OUTCOME REPORT ON PRB TESTING ON THE ARTICLE 5 RELATED GUIDANCE DOCUMENTS.

(Version of 03-March-2004)
CHAPTER 1. GENERAL INTRODUCTION

During the 2001/2002 Common Implementation Strategy (CIS) of the Water Framework Directive (WFD) a series of Guidance Documents (GDs) concerning all major aspects of its implementation were developed by Working Groups (WG) including representatives of Member States (MS), Accession Countries, National experts and the European Commission.

In order to test and cross validate these GDs, a network of Pilot River Basins (PRBs) has been established. It was foreseen that such a network would contribute to the implementation of the WFD directive, leading in the long-term to the development of River Basin Management Plans. Several countries have proposed river basins and associated coastal zones within their territory taking into account the following considerations:

- Cover the maximum number of Ecoregions
- Commitment and resources for testing the GDs in this voluntary exercise
- Participation of local, regional and national competent authorities, i.e. water management administrations
- Active involvement of NGOs and stakeholders.
- Dealing with the maximum number of pressures and environmental problems
- Include transboundary river basins with all the involved partners
- Representative of the data availability in MS.

Initial Pilot River testing of the GDs started in 2003 and should be finished by the end of 2004. Similarly to the rest of the WFD-CIS process the Pilot River Basin testing is a common exercise of the Commission and Member States. The Institute for Environment and Sustainability of the Joint Research Centre (IES-JRC) acts as the technical secretariat and constitutes a part of the Working Group 2B for Integrated River Basin Management co-lead by France and Spain. Figure 1 shows the geographical location of the fifteen Pilot River Basins. These are: Cecina (Italy), Guadiana - Portuguese part- (Portugal), Jucar (Spain), Marne (France), Moselle-Sarre (Belgium,
France, Germany, Luxembourg), Neisse (Czech Republic, Germany and Poland), Oulujioki (Finland), Pinios (Greece), Ribble (UK, England), Somes/Szamos (Hungary, Romania), Scheldt (Belgium, France, The Netherlands), Shannon (Ireland), Suldalsvassdraget (Norway) and Tevere (Italy).

The GDs are available at the following address:

**MAIN AIMS OF THE PRB TESTING EXERCISE**

For the exercise Terms of Reference (ToR) focusing on Key Issues felt to be of particular relevance by WG leaders have been developed. The document set out two main objectives for PRB testing:  
1) to test whether the guidance fits responds to the needs of the PRBs, and  
2) to test whether the inter-linkages between the guidance documents is sufficiently developed.

Considering that actual implementation of the WFD is already taking place in many countries, that the reporting from Member States to the Commission on specific issues of the Directive such as Article 5 and its Annexes is required in a relative short time, and that the WFD implementation should take advantage as much as possible of the Pilot River Basin activities, it was agreed that GDs concerning Article 5 should be tested in a first phase. The remaining GDs were to be tested afterwards and subsequently the Pilot River Basins Network would concentrate on producing a Program of Measures and the River Basin Management Plan (to be presented to the WD meeting in December 2004). This report, therefore, constitutes the first synthesis of results from the integrated testing of the GDs related to Art. 5. In this first phase of testing, the PRBs have mainly considered the following points:

- Characterisation of surface waters and groundwater (delineation, reference conditions and provisional objectives)
- Identification of pressures
- Impact of human activity on the status of surface waters and groundwater (assessment of likelihood of failing to meet environmental objectives)
- Economic analysis of water uses

Guidance Documents reflect the EU common understanding of the WFD implementation and, hence, they are addressed to the national-strategic level of Member States rather than to the regional or local-operational level. For this reason, some Member States have developed their own national guidelines, sometime based on specific WFD GDs, (in their national language) with references to regional/local data sources of information. Where possible this report makes appropriate references to these documents.

During the testing by the PRBs, the implementation of the WFD in some Member States got underway. In the last quarter of 2003 workshops were organised on specific WFD topics, that were attended by members of PRB projects as well as people working on the regular implementing process within the Member States. The discussions in those workshops were valuable, and the results are taken into account in the conclusions in Chapter 4.
FIGURE 1. THE PILOT RIVER BASIN NETWORK.
The most striking feature found in the PRBs exercise is the rich diversity that is encountered, which in turn reflects the enormous disparity that one will have to expect during actual implementation of the WFD. This diversity has several aspects that need comment:

- **Geographical distribution:** The PRBs cover twelve (1, 3, 6, 8, 10, 11, 13, 14, 17, 18, 20, 22) of the 25 ecoregions for rivers and lakes and four (1, 4, 5, 6) of the 6 ecoregions for transitional waters and coastal waters defined by the WFD: Annex XI, maps A and B, respectively. For example, Iberic-Macronesian region for rivers and lakes is represented by the (Guadiana-Portugese side-and the Jucar rivers) whereas Baltic Sea for transitional and coastal waters is represented by the Oulujoki river. Furthermore, the pilot river basins cover a wide range of sizes from 900 Km\(^2\) of the Cecina (small, Mediterranean, few authorities and high degree of participation) to 37170 Km\(^2\) and 43000 Km\(^2\) of the Scheldt (international, highly industrialised, many authorities, complex river management, involvement of politic) and Jucar.

