consent issued under the Water (Northern Ireland) Order 1991.</i> <i>You may also require discharge consents for site drainage during the construction phase and the operational phase. These will be stand alone consents, and will therefore require separate applications.'</i> <u>Investment:</u> A large proportion of the £5.3 billion to be spent between 2000 and 2005 on the sewerage service is to improve treatment standards, storm overflows, and the sludge disposal. <u>Improvements on the collection of waste water:</u>	

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		https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69582/pb6655-uk-sewage-treatment-020424.pdf	All sewerage systems that also collect rainwater (combined sewers) need overflow outlets (combined sewer overflows) to deal with the extra water collected during some rainstorms. Without these safety valves both domestic, other properties, and sewage treatment works would be at risk of flooding. The Directive recognises that although sewage in these overflow discharges is diluted with significant amounts of rainwater, it can affect the environment. The legislation therefore requires that pollution from these overflows is limited. In the UK we have the necessary regulatory controls and design criteria to limit pollution from combined sewer overflows. <u>Monitoring to ensure protection of the environment:</u> The Environment and Heritage Service of the Department of the Environment for Northern Ireland are the environmental regulators of the water industry for the UK. They regulate discharges from waste water treatment works and combined sewer overflows, which cannot be made without registered standards being issued.	
WFD	Y	-Programme of measures Key Sectors — Collection and Treatment of Sewage Pressure Type — Diffuse and Point Source Pollution River Basin Management Plans Northern Ireland	-This document fulfils the requirement of the process of river basin management planning that includes the preparation of programmes of measures at basin level for achieving the environmental objectives of the Water Framework	

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		Environment Agency http://www.doeni.gov.uk/niea/pom-collecttreat_sewage.pdf	Directive cost-effectively. This document is part of the first planning cycle which covers the period from December 2009 - December 2015 with the second continuing from December 2015 - December 2021. The second planning cycle is currently in draft form and in consultation at the moment. Relevant Text is as follows: <i>‘Urban Pollution Management NIEA works closely with NI Water to identify and rectify unsatisfactory combined sewer overflows, to rationalise sewer systems and to reduce the volume spilt from overflows. NIEA issues performance standards that control the flow forwarded for treatment, spill frequency, volume of discharge and associated pollutant loads so that water quality objectives and the desired amenity value of receiving waters are not compromised. There is an ongoing program of drainage area studies that determine the hydraulic performance of sewers and the extent of any future upgrades.’</i> Reference to CSO's is also included in the Education and Awareness Campaign by NI Water's i.e. 'Bag it and Bin It' campaign.	
		-Draft River Basin management Plan: Programme of measures http://www.doeni.gov.uk/niea/diffuse-sewage.pdf	-This document is the Draft River Basin management Plan: Programme of measures and the public consultation on the draft plan closed on the 22nd June 2015 and is due to be published on 22nd December 2015. It forms part of the second RBMP cycle which covers the period from December 2015 - December 2021. The draft document proposes in the next RBMP cycle to supplement CSO actions laid out in the programme of measures of the first RBMP cycle by <i>‘Controlling sewage gross solids by using separation devices such as screens in unsatisfactory</i>	

Overview of legal and policy framework. Relevant references to storm water overflows.				
		- http://www.doeni.gov.uk/index/protect the environment/water/marine-home/shellfish waters.htm	storm overflows' (completion date by 2021) and 'improve knowledge about the operation of storm overflows through more monitoring' (completion date by 2021). -Reference to improvements in waste water treatment measures in relation to shellfish waters are also provided in Shellfish Pollution Reduction Programmes.	
MSFD	Y	-Transposed through UK-wide regulations http://www.legislation.gov.uk/ukxi/2010/1627/contents/made	-The Programme of Measures for MSFD must be in accordance with Article 13 of the Directive and must therefore integrate the measures devised for WFD, UWWTD and Bathing Waters Directive into the MSFD programme of measures. http://www.doeni.gov.uk/index/protect the environment/water/marine-home/msfd wfd/marine strategy framework directive.htm	
BWD	N	http://www.doeni.gov.uk/index/protect the environment/water/marine-home/bathing waters-2/bathing waters directive.htm	In a paragraph on the context of the statistical report: The microbiological quality of bathing waters can be affected by pollution from agricultural and urban sources, discharges of sewage effluent, storm water overflows and river borne pathogens.¹⁰¹⁸	
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	N			
HELCOM	N/A			

¹⁰¹⁸ Ibid, at page 1.

Overview of legal and policy framework. Relevant references to storm water overflows.				
Barcelona Convention	N/A			
Conv. on the Protection of the Black Sea	N/A			
Danube Convention	N/A			
Rhine Convention	N/A			
Oder Convention	N/A			
Elbe Convention	N/A			
Conv. Transboundary Watercourses and International Lakes	N/A			
Other direct references to storm water overflows				
Type of document				
DEFRA Policy document	Title of document		Summary description	
River Basin Policy documents	Department for Environment, Food and Rural Affairs, Waste Water Treatment in the United Kingdom-2012: Implementation of the European Union Urban Waste Water Treatment Directive-91/271/EEC ¹⁰¹⁹		Report published on the collection and treatment of waste water to meet the UK's obligations under Article 16 of the UWWTD. The text referred to combined sewer overflows in Northern Ireland: NI Water invested £160 million in the Belfast Sewers Project, completed in May 2010. The Project involved work to upgrade the existing sewer networks and the construction of a large diameter drainage tunnel to increase storm water capacity. As a result, a significant number of combined sewer overflows were closed, reducing the pollutant load from the sewerage system on the River Lagan and its tributaries by 85%. The project also involved more than 500 repairs to the sewer network which also contributed significantly towards increasing the city's storm water capacity. It also includes information on monitoring combined sewer overflows which is described in the monitoring section below.	

¹⁰¹⁹Department for Environment, Food & Rural Affairs, 'Waste water treatment in the United Kingdom-2012: Implementation of the European Union Urban Waste Water Treatment Directive-91/271/EEC', 2012, available at: http://www.google.be/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCUQFjAA&url=http%3A%2F%2Fwww.researchgate.net%2Fpublictopics.PublicPostFileLoader.html%3Fid%3D54f95076d767a6f4198b458f%26key%3Daec0b7a-18ee-40ea-8161-748e5ce3a6ed&ei=az8_VeKf18PvaPyLgfgG&usg=AFOjCNELIXEwFHvOc1vgN4q7cRg1xLaPow&bvm=bv.91665533.d.ZWU.

Overview of legal and policy framework. Relevant references to storm water overflows.		
Regional Policy document	Northern Ireland Environment Agency, North Eastern River Basin Management Plan Summary¹⁰²⁰ Northern Ireland Environment Agency, North Western River Basin Management Plan Summary¹⁰²¹ Northern Ireland Environment Agency, Neagh Bann River Basin Management Plan Summary¹⁰²² Northern Ireland Environment Agency, North Eastern Draft River Basin Management Plan¹⁰²³, Northern Ireland Environment Agency, North Western Draft River Basin Management Plan¹⁰²⁴, Northern Ireland Environment Agency, Neagh Bann Draft River Basin Management Plan¹⁰²⁵	The North Eastern, North Western and Neagh Bann (all 3) River Basin Management Plans (2009-2015 cycle) have introduced measures to address the implications of climate change. One of these is for the Northern Ireland Environment Agency or NI Water to assess the impact of new rainfall patterns on combined storm overflow inputs to water bodies¹⁰²⁶. The 2015-2021 Draft River Basin Management Plans propose key measures to address diffuse and point source pollution of surface and groundwaters from sewage and industry. In order to control sewage gross solids, separation devices such as screens in unsatisfactory storm overflows should be used. The final 2015-2021 River Basin Management Plans will be produced in December 2015.
National Policy document	Bill Gowdy BSc(hons), C.Eng, C.Env, C.Wem, FICE, FCIWEM, FIOW and Brian Henderson BSC, CEng MICE DMS, Belfast Sewers Project: £160m project provides modern sewerage system for Belfast¹⁰²⁷	This document describes the construction of a state-of-the-art storm water tunnel, a part of NI Water's Belfast Sewers project. It involves upgrading the existing sewer networks and the construction of a large diameter drainage tunnel to increase storm water capacity. The document refers to combined sewer overflows. The Belfast Sewers Project has enabled a significant number of the existing combined sewer overflows to be closed which will reduce the pollutant load from the sewerage system on the River Lagan and its tributaries by 85% from that occurring prior to implementation. A Terminal Pumping Station (TPS) was built at the downstream end of the tunnel to intercept storm water discharges from Combined Sewer Overflows around Belfast. The TOS is capable of pumping up to 4,000 gallons of water per second so even during the heaviest of storms the TPS will effectively and safely cope with the excess storm water emanating from the sewers.
National Policy	Draft Long Term Water Strategy	The Department for Regional Development has developed a draft Long Term Water Strategy. This Strategy

¹⁰²⁰ Northern Ireland Environment Agency, 'North Eastern River Basin Management Plan Summary', December 2009, available at: http://www.doeni.gov.uk/nica/ne_plan_doc_dec09.pdf.

