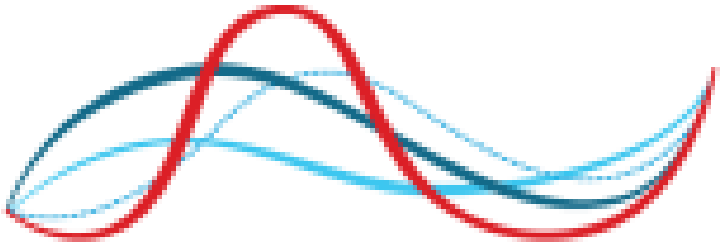

CROATIAN BUREAU OF STATISTICS

Eurostat Grant agreement No. 05121.2016.001-2016.271

FINAL PROJECT METHODOLOGICAL REPORT OF ENVIRONMENTAL ACCOUNTS 2016

Zagreb, December 2017

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CONTENT

INTRODUCTION

This methodological report refers to Eurostat grant agreement for the action entitled Environmental accounts 2016.

The general objective of the action is to develop methods to implement two modules included in the Regulation (EU) No 691/2011:

A) Environmental Goods and Services Sector (EGSS) (prepared by Gordana Lepčević bogdanovicg@dzs.hr and Željka Čuklić cuklicz@dzs.hr) and
B) Physical Energy Flow Accounts (PEFA) (prepared by Jasna Pugar pugarj@dzs.hr).

1. METHODOLOGICAL REPORT ENVIRONMENTAL GOODS AND SERVICES SECTOR (EGSS)

1.1 INTRODUCTION

This report provides a summary of the results obtained for the environmental accounts for Croatia module the Environmental Goods and Services Sector - EGSS.

1.2 THE AIM OF THE PROJECT

CBS Croatia applied for an Eurostat grant agreement No. 05121.2016.001-2016.271.

The grant agreement started on January 1st 2017 and ended in December 31 st2017.

Development of EGSS is reported in a breakdown by economic activity (NACE rev2 - A*64 aggregation level for national accounts).

We planned further data development on ancillary and non-market production for EGSS in all required tables.

To achieve the project objectives, two types of activities were planned:

1. Activities related to the preparation of the methodological framework;
2. Activities related to data collection, processing and analysis of the results.

The main actions carried out, as described in the grant agreement, are the following:

- Studying of available methodologies and legislation on EGSS,
- Translation of "Practical Guide for the Compilation of Environmental Goods and Services (EGSS) Accounts, January 2015, Eurostat" to Croatian language,
- Identifying existing data sources and investigating possibilities for connecting/taking over data from all available data sources in cooperation with the local expert,
- Preparing improved List of Environmental Products,
- Drafting interim report,
- Carrying out a study visit to an EU Member State,
- Defining a survey population and preparing address book,

- Upgrading of IT application in cooperation with local IT expert (outsourcing),
- Defining logical controls for data processing,
- Carrying out EGSS survey (on 2016 data),
- Processing and analysing the data collected with assistance of local expert,
- Designing output tables according to the Reporting Format,
- Compiling validated results and disseminating data on preliminary EGSS 2016 results
- Delivered final EGSS 2015 results
- Drafting elements of the final methodological report for the EGSS module with assistance of local expert.

2. METHODOLOGIES USED

This methodology was used as follows:

Handbook on Environmental Goods and Service Sector, 2016

Practical guide on Environmental Goods and Services Sector accounts, 2016

2.1. DEFINITIONS AND PRINCIPLES

The EGSS data should be reported in a breakdown by type of environmental product, economic activity and environmental domain.

The EGSS comprises production activities of a national economy that generate environmental products. Environmental products are goods and services that have been produced for the purpose of environmental protection and resource management.

The environmental goods and services sector has the same system boundaries as the national accounts and consists of all environmental goods and services that are created within the production boundary. The ESA defines production as an activity carried out under the control and responsibility of an institutional unit that uses inputs of labour, capital and goods and services to produce goods and services.

Excluded from the scope of environmental goods and services are goods and services produced for purposes that, while beneficial to the environment are technical requirements or requirements for health and safety at the work place. Goods and services related to minimizing the impact of natural hazards and those related to the extraction, mobilization and exploitation of natural resources are also excluded.

In practice, the measurement of environmental goods and services relies on the development of relevant lists. The purpose of environmental goods and services is predominantly determined based on the technical nature of the product and its technical suitability to be used for environmental protection or resource management. In certain boundary cases, where the technical nature of the product does not provide a definitive guide, consideration may be given to the intent of the producer of the product.

2.2. VARIABLES

2.2.1. Environmental products

EGSS includes the production of environmental products obtained through non-market, ancillary and market activities. It also includes products for own final use (e.g. renewable energy produced by households for their own final consumption).

Non-market output of environmental products refers to environmental products produced for free provision or provision at economically insignificant prices to other units (e.g. environmental monitoring services by government units). The criterion to be used to identify non-market output is that the sales of products cover not more than 50 per cent of the production costs.

Output for own final use consists of goods or services that are retained either for own final consumption or for capital formation by the same institutional unit, e.g. own-account gross fixed capital formation in the form of major repair carried out by the workers of a water treatment company on its own sedimentation basins or renewable energy produced and consumed by households.

An ancillary activity is an activity whose output is intended for use within an enterprise. Ancillary output of environmental products refers to environmental products produced and consumed within the same unit for intermediate use. They generally refer to environmental protection or resource management services executed internally, e.g. emission monitoring services produced in a power station and consumed in the same power station for intermediate use. Renewable energy produced by an establishment and consumed in the same establishment should not be classified as ancillary output but as (secondary) market output; however, national accounts' practices may differ between countries and compilers of EGSS data should adapt to national practices.

Market output of environmental products refers to environmental products that are (intended to be) sold on the market at economically significant prices. In general, producers pertaining to the corporation sectors are market producers.

Environmental specific services are those services that have the main purpose of preventing, reducing and eliminating pollution and any other degradation of the environment, or preserving and maintaining the stock of natural resources and hence safeguarding against depletion.

Cleaner and resource efficient products correspond to ‘adapted products’ i.e. products that primarily serve a non-environmental purpose but may serve a secondary environmental purpose because they are specifically designed to be more “environmentally friendly” or more "resource efficient" than

normal products of equivalent use. Examples are mercury-free batteries, cars or buses with lower air emissions, energy efficient appliances, water-saving devices, such as drop irrigation systems. They also include renewable energy, secondary raw materials, etc. as well as specific products that enter 'integrated technologies'.

Other environmental product correspond to 'connected products' (environmental sole purpose products) i.e. products whose use directly serves an environmental protection or resource management purpose and that have no use except for environmental protection or resource management. Examples of connected products include catalytic converters, septic tanks (including maintenance services), waste bins. They also include all specifically designed equipment and their specific components, specific installation and plants construction works, specific engineering or similar services that enter the gross fixed capital formation of characteristic producers (environmental technologies), except those already included in cleaner and resource efficient products.

2.2.2 Economic activities

The suppliers of the environmental, goods, services and technologies are scattered over all NACE classes. The NACE classification covers all economic activities including activities belonging to the government. The required breakdown in this questionnaire is based on NACE Rev. 2, as follows:

- National Accounts A*21 breakdown by sections as requested by the Regulation 691/2011

- A*38 for Manufacturing (NACE C), Scientific research and development (NACE M72) and Advertising and market research, other professional, scientific and technical activities, veterinary activities (NACE M73-75)

- A*64 for Water collection, treatment and supply (NACE E 36), legal and accounting activities; activities of head offices; management consultancy activities (NACE 69-70) and architectural and engineering activities; technical testing and analysis (NACE 71)

- A*88 for sewerage (NACE 37), waste collection treatment and collection activities; materials recovery (NACE 38) and remediation activities and other waste management services (NACE 39)

Market output of environmental products may be the result of the principal or secondary activities of a producer unit. In the questionnaire, the output resulting from secondary activities should be reported in the NACE category (row) to which the producer unit belongs. This means that an environmental product (e.g. renewable energy or waste management services) can be shown as being produced by several NACE categories.

2.3. ENVIRONMENTAL DOMAINS

A. Environmental protection

Environmental protection activities are those activities whose primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation of the environment.

They are grouped by environmental protection domain according to the CEPA 2000:

1 Protection of ambient air and climate: reduction of emissions into the ambient air or ambient concentrations of air pollutants as well as the control of emissions of greenhouse gases and gases that adversely affect the stratospheric ozone layer.

Excluded are products related to cost saving (e.g. energy saving), which are included in the resource management.

2 Wastewater management: protection of surface water through the reduction of the release of wastewater into inland surface water and seawater. It includes the collection and treatment of wastewater including monitoring and regulation. Septic tanks are also included.

Excluded are products for the protection of groundwater from pollutant infiltration and cleaning up of water bodies after pollution. These ones are included in the protection and remediation of soil, groundwater and surface water.

3 Waste management: prevention of the generation of waste and reduction of its harmful effect on the environment. It includes the collection and treatment of waste, including monitoring and regulation. It also includes recycling and composting, the collection and treatment of low-level radioactive waste, street cleaning and the collection of public litter.

4 Protection and remediation of soil, groundwater and surface water: prevention of pollutant infiltration, cleaning up of soils, water bodies, the protection of soil from erosion, and other physical degradation as well as from salinization. Monitoring, control of soil and groundwater pollution is included.

5 Noise and vibration abatement control: reduction and abatement of industrial and transport noise and vibration. The abatement of noise and vibration for purposes of protection at the workplace is excluded.

6 Protection against radiation (excluding external safety): reduction or elimination of the negative consequences of radiation emitted from any source. Included are the handling, transportation and treatment of high-level radioactive waste, i.e. waste that, because of its high radionuclide content, requires shielding during normal handling and transportation. Excluded are products related to the prevention of technological hazards (e.g. external safety of nuclear power plants), as well as protection measures taken at workplaces. Also excluded are products related to collection and treatment of low-level radioactive waste.

7 Protection of biodiversity and landscapes: protection and rehabilitation of fauna and flora species, ecosystems and habitats as well as the protection and rehabilitation of natural and semi-natural

landscapes. The separation between 'biodiversity' and 'landscape' protection may not always be practical. For example, maintaining or establishing certain landscape types, biotopes, eco-zones and related issues (hedgerows, lines of trees to re-establish 'natural corridors') have a clear link to biodiversity preservation. Excluded is the protection and rehabilitation of historic monuments or predominantly built-up landscapes, the control of weed for agricultural purposes as well as the protection of forests against forests fire when this predominantly responds to economic reasons. The establishment and maintenance of green spaces along roads and recreational structures (e.g. gulf courses, other sports facilities) are also excluded. Products related to urban parks and gardens would not normally be included unless it is related to biodiversity.

8 Environmental research and development: The class regroups all R&D products oriented towards environmental protection: identification and analysis of sources of pollution, mechanisms of dispersion of pollutants in the environment as well as their effects on human beings, the species and the biosphere. This heading covers R&D for the prevention and elimination of all forms of pollution, as well as R&D oriented towards equipment and instruments of pollution measurement and analysis. When separable all R&D activities even when referring to a specific class have to be classified under this position.

9 Other environmental protection: all environmental protection products that take the form of general environmental administration and management, training or teaching specifically oriented towards environmental protection or which consist of public information, when they are not classified elsewhere in CEPA. It also includes products leading to indivisible classification, as well as products not elsewhere classified. In order to be able to provide figures on the environmental products linked to fighting climate change, the questionnaire further requires to distinguish between products for the protection of ambient air and products for the protection of climate and ozone layer (CEPA 1.1.2), research products for the protection of climate and ozone layer (CEPA 8.1.2).

B. Resource management

The resource management activities are those activities whose primary purpose is the management and/or conservation of natural resources.

According to the CReMA resource, management is subdivided into:

10 Management of water resources: reduction of the intake through in-process modifications related to the reduction of the water input for the production process, the reduction of water use through the reduction of water losses and leaks, the installation of facilities for water reuse and savings, etc., and

the replenishment of water stocks (Ex.: recharge of groundwater bodies to increase/restore water stocks (not to improve water quality or fight salinity: CEPA 4.4); land improvement, development of vegetal cover in order to increase water infiltration and recharge phreatic water bodies (not for the protection of soil against erosion: CEPA 4.3)).

11 Management of forest resources: management of forest areas and reduction of the intake of forest

11A Management of forest areas: restoration activities (reforestation and afforestation), prevention and control of pests and forest fires; measurement control and the like

11B Minimization of the intake of forest resources through in-process modifications, recovery ruse and savings of forest products and by-products

12 Management of wild flora and fauna: reduction of the intake through in-process modifications (ex: vessel buy-back programmes for the introduction of more efficient fishing fleets and equipment), the replenishment of wild flora and fauna stocks (ex: breeding for the replenishment of stocks for fishing or hunting (for restocking purposes and not for protection of biodiversity: CEPA 6.1)) and direct management of wild flora and fauna stocks.

13 Management of fossil energy:

13A Production of energy from renewable sources: reduction of non-renewable energy sources exploitation through the production of energy from renewable resources including solar, wind, tidal, geothermal or biomass sources.

13B Heat and energy saving/management: reduction of the use of non-renewable energy sources through the minimization of heat and energy losses and through energy savings.

13C Minimization of the intake of fossil resources as raw material for use other than energy production: reduction of the intake of oil for use other than energy production.

14 Management of minerals: reduction of the intake through in-process modifications related to the reduction of the raw material input for the production process or the consumption or use of resources.

15 Research and development for natural resource management

16 Other natural resource management: general administration of natural resources, general administration, regulation and the like, environmental management, education, training and information, etc.

3. SURVEY APPROACH IN CROATIA

The Croatian bureau of Statistics is preparing statistical surveys on economic and environment protection related issues according to the new modules in the EU-environmental accounting act (EU No. 691/2011 of the European Parliament). According to existent economic databases with comprehensive information about enterprises in Croatia, surveys on the economical part of environmental protection aspects in enterprises should help to establish data on supply and demand side of environment protection technologies and products.