- **Transboundarity:** One important characteristic to consider concerns the trans-national versus the national character of the testing. This is related mainly to the amount of additional work needed to co-ordinate the activity between several MS and CC, language barriers, disparity on management approaches and data availability. In the PRB exercise there are four transboundary pilot rivers: Moselle-Sarre (Belgium, France, Germany, Luxembourg), Neisse (Czech Republic, Germany, Poland), Scheldt (Belgium, France, The Netherlands) and Somes (Hungary and Romania). For example, the Neisse has different water management systems, which makes data difficult to compare.

- **Pressures:** Also in this characteristic there is a rich variety from the Suldalsvassdraget with a scattered population within the basin area amounting to approx. 3000 persons but with a strong regulation of the basin for hydropower generation (the river accounts for a 5.4% of total Norwegian electricity production) to the Scheldt with 12.7 Million of inhabitants – the Marne river basin is considered as the
main source supplying fresh water to Paris and includes, intensive agriculture and strong industrial presence.

- **Existing data:** Another important aspect when testing the GDs was to have several levels of data availability to assess the use of different approaches, from the application of validated models at the basin scale, to statistical analysis of existing data, to expert judgement where data is scarce or not available. For example, the Odense river—small, few authorities, agricultural—has relatively long historical data series due to the appearance in 1973 of the first Danish Environmental Protection Act, whereas the National Surface Quality Monitoring Network organized by the Greek Ministry of Environment, Physical Planning and Public works was designed in 1992 and consequently the Pinios river basin has much less historical information available.

- **Number of GDs to be tested:** There are also important differences between the number of GDs to be tested. For example the Ribble proposed to test only the Planning Process and Public participation GDs whereas Tevere, Pinios, Jucar and Scheldt rivers have proposed to test all GDs. In an intermediate position there is, for example, the Shannon River that has tested 5 over the 7 GDs requested for Art. 5. Table 1 give an overview about the GDs that are being tested by the PRBs.

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**Table 1: Overview GDs tested by the PRBs**
CHAPTER 3. OUTCOME OF THE TESTING

3.1. HOW TO DEAL WITH GUIDANCE DOCUMENTS.

The first question to answer in the PRB testing was: do the guidance documents respond to the needs of the river basins? This issue is briefly discussed in section 3.1, starting with the general usefulness of guidance documents. Although the expectation in advance was that this matter would be the main subject of this report, the PRBs did not experience much trouble with individual GDs. In section 3.2 the second issue, on the linkages between guidance documents is discussed. Because of the time constraints, the different WFD issues were dealt with in different working groups when drafting the GDs. How do these GDs work out when applied together? Finally, a lot of lessons learned were not foreseen when starting with the PRB exercise. These issues are discussed in section 3.3.

POINTS OF CONVERGENCE AND DIVERGENCE IN THE PROCESS

Usefulness of guidance documents (in general and specific GD)/ Interpretation differences:

In general the GD were very well received, and their usefulness acknowledged. However, as these GD aimed at providing some general direction, many PRBs highlighted a need for more specific documents. As a general comment, it seems that these sets of guidance documents are now part of a large body of available information concerning the implementation of the WFD. During the testing phase it has been seen that many sources of information and guidance are used to achieve a successful implementation of the WFD relative to article 5. There were some efforts on transnational basins to use similar sets of information including national documents, however additional collaboration will be needed to reach consensus. There was no major issue raised concerning difference in interpretation. It is expected that more questions will arise once the issue of thresholds is tackled. This testing phase is seen as a screening exercise, while a more refined approach will only be possible once impact threshold criteria are defined. Indeed these thresholds will
be the key issues for identifying the water bodies at risk of not meeting good ecological status, and thereafter in the development of the River Basin Management Plans.

During the testing there were no issues related to difference in interpretation. However, this might change when the issues of thresholds and reference conditions are tackled.

**Technical versus legislative quality standards:**
It is well known that bad ecological status may be due to triggering of threshold values of internal or external variables in the ecological system. This in turn may have as a consequence a dysfunction in the ecological services provided by the system and or in its ecological status. For this reason, the definition of quality standards plays a vital role in the WFD.

During the testing of the guidance documents PRBs have stressed the difficulties encountered caused by the lack of existence of thresholds for impact indicators. They felt also that there is a lack of legislative thresholds, and thus the preliminary testing of the guidance documents should also take into account the uncertainties linked with the absence of these threshold values. However, many of these thresholds, including those for priority substances are still under discussion and will be only available in the coming years. A further difficulty is that there is not always a direct relationship between pressures and impact even if threshold values exist.

All PRBS stressed the need for thresholds for impact indicators. There is thus the need to go more in detail and therefore in addition to the EU threshold use also national data as: monitoring data, both physico-chemical and biological, time series for conducting the impact assessment.

The uncertainty embedded in the preliminary analysis of the pressure and impact will have to be estimated, as they have major implication in the identification of water bodies at risk of not meeting the WFD requirements. As illustrated by some PRBs, these thresholds are likely to be defined at M.S.-level, based both on scientific and political considerations.
Related to this aspect, reference conditions have the same problem since their establishment some cases are difficult since there are few pristine sites in Europe. Some countries, e.g. Italy are discussing the legislative definition of such reference conditions or thresholds whereas other countries consider that a technical definition needs to be agreed.

Concerning reference conditions, some PRBs are favouring the adoption of legislative definition while other PRBs prefer a more technical definition.

Case Study ODENSE: Definition on reference condition.