¹⁰²¹ Northern Ireland Environment Agency, 'North Western River Basin Management Plan Summary', December 2009, available at: http://www.doeni.gov.uk/nica/nw_plan_doc_dec09.pdf.

¹⁰²² Northern Ireland Environment Agency, 'Neagh Bann River Basin Management Plan Summary', December 2009, available at: http://www.doeni.gov.uk/nica/nb_plan_doc_dec09.pdf.

¹⁰²³ Northern Ireland Environment Agency, 'North Eastern Draft River Basin Management Plan', December 2014, available at: <http://www.doeni.gov.uk/nica/2015-wfd-north-eastern-river-basin-management-plan-summary.pdf>.

¹⁰²⁴ Northern Ireland Environment Agency, 'North Western Draft River Basin Management Plan', December 2014, available at: <http://www.doeni.gov.uk/nica/2015-wfd-north-western-river-basin-management-plan-summary.pdf>.

¹⁰²⁵ Northern Ireland Environment Agency, 'Neagh Bann Draft River Basin Management Plan', December 2014, available at: <http://www.doeni.gov.uk/nica/2015-wfd-neagh-bann-river-basin-management-plan-summary.pdf>.

¹⁰²⁶ Northern Ireland Environment Agency, 'North Western River Basin Management Plan Summary', December 2009, available at: http://www.doeni.gov.uk/nica/nw_plan_doc_dec09.pdf.

¹⁰²⁷ Bill Gowdy BSc (hons), C.Eng, C.Env, C.Wem, FICE, FCIWEM, FIOW and Brian Henderson BSC, CEng MICE DMS, 'Belfast Sewers Project: £160m project provides modern sewerage system for Belfast', available at: http://www.waterprojectsonline.com/case_studies/2010/NI_Water_Belfast_Sewers_2010.pdf.

Overview of legal and policy framework. Relevant references to storm water overflows.

document	Department for Regional Development, Sustainable Water: A long term water strategy for Northern Ireland, Part 3: Flood Risk Management and Drainage and Part 4: Environmental Protection and Improvement.¹⁰²⁸ http://www.drdni.gov.uk/index/long-term-water-strategy.htm	presents a clear framework for action which will facilitate a range of initiatives aimed at delivering the long term vision to have a sustainable water sector in Northern Ireland. The Strategy includes proposed measures on improving Environmental Protection and Improvement, Flood Risk Management and Drainage. A Strategic Drainage Infrastructure Programme Board has also been established and is tasked with developing a plan for future investment in strategic drainage infrastructure. The plan will address the challenges of flooding risk, protection of the environment and future growth. The Draft Long Term Water Strategy includes a number of references to sustainable integrated drainage and stormwater overflows. Part 3 Flood Risk Management and Drainage and Part 4 Environmental Protection and Improvement provides further details on measures to reduce the amount of rainwater in combined sewers, reduce unsatisfactory discharges from the public sewerage system and being better prepared for extreme weather events.

¹⁰²⁸Department for Regional Development, 'Sustainable Water: A Long Term Water Strategy for Northern Ireland', June 2014, available at: http://www.drdni.gov.uk/sustainable_water_part3_final_web.pdf.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows																										
Types of sewer system																										
136. Which types of sewer system does Northern Ireland have?	There are two types of sewerage systems in Northern Ireland: Combined sewers – this is a single pipe system which carries both wastewater (sewage) and surface water (rainwater) to wastewater treatment works. These are often found in older town centre systems and are no longer designed or constructed¹⁰²⁹. Most of Northern Ireland's sewer networks are combined sewer systems¹⁰³⁰. Separate sewers - Since the late 1970's most new developments have been built with separate sewers¹⁰³¹. Separate sewers use two pipes. One takes sewage to a sewage treatment works and the second carries rainwater straight to a nearby stream or river, as rainwater does not require treatment¹⁰³². While separate systems are now the normal practice, many urban areas, particularly in the town centres, still rely on combined sewers¹⁰³³.																									
137. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	NI Water owns, operates and is responsible for maintaining a network of over 15, 400 kilometres of public sewers which are designed to take away waste and rain water to our wastewater treatment works¹⁰³⁴. On average each person in Northern Ireland generates 135 to 180 litres of sewage a day with over 99.9% being liquid and less than 0.1% solid¹⁰³⁵. The box below provides information on NI Water's Network Sewer Summary. These are NI Water's ownership sewers only¹⁰³⁶. <table border="1"> <thead> <tr> <th>Sewer Function</th><th>Length of Sewers (km)</th><th>% of Total NI Sewers</th></tr> </thead> <tbody> <tr> <td>Surface</td><td>5120.21</td><td>32.86</td></tr> <tr> <td>Foul</td><td>5360.32</td><td>34.41</td></tr> <tr> <td>Combined</td><td>4827.63</td><td>30.99</td></tr> <tr> <td>Final Effluent</td><td>240.24</td><td>1.54</td></tr> <tr> <td>Unknown</td><td>28.79</td><td>0.18</td></tr> <tr> <td>Sludge</td><td>2.87</td><td>0.02</td></tr> <tr> <td></td><td>15580.06</td><td></td></tr> </tbody> </table>		Sewer Function	Length of Sewers (km)	% of Total NI Sewers	Surface	5120.21	32.86	Foul	5360.32	34.41	Combined	4827.63	30.99	Final Effluent	240.24	1.54	Unknown	28.79	0.18	Sludge	2.87	0.02		15580.06	
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138. How many storm water overflows	NI Water has provided the below breakdown of the number of storm water overflows in their network in Northern Ireland. They are as																									

¹⁰²⁹ Northern Ireland Direct Government Services Website, 'Sewerage services', available at: <http://www.nidirect.gov.uk/index/information-and-services/property-and-housing/your-neighbourhood-roads-and-streets/water-and-sewerage/sewerage-services.htm>.

¹⁰³⁰ UKCIP, 'UKCP09 Headline Messages: Northern Ireland Message on Water', 20 December 2011, available at: http://www.climateinthernireland.org.uk/cmsfiles/resources/files/UKCP09-NI-Headline-Message-Water-V8_20111.pdf.

¹⁰³¹ *ibid.*

¹⁰³² Northern Ireland Water Website, 'Sewage treatment: Responsibility for sewerage pipes', available at: <https://www.niwater.com/responsibility-for-sewerage-pipes/>.

¹⁰³³ Northern Ireland Environment Agency, 'Managing Stormwater: A Strategy for Promoting the Use of Sustainable Drainage Systems (SuDS) within Northern Ireland', September 2011, available at: <http://www.doeni.gov.uk/niea/managing-stormwater-a-strategy-for-promoting-the-use-of-sustainable-drainage-systems-within-ni-september-2011.pdf>.

¹⁰³⁴ Northern Ireland Water Website, 'Sewage treatment: Responsibility for sewerage pipes', available at: <https://www.niwater.com/responsibility-for-sewerage-pipes/>.

¹⁰³⁵ Northern Ireland Water Website, 'Sewage treatment: Responsibility for sewerage pipes', available at: <https://www.niwater.com/responsibility-for-sewerage-pipes/>.

¹⁰³⁶ Information obtained through consultation with stakeholder (NI Water, May 2015).

