



for a living planet



EU Water Policy: Making economics work for the environment



**Survey of the economic elements of the Article 5 report
of the EU Water Framework Directive**

May 2006



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The European Environmental Bureau (EEB) is a federation of over 140 environmental citizens' organisations based in all EU Member States and most Accession Countries, as well as in a few neighbouring countries. These organisations range from local and national, to European and international. The aim of the EEB is to protect and improve the environment of Europe and to enable the citizens of Europe to play their part in achieving that goal. The EEB office in Brussels was established in 1974 to provide a focal point for its Members to monitor and respond to the emerging EU environmental policy. It has an information service, runs working groups of EEB members, produces position papers on topics that are, or should be, on the EU agenda, and it represents the membership in discussions with the Commission, the European Parliament and the Council. It closely coordinates EU-oriented activities with its members at national level, and also closely follows the EU enlargement process and some pan-European issues.

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Foreword

The Water Framework Directive from December 2000 offers a unique opportunity to integrate ecological sustainability conditions into water management practices. Five years after its adoption, the implementation of the Water Framework Directive (WFD) is now at a critical stage. In 2005, national authorities published their first assessment of the environmental risks and problems as well as economic analysis of water use in all of Europe's river basins - the "Article 5" reports.

Learning from our experience of applying EU environmental laws, the EEB and WWF undertook a thorough assessment of the Article 5 reports' quality with the help of their national Members and networks. The assessment focused particularly on the economic analysis of water use as presented in these reports. We believe that financial constraints and the ability to make the market work for the environment, through water pricing mechanisms, including taxes and charges and reforming environmental harmful subsidies, will play an important role in the preparation of the River Basin Management Plans. A narrow, incomplete economic analysis in the Article 5 reports could seriously harm the effectiveness of restoration measures and increases the risk that exemptions are extensively misused, instead of supporting ecologically sustainable water management.

With 26 NGO participants from 20 European countries we believe that the reports' findings are representative. They show that governments have largely failed to link environmental and economic appraisals. While environmental problems are clearly defined, the sectors causing those problems are mostly not identified as users of water services for which a cost recovery assessment, including environmental and resources costs, has to be made.

Our findings are sobering. There are only a few examples of best practice, like the Seine-Normandie district in France,

which could serve as a sound basis for establishing an effective and well-financed programme of measures to achieve the WFD environmental objectives in 2015.

In most other cases the economic part of the Article 5 report needs to be improved before the end of 2008 in order to ensure the establishment of a credible and effective programme of measures by the close of 2009.

The WFD Common Implementation Strategy (CIS), steered by the European Commission, Member States and various stakeholders, has helped in developing a common understanding of many provisions of the law. But our findings clearly show that guidance on the economic analysis has in most cases not been used. The CIS must address this deficiency not by issuing more theoretical guidance but by improving practice in Member States, including the development of implementation benchmarks and early warning systems.

We should like to thank participants in the survey from EEB members and WWF national offices, for their great feedback without which this assessment would have not been possible.

In particular, we congratulate Josselin Rouillard, who - during his internship at the EEB - has successfully ensured the data collection, assessment and assisted the writing of the report.

Finally, we would like to thank Pierre Strosser (ACTeon), who, with his long and practical experience in implementing the Directive, has greatly contributed to the development of this assessment from the very beginning and ensured its high quality.

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Executive summary

Economic instruments must play a crucial role in closing the gap between the EU's environmental objectives and national implementation. In Gothenburg in June 2001, Europe's leaders emphasised the need to use economic instruments for sustainable development, and Europe's Sixth Environmental Action Programme encouraged the reform of environmentally harmful subsidies and the use of environmental taxes and incentives. Economics can be a powerful tool for change. Assessing the costs of environmental damage and resource loss, and adequately distributing these costs to economic activities following the "polluter pays" principle, can provide the incentive and generate the finances necessary to achieve the environmental objectives.

Economics is given an important role in the implementation of the European Union Water Framework Directive (WFD)¹. Economic assessments should support the selection of environmental protection and restoration measures and help develop economic incentives, which integrate environmental concerns into other EU policies and business activities. They should also help identify cases transparently where exemptions from the environmental objective of achieving a good status may be justified.

If abused, economic analysis could undermine the WFD's environmental objectives; used well, economic arguments can promote sustainable approaches to the management of freshwater resources.

The first milestone in implementing economic aspects of the WFD was the submission by Member States of river basin district characterisation reports, "Article 5" reports, to the European Commission. Each report should include an economic analysis of the river basin, including the identification of water services and water uses; an analysis of the current recovery of financial and environmental costs of water services (*cost recovery principle*) including the contribution from different water uses; as well as an analysis of the incentive aspects of water pricing. They should cast light on financial flows, in particular on the relative contribution of the different actors in the water community to the costs of WFD implementation in accordance with the "polluter-pays" principle.

This analysis provides a first opportunity to assess how economic issues have been considered to date. In this context, the European Environmental Bureau (EEB) and WWF, with the help of their Members and networks, reviewed 25 Article 5

reports from 24 river basins and one entire country. In total, 21 different countries were involved. At the time of the survey no Article 5 reports were available from Italy and Greece.

The assessment aims to answer two key questions:

1. Does the economic analysis performed and presented in the Article 5 reports comply with the WFD requirements and follow the recommendations of the WATECO guidance document²?
2. Will the economic assessment make a relevant contribution to achieving ecologically sustainable water management, by, in particular, encouraging the use of economic instruments?

The report is based on the opinion and findings of NGO experts/members. Data were checked for consistency and coherence and have been verified in important specific cases. We cannot guarantee that all individual data are correct, but we believe that the overall findings are robust and provide an indication of the quality of WFD implementation and of possible infringements with its legal requirements.

The overall findings of the Article 5 reports' review provide a mixed picture (Table 1). Best practices for an economic analysis, which seems in line with legal requirements and following the EU guidance document (thereby presenting a good basis to make use of economic instruments) include the Seine-Normandy (France) and the Lielupe (Latvia) River Basin Districts. Both cases assessed and clearly presented the cost-recovery, including environmental and resource costs for the sectors which have been identified as causing major environmental problems. The economic assessment of water use in most other River Basins raises serious concerns and we have misgivings about the legal accuracy of such economic analysis. Overall the economic analysis of the 25 Article 5 reports surveyed shows inconsistency of definitions, content, focus and methodology.

- In most cases, the analytical quality of the reports is rather poor. On the one hand, statements and conclusions are often made without explanation of their derivation, and on the other, facts and figures are often given without proper assessment and interpretation.
- Approaches to the economic analysis are very different between and within countries and River Basin Districts, so that they are generally not comparable and hinder coordinated implementation of the WFD.

¹ Directive 2000/60/EC establishing a framework for Community action in the field of water policy, OJ No. L 327, 21.12.2000, http://europa.eu.int/comm/environment/water/water-framework/index_en.html

² Guidance document No 1. Economics and the Environment. The implementation challenge of the Water Framework Directive, 2003, http://europa.eu.int/comm/environment/water/water-framework/guidance_documents.html

- While some River Basin Districts have mobilised stakeholders to conduct economic analysis, the majority have considered it a desk-based data-gathering exercise with no direct input/participation by stakeholders.

- In 22 reports hydro-morphological pressures are identified as a significant problem for achieving good status. The main sectors linked to those pressures are navigation, hydropower and flood management.
- However, in only six reports does the cost recovery assessment in the economic analysis touch upon at least one of those sectors. In the other cases the analysis is mainly restricted to public water supply and sewerage services. In some reports, e.g. from river basins in Austria and Germany, dams for hydropower, infrastructure for navigation and flood defence measures are specifically excluded from this analysis.
- In only two reports environmental and resource costs for services provided for navigation and hydropower have been included in the cost recovery.
- The current pricing structures (e.g. taxes, pollution charges and other tariffs) were often merely described, without carrying out an analysis of their effectiveness and sustainability. These aspects are fundamental to the future revision of water pricing policies that will provide adequate incentives to use water efficiently and thereby contribute to WFD environmental objectives.

Thus the integration of environmental concerns into the economic analysis has largely failed. As a result, financing for WFD measures and integrating WFD objectives into other policy sectors and business activities may be seriously hampered.

We believe that the above inconsistencies have been largely influenced by past practices, organisational set-up, lack of experience, and limited available expertise in environmental economics, but also represent political priorities and a lack of commitment. Some inconsistencies, such as different definitions of water services or differences between analyses in national parts of transboundary river basins, are highly problematic.

The two questions posed at the survey's outset have to be answered negatively:

- First, most Article 5 reports do not seem to comply with some of the WFD requirements, especially those related to the definition of water services and water uses as well as to the cost-recovery analysis. In most reports the scope of water services is limited to public water supply and waste water collection. Often the transposition law either fails to define water services at all or does it in a way which is inconsistent with the WFD definition. Moreover, environmental and resource costs were often not properly considered in the analysis of the recovery of costs of water services. The WFD CIS's objective of promoting the harmonised implementation of the WFD has not been attained – the WATECO guidance has largely not been applied. Each Member State or federal state has interpreted the WFD in its own way. New mechanisms need to be identified and tested to successfully promote coherent and homogeneous implementation of the WFD.
- Second, the economic assessment is unfit to support the achievement of environmental objectives, as they fail to address the key sectors which cause environmental degradation. They also fail to consider environmental costs or shed light on financial flows. This will therefore frustrate not only informed choice about the cost-effectiveness of environmental measures, but also the establishment of sound financing mechanisms and making market signals work for the environment, either through water pricing or removing subsidies.

If the identified shortcomings and limitations of the Article 5 analysis are not corrected, the EU will miss a great opportunity to manage better the water environment and progress towards ensuring the integration of environmental concerns into all EU policies.

On the basis of these disturbing findings and taking into account political commitments, in order to make the market work for the environment, the EEB and WWF call on:

- **Member States** to revise the economic analysis by 2008, applying the correct definition of water service and water use, integrating environmental and resource costs, and analysing the incentive dimension of water pricing as key instruments for reaching the environmental objectives of the WFD effectively;
- **The European Commission** to ensure correct application of the definition of "water service" and other Article 5 requirements;
- **Members of the European Parliament** to give the WFD implementation a much higher political profile, to ask the European Commission and respective Member States to correct the flawed application of WFD economic instruments.
- **Environmental NGOs** to use all available and appropriate procedures, including complaint, appeal and court mechanisms, to push their governments to improve the economic analysis in order to make it meaningful and effective at improving the aquatic environment.

Table 1 Overall assessment table for the economic analysis

The deterioration of the aquatic habitat resulting from water infrastructure is judged as significant, but not integrated in the economic assessment due to a narrow interpretation of what constitutes a “water service”. Who pays for what remains unclear and environmental costs are largely ignored.

River Basin / Country	Significance of infrastructure mentioned in Report	Interpretation “water services” - integration of infrastructure?	Cost-recovery analysis	Environmental + resource costs –Mainly investigation of existing environmental taxes and charges	Contribution of uses to costs of services	Analysis of economic instruments	Public participation
Arhus Amt (DK)	-	☹	☹	☹	☹	☹	☹
Danube (AT)	XX	☹	☹	☹	☹	☹	☹
Danube (DE)	XX	☹	☹	☹	☹	☹	☹
Danube (HU)	X	☹	☹	☹	☹	☹	☹
Danube (SI)	XX	☹	☹	☹	☹	☹	☹
East Estonia	XX	☹	☹	☹	☹	☹	☹
Elbe (DE)	XX	☹	☹	☹	☹	☹	☹
Ems (DE)	XX	☹	☹	☹	☹	☹	☹
Gualdalquivir (ES)	X	☹	☹	☹	☹	☹	☹
Kymijoki (FI)	XX	☹	☹	☹	☹	☹	☹
Lielupe (LV)	?	☹	☹	☹	☹	☹	☹
Meuse (Int.)	XX	☹	☹	☹	☹	☹	☹
Prut (RO)	XX	☹	☹	☹	☹	☹	☹
Rhine Delta (NL)	XX	☹	☹	☹	☹	☹	☹
Rhine, Middle (DE)	XX	☹	☹	☹	☹	☹	☹
Rhine, Upper (Int.)	XX	☹	☹	☹	☹	☹	☹
Rhone (FR)	XX	☹	☹	☹	☹	☹	☹
Scheidt (BE)	XX	☹	☹	☹	☹	☹	☹
Seine (FR)	XX	☹	☹	☹	☹	☹	☹
Shannon (IE)	-	☹	☹	☹	☹	☹	☹
South West (UK)	XX	☹	☹	☹	☹	☹	☹
Sweden, country	XX	☹	☹	☹	☹	☹	☹
Tejo (PT)	X	☹	☹	☹	☹	☹	☹
Vistula (PL)	XX	☹	☹	☹	☹	☹	☹
Weser (DE)	XX	☹	☹	☹	☹	☹	☹
☺	XX: Major problem for achieving objectives	Wider interpretation = including infrastructure serving > 2 users (navigation, hydropower, flood)	Public water services + 1 other service	Included in assessment	Includes household, industry and agriculture	Includes pricing, charging / taxes and subsidies	Report developed with consultation and participation
☹	X: Moderate problem for achieving objectives	Narrow interpretation = including infrastructure serving 1 user (navigation, hydropower or flood)	Public water services	Only mentioned	Includes two of the following: household, industry or agriculture	Includes at least one of the following: pricing, charging / taxes or subsidies	Report developed with consultation only
☹	-: Not a problem for achieving objectives	Very narrow interpretation = Only public water services, self-services or agriculture irrigation / drainage	Not done	Not mentioned	Includes only one of the following: household, industry or agriculture	No analysis	Report developed with no consultation and no participation

Abbreviations

Countries and Basins Abbreviations

Code Used		Full Details	
Country	Basin	Country	Basin
AT	DA	Austria	Danube
BE	SC	Belgium	Scheldt
DE	DA	Germany	Danube
DE	EL	Germany	Elbe
DE	EM	Germany	Ems
DE	MR	Germany	Middle Rhine
DE	WE	Germany	Weser
DK	AA	Denmark	Arhus Amt
EE	EE	Estonia	East-Estonia
ES	GA	Spain	Guadalquivir
FI	KY	Finland	Kymijoki-Gulf of Finland
FR	RH	France	Rhône
FR	SN	France	Seine-Normandie
GR		Greece	None
HU	DA	Hungary	Danube
IE	SI	Ireland	Shannon International
Int	ME	NL, DE, FR, LU, BE (Flanders, Wallonia)	Meuse
Int	UR	France, Germany	Upper Rhine
IT		Italy	None
LV	LI	Latvia	Lielupe
NL	RD	The Netherlands	Rhine Delta
PL	VI	Poland	Vistula
PT	TR	Portugal	Tejo/Ribeiras do Oeste
RO	PR	Romania	Prut
SE		Sweden	None
SI	DA	Slovenia	Danube
UK	SW	United Kingdom	South-West

Text Abbreviations

CIS: Common Implementation Strategy

EC: European Commission

EEB: European Environmental Bureau

EU: European Union

HMWB: Heavily Modified Water Bodies

NGO: Non Governmental Organisation

RBD: River Basin District

RBMP: River Basin Management Plan

WFD: Water Framework Directive

WWF: World Wide Fund for Nature

1. Survey of WFD article 5 reports – Why?

1.1 Background

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (or the Water Framework Directive, WFD) was adopted in 2000, after five years' discussion and negotiation. Unlike previous European Union (EU) water legislation, the implementation of this Directive rapidly gained momentum at EU level, and Member States (MS) have made a great effort to fulfill its initial obligations and requirements. At the EU level, in 2001, Member States and the European Commission (EC) launched a WFD Common Implementation Strategy (CIS) for supporting the WFD implementation process. Under the framework of the CIS, a series of guidance documents have been produced, including one on the economics in the WFD, called "Economics and the Environment" and commonly referred to as WATECO Guidance³.

Following the delineation of River Basin Districts (RBDs) and the designation of competent authorities, the first major milestone of the WFD implementation was the production of the "Article 5" reports that were to be submitted to the EC by 22 March 2005. Required under Article 5 of the WFD, these reports must characterise each river basin district in terms of their hydrological properties, and must provide information on:

- Key pressures on the aquatic environment;
- The origin of these pressures;
- Their impact on the good chemical, biological and hydro-morphological characteristics of water bodies;
- The risk of each water body's failing to achieve the environmental objectives of the WFD (i.e. good water status) by 2015;
- An economic analysis of the water use in the RBD (see Chapter 2.2);
- A register of protected areas in the RBD

These reports are the starting point for the river basin management plans (RBMPs). Their quality will be decisive because they will provide basic information for follow-up such as the prioritisation of water management issues or the selection of measures.