National versus WFD/CIS GD:
Member States already have national legislation regulating the protection of water resources. This has resulted in the development of guidelines that were available prior to the elaboration of the GDs developed in the framework of the Common Implementation Strategy of the WFD. Two official documents, one German and the other French, are actually available. The German Document produced by LAWA was published in 2002 and deals with the implementation of the whole WFD. In substance this document is similar in intention as the guidance documents produced in the framework of the CIS, and “is intended to make the complex structure of the Directive easier to understand for enforcement purposes across Germany, to ensure a uniform approach to implementing the Directive and to avoid any duplication of effort.” (LAWA, 2002). The French document was also produced in an effort to ensure a harmonised compliance with Article 5 of the WFD throughout France. Spain in addition has also produced a Manual for conducting an analysis of Pressures and Impact on Surface water pollution. This illustrates the need of the Member States to produce documents readily usable by local managers that take into account the specificity of the country, including the administrative environment. This is also reflected in the PRB testing where often a combination of national documents and CIS GDs were used.

CIS Guidance Documents were efficiently used in conjunction with national documents, as the latter are more specific to certain regions, do not present a language barrier, and have often been used for a long time.
The conceptual approaches proposed in the GD seem to be very suitable for all PRBs. For instance, concerning the analysis of Pressures and Impacts, in most cases, the concept of DPSIR\(^1\) seems appropriate. However, as the testing is still at an early stage, the response part of the analysis has not been performed. It is clear that the IMPRESS guidance documents lists potential tools for carrying the Pressure and Impact analysis, however, PRB’s are happier using tools for which they have already collected data, and where the whole system has been set up and running. The impact of local conditions is most evident in the definition of the reference conditions and is strongly controlled by the monitoring strategy in place. Local expertise is often used in conjunction with existing data or modelling results to define reference conditions.

The need to produce national guidance documents based on CIS documentation in the context of national legislation has been underlined by many PRBs. However, agreement is required for transboundary catchments. The experience gained during the testing and the elaboration of the CIS Guidance Documents is being used during the development of the national guidance.

\begin{quote}
CIS Guidance Documents are very useful tools, and local adaptation was often performed by the PRBs to take into account the national or regional specificity.
\end{quote}

**Real life versus virtual testing:**

The testing of the guidance documents on PRBs is seen as a front-runner project that will serve for the real implementation of the WFD. Many PRBs have recognised this where the selected catchment is ahead of the national implementation process. Many PRBs have taken the approach that the guidance testing is to be considered as “real life testing” for various reasons including economical and practical considerations. Furthermore, time available between “virtual test” and “real commitment” would be too short to capitalize on the PRB experience gained. For instance it was noted that stakeholders would not be involved in testing the Guidance Document if such an exercise would be conducted as only virtual testing. Furthermore, it was recognised by the PRBs that testing will provide MS with valuable insight on how to comply with the Article 5 requirements, and the

\[^1\] DPSIR, driver, pressure, status, impacts, response
other basins will greatly benefit if the testing is conducted as a real case study rather than a “virtual exercise” as the results should provide clear solutions to the problems encountered during the real implementation of the WFD. It should be noted, that many PRBs are also involved at a broader level in the National Implementation of the WFD, and that part of the results of the testing are only sub-sets of results produced at a much larger scale. For instance, the tools and methodologies used for Marne PRB cost recovery analysis derive from the works already led at the scale of Seine Normandy basin. Strategies and results developed in the PRB projects can also be modelled on future national activities. In the PRB Neisse virtual approaches from the project were expanded to a larger scale of other river basins in the three countries involved.

Many PRBs approached the testing as a real life exercise from which other river basins already starting the implementation of the WFD will greatly benefit.

**Level of involvement of stakeholders and public participation:**

There are two main positions in the involvement of stakeholders in the PRB testing:

On the one hand certain PRBs judge that the PRB-exercise is too early for stakeholder and public involvement, on the other hand other PRBs have started active stakeholder and public involvement at a very early stage, resulting in a satisfying response. There was no clear explanation for the reasons to take the first or second position. Yet, the more hesitant attitude towards public participation was dominant; only 2 of the 9 PRBs testing the PP guidance started early in with stakeholder involvement.

The objective of public participation and stakeholder involvement is to bring together key partners, obtain input of new ideas, share the ownership of the WFD implementation process, improve and focus the delivery of results, align goals with stakeholders, manage expectations, raise awareness and identify conflicts at an earlier stage, “before” confirming the definition of water bodies status.

For example the Ribble (UK) PRB considers this aspect essential to create a common vision of what one can expect from the implementation of the WFD between stakeholders and public in general. A soccer analogy for public participation from the Ribble PRB is illustrated in the case studies Annex.
To avoid confusion among stakeholders, Oulujoki PRB organised a workshop together with officials from the recently established River Basin district that included both a presentation of River Basin district and the first results of testing at the PRB.

The viewpoint of the PRBs that did not involve stakeholders in the process, was to first define the provisional objectives for the water bodies based on actual conditions and then, when the water managers have a better idea of the type of conflicts that are likely to appear start the involvement of stakeholders. This is due mainly to the amount of work river basins managers have to spend for developing the public participation scheme required by the WFD. For example Odense (Denmark) PRB has stressed the need to reduce nutrient loading from agricultural origin to fulfil good ecological status for 2015 and, hence, after this analysis, they have identified the main problem to be addressed together with stakeholders.