Available data on storm water overflows	
infrastructures exist in Northern Ireland?	follows: No. of Combined Storm Overflows (CSO's) = 802 No. of Waste Water Pumping Station Overflows = 1102 No. of overflows within Wastewater Treatment Works = 649 This gives a total of 2553 overflows.¹⁰³⁷
Available quantitative data on the occurrence of storm water overflows	
139. Is there information on the occurrence of storm water overflows?	No information on the occurrence of storm water overflows in Northern Ireland has been identified by the competent authorities for waste water treatment and management, NI Water and from additional desk research ¹⁰³⁸ . The number of times there have been spills from the CSOs is not recorded by NI Water.
140. Are storm water overflows monitored in Northern Ireland? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	Different water companies have different standards for the routine monitoring of how often their CSOs are spilling. For example, some CSOs only have spill counters attached to them (so the duration of the spill goes unrecorded), whilst other CSOs have real-time monitoring (whereby the spill counter or monitor is connected – usually via the mobile phone network – to a WaSC's operational control centre). NI Water is obliged to monitor the effluent quality at treatment plants and its compliance with the requirements of the Directive is assessed by the Northern Ireland Environment Agency (NIEA)¹⁰³⁹. The Northern Ireland Environment Agency regulates continuous discharges from the water industry, other industrial sectors and private discharges as well as intermittent discharges, such as those from combined sewer overflows or emergency overflows. Typically, any discharge to controlled waters requires a discharge consent which sets out standards for parameters monitored in effluent from treatment plants. For intermittent discharges a consent may specify the volume of discharges to be made or may include the need to screen discharges to remove sewage litter. Discharge authorisations are referred to as 'Water Order Consents' in Northern Ireland¹⁰⁴⁰. Regulation 13 of the Urban Waste Water Treatment Regulations (Northern Ireland) (2007 No. 187)¹⁰⁴¹ states that: It shall be the duty of the Department- (a) to monitor or procure the monitoring by a competent authority or appropriate body of discharges from urban waste water treatment plants to verify compliance with the relevant requirements of Part I of Schedule 3 in accordance with the control procedures set out in Part II of that Schedule; (b) to monitor or procure the monitoring by a competent authority or appropriate body of waters subject to discharges from urban waste water treatment plants provided in accordance with regulation 7 in cases where it can be expected that the receiving

¹⁰³⁷ Information added by the Northern Ireland competent authority.

¹⁰³⁸ Information obtained through consultation with stakeholder (NI Water, May 2015).

¹⁰³⁹ Northern Ireland Environment Agency, 'River Basin Management Plans: Programme of measures', available at: http://www.doeni.gov.uk/niea/pom_collecttreat_sewage.pdf.

¹⁰⁴⁰ Department for Environment, Food & Rural Affairs, 'Waste water treatment in the United Kingdom-2012: Implementation of the European Union Urban Waste Water Treatment Directive-91/271/EEC', 2012, available at:

http://www.google.be/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0CCUOFjAA&url=http%3A%2F%2Fwww.researchgate.net%2Fpublictopics.PublicPostFileLoader.html%3Fid%3D54f95076d767a6f4198b458f%26kev%3Daec0b7a-18ee-40ea-8161-748e5ce3a6ed&ei=az8_VeKf18PvaPyLgfgG&usq=AFOjCNELIXEwFHvOc1vgN4q7cRg1xLaPow&bvm=bv.91665533.d.ZWU.

¹⁰⁴¹ The Urban Waste Water Treatment Regulations (Northern Ireland) (2007 No. 187), available at: http://www.legislation.gov.uk/nisr/2007/187/pdfs/nisr_20070187_en.pdf.

Available data on storm water overflows

environment will be significantly affected;
to carry out or procure the carrying out by a competent authority or appropriate body of monitoring and any other relevant studies to verify that discharges to which regulation 7(5) applies do not adversely affect the environment.

Part III (Reference methods for monitoring and evaluation of results) of the Urban Waste Water Treatment Regulations (Northern Ireland) (2007 No. 187)¹⁰⁴² states that:

1. (a) The Department shall apply a monitoring method which corresponds at least with the level of requirements described below.
(b) Alternative methods to those mentioned in paragraphs 2, 3 and 4 may be used provided it can be demonstrated that equivalent results are obtained.
 2. (a) Flow-proportioned or time-based 24-hour samples shall be collected at the same well defined point in the outlet and if necessary in the inlet of the treatment plant in order to monitor compliance with the requirements for discharged waste water laid down in these Regulations.
(b) Good international laboratory practices aiming at minimising the degradation of samples between collection and analysis shall be applied.
 3. The minimum annual number of samples shall be determined according to the size of the treatment plant and be collected at regular intervals during the year:
 - 2,000 to 9,999 p.e. 12 samples during the first year;
 - 4 samples in subsequent years, if it can be shown that the water during the first year complies with the provisions of these Regulations; if 1 sample of the 4 fails, 12 samples must be taken in the year that follows;
 - 10,000 to 49,999 p.e. 12 samples;
 - 50,000 p.e. or over: 24 samples
 4. The treated waste water shall be assumed to conform to the relevant parameters if, for each relevant parameter considered individually, samples of the water show that it complies with the relevant parametric value in the following way:
 - (a) for the parameters specified in Table 1 and sub-paragraph (b) of regulation 7(7), a maximum number of samples which are allowed to fail the requirements, expressed in concentrations and/or percentage reductions in that Table and that sub-paragraph, is specified in Table 3;
 - (b) for the parameters of Table 1 expressed in concentrations, the failing samples taken under normal operating conditions must not deviate from the parametric values by more than 100%;
 - (c) for those parameters specified in Table 2 the annual mean of the samples for each parameter shall conform to the relevant parametric values.
 5. Extreme values for the water quality in question shall not be taken into consideration when they are the result of unusual situations such as those due to heavy rain.
- There is CSO/spill frequency monitoring at bathing and shellfish waters and marine modelling. Flow measurement at waste water treatment works is >250 pe¹⁰⁴³.

¹⁰⁴² *ibid.*

¹⁰⁴³ Northern Ireland Water, 'Water Framework Directive Spring 2014 CSG Meetings: NI Water Update: Environmental Priorities for PC15 Belfast Lough and Lagan Catchment', 2014, available at: http://www.doeni.gov.uk/nica/northern_ireland_water_update_for_belfast_lough_and_lagan_catchment_spring_2014.pdf.

Available data on storm water overflows

Discharges by NI Water and its associated PPP schemes are regulated against discharge consents issued under the Water (Northern Ireland) Order 1999. Typically, discharge consents have numerical standards for a number of determinants eg. Biochemical Oxygen Demand (BOD), Suspended Solids (SS), Ammonia. NIEA also issue Descriptive discharge consents, with no limits, for smaller WWTWs discharging to coast or estuarine waters. NI Water carry out self monitoring of effluent discharges for the purposes of compliance assessment. Compliance is therefore determined by adherence to the conditions stipulated within the consent. NIEA carry out a series of audit checks to ensure the samples are representative of the effluent quality both in the way they are obtained and the accuracy of the analytical data produced.

The consent conditions will specify the conditions to protect the aquatic environment as considered by NIEA and separate conditions to meet requirements of the UWWTD.

FACTSHEET FOR UNITED KINGDOM (SCOTLAND)¹⁰⁴³

1. BASIC INFORMATION

Basic information	
General Information	
194. What are the competent authorities for waste water treatment and management in Scotland?	In Scotland, Scottish Water is required to: ensure collecting systems for urban waste water discharges for every agglomeration with a population equivalent of more than 2,000; and that the urban waste water entering collecting systems is treated prior to discharge¹⁰⁴⁴. The majority of waste water collection and treatment systems in Scotland are operated by the Scottish Water. According to the information obtained during the interview, all of the public combined sewer systems in Scotland are operated by Scottish Water. Scottish Water is a body established by law with certain powers and functions (including in relation to the provision of water and sewerage services in Scotland)¹⁰⁴⁵. Measures to reduce any sewage-related problems associated with the public sewerage network in Scotland are the responsibility of Scottish Water¹⁰⁴⁶. Any discharge (including discharges from sewage systems) to controlled waters requires a discharge authorisation¹⁰⁴⁷. A discharge authorisation may be provided in a form of a discharge registration, for small discharges, or a licence, for bigger discharges. A discharge authorisation for intermittent discharges may specify the volume of discharges to be made or may include the need to screen discharges to remove sewage litter¹⁰⁴⁸. The Scottish Environment Protection Agency (SEPA)¹⁰⁴⁹, a non-departmental public body of the Scottish Government, is the competent authority for issuing discharge authorisations, including discharge authorisations for intermittent discharges such as those from combined sewer overflows (CSOs) or emergency overflows¹⁰⁵⁰. Public sewers are normally grouped in a Sewer Network Licence which covers an entire sewer drainage area in one authorisation¹⁰⁵¹. SEPA, in addition to the Scottish Ministers, is the competent authority for River Basin Districts (RBDs) in Scotland. The Water Industry Commission for Scotland is Scottish Water's economic regulator. Its role is to ensure that water and wastewater services are delivered at the lowest overall reasonable cost. It also has the responsibility for determining maximum charges payable by customers.