The CBS unit has conducted a central sample survey on 3700 establishments (KAUs) for reporting year 2016 and asked them for comprehensive information on:

- Output: non-market and market
- Ancillary output
- Employment with the production of environmental protection related goods and services (EGSS)

3.1. COVERAGE OF THE POPULATION / ADDRESS BOOK

The most important data source for the up building of the relevant survey population is a data pool from the Financial Agency in Croatia (Fina). Fina is a key partner to the government in the gathering of data for pension reform, computation, payment and supervision of compulsory contributions, taxes and surtaxes, and also in all major activities of the national treasury and performs many other activities for the public sector. Fina gathers annually relevant data on financial bookkeeping and taxes of all companies in the country. The indication of these figures to Fina is obligatory for enterprises as in behalf of the government. The benefit of this data pool is given through the fact, that different agencies and offices in Croatia can use the Fina data pool for further investigation. This selection in combination with the statistical register information and research activities will compile the basic population of 3700 units. The enterprises are located in the whole NACE Rev. 2. They will be requested to subdivide their given information on environmental expenditures further with the new foreseen questionnaire on the environment statistics.

3.2. SURVEY POPULATION

Croatia was undertaken more or less a register enquiry with survey of establishments (KAUs) in all NACE categories. In addition, experience about the size and the economic activity has to asset in the CBS unit. The survey reported on the non-market output, ancillary output and employment for the three economic areas: investments, current expenditures and environmental related production. To satisfy these three data demands the number of respondents has to be held high.

3.3. ADDRESS BOOK

The register structure in the statistical office in Croatia is at the time being not very satisfying for organizing environmental surveys. Thus, Fina datasets was most relevant for the compilation of the environment address book in combination with entities gathered from former expenditure surveys, specialized producers gathered from waste and water surveys as well as entities registered with the recommended CPA codes (taken from the statistical register) and finally, government entities taken from Fina. The general idea behind this is that all entities in the manufacturing industry and the core sector can be suppliers of environment protection goods and services. The entities from the environmental surveys are different to establishments and companies in statistical business register. Additionally, information on waste and water facilities and special government entities was needed, which often does not fit in the general statistical business register. The advantages of orienting the address book to the register structure is that, information from other statistics can be analyzed for environment protection issues and for sampling. And when the register develops further, the environmental address book already oriented into the register can be easily available for further usage.

3.4. CLASSIFICATION USED

Two approaches exist to estimate the EGSS: the supply-side approach and the demand side-approach. The supply-side approach focuses on getting information on the production of environmental goods and services. The demand-side approach is characterized by the collection of information on the demand for goods and services for environmental purposes.

The supply-side approach collects information by means of questionnaires (primary data sources on EGSS) and/or by using existing statistics (secondary data sources on EGSS). Special EGSS producers' surveys have the advantage to provide good direct data but represent an additional administrative burden for enterprises and national statistical offices. A distinction must be made between developing a single survey that aims to encompass all of the EGSS activity within a country and developing targeted surveys covering important parts of the EGSS or add some questions to existing specific industry surveys.

4. CROATIAN LIST OF ENVIRONMENTAL GOODS AND SERVICES

The Croatian approach offered to the respondents was an online survey form with the CPA nomenclature. The respondent had to choose from a preselected set of products in their respective environmental domains. Each product had a respective CPA code with relevance to its environmental related production. The Croatian preselecting included the information from the Eurostat-methodological handbook 2009 concerning the recommendations of environmental products in the common product classifications. For the survey, Croatia has prepared a list of 280 products which were distributed to this functions: output, investment and intermedia. We used the existing CEPA and CReMA list of products. Every product was given a product ID, CPA 2008 CODE, Description, CEPA or CReMA classification and characteristics of the product (output, intermedia or investment - possible was marked with x and the impossible with 0). Table below (Table 1) consists of Croatian list of products (original list and the list of newly added products).

The CPA list contains industrial products regarding the economic sectors. In accordance with the designated harmonization of the conceptual relation between the statistical classification of economic activities and the statistical classification of industrial goods, the CPA list corresponds on the 4-digit-level to the classes of NACE Rev. 2. Establishing an environmental goods list based on a statistical classification of industrial products such as the CPA list might be a measure to separate environmental establishments from conventional producers. From micro data analyses, a subset of 280 CPA codes with a significant environmental relevance was identified in Croatia.

The use of an appropriate and more detailed product related catalogue with well-defined environment protection products and services would be very beneficial in further surveys. Thus, in the long term we will try to establish a more specific catalogue of products and services, adapted to the national economy.

Table 1 List of products

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
1	29.32.30	Parts and accessories for motor vehicles	1	X	X	0
2	19.20.2	Fuel oil and gas; lubricating oils	1	X	X	0
3	29	Motor vehicles, trailers and semi-trailers	1	X	0	X
4	30	Other transport equipment	1	X	0	X
5	39.00.23	Other specialized	1	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		pollution control services				
6	39.00.2	Other remediation and specialized pollution control services	1	X	X	0
7	20.59.59	Miscellaneous other chemical products	1	X	X	0
8	35.2	Manufactured gas; distribution services of gaseous fuels through mains	1	X	X	0
9	74.90.13	Environmental consulting services	1	X	X	0
10	28.25.14	Machinery and apparatus for filtering or purifying gases	1	X	0	X

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
11	84.1	Administration services of the State and the economic and social policy of the community	1	X	X	0
12	33.2	Installation services of industrial machinery and equipment	1	X	X	0
13	94.99	Services furnished by other membership organizations	1	X	X	0
14	33.1	Repair services of fabricated metal products, machinery and equipment	1	X	X	0
15	39.00.13	Remediation and clean-up services, air	1	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
16	26.51.53	Instruments and apparatus for physical or chemical analysis	1	X	0	X
17	24.52.2	Tubes and pipes of centrifugally cast-steel	2	X	X	0
18	22.21.2	Tubes, pipes and hoses and fittings thereof, of plastics	2	X	X	0
19	71.12.16	Engineering services for water, sewerage and drainage projects	2	X	0	X
20	42.21.24	Water well drilling and septic system installation works	2	X	0	X
21	28.13	Other pumps and compressors	2	X	0	X

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
22	39.00.23	Other specialized pollution control services	2	X	X	0
23	39.00.2	Other remediation and specialized pollution control services	2	X	X	0
24	25.99.29	Other articles of base metal	2	X	0	X
25	22.29.26	Fittings for furniture, coachwork or the like, of plastics; statuettes and other ornamental articles, of plastics	2	X	0	X
26	23.61	Concrete products for construction purposes	2	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
27	74.90.13	Environmental consulting services	2	X	X	0
28	28.29.12	Filtering or purifying machinery and apparatus, for liquid	2	X	0	X
29	84.1	Administration services of the State and the economic and social policy of the community	2	X	X	0
30	33.2	Installation services of industrial machinery and equipment	2	X	X	0
31	71.12.16	Engineering services for water, sewerage and drainage projects	2	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
32	94.99	Services furnished by other membership organizations	2	X	X	0
33	33.1	Repair services of fabricated metal products, machinery and equipment	2	X	X	0
34	22.23.13	Reservoirs, tanks, vats and similar containers, capacity > 300 l, of plastics	2	X	0	X
35	24.52.3	Tube or pipe fittings, of cast-steel	2	X	0	X
36	26.51.53	Instruments and apparatus for physical or chemical analysis	2	X	0	X

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
37	37.00.11	Sewerage services; sewage sludge	2	X	X	0
38	37.00.12	Sewerage services; sewage sludge	2	X	X	0
39	37.00.20	Sewerage services; sewage sludge	2	X	X	0
40	39.00.12	Remediation and clean-up services, surface water	2	X	X	0
41	42.21.23	Construction works for irrigation systems (canals), water mains and lines, water treatment plants, sewage disposal plants and pumping stations	2	X	0	X
42	25.92	Light metal packaging	3	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
43	81.29.12	Sweeping and snow removal services	3	X	X	0
44	81.29.12	Sweeping and snow removal services	3	X	X	0
45	28.21.12	Industrial or laboratory furnaces and ovens, non-electric, including incinerators, but excluding bakery ovens	3	X	0	X
46	43.99	Other specialized construction works	3	X	0	X
47	39.00.23	Other specialized pollution control services	3	X	X	0
48	39.00.2	Other remediation and specialized pollution	3	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		control services				
49	25.99	Other fabricated metal products	3	X	X	0
50	22.29.29	Other articles of plastics	3	X	X	0
51	74.90.13	Environmental consulting services	3	X	X	0
52	28.92	Machinery for mining, quarrying and construction	3	X	0	X
53	81.29.12	Sweeping and snow removal services	3	X	X	0
54	84.1	Administration services of the State and the economic and social policy of the community	3	X	X	0
55	33.2	Installation services of industrial machinery	3	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		and equipment				
56	71.12.15	Engineering services for waste management projects (hazardous and non-hazardous)	3	X	X	0
57	94.99	Services furnished by other membership organizations	3	X	X	0
58	09	Mining support services	3	X	X	0
59	33.1	Repair services of fabricated metal products, machinery and equipment	3	X	X	0
60	22.22.11	Sacks and bags (including cones), of	3	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		polymers of ethylene				
61	13.92.21	Sacks and bags, of a kind used for the packing of goods	3	X	X	0
62	22.22.19	Other plastic packing goods	3	X	X	0
63	23.65.11	Boards, blocks and similar articles of vegetable fibre, straw or wood waste, agglomerated with mineral binders	3	X	X	0
64	25.29	Other tanks, reservoirs and containers of metal	3	X	0	X
65	38.21	Treatment and disposal services of non-hazardous waste	3	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
66	38.22	Treatment and disposal services of hazardous waste	3	X	X	0
67	01	Organic agricultural products	4	X	X	0
68	01.61	Support services to crop production	4	X	X	0
69	33.1	Repair services of fabricated metal products, machinery and equipment	4	X	X	0
70	33.2	Installation services of industrial machinery and equipment	4	X	X	0
71	39.00.11	Remediation and clean-up services, soil	4	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		and groundwater				
72	39.00.2	Other remediation and specialized pollution control services	4	X	X	0
73	39.00.23	Other specialized pollution control services	4	X	X	0
74	71.12.16	Engineering services for water, sewerage and drainage projects	4	X	X	0
75	74.90.13	Environmental consulting services	4	X	X	0
76	84.1	Administration services of the State and the economic and social	4	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		policy of the community				
77	94.99	Services furnished by other membership organizations	4	X	X	0
78	43.99	Other specialized construction works	5	X	0	X
79	43.29.11	Insulation works	5	X	0	X
80	39.00.23	Other specialized pollution control services	5	X	X	0
81	39.00.2	Other remediation and specialized pollution control services	5	X	X	0
82	74.90.13	Environmental consulting services	5	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
83	84.1	Administration services of the State and the economic and social policy of the community	5	X	X	0
84	33.2	Installation services of industrial machinery and equipment	5	X	X	0
85	94.99	Services furnished by other membership organizations	5	X	X	0
86	33.1	Repair services of fabricated metal products, machinery and equipment	5	X	X	0
87	22.23.14	Doors, windows and frames and	5	X	0	X

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		thresholds for doors; shutters, blinds and similar articles and parts thereof, of plastics				
88	16.29.2	Articles of cork, straw or other plaiting materials; basket ware and wickerwork	5	X	X	0
89	08.99.1	Bitumen and asphalt, natural; asphaltites and asphaltic rock	5	X	X	0
90	23.12.13	Glass mirrors; multiple walled insulating units of glass	5	X	X	0
91	39.00.23	Other specialized pollution	6	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		control services				
92	39.00.2	Other remediation and specialized pollution control services	6	X	X	0
93	74.90.13	Environmental consulting services	6	X	X	0
94	84.1	Administration services of the State and the economic and social policy of the community	6	X	X	0
95	33.2	Installation services of industrial machinery and equipment	6	X	X	0
96	94.99	Services furnished by other	6	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		membership organizations				
97	33.1	Repair services of fabricated metal products, machinery and equipment	6	X	X	0
98	26.51.41	Instruments and apparatus for measuring or detecting ionizing radiations	7	X	0	X
99	25.99	Other fabricated metal products	7	X	X	0
100	74.90.13	Environmental consulting services	7	X	X	0
101	39.00.2	Other remediation and specialized pollution	7	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		control services				
102	39.00.23	Other specialized pollution control services	7	X	X	0
103	84.1	Administration services of the State and the economic and social policy of the community	7	X	X	0
104	33.2	Installation services of industrial machinery and equipment	7	X	X	0
105	94.99	Services furnished by other membership organizations	7	X	X	0
106	33.1	Repair services of fabricated metal	7	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		products, machinery and equipment				
107	38.22.2	Nuclear and other hazardous waste disposal services	7	X	X	0
108	38.22.11	Nuclear waste treatment services	7	X	X	0
109	38.22.21	Nuclear waste disposal services	7	X	X	0
110	39.00.23	Other specialized pollution control services	8	X	X	0
111	39.00.2	Other remediation and specialized pollution control services	8	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
112	74.90.13	Environmental consulting services	8	X	X	0
113	84.1	Administration services of the State and the economic and social policy of the community	8	X	X	0
114	33.2	Installation services of industrial machinery and equipment	8	X	X	0
115	94.99	Services furnished by other membership organizations n.e.c.	8	X	X	0
116	33.1	Repair services of fabricated metal products, machinery	8	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		and equipment				
117	72.1	Research and experimental development services in natural sciences and engineering	8	X	X	0
118	39.00.23	Other specialized pollution control services	9	X	X	0
119	39.00.2	Other remediation and specialized pollution control services	9	X	X	0
120	74.90.13	Environmental consulting services	9	X	X	0
121	84.1	Administration services of the State and the economic and social	9	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		policy of the community				
122	33.2	Installation services of industrial machinery and equipment	9	X	X	0
123	94.99	Services furnished by other membership organizations	9	X	X	0
124	33.1	Repair services of fabricated metal products, machinery and equipment	9	X	X	0
125	33.2	Installation services of industrial machinery and equipment	10	X	X	0
126	71.12.16	Engineering services for	10	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		water, sewerage and drainage projects				
127	94.99	Services furnished by other membership organizations	10	X	X	0
128	33.12.12	Repair and maintenance services of fluid power equipment, other pumps, compressors, taps and valves	10	X	X	0
129	33.1	Repair services of fabricated metal products, machinery and equipment	10	X	X	0
130	36.00.2	Treatment and distribution	10	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		services of water through mains				
131	84.1	Administration services of the State and the economic and social policy of the community	10	X	X	0
132	74.90.13	Environmental consulting services	10	X	X	0
133	42.21.1	Utility constructions for fluids	10	X	X	0
134	36.00.1	Natural water	10	X	X	0
135	24.52.3	Tube or pipe fittings, of cast-steel	10	X	X	0
136	24.52.2	Tubes and pipes of centrifugally cast-steel	10	X	X	0
137	23.61	Concrete products for construction purposes	10	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
138	22.21.2	Tubes, pipes and hoses and fittings thereof, of plastics	10	X	X	0
139	01.61	Support services to crop production	10	X	X	0
140	16.24	Wooden containers	11	X	X	0
141	17	Paper and paper products	11	X	X	0
142	02.40	Support services to forestry	11	X	X	0
143	74.90.13	Environmental consulting services	11	X	X	0
144	84.1	Administration services of the State and the economic and social policy of the community	11	X	X	0
145	33.2	Installation services of	11	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		industrial machinery and equipment				
146	38.3	Materials recovery services; secondary raw materials	11	X	X	0
147	94.99	Services furnished by other membership organizations	11	X	X	0
148	33.1	Repair services of fabricated metal products, machinery and equipment	11	X	X	0
149	74.90.13	Environmental consulting services	12	X	X	0
150	84.1	Administration services of the State and the economic	12	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		and social policy of the community				
151	33.2	Installation services of industrial machinery and equipment	12	X	X	0
152	94.99	Services furnished by other membership organizations	12	X	X	0
153	33.1	Repair services of fabricated metal products, machinery and equipment	12	X	X	0
154	27.5	Domestic appliances	13	X	0	X
155	20.3	Paints, varnishes and similar coatings,	13	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		printing ink and mastics				
156	28.11.32	Parts of hydraulic turbines, water wheels including regulators	13	X	0	X
157	25.21.13	Parts for central heating boilers	13	X	0	X
158	35.11.10	Electricity	13	X	X	0
159	43.21.10	Electrical installation works	13	X	X	0
160	42.22.23	Construction works for power plants	13	X	X	0
161	28.11.22	Hydraulic turbines and water wheels	13	X	0	X
162	43.29.11	Insulation works	13	X	X	0
163	25.21.12	Central heating boilers, for producing hot	13	X	0	X