While the WFD operates and is implemented at RBD level, the EC has no formal relationship and thus no enforcement

role with the RBDs' competent Authorities. The only official relationship relevant for enforcement is between the EC and the MS.

At the time of writing, the majority of MS have submitted Article 5 reports. The EC must now assess the quality of these reports. However, owing to limited capacity and resources, we expect that this assessment will remain at a general level, only stressing the presence or absence of specific components of the Article 5 analysis.

Owing to WFD's importance for European water management, and because of major effort invested in the CIS process and the expectations it has created, environmental non-governmental organisations (NGOs) are keen to see rigorous assessments of the content of the Article 5 reports. Indeed, such a review would help in assessing:

- Whether the content of the reports provides a sound and sufficient basis for further steps in the river basin management planning process and in particular for the selection of measures;
- Which areas/thematic issues will require further efforts, resources and analyses to enhance the existing knowledge base; and
- Whether the coherent and common understanding of key elements of the WFD, which is the objective of the WFD CIS, was translated into actions at the national and river basin levels and whether the agreed guidance documents were used to implement the WFD in a homogeneous, timely and effective manner.

1.2 Results of previous surveys

A series of surveys has been carried out by NGOs to verify the quality of implementation of the Directive in Member States, and whether the CIS guidance of the Directive was followed or used in national and transboundary RBDs. We believe that such surveys help NGOs to understand the situation on the ground – thus enabling NGOs to be well-informed partners in the WFD implementation process, together with governmental organisations, international bodies and other stakeholders. Results and conclusions from such surveys enable NGOs to enter a dialogue with decision-makers to promote effective and transparent WFD implementation in line with the principles of this Directive as well as its CIS.

The first NGO survey was carried out in 2004 by the European Environmental Bureau (EEB), focusing on the quality of the

³ Guidance document No 1. Economics and the Environment. The implementation challenge of the Water Framework Directive, 2003, http://europa.eu.int/comm/environment/water/water-framework/guidance_documents.html

national transposition in key areas, like environmental objectives, administrative arrangements and public participation, and the first implementation steps.

Key findings 2004 included:

- Very low level of NGO participation and governments making very little effort to encourage NGO involvement.
- Half of the countries covered do not state clearly the WFD's overall objective 'to achieve good status by 2015' within their transposition legislation.

A second survey was carried out by the EEB and WWF in February 2005. It looked at the general implementation process and in particular at the involvement of stakeholders.

Key findings of 2005 included:

1. Environmental NGOs have high expectations of what the WFD can deliver;
2. Quality of WFD transposition and implementation is low, which provides a poor basis for achieving its environmental objectives. There were some improvements in the quality of public participation in WFD implementation in practice during 2004;
3. Environmental NGOs generally have insufficient capacity to participate fully in WFD implementation; and
4. Governments and water management authorities are reluctant to value, and thus seek, environmental NGO participation in "technical" work or communicate this work in a transparent way.

1.3 Focus and aim of this survey

This is now the third NGO survey on the implementation of the WFD since its adoption. This survey builds on its predecessors but attempts to be more specific and cover a larger number of river basins and countries within the EU. It focuses on the economic analysis of the Article 5 reports, and more particularly on the issue of cost-recovery and pricing. It aims to answer the following two questions:

- Does the economic analysis/cost-recovery analysis performed by Member States and presented in the Article 5 reports comply with the requirements of the WFD? Does the analysis presented follow the recommendations of the WATECO guidance document, which was prepared in the context of the EU WFD CIS, for supporting the implementation of the economic elements of the WFD?
- Will the economic assessment make a relevant contribution to achieving ecological sustainable water manage-

ment by, in particular, encouraging the use of economic instruments?

On the basis of answers to these questions, options for follow-up actions will then be identified by EEB/WWF in the context of their commitment to an effective and transparent implementation of the WFD in Europe. Such follow-up is not part of the present report, which mainly focuses on the results of the survey.

The reasons for focusing on the economic analysis and in particular on the cost-recovery analysis are as follows:

- First, in the current political climate, it is likely that achieving the environmental objectives of the WFD will be determined, to a large extent, by economic considerations, the availability of funding and administrative capacities. It will therefore be essential that the Article 5 analysis provides a good understanding of the economic issues and trade-offs at stake as well as a sound economic assessment of the costs of water services and uses, including environmental and resource costs. Only if all relevant sectors are included in the analysis and the benefits of protecting and restoring the ecological functioning of aquatic ecosystems are assessed and communicated effectively, can a balanced decision of what constitutes sustainable water management be achieved;
- Second, economic analysis on the one hand can provide valuable information to aid informed decision-making. On the other, economics can be misused, thwarting implementation of the WFD. We are concerned about minimal interpretation of WFD objectives by some MS and increasing pressure from the economic sectors reluctant to change their "business-as-usual" operations. Thus the review of Article 5 reports and of selected components of their economic analysis will also help us understand the state of play in MS regarding the balance between economic and environmental interests in water management.
- Third, during the development of the WATECO guidance document, representatives from industry and other economic sectors as well as some MS were strongly advocating a narrow scope of economic analysis. Nevertheless, the guidance document was agreed by all stakeholders and approved by Water Directors and now serves as a benchmark for implementing economic aspects of the WFD. This survey provides a timely opportunity of checking to what extent the MS followed the agreed recommendations of the WATECO guidance document and whether their economic analysis complies with WFD principles, especially long-term sustainability and the "polluter pays" principle.

This report presents the main results of the survey.

Chapter 1 outlined the background of the survey and this report.

Chapter 2 summarises the economic elements of the WFD and the requirements for the Article 5 reports, with particular focus on the recovery of the costs of water services.

Chapter 3 summarises the methodology of the survey

Chapter 4 presents the main findings.

The report concludes with an analysis of the results in light of the two main questions identified above, i.e. compliance with the WFD requirements and consistency with the WATECO guidance principles.

2. The Water Framework Directive and its economic components

This chapter introduces the main elements further investigated in the context of this survey. It highlights the role Article 5 reports play in implementing the WFD and places economic elements of the WFD in the overall river basin management planning process. It also highlights Article 9 requirements regarding the cost-recovery for water services, incentive pricing and environmental and resource costs. Specific requirements will be dealt with in introductory chapters in the Result Chapter.

2.1 The Water Framework Directive and economics

The aim of the WFD is to achieve good status in all European waters by 2015. Environmental objectives for each water body are to be set mainly using as a benchmark the status of a water body of a similar type under almost undisturbed natural conditions.

To achieve these objectives, the WFD relies on River Basin Management Plans (RBMPs) to be adopted at River Basin District (RBD) level by 2009 (Article 13, WFD), including a programme of measures to be made operational by 2012 (Article 11, WFD).

The WFD offers the possibility for MS to enter into two additional six-year planning cycles if good water status is not reached by 2015. Lower environmental objectives are also possible, in cases where the cost of achieving the strongest objectives are too high compared to the benefits of reaching these objectives.

The WFD strongly encourages public participation at all stages (Article 14, WFD) to ensure that the programme of measures is supported and successful. At European level, the Common Implementation Strategy (CIS) offers a platform for consultation and participation in the interpretation of the Directive and the production of guidance material. At national level, the WFD requests public consultation specifically for i) the proposed timetable, work programme and role of the public in drafting the river basin management plan (2006); ii) the overview of major water management issues (2007); and iii) the draft river basin management plans (2008).

2.1.1 THE ROLE OF ECONOMICS IN THE WATER FRAMEWORK DIRECTIVE

Economics can be a powerful tool to create changes by justifying new approaches to water management in Europe. For example, a well-applied cost-effectiveness analysis may demonstrate that

land-use change and the maintenance, restoration and creation of wetlands are more appropriate measures than end-of-pipe solutions. Equally, many of the changes required to meet WFD objectives are likely to encounter major resistance, and this can be countered with the robust use of economic arguments.

Socio-economic considerations are addressed through the integrated mechanisms provided by the WFD, namely through the recovery of the costs of the water service and water pricing (Article 9, WFD), and through cost-effectiveness analysis and disproportionate cost analysis (Article 4, WFD).

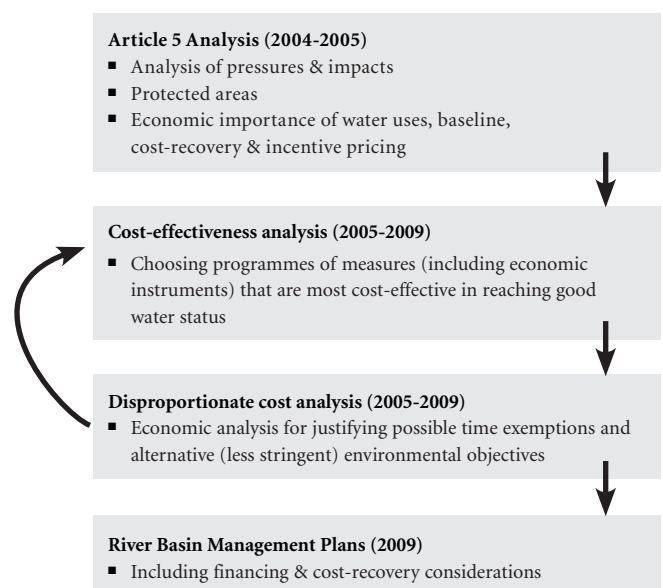
Economics will contribute meaningfully to decision-making only if it is based on and integrated with good technical analysis. For example, cost-effectiveness analysis requires a sound understanding of the consequences of a range of measures, while the application of the polluter-pays principle requires analysis of who is responsible for pollution and on what scale.

Transparency in analysis and public participation are expected to stimulate changes in cost-recovery and pricing policies that support the achievement of the WFD's environmental objectives.

2.1.2 ECONOMICS IN THE WFD

The WFD economic components can be schematised as in Figure 1.

Figure 1 The integration of the economic elements of the WFD in the river basin management planning process. *Note: The deadlines for each step are presented in brackets.*



Annex 3, WFD

Article 5 analyses should “provide enough information in sufficient detail [...] in order to make relevant calculations necessary to take into account under Article 9 the principle of recovery of the costs of water services [...] and make judgements about the most cost-effective combination of measures”

To comply with these requirements, the WATECO guidance suggests doing an assessment –whose results should be in Article 5 reports-of:

- The economic importance of water uses, providing the basis for understanding the trade-offs between economic development and the protection of the aquatic environment;
- Future trends (up to 2015) in economic sectors (taking into account effects of implementing existing policies, that are likely to influence pressures and thus the status of water bodies;
- The level of recovery of the costs of water services (Article 9, WFD) and adequate contribution by different water uses to the latter, i.e. financial flows in the provision and use of water services (Article 9, WFD). This will be essential for understanding who pays for what, how the polluter-pays principle is applied in practice, and what opportunities exist for financing the programme of measures aimed at achieving good water status;
- The current role of economic instruments, and water pricing and its incentive dimension, for supporting the achievement of sustainable water management and the achievement of the environmental objectives of the WFD;
- Information and knowledge gaps.

In addition, the WFD relies on two other analyses –which may not yet appear in the Article 5 reports in 2005- to support the drafting of the RBMP:

- A cost-effectiveness analysis of the programme of measures (Annex 3, WFD) which will support the selection of measures, or set of measures. Such an analysis does not change objectives or deadlines, but identifies the cheapest programme of measures to reach a fixed objective;
- A disproportionate cost analysis (Article 4, WFD) which, in the case of disproportionate costs, will help identify exemptions from the good status objectives and deadlines, e.g. less stringent environmental objectives for some water bodies or good ecological potential in the case of heavily-modified water bodies.

As we can imagine (and it is stressed both in the WFD and the WATECO guidance), Article 5 reports will be the fundamental building block for further economic analysis (i.e. cost-effectiveness and disproportionate cost analysis) because they will provide basic information. By focusing on the quality of Article 5 reports, this report tries to assess whether the current published Article 5 reports can objectively support the further implementation of the WFD.

The next Chapter gives a brief introduction to the main economic concepts introduced by the WFD.

2.2 Water pricing and the recovery of the costs of water services

2.2.1 WATER SERVICES AND WATER USES

The Directive divides human activities into water services and water uses. These terms are defined in Article 2 of the Directive.

Article 2.38 of the WFD defines water services as:

“All services which provide for households, public institutions or any economic activity: (a) abstraction, impoundment, storage, treatment and distribution of surface or groundwater; (b) waste water collection and treatment facilities which subsequently discharge into surface water”

And water uses as (Article 2.39):

“Water services together with any other activity [...] having a significant impact on the status of water. [...]”

With this definition, the Directive differentiates between activities that profit directly from the aquatic environment and those that profit indirectly. According to a CIS information sheet⁴ Article 5 reports should present water-related economic activities at RBD level as such:

- Service providers – organisations that run the activity identified as being a water service: for example drinking water services can be run by the river basin authority and municipalities or by privatised water companies;
- Water users - individuals or organisations to which a water service is provided, i.e. household or industry consuming water from the drinking water network;
- Polluters – activities causing costs to the environment and/or to the water services, i.e. in the case of drinking water services, agricultural pollution increases the costs of treating water in the process of producing drinking water.

⁴ “Information sheet on assessment of the recovery of costs for water services for the 2004 River Basin Characterisation Report”. Common Implementation Strategy, Working Group 2B. May 5, 2004. Link: http://forum.europa.eu.int/Members/irc/env/wfd/library?l=/framework_directive/thematic_documents/economic_issues/information_economic&vm=detailed&sb=Title

To provide services, service providers will bear financial, environmental and resource costs which should be paid by the users of the service and the polluters who exacerbate these costs. The identification of water services and water uses (which includes both water users and polluters) will thus be fundamental because it will put in place the system in which the *polluter pays principle* can be applied, and provide a first basis for managing this impact.

2.2.2 SPECIFICATION OF ARTICLE 9

In Article 9, the WFD specifies how environmental concern should be integrated into economics:

WFD Article 9 (1)

1. Member States shall take account of the principle of recovery of the costs of water services, including environmental and resource costs, having regard to the economic analysis conducted according to Annex III, and in accordance in particular with the polluter pays principle.

Member States shall ensure by 2010:

- *that water-pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive,*
- *an adequate contribution of the different water uses, disaggregated into at least industry, households and agriculture, to the recovery of the costs of water services, based on the economic analysis conducted according to Annex III and taking account of the polluter pays principle.*

The relation of water services, water use and the place of the cost-recovery is further explained in the CIS WATECO guidance:

The assessment of cost recovery is relevant to water services (according to Article 2 (38)) but not to the wider circle of water uses (according to Article 2 (39)). However, the different water uses shall deliver an adequate contribution to the recovery of the costs of water services (Article 9.1), stressing the need to link water uses and services developed for mitigating the negative environmental impact of these uses.

Reference: WATECO guidance

Attaching environmental and resource costs -which are monetary estimates of environmental damage and resource loss- to the (financial) costs of constructing, maintaining and running water services has the potential to work as an incentive to using water more efficiently.

Assessing the “adequate incentives for users to use water resources efficiently”, is instrumental to “ensure an adequate

contribution” from all uses and has the potential to apply the “polluter-pays-principle” by redistributing costs caused by environmental damage back to those who cause it.

By differentiating the role and responsibilities of each economic activity in an RBD, the system put in place by the WFD thus has the potential to be a practical and transparent way of integrating environmental issues into economics. Those using most resources or polluting the most should pay a larger share of the costs of using the water resources. In theory, such a user/polluter would evolve towards more environmentally-friendly practices.

We should stress that the WFD does not require a *full recovery of the costs* of water services. In some cases, Member States can justify existing pricing policies on social, economic and environmental grounds. The key issue will thus be to have a comprehensive list of identified services in the Article 5 reports, a cost-recovery analysis performed on them, and an assessment of the current economic incentives for each use to limit its impact on the environment.

2.3 Final remarks

The relevant sections in the Result Chapter will provide more detailed information on the following process:

- The identification of water services and water uses
- The type of costs to include in the cost-recovery assessment
- The mechanisms through which the costs of water services are recovered

Overall, transparency on (i) who uses and pollutes, (ii) which services are put in place, (iii) what are their costs, and (iv) who pays for these costs, is the main objective of Article 9. Combined with the required consultation/participation of interested parties, transparency is expected to stimulate changes in cost-recovery and pricing policies that are more in line with the achievement of the environmental objectives of the WFD.