¹⁰⁴³ Graeme Cameron, Senior Specialist Scientist at SEPA has been interviewed for the purpose of this study on 21 May 2015.

¹⁰⁴⁴ Regulation 4 of The Urban Waste Water Treatment (Scotland) Regulations 1994, 1994 No. 2842 (S.144).

¹⁰⁴⁵ For more information on Scottish Water, please see: <http://www.scottishwater.co.uk/about-us>, accessed on 20 May 2015.

¹⁰⁴⁶ Scottish bathing waters, 2014 – 2015, Scottish Environment Protection Agency, available on the following link: http://www.sepa.org.uk/media/143136/sepa_bathing_waters_2014-15_web.pdf, accessed on 30 April 2015.

¹⁰⁴⁷ Waste water treatment in the United Kingdom – 2012, Implementation of the European Union Urban Waste Water Treatment Directive – 91/271/EEC, DEFRA, 2012, p. 16.

¹⁰⁴⁸ Waste water treatment in the United Kingdom – 2012, Implementation of the European Union Urban Waste Water Treatment Directive – 91/271/EEC, DEFRA, 2012, p. 16.

¹⁰⁴⁹ For more information on SEPA, please see: <http://www.sepa.org.uk/about-us/our-role/>, accessed on 20 May 2015.

¹⁰⁵⁰ Waste water treatment in the United Kingdom – 2012, Implementation of the European Union Urban Waste Water Treatment Directive – 91/271/EEC, DEFRA, 2012, p. 16.

¹⁰⁵¹ The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), A practical guide to the regulations, versions 7.2, March 2015.

Basic information	
	‘Water UK’¹⁰⁵² is an industry association for companies that provide water supply services only as well as those that provide both water supply and waste water services in England and Wales, Scotland and Northern Ireland. It does not have any legislative or policy-making powers but as a representative of the interests of the water industry it works with the government and regulators (both industry regulators and environmental regulators). In this capacity it has the potential to shape the policy on waste water management
195. What is the transposing law(s) of the UWWTD in Scotland?	The following legal acts transpose the UWWTD in Scotland: 1. The Urban Waste Water Treatment (Scotland) Regulations 1994, 1994 No. 2842 (S.144)¹⁰⁵³ 2. The Urban Waste Water Treatment (Scotland) Amendment Regulations 2003, 2003 No. 273¹⁰⁵⁴.
196. What is the national provision transposing Section A of Annex I to the UWWTD, in particular the third item which refers expressly to storm water overflows?	Section A of Annex I to the UWWTD in Scotland is transposed in Schedule 2 of the Urban Waste Water Treatment (Scotland) Regulations 1994. Schedule 2 of the Urban Waste Water Treatment (Scotland) Regulations 1994 transposes this provision of the Directive literally. The text of the transposing provision is indicated below: 1. <i>Collecting systems shall take into account waste water treatment requirements.</i> 2. <i>The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding–</i> (a)<i>volume and characteristics of urban waste water;</i> (b)<i>prevention of leaks;</i> (c)<i>limitation of pollution of receiving waters due to storm water overflows.</i>
197. What is the national provision transposing footnote 1 in Sections A and B of Annex I to the UWWTD, which refers expressly to storm water overflows?	Footnote 1 in Sections A and B of Annex I to the UWWTD has not been expressly transposed into Scottish law. The Scottish water protection authorities pointed to a guidance¹⁰⁵⁵ produced by SEPA which sets out the regulatory method for determining discharge licences and therefore the design of storm water overflows. SEPA’s guidance on storm overflows cross-refers to standards and measures to limit pollution from storm water overflows documented in the Urban Pollution Management Manual¹⁰⁵⁶ and it is advised that the guidance should be read in parallel with the Urban Pollution Management Manual and The Urban Waste Water Treatment Regulations Guidance Note. According to the Scottish water protection authorities, for the purposes of the implementation of the footnote to Sections A and B of Annex I in Scotland the reader may refer to guidance documents (see sections below) which detail the requirements and standards for storm water overflows.

¹⁰⁵² <http://www.water.org.uk/about-water-uk>.

¹⁰⁵³ <http://www.legislation.gov.uk/ukxi/1994/2842/made#f00006>.

¹⁰⁵⁴ <http://www.legislation.gov.uk/ssi/2003/273/made>.

¹⁰⁵⁵ ‘Regulatory Method – Sewer Overflows WAT-RM-07’ http://www.sepa.org.uk/media/152727/wat_rm_07.pdf.

¹⁰⁵⁶ Urban Pollution Management Manual 3rd edition, available at: <http://www.fwr.org/UPM3/>.

Basic information	
	Whilst the Urban Waste Water Treatment (Scotland) Regulations 1994 (as amended) do not provide specific measures to limit pollution from storm water overflows, separate legislation arising from the transposition of Water Framework Directive establishes that any discharges to the environment from collecting systems and waste water treatment must be authorised by SEPA who places conditions on those authorisations in accordance with the requirements of all relevant Directives. According to the Scottish water protection authorities, measures used by the SEPA to secure the limitation of pollution include taking enforcement action against polluters. SEPA can exercise enforcement powers against an operator of a sewer or wastewater treatment system that is in breach of the conditions of its licence due to poor management of storm water discharge. Other measures to limit pollution include monitoring the quality of water that receives discharges. Under the Urban Waste Water Treatment (Scotland) Regulations 1994 (as amended), Regulation 11(1)(c) establishes that the SEPA has a duty to monitor water subject to discharges from collecting systems when it can be expected the environment will be significantly affected: <i>“(1) It shall be the duty of every river purification authority¹⁰⁵⁷ ... (c) to monitor or procure the monitoring by a competent authority or appropriate body of waters subject to discharges from urban waste water treatment plants within its area provided in accordance with regulation 5 in cases where it can be expected that the receiving environment will be significantly affected.”</i> Part II of Schedule 3 of the Urban Waste Water Treatment (Scotland) Regulations 1994 outlines the methods for monitoring and evaluation of samples of discharged water in order to assess its quality under the parameters in Tables 1 and 2 of Schedule 3. An exception is included at paragraph 5 of Schedule 3: <i>“Extreme values for the water quality in question shall not be taken into consideration when they are the result of unusual situations such as those due to heavy rain.”¹⁰⁵⁸</i>
198. What is the terminology used to refer to storm water overflows in Scotland? Is there more than one term used?	The expression “storm-water overflows” is used in the Scottish legislation¹⁰⁵⁹ and in the policy documents listed in section 2 of this document. According to the Scottish water protection authority, it describes an outlet in a drainage system from which water is designed to overflow from that system in the event of a storm. According to the information obtained during the interview, the expression “combined sewer overflow” (CSO) is used in relation to drainage systems which collect both wastewater and also surface water run-off (known as ‘combined sewer systems’). “Combined sewer overflow” describes an outlet in a combined sewer system from which water is designed to overflow from that system in the event of a storm. According to the information obtained during the interview, the terms “spill” and “discharge” describe any release of water from either a storm water overflow or a combined sewer overflow. The analysed policy documents, listed in section 2 of this document, commonly

¹⁰⁵⁷ The Urban Waste Water Treatment (Scotland) Regulations 1994 (UK SI 1994/2842 refers to “river purification authority”. This body has now been replaced by the Scottish Environment Protection Agency.

¹⁰⁵⁸ UK SI 1994/2842 Sch. 3 Pt II para. 5.

¹⁰⁵⁹ Schedule 2 of the Urban Waste Water Treatment (Scotland) Regulations 1994.