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		water or low pressure steam				
164	23.61.12	Prefabricated structural components for building or civil engineering, of cement, concrete or artificial stone	13	X	0	X
165	27.52.14	Water heaters, instantaneous or storage, non-electric	13	X	0	X
166	41.00.2	Non-residential buildings	13	X	0	X
167	28.25.13	Refrigeration and freezing equipment and heat pumps, except household type equipment	13	X	0	X

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
168	20.16.56	Other amino-resins, phenolic resins and polyurethanes, in primary forms	13	X	X	0
169	20.14	Other organic basic chemicals	13	X	X	0
170	23.99	Other non-metallic mineral products	13	X	X	0
171	16.29	Other products of wood; articles of cork, straw and plaiting materials	13	X	X	0
172	20.16.2	Polymers of styrene, in primary forms	13	X	X	0
173	01.29.10	Natural rubber	13	X	X	0
174	43.22.12	Heating, ventilation and air conditioning	13	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		installation works				
175	20.41	Soap and detergents, cleaning and polishing preparations	13	X	X	0
176	74.90.13	Environmental consulting services	13	X	X	0
177	23.14.1	Glass fibres	13	X	X	0
178	41.00.10	Residential buildings	13	X	0	X
179	26.51.70	Thermostats, manostats and other automatic regulating or controlling instruments and apparatus	13	X	0	X
180	28.11.24	Wind turbines	13	X	0	X
181	84.1	Administration services of the State and the economic and social	13	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		policy of the community				
182	33.2	Installation services of industrial machinery and equipment	13	X	X	0
183	71.12.13	Engineering services for power projects	13	X	X	0
184	71.12.12	Engineering services for building projects	13	X	X	0
185	35.3	Steam and air conditioning supply services	13	X	X	0
186	94.99	Services furnished by other membership organizations.	13	X	X	0
187	33.1	Repair services of fabricated metal	13	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		products, machinery and equipment				
188	43.99.7	Assembly and erection works of prefabricated constructions	13	X	X	0
189	28.14.13	Process control valves, gate valves, globe valves and other valves	13	X	X	0
190	22.23.14	Doors, windows and frames and thresholds for doors; shutters, blinds and similar articles and parts thereof, of plastics	13	X	0	X
191	22.22.12	Sacks and bags (including cones), of	13	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		other plastics than polymers of ethylene				
192	38.3	Materials recovery services; secondary raw materials	13	X	X	0
193	22.19.1	Reclaimed rubber in primary forms or in plates, sheets or strip	13	X	X	0
194	22.11.2	Retreaded pneumatic tyres, of rubber	13	X	X	0
195	28.14.12	Taps, cocks, valves for sinks, wash basins, bidets, water cisterns bath and similar fixtures; central heating radiator valves	13	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
196	28.14.11	Pressure-reducing, control, check and safety valves	13	X	X	0
197	27.40.15	Discharge lamps; ultra-violet or infra-red lamps; arc lamps	13	X	X	0
198	23.12.13	Glass mirrors; multiple walled insulating units of glass	13	X	X	0
199	17	Paper and paper products	13	X	X	0
200	16.29.2	Articles of cork, straw or other plaiting materials; basket ware and wickerwork	13	X	X	0
201	35.2	Manufactured gas; distribution services of	13	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		gaseous fuels through mains				
202	27.52.12	Other domestic appliances, for gas fuel or for both gas and other fuels, for liquid fuel or for solid fuel	13	X	0	X
203	26.11.40	Parts of electronic valves and tubes and of other electronic components	13	X	X	0
204	26.11.22	Semiconductor devices; light-emitting diodes; mounted piezo-electric crystals; parts thereof	13	X	X	0
205	24.4	Basic precious and other	14	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		non-ferrous metals				
206	23.51.12	Portland cement, aluminous cement, slag cement and similar hydraulic cements	14	X	X	0
207	74.90.13	Environmental consulting services	14	X	X	0
208	24.10	Basic iron and steel and ferro-alloys	14	X	X	0
209	28.41	Metal forming machinery	14	X	X	X
210	84.1	Administration services of the State and the economic and social policy of the community	14	X	X	0
211	33.2	Installation services of industrial machinery	14	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		and equipment				
212	94.99	Services furnished by other membership organizations	14	X	X	0
213	33.1	Repair services of fabricated metal products, machinery and equipment	14	X	X	0
214	38.3	Materials recovery services; secondary raw materials	14	X	X	0
215	74.90.13	Environmental consulting services	15	X	X	0
216	84.1	Administration services of the State and the economic and social	15	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
		policy of the community				
217	33.2	Installation services of industrial machinery and equipment	15	X	X	0
218	94.99	Services furnished by other membership organizations	15	X	X	0
219	33.1	Repair services of fabricated metal products, machinery and equipment	15	X	X	0
220	72.1	Research and experimental development services in natural sciences and engineering	15	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
221	74.90.13	Environmental consulting services	16	X	X	0
222	84.1	Administration services of the State and the economic and social policy of the community	16	X	X	0
223	33.2	Installation services of industrial machinery and equipment	16	X	X	0
224	94.99	Services furnished by other membership organizations	16	X	X	0
225	33.1	Repair services of fabricated metal products, machinery and equipment	16	X	X	0

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
226	16.10	Wood, sawn and planed	13	X	X	0
227	16.10.22	Wood wool; wood flour	13	X	X	0
228	16.23.11	Windows, French windows and their frames, doors and their frames and thresholds, of wood	13	X	0	X
229	16.23.2	Prefabricated wooden buildings	13	X	0	X
230	23.99.19.	Non-metallic mineral products	13	X	X	0
231	38.1	Waste; waste collection services	3	X	X	0
232	71.12.16	Engineering services for water, sewerage and drainage projects	10	X	0	X

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications	Output	Intermedia	Investment
233	42.21.23	Construction works for irrigation systems (canals), water mains and lines, water treatment plants, sewage disposal plants and pumping stations	10	X	0	X

PRODUCTS ADED IN 2016:

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications
234	71.20	View vehicles in roadworthiness	1
235	20.11	Refrigerant gases	1
236	29	Motor vehicles, trailers and semi-trailers	2
237	20.14	Other organic basic chemicals	2
238	28.29.	Drainage barriers	2
239	28.29	Oil separator	2

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications
240	38	Waste collection, treatment and disposal services; materials recovery services	3
241	29.10	Motor vehicles	3
242	30.1	Ships and boats	3
243	38	Waste collection, treatment and disposal services; materials recovery services	3
244	42.99	Constructions and construction works for other civil engineering projects n.e.c.	3
245	25.2	Reservoirs and tanks with double walls	4
246	39.00	Remediation services and other waste management services	4
247	81.30	Landscape services	6
248	39	Remediation services and other waste management services	6
249	42.13	Bridges and tunnels; construction works for bridges and tunnels	
250	91.04	Botanical and zoological garden services and nature reserve services	6
251	39.00.11	Remediation and clean-up services, soil and groundwater	6

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications
252	72.1	Research and experimental development services in natural sciences and engineering	6
253	43.99	Other specialised construction works n.e.c.	7
254	91.04	Botanical and zoological garden services and nature reserve services	9
255	71.20	Technical testing and analysis services	9
256	39	Remediation services and other waste management services	10
257	20.14	Other organic basic chemicals	11
258	02.10	Forest trees and nursery services	11
259	28.30	Agricultural and forestry machinery	11
260	30.1	Ships and boats	12
261	91.04	Botanical and zoological garden services and nature reserve services	12
262	71.20	The Energy certificates	13
263	43.31	Plastering works	13
264	38.21	Biogas	13
265	71	Architectural and engineering services; technical testing and analysis services	16

product ID	CPA 2008 CODE	Description CPA2008	Environmental domain: CEPA and CReMA Classifications
266	74.90	Other professional, scientific and technical services n.e.c	16
267	42.22.23	Construction works for power plants	13
268	43.21.		13
269	71.11	Architectural services; Engineering services for building projects	13
270	71.11	Architectural services; Engineering services for power projects	13
271	71.11	Architectural services	2
272	71.11	Architectural services	3
273	71.11	Architectural services	4
274	71.11	Architectural services	10
275	39.00.2	Other remediation and specialised pollution control services	6
276	74.90	Environmental consulting services	2
277	74.90	Environmental consulting services	3
278	74.90	Environmental consulting services	4
279	74.90	Environmental consulting services	10
280	74.90	Environmental consulting services	13

5. UPGRADED EXISTING APPLICATION FOR ENVIRONMENTAL ACCOUNTS 2016

1. Web application was upgraded with following functionalities:

1. Upgraded the existing electronic questionnaire for business entities for data collection through a web application that was developed according to the methodological instructions of the CBS and incorporated possibilities for correcting contact information by the user
2. Improved existing logical and accounting controls and built-in additional code for completing the electronic questionnaire
3. Designed, developed and updated the address book and product base
4. Automated data downloadfrom the CBS address book into a web questionnaire and an application Automated sending confirmation to users of receipt of filled in data by email, after entering and sending data via web questionnaire
5. The ability to print completed questionnaires by users / respondents (print filled form and local storage on a computer)
6. Automatically transfer the entered data to the database
7. Additional logical and accounting controls over the data in the database
8. The ability to correct data in a database
9. The ability to merge multiple separate databases into one database (data obtained within the CBS)
10. The ability to merge data from administrative sources into a database
11. Continuous training of employees of the CBS for work in the application during the entire duration of the contract
12. Support to CBS administrators of the application
13. Improved search tool for business entities (companies, local units) in address books (by company name, registration number, OIB ..)

14. Enhanced search tool for those business entities that entered data, those that started entering, those who did not start entering data as well as those who entered but not yet sent data (overview of data entry statistics)
15. Improved contact information administration
16. Improved administration of the options and dates for completing the questionnaire (e-mail reminders)
17. Improved administration of application authorization

2. Data entry module has following functionalities enhanced:

1. Determination of business subjects that are the subject of research (application user) by downloading their contact data from the CBS address book
2. Improved existing logical and accounting controls and built-in additional code for completing the electronic questionnaire
3. Automatically transfer the entered data to the database

3. Upgraded module for data merging, processing, correction and analysis of collected data

1. Added new variables to the web questionnaire
2. Allowed to enter new products into the database (import data for products)
3. Improved debugging and data processing by embedding additional logical and computational controls
4. Merged data from separate databases
5. Connected data with databases from administrative sources
6. Enabled data analysis and reporting according to the default formats

7. Enabled entry of additional data (from other sources) into analysis database and reports

4. Testing and correction of the application during the duration of the project, starting from May to December 2017.

5. The application is put into production, project documentation and the source code have been handed over to the CBS.

6. Application user manual has been made

6. ANALYSING SURVEY RESULTS

6.1. POPULATION

Survey population focused on the manufacturing sector, service and trade sectors. Enterprises with organic agriculture have not been relevant in the 2016 survey but data has been taken directly from agriculture statistics. The biggest share in the EGSS population was determined in the waste and water sector. Some enterprises in the area of paper recycling and forest management were also relevant for the EGSS survey.

The completion rate for the questionnaire was 60% from the sample of 3700 enterprises.

6.2. PRELIMINARY DATA FOR THE YEAR 2016

CBS prepared preliminary results on **ancillary and non-market production** on Environmental goods and service sector. Data were sent via EDAMIS. We sent data for output, GVA and employment. For for now we do not have export data. Final results for 2016 will be sent by the end of the year.

The survey was carried out according to economic activities based on the National Statistical Classification of Economic Activities (NACE). The EGSS's turnover was achieved in the following economic activities classified by NACE:

A Agriculture, forestry and fishing

B Mining and quarrying

C Manufacturing

D Electricity, gas, steam and air conditioning supply

E Water supply; sewerage, waste management and remediation activities

F Construction

G Wholesale and retail trade

H Transportation and storage

I Accommodation and food service activities

J Information and communication

K Financial and insurance activities

L Real estate activities

M Professional, scientific and technical activities

N Administrative and support service activities

O Public administration and defence

P Education

Q Human health and social work activities

R Arts, entertainment and recreation

S Other service activities

The analysis of the data collected for 2016 shows that the EGSS turnover was achieved in almost every NACE economic activity. However, the amounts of turnover with environmental goods and services in certain NACE activity is different, as can be seen in Figure 1.