As this chapter indicated, the economic components of the WFD should be regarded as an important opportunity rather than as a threat. With increasing scarcity of both water resources and financial resources allocated to the water sector, economic analysis and expertise is increasingly called for in supporting water management and policy decisions. Correctly used, economic approaches, methods and tools have the potential to help support effective and efficient improvements in water management across Europe. However, if misused or even abused, it can thwart the implementation of the WFD.

3. Survey methodology

3.1 Data collection

The survey was based on a questionnaire reviewing Article 5 reports required by the WFD for all European RBDs. Reports were analysed by NGO experts/members living in the country of the river basin analysed, in most cases living in the river basin under consideration.

In many cases, because of the paucity of information given in the Article 5 reports sent to the EC, the review was supplemented with analysis of more complete technical reports prepared by MS and/or river basin authorities. All the documents used are referenced in Annex 3.

This assessment is a first review for highlighting possible problems and best practices. Not all technical reports and parallel activities developed by MS at national or EU level were reviewed. The assessment this report provides is based on the consideration that other analysis should be referred to in Article 5 reports for the sake of transparency and public participation.

To ensure consistency in the assessments, the experts/members of NGOs who participated in the survey provided input into developing the questionnaire itself. The questionnaire had the following chapters (see full questionnaire in Annex I):

- Basic information about the interviewer/person filling in the questionnaire in terms of role and involvement in activities relevant to the WFD implementation process;
- Pressures, impacts and risk-assessment: reviewing the main pressures and impacts on water bodies and identification of water bodies at risk;
- Economic analysis, dealing mainly with the definition of water uses and water services, water service cost-recovery (including environmental and resource costs) and incentive pricing. The questionnaire also inquired whether reports included information on the selection of measures;
- Gaps in information and knowledge: identifying the main constraints that might limit the scope of the economic analysis, gaps in information and knowledge and proposed activities and actions for filling these gaps.

This questionnaire was distributed in November 2005. Article 5 reports were reviewed and additional data collected between November 2005 and February 2006. Annex 2 provides a list of experts/members who participated in the survey. The analysis and writing were completed between January and April 2006, with preliminary results discussed during a workshop on the economic analysis of the WFD, organised by EEB/WWF in Brussels on 27-28 January 2006 and during a workshop 17-18 March organised by the EEB.

3.2 Survey coverage

The following map (Figure 3.1) presents the coverage of the survey. 20 different countries are included - 19 member States and one Accession Country (Romania). NGO experts/members from Italy and Greece also participated in the survey but no Article 5 reports were available⁵ at the time of survey.

The survey covered 24 different river basins and one entire country. Sweden published a report covering the whole country. Table 3.1 summarises some of the main characteristics of the basins reviewed.

For the 18 RBDs which were transboundary, Article 5 reports reviewed for the national part of the RBD in 16 cases⁶ and for the whole of basin in two reports (the Upper-Rhine shared between France and Germany, the Meuse River shared between the Netherlands, Germany, Luxembourg, France, the Flanders and Walloon regions of Belgium).

⁵ We are aware that Article 5 report for the Tevere pilot river basin in Italy has been recently published and sent to the EC. Unfortunately it came to our attention too late to be included in the analysis.

⁶ The Ems river basin is an international river basin, although the vast majority of the basin is in Germany. The report used for the pressures and impacts analysis is the international roof report, while the report used for the economic analysis is the national German report.

Figure 3.1 Map of river basins covered by the survey.



Legend:

Dark: Surveyed RBDs for which an Article 5 report was submitted to the EC at the time of the survey.

Grey: Surveyed RBDs for which no Article 5 report was submitted to the EC at the time of survey

Table 3.1 General Information on the river basins and countries covered by the survey.

Code Used		Full Details		International Basin	Population (Million)	Area (km ²)
Country	Basin	Country	Basin			
AT	DA	Austria	Danube	X	7.7	80,423
BE	SC	Belgium	Scheldt	X	5.58	11,991
DE	DA	Germany	Danube	X	9.2	56,295
DE	EL	Germany	Elbe	X	18.5	97,000
DE	EM	Germany	Ems	X	2.9	15,008
DE	MR	Germany	Middle Rhine	X	2.7	13,500
DE	WE	Germany	Weser	-	9.4	49,000
DK	AA	Denmark	Arhus Amt	-	-	3,457
EE	EE	Estonia	East-Estonia	X	0.537	17,203
ES	GA	Spain	Guadalquivir	-	4.982	63,972
FI	KY	Finland	Kymijoki - Gulf of Finland	-	2.1	50,983
FR	RH	France	Rhône	X	13.629	-
FR	SN	France	Seine-Normandie	-	17.25	100,000
HU	DA	Hungary	Danube	X	10.1	93,030
IE	SI	Ireland	Shannon International	X	0.619	17,963
Int	ME	NL, DE, FR, LU, BE (Flanders, Wallonia)	Meuse	X	8.81	34,548
Int	UR	France, Germany	Upper Rhine	X	7.248	22,000
LV	LI	Latvia	Lielupe	X	0.326	-
NL	RD	The Netherlands	Rhine Delta	X	12.232	37,200
PL	VI	Poland	Vistula	X	24.89	167,566
PT	TR	Portugal	Tejo/Ribeiras do Oeste	X	3.779	30,013
RO	PR	Romania	Prut	X	-	20,276
SE		Sweden	None	-	2.27	411,000
SI	DA	Slovenia	Danube	X	1.7	16,422
UK	SW	United-Kingdom	South-West	-	2.901	21,244
TOTAL		19	24 basins + 1 country	18	169.353	1,430,094

4. Results of the survey and discussion

This chapter presents the main results from the review of Article 5 reports. Detailed results are provided in Annex 4.

The text of the report refers regularly to specific examples. The name of the country is given in full and the river basin considered is given in brackets in its abbreviation format.

One country, Sweden, has not provided any Article 5 report based on RBDs, and the Article 5 report used covers the whole country. For simplicity, we will refer to Sweden as an RBD.

DISCLAIMER

The report is based on the opinion and findings of NGO experts/members. Data were checked for consistency and coherence and have been verified in specific important cases. It cannot be ensured that all individual data are correct, but we have a high degree of confidence that the overall findings are robust and provide an indication of the quality of WFD implementation and of possible infringements with its legal requirements.

This report assesses the Article 5 Reports. It compares what is provided in the Article 5 Reports and what should be in them with reference to the WFD and to the guidance documents produced under the WFD CIS. It does not assess the methodologies used to derive the data.

4.1 Pressures and impacts analysis

4.1.1 CONTEXT

The main purpose for including information on pressures and impacts in the survey (focused on economic aspects) is to set the scene and to locate the economic analysis, in particular the cost-recovery assessment, within the context of wider environmental issues. Pressures on water resources essentially originate from water uses, therefore identifying pressures and their impacts indicates who uses and pollutes and thus who should contribute financially to solving the problems.

Article 5 of the WFD asks for “a review of the impacts of human activity on the status of surface waters and on groundwater”. Annex 2 of the WFD and the CIS IMPRESS Guidance⁷ provide more details on the kind of information that should appear in RBD report, and the methodologies to be used. The information provided is not exhaustive but it is clearly stated that:

Surface Waters

The WFD requires information to be collected and maintained on the type and magnitude of significant anthropogenic pressures, and indicates a broad categorisation of the pressures into:

- Point sources of pollution;
- Diffuse sources of pollution;
- Effects of modifying the flow regime through abstraction or regulation; and,
- Morphological alterations.

Any other pressures, i.e. those not falling within these categories, must also be identified. In addition there is a requirement to consider land use patterns (e.g. urban, industrial, agricultural, forestry etc) as these may be useful to indicate areas in which specific pressures are located.

The impact assessment should use both information from the review of pressures, and any other information, for example environmental monitoring data, to determine the likelihood that the surface water body will fail to meet its environmental quality objectives. For bodies at risk of failing their specified objectives, it will be necessary to consider the implementation of additional monitoring and a programme of measures.

Groundwater

A different process is described within WFD Annex II, Chapter 2, but this again has five parts, namely:

1. Initial characterisation, including identification of pressures and risk of failing to achieve objectives;
2. Further characterisation for at-risk groundwater bodies;
3. Review of the impact of human activity on groundwater for transboundary and at-risk groundwater bodies;
4. Review of the impact of changes in groundwater levels for groundwater bodies for which lower objectives are to be set according to Article 4.5;
5. Review of the impact of pollution on groundwater quality for which lower objectives are to be set.”

Reference: Impress Guidance

⁷ Guidance n°3, Analysis of pressures and impacts -Impress Guidance, CIS Working Group 2.1. Link: http://forum.europa.eu.int/Members/irc/env/wfd/library?l=framework_directive/guidance_documents&vm=detailed&sb=Title

We believe that the pressures and impact assessment must identify any factors that affect the quality, quantity or morphology of water bodies across all the RBDs in such a way that any potential failure to achieve good status can be easily addressed. Results must therefore be in a readable and understandable format.

The pressure analysis is assessed on whether and to what extent i) pressures are identified (i.e. amount of pollutant released from human activities, the extent of the physical work on the water body, etc) and ii) specific human activities are specifically identified as being at the origin of the pressure.

The impact analysis is assessed on whether Article 5 reports identify impacts on hydro-morphological, chemical and biological/ecological quality elements. The questionnaire in Annex 1 provides an indicative list of impacts. The number of impacts identified may vary for various reasons, including the relevance of the impact and the monitoring system in place. The assessment made in this report highlights the differences between countries.

Similarly, the “risk assessment” for surface waters is assessed on whether it is based on hydro-morphological, chemical and biological quality elements, and for groundwater – on quantitative and chemical elements.

Pressures and impacts related to hydro-morphological aspects are also addressed through the identification of Heavily Modified Water Bodies (HMWB). The identification provided in the current Article 5 reports is a preliminary design,

which needs confirmation from a thorough economic analysis. This preliminary assessment can give some insight on the approach taken by RBD authorities towards managing the impacts of hydro-morphological changes, such as those caused by flood defences, navigation, hydropower, river dredging, reservoirs, etc. Designating HMWBs could be a major exemption from the WFD’s good ecological status objective and could be extensively used as a get-out clause for not restoring a water body’s hydro-morphology after it has deteriorated as a result of physical works, including for navigation, flood control/defence and hydropower.

Article 5 reports should provide sufficiently clear information for identifying the main environmental problems and the main sectors causing them at RBD level. This information is the starting point for selecting measures on these sectors, and improving the effectiveness of the overall RBMP.

4.1.2 PRESSURES ASSESSMENT

The survey shows that RBD reports clearly identify the various pressures which have a significant impact on the state of the waters. Most of them also relate pressures to the economic sectors/activities responsible for them.

Linking the pressures with the responsible economic sectors/activities is not clear for five RBDs: Germany (DA), Ireland (SI), the International Meuse River Basin, Portugal (TR) and the UK (SW). The comment below made by the NGO member from Ireland who participated in the survey describes the problems that sometimes arose.

NGO Comments: Ireland (SI)

In identifying human pressures on surface water, the report lists sectoral pressures, but, apart from nutrients, is less clear about the exact nature of the pressure they represent, e.g. it does not specify whether IPPC⁸ facilities are emitting priority substances or emerging pollutants. Many of the pressures were not presented clearly but are found in tables in the results chapter of the risk assessment. Detailed reading of the assessment results, in conjunction with study of the National Characterisation Report did extract more information than was immediately obvious.

⁸ Integrated Pollution Prevention and Control Directive 1996

Overall figures of identified main pressures are given in Table 4.1. Most significant are:

For surface water:

1. Nutrient pollution (both diffuse and point source)
2. Hydro-morphological pressures
3. Abstraction

For groundwater:

1. Abstraction
2. Nutrient diffuse pollution

Table 4.1 Main Pressures identified in surveyed Article 5 reports (out of 25 reports)

Type of water	Point source			Diffuse pollution			Hydro-morphological modifications	Abstraction	Cooling water discharges	Others
	Nutrients	Priority substances	Emerging pollutants	Nutrients	Priority substances	Emerging pollutants				
Surface water	88%	68%	16%	96%	72%	12%	84%	84%	52%	48%
Groundwater	60%	64%	12%	84%	60%	8%	24%	88%	4%	40%

4.1.3 IMPACTS ASSESSMENT

All RBDs except Latvia (LI) and the international Meuse river basin identify impacts on water bodies (Table 4.2). In Austria (DA), France (RH), Germany (EL) and Spain (GA), the impact analysis covers a large number of impacts (more than 10). In Germany (MR) and Portugal (TR), few impacts

are analysed but all three main quality elements (water quality, biology and hydrology) are considered.

In Ireland (SI), Hungary (DA) and the Netherlands (RD), the analysis is either not clear or not quantified properly. In many cases the analysis is limited to a lower number of impacts, e.g. in Sweden or even none in the Netherlands (RD).

Table 4.2 Impact assessment

Country	Basin	How many impacts were identified and which quality elements covered?
AT	DA	>10 (Water Quality, Biology, Hydrology)
BE	SC	4 (Water Quality, Hydrology)
DE	DA	6 (Water Quality, Biology, Hydrology)
DE	EL	>10 (Water Quality, Biology, Hydrology)
DE	EM	8 (Water Quality, Biology, Hydrology)
DE	MR	4 (Water Quality, Biology, Hydrology)
DE	WE	8 (Water Quality, Biology, Hydrology)
DK	AA	3 (Water quality)
EE	EE	4 (Water quality, Hydrology)
ES	GA	>10 (Water quality, Biology, Hydrology, Others)
FI	KY	3 (Water Quality)
FR	RH	>10 (Water Quality, Biology, Hydrology)
FR	SN	9 (Water Quality, Biology, Hydrology)
HU	DA	2 (Water Quality, Hydrology)
IE	SI	4 (Water Quality, Biology)
Int	MA	No Specific Investigation
Int	UR	9 (Water Quality, Biology, Hydrology)
LV	LI	Lack of Data
NL	RD	Not Clearly Investigated Just says hydro-morphology seen as having a large impact
PL	VI	2 (Water Quality, Hydrology)
PT	TR	4 (Water Quality, Biology, Hydrology)
RO	PR	6 (Water Quality, Biology, Hydrology)
SE		1 (Water Quality)
SI	DA	8 (Water Quality, Biology, Hydrology)
UK	SW	2 (Water Quality, Hydrology)

NGO Comments:**HUNGARY (DA)**

The ecological/biological parameters are not mentioned separately in the report, only in some parts are they mentioned as “ecological impact” or impact on the ecosystem”.

IRELAND (SI)

The report states that impact data from biological monitoring of rivers, total Phosphorus concentrations and chlorophyll a of lakes and physico-chemical monitoring were used but it requires detailed study of the RBD report, in conjunction with the National Article 5 report, to elucidate further detail, including references to limited biological impact analysis for 43% of water bodies in the RBD.

Specific findings show that the impact analysis tends to be on chemical elements (Table 4.3):

- Nutrients and priority substances impacts are usually well investigated.
- Biological/ecological quality elements were not used in assessing the impacts i.e. in the reports from Belgium (SC),

Denmark (AA), Estonia (EE), Finland (KY), Hungary (DA), the international Meuse river basin, Sweden and the UK (SW).

- Hydrological impacts are being analysed more frequently – in particular the over-abstraction of groundwater. However, minimum river flow is considered by only 32% of the cases.

Table 4.3 Percentage of Article 5 reports where different water status elements were investigated (out of 25 reports)

Water status element		% of total number of cases
Water quality	Nutrients	88%
	Priority substances	72%
	Emerging pollutants	16%
Biology	Saprobic index	48%
	Fish	36%
	Macrophytes	28%
	Zoobenthos	40%
Hydrology	Minimum river flow	32%
	Over-abstraction	68%
Others		40%

4.1.4 RISK ASSESSMENT

The results of the survey show that most RBDs include either a partial or full risk assessment. The majority of RBDs present a quantified risk-assessment for surface and groundwater including the consideration of all required groups of quality elements.

Article 5 reports from Denmark (AA), Finland (KY) and Slovenia (DA) do not include any risk analysis. It is not clear

which quality elements are investigated in the risk analysis performed in Portugal (TR), and in Sweden the risk analysis, even though undertaken, is not clear and its results are confusing.