Basic information	
	use the term “intermittent discharge” when referring to discharges from combined sewer overflows, storm tank overflows and emergency overflows ¹⁰⁶⁰ . According to the Scottish water protection authorities, the term “discharge” may also be used to describe the release of treated effluent from a wastewater collection system.
199. Is there a definition of storm water overflow in Scotland?	A definition of CSOs is provided in WAT-SG-87: Compliance monitoring for sewer network licences¹⁰⁶¹, which sets out SEPA’s approach to compliance monitoring for combined sewer systems operated by Scottish Water, i.e. all combined sewer systems in Scotland. According to this document: <i>“Combined sewer overflows (CSOs) are essential structures within a combined sewer system. They are designed to operate intermittently in response to rainfall. When the sewer system is full a CSO acts as a release valve by allowing any excess flow to discharge to the local water environment. CSOs are dependent on substantial dilution and if discharging to a watercourse, depend on this watercourse having been swollen by rainfall therefore maximising dilution.”</i>
200. Storm water overflows occur as a consequence of an extreme or unusual rainfall event. Does Scotland have a definition of extreme or unusual rainfall event?	No definition of an extreme or an unusual rainfall event has been identified in Scottish legislation, policy documents, or through desk research. The Met Office has an online record of Rainfall extremes for Scotland, available on their website¹⁰⁶². It also has a wealth of climate information that shows significant variation in monthly and total rainfall between different parts of Scotland. Typically, the West of Scotland receives double the rainfall to that of East of Scotland. For this reason, defining an extreme or unusual rainfall event is difficult. Furthermore basing designs of CSOs on this basis does not recognise the characteristics on the receiving environment. According to the Scottish water protection authority, the licensing regime introduced by the Water Environment (Controlled Activities) Regulations is designed to address the latter point. In Scotland, new sewers must, where possible, be designed as separate systems (i.e. foul sewers separate from surface water sewers). The design of all stormwater drainage must ensure that a minimum 1 in 30 year level of service against flooding is provided. This is set out in Scottish Water’s adoption Standards known as ‘Sewers for Scotland – 3rd Edition’¹⁰⁶³.

¹⁰⁶⁰ **WAT-RM-07: Sewer overflows** (http://www.sepa.org.uk/media/152727/wat_rm_07.pdf). This document is a Regulatory method, i.e. it contains the process that SEPA follows when assessing applications for pollution control.

¹⁰⁶¹ http://www.sepa.org.uk/media/152983/wat_sg_87.pdf.

¹⁰⁶² Please see: <http://www.metoffice.gov.uk/public/weather/climate-extremes/#?tab=climateExtremes>.

¹⁰⁶³ Sewers for Scotland 3 - <http://www.scottishwater.co.uk/assets/business/files/connections%20documents/sfsv3may2015.pdf>

2. OVERVIEW OF LEGAL AND POLICY FRAMEWORK ON STORM WATER OVERFLOWS. RELEVANT REFERENCES IN LEGISLATION, POLICY DOCUMENTS, GUIDANCE DOCUMENTS AND OTHERS

Overview of legal and policy framework. Relevant references to storm water overflows.	
Overview of legal and policy framework	
57. Does a policy, practice or legal framework exist in your MS to control or limit storm water overflows?	To control and/or to limit pollution from CSOs, Scotland can rely on its legal framework, as well as its policy and practice which fit together with the legal framework. The legal framework consists of primarily the Urban Waste Water Treatment (Scotland) Regulations 1994 which, just as the UWWTD, mentions specifically storm water overflows. The Water Environment (Controlled Activities)(Scotland) Regulations 2011 (as amended)¹⁰⁶⁴, provide a framework for the regulation by SEPA of discharges to the environment. Each discharge, including those from CSOs requires authorisation under these Regulations. The policy framework, supporting the implementation of the legal framework, further develops this area. It primarily consists of various documents used by SEPA when issuing licences. In order to address water pollution, the pollution from CSOs must be limited and/or controlled. The Scotland River Basin Management Plan (RBMP) lists measures for reducing sewage pollution including: separation of rainfall run-off from combined sewer and use of sustainable urban drainage systems; and further reduction of frequency of operation of sewer overflows 303 overflows by 2015, 232 by 2021¹⁰⁶⁵. The RBMP for the other Scottish RBD, Solway Tweed, also calls for the reduction of sewer overflows and for avoidance or reduction of pollutants entering the sewage system¹⁰⁶⁶. Further information on sewage discharges is provided at Chapter 3 s7.2 of the RBMP. SEPA can directly regulate pollution from CSOs through issuance of licences. The nature of the licence depends on the significance of the CSO. According to the Scottish water protection authority, in practice, all public sewers are issued with complex sewer network licences in accordance with SEPA's Regulatory Method¹⁰⁶⁷ and supporting Guidance – Compliance Monitoring for Sewer Licences¹⁰⁶⁸. It should be noted that the low/medium/high significance is not relevant for licensing, only for modelling requirements when designing a CSO – see Table 1 in WAT-RM-07. Low significance for inland waters means that a discharge is made only when the flow in the

¹⁰⁶⁴ These replaced the Water Environment (Controlled Activities)(Scotland) Regulations 2005

¹⁰⁶⁵ Chapter 3, Section 7.2.3, Table 4 of the river basin management plan for the Scotland river basin district 2009–2015. Reduction of sewer overflows and avoidance or reduction of pollutants entering the sewage system are also mentioned in Chapter 3, Section 3.3, Table 5 of the river basin management plan for the Solway Tweed river basin district 2009–2015.

¹⁰⁶⁶ Reduction of sewer overflows and avoidance or reduction of pollutants entering the sewage system are also mentioned in Chapter 3, Section 3.3, Table 5 of the river basin management plan for the Solway Tweed river basin district 2009–2015.

¹⁰⁶⁷ Regulatory Method (WAT-RM-07) Sewer overflows - http://www.sepa.org.uk/media/152727/wat_rm_07.pdf

¹⁰⁶⁸ Supporting Guidance (WAT-SG-87) Compliance Monitoring for Sewer network licences - http://www.sepa.org.uk/media/152983/wat_sg_87.pdf

Overview of legal and policy framework. Relevant references to storm water overflows.

inlet sewer exceeds 'formula A' and the discharge receives at least eight times dilution (foul dry weather flow at 5% low river flows) in the receiving environment and where there is no interaction with other discharges¹⁰⁶⁹. Formula A for a fully combined system is $\text{Formula A} = \text{DWF} + 1360\text{P} + 2\text{E}$ ¹⁰⁷⁰. Low significance for coastal and transitional waters means that a discharge not made in EU-designated bathing waters, shellfish water, or other areas with specific water quality requirements and where there is no interaction with other discharges¹⁰⁷¹.

In terms of the practical action, the present approach relies mostly on the improvement of CSOs through Scottish Water's capital investment programme¹⁰⁷². Scottish Water planned to invest £260 million in the period 2006 – 2014, with further investments in the future, to put barrier screens on CSOs to catch debris, and to increase storage in the combined sewerage system to reduce the number of times the system discharges to the environment¹⁰⁷³. One of the recent examples is the Meadowhead and Stevenston Project where over £90 million of investment by Scottish Water aims to reduce pollution caused by CSOs primarily by building a storage tank¹⁰⁷⁴.

Scottish Water's investment plans for the period 2015-21 are set out in its Delivery Plan¹⁰⁷⁵. This shows that some £299.3m will be spent improving discharges from sewer networks and Wastewater Treatment Works. This includes £76.9m allocated to improve/reduce impact from 20 small and 2 large WwTWs. The remainder (£222.4m) is allocated against discharges/storm overflows, predominantly in the River Clyde and Water of Leith catchments.

During the 2015-21 period Scottish Water will also take forward, in partnership with Local Authorities, 15 catchment studies to better understand the operation and performance of drainage and sewer networks under all weather conditions, and in particular under flood conditions. This work will supplement the 6 complex Integrated Catchment Studies already completed for Glasgow, Aberdeen, Edinburgh, Dundee, Falkirk and Ayrshire. These studies are in addition to sewer models that are being developed to comply with Section 16 of the Flood Risk Management (Scotland) Act 2009¹⁰⁷⁶. Studies completed to date are already informing investment decisions.

¹⁰⁶⁹ The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), A practical guide to the regulations, versions 7.2, March 2015 (http://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf).

¹⁰⁷⁰ Section 2.3.1 of the WAT-RM-07: Sewer overflows (http://www.sepa.org.uk/media/152727/wat_rm_07.pdf).

¹⁰⁷¹ The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), A practical guide to the regulations, versions 7.2, March 2015 (http://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf).

¹⁰⁷² Chapter 3, Section 7.2 of the river basin management plan for the Scotland river basin district 2009–2015.

¹⁰⁷³ Submission from Scottish Water following Flooding and Flood Management Inquiry, 2007, available on the following link: <http://archive.scottish.parliament.uk/s3/committees/rae/inquiries/flooding/ScottishWater.htm>, accessed on 30 April 2015.