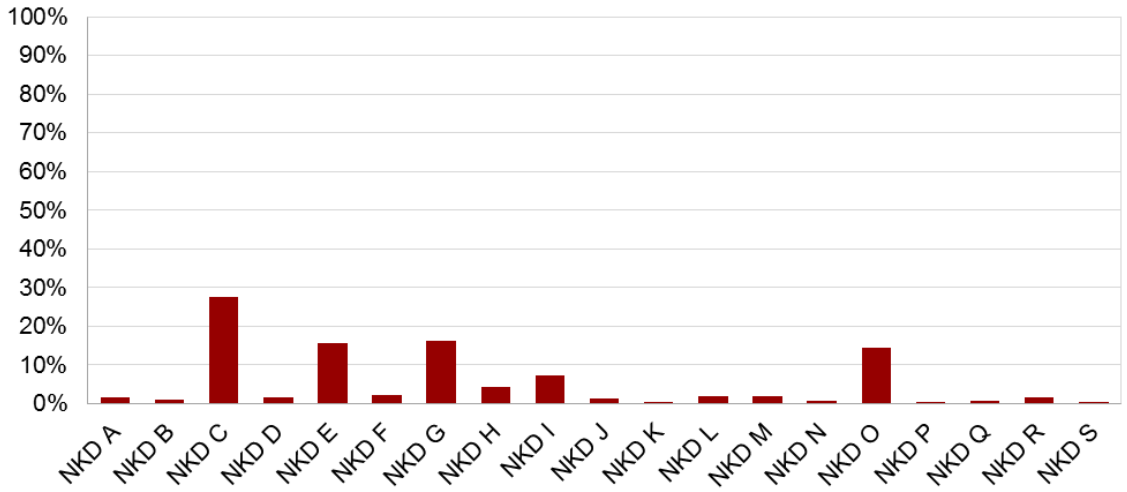

Figure 1.: The share of turnover with environmental goods and services in the NACE economic activities

The largest share of turnover is in Manufacturing (27.5%), followed by Wholesale and retail trade (16.2%), Water supply; sewerage, waste management and remediation activities (15.7%) and Public administration and defence (14.5%). The lowest share is reported in Education (0.02%), Financial and insurance activities (0.2%) and Other service activities (0.3%).

For analysing the data collected, in November 2017 a working meeting of experts from CBS and Ekonerg was held. The NACE economic activities included in the survey have been analysed by exploring the possibility of including additional activities (e.g. in the area of renewable energy sources), depending on the availability of data sources.

7. REVIEW OF EGSS DATA CROSS-CLASSIFIED BY NACE AND CLASSIFICATIONS OF ENVIRONMENTAL ACTIVITIES

Review of EGSS data cross-classified by NACE and classifications of environmental activities follows (Figure 2-19).

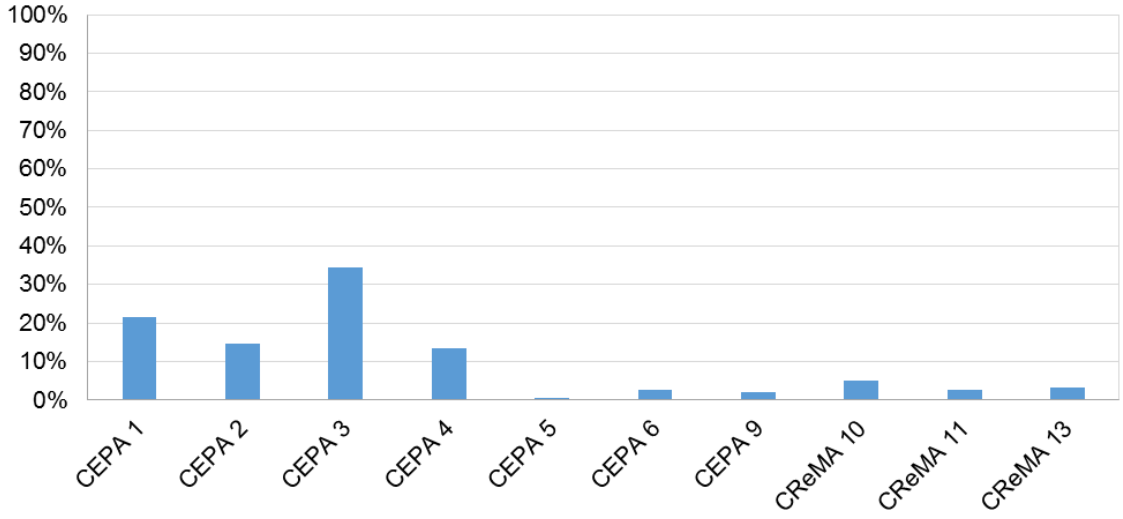

Figure 2.: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE A Agriculture, forestry and fishing

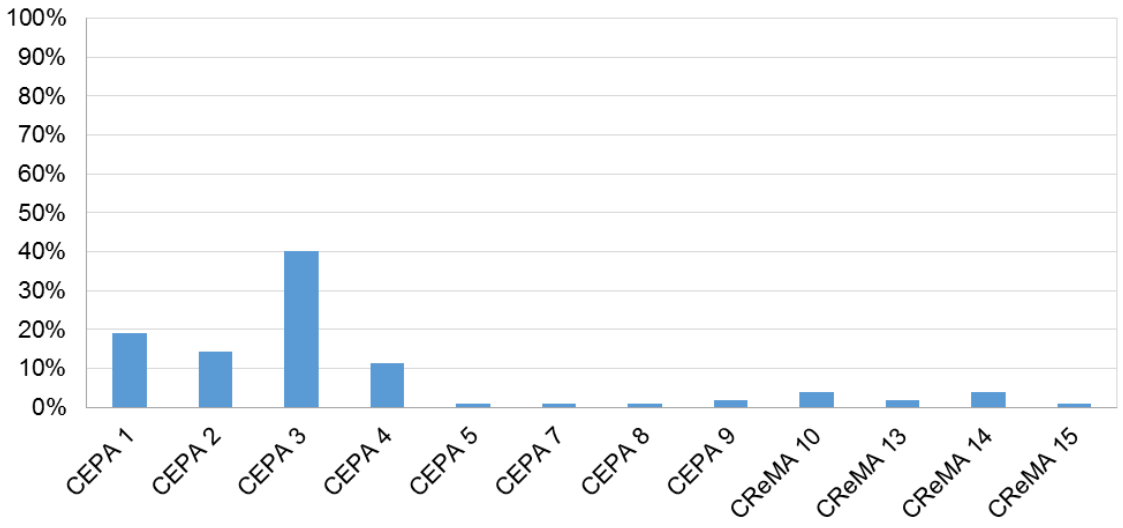

Figure 3: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE B Mining and quarrying

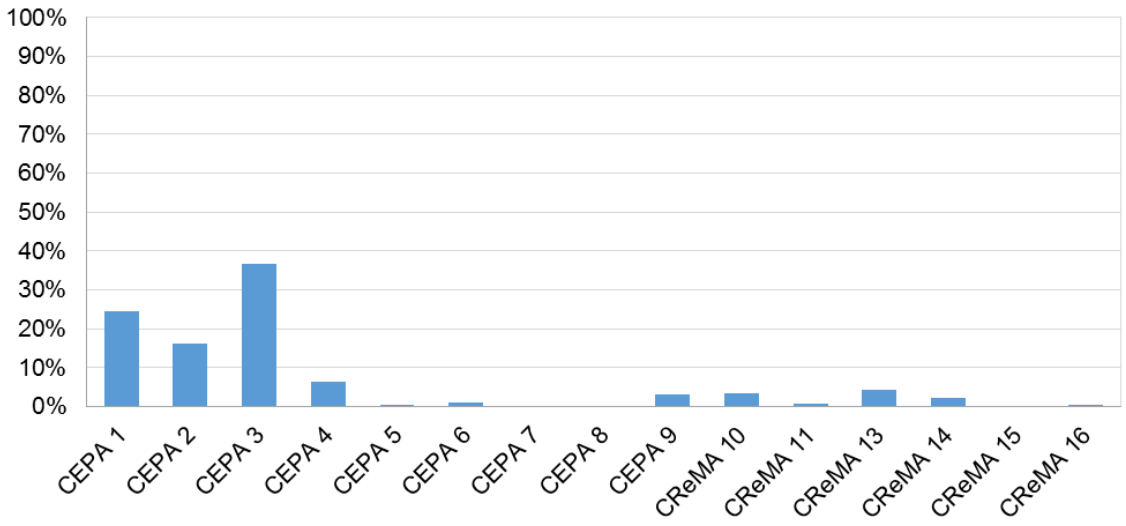

Figure 4: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE C Manufacturing

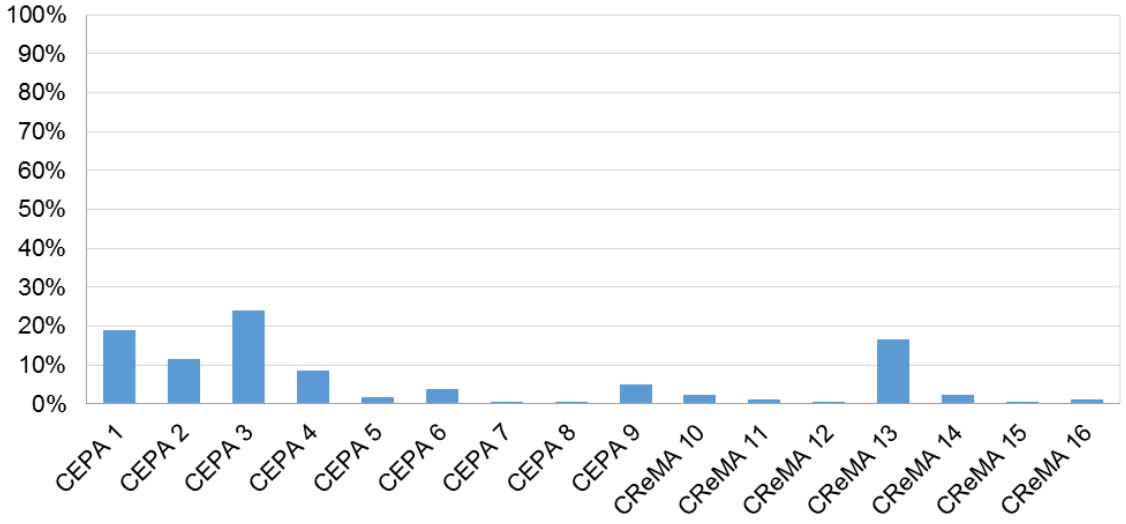

Figure 5: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE D Electricity, gas, steam and air conditioning supply

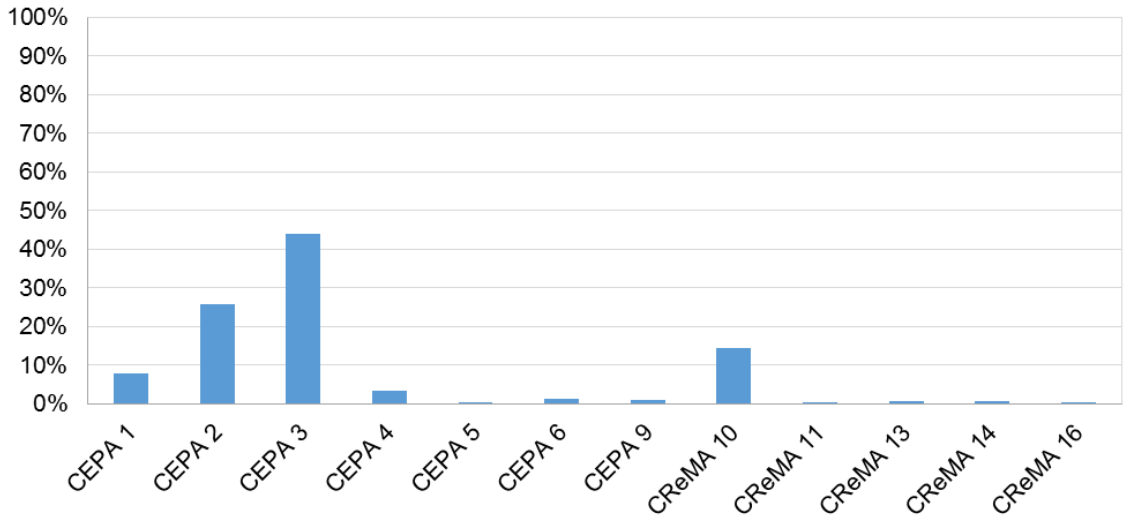

Figure 6: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE E Water supply; sewerage, waste management and remediation activities