In the case of the group of biological quality elements for surface waters, only existing characterisation methods were applied, none of which seem to be in line with the WFD requirements, i.e. lacking fish data and characterisation methods for them.

NGO Comments:**GERMANY (EM and WE)**

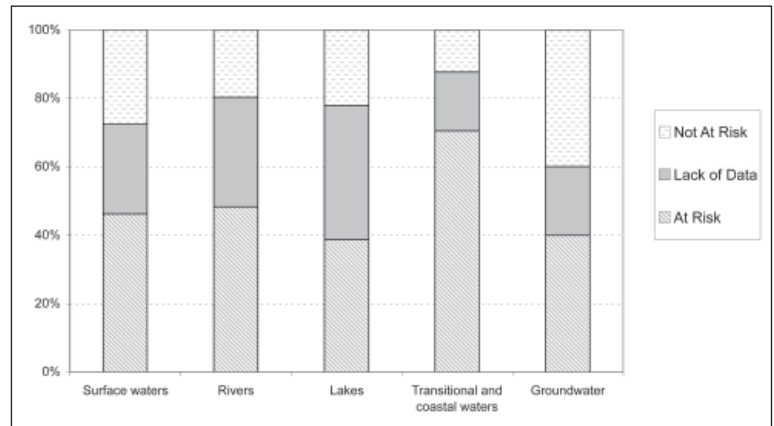
Although the biological components have been partly investigated their results have not been counted for the risk assessment. Additionally the saprobic index related to the stream type has been investigated but also not counted for the risk assessment. The approaches differ between the different German Federal states.

Specific findings (Figure 4.1):

- On average, 46% of surface water bodies and 40% of groundwater bodies are considered to be at risk
- In the river basins assessed, the highest risk is reported for transitional and coastal waters. Although it might be their geographic situation which makes them more vulnerable (i.e. downstream), results can be influenced because few RBDs provided information, and those who did had

Figure 4.1 Risk assessment average percentages in category and type of water body (using results from RBDs which provided information- see Annex 4)

Note: Differences in methodologies developed for risk-assessment, e.g. some of them having 3 classes, others 4, make any comparison between countries difficult.



4.1.5 PRELIMINARY CLASSIFICATION OF HEAVILY MODIFIED WATER BODIES (HMWB)

The survey shows that different countries report highly varying results. Specific findings:

- The average percentage of water bodies currently identified as heavily modified is nearly 30% of all water bodies in RBDs. The percentage ranges from almost 0% in Ireland (SI) to 88.5% in Belgium (SC) with an average of 26% for the countries surveyed.
- Denmark (AA), Hungary (DA), Ireland (SI), Poland (VI), Portugal (TR) and Sweden show percentages of HMWB below 10%.
- Belgium (SC), Estonia (EE), the Netherlands (RD), and the international Upper Rhine river basin and Meuse river basin designates the largest proportions of their water bodies as heavily modified. In particular, the Upper Rhine has 100% of the main stretch of the river designated as heavily modified and Belgium (Flanders) has 88.5% of non-artificial water bodies designated as heavily modified (see also comment below).

In the Flemish part of the Scheldt river basin, the authorities currently classify 123 water bodies as heavily modified, 41 as artificial and only 16 as natural.

mostly extreme results, e.g. Belgium (SC), Germany (EL, EM, WE), Latvia (LI) and UK (SW) reported 100% of their transitional and coastal water bodies at risk.

- The next highest risk levels are for rivers, followed by groundwater and lakes.
- In addition, the data for 20-30 % of water bodies is lacking, which shows significant uncertainty of risk estimates and limitations of risk analysis.

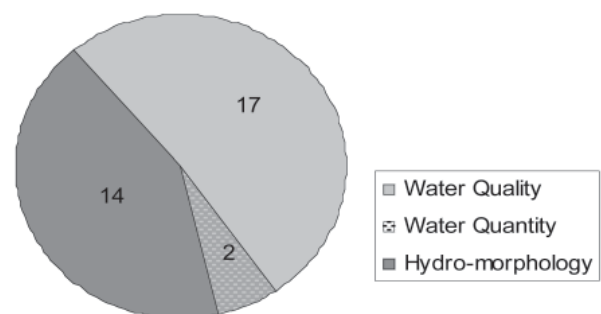
4.1.6 MAIN ENVIRONMENTAL PROBLEMS AND MAIN SECTORS RESPONSIBLE FOR THEM

The result shows that the bulk of Article 5 reports surveyed present clearly the main environmental problems and activities responsible for them. The main environmental problems are clearly identified in 18 reports reviewed and activities responsible for them are highlighted in 20 reports. Table 4.6 presents the results case-by-case.

Environmental Problems (Figure 4.2):

Water quality is the most frequent main environmental problem identified in the surveyed reports, followed by hydro-morphological alterations and then by water quantity.

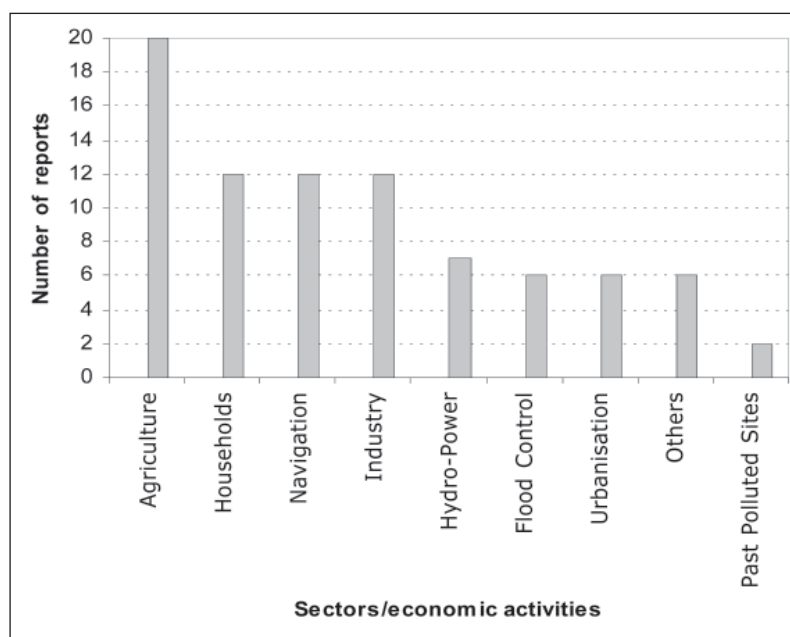
Figure 4.2 Main environmental problem identified (several choices possible for each RBD)



Sectors at the origin of the environmental problem (Figure 4.3):

Agriculture is clearly identified as one of the key sectors. Households and industries are also referred to in many cases. Other sectors most frequently referred to are navigation and hydropower.

Figure 4.3 Main sectors identified as responsible for environmental damage



4.1.7 CONCLUDING REMARKS

If problem-causing sectors are not properly identified and their degree of responsibility not quantified, the selection of measures, particularly economic instruments, may not target the right sectors, or may not properly address the problems, thus undermining the effectiveness of the RBMP. In such situations, problem-causing sectors may be exempted from contributing to the cost of reaching the 2015 WFD objectives, and put a greater burden on sectors that are clearly identified.

The survey shows that the Article 5 report indeed identified problem-sectors and assessed to some extent their responsibility. Five RBDs have not clearly made the link between the pressures and the activities causing them.

A flawed impact assessment may not correctly estimate the impact of human activities, with subsequent consequences on the programme of measures. The survey shows that Article 5 reports have limited information on the biological/ecological impact of human activities on aquatic ecosystems. Similarly, the assessment of the risk of water bodies failing to achieve good status by 2015 may be incomplete since fundamental ecological aspects are sometimes not included and many countries have identified significant uncertainties. The present impact and risk-assessments constitute an initial rough analysis which needs further refinement and improvement.

RBDs have very different percentages of HMWB. Since the designation of a water body as heavily modified means an exemption from the good ecological status objective, the current situation may lead to an inconsistent application of the Directive, where some countries may have much less demanding objectives than others. Many participants question the

methodologies used, arguing that the designation has often been a political decision rather than one which follows WFD CIS guidance.⁹

Results from this chapter show that, based on what was identified in the reports surveyed, the pressures from human activities on the aquatic environment in the river basins covered by the survey exist in general mainly due to:

- Agricultural activities (pollution, abstraction and hydro-morphological changes)
- Hydro-morphological alterations for navigation and energy production activities
- Pollution from wastewater discharges

In order to tackle the problems at the origin of the pressure, the WFD requests the use of several instruments, including economic instruments. This means that the subsequent economic analysis in the Article 5 reports should focus on an in-depth assessment of these problem-sectors, thus at least agricultural activities, navigation and energy production activities and wastewater treatment plants.

Considering that a third of water bodies in RBDs are classified as heavily modified, it seems that hydro-morphological changes are a recurrent important problem for all RBDs, implying that economic activities at the origin of those (i.e. navigation, hydropower, etc.) will be key sectors to include in the economic analysis.

⁹ Guidance n°4, Analysis Identification and Designation of Heavily Modified and Artificial Water Bodies. Link: http://forum.europa.eu.int/Members/irc/env/wfd/library/?l=/framework_directive/guidance_documents&vm=detailed&sb=Title

Table 4.5 Summary of pressures, impacts and main environmental issues identified in Article 5 reports

Country	River basin	Main environmental issues				Main sectors at the origin of problems (“√” = identified in report, “?” = not clearly specified in report)										% of HMWB (only indicative)	
		Water quality	Water quantity	Hydro-morphology	Households	Agriculture	Industry	Hydro-power	Navigation	Flood control	Urbanisation	Past polluted sites	Others				
AT	DA	X	-	XX	-	√	-	√	-	√	-	√	-	-	-	-	33%
BE	SC	?	?	?	√	√	√	√	√	√	√	√	√	√	√	√	88.5%
DE	DA	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	18%
DE	EL	XX	X	XX	-	√	√	√	√	√	√	√	√	√	√	√	19.6%
DE	EM	XX	-	XX	-	√	√	√	√	√	√	√	√	√	√	√	28%
DE	MR	XX	-	XX	-	√	√	√	√	√	√	√	√	√	√	√	16.5%
DE	WE	XX	-	XX	-	√	√	√	√	√	√	√	√	√	√	√	14%
DK	AA	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	5%
EE	EE	XX	-	-	-	√	√	√	√	√	√	√	√	√	√	√	62%
ES	GA	?	?	?	√	√	√	√	√	√	√	√	√	√	√	√	18%
FI	KY	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	37%
FR	RH	XX	-	XX	-	√	√	√	√	√	√	√	√	√	√	√	35%
FR	SN	XX	X	XX	√	√	√	√	√	√	√	√	√	√	√	√	14.5%
HU	DA	XX	XX	X	√	√	√	√	√	√	√	√	√	√	√	√	2%
IE	SI	XX	-	-	√	√	√	√	√	√	√	√	√	√	√	√	0.6%
Int	MA	XX	-	XX	√	√	√	√	√	√	√	√	√	√	√	√	36%
Int	UR	XX	-	XX	-	√	√	√	√	√	√	√	√	√	√	√	100%
LV	LI	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	N.A.
NL	RD	XX	-	XX	√	√	√	√	√	√	√	√	√	√	√	√	28%
PL	VI	XX	XX	-	√	√	√	√	√	√	√	√	√	√	√	√	6.1%
PT	TR	?	?	?	√	√	√	√	√	√	√	√	√	√	√	√	8.2%
RO	PR	XX	-	XX	√	√	√	√	√	√	√	√	√	√	√	√	20.1%
SE		XX	-	XX	√	√	√	√	√	√	√	√	√	√	√	√	9%
SI	DA	XX	X	XX	√	√	√	√	√	√	√	√	√	√	√	√	N.A.
UK	SW	XX	-	XX	?	?	?	?	?	?	?	?	?	?	?	?	N.A.

¹ Some percentages are calculated from length of rivers identified as heavily modified, others on the number of water bodies. It is also only a preliminary assessment. The percentages are only indicative.

4.2 Definition of water services and water uses

Chapter 2.2 provides some background information on the concepts of water services and water uses. This Chapter will go further and will present the results of the identification of water services and uses in the surveyed RBDs.

1) Water services

“Overall, a water service represents an intermediary between the natural environment and the water use itself. The main purpose of the water service is to ensure that:

- Key characteristics of natural waters are modified (i.e. the service offered is this modification) so as to ensure it fits with the requirements of well-identified users (e.g. provision of drinking water); or
- Key characteristics of water ‘discharged’ by users are modified (i.e. the service offered is also this modification, e.g. waste water treatment) so that it can go back to the natural environment without damaging it.

Overall, a water service *per se* does not consume water nor produce pollution, although it can directly lead to morphological changes to the water ecosystem. Characteristics of waters that are modified through a water service include:

Its **spatial distribution**, e.g. a water supply network for ensuring that water is reallocated spatially to every individual user;

4.2.1 CONTEXT

The CIS WATECO guidance provides further information on interpreting the definition of water service and water use, and which activities to identify:

Its **temporal distribution**/flows, e.g. dams;

Its **height**, e.g. weirs and dams;

Its **chemical composition**, e.g. treatment of water, and wastewater;

Its **temperature**, e.g. temperature impact on water”

2) Water Uses

“By contrast to the approach taken for water services, the Directive does not specify a list of water uses to be considered. Basically, only the activities that cause significant impacts on water bodies and therefore pose a risk to achieving good status are covered by the definition of water uses. General experience shows that navigation, hydropower generation, domestic, agriculture and industrial activities are important water uses, which may cause significant impacts and therefore have to be taken in consideration.”

Reference: WATECO Guidance

Further to this, the “Information Sheet”¹⁰ referred to earlier specifies:

Water Service (in bold by EEB/WWF)

“As a minimum it is recommended that public water and wastewater services should be included. These services might be provided by a public institution (e.g. water board, water authority, municipality) or a privatised (or partly-privatised) company appointed and regulated by the state or municipality, e.g. through a concession agreement.

Member States can consider **further water services in conjunction with the pressures and impacts study**. Where other water services are highlighted as having a significant impact on water status then Member States will need to consider their inclusion in the 2004 assessment...

...But remember that the 2004 assessment should be based on pragmatism and the use of existing data. The Member State **should explain its approach to defining water services as part of the 2004 assessment**. Where water services with significant impacts are excluded from the 2004 assessment then it will be necessary to explain the reasons for this and to include the assessment in the post-2004 work programme.”

Water use

“From the Directive, the minimum requirement is to include: households; agriculture; and industry. Member States can consider the inclusion of additional activities in conjunction with the pressures and impacts study and the economic analysis of water use carried out under Article 5. Where other activities are highlighted as having a significant impact on water status then Member States will need to consider their inclusion in the 2004 assessment...

...But remember that the 2004 assessment should be based on pragmatism and the use of existing data. Where activities with significant impacts are excluded from the 2004 assessment then it will be necessary to explain the reasons for this and to include the assessment in the post-2004 work programme.”

Reference: Information sheet on assessment of the recovery of costs for water services for the 2004 River Basin Characterisation Report

Activities such as water abstraction and waste water discharge (i.e. water supply and waste water services) clearly have to be included in the definition of water services. Both the CIS WATECO guidance and the Information Sheet also ask for identifying services which were pinpointed as having a significant impact on water status in the RBD. Arguably, services such as those for flood protection (construction and maintenance of dykes), navigation (dredging of rivers and specific infrastructure built), hydropower (building and operation of dams) or agriculture (drainage and other infrastructures), which all have an impact on the aquatic environment, are also water services and should be considered in Article 5 reports.

Self-services occur when water users provide water services to themselves, such as direct abstraction of water from surface or ground water bodies for their own use, or direct wastewater treatment and discharge to the ecosystem. It is important that these self-services are included as they may be responsible for major environmental damage (e.g. lowering the groundwater table).

Based on these considerations and the findings from the previous section, that infrastructures (hydro-morphological changes) linked to activities such as navigation, hydro-power or flood control are leading to major environmental problems, the criterion for assessing the appropriateness of the definition of water services was whether the definition includes such infrastructure, e.g. dams, weirs, abstraction etc. serving hydropower, navigation and flood management.

Article 9 of the WFD specifies that water use should at least consider household, industries and agriculture, but the WATECO guidance and the Information Sheet¹¹ show that a wide variety of activities should be included. Similarly to water services, the assessment will highlight whether uses such as hydro-power, navigation and flood management were identified.