¹⁰⁷⁴ For more information on the project, please see: http://www.waterprojectsonline.com/case_studies/2013/Scottish_Meadowhead_2013.pdf, accessed on 18 May 2015.

¹⁰⁷⁵ Scottish Water's 2015-21 Delivery Plan <http://www.scottishwater.co.uk/assets/about%20us/files/delivery%20plan/swdp2015to21.pdf>

¹⁰⁷⁶ Flood Risk Management (Scotland) Act 2009 <http://www.legislation.gov.uk/asp/2009/6/section/16>

Overview of legal and policy framework. Relevant references to storm water overflows.

	Another way of dealing with pollution coming out of CSOs is with the help of sustainable urban drainage systems, which have been recognised as a means of effectively trapping and treating the pollution.¹⁰⁷⁷ The regulation of SUDs and the basis of their design is set out in SEPA's Regulatory Method – RM-08¹⁰⁷⁸. The Regulatory Method provides guidance on the regulation of surface waters from built developments including construction sites, buildings, roads and yards. There are two RBD in Scotland, Scotland RBD and Solway Tweed RBD. The latter RBD is shared between Scotland and England. The RBMPs for both RBDs refer to reduction of sewer overflows as a measure for reducing sewage pollution.
58. If standards are set, please provide quantitative values where available. Is any of the following type used? - Number of overflows - Volumes of overflow - Coefficient referring to dilution (e.g. comparing to Dry Weather Flow) - Number of days when overflows are working - Water quality standards of receiving water body - Other	Requirements for overflows are determined according to environmental standards such as those specified in the Water Framework Directive or the Bathing Waters Directive as well as to avoid local impacts during wet weather and to address aesthetic impacts. According to the information obtained during the interview, the requirements are set through step wise approach or through modelling where SEPA, on the basis of available information, assesses the impact in order to set the requirements preventing discharges from offsetting standards set for the waters into which CSOs are discharging. However, for designated waters, SEPA requires a minimum design criterion utilising a 10 to 15 year rainfall record for the spill frequency assessment to ensure that the spill frequency does not exceed: ▪ 3 spills per bathing season for bathing and waters identified for other water users ▪ 10 spills per annum for shellfish waters unless the applicant demonstrates compliance with relevant microbiological standards by numerical modelling¹⁰⁷⁹. For CSOs discharging into coastal or transitional waters, a spill of >50m3 is deemed significant¹⁰⁸⁰. More specifically, the approach on setting requirements on case to case basis in Scotland includes the following: ▪ the licences are issued for all discharge points within one wastewater collection system, including CSOs ▪ although the application of numeric microbiological limits is possible, it is not practical to apply numeric standards in the majority of cases¹⁰⁸¹

¹⁰⁷⁷Current condition and challenges for the future: Scotland river basin district, A public consultation (2014), available at the following link: <http://www.sepa.org.uk/media/37219/current-condition-challenges-for-future-scotland-river-basin-district-public-consultation.pdf>, accessed on 18 May 2015; and Current condition and challenges for the future: Solway Tweed river basin district (2014), A public consultation, available at the following link: <http://www.sepa.org.uk/media/37232/current-condition-challenges-for-future-solway-tweed-public-consultation.pdf>, accessed on 18 May 2015.

¹⁰⁷⁸Regulatory Method WAT-RM-08 Sustainable Urban Drainage Systems (http://www.sepa.org.uk/media/152740/wat_rm_08.pdf)

¹⁰⁷⁹The WAT-RM-13: Regulation of microbiological discharges (http://www.sepa.org.uk/media/152766/wat_rm_13.pdf) which contains the process that SEPA follows when assessing applications for pollution control.

¹⁰⁸⁰WAT-RM-07: Sewer overflows (http://www.sepa.org.uk/media/152727/wat_rm_07.pdf), a Regulatory method containing the process that SEPA follows when assessing applications for pollution control.

¹⁰⁸¹Section 3.2 of the WAT-RM-07: Sewer overflows (http://www.sepa.org.uk/media/152727/wat_rm_07.pdf), a Regulatory method containing the process that SEPA follows when assessing applications for pollution control.

Overview of legal and policy framework. Relevant references to storm water overflows.

- for inland waters the potential impact on the receiving water will determine the level of assessment required.¹⁰⁸²
- modelling for bigger sewage systems is carried out using either Fundamental Intermittent Standards or 99%ile standards¹⁰⁸³
- indicative impact assessment criteria is applied concerning discharges to freshwater and coastal and transitional water for low, medium and high significant discharges (e.g. dilution rates, interaction with other discharge, population equivalent, identification of Bathing or Shellfish Waters, etc.)¹⁰⁸⁴
- requirements on CSO screens and their maintenance; monitoring and telemetry are also set¹⁰⁸⁵
- during normal dry weather conditions the only discharge should be the final effluent from the sewage treatment works, meaning that dry-weather overflows are to be avoided¹⁰⁸⁶
- event recorders are required for CSOs discharging to designated Bathing or Shellfish Waters¹⁰⁸⁷
- numerical flow setting will be in a licence¹⁰⁸⁸

An existing discharge which meets one or more of the below listed criteria is classed unsatisfactory and will require improvement to address the failing criteria only:

- causes significant visual or aesthetic impact due to solids or fungus or has a history of justified public complaint
- causes or makes a significant contribution to a deterioration in chemical or biological status
- causes or makes a significant contribution to a failure to comply with Bathing Water Quality Standards for identified bathing waters and/or Shellfish Waters
- operates in dry weather conditions
- operates in breach of licence conditions provided that they are still appropriate, and/or
- causes a breach of water quality standards or other EU Directive requirements¹⁰⁸⁹.

Direct references to storm water overflows in national law transposing the most relevant EU environmental directives

EU Directive	Direct reference	National provision	Text in MS language

¹⁰⁸²Section 4.2 of the **WAT-RM-07: Sewer overflows** (http://www.sepa.org.uk/media/152727/wat_rm_07.pdf), a Regulatory method containing the process that SEPA follows when assessing applications for pollution control.

¹⁰⁸³Ibid.

¹⁰⁸⁴Tables 1 and 3 of the **WAT-RM-07: Sewer overflows** (http://www.sepa.org.uk/media/152727/wat_rm_07.pdf), a Regulatory method containing the process that SEPA follows when assessing applications for pollution control.

¹⁰⁸⁵Sections 4.4 and 4.5 of the **WAT-RM-07: Sewer overflows** (http://www.sepa.org.uk/media/152727/wat_rm_07.pdf), a Regulatory method containing the process that SEPA follows when assessing applications for pollution control.

¹⁰⁸⁶Section 2.2 of the **WAT-RM-07: Sewer overflows** (http://www.sepa.org.uk/media/152727/wat_rm_07.pdf), a Regulatory method containing the process that SEPA follows when assessing applications for pollution control.

¹⁰⁸⁷**WAT-SG-13: Municipal sewage treatment works (STW)** (http://www.sepa.org.uk/media/152905/wat_sg_13.pdf), a guidance document providing recommendations to SEPA staff on the use of conditions in licences for Municipal combined sewerage system.

¹⁰⁸⁸Section 2.1 of the **WAT-SG-13: Municipal sewage treatment works (STW)** (http://www.sepa.org.uk/media/152905/wat_sg_13.pdf), a document providing recommendations to SEPA staff on the use of conditions in licences for Municipal combined sewerage system.

¹⁰⁸⁹Section 3.4 of the **WAT-RM-07: Sewer overflows** (http://www.sepa.org.uk/media/152727/wat_rm_07.pdf), a Regulatory method containing the process that SEPA follows when assessing applications for pollution control.

Overview of legal and policy framework. Relevant references to storm water overflows.			
	(Y/N)		
UWWTD	Yes	The Urban Waste Water Treatment (Scotland) Regulations 1994, 1994 No. 2842 (S.144)¹⁰⁹⁰ The Urban Waste Water Treatment (Scotland) Amendment Regulations 2003, 2003 No. 273¹⁰⁹¹	Section A of Annex I to the UWWTD in Scotland is transposed in Schedule 2 of the Urban Waste Water Treatment (Scotland) Regulations 1994. Schedule 2 of the Urban Waste Water Treatment (Scotland) Regulations 1994 transposes this provision of the Directive literally. The text of the transposing provision is indicated below: 1. Collecting systems shall take into account waste water treatment requirements. 2. The design, construction and maintenance of collecting systems shall be undertaken in accordance with the best technical knowledge not entailing excessive costs, notably regarding– (a) volume and characteristics of urban waste water; (b) prevention of leaks; (c) limitation of pollution of receiving waters due to storm water overflows. Regulation 6(2)(c) Urban Waste Water Treatment (Scotland) Regulations 1994, every river purification authority, in exercising its function under Part II of the Control of Pollution Act (1974) (control of water pollution), is required to secure, with respect to any discharge from urban waste water collecting system the limitation of pollution of receiving waters due to storm water overflows.
WFD	No		.
MSFD	No		
BWD	No		
DWD	No		
<i>Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant EU directives</i>			
EU Directive	Direct reference (Y/N)	Title of document	Text in MS language

¹⁰⁹⁰ <http://www.legislation.gov.uk/ukxi/1994/2842/made#f00006>.