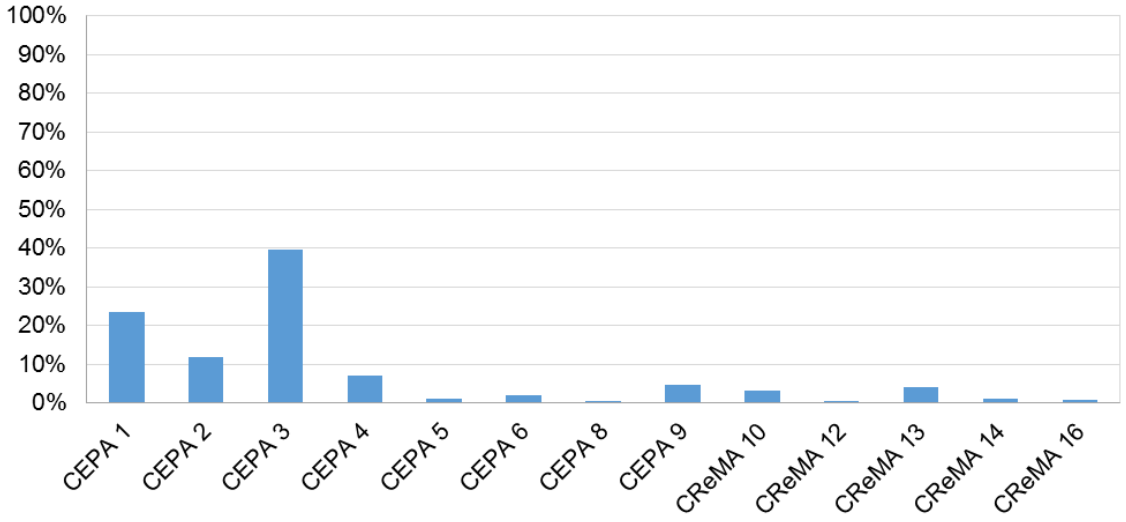

Figure 7: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE F Construction

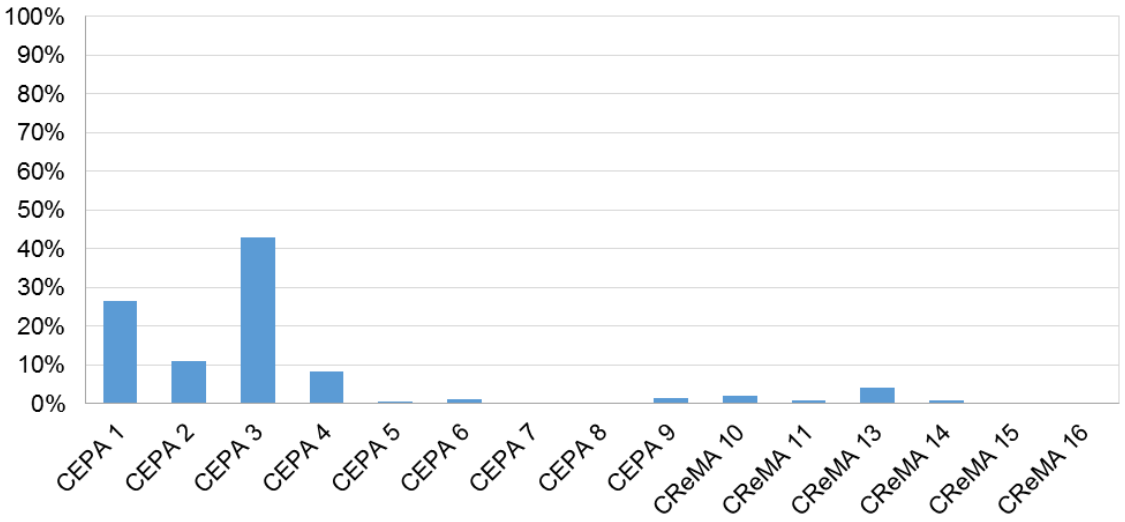

Figure 8.: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE G Wholesale and retail trade

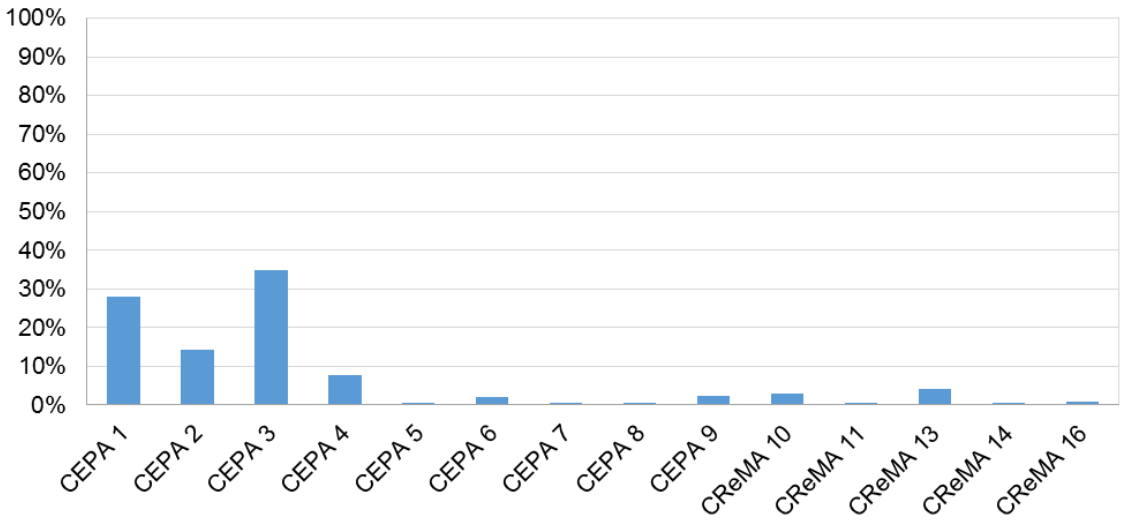

Figure 9: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE H Transportation and storage

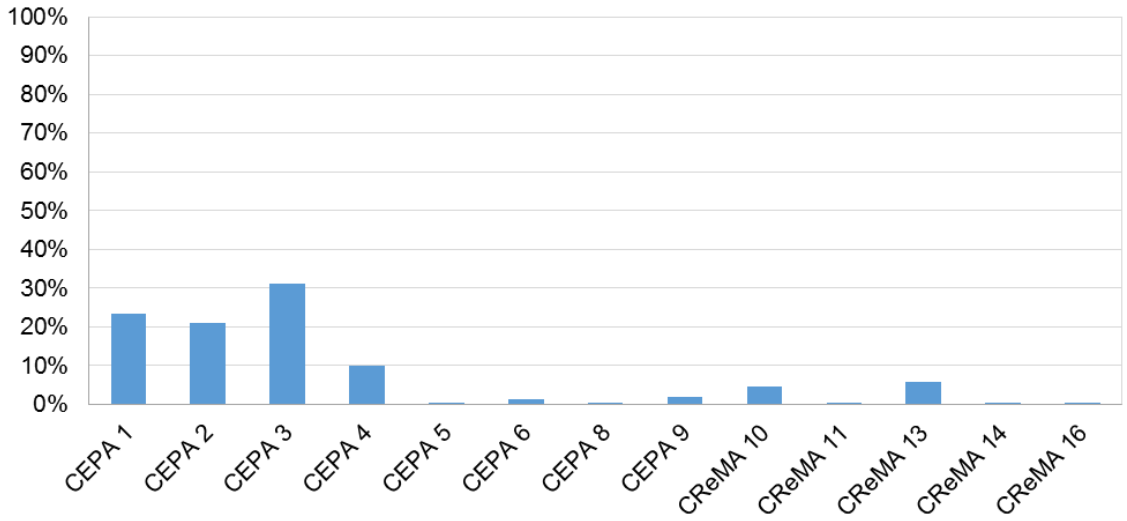

Figure 10: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE I Accommodation and food service activities

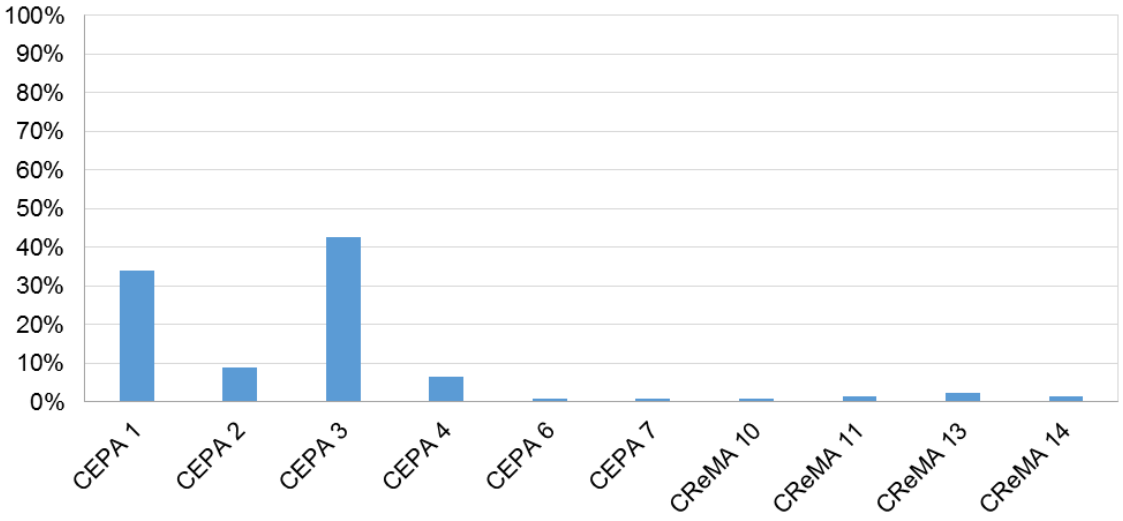

Figure 11: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE J Information and communication

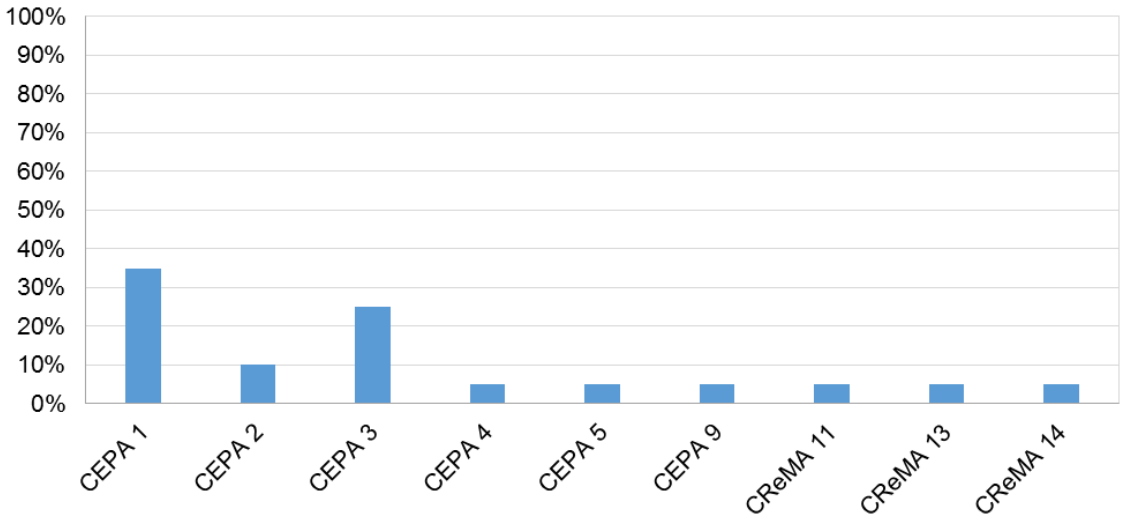

Figure 12: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE K Financial and insurance activities

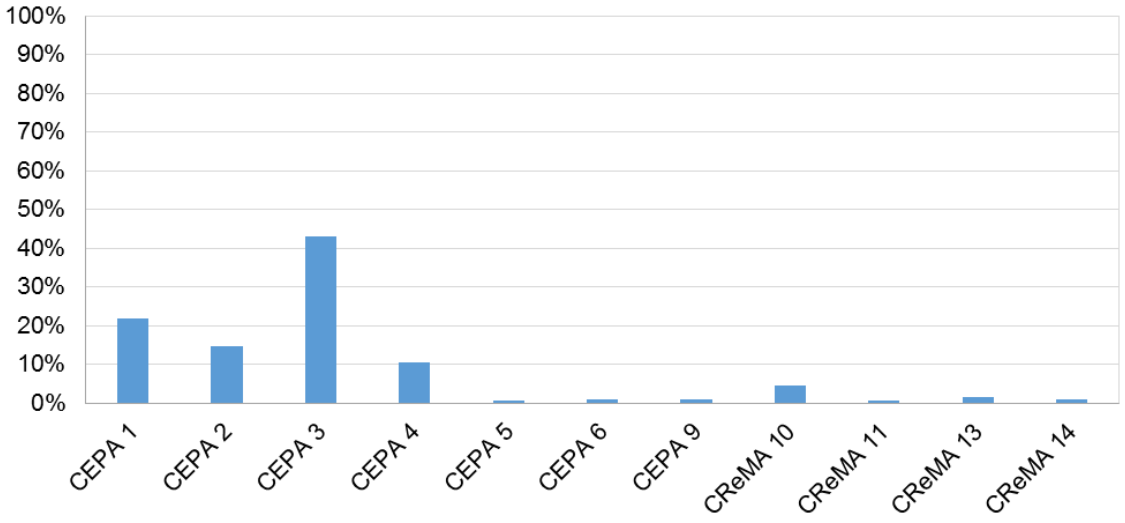

Figure 13: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE L Real estate activities

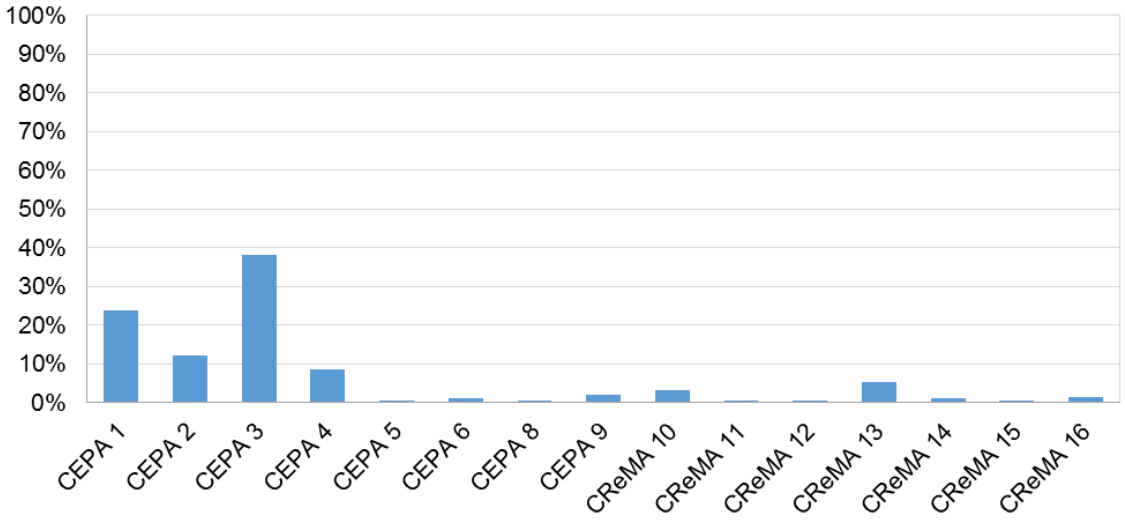

Figure 14: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE M Professional, scientific and technical activities