Case Study RIBBLE: Create a vision in the Public Participation Process.

Some problems emerge in the identification of stakeholders at the international level, and especially the level (regional, national, international) of involvement of the stakeholders. Furthermore, there is some disappointment as clear-cut answers are not always possible for very specific questions. However, this dialogue is crucial as it highlights potential future problems.

Workshops:
To support the PRB exercise, a series of workshops were held during the second part of 2003. The issues covered by the workshops were Surface Water bodies Identification, Groundwater Characterisation and Economic Analysis.

- Workshop on Economics:
The workshop on Economics took place in Paris on 9 and 10 October 2003. The workshop was organised together with the Agence de l'Eau Seine Normandie under the umbrella of the Common Implementation Strategy (CIS). The purpose of the workshop was to present experiences and examples from PRBs and other national case studies on the implementation of the economic elements of the Water Framework Directive and to hold a brainstorm session on key economic issues.
related to the implementation of the WFD. Presentations were made by the Odense PRB on their experience of their economic assessment; the Marne PRB on baseline scenario and trends analysis; the Scheldt and Jucar PRBs on cost-recovery analysis (See extended Report on the Workshop on Economics Annex 3). The document concentrates on the input provided by the pilot river basins and the key issues raised during the workshop.

- **Workshop on Initial Characterisation of Groundwater Bodies:**
  Under Article 5 of the Water Framework Directive (WFD), Member States have to identify water bodies by 22 December 2004 as part of the first characterisation of the river basin district. Member States have to carry out an initial characterisation of all groundwater bodies including their location and boundaries as well as identifying pressures and groundwater bodies at risk of failing to meet the objectives of the WFD. A workshop on Groundwater bodies characterisation took place in Brussels on 13 October 2003. The workshop was organised together with the Ground Water group under the umbrella of the Common Implementation Strategy (CIS). During the workshop the PRBs reported their first experiences when testing the ground water part of the Horizontal Guidance Document on the Identification of Water Bodies. The detailed information on the initial characterisation at the National and PRB levels, as presented during the workshop, is provided in Annex 3 with an extended Report on the: Initial characterisation of Groundwater Bodies.

- **Workshop in Water Body delineation:**
The workshop on Surface Water Bodies took place in Brussels on 25-26 September 2003. The purpose of the workshop was to discuss and analyse the experience gained in specific river basins in Europe on the implementation of the WFD for the characterisation of surface water bodies. Under Article 5 of the Water Framework Directive (WFD), Member States have to identify water bodies by 22 December 2004 as part of the first characterisation of the river basin district. The water bodies are the units that will be used for reporting and assessing compliance with the WFD environmental objectives. Twelve out of the 15 Pilot River Basins (PRB) have agreed to test the horizontal Guidance Document on the identification of water bodies during 2003. JRC based the discussion during the two-day meeting on the responses from 12 PRBs to a questionnaire drafted in early September 2003. The PRBs gave presentations on the different approaches used to delineate water bodies. A complete report on this workshop is given in Annex 3.
3.2. Transversal issues – coherence between guidance documents

**Points of convergence and divergence in the content**

**Economics and pressures:**
During the phase 1a testing, stress was placed on the necessity to look at economic analysis of water uses in such a way as to provide a basis for the assessments needed for WFD implementation. At the same time, the approach needed to consist of a first step in which a large variety of water uses were considered before focussing on the most important ones. Through this work, PRBs learned that the content of the economic analysis should be driven by the information needed to answer the WFD Guidance Document as well as by the availability of data. In this context, it is crucial to link the work done on “pressures and impacts” and economics, in order to improve decision-making in water management and for the practical implementation of the WFD. During phase 1a, the PRBs used different approaches to consider jointly the economical evaluation of water uses and the pressures and impact analysis. This transverse relationship should be taken into account in order to guarantee a co-ordinated approach and to avoid duplication of work. The WATECO and IMPRESS Guidance Documents support this approach. However, during the PRBs testing, the practical implementation of the economic analysis in many cases seems to be disconnected from the pressures and impacts analysis.

Even though an integrated testing of the various GDs such as IMPRESS and WATECO, would have been greatly beneficial, it seems that in many PRBS the testing was conducted using each GD individually.

Among the PRBs, different approaches were applied to link the pressure factors identified, impact on water resources and evaluation of cost recovery and economic impact. Generally all the PRBs report problems in developing cost recovery evaluation at the same scale as that used for the identification of pressures and impact factors. For example, Marne highlight how cost recovery analysis and pressure and impact analysis are not easily comparable because:
• Cost recovery analysis is done at a basin or sub basin level and indicates the monetary transfers between user categories (agriculture, industries, domestic).
• Pressure and impact analysis tries to estimates different sources of pollution at the water body level.

Thus, cost recovery analysis does not need to be conducted at the same scale than pressure and impact analysis. The Jucar River and the Somes/Szamos Basins both reported lack of suitable economic data at river basin scale; this information being available only at the regional scale. In the Scheldt transnational river basin the information related to IMPRESS and WATECO is plentiful but the scale problem does not allow a economical evaluation and cost recovery analysis of the pressures and impacts. To deal with the scale problem the Tevere River Basin has used a “multi-step” approach. Using the pressure list of the IMPRESS Guidance Document the impact of pressures were identified. In a second step, conflict between these pressures and the basin-specific uses of the water are identified and, on this base, evaluation of economical impact and cost of recovery actions were evaluated. The Moselle/Sarre River Basin used a similar approach. In this watershed the linkage between the pressures and impacts analysis and the economics evaluation was based on a national management plan, which establishes economic evaluation of the water resources to be preserved.