¹⁰ “Information sheet on assessment of the recovery of costs for water services for the 2004 River Basin Characterisation Report”. Common Implementation Strategy, Working Group 2B. May 5, 2004. Link: http://forum.europa.eu.int/Members/irc/env/wfd/library?l=/framework_directive/thematic_documents/economic_issues/information_economic&vm=detailed&sb=Title

¹¹ Information sheet on assessment of the recovery of costs for water services for the 2004 River Basin Characterisation Report”. Common Implementation Strategy, Working Group 2B. May 5, 2004. Link: http://forum.europa.eu.int/Members/irc/env/wfd/library?l=/framework_directive/thematic_documents/economic_issues/information_economic&vm=detailed&sb=Title

4.2.2 WATER SERVICES

Results show that Article 5 reports do not distinguish successfully/clearly between the definitions of water services and water uses. This distinction is addressed to some extent only in 50% of the cases (Annex 3). Figure 4.4 shows the number of water services identified in surveyed Article 5 reports.

In general, the identification of water services is limited to drinking water and sewerage and wastewater treatment. Irrigation comes in second position and is identified in 50% of the cases. Other water services such as infrastructures for hydropower, flood defence/control and navigation are mentioned by less than 25% of the RBDs. Moreover, river cleaning and maintenance is not mentioned a single time and dredging only twice.

Figure 4.4 Identified water services in the surveyed reports

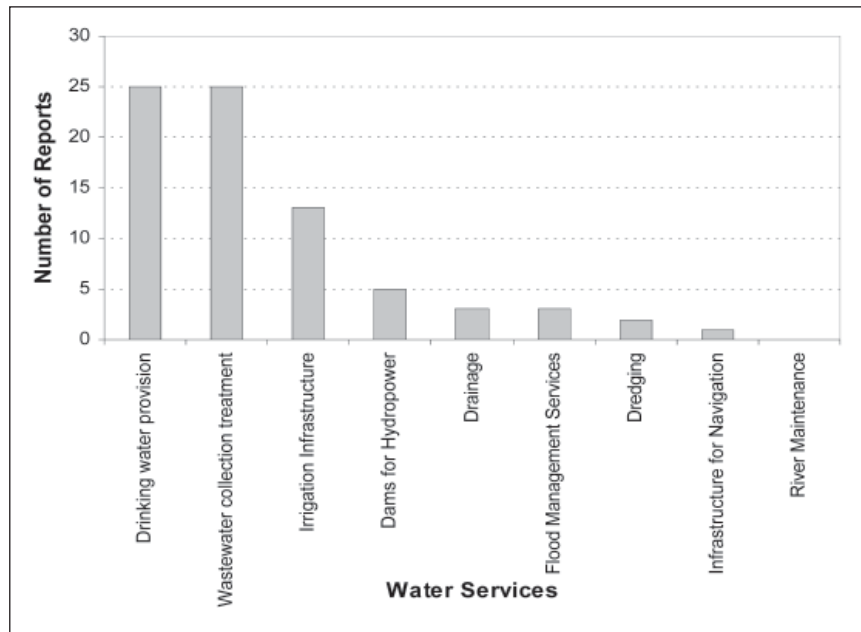


Table 4.6 provides the following detailed information for each country: (i) the definition of water services given in the Article 5 reports, (ii) the services for which a cost-recovery was performed (for more in-depth analysis, see the next Chapter) and (iii) the definition of water services given in the transposition law. Concerning the definition of water services, findings show that three broad categories can be identified, namely:

Very narrow approach

Austria (DA), Belgium (SC), Germany (DA, EL, EM, MR and WE), Denmark (AA), Estonia (EE), Finland (KY), Hungary (DA), Ireland (SI), the international Meuse RBD, the International Upper Rhine RBD, Poland (VI), Sweden, Slovenia (DA) and the United Kingdom (SW) use a very narrow interpretation of what constitutes a water service in their Article 5 reports. They limit water services only to drinking water supply and wastewater services; in a few cases they also include self-services and infrastructure for irrigation.

Narrow approach

France (RH), The Netherlands (RD), Portugal (TR) and Spain (GA) apply a less narrow interpretation by covering at least one of the following important sectors such as navigation, hydropower or flood defence/control.

Wider approach

Only 3 RBDs, i.e. France (SN), Latvia (LI), and Romania (PR), seem to use the recommendations of WATECO guidance and applying a wide (wider) interpretation of the definition of water services covering also infrastructure serving at least two of the following sectors: navigation, hydropower or flood defence/control.

Specific findings:

- The majority of water authorities apply a narrow interpretation of what the term water services might include. As an example:
 - In Austria (DA) and Germany (DA, EL, EM, MR and WE), Article 5 Reports specifically exclude infrastructures for hydropower, navigation and flood control from the definition
 - In the UK, while the WFD water service definition is quoted in the RBD report, the authorities interpret it very narrowly¹², effectively recognising only drinking water supply and wastewater services.
- Although France (SN) applies a wider definition of water services (includes hydropower and navigation), flood control measures were specifically excluded from the definition by the Government.
- Self-services are identified for at least one service type in 16 reports.
 - Eight reports relate self-services to all private abstraction and wastewater treatment. Seven reports link those services to 1) industries, 2) households and 3) agriculture. Ireland (SI) refers to “private installation” without being clear on what it refers to (e.g. it is not clear whether they fall within the financial accounting of the local government or whether they are fully private).
 - Some reports also identify specific services such as cooling discharge from electricity plants (Germany –EM and WE) or treatment of livestock wastewater (France RH and SN).
 - The Netherlands (RD) identifies regional water management as a self-service, but excludes major dykes from the definition, specifying that “without those dykes, the Netherlands would be underwater”.

A rough review of the water services definition in the transposition law (it is not complete since it was difficult to extract this information from the available resources) shows that:

- In Austria, Belgium, Denmark, Greece, Hungary, Poland, Portugal, Spain and the UK the water service definition in the transposition law corresponds to the definition in the WFD legal text. Sometimes the transposition law is a direct translation of the WFD definition of water services.
- In Finland, Ireland, Italy and Sweden, no definition is in the law. The situation in several German states, Romania and Slovenia is unknown.

- In Austria, the transposition law provides a similar definition to the WFD definition, but, when providing examples, the transposition law mentions drinking water services and wastewater services only. This leads to confusion in the interpretation of the WFD definition and narrows its scope dramatically.
- In some cases, definitions in the law make use of different terminology resulting in confusion between water service or water use definitions. For instance, the Estonian law refers to “specific” and “public water usage”, which cannot be compared to the WFD definitions.

NGO Comment: FINLAND (KY)

The law of water supply in Finland includes a definition of water **supply** but no definition of water **services** as in the WFD. Finland does not have the water services definition in any law. Water services in the Article 5 report refer only to water supply and sewerage plants and the report includes only the biggest one.

The box below provides information on some best-practices.

Illustration

Defining water services

France (SN, RH) and Latvia (LI) have identified the most diverse types of water services. France (SN) is the only RBD that included navigation, and has also included dams for hydropower (RH and SN) and dredging (RN) into the scope of water services. On the other hand, France has explicitly excluded infrastructure for flood defence/control from the cost recovery analysis.

Latvia (LI) is among the rare countries that have included dredging (as did France - SN), infrastructure for flood control/defence (this is also the case in Spain -GA and Romania -PR), drainage (also Estonia -EE and the international Upper Rhine river basin) and dams for hydropower (as did France - RH and SN, Portugal -TR and Romania - PR).

France (RH and SN) and Latvia (LI) define water services as not only services provided by third parties but also self-services for drinking water, wastewater treatment and irrigation for agriculture. This ensures that cost-recovery issues and financial flows within the water sector can be investigated comprehensively. It also ensures that environmental costs imposed by water services can be accounted for consistently and equitably without “excluding” some water services (e.g. such as private groundwater abstraction) that might have significant environmental impact.

¹² “In England and Wales the definition of water services encompasses the water industry together with activities providing similar services” (p42, South West River Basin Economic Analysis Supporting Document)

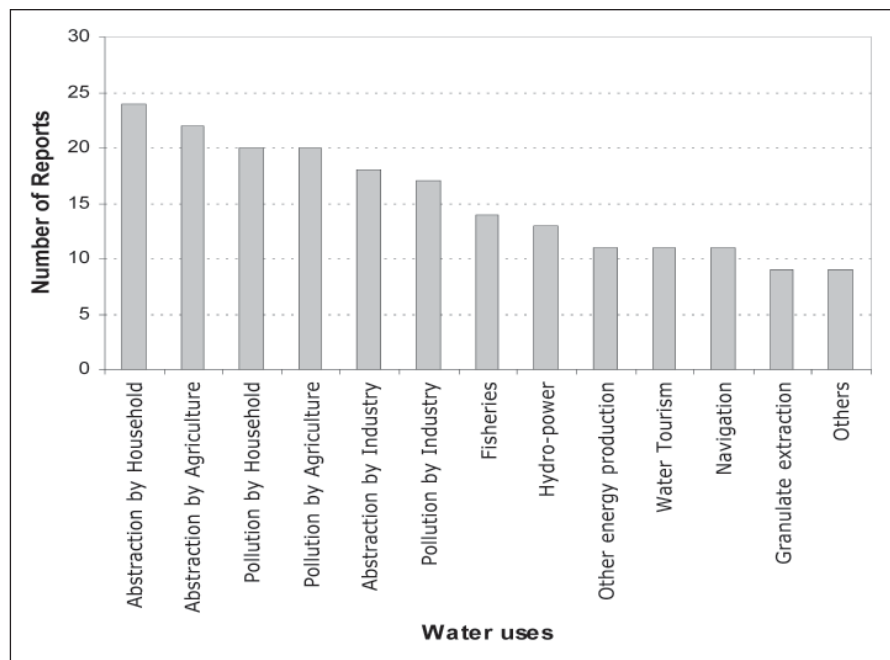
4.2.3 WATER USES

The identification of water uses covers a wider range of activities. Well identified uses are those related to households and agriculture, and, to a lesser degree, industries (Figure 4.5).

Specific findings:

- Water abstraction and pollution by households are most often identified as water uses, followed by abstraction and pollution by industries and then by abstraction and pollution by agriculture. In general, pollution is identified less frequently than abstraction.

Figure 4.5 Water uses identified in the surveyed reports



4.2.4 CONCLUDING REMARKS

Although both the WFD and the WATECO guidance provide a broad definition of water services, Member States have in many cases restricted it to classical public drinking water and sewerage services – with little or no explanation of why this has been done. Self-services have been considered in only about half of the reviewed reports.

The best covered sector is household. As well as being identified as a use for abstracting and polluting waters, the services attached to it - drinking water services and wastewater treatment services - are identified in the vast majority of cases.

Industrial activities are well covered when considering abstraction and pollution, and the respective services supporting them (i.e. water supply and wastewater treatment). Agriculture as a use (abstraction and pollution) is also well covered but some of its attached services are not always identified, e.g. irrigation, and some almost never, e.g. drainage.

Economic activities such as hydropower, navigation, but also services like flood defences/control are sometimes identified as a water use but their respective water services are in the vast

- In addition, in the reviewed reports the following activities and economic sectors were identified as water uses: fisheries (in 56% of the reports), hydropower (in 52%), other energy production (in 44%), navigation (in 44%), water tourism (in 44%) and granulate extraction (in 36%).

majority of cases not identified. In many basins in Germany and in Austria (DA) they are specifically excluded.

Not including a specific service or use could mean they are not relevant in the river basin, but the reasons are in most cases not specified. We strongly criticise this practice, especially in river basins where the impact of such activity has been identified as significant to the pressures and impact assessment.

The current situation in the bulk of Article 5 reports surveyed seems not to provide a framework in which, by identifying all services and self-services, all human activities in the RBDs have an equal and effective treatment vis-à-vis the internalisation of environmental and resource costs. In particular hydro-morphological changes, recognised to be a recurrent problem in nearly all RBDs, are not properly addressed in the majority of reports since water services responsible for such changes were omitted from the interpretation of the definition.

The next Chapter will go expand on the economic analysis and will assess the cost-recovery analysis of water services provided in Article 5 reports.

Table 4.6 How do Member States define water services? A review of Article 5 reports and national water laws (comments: see text).

Legend

☹ = very narrow interpretation of water service only ☹ = narrow interpretation, additionally includes infrastructure for one of the following use(r)s: navigation, hydropower or flood
 ☺ = wider interpretation, additionally includes infrastructure for two or more of the following use(r)s: navigation, hydropower or flood

CODE	Interpretation of definition of Services in the report	Water Services for which cost-recovery was computed	Definition in National Law	Reference of the law
AT	☹ Drinking water, sewerage and self-services. Specifically exclude dams for hydropower, navigation infrastructure and all flood measures	Drinking water and sewerage. Assumed full cost-recovery for self-services.	Similar as WFD but the definition refers specifically to drinking water services and wastewater treatment	Wasserrechtsgesetz, §55e
BE	☹ Drinking water, sewerage and self-services.	Drinking water and sewerage. Self-services (qualitative)	Definition of WFD	decreet integraal. waterbeleid' 18 juli 2003
DE	☹ Drinking water, sewerage. Specifically exclude dams for hydropower, navigation infrastructure and all flood measures	Drinking water and sewerage. ONLY FROM PILOT STUDIES	-	-
DE	☹ Drinking water, sewerage (+stormwater), and self-services (including irrigation infrastructure). Specifically exclude dams for hydropower, navigation infrastructure and all flood measures	Drinking water and sewerage. ONLY FROM PILOT STUDIES	-	-
DE	☹ Drinking water, sewerage (+stormwater), and self-services (including irrigation infrastructure). Specifically exclude impoundments for navigation and hydropower, and all flood control measures	Drinking water and sewerage. ONLY FROM PILOT STUDIES	The definition is not in law but in an Ordinance	"Ordinance of Lower Saxony for a framework in water management"
DE	☹ Drinking water, sewerage (+stormwater), and self-services (including irrigation infrastructure). Specifically exclude impoundments for navigation and hydropower, and all flood control measures	Drinking water and sewerage	-	-
DE	☹ Drinking water, sewerage (+stormwater), and self-services (including irrigation infrastructure). Specifically exclude impoundments for navigation and hydropower, and all flood control measures	Drinking water and sewerage. ONLY FROM PILOT STUDIES	The definition is not in law but in an Ordinance	"Ordinance of Lower Saxony for a framework in water management"
DK	☹ Drinking water, sewerage and self-services	Drinking water and sewerage. Assume full cost recovery for self-services	Definition of WFD	-
EE	☹ Drinking water and sewerage, drainage and irrigation infrastructure	Drinking water and sewerage	Defines as: public water Usage (bathing, water sport, navigation and angling) and specific water usage (abstraction, discharge, dredging, dumping of solid matters, changing groundwater level, changing physical, chemical or biological parameters of water)	"Water Act"
ES	☹ Drinking water, sewerage, flood control and irrigation infrastructure	Drinking water, sewerage and irrigation infrastructure. Cost-recovery includes cost of reservoirs and dams.	Similar to WFD	Art 40bis, Spanish Water Act
FI	☹ Drinking water and sewerage	Drinking water	No definition	
FR	☹ Drinking water, sewerage (+stormwater), dams for hydropower, infrastructure for irrigation, dredging and self-services	Drinking water, sewerage, irrigation infrastructure and self-services	The definition is not in law but is in an official information notice. It refers to the English definition, and specifically excludes the definition provided by the French translation of the WFD, and by doing so, excludes all flood defences measures from the definition.	Circulaire DCE 2004/06