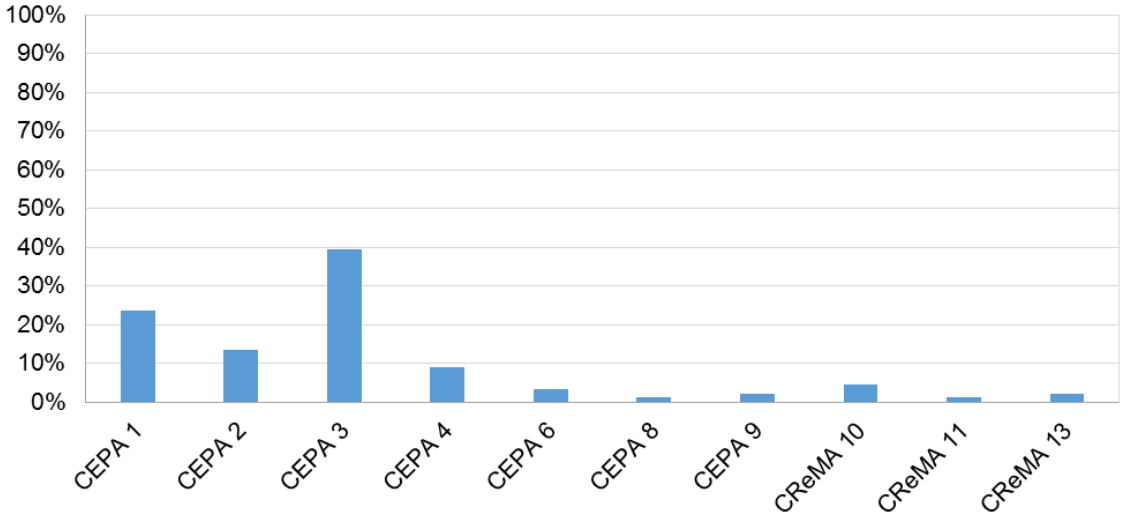

Figure 15: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE N Administrative and support service activities

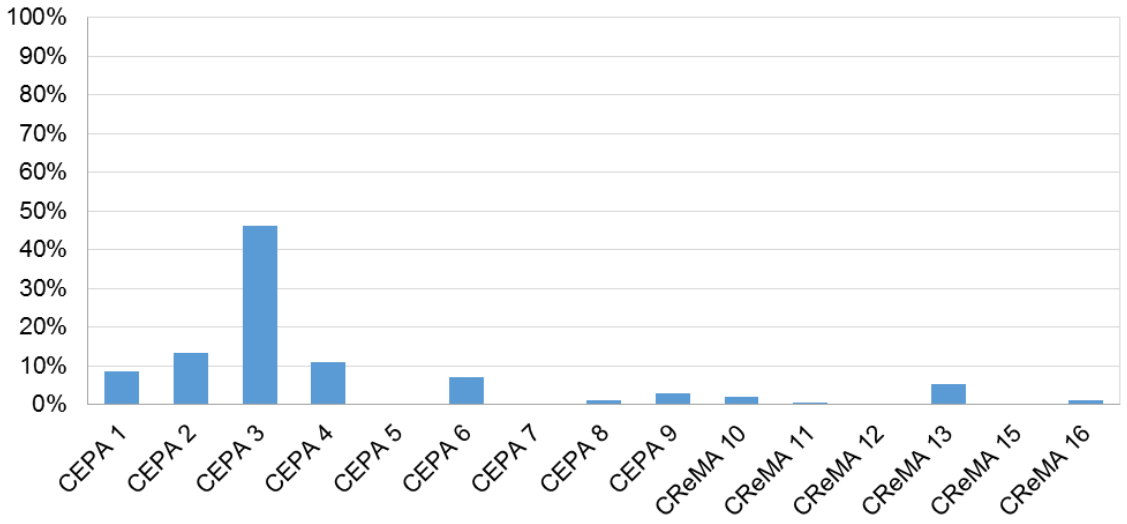

Figure 16: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE O Public administration and defence

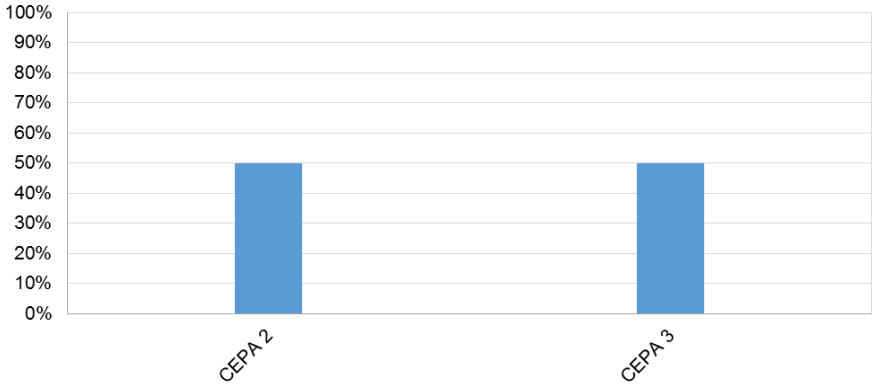

Figure 17: The share of turnover with environmental goods and services in CEPA categories for NACE P Education

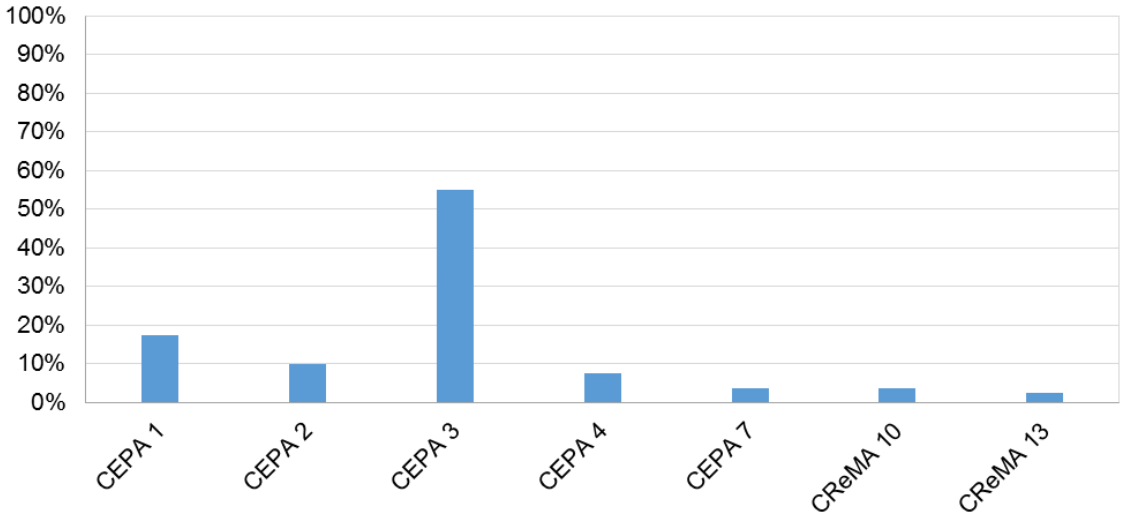

Figure 18: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE Q Human health and social work activities

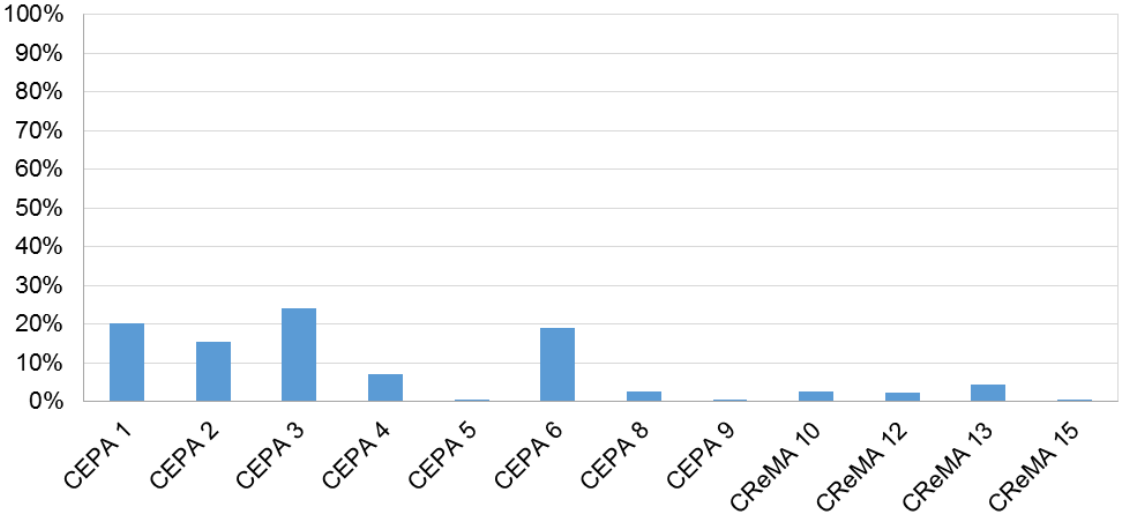

Figure 19: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE R Arts, entertainment and recreation

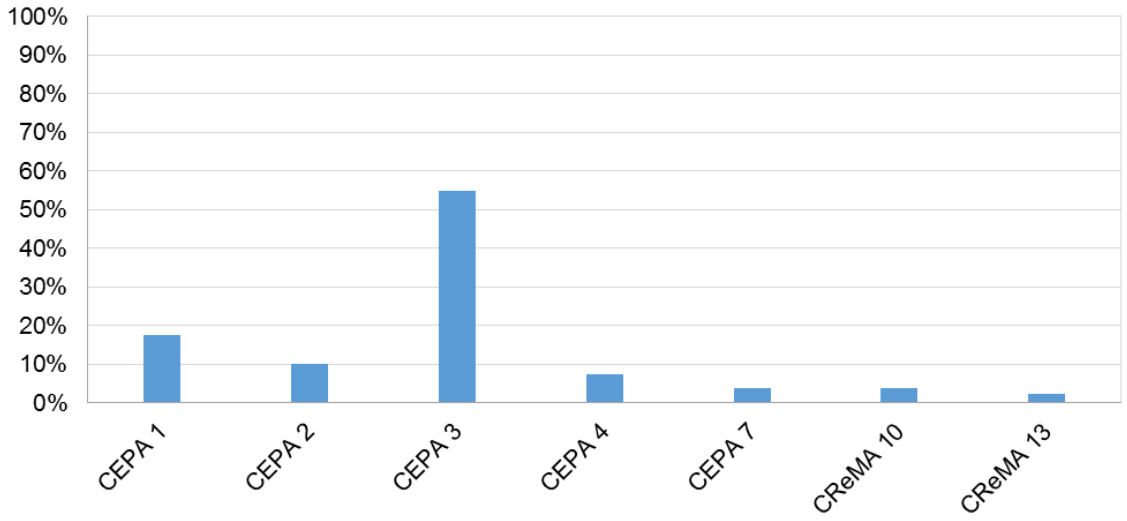

Figure 20: The share of turnover with environmental goods and services in CEPA and CReMA categories for NACE S Other service activities

The analysis of the data collected for 2016 shows that the share of turnover with environmental goods and services in certain CEPA and CReMA categories in particular NACE activities is different, where it is quite obvious which CEPA and CReMA categories are most represented.

In the most NACE activities (NACE A, NACE B, NACE C, NACE F, NACE G, NACE H, NACE I, NACE J, NACE L, NACE M, NACE N, NACE Q, NACE S) the largest share of turnover with environmental goods and services is in category CEPA 3, followed by CEPA 1, CEPA 2 and CEPA 4.

In NACE D significant share has CReMA 13, followed by CEPA 3 and CEPA 1.

In NACE E significant share has CReMA 10, followed by CEPA 3 and CEPA 2.

In NACE K the largest share has CEPA 1, followed by CEPA 3 and CEPA 2, along with other equally distributed categories, indicating a possible mistake in completing the survey questionnaire.

In NACE O the largest share has CEPA 3, followed by CEPA 2 and CEPA 4 while CEPA 1 has slightly smaller share compared to other activities.

In NACE P are listed turnovers with environmental goods and services only in categories CEPA 2 and CEPA 3, indicating a possible mistake in completing the survey questionnaire.

In NACE R the largest share has CEPA 3, followed by CEPA 1 and CEPA 6 as well CEPA 2.

Completed questionnaires show that CEPA 3, CEPA 1, CEPA 2 and CEPA 4 are most represented in the majority of NACE activities. Most represented of CReMA categories are CReMA 10 and CReMA 13.

8. IDENTIFICATION OF THE MAJOR ISSUES DURING CONTRACT IMPLEMENTATION AND PROPOSAL OF SOLUTIONS

Data for 2016 (data from Fina, national accounts and EGSS survey) in some fields did not contain enough information needed to fully produce ancillary and non-market output, as too few of data have been collected. Therefore, the required data had to be partially estimated.

In the future, it is necessary to gather enough information and data to produce ancillary and non-market output, because the assessment introduces a certain uncertainty in their reporting.

9. ASSESSMENT OF CONSEQUENCES OF ACTIVITIES

Estimated data for creating ancillary and non-market output have certain uncertainty. In the future, it is necessary to collect even more accurate data and perform data recalculation for the production of ancillary and non-market output for it to be fully accurate.

10. CONCLUSION

The data collection system in 2016, by using the EGSS survey (responding to the online survey questionnaire), has brought improvements in the coverage of NACE activities in relation to the results obtained during 2014 and 2015. However, it has been time-consuming, both for CBS and for respondents. Insufficiently skilled persons, who may not have the necessary information, knowledge or interest to answer the survey or to report accurate EGSS variables, usually fill the questionnaire. In some NACE activities were observed errors relating to the association of the EGSS turnover to the wrong CEPA or CReMA categories, which confirms insufficient knowledge and expertise in completing the questionnaire.

Insufficient information and data for the creation of ancillary and non-market output, which caused an assessment of the required data, should be recalculated with accurate data.

For the purpose of effective survey implementation, with the most accurate survey questionnaires completed, respondents need to be educated that can be carried out by maintaining the thematic workshops for specific activities. CBS, as the key institution for environmental statistics, can initiate studies with the relevant ministries and agencies to further develop the module of EGSS account.