When trying to link the testing of various GDs, technical problems appear such as the scale issue between IMPRESS and WATECO.

Case Study JUCAR: Definition of cost recovery for water services.

Pressures and Water Bodies:
The horizontal Water Bodies guidance gives a common understanding of the definition of water bodies and specific practical suggestions for the identification of water bodies under the Water Framework Directive. Guidance on the analysis of pressures and impacts addresses the question related to the role of this analysis within the implementation process and how it contributes to the characterisation of water bodies, which has to be fulfilled as part of Article 5 of the Directive. It also shows how this analysis feeds into the development of monitoring programs, river basin management plans and programs of measures. In this context the coherence between the horizontal Water
Bodies (WB) Guidance and the IMPRESS Guidance is a key point in the implementation of the WFD. The PRBs have taken different approaches towards the relation between WB delineation and IMPRESS analysis. For example the Moselle-Sarre and Marne have begun identifying WB using as a first step only natural criteria. Subsequently pressure and impact criteria will be considered to achieve the delineation (and to split as necessary the natural WBs) in order to obtain homogeneous WBs according to both natural and pressure criteria. The Tevere River basin used a similar approach to evaluate the coherence between the IMPRESS and the WATECO GDs. They first identified the water bodies, then determined their typology and finally the pressure and impact analysis was used to identify water bodies which are size-significant but which can negatively affect the quality of water resources. Considering their significant impact on the water quality of the outflow from the whole basin, the Cecina PRB has also identified very small streams as WBs.

In many cases the IMPRESS GD results as a useful in tool in the identification of water bodies within the overall basin. IMPRESS GD was used both as the major factor in some PRBs to identify water bodies and as one discriminatory factor applied after having carried out the water bodies delineation, according to ecological and natural criteria.

In this case the IMPRESS Guidance was more useful in the Water Bodies identification than the designation according to typology. Some PRBs (ie. the Walloon part of the Scheldt PRB and the Romanian part of the Somos PRB) have applied a combination of the biological status criteria and pressure analysis to identify WBs. Aggregation seems to be applied in most PRBs for very small WBs if these are not under significant pressures. For example, the Suldal PRB has applied aggregation to a large extent within the basin. The Suldal considered that if pressures and impact factors within a water body do not significantly impact the ecological status, they are not taken into consideration for defining water body borders.

Case Study MOSELLE: From basin to water bodies using pressure and impact approach.

Bottlenecks in the planning process:
All Working Groups and PRBs have been faced with the ambitious and legally binding timetable of the Directive. In principle, deviation from this timetable is not allowed and deadlines cannot be postponed. Several Working Groups and PRBs felt that the timetable, on the one hand, is tight and leaves little time to go through the issues in sufficient detail and on the other hand that the chronological order of the deadlines is not always logical when dealing with the practical implementation. This combination often results in bottlenecks.

Analysis of the actions needed for implementation has allowed the identification of some bottlenecks. For example, the incongruities in planning that occur when comparing the official deadline requirements of the Directive with a pragmatic approach regarding the implementation. To ensure these bottlenecks do not cause problems for implementation, i.e. redundancy of work, the Working Group on Best Practices in Planning summarised the bottlenecks that have been identified by the different Working Groups of the Common Implementation Strategy.

<table>
<thead>
<tr>
<th>Bottlenecks appeared during the testing, as the chronological order of the work is not always logical. For instance, the lack of information on reference conditions made the pressure and impact analysis difficult.</th>
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Some of the Bottlenecks are specific to a Member State or river basins and are due to: lack of financial or technical means, institutional arrangements, priority setting, habits and/or traditions.

The following bottlenecks relevant to the first phase of the RPB testing have been identified.

- The lack of data for the first district review and the need for: existing information and data on pressures and impacts, a definition for the significant pressures, relation between pressures and impacts, baseline scenarios before estimating the forecasted impacts, the 2015 objectives to assess the risk of failure.
- Data on reference conditions (RC) are a prerequisite for assigning ecologically relevant typology.
- Need to start monitoring potential RC sites before general monitoring programmes are operational.
- Need for monitoring data from intercalibration sites for calculating EQRs.
- Evaluation of the testing and review of guidance will be too late for the 2005 reporting of status.
- Typology, reference conditions and class boundaries are not available. Draft register based on expert judgement (little or no available data).
- Finishing intercalibration exercise before monitoring programmes are operational.
- The 2004 review of the districts should be done with data and tools currently available, but these have to be used in a pragmatic manner in order to meet the requirements of the Directive. Making the 2004 review is an opportunity to assess the data lacking and shortcomings to be resolved.

Most bottlenecks can be summarised into a few basic issues or deadlines within the Directive:

Objectives to be achieved are unclear. The Directive refers to the achievement of “good water status” in 2015 which can be defined by the help of Annex II and V. At present this information is general and needs to be elaborated and made operational. This work is planned to be finalised by 2004. As a consequence it is hard to tell if a water body is at risk of failing the environmental quality objectives before 2004 (gap analysis) and which measures would need to be taken.