FR	SN	FR	DRinking water, sewerage (+stormwater), dams for hydropower, infrastructure for navigation, infrastructure for irrigation and self-services	DRinking water, sewerage, navigation, irrigation infrastructure and self-services	Same case as France-Rhone	Circulaire DCE 2004/06
GR		No Article 5 Report		No Article 5 Report	WFD definition	Law 3199/2003
HU	DA	☹️ Drinking water, sewerage and irrigation infrastructure		DRinking water, sewerage and irrigation infrastructure	WFD definition	Transposition law
IE	SI	☹️ Drinking water and sewerage and "private installation" (not clearly explained in the report)		DRinking water and sewerage and "private installation" (not clearly explained in the report)	No definition	-
Int	MA	☹️ Drinking water and sewerage		No cost-recovery included	Roof report so depends on country	-
Int	UR	☹️ No specific definition, but states that "only public water supply and sewerage services (+ stormwater) are relevant"		DRinking water and sewerage. ONLY FROM PILOT STUDIES	-	-
IT		No Article 5 Report		No Article 5 Report	No definition	-
LV	LI	☺️ Drinking water, sewerage (+stormwater), dams for hydropower, flood control measures, river/harbour dredging, drainage, water supply for agriculture and self-services		DRinking water and sewerage. Not clear to what extent other services such as "water supply for agriculture" was investigated	Similar definition as in the WFD	"Law on Water Management"
NL	RD	☹️ Drinking water, sewerage (+stormwater), groundwater and regional management of water system and self-services, (exclude major dykes and dams)		DRinking water and sewerage. Assume full cost-recovery for self-services (licensing system)	-	-
PL	VI	☹️ Drinking water and sewerage		DRinking water and sewerage	Similar to WFD	The Water Law Act
PT	TR	☹️ Drinking water, sewerage, dams for hydropower, infrastructure for irrigation and self-services		DRinking water, sewerage and infrastructure for irrigation	WFD definition	Water Law. Lei n.º 58/2005. DR 249 SÉRIE I-A de 2005-12-29
RO	PR	☺️ Drinking water, sewerage, dams for hydropower, flood control and infrastructure for irrigation		DRinking water and sewerage. Flood control (not clear)	-	-
SE		☹️ Drinking water and sewerage		No cost-recovery included	No definition	-
SI	DA	☹️ Drinking water, sewerage and irrigation infrastructure		No cost-recovery included	-	-
UK	SW	☹️ Drinking water, sewerage and self-services.		DRinking water, sewerage and self-services.	WFD definition	National transposition Law

4.3 Cost recovery

As explained in Chapter 2.2, the cost-recovery assessment is the core of the economic analysis in Article 5 reports. Article 9 sets out the approaches to take, (i) assessment of the recovery of costs for all services in the RBD, (ii) including environmental and resource costs, (iii) analysis of the incentive dimension of water pricing and (iv) of the contribution of water uses to the costs of water services. The CIS WATECO guidance gives a list of key elements to consider in the cost-recovery analysis:

- Status of key water services (e.g. number of people connected/using the service);
- Costs of water services (financial costs, environmental and resource costs);
- Institutional set-up for cost-recovery (prices and tariff structure, subsidies, cross-subsidy);
- Resulting extent of cost-recovery levels (for financial costs, for environmental and resource costs);
- Extent of contribution of key water uses to the costs of water services (link with pollution and use information collected for the analysis of pressures and impacts);
- Complementary information whenever relevant (e.g. affordability for key water users).

Reference: WATECO Guidance p30-31

4.3.1 SERVICES FOR WHICH A COST-RECOVERY RATIO WAS COMPUTED

4.3.1.1 Context

As explained in Chapter 2.2, a cost-recovery analysis should be calculated for all services impacting on the RBD aquatic environment. It is expected that services for which data are available will be well covered, i.e. drinking water services and wastewater treatment. Cost-recovery on other services may not be extensive as data may yet be lacking. However, we expect water authorities to show a level of commitment by conducting a first assessment for services which were identified as serving the main problem sectors.

Much discussion has taken place on whether the cost-recovery assessment should consider self-services or only services provided by a third-party (public or private operator). Self-services often, however, do not price water at its real cost (including environmental and resource costs) and may be heavily subsidised. According to the WATECO guidance, self-services are considered as water services and should therefore be included in the cost-recovery assessment, with careful

analysis of the extent to which environmental and resource costs are internalised through environmental taxes and the extent to which any subsidy may encourage overuse of water.

4.3.1.2 Results

The objectives of the economic analysis are stated in 46% of the reports investigated. Where they are given, they are not always clear and specific. The assessment of water pricing and cost recovery for water services are the most frequent issues listed as an objective of the economic analysis of the Article 5 report.

A cost-recovery analysis is included in the economic analysis of Article 5 reports, except in three RBDs: the international Meuse river basin, Sweden and Slovenia (DA), despite the fact that in the last two countries the cost recovery analysis is required by the transposition law.

Specific findings (Table 4.7):

- Cost-recovery ratios are calculated for drinking water services and for wastewater treatment in 22 and 21 reports respectively. Although these RBDs identify drinking water and wastewater treatment as water services, the international Meuse river basin, Slovenia (DA) and Sweden do not calculate these ratios and Finland (KY) does it for drinking water services only.
- Cost-recovery ratios are often not calculated for irrigation infrastructures. Out of the 13 RBDs that identify irrigation infrastructure services, only five calculate cost-recovery ratios (in France -RH and SN, Hungary -DA and Portugal -TR and Spain -GA).
- Cost-recovery ratios are hardly ever calculated for other types of water services. Only France (SN) calculated cost-recovery ratio for infrastructure for navigation. It is not clear to what extent damming for flood control and reservoirs has been accounted for in the cases of river basins in Romania (PR) and Spain (GA).
- Cost-recovery ratios for self-services are calculated in five RBDs: for private abstraction and wastewater treatment in Belgium, for abstraction and wastewater discharge by households, industry and agriculture (livestock production) in France (RH and SN), and for private wastewater and sewerage services in the UK. In Ireland (SI) cost-recovery is investigated for “private installations” although it is not clear what the terms refer to (see previous Chapter). France (RH and SN) and the UK (SW) use quantitative data, whereas Belgium (SC) applies a qualitative approach.
- Full cost recovery for self-services is assumed without computation of ratios in three RBDs: Austria (DA), Denmark (AA) and Portugal (TR).

If one links the cost recovery analysis with the pressures and impacts assessment (Table 4.7), a huge discrepancy for nearly all countries is revealed between identified main sectors responsible for environmental impacts and the water services for which a cost-recovery calculation is performed. Austria

(DA), Germany (DA, EL, EM, MR and WE), Hungary (DA) and the Netherlands (RD) have identified significant pressures from specific sectors while excluding them from the cost-recovery analysis (in the cases of Austria and Germany this was done explicitly).

Table 4.7 Identified main sectors responsible for environmental damage and water services for which cost recovery was computed.

Legend: *: Not clear to what extent, NA: Not Available

Code		Main Sectors identified in the report as causing environmental damage (possible related services)									Water services for which a cost recovery was computed								
		Households (drinking water and wastewater services)	Agriculture (drinking water and wastewater services)	Industry (drinking water and wastewater services)	Hydropower (dams)	Navigation (infrastructure, dredging, river maintenance)	Flood Control	Urbanisation	Past Pollution	Others	Drinking water supply	Wastewater treatment	Dams for Hydropower	Infrastructure for Navigation	Flood Control	Dredging	River Maintenance	Drainage	Irrigation Infrastructure
AT	DA		✓		✓		✓				✓	✓							
BE	SC	✓	✓	✓		✓	✓	✓			✓	✓							
DE	DA					NA					✓	✓							
DE	EL		✓	✓		✓		✓			✓	✓							
DE	EM		✓		✓	✓	✓				✓	✓							
DE	MR		✓	✓	✓	✓		✓			✓	✓							
DE	WE		✓		✓	✓	✓				✓	✓							
DK	AA					NA					✓	✓							
EE	EE		✓	✓				✓	✓		✓	✓							
ES	GA					NA					✓	✓		✓*					✓
FI	KY					NA					✓								
FR	RH		✓								✓	✓							✓
FR	SN	✓	✓	✓		✓			✓		✓	✓	✓						✓
HU	DA	✓	✓	✓	✓	✓	✓				✓	✓							✓
IE	SI	✓	✓	✓				✓		✓	✓	✓							
Int	MA	✓	✓	✓		✓		✓						Not provided					
Int	UR		✓		✓	✓					✓	✓							
LV	LI					NA					✓	✓							
NL	RD	✓	✓			✓	✓		✓		✓	✓							
PL	VI	✓	✓	✓							✓	✓							
PT	TR	✓	✓	✓							✓	✓							✓
RO	PR	✓	✓	✓		✓			✓		✓	✓		✓*					
SE		✓	✓		✓	✓			✓				Not provided						
SI	DA	✓	✓	✓					✓				Not provided						
UK	SW					NA					✓	✓							

4.3.2 COSTS INCLUDED

4.3.2.1 Context

The WATECO guidance specifies that financial, environmental and resource costs should be investigated for each service. The Information Sheet¹³ released in 2004 provides a detailed breakdown of what should be investigated within each of these costs. The following will provide a short overview.

Financial costs are the costs of providing and administering services, and can be broken down into a number of elements:

- Operating costs: all costs incurred to keep a facility running.
- Maintenance costs: costs for maintaining existing assets in good functioning order until the end of their useful life.
- Capital costs: costs of new investment expenditures and associated costs, depreciation costs and opportunity costs of capital (an estimate of the rate of return that can be earned on alternative investments).
- Administrative costs: administrative costs related to service management.

Equally important to the recovery of costs are **environmental and resource costs**, which are mostly ignored in decision-making.

- Environmental costs represent the costs of damage that water uses impose on the environment and ecosystems. This may include, for example, lost biomass production or consumption opportunities as well as non-use values.
- Resource costs are the costs of foregone opportunities that other uses suffer due to the depletion of the resource. For example, extensive abstraction for public water supply will prevent use of water for agriculture.

A variety of methods exists for attempting to assess the level of environmental and resource costs. These methods have their own uncertainties and limitations, and the integration of results obtained from these methods into policy-making is rare in the EU.

4.3.2.2 Results

“Results” in this chapter refers to costs included in the cost-recovery analysis of drinking, waste water services, infrastructure for irrigation and, for one case (France –SN), infrastructure for navigation. Other services were not investigated in sufficient detail to provide information in this section.

Overall, when cost-recovery ratios are calculated, details of the types of costs that are considered in the calculations are lacking in many cases (see Annex 3). Cost-recovery analyses do not appear to be readily understandable and transparent in 56% of the reports. There is a lack of information, in particular for services other than drinking water supply and wastewater treatment.

For reports clearly stating the type of costs included, investment costs and operation and maintenance (O&M) costs are those most often quantified (Table 4.8). Administrative costs, capital costs and other costs like environmental and resource costs are calculated both qualitatively and quantitatively in fewer than 20-25% of the reports. Environmental and resource costs are among the least frequently calculated costs. It should be noted that in Belgium, Romania and Slovenia environmental and resource costs are defined in the transposition laws but are not considered in the economic analysis of the basin surveyed.

Specific findings:

- 60% of the reports have considered/mentioned environmental and resource costs. Out of these, only seven RBDs have included these costs in the cost-recovery either quantitatively (Latvia -LI, Estonia -EE and France -SN) or qualitatively (Germany –EM and WE, Hungary –DA, Denmark –AA and Portugal -TR);
- Most reports that have dealt with environmental and resource costs seem to have limited this analysis to the review of existing environmental taxes and charges, be it for pollution or abstraction (for more information on environmental taxes and charge see Chapter 4.3.3).

¹³ Information sheet on assessment of the recovery of costs for water services for the 2004 River Basin Characterisation Report”. Common Implementation Strategy, Working Group 2B. May 5, 2004. Link: http://forum.europa.eu.int/Members/irc/env/wfd/library?l=/framework_directive/thematic_documents/economic_issues/information_economic&vm=detailed&sb=Title

Table 4.8 Cost-recovery ratios computation and inclusion of different types of costs in the cost-recovery ratio for services for which a cost-recovery was performed (number of reports).

Notes: column "C" corresponds to the percentage of cases where cost-recovery figures have been computed. Column "Q" corresponds to qualitative investigations

Water services	Service identified (number of reports)	Ratio computed (number of reports)	Cost types (number of reports)													
			Investment costs		O&M costs		Adminis-trative costs		Capital costs		Environ-mental costs		Resource costs		Others	
			C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q
Drinking water supply	25	22	10	2	9	4	8	3	7	1	2	5	2	5	5	2
Wastewater treatment	25	21	9	2	7	4	6	4	7	1	3	6	1	6	3	2
Irrigation infrastructure	13	6	3	2	5	1	2	1	2	1	0	0	1	1	0	1
Infrastructure for navigation	1	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0

4.3.3 CONCLUDING REMARKS

The cost-recovery assessment was performed for only a fraction of the activities identified as water services, and as seen above, water service identification was limited in the first place. Most striking is the absence of economic sectors that lead to hydro-morphological changes in surface waters, i.e. navigation, hydropower and flood defence-related services, while they were clearly identified as having major impacts on the aquatic environment.

The cost-recovery analysis has mainly dealt with financial costs (operation and maintenance costs in all cases, investment costs in many cases). Questions remain, however, on whether investment costs considered are total investment costs (or just amortisation from accounts) and whether subsidies supporting investments have been considered.

Little attention has been given to environmental and resource costs although these are considered essential for the implementation of the WFD, the understanding of who uses/pollutes, what it costs and who pays, and ultimately for effective water management. Countries that tackled the issue of environmental and resource costs in their Article 5 reports mainly described existing environmental charges and taxes applied to the water sector (e.g. abstraction tax and pollution charges –see next Chapter as well).

Illustration

Investigating environmental costs

France (SN) provides an example of a wider approach to assessing environmental and resource costs. It assesses the current/proposed financial burden on economic sectors resulting from existing and planned projects for improving the status of water resources. It also provides some information on environmental costs obtained from the use of existing contingent valuation studies. Finally, it roughly estimates the costs of measures that would be required for improving water quality throughout the basin to standards expected to match good water status. Nevertheless, more efforts will be required for the assessment of environmental and resource costs before finalising the programme of measures and river basin management plan.

Also worrying are the assumptions made by countries on the level of recovery. Full cost recovery was assumed for some self-services, without further investigation. As the Context chapter explained, dropping out these services may lead to an underestimation of their necessary contribution towards environmental and resource costs.

4.4 Economic instruments

4.4.1 CONTEXT

Pricing and its incentive dimension

The WATECO guidance and the Information Sheet¹⁴ specify that Article 5 reports should provide information on the mechanisms through which costs are recovered. It mainly refers to:

- User charges/tariffs,
- Other means such as financial transfers and subsidies.

User charges/tariffs fixed by the service provider help in recovering the (financial, environmental and resource) costs of the service. Environmental and resource costs are usually internalised in the user charges and tariffs in the form of environmental taxes. In the past, such taxes and charges may have been put in place partly for environmental purposes, but often they have only covered financial costs of e.g. construction of wastewater treatment plants. It is important that Article 5 reports analyse the level to which such taxes actually cover the full environmental and resource costs.

Water services are often highly subsidised in Europe with a net effect of lowering the charges/tariffs paid by these users, thereby possibly encouraging overuse of water. Subsidies can be paid to service providers and to water users:

- Subsidies to providers of water services can take the form of governmental investment or governmental co-financing of the infrastructural operation,
- Subsidies to water users can exist as direct payment or in the form of soft loans or loans with preferential interest rates (compared to the market rates).

In addition to these subsidies, financial transfers redistribute the money collected at different levels, i.e. water authorities, service providers, governmental and local taxes. As the CIS Information Sheet¹⁵ further specifies, the institutional set up around water services (i.e. pricing policies, regulatory structures, organisation, etc.) should also be described as it may create significant financial transfers between service providers and water users and relevant governmental institutions.

The analysis should also consider the incentive dimension of the current pricing system. This is one of the principles set out by the WFD:

WFD Article 9

“Member States shall ensure [...] that water-pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive.”

The Information Sheet specifies the importance of such analysis:

“The WFD recognizes pricing as a basic measure for achieving the environmental objectives. The implementation of incentive pricing is required by 2010. Reporting on the incentive properties of the current pricing regime is not a mandatory requirement for the 2004 assessment. However, undertaking this as part of the 2004 river basin characterisation exercise, in conjunction with the assessment of cost recovery, would be useful, particularly in basins with significant environmental issues or where derogations are likely.”

Reference: Information Sheet on Assessment of the recovery of costs for Water Services for the 2004 River Basin Characterisation Report

The incentive dimension can be investigated in two ways:

- First, the structure of the tax/charge/price needs to account for the volume of water abstracted or the pollution discharged. Hence, flat-rate irrigation prices defined per unit of land irrigated provide no incentive for more efficient water use. On the other hand, a volumetric water price dependent on the quantity of water used provides an incentive to the user to consume water more efficiently.
- Secondly, the price or tax needs to be sufficiently high, taking into account price elasticity (e.g. to make sure it is important enough to be taken into account, as compared to other economic aspects, e.g. production or consumption costs or income), so that users effectively consider it in their decisions.