In addition to the data from Fina, national accounts and the survey, in the collection and processing of data it would be necessary to include some other available databases that could provide usable information. Some of them are Environmental Pollution Register (EPR), operated by Croatian Agency

for the Environment and Nature (CAEN); databases operated by the Ministry of Economy, Entrepreneurship and Crafts; Croatian Energy Market Operator or some others relevant institutions. This creates opportunities to include additional activities (e.g. in the area of renewable energy), depending on the availability of data sources.

In collaboration with the relevant ministries, agencies, state and public institutions, it is necessary to analyse available databases that may be useful for EGSS survey. For this purpose, it is necessary to educate the professional staff in these institutions that can be carried out by maintaining the workshops and thematic meetings.

11. PHYSICAL ENERGY FLOW ACCOUNTS (PEFA)

11.1. INTRODUCTION

Specific objective regarding PEFA module was to provide data on the physical flows of energy expressed in terajoules in a way that is fully compatible with the concepts, principles, and data reported under the European System of Accounts (ESA). They record energy data in relation to the economic activities of resident units of national economies in a breakdown by economic activity. They present the supply and use of natural energy inputs, energy products and energy residuals. Economic activities comprise production, consumption, and accumulation.

It was expected that the PEFA Action should resulted in the following outputs: Supply table for energy flows, Use table for energy flows, Table of emission-relevant use of energy flows, Key energy indicator 'total energy consumption by resident units'' in a breakdown by industries and households, and the Bridge table showing the various elements which make up the difference between the key energy indicator 'total energy use by resident units' and the common key energy indicator for years 2014 and 2015.

Croatian Bureau of Statistics (CBS) had some experience with compiling PEFA from first compilation PEFA tables for 2013. Within this Grant, specific activities for compilation PEFA for 2014 and 2015 were foreseen for results achievements.

12. RESULTS EXPECTED AND ACHIVED

This project started on 1st January 2017 and ends with 31st December 2017 but activities for PEFA module were expected to be finalized by end of September 2017. Therefore, it could be said that all foreseen activities for PEFA module were undertaken and PEFA tables for 2014 and 2015 compiled as scheduled due the course of project. Methodology applied for compilation of PEFA tables for 2014 and 2015 was in line with that described in PEFA Manual 2014, May 2014, Eurostat.

All deliverables expected at the end of project for PEFA module were realised:

Interim report for PEFA part drafted and submitted to Eurostat 7 July 2017

Final methodological report for PEFA part drafted and it is part of this report

PEFA results for 2014 and 2015 submitted to Eurostat 29 September 2017

13. METHODOLOGICAL REPORT ON PHYSICAL ENERGY FLOW ACCOUNTS (PEFA) COMPILATION IN CROATIA

A final methodological report for PEFA part describe the PEFA updated methodology for 2014 and 2015 reporting which include data sources used, methodology used, the main results, the data quality, the sustainability as well as a discussion of future steps and conclusions.

14. DATA SOURCES USED

All analysis and calculations for filling PEFA tables were performed according to the manual-PEFA. The basic source of data for compilation of PEFA tables was the energy balance. In addition to the energy balance, numerous other energy data from which the energy balance is produced are used. Some of the data collected by CBS (energy consumption in transport, energy consumption in construction, energy consumption in industry, energy import and export) while all other data were collected by surveying of all energy business entities in Croatia. In addition to energy data were used and other data such as number of employees number of registered vehicles, exit and entry of vehicles across the border. The results of the projected IPA project (EuropeAid / 133072 / D / SER / HR) were also used. The following points (1 to 38) describe in more detail how analyzes have been made for individual products and for particular NACE sectors.

1. The PEFA tables are filled in so that in the first step all the data contained in the energy balance (enbila - TJ) are entered
2. In row N06, all biomass was filled in but without industrial wood waste, sludge gas and dump gas, by definition. Wood industrial wastes were filled in row R28. In column 86 (supply table, row N06), the amount of industrial wood waste was subtracted. Accordingly, biomass (N06) is fuel wood, wood for charcoal production, wood pellets, wood briquettes, wood chips, other biogas and biofuels. Thus, the biomass (N06) comprising firewood, wood for the production of charcoal, wood pellets, wood briquettes, wood chips, or other biogas and biofuels. In the ''use'' table (Table_B) redistribution of the individual divisions was formed by the divisions belonging to the manufacturers of pellets, chips, charcoal, biogas and biofuels. For firewood it is assumed to belong to the forestry division.

3. N01 in Table S is placed in the ENV column. In addition to production from the energy balance, the gas energy that is produced and burned on the flame is added. In the table U the total quantity is placed in section B.
4. N03 in table U is placed in section D..
5. Totally identical for N04 (as well as N03).
6. Totally identical for N05 (as well as N03), although the solar thermal energy is produced and consumed in households, but this is the only option.
7. In the row N07 geothermal energy was entered. Consumption of geothermal energy is largely realized in healthcare activities (in the spa), but part of the consumption is realized in the sports centre „Mladost“. For this reason, in Table A, the consumption of heat energy is divided into health and sports activities.
8. Data for stone coal is the sum of data for stone coal and anthracite. The distribution of consumption in the NKD (=NACE) industry divisions was made on the basis of data on energy consumption in the appropriate file based on the data from the CBS statistical survey IN-21/REPRO.
9. Data in the row for brown coal and peat represent the sum of brown coal and lignite since there is no peat spill in Croatia. The amount of brown coal, which is used in sugar for the production of electricity and heat, is set out in section C10_12. The distribution of other consumption by industrial divisions was made on the basis of data from table 2 IND-21/REPRO data and table 1 of IND-21/REPRO data. Very low consumption generated in the service sector was divided into individual divisions according to the number of employees, excluding those activities (divisions) which were considered not suitable for coal consumption. Redistribution on individual sections was made according to the number of employees. Employees in all sections are not considered. Since we are talking about coal, it was assumed that in some divisions there is no consumption of this energy source. This is a very small amount of energy, so a possibly wrong assumption has very little or no effect on the final result.
10. Derived gases (= manufactured gases excl. biogas) – the production of this energy source is placed in column 27 (section D) in S table (S = supply). In the table U (U = use) was redistributed according to industry divisions. Consumption in the service sector is divided into individual divisions based on the number of employees, while household consumption is placed in column 80. Between Table S and U there is a difference equal to distributive losses - these losses are placed in section D. These losses are also put in row R30 column ENV (80) in table U, or in division D in table S.

11. There is no problem for coke. The table shows the total amount of products from '' Rest of the World ''. In table U the quantities are placed in the appropriate divisions according to IND-21/REPRO data, and there is also an export and accumulation).
12. Crude oil and NGL - in table S, the production is put into mining and quarrelling. In table U, total consumption is placed in division 19, and there is also a accumulation. A small dilemma is only for NGLs which are easily transferred to Eurostat balances in the corresponding products, and in reality they are produced in an ethanoic plant, and perhaps this quantities could be the mining and quarrelling section if our ethanoic plant in Croatian town 'Ivanić Grad' belongs to the mining and quarrelling industry.
13. Natural gas - the table S is simply fills up based on data from the energy balance - production goes to M (Mining and Quarrelling) and imports to the Rest of the World. In the table it was donne following: - service consumption is divided into individual divisions according to the number of employees - public transport is put into H49 (Land transport ...). – household consumption is put into HH_HEAT. - Consumption of road transport in HH_TRA (?). - The balance of the warehouse in the appropriate column. - Export goes to Rest of the World. - Agriculture consumption in A01. - Energy for power, oil and gas production in B (Mining ...). - Refinery fuel consumption and refinery consumption for transformation goes to C19. - Transformation consumption in TE, J TO, J KO and GP is placed in D (Electricity, Gas and Water Supply …). - In industrial activities, there is non-energy consumption, consumption in ind TO for the production of electricity and consumption of industry. Reallocation to divisions is based on IND-21/REPRO data. Consumption in C33 resulting from IND-21/REPRO data was deducted from the service sector. Distributive losses are in section D in table U. They are also placed in row R30 in table S (section D) and in U table in column ENV. Flow losses in Table S and in table ‘U’ are placed in rows N01, P13 and R30 in the appropriate columns.
14. Motor gasoline. A simple model determines the consumption of motor gasoline for Croatian vehicles abroad and foreign vehicles in HR. Distribution of consumption in Croatia to private vehicles (households) and legal entities is determined by the ratio of registered vehicles. In the table 'U', in the Rest of the World, we put the export, consumption of foreign vehicles and consumption of aviation gasoline foreign companies. Gasoline consumption in certain industrial branches was determined on the basis of data from the IND-21/REPRO survey. Consumption of the rest of legal entities is allocated to consumption in individual divisions according to the number of employees. Air transport consumption includes the consumption of gasoline and motor gasoline consumption determined by the number of employees in air transport.

15. Petroleum and MG. For the ‘S’ and ‘U’ table all amounts are taken from the energy balance. After that, the quantities that our air carrier got abroad was added. In Table ‘S’, this quantities are added to "Rest of the World", and in Table ‘U’ are added in the Air Transport Consumption (H51).
16. Primary gasoline. For the 'S' and 'U' tables all amounts are taken from the energy balance. The dilemma is only whether the production in the ethane plant might have been placed in the mining and quarrelling (section B) in table ‘S’ if the ‘Ivanić grad’ ethane plant in the NKD (=NACE) classification falls into mining and quarrelling.
17. Diesel fuel. The amounts of the energy balance was used. Based on the inflow of foreign and domestic vehicles, the consumption of domestic vehicles abroad and foreign vehicles in Croatia was modeled. These quantities were added to imports or exports. Based on the number of registered vehicles of legal and natural persons, their consumption is determined - physical persons represent the consumption of households. The total consumption of households for transport purposes is the consumption of personal vehicles by natural persons in Croatia and abroad. Potrošnja osobnih automobila pravnih osoba u sektoru usluga preraspodijeljena je na pojedine odjeljke prema broju zaposlenih. The consumption of personal vehicles by legal entities in the service sector was reallocated to individual divisions according to the number of employees. Consumption results by industry divisions according to IND-21 / REPRO survey data were also used. The consumption of our ships abroad was analyzed (in the transport file). In Table ‘S’, this quantity is shown as an import and in Table ‘U’ as consumption in water transport (H50).
18. Extra light fuel oil. For the S and U tables of all amounts are taken from the energy balance. The total consumption of services sector is reallocated to individual divisions according to the number of employees. Consumption in individual divisions of industry was determined on the basis of IND-21 / REPRO survey data. The consumption of our ships abroad was analyzed (in the transport file). In Table ‘S’, this quantity is shown as an import and in Table ‘U’ as consumption in water transport (H50).
19. Fuel oil. For the S and U tables of all amounts are taken from the energy balance. The total consumption of services sector is reallocated to individual divisions according to the number of employees. Consumption in individual divisions of industry was determined on the basis of IND-21/REPRO survey data. The consumption of our ships abroad was analyzed (in the transport file). In Table S, this quantity is shown as an import and in Table U as consumption in water transport (H50).
20. UNP, Ethane refinery gas. For the S and U tables of all amounts are taken from the energy balance. The total consumption of services sector is reallocated to individual divisions

according to the number of employees. Consumption in individual divisions of industry was determined based on IND-21/REPRO survey data. From the analysis of cross-border transport, the consumption of LPG of foreign vehicles was determined and export was added, i.e. the consumption of Croatian vehicles abroad was added to the import. It is assumed that all vehicles that use UNP belong to natural persons. Because of the rounding, a difference of 0.02 TJ appeared, so it was corrected for the consumption of households for transport activities.

21. Other petroleum products incl. additives/oxygenates and refinery feedstocks – in this group are included the following energy sources from the energy balance: white spirit, oils and lubricants, bitumen, paraffin and wax, petroleum coke, other derivatives, refineries and refined semi-products. Most of the data is taken from the energy balance. In addition, data from the IND-21 / REPRO survey for oils, bitumen and paraffin were used for the redistribution of consumption by corresponding divisions. The consumption of oil and lubricants in transport is divided into natural persons and legal entities according to the relationships that apply to total gasoline and diesel consumption. The import is added to the amount of oil that our ships are buying abroad (see Table S) and also this quantity is expressed in the consumption of water transport in the table U.
22. Liquid biofuels. The amounts of the energy balance was used. Based on the entry of foreign and domestic vehicles, consumption of domestic vehicles abroad and foreign vehicles in Croatia was determined. These quantities were added to imports or exports. Based on the number of registered vehicles of legal and natural persons, their consumption is determined - physical persons represent the consumption of households. The consumption of personal cars by legal entities is divided into individual divisions of the entire economy according to diesel fuel consumption. Since in Croatia biofuels make up for the most part biodiesel and that it is used in fossilized biodiesel, it can not be better reallocated than diesel fuel consumption. Also, since biodiesel consumption is used to analyze the total biofuel consumption, the same are those used in the modeling of diesel fuel consumption.
23. Biogases. For the S and U tables of all amounts are taken from the energy balance. Values in the table 'S' in which the individual gas producer belongs are entered. Equally, they are included in the table 'U' the values in these same activities, since biogas produces electric and thermal energy in the same place or in the same activity. In these activities, there are also minimal losses due to the burning of the torch. These losses are also placed in row R30 in the appropriate columns in tables S and U.
24. Electricity. For the S and U tables of all amounts are taken from the energy balance. Electricity production in Table S from biogas and industrial power plants is placed in those divisions in which this production is realized. Other production is placed in the section D. The total

consumption of the service sector is divided into individual divisions according to the number of employees. Consumption in individual divisions of industry was determined on the basis of IND-21/REPRO survey data. Losses in the transmission and distribution network are also included in section D. Transmission and distribution losses placed in row R30 in the appropriate columns in tables S and U. The allocation of electricity consumption for heating / cooling and other household purposes was based on the Odyssee database.