Data availability: the monitoring programme will unlikely be in place before 2006. Hence recent and complete information (measured values) on parameters of importance to pressure and impact analysis, settings reference conditions, defining ecological class boundaries, intercalibration sites, and indirectly to the designation of heavily modified water bodies, will only be available from 2007. Also a low monitoring frequency is not optimal. As a consequence assumptions will be made about missing data which increases the uncertainties in the analyses and affects the validity of the assessments.

Some solutions for the bottlenecks are recommended in this document and can be divided into 3 principal types:

- Adopt a pragmatic approach by setting up intermediary and informal or anticipated deadlines for certain tasks if necessary so as to be able to meet the obligatory deadlines required in the WFD.
Anticipating certain activities might help managers meet deadlines but do lead to an even tighter planning scheme. Member States might have different priorities and can shift or delete the informal deadlines accordingly. However at the international level good co-ordination on informal deadlines is recommended.

- Use of existing information.
- “Existing” information can be considered to range from “expert judgement” to “monitoring data” resulting from existing legislation. Also when using existing data, collection and collation will require good co-ordination and considerable effort. The information is usually neither readily available in one place nor in the right format. In this context, a consultation with stakeholders and the scientific community can improve the existing data and/or provide input where gaps have been identified.

- Preliminary exercises.
- It is recommended to perform preliminary exercises that are checked, refined and finalised later when more information becomes available.

The combination of unclear objectives, missing data and the first major deadline in 2004 (Article 5) makes it nearly impossible to give a very exact assessment of current water status and the real risk of failing to meet objectives. Therefore several Working Groups already considered the process as being an iterative one and are undertaking preliminary analyses and assessments, based on available data (if necessary on assumptions) by 2004, and plan to check these assessments at a later stage when monitoring data become available. It is important to estimate the uncertainty of these preliminary exercises.

- Make the process iterative
  Although not foreseen in guidance documents, this turns out to be the main solution for many planning problems within the WFD, e.g. the delineation of water bodies will depend on the IMPRESS analysis. At this time, this analysis only can be preliminary. Therefore the delineation of water bodies in the Art.5 report must be open to refinement (if needed) in the subsequent River Basin Management plan.
3.3. PRACTICAL PROBLEMS

Time issues:
A considerable effort has been put into testing by PRBs, especially considering that the approved versions of the GDs did not become available until the end of 2002, beginning of 2003. Thus the time available for this first exercise has been limited to 6-9 months. Despite the rather demanding time constraints the vast majority of PRBs have delivered a general overview of the issues that other river basins may expect to be confronted with when addressing with Art. 5 requirements.

A recurrent issue is the time needed to start the assessment process, requires a preparatory period to put in place a management structure. This often comprise not only public authorities and water managers but also stakeholders, NGOs, public involvement to establish collaboration mechanisms and to gather the needed data that is often spread between several regional/national administrations. The time needed to implement these steps should not be underestimated. For example, in the case of Pinios River this first step has been more time consuming than subsequent testing of the GDs or implementing Art. 5, since obtaining data owned by several authorities was essential and raising the awareness of public in general and stakeholders in particular required considerable effort.

Technical versus Political Art. 5 report:
One point of discussion in the PRBs exercise concerning the first report on Art. 5 has been the level of political involvement that should be included. Some PRBs considered that this report is a pure technical testing report developed by water managers and should not include any political consideration. Other PRBs considered that this testing report has to be discussed at a more political rather than just technical level, because it had a close relation with the real implementation process.

Participants were asked at the PRB Worshkop at Belgirate (27-28th November 2003) to identify themselves along the axis in the figure below.
Independent or embedded implementation:
Another important issue concerning PRB results (that was also discussed during the Workshop at Belgirate, 27-28th November 2003) is the relationship between PRBs and National implementation processes occurring in MS. Whereas some PRBs are far in advance in the implementation of the WFD (within their pilot river basin) with respect to the more general national implementation in their own country, others are embedded in the National implementation process. This is reflected in the time difference that certain PRBs have compared to the National implementation plans.

Transnational coordination:
The PRBs Network comprises four transboundary rivers, i.e. Scheldt (Belgium, France, The Netherlands), Moselle-Sarre (Belgium, France, Germany, Luxembourg), Neisse (Germany, Poland, Czech Republic) and Somes (Romania, Hungary). In these PRBs several issues due to their transboundary character have appeared, among them:

- Historical approaches: in transboundary rivers there exist differences between monitoring approaches, in terms of sampling frequency and parameters, differences in management approaches for example with each country applying their own national
standards. These differences may, afterwards, condition the approach one country is following for the implementation of the WFD. For example, for the identification of water bodies in the Lausitzer Neisse, Germany has followed the WBs Guidance Documents whereas the Czech Republic has used the Strahler (stream order) approach. In spite of these principal differences of the approaches both countries have now found an agreement for common transboundary water bodies, as a compromise between both systems aiming at defining homogeneous but not too small common management units. On the same lines, new approaches have emerged that are fully compatible between States, for example in the Somes managers have adopted a common Geographical Information System (GIS) for the entire basin to solve the problems of compatibility.

- Language barriers: Communication between different water managers in transboundary rivers can be a problem that has to be solved before real work starts. For example, in the Scheldt and Moselle-Sarre all meetings require simultaneous translation (also for documents, with the extra associated costs) whereas in Somes river it has been decided that all technical reports and meetings are carried out in English.