Contribution of water uses to the costs of water services and integration with pressures and impacts analysis

The Directive requires that all water uses should bear an adequate share of the costs of water services, in particular in accordance with the polluter-pays principle.

WFD Article 9

“Member States shall ensure [...] an adequate contribution of the different water uses, disaggregated into at least industry, households and agriculture, to the recovery of the costs of water services, based on the economic analysis [...] and taking account of the polluter pays principle”.

¹⁴ Information sheet on assessment of the recovery of costs for water services for the 2004 River Basin Characterisation Report”. Common Implementation Strategy, Working Group 2B. May 5, 2004. Link: http://forum.europa.eu.int/Members/irc/env/wfd/library?l=/framework_directive/thematic_documents/economic_issues/information_economic&vm=detailed&sb=Title

¹⁵ Ibid.

The WATECO guidance does not specify exactly how this should be done but stresses the importance of linking it to the pressures and impact analysis:

“It is important to ensure that the economic analyses described below are integrated with other technical analyses such as the analysis of pressures and impacts. This will ensure a common description and characterisation of the river basin is obtained, basis for the identification of the programme of measures and the development of the river basin management plan.”

Reference: WATECO Guidance

As an example, the costs of de-pollution/treatment of drinking water are today paid mostly by water consumers themselves. In practical terms, the WFD suggests that when agriculture is responsible for additional cost because of nutrient pollution, the agricultural sector might be asked to pay for these costs or part thereof (e.g. a de-nitrification measure). This redistribution of costs has to rely heavily on the pressures and impacts analysis to define the correct level of contribution.

4.4.2 RESULTS AND REMARKS

Pricing and its incentive dimension

Pricing and economic instruments *with respect to drinking water supply* are generally discussed in the economic analysis. Pricing and tariffs are discussed in about 78% of the reports, environmental taxes and charges in 50%, subsidies in 46%, and cross-subsidies in only 21% of the cases. Data is missing altogether for five reports.

Other services for which such analysis is performed are irrigation infrastructure services and some self-services (see Annex 3), but is done to a far lesser extent.

Although water pricing policies are often implemented in drinking water and wastewater treatment as incentives for reducing water demand and pollution, the effectiveness and sustainability of these policies are investigated in the economic analysis in only five RBDs (Germany -DA and EL, Estonia -EE, Hungary -DA, Poland -VI and UK -SW). This aspect is particularly worrying as it may indicate a lack of commitment

by the authorities towards using water pricing as a tool to reach the environmental objectives.

It is unclear what part of full costs, including environmental and resource costs, the existing pricing structure covers. The current low level of these taxes and charges suggest that they internalise only a minimal part of environmental and resource costs.

Contribution of water uses to the costs of water services and integration with pressures and impacts analysis

Results are contrasting as to whether the analyses in Article 5 reports investigate the contribution of water uses to the costs of services.

The contribution of abstraction and pollution by households and industry is investigated in approximately 40% of the countries that identified these water uses. As mentioned above, households, together with industry, are also the most widely identified uses, in first place. Agriculture's contribution to abstraction and pollution is examined in 30% and 20% of the reports respectively.

None of the other water uses identified – such as hydropower, navigation and fisheries – is mentioned in the analysis of the contribution of water uses to the costs of water services.

Cost recovery analysis does not generally build on results from the pressures and impacts analysis. Only six RBDs (Belgium -SC, Estonia -EE, France -RH and SN, Poland -VI and Portugal -TR) mention that results from the pressures and impacts analysis are used in the cost-recovery analysis. For instance, agricultural pollution from point sources (livestock farms) is used in Estonia (EE) to predict capital investments for limiting these loads in the future. In France (RH and SN), pressure and impact analysis is used for estimating environmental costs.

RBDs have made very little effort to link the analysis of pressures and impacts and the analysis of the costs of water services. The WATECO guidance document stresses this aspect many times. It is strongly implied in the WFD when it requests the investigation of adequate contribution of water uses to the recovery of the costs of water services, taking into account the polluter-pays principle.

4.5 The selection of measures

4.5.1 CONTEXT

The WFD requires that Article 5 reports include information for making judgements about the most cost-effective combination of measures. However, the CIS WATECO guidance document recognises that this will not be possible because “the environmental objectives and potential measures will not be identified yet [at the time of the publication of Article 5 reports]”. The identification of alternative measures early in the process can nevertheless help in organising research into assessing the costs and benefits of all potential measures.

While the WFD requires information for making judgements about the most cost-effective combination of measures in the Article 5 reports, the CIS WATECO guidance only asks to start compiling information and assessing the knowledge base so that actions for improving existing knowledge might be proposed in a timely manner. Arguably, Article 5 reports should thus provide some information on the work being done at RBD level, using information available in 2004.

4.5.2 RESULTS AND REMARKS

The survey showed that Article 5 reports very rarely deal with the selection of measures and related economic analysis. Only five reports investigate it to some extent: Estonia (EE), Germany (EL), Ireland (SI), Latvia (LI) and Poland (VI). Cost-effectiveness analysis is specifically referred to in the reports from Estonia (EE), Ireland (SI), Latvia (LI) and Poland (VI). A cost-benefit analysis is also referred to in the Article 5 report from Estonia (EE) and Ireland (SI).

From the information provided in Article 5 reports, we may conclude that few RBDs have made progress in the field of cost-effectiveness analysis and selection of measures. All efforts made in this field may not necessarily be presented in Article 5 reports. For example information from pilot projects in the RBD and pilot RBDs working on cost-effectiveness analysis may not be presented, but not including this information or any reference to them show a lack of transparency in the process.

4.6 Main constraints and gaps

4.6.1 CONTEXT

The WATECO guidance document repeatedly specifies that the economic analysis should be iterative, meaning that the analysis in the first Article 5 reports should be built on available data. When data are missing, the guidance stresses that:

- The report should systematically report the information, assumption and approaches to compute data
- The authorities should identify missing information and develop an effective programme to fill the data gaps.

4.6.2 RESULTS AND REMARKS

Main constraints in undertaking the economic analysis

RBDs explain in 76 % of the Article 5 reports the constraints that limited the scope of the economic analysis performed. The major constraints identified are: lack of economic data in general and especially their availability at the river basin level, and availability of methodologies. Human resources, time and expertise are much less frequently listed as constraints.

RBDs show contrasting situations. For instance, in Poland (VI) and Romania (PR) almost the whole set of factors listed are considered as constraints. Lack of time or expertise is reported in Estonia (EE), France (SN), Germany (EL, EM, WE), and Sweden.

Information and knowledge gaps

A list of data gaps for developing economic analysis is identified in 40% of the reports. The analysis of cost-recovery and the assessment of environmental and resource costs are listed as issues of most concern (28% and 24% respectively). Data gaps also refer to problems in conducting a forecast of long-term supply and demand for water and for developing baseline scenarios in 20% of reports. Other issues such as the economic importance of water uses, the analysis of incentive pricing or the selection of measures are less often mentioned (less than 12%).

Specific actions or activities for filling information gaps are more often reported than lists of data gaps and are recommended in 56% of the reports. Austria (DA), Denmark (AA), France (SN), Ireland (SI), the Netherlands (RD), Romania (PR) and UK (SW) have proposed specific actions for filling the data gaps without having identified the gaps in the first place. On the contrary, France (RH), Germany (EL) and the international Meuse River basin identify the data gaps but have not envisaged any specific action in order to fill them.

Following the suggestions of the WATECO guidance, some Article 5 reports have identified gaps in information and knowledge that are likely to hamper economic analysis. Practical steps for filling these gaps are not always specified, at least not in an operational manner, that would make them more relevant to being implemented. Gaps in information and knowledge are also mainly focused on the components of the Article 5 report, i.e. the economic importance of water

use, baseline and cost-recovery. Little attention is given to the information base necessary for supporting the next steps for the selection of measures, an area which will receive high-level political attention and that will require robust information on costs and (in some cases) benefits attached to alternative measures for improving the water environment.

Illustration

Proposing complementary studies for filling the information gaps,

In the UK (SW), gaps in information identified during the preparation of the Article 5 reports will mainly be dealt with in the context of the Collaborative Research Programme developed for supporting implementation of the WFD. This programme in particular will produce additional studies for valuing environmental and resource costs, thus strengthening the existing information base of (monetary) values of environmental and resource costs.

In Austria (DA), efforts will be put in place over the next years for developing a model for cost-effective analyses and supporting the selection of cost effective measures. Additional studies will also be made for developing the basics for the implementation of Article 9 of the WFD.

4.7 Public participation

4.7.1 CONTEXT

The WFD and WATECO guidance stresses the importance of public participation at all stages of implementation:

Article 14 promotes the active participation of all interested parties in the development of River Basin Management Plans, and requires Member States to inform and consult the public. Stakeholder participation is important as it can fulfil many functions:

- Developing a process agreed by all will increase the legitimacy of its outcome;
- Stakeholders can be a useful source of information and have expertise of direct use for the economic analysis;
- Surveys of the public can be useful to understand how people value improvements in the environment and quality of our water, and to what extent they are prepared to pay for environmental improvements;
- Public involvement and the network of partners developed through participation can be useful in fostering a sense of ownership over the River Basin Management Plans and may increase the effectiveness of measures taken to meet the Directive's objectives.

Reference: WATECO, p 36

4.7.2 RESULTS AND REMARKS

Most of the Article 5 reports and their economic analysis are easily accessible (80% of the reports). They are usually available on internet sites of the relevant authorities and organisations. Whether the public has effectively consulted the information remains to be assessed.

According to the knowledge/views of NGO members/experts who completed the questionnaire, the economic analysis has been developed in consultation with stakeholders in slightly over half of the reports reviewed. However, only 30% of the reports specify that stakeholders have participated in the analysis. How participation and consultation have effectively taken place, however, is not clearly specified.

5. Conclusions

The reports reviewed provide the opportunity to assess whether the requirements of the WFD and the main principles put forward by the WATECO guidance with regard to the implementation of the economic elements of the WFD have been put in practice by river basin competent authorities when developing their Article 5 reports. These principles include (i) the integration of technical and economic analysis, (ii) the iterative process for the economic analysis, starting with existing data and information and refining whenever required and relevant, (iii) to ensure that the economic analysis is proportional (places effort where required) and support policy decision, (iv) participatory and (v) transparent.

- The majority of the economic analyses have been developed in isolation from the technical analyses (pressures and impacts, risk-assessment)¹⁶. Thus, as indicated above, no report investigates in detail the contribution of uses to the costs of water services and its coherence with the polluter-pays principle. As most economic aspects are considered in isolation, the risk is that they might have little relevance to water management and policy decisions.
- Most countries have used only existing data and information, stressing the importance of repeating the process. Because of this protective approach, some of the analyses presented in the Article 5 reports are weak, incomplete, and in some cases mainly a data collation exercise.
- With its current form and shape, the Article 5 reports might not be the right tool for assessing whether the principle of proportionality and relevance to decision-making has been followed. The absence of integration between economic and technical issues might signal possible problems in this area in the future when measures will need to be selected and alternative objectives defined.
- While some RBDs have mobilised stakeholders for building the economic analysis (in a few cases as providers of data and information or analyses), the majority of competent authorities have considered the economic analysis (or more generally the Article 5 report) as a desk-based data-gathering exercise with no direct input/participation by stakeholders.

- For most of the economic analyses reviewed, transparency and clarity have clearly not been achieved: the readers find themselves alone trying to understand the choices made (why these services were selected – if services are defined at all, which methodology and data were mobilised, etc.) and to interpret results.

Overall, the economic analysis of the Article 5 reports show a very wide diversity in terms of definitions, content and focus – largely influenced by past practices, organisational set-up, absence of experience, and limited available expertise in water economics. The definition of water uses and water services is a clear illustration of this situation. While some differences ultimately might not matter much with regard to the achievement of the WFD’s environmental objectives, others such as the definition of water services or differences between analyses for countries sharing the same transboundary river basin might be more problematic in the long run.

The situation observed in the different Article 5 reports raises two major concerns:

- First, the CIS’s objective of promoting homogenous implementation of the WFD has not been attained, each competent authority having “re-appropriated” the WFD in its own way. This might be linked to the lack of clarity in the WATECO guidance (or follow-up information sheets) and the absence of translation into national languages that makes appropriation of the guidance difficult or impossible in some cases. However, this raises concerns regarding compliance with WFD requirements. New mechanisms might need to be identified and tested as part of the CIS process for further promoting coherent implementation of the WFD. Otherwise, stakeholders and the wider public participating in this process, or economic sectors active at European level, might slowly get lost in implementation. This is seen as particularly relevant to transboundary RBDs, where efforts in making methods and tools more homogeneous are in their infancy.
- Second, the challenge posed by the integration of economics into water management has not been successfully addressed by most Member States... yet! Clearly, we are only in the first stages of implementation and the start of the learning curve. However, it is clear that capacity in the field of economics remains to be strengthened. This seems particularly important today as we move to the more policy-relevant economic analyses for supporting the sometimes political selection of measures and the definition of alternative objectives.

¹⁶ Apart from baseline that is sometimes integrated into risk-assessment but that has not been investigated in the present report and survey.

If the identified shortcomings and limitations of the Article 5 analysis are not corrected, the EU will miss a great opportunity better to manage water environment and progress towards ensuring the integration of environmental concerns into other policies.

The EEB and WWF, on the basis of these disconcerting findings, taking into account the political commitments made, and in order to make the market work for the environment, call on:

- **Member States** to revise the economic analysis by 2008, applying a correct definition of water service and water use, integrating environmental and resource costs, and analysing the incentive dimension of water pricing as key instruments for effectively reaching the environmental objectives of the WFD;
- **The European Commission** to ensure correct application of the definition of “water service” and other Article 5 requirements;
- **Members of the European Parliament** to give the WFD implementation a much higher political profile, to request from the Commission and respective Member States to correct flawed application of the WFD economic instruments.
- **Environmental NGOs** to use all available and appropriate procedures, including complaint, appeal and court mechanisms to push their governments to improve the economic analysis to make it meaningful and effective for improving the aquatic environment.

Annex I. Questionnaire

1. Your data

Name:

Organisation:

Country:

E-mail: Telephone number:

1.1 How many days are you and your colleagues spending all together in involving yourself in the WFD implementation process in your country?

Please click the appropriate box:

- 5 days per week
- 5 days per week
- 3 days per week
- 2 days per week
- 2 days per week
- less than 1 day per week

If you want to give an additional comment, please do so in the grey box:

1.2 How would you rate the priority of the WFD implementation work in your organisation?

Please click the appropriate box:

- Very high
- High
- Moderate
- Very low
- Low

If you want to give an additional comment, please do so in the grey box:

1.3 What is the name of the river basin district you address with your responses?

1.4 Which countries or regions - part of the river basin district – are covered by the article 5 analysis your use for your responses?

1.5 Which versions of the article 5 analysis and which other official or unofficial documents are you using to answer this questionnaire

Title(s):

Publication date:

Authors / responsible authority:

Link to the digital article 5 report (when available):
.....

.....

2. Chapter 2 – Pressures, impacts and risk-assessment

2.1 Which pressures are assessed in the analysis for surface water?

If there are economic sectors identified by the report which cause these pressures please list them in the right column in order of relative contribution.

	Surface water	Economic sector / uses
Point source pollution		
Nutrients	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Priority substances	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Emerging pollutants (e.g. endocrine disruptors)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Diffuse pollution		
Nutrients	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Priority substances	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Emerging pollutants (e.g. endocrine disruptors)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Hydro-morphological modifications	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Abstraction	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Cooling water discharges	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Other pressures and/or comments – specify below

2.2 Which pressures are assessed in the analysis for groundwater?

If there are economic sectors identified by the report which cause these pressures please list them in the right column in order of relative contribution.