25. Thermal energy. For the S and U tables of all amounts are taken from the energy balance. The total consumption of the service sector is divided into individual divisions according to the number of employees. Consumption in individual divisions of industry was determined on the basis of IND-21/REPRO survey data. After data processing of the heat energy from the energy balance, according to the PEFA methodology, geothermal energy and solar thermal energy were added. Losses in distribution network are also placed in section D. Distribution losses are also placed in row R30 in appropriate columns in tables S and U.
26. Wood, wood waste, other biomass, charcoal. This group includes all of the listed energy sources and therefore the analysis of this group is very complex. In the table S values are placed in those activities where their production was realized. In the table U the distribution is made according to the consumption activities. For these distributions, IND-21/REPRO survey data, a pilot study of pellet production, briquettes, logs and charcoal and cement industry surveys data were used. The total consumption of the service sector is divided into individual divisions according to the number of employees.
27. Distribution losses and other losses. Losses arising in transport and distribution of natural gas, electricity and heat energy are placed in section D (in Table S). The losses of the biomass flares are placed in the appropriate division where they are generated (based on the form Erg-1OB).
28. Losses of energy transformations. Most of the losses of energy transformations are realized in section D. The divisions in which these plants are located (in Table S only) show losses generated in industrial power plants. For this analysis, data from IND-21/REPRO survey and IND-21/PRODCOM survey were used. In addition, biogas and biomass cogeneration plants belong to agriculture or other industrial divisions. Losses of energy transformations in these facilities are divided into individual divisions (in the PEFA Table S) based on data from the form Erg-1OB.
29. Not renewable waste in row R29 is the waste that is used in the cement industry.
30. A particular problem in the construction of PEFA tables represents consumption in road transport by Croatian residents outside the Croatian borders in marketing passenger cars and freight transport. There is absolutely no data for this area. For the purpose of compiling the PEFA tables for 2013, a simplified model has been developed which calculates the

consumption of diesel fuel, motor gasoline and liquefied petroleum gas. This model is based on the number of outbound and inbound transport across the border. This model can not be perceived as the ultimate solution for the calculation of Croatian transport outside the Croatian borders, but above all as an example of a model that needs to be developed in the future and which would encompass considerably more parameters.

31. In the meantime the National IPA project was established that was related to transport (EuropeAid/133072/D/SER/HR). Unfortunately, the concept of this project was not in line with the PEFA methodology, but still filling out the PEFA tables for 2014 and 2015 was tried to use the results of this project as much as possible. When it comes to the consumption of motor fuels (motor gasoline, diesel fuel, liquefied gas and biodiesel) in the road transport of Croatian resident outside the Croatian border for personal and cargo transport, it should be mentioned that the mentioned IPA project does not produce any results. Certain assumptions have been made to make some results:
32. The consumption of personal cars of Croatian residents outside the Croatian borders was determined on the basis of the Croatian car's exit from Croatia (known as the statistical data) assuming that Croatian cars abroad spend about the same amount of fuel as the foreign cars in Croatia, which is one of the results of the IPA project. The next issue is redistributing the amount of fuel used to private (natural) persons and to legal entities, as the consumption of natural persons in the PEFA methodology belongs to households. This redistribution was made on the basis of the number of registered car of physical and legal persons, which is also known as statistical data.
33. When it comes to freight transport by Croatian residents outside the Croatian border, then the motor fuel consumption is determined in proportion to the consumption of freight transport in Croatia, where it was assumed to be equal tonne-kilometres in Croatia and abroad spent about an equal amount of motor fuels. However, there is an additional problem as the mentioned IPA project has failed to produce results for the consumption of motor fuels of Croatian and foreign freight vehicles in Croatia, but only the total consumption of freight transport. For this reason, the assumption from another project (OYSSEE / MURE) was used, according to which the foreign cargo transport in Croatia participates with about 5 percent of total freight transport in Croatia. On such assumptions, the consumption of motor fuels of Croatian freight vehicles in Croatia amounted to about 95 percent of the total freight transport consumption, which is one of the results of the IPA project.
34. The same problem is the consumption of energy sources in transport within the Croatian borders. When it comes to fuel consumption in Croatia for personal cars, then this consumption is made up of cars from Croatian residents, cars coming to Croatia and foreign

cars in Croatia that are only in transit. According to the PEFA methodology, only the consumption of Croatian residents should be covered, while the consumption of transit and consumption of tourists is considered export. So far in Croatia are not conducted research to analyze the transport in such manner so there are no data on such energy consumption. For the purposes of this project, a simple model for determining the fuel consumption for the aforementioned purposes has been developed, but this model should only be considered as an example of the direction in which the future development must take place so that the PEFA tables can be properly filled. It is also the same problem in freight transport where fuel consumption is made up of domestic and foreign trucks and for this purpose a simple demonstration model has been developed as an indicator of the direction in which future research should be develop in the future.

35. Motor fuel consumption in the Croatia in the mentioned IPA project was only partly elaborated in accordance with the PEFA methodology, so additional assumptions were needed for this consumption:
36. The above mentioned IPA project allocates the distribution of domestic and foreign passenger cars (which in the PEFA method goes into export), but there is no redistribution to domestic natural and legal persons, so here the reallocation is based on the number of registered vehicles.
37. Only the consumption of freight transport is covered in the mentioned IPA project, but there is no allocation to domestic and foreign freight transport. As already mentioned above, the redistribution of domestic and foreign freight transport was made on the basis of the ratio used in the ODYSSEE / MURE project, with about 5% of the consumption on the abroad side, while the remaining 95% on domestic side.
38. Completion of table C (use of energy that causes emissions) as follows:

    N01 - Fossil non-renewable natural energy inputs. All is placed identically as in Table B for those quantities that have been burnt.

    N02 to N07 - By definition, the table has no entry.

    P08 Hard coal - Hard coal is consumed in the total quantity for energy purposes, i.e. for combustion, so its total quantities consumed is significant for emissions. All amounts in this table are identical to the amounts in Table B.

    P09 - Brown coal and Peat. As hard coal, brown coal is also consumed in total quantities for energy purposes, i.e. for combustion, so its total quantity consumed is significant for emissions. All amounts in this table are identical to the amount in Table B.

P10 - Derived gases (= manufactured gases excl. biogas). In Croatia, it is a municipal gas. The total quantities of municipal gas is consumed for energy purposes and during this process, it produces emissions. Therefore, all amounts are taken from Table B.

P11 - Secondary coal products (coke, coal tar, patent fuel, BKB and peat products) and P12 - Crude oil, NGL, and other hydrocarbons incl. oil shale/sands (excl. bio) are used only for energy purposes, so all the amounts are identical to the values in Table B.

P13 - Natural gas. For natural gas, all values from Table B are taken, but for C20 activity, the non-energy consumption is deducted, i.e. the quantities of natural gas consumed for the production of artificial fertilizers.

All products from P14 to P19 (Motor spirit (without bio), Kerosene and jet fuels (without bio), Naphtha, Transport diesel (without bio), Heating and other gasoil (without bio), Residual Fuel Oil) are used only for energy purposes, so all the amounts are identical to the values in Table B.

P20 - Refinery gas, ethane & LPG. In this group, three products are jointly observed. Refinery gas and LPG are used for energy purposes while ethanol is used solely as raw material, therefore as non-energy purpose, and is not relevant to emissions. It is therefore necessary to deduct it from the quantities in Table C.

P21 - Other petroleum products incl. additives/oxygenates and refinery feedstocks. This is a large group of products including white spirit, bitumen, oils and fats, paraffin and wax, petroleum coke, other petroleum products, refined semi-finished products and additives. Of all the listed products, only petroleum coke, refined semi-finished products and additives are used as energy sources and are relevant to emissions. All other products are not included in this table because they are used exclusively for non-energy purposes.

All other products (P23 Wood, wood waste & other solid biomass, charcoal, P24 Liquid biofuels, P25 Biogas, P26 Electrical energy, P27 Heat) are used solely for energy purposes. However, when using electricity and heat there is no emissions and therefore these energy sources are not included in Table C.

15. METHODOLOGY USED

All analysis and calculations for filling PEFA tables were performed according to the manual-PEFA. In the above points (1 to 38) in addition to specified size are determined, for each product is described in detail as the calculation method and data sources.

16. THE MAIN RESULTS

The basic results of the applied methodology and data as indicated in the previous points are the completion of all the tables (A, B, C, D, E) in accordance with the PEFA methodology for Croatia, for each year from 2010 to 2015.

17. DATA QUALITY

The quality of the available data can be evaluated satisfactory for the previously described method of use and the level of analysis of available data. In other words, from the currently available data, such calculations and estimates were made that the maximum possible quality of PEFA tables was achieved. However, there are numerous possibilities for individual parts of the PEFA table where it is possible to achieve improvements and significantly increase the quality of the analysis and therefore the quality of the results. To achieve this, a number of additional surveys, changes and updates to existing surveys, and the launching of certain studies are needed. All mentioned we will try to achieve in the coming period.

18. THE SUSTAINABILITY

Compiling PEFA table is sustainable in the manner specified in the preceding points. The condition for this is that the overall energy statistics and the production of Croatia's energy balance keep at the level reached. However, it is our desire and need for new surveys, changes and improvements to existing surveys and development of certain study to raise quality of PEFA tables to a higher level. Such an approach will significantly increase the sustainability of the PEFA methodology.

19. FUTURE STEPS

- There should be a improved way of collecting energy data for industry sector according to activities. For now, the distribution of these activities is based on the results of IND-21 / PRODCOM survey and IND-21 / REPRO survey. During the development of the PEFA 2013 table, such a method of collecting energy data did not fully meet the needs imposed by PEFA and within this project would propose a different method and way of collecting the above-mentioned data.

- For other activities, which are referred to the service sector according to the energy balance methodology, there is currently no data, so the number of employees does redistribution in those sectors for the time being. For those sectors, it is important to improve the availability of data. For now, it seems to be the best for all networked energy sources (electricity, natural gas, and remote heat) to take over data from suppliers participating in the markets of these energy sources. By using the OIB (unique identification number), each customer could determine his or her affiliation to a particular activity in accordance with NKD 2007. This would precisely determine the consumption of these networked energy sources in certain activities of the service sector. Since networked energy sources make up almost 90% of energy consumption in the service sector, this would result in a very good quality reallocation by these activities, as reallocating the consumption of other energy sources (which account for about 10% of total consumption of services) should be assessed against other indicators such as number of employees, GDP, etc. It should be emphasized, however, that taking over and analyzing all databases from energy suppliers is very complex and demanding work.
- A special problem in the constructing of the PEFA table is the consumption in the road transport of Croatian residents outside the Croatian borders both for the transport of personal cars and for freight transport. There is absolutely no data for this sector. The same problem is the consumption of energy sources in transport within the Croatian borders. The aforementioned IPA project that has been developed for transport has certain points of contact with the PEFA methodology but is not nearly enough to fill in the PEFA tables. It is necessary to continue survey on energy consumption in transport and to develop such a model that would be fully consistent with the PEFA method, and thus the results of such a model could also be used to produce an energy balance.
- The next sector for which additional surveys on energy consumption needs to be carried out in certain activities is agriculture. There are no data on energy consumption for agriculture, so some figures from the energy balance have been used for the time being, but it has to be emphasized that they are also evaluated without sufficient analysis.

20. CONCLUSIONS

Past development reached such a level of quality of energy statistics and the energy balances, which allows you to perform such analysis and calculations that enable compilation of PEFA table of satisfactory quality. However, our desire and goal is to raise the quality of production PEFA table to a higher level. To achieve this goal requires introduction of new surveys, appropriate changes and updates to existing surveys and the development of specific studies. All our future activities will focus

towards these goals. The decisive factor for achieving this is to ensure the necessary financial resources, because we consider that the available professional resources are satisfactory.

Data for 204 and 2015 were delivered to Eurostat in required format via eDAMIS (see Annexes 1 and 2 to this report).

ANNEXES:

1. EDAMIS EGSS data collection questionnaire.xlsm received at 30/12/2017 17:25:15

-EDAMIS-151- EGSS data collection questionnaire.xlsm received at 30/12/2017 17:25:15

Date	30/12/2017 17:30

EDAMIS - Acknowledgement of data transfer

Dataset : ENVMFLAC_EGSS_A
Action : N
Period : 0/2015
Data file sent : EGSS data collection questionnaire.xlsm
User id : bogdago1
Reception date : 30/12/2017 17:25:15
senderOrganisationCode: DZSHR
senderOrganisationName: Central Bureau of Statistics
senderOrganisationType: Member State - National Statistical Institute

2. EDAMIS EGSS data collection questionnaire.xlsm received at 28/02/2018 14:20:13

-EDAMIS-151- EGSS data collection questionnaire.xlsm received at 28/02/2018 14:20:13

Date	28/02/2018 14:21

EDAMIS - Acknowledgement of data transfer

Dataset : ENVMFLAC_EGSS_A
Action : N
Period : 0/2016
Data file sent : EGSS data collection questionnaire.xlsm
User id : bogdago1
Reception date : 28/02/2018 14:20:13
senderOrganisationCode: DZSHR
senderOrganisationName: Central Bureau of Statistics

3. EDAMIS - Acknowledgement of PEFA_Questionnaire_2017_final_HR_14.xlsm received at 29/09/2017

-EDAMIS-151- PEFA_Questionnaire_2017_final_HR_14.xlsm received at 29/09/2017 10:45:41

Date	29/09/2017 20:04

EDAMIS - Acknowledgement of data transfer

Dataset : ENVPEFA_PEFAPPD_A

Action : N

Period : 0/2014

Data file sent : PEFA_Questionnaire_2017_final_HR_14.xlsm

User id : npetanmi

Reception date : 29/09/2017 10:45:41

senderOrganisationCode: DZSHR

senderOrganisationName: Central Bureau of Statistics

senderOrganisationType: Member State - National Statistical Institute

4. EDAMIS - Acknowledgement of PEFA_Questionnaire_2017_final_HR_15.xlsm received at 29/09/2017

-EDAMIS-151- PEFA_Questionnaire_2017_final_HR_15.xlsm received at 29/09/2017 10:45:41

Date	29/09/2017 20:04

EDAMIS - Acknowledgement of data transfer

Dataset : ENVPEFA_PEFAPPD_A

Action : N

Period : 0/2015

Data file sent : PEFA_Questionnaire_2017_final_HR_15.xlsm

User id : npetanmi

Reception date : 29/09/2017 10:45:41

senderOrganisationCode: DZSHR

senderOrganisationName: Central Bureau of Statistics

senderOrganisationType: Member State - National Statistical Institute