- Artificial divisions in terms of implementation of the WFD in some basins: As each country is responsible for their own part of the basin some problems may arise when the geopolitical division is in contrast with the geographic division. This occurs mainly when the river acts as a natural border between countries. For example, the Neisse acts for some of its length as a frontier between Germany and Poland. After some initial problems the Czech, Polish and German colleges have been able to define common transboundary water bodies. The "pressure - impact analysis" and the "at risk assessment" will be the result of a real transnational cooperation between the PRB-partners. Concerning the international cooperation the Neisse may serve as a model for the implementation of the WFD for all transboundary surface waters of the three countries (see Neisse case study).

- Decision time: In this case the time between when a decision is prepared and when it is adopted requires a lot of consultation at local and national levels. An advantage underlined by the Scheldt and Moselle-Sarre PRBs is that when an agreement has been reached this is seen as providing a very solid basis for future work
Administrative burdens: Even when there is already an administrative structure (ie a Convention) for river basin management as in the case of major European rivers, e.g. Rhine (Moselle-Sarre), Danube and Scheldt; the accommodation of the WFD may still encounter difficulties. Administration can become even more complex. For example, the International Commissions for the Protection of the Mosel and Saar rivers restructured their organisation in order to implement the WFD. However, this basin is only one among the nine working sectors of the transnational Rhine River Basin, designated within the Rhine district. Thus the coordination between these sectors, the countries and the achievement of the legal obligations of the WFD implementation becomes a rather complex process.

In large river basin districts, there is the risk that sub-districts do not have the same speed in developing specific items in the WFD implementation. This can result in items worked out in different ways. Therefore, also in large river basin districts, one should concentrate on guaranteeing comparability in the implementation process.

In various international river basins the obligation of international co-ordination of the implementation of the WFD led to a pragmatic approach on how to develop this co-ordination in practice. An example of this approach is the river basin organisations for the Rhine, Danube, Meuse, Scheldt, and the Ems.

In principle all WFD obligations are split in 2 types of subjects:
1. The so-called “A type subjects” that need international co-ordination. These subjects may e.g. be related to pressures that have an impact on the entire international catchment of a river basin.
2. The “B type subjects” can best be handled at local level having only a local impact. In this way the international co-ordination of the implementation of the WFD is reduced to a manageable size.

Taking into account all these issues one can conclude that the implementation of the WFD in transboundary catchments constitutes a rather challenging process and rivers with these characteristics should consider that they will need more time investments than national river basins to reach the same level of detail in their implementation. However, co-ordinated action to protect and improve the water
environment will be jeopardising without it. Special emphasis should be given to this issue at EU level to facilitate their work.

Case Study SCALDIT: Implementation of the WFD in transboundary catchments.

Case Study NEISSE: Implementation of the WFD in transboundary catchments.

Level of detail:

As mentioned before, a Terms of Reference (ToR) document focusing on Key Issues felt to be of particular relevance by WG leaders for the testing phase was developed and it has served as basis for the testing of GD by PRBs. The level of detail in the answers to this document has shown quite large variability over PRBs reflecting the different problems experienced by them in a complex process with such a tight schedule. However, in some cases the results exceeded expectations and lead to the preparation of preliminary Article 5 reports that will certainly serve as guides for the EU river basins.

Dissemination of results:
An important aspect of the Pilot River Basins Network should be the dissemination of the results at National and European level. There has already been considerable effort devoted to this activity at all levels through:

**Web dissemination:** In addition to CIRCA “Implementing the Water Framework Directive” where all relevant documents have been made available, including this report and annexes, JRC-IES has developed a Platform for Information Exchange (PIE) at [http://viso.ei.jrc.it/wfd_prb/index.html](http://viso.ei.jrc.it/wfd_prb/index.html) to facilitate the exchange between the groups responsible for testing in the PRBs and the experts from MS, Accession Countries and the EC who have been involved in the development of guidance documents (GDs). This platform is implemented as a document/information space (complementary to the WFD / PRB site on CIRCA), and a set of mailing lists. Furthermore, the vast majority of PRBs have set-up their own Web pages for example:

- Jucar: [http://www.chj.es](http://www.chj.es)
- Odense: [http://www.odenseprb.fyns-amt.dk](http://www.odenseprb.fyns-amt.dk)
- Tevere: http://www.abtevere.it
- Shannon: http://shannonrbd.com
- Scheldt-Scaldit: http://www.scaldit.org
- Pinios: http://www.minenv.gr/pinios_river.html
- Ribble: http://www.environment-agency-gov.uk/ribble
- Cecina: http://www.comune.cecina.li.it/cecina_prb/

National/Regional dissemination: The vast majority of PRBs have been involved at local, regional, national and European scale in the dissemination of their results. A large number of meetings have been organized by PRBs leaders and identified stakeholders, NGOs and public in general. Furthermore, several meeting to present the results of the PRBs have been organised at National level, e.g. Environment and Agriculture Ministries, etc. An exhaustive list of all these meetings can be found in the progress reports that PRBs have been submitting every 6 months (on CIRCA).

Meetings, Seminars and Workshops organized by DGs Environment and JRC: Meetings between PRBs leaders and the Commission have been held (every 6 months) to discuss work progress and future planning. In parallel, three workshops dealing initially with general aspects and subsequently focusing on specific topics related to Art. 5 have been held (see Belgirate 27-28th November, 2003). As the process progressed Seminars with experts that developed the GDs have been held in water bodies delineation, groundwater, economics aspects of the WFD. Reports summarising the main findings as well as the experiences of the PRBs have been produced and are attached to this document. This information is also available on CIRCA.