¹⁰⁹¹ <http://www.legislation.gov.uk/ssi/2003/273/made>.

Overview of legal and policy framework. Relevant references to storm water overflows.

UWWTD	Yes	WAT-RM-03: Regulation of sewage discharges to surface waters¹⁰⁹² WAT-RM-07: Sewer overflows¹⁰⁹³ WAT-RM-08: Regulation of sustainable urban drainage systems (SUDS)¹⁰⁹⁴ WAT-SG-02: Modelling methods for surface water discharges¹⁰⁹⁵ WAT-SG-13: Municipal sewage treatment works (STW)¹⁰⁹⁶	This document contains a Regulatory Method, i.e. it contains the process that SEPA follows when assessing applications for pollution control. The overflow should only operate when there is adequate dilution. Therefore, for discharges to watercourses, a good understanding of flow characteristics in the receiving watercourse is required, from local knowledge or hydrometric studies. This document contains a Regulatory Method, i.e. it contains the process that SEPA follows when assessing applications for pollution control. It concerns CSOs, in addition to storm tanks (dealing with the polluting "first flush" of storm sewage) and emergency overflows (designed to cater for mechanical and/or electrical failure, rising main failure or blockage in the downstream sewer). The quantity of relevant information in this document is considerable and could not have been inserted here due to limited space. The document refers to CSO design flows including relevant formulae; storm tank configuration; information to be consider when assessing the potential impact of the CSO discharge on the receiving water; criteria for determining modelling requirements for CSOs discharging to coastal and transitional waters; screening and maintenance requirements; monitoring and telemetry. This document contains a Regulatory Method, i.e. it contains the process that SEPA follows when assessing applications for pollution control. Scottish Water recommends that new surface water discharges should not be permitted to discharge to a combined sewer. Table 3 of this document contains an overview of causes of pollution and pollution impacts on water in regard to storm water run-off from urban developments. This document is a guidance document. Table 1 of the document lists possible constituents from CSOs. This Guidance document provides recommendations to SEPA staff on the use of conditions in licences for Municipal combined sewerage systems. The document makes particular reference to design flows and overflow settings. The quantity of relevant information in this document is considerable and could not have been inserted here due to limited space. Inter alia, the document states that in the case of satisfactory existing CSO, a licence should reflect existing conditions; in case of unsatisfactory CSO, CSO should be licensed and that CSO should be identified in Scottish Water's investment programme. If the unsatisfactory CSO is failing two or more criteria, improvements to achieve the full The Urban Waste Water Treatment (Scotland) Regulations requirements are required. The document refers to event recorders, recording flow

¹⁰⁹² http://www.sepa.org.uk/media/152675/wat_rm_03.pdf.

¹⁰⁹³ http://www.sepa.org.uk/media/152727/wat_rm_07.pdf.

¹⁰⁹⁴ http://www.sepa.org.uk/media/152740/wat_rm_08.pdf.

¹⁰⁹⁵ http://www.sepa.org.uk/media/152844/wat_sg_02.pdf.

¹⁰⁹⁶ http://www.sepa.org.uk/media/152905/wat_sg_13.pdf.

Overview of legal and policy framework. Relevant references to storm water overflows.

		WAT-SG-87: Compliance monitoring for sewer network licences¹⁰⁹⁷ CAS-G-002: Calibration of monitoring and measurement equipment at sewage treatment works¹⁰⁹⁸ The Urban Waste Water Treatment (Scotland) Regulations 1994 - A Working Document for Dischargers and Regulators - A Guidance Note issued by the Scottish Office Agriculture, Environment and Fisheries Department – February 1998¹⁰⁹⁹	of storm sewage passing over an overflow. Event recorders are required for CSOs discharging to designated Bathing or Shellfish Waters. The requirement for flow measurement structures and facilities must be specified in the licence. Requirements for flow monitoring at STW are specified in this document. The document sets out SEPA's approach to compliance monitoring for combined sewer networks operated by Scottish Water. The document concerns combined sewer networks including CSOs. More specifically, the document refers to: compliance/inspection framework; compliance/inspection frequency; compliance assessment scheme, including verification audit, compliance inspections, sewer modelling, on-site inspection, corporate assessment, monitoring/reporting. This document presents SEPA's guidance for use in the compliance assessment scheme when assessing the calibration of monitoring and measurement equipment. The document contains various references to storm overflows. The 1998 Guidance forms the basis of the UK policy on implementing UWWTD. The 1998 Guidance was provided by a representative of SEPA¹¹⁰⁰. According to SEPA's representative, the 1998 Guidance is guidance issued by SEPA's predecessors, on which much of SEPA's current guidance for sewer networks is based and to which the current guidance refers (e.g. Formula A and water quality modelling requirements as set out in the Urban Pollution Manual UPM). According to SEPA's representative, the 1998 Guidance's complexity prompted SEPA and the other authorities to produce more understandable guidance documents since 1998. Having in mind that: ■ other, more recent, guidance documents have been analysed in regard to the reference to storm water overflows above, ■ other, more recent guidance documents are based on 1998 Guidance the 1998 Guidance has not been analysed with regard to the reference to storm water overflows.
WFD	Yes	The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), A practical guide to the regulations, versions 7.2, March 2015 ¹¹⁰¹	This document contains practical advice on the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended). More specifically it details which activities are regulated by SEPA. According to the document, in case of low significance CSOs (and storm tank discharges), SEPA is issuing simple licences and in case of medium and high significance CSO, SEPA is issuing complex licences.

¹⁰⁹⁷ http://www.sepa.org.uk/media/152983/wat_sg_87.pdf.

¹⁰⁹⁸ http://www.sepa.org.uk/media/154748/cas_g_002.pdf.

¹⁰⁹⁹ Not available online.

¹¹⁰⁰ Jennifer Leonard, Quality & Standard Unit Manager at SEPA. The document was provided on 26 May 2015.

¹¹⁰¹ http://www.sepa.org.uk/media/34761/car_a_practical_guide.pdf.

Overview of legal and policy framework. Relevant references to storm water overflows.				
MSFD	No			
BWD	Yes	WAT-RM-13: Regulation of microbiological discharges ¹¹⁰²	This document contains a Regulatory Method, i.e. it contains the process that SEPA follows when assessing applications for pollution control. According to this document, SEPA will operate on the basis of a presumption against CSO and emergency overflow discharges to or impinging on identified waters; SEPA will require the discharger to demonstrate that alternative discharge location options (e.g. relocation of outfall to out with identified water) have been considered before pursuing a direct discharge. According to this document, where unavoidable, SEPA requires a minimum design criteria utilising a 10 to 15 year rainfall record for the spill frequency assessment to ensure that the spill frequency does not exceed: 3 spills per bathing season for bathing and waters identified for other water users 10 spills per annum for shellfish waters unless the applicant demonstrates compliance with relevant microbiological standards by numerical modelling.	
DWD	No			
Direct references to storm water overflows in guidance documents, technical documents, handbooks on the relevant international conventions or commissions				
International conventions or commissions	Direct reference (Y/N)	Title of document	Text in MS language	Translation into English
OSPAR	No			
Conv. Transboundary Watercourses and International Lakes	No			
Other direct references to storm water overflows				
Type of document	Title of document		Summary description	
Policy Regional	The river basin management plan for the Scotland river basin district 2009–2015 ¹¹⁰³		The RBMP lists measures for reducing sewage pollution including: - separation of rainfall run-off from combined sewer and use of sustainable urban drainage systems - further reduction of frequency of operation of sewer overflows 303 overflows by 2015, 232 by 2021¹¹⁰⁴.	

¹¹⁰² http://www.sepa.org.uk/media/152766/wat_rm_13.pdf.