Participation at International Conferences and publications in peer review Journals: The PRB Network project has been presented as the keynote lecture at several International scientific conferences by PRBs members and EC staff. A complete list is beyond the scope of this document, we only cite a general overview paper: Murray, C. N., Bidoglio, G., Zaldívar, J. M., Bouraoui, F., 2002, The Water Framework Directive: The challenges of implementation for river basin-coastal research. Fresenius Environmental Bulletin 11, 530-541.
And a journal issue devoted to the subject:

Electronic brochure: Information sheets, 2 pages long, on the Pilot River Basins of the Network have been developed and they can be downloaded from: http://viso.ei.jrc.it/wfd_prb/sites.html.

Finally, an important product of this exercise is the Provisional Art. 5 Report that some PRB have already written (Odense) and are in the process of finalizing (Cecina, Jucar, Oulujoki, Pinios, Shannon, Suldal, Somes/Szamos, Tevere). These reports will certainly help other river basins in the preparation of their Art. 5 report and will constitute a complete collection of case studies where other RB will find inspiration and help when confronted with the real implementation process.
CHAPTER 4. CONCLUSIONS AND RECOMMENDATIONS

Conclusions:

- The guidance documents developed in the first phase of the CIS process have been of great help in preparing preliminary Article 5 reports. Although the focus of the guidance documents has shifted during their development from recipe-books for the operational level to sketches of outlines for the national scale, the current level of detail suits well. Less detail would give too little direction, while more detail would mean that not all situations would fit. Of course, specific elements need further development at a national scale. In general though, further development at European level is felt to be unnecessary.
- The PRBs concluded in November 2003 that the present guidance documents on the Article 5 subjects are suitable to conduct article 5 analysis and should not be revised or updated at this stage. Anyway PRB managers felt that for subjects that still lack clarity, or subjects that turn out to be impractical during implementation, should be elaborated through specific workshops leading to fact sheets. People prefer short, focused reports rather than new guidance documents.
- The implementation of the WFD in transboundary river basins constitutes a rather challenging process that requires more effort and time than for national catchments.
- Considering the short time available, the PRB exercise can be considered a success. The amount of effort put in by the PRB network and the results already obtained in terms of increased information, identification of gaps, problems/solutions, pragmatic management approaches, and that the dissemination of the results of this exercise, will, it is believed, provide great help to other river basin managers in the first steps of the WFD implementation.
- The implementation of the WFD in transboundary river basins constitutes a rather challenging process that requires more effort and time than for national catchments.
- Stakeholders should be involved in preparing the article 5 report. Many participants considered this process as purely technical, without political implications. In some cases, this might be an explanation for the minor stakeholder involvement at the beginning.
of the testing (also within PRBs that were to test the Guidance on public participation). On the other hand some PRBs promoted public participation presenting the work carried on during the WFD implementation. However as art. 5 reporting is a technical exercise with no political decision to be made, no concrete contribution was sought from the end user.

Recommendations:

- Effective management requires good scientific information for understanding the main hydrological and ecological processes and relevant socio-economic analysis for identifying the drivers behind water uses. Management must then have the capacity to take concrete decisions. The results of the PRB exercise have shown that this capacity needs to be developed by allocating adequate human and financial resources in each river basin district (RBD), and also by including stakeholders and NGOs in the process of implementation and sharing of information and experience between RBDs, regions, and countries. I am not sure that I understand this comment
- The discussions within PRBs are being broadened from the river basin to other implementation projects at different levels. This can be seen in the PRBs, where stronger and weaker links with national implementation exist, but also in the participants and discussions at e.g. the workshop on water bodies. Not clear to me what is meant
- Since the PRBs turn out to be less ‘frontrunners’ than they were thought to be at the start of the exercise. The involvement of other river basins deserves consideration (e.g. the larger international river basins as Danube, Rhine, Meuse, Oder/Neisse, etc.). ditto
- Taking into consideration that most of the PRBs considered the Outcome Report on the testing of article 5 related GDs mainly as a technical document, political implications and stakeholders involvement were considered also in this phase. Because the art.5 reporting was considered as a technical exercise (no political decision had to be taken), in some PRBs (i.e. Odense), the stakeholders were involved in public presentation and discussion of the report but not consulted during the drafting of the technical aspect of the document. Needs to be further clarified
- Risk analyses in the article 5 reporting/analysis in 2004 must or can based on provisional objectives for the water bodies. These analyses
and objectives can through an iterative process to be moderated when dealing with programme of measures from 2005. unclear

- No new guidance documents seems to be needed. Also, there seems to be little enthusiasm for radical revision of existing guidance documents. Instead people would like to have fact-sheets with experiences as a reference base, describing the characteristics of the basin together with the outcomes of the implementation of certain parts of the WFD. Moreover, the progress reports and provisional documents available on some dedicated web sites (see above) could provide some useful examples. For these reasons, this report summarising the main findings obtained from the Pilot River Basins Network, together with their detailed reports on their provisional Article 5 assessments, may be of practical use to the others EU river basins who will have to initiate their analysis and characterisation at the beginning of 2004.