¹¹⁰³ <http://www.sepa.org.uk/environment/water/river-basin-management-planning/publications#RBMPplan>.

¹¹⁰⁴ Chapter 3, Section 7.2.3, Table 4 of the river basin management plan for the Scotland river basin district 2009–2015.

Overview of legal and policy framework. Relevant references to storm water overflows.

Policy Regional	The river basin management plan for the Solway Tweed river basin district 2009–2015 ¹¹⁰⁵	Reduction of sewer overflows and avoidance or reduction of pollutants entering the sewage system are listed as measures for reducing sewage pollution ¹¹⁰⁶ According to the RBMP, the main actions that will contribute towards maintaining and improving bathing water quality in the Solway Tweed RBD are the reduction of point and diffuse source pollution from, inter alia, combined sewer overflows ¹¹⁰⁷ .
Other National	Urban Pollution Management Manual, 3rd Edition, 2012 ¹¹⁰⁸	The UPM Manual, i.e. the procedure set therein is accepted as best current practice by the industry and regulators for the management of urban wet weather discharges, including discharges from CSOs. The procedure is in line with the relevant legal documents in the UK, including Scotland. SEPA contributed to the preparation of the Manual. The procedure set in the Manual is not mandatory. There are numerous references to CSO discharges in the Manual with regard to the management of urban wet weather discharges, such as modelling ¹¹⁰⁹ , design of CSO structures ¹¹¹⁰ (e.g. an effective CSO chamber should self-cleansing and resistant to blockage, the maximum amount of polluting material should be retained in the sewer and passed forward to treatment, etc.).
Policy Regional	Directions to Scottish Water from Scottish Ministers - The Scottish Water (Objectives for 1st April 2010 to 31st March 2015) Directions 2009 ¹¹¹¹ Directions to Scottish Water from Scottish Ministers - The Scottish Water (Objectives: 2015 to 2021) Directions 2014 ¹¹¹²	These Directions set out the improvements that Scottish Water is obliged to deliver to water and sewerage services during the periods 2010 to 2015 and 2015-21 respectively. Improvements to storm water overflows (also known as Intermittent Discharges) are listed. These Directions are underpinned by a list of “outputs”, known as the Technical Expression, which details the nature of improvements required. The outputs and Directions were the product of a lengthy review by the Scottish Government, Scottish Water, the Scottish Water’s regulators. The process is explained on the Scottish Government’s website ¹¹¹³

¹¹⁰⁵ <http://www.sepa.org.uk/environment/water/river-basin-management-planning/publications#RBMPplan>.

¹¹⁰⁶ Chapter 3, Section 3.3, Table 5 of the river basin management plan for the Solway Tweed river basin district 2009–2015.

¹¹⁰⁷ Chapter 5, section 3.4 of the river basin management plan for the Solway Tweed river basin district 2009–2015.

¹¹⁰⁸ <http://www.fwr.org/UPM3/>.

¹¹⁰⁹ Section 5 of the Urban Pollution Management Manual, 3rd Edition, 2012.

¹¹¹⁰ Section 7.2.1 of the Urban Pollution Management Manual, 3rd Edition, 2012.

¹¹¹¹ <http://www.gov.scot/Resource/Doc/917/0088613.pdf>

¹¹¹² <http://www.gov.scot/Resource/0045/00459867.pdf>

¹¹¹³ <http://www.gov.scot/Topics/Business-Industry/waterindustryscot/improving services>

Overview of legal and policy framework. Relevant references to storm water overflows.

Policy National	'Marine Conservation Society Pollution Policy and Position Statement'¹¹¹⁴	Outline of the Marine Conservation Society's opinion on the state of combined sewer overflows in the UK and how it proposes the UK government and water companies should take action to limit pollution to the environment. The proposals contained in this document provide a good indication of what remains to be done to address pollution from waste water discharge through CSO. This document sets out the need for a standard definition of spill frequencies to apply to waste water companies operating CSOs throughout the UK. An investigation uncovered that "different water companies have different standards for the routine monitoring of how often their CSOs are spilling. For example, some CSOs only have spill counters attached to them (so the duration of the spill goes unrecorded), whilst other CSOs have real-time monitoring (whereby the spill counter or monitor is connected – usually via the mobile phone network – to a WaSC's operational control centre)"¹¹¹⁵. Whilst there is no spill frequency standard for discharges from storm water overflows into inland freshwaters, the Marine Conservation Society notes that spill frequencies are standardised for discharges from storm water overflows into bathing waters.

¹¹¹⁴ <http://www.mcsuk.org/downloads/pollution/CSO%20policy.pdf>.

¹¹¹⁵ Marine Conservation Society Pollution Policy and Position Statement', Chapter 6.1, page 11.

3. AVAILABLE DATA RELEVANT FOR STORM WATER OVERFLOWS

Available data on storm water overflows	
<i>Types of sewer system</i>	
141. Which types of sewer system does Scotland have?	There are two types of sewerages in Scotland, combined sewers and separate sewers. Sewerage systems in large towns and cities in Scotland are generally combined sewer systems, although since the 1960s all new developments have been built with separate sewerage systems ¹¹¹⁶ .
142. Is there quantitative information on each type of sewer system: - Percentage - Number of km of pipelines	Scottish Water's 2014/15 Annual Return to the Water Industry Commission for Scotland confirms that the total length of sewers is 51,510km. Of this, 17,449km is confirmed as combined sewers and 8184km is confirmed as separate storm-water sewers. Annual Returns are available on the WICS' website. ¹¹¹⁷
143. How many storm water overflows infrastructures exist in Scotland?	Scottish Water's 2014/15 Annual Return shows that there are 2937 CSOs, however this is under specific WIC definitions that exclude overflows at Wastewater Treatment Works. The total number is circa 4000.
<i>Available quantitative data on the occurrence of storm water overflows</i>	
144. Is there information on the occurrence of storm water overflows?	No information was found on the occurrence of storm water overflows in Scotland.
145. Are storm water overflows monitored in Scotland? If yes, please describe the monitoring programme. Refer to: - what is measured; - how often; and - at how many locations	According to WAT-SG-87: Compliance monitoring for sewer network licences ¹¹¹⁸ , setting out SEPA's approach to compliance monitoring for combined sewer networks operated by Scottish Water, there are a small number of Scottish Water CSOs which require flow/event data collection and/or reporting. According to the document the process that SEPA follows when assessing application for pollution control (WAT-RM-07: Sewer overflows ¹¹¹⁹ is: - monitoring of screen operation, performance and bypass operation may be required as a licence condition and may include the requirement for telemetry to notify the operator of screen operation or bypass - screen monitoring is not required in all cases. It may be required because of: sensitive receiving water environment; previous poor performance, etc. - installation of event monitors or flow loggers or the provision of access facilities to install these monitors needs to be considered for all new and modified CSOs - once the collection system has been brought up to The Urban Waste Water Treatment (Scotland) Regulations standards, or an existing intermittent discharge has been categorised satisfactory; the need for monitoring is minimal - details of recording and reporting vary according to the licence.

¹¹¹⁶ Submission from Scottish Water following Flooding and Flood Management Inquiry, 2007, available on the following link: <http://archive.scottish.parliament.uk/s3/committees/rae/inquiries/flooding/ScottishWater.htm>, accessed on 30 April 2015.

¹¹¹⁷ http://www.watercommission.co.uk/view_Regulatory_data.aspx

¹¹¹⁸ http://www.sepa.org.uk/media/152983/wat_sg_87.pdf.

¹¹¹⁹ http://www.sepa.org.uk/media/152727/wat_rm_07.pdf).

Available data on storm water overflows

Scottish Water is responsible for flow and event monitoring.

The **WAT-SG-13: Municipal sewage treatment works (STW)**¹¹²⁰, providing recommendations to SEPA staff on the use of conditions in licences for Municipal combined sewerage systems, encourages insertion of an obligation in the licenses to install event recorders. The event recorders are required for CSOs discharging to designated Bathing or Shellfish Waters, in order that the number of spills can be determined. They are cheap to install and can be useful in assessing increased frequency and trends of overflow events and when investigating an individual pollution incident in the watercourse. In case of facilities for municipal combined sewerage systems serving more than 2000 p.e., at each storm overflow weir or bypass channel overflow there should be, as a minimum, an event recorder to record the start and finish date/time of overflow events, according to the document.

¹¹²⁰ http://www.sepa.org.uk/media/152905/wat_sg_13.pdf.