	Groundwater	Economic sector / uses
Point source pollution		
Nutrients	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Priority substances	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Emerging pollutants (e.g. endocrine disruptors)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Diffuse pollution		
Nutrients	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Priority substances	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Emerging pollutants (e.g. endocrine disruptors)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Hydro-morphological modifications	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Abstraction	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Cooling water discharges	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Other pressures and/or comments – specify below

2.3 Which impacts are investigated in the analysis?

Water quality (for both groundwater and surface water)		
Nutrients	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Priority substances	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Emerging pollutants (e.g. endocrine disruptors)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Ecology/biology (for surface water only)		
Saprobic index or equivalent	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Fish	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Macrophytes	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Zoobenthos	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Hydrology		
Minimum river flow	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Over-abstraction (groundwater)	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Other impacts and/or comments – specify below

2.4 Risk assessment

Which categories have been defined for the assessment of the risk of failing to achieve “good status” in 2015 (i.e. ‘at risk’, ‘probably at risk’, ‘lack of data’, ‘not at risk’)?

Are different quality elements (e.g. nutrients, hydromorphology etc..) assessed separately?

And what is the percentage of water bodies (alternatively length or area) in each category?

In case the Risk Assessment does not provide percentage, length or area figures for rivers, lakes and coastal waters separately provide only the overall figure.

General – surface waters

Risk assessment category (for [specify] quality element if relevant)	% of water bodies	Length

Rivers

Risk assessment category (for [specify] quality element if relevant)	% of water bodies	Length

Transitional and Coastal Waters

Risk assessment category (for [specify] quality element if relevant)	% of water bodies	Length

Groundwater

Risk assessment category (for [specify] quality element if relevant)	% of water bodies	Length

2.5 What is the percentage of surface water bodies provisionally identified as heavily modified?

_____ %

2.6 What are the main three environmental problem identified for the river basin? (list them as identified in the analysis and report)

Environmental problem 1:

Environmental problem 2:

Environmental problem 3:

2.7 What is/are the main sector(s) at the origin of these environmental problems? (list them as identified in the analysis and report)

Sector 1:

Sector 2:

Sector 3:

2.8 General comments about the pressures, impacts and risk-assessment chapter of Article 5

3. Chapter 3 – Economic Analysis

3.1 Is there a specific chapter of the Article 5 analysis on the economic analysis?

Please click the appropriate box: Yes No

If yes, does the chapter on the economic analysis explain the objective of the economic analysis?

Please click the appropriate box: Yes No

If yes, explain

Defining water services and water uses

3.2 Does the analysis touch upon the definition and difference between water services and water uses?(more information on water services and water uses in the glossary)

Please click the appropriate box: Yes No

If yes, what is the main explanation given for distinguishing between both water services and water uses?

If no, does the transposition law state a definition of water services? What is the used definition?

3.3 Which water services have been identified in the analysis?

Drinking water services	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Sewerage and wastewater treatment	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Including stormwater/rainwater	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Dams for hydropower	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Infrastructure for navigation	Flood control	<input type="checkbox"/> Yes <input type="checkbox"/> No
River/harbour dredging	<input type="checkbox"/> Yes	<input type="checkbox"/> No
River cleaning and maintenance	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Drainage for agriculture	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Irrigation infrastructure	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Other services – specify below

3.4 Have self-services been included in the definition of water services in the analysis(more information on self-services in the glossary)?

Please click the appropriate box: Yes No

If yes, for which services? (list services)

If no, does the transposition law include self-services in the definition for water services? Which ones?

3.5 Which water uses have been identified in the analysis?

Households	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Drinking water abstraction	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Pollution	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Hydropower	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Other energy production (cooling)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Navigation	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Agriculture		
Abstraction	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Pollution	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Industry		
Abstraction	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Pollution	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Fishery	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Granulate extraction	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Water-tourism	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Other uses – specify below

*Pricing and cost-recovery***3.6 Does the analysis include a cost-recovery analysis? (more info on cost-recovery in the glossary)***Please click the appropriate box:* Yes No

If yes, for which water services has a cost-recovery analysis been undertaken? (list services, specify if also for self-services)

If no, does the transposition law mention whether a cost-recovery analysis has to be done? How?

3.7 For which water services has a cost-recovery ratio been computed?

3.8 At which scale has the cost-recovery analysis been undertaken and reported?*Please click the appropriate box:*

National

 Yes No

River basin

 Yes No

Water body

 Yes No

Other scale – specify below

Cost recovery

3.9 Which costs have been considered in the cost-recovery analysis?

Use a different column for each of the services - Put a cross in the relevant cell of the table - Put a "C" (Calculated) if some figures have been computed and "q" (qualitative) if costs have only been investigated/mentioned in a qualitative manner.

Cost types	Services						
Investment costs							
Operation & Maintenance costs							
Administrative costs							
Capital costs							
Environmental costs (see also Q3.10)							
Resource costs (see also Q3.10)							
Other costs (specify)							

Cost types	Self-Services (if relevant)
Investment costs	
Operation & Maintenance costs	
Administrative costs	
Capital costs	
Environmental costs (see also Q3.10)	
Resource costs (see also Q3.10)	
Other costs (specify)	

3.10 Environmental and Resource Costs

If environmental and resource costs have been considered in the analysis, which methodology and definitions (if described in the analysis) have been applied for calculating these costs? In particular, if the evaluation of environmental & resource costs is based on the costs of past environmental projects and measures, which types of measures/projects are considered? (e.g. prevention measures, mitigation measures, etc). (see the glossary for more info on environmental and resource cost)

If environmental and resource costs have not been considered, does the transposition law state a definition of environmental and resource cost?

Please click the appropriate box:

Yes

No

If yes, what is the used definition?

3.11 Does the analysis discuss pricing and economic instruments for different services?

Please click the appropriate box:

Yes

No

If yes, for which services are the following items investigated:

Service 1: [specify]		
Pricing/tariff for the service	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Environmental taxes and charges	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Subsidies	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Cross-subsidies	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Service 2: [specify]		
Pricing/tariff for the service	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Environmental taxes and charges	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Subsidies	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Cross-subsidies	<input type="checkbox"/> Yes	<input type="checkbox"/> No

3.12 Does the analysis investigate “the effectiveness and sustainability of current water pricing policies” (whether current prices/taxes/charges play the role of incentive for reducing water demand and pollution)?

Please click the appropriate box: Yes No

3.13 Does the analysis investigate “the contribution of water uses to the costs of water services”

Water Use or Sector	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Explain how
	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

3.14 Are the results of the pressures & impacts analysis used as input to the cost-recovery analysis?

Please click the appropriate box: Yes No

If yes, explain how.

3.15 Are the costs considered/the cost-recovery analysis presented explained in a transparent and well-understandable manner?

Please click the appropriate box: Yes No

If no, explain areas where clarity could be improved

3.16 General comments about the cost-recovery analysis

*Economic analysis and selection of measures***3.17 Does the Article 5 analysis already deals with the selection of measures and related economic analysis?**

Please click the appropriate box:

 Yes No

If yes:

Does it refer to cost-effectiveness analysis Yes NoDoes it refer to cost-benefit analysis Yes No

What is the main focus of relevant sections dealing with measures? (explain)

3.18 General comments about economic analysis and selection of measures

*Other economic analysis of the Article 5 analysis***3.19 Does the Article 5 analysis includes other sections/chapters focusing on economic issues and analyses?**

Please click the appropriate box:

 Yes No

If yes:

What is the main focus of these sections/chapters? (explain)

4. Chapter 4 – gaps in information and knowledge

4.1 If the scope of the economic analysis in the Article 5 analysis is limited

Does the analysis provide explanations/justifications for such limited scope?

Yes No

If yes, which constraints are listed/mentioned for justifying such limited scope?

Explanations/justifications provided	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Limited human resources available	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Lack of time	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Lack of expertise	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Lack of economic data	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Economic data not available at hydrological scales	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Methodologies not available	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Other constraints – specify below

Does the economic analysis in the Article 5 analysis provide a list of data gaps?

Yes No

If yes, for which specific issues/areas

Economic important of water uses	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Analysis of forecasts and baseline	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Cost-recovery analysis in general	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Analysis of environmental & resource costs	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Analysis of incentive pricing	<input type="checkbox"/> Yes	<input type="checkbox"/> No
First steps for selection of measures	<input type="checkbox"/> Yes	<input type="checkbox"/> No

4.2 Does the gap analysis for the economic analysis propose specific actions/activities for filling the current information gap?

Please click the appropriate box: Yes No

If yes, what are the proposed activities and what is the timeframe for these activities?

4.3 General comments about gaps in information and knowledge

5. Chapter 5 – General comments about Article 5 assessment

5.1 Has the Article 5 assessment:

- *Been easily accessible to interested parties/wider public*

Please click the appropriate box:

Yes

No

If yes, explain how (which information media, timing, etc)

- *Been developed in Consultation with interested parties/wider public*

Please click the appropriate box:

Yes

No

If yes, explain how (which consultation tool, timing, etc)

- *Been developed with Participation of interested parties/wider public*

Please click the appropriate box:

Yes

No

If yes, explain how (which involvement, on which issues, timing, etc)

5.1 Please give your views and comments on the strengths and weaknesses of this Article 5 analysis (including main reasons explaining such strengths and weaknesses)

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Annex III. Detailed Results of the Survey

Questions are indicated with Q. “number of question”

Positive answers are indicated with 1, negative with 0. NA = Not Available or missing information.

Table A. Pressures, Impacts

Country	Question 2.1 Surface Water										Question 2.2 Groundwater						Question 2.3															
	Nitrate (Point Source)	Priority Substances (PS)	Emerging Pollutants (PS)	Nitrate (Diffuse)	Priority Substances (D)	Emerging Pollutants (D)	Hydro-Morphology	Abstraction	Cooling Water Discharge	Others	Nitrate (Point Source)	Priority Substances (PS)	Emerging Pollutants (PS)	Nitrate (Diffuse)	Priority Substances (D)	Emerging Pollutants (D)	Hydro-Morphology	Abstraction	Cooling Water Discharge	Others	Nitrate	Priority Substances	Emerging Pollutants	Saprobic Index	Fish	Macrophits	Zoobenthos	Minimum River Flow	Over-Abstraction	Hydrology	Others	
AT - DA	1	1	0	1	1	0	1	1	1	0	1	0	1	1	0	0	0	0	0	0	1	1	0	1	1	0	0	0	1	1	1	1
BE - SC	1	1	0	1	1	0	1	1	1	0	1	0	1	1	0	1	0	0	1	1	1	1	0	1	1	0	0	0	1	1	1	1
DE - DA	1	1	0	1	1	0	1	1	1	0	1	0	1	1	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	0
DE - EL	1	1	0	1	1	0	1	1	1	1	0	1	1	1	0	0	0	0	0	0	1	1	0	1	1	0	1	0	1	1	1	1
DE - EM	1	0	0	1	1	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	0	0
DE - MR	0	1	0	1	0	0	1	1	1	1	0	1	0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	0
DE - WE	1	0	0	1	1	0	1	1	1	1	0	0	1	1	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	0	0
DK - AA	1	1	1	1	1	1	1	0	0	0	0	1	1	0	1	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0
EE - EE	1	1	0	1	1	0	0	1	1	0	1	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1
ES - GA	NA	NA	NA	NA	NA	NA	1	1	NA	1	NA	NA	NA	NA	NA	0	1	0	1	1	1	1	0	1	1	0	0	0	1	1	1	1
FI - KY	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0
FR - RH	1	1	0	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	1
FR - SN	1	1	0	1	1	0	1	1	1	0	1	0	1	1	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1
GR																																
HU - DA	1	1	0	1	1	0	1	1	1	0	0	1	0	1	0	0	1	0	0	0	1	1	0	NA	NA	NA	NA	0	1	1	0	0
IE - SI	1	0	0	1	1	0	1	1	1	0	0	1	0	1	0	0	1	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0
INT - ME	1	1	0	1	1	0	1	0	0	1	1	0	0	1	0	0	1	1	0	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
INT - UR	1	1	0	1	0	0	1	1	1	0	0	0	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0
IT																																
LV - LI	1	0	0	1	0	0	1	1	1	0	0	1	0	1	0	0	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NL - RD	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
PL - VI	1	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
PT - TR	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0	1	0	1	1	1	1	0	0	0	0	0	0	1	1	1	1
RO - PR	1	1	0	1	1	0	1	0	0	0	0	1	0	1	0	0	0	1	0	0	1	1	0	1	1	1	1	0	0	0	1	1
SE	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
SI - DA	0	0	0	1	0	0	1	1	1	0	1	0	0	1	0	0	1	1	0	0	1	1	1	1	1	0	1	1	1	1	0	0
UK - SW	1	1	0	1	1	0	1	1	1	0	1	1	0	1	1	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0
TOTAL (Count)	22	17	4	24	18	3	21	21	13	12	15	16	3	21	15	2	6	22	1	10	22	18	4	12	9	7	10	8	17	10	10	68
percentage	88	68	16	96	72	12	84	84	84	52	60	64	12	84	60	8	24	88	4	40	88	72	16	48	36	28	40	32	68	40	40	40

Table B. Risk Analysis (Q2.4), Designation of Heavily Modified Water Bodies (Q2.5), main environmental problems (Q2.6) and main sectors (Q2.7)

Country	Question 2.4 - Results for risk-assessment (indicative information, NA: Not provided by the participant Or not in a usable format)												Q. 2.5		Q. 2.6		Question 2.7										
	Surface Water			Rivers			Lakes			Trans and coastal waters			Groundwater			% HMWB ¹	Water Quality	Hydro-Morph	Households	Agriculture	Industry	Hydro-Power	Navigation	Flood Control	Urbanisation	Past Polluted S	Others
	At Risk	Lack of Data	Not At Risk	At Risk	Lack of Data	Not At Risk	At Risk	Lack of Data	Not At Risk	At Risk	Lack of Data	Not At Risk	At Risk	Lack of Data	Not At Risk												
AT - DA	NA	NA	NA	59.8	24.5	15.7	10	1	89	NA	NA	NA	5.9	0	94.1	33	2	3	0	1	0	1	0	0	0	0	0
BE - SC	NA	NA	NA	99.3	0	0.7	10	1	89	NA	NA	NA	5.9	0	94.1	33	2	3	0	1	0	1	0	0	0	0	0
DE - DA	NA	NA	NA	34	37	29	16	33	51	19	0	81	19	0	81	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DE - EL	62.8	24.8	12.4	65.9	24.8	9.3	41.5	25.4	33.1	100	0	0	56.2	0	43.8	19.6	2	3	0	1	0	1	0	1	0	0	0
DE - EM	48	50	2	47.3	50.8	1.9	14.2	85.8	0	100	0	0	71	0	29	28	3	2	0	1	0	1	1	0	0	0	0
DE - MR	NA	NA	NA	63	0	37	100	0	NA	NA	NA	NA	NA	NA	NA	16.5	2	3	0	1	1	1	1	0	1	0	0
DE - WE	33	48	19	32.5	48.1	19.3	35.4	47	17.6	100	0	0	62	37.6	0	14	3	2	0	1	0	1	1	0	0	0	0
DK - AA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EE - EE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	62	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ES - GA	NA	NA	NA	12.11	64.73	23.16	NA	NA	NA	NA	NA	NA	49.3	40.85	9.86	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FI - KY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FR - RH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	3	2	0	1	0	0	0	0	0	0	0
FR - SN	NA	NA	NA	22	49	29	66	34	0	36	28	36	73.5	0	26.5	14.5	3	1	2	1	1	1	0	0	0	0	1
GR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.8	6.5	79.7	2	3	2	1	1	1	1	1	0	0	0	0
HU - DA	NA	NA	NA	32.2	61.6	6.2	18.6	63.7	17.7	NA	NA	NA	7.9	74.8	17.3	0.6	3	2	1	1	1	0	0	1	0	0	1
IE - ST ³	65	28	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	64.1	4	31.9	36	2	3	3	1	1	0	1	0	1	0	0
INT - ME	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	2	3	0	1	0	1	0	0	0	0	0
INT - UR ²	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	2	3	0	1	0	1	0	0	0	0	0
IT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LV - LI ³	54	37	9	49	18	33	46	46	8	100	0	0	22	45	33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NL - RD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	26	58	16	28	3	2	1	1	0	0	1	0	0	0	1
PL - VI	21.1	0	78.9	21.1	27.2	51.7	8.5	68	23.5	0	100	0	8.3	5.2	86.5	6.1	3	2	1	1	0	0	0	0	0	0	0
PT - TR	34.6	15.5	49.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.6	22.7	72.7	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
RO - PR	50.48	6.98	42.54	NA	NA	NA	NA	NA	NA	50	44	6	NA	NA	NA	20.11	3	2	1	1	0	1	0	0	0	1	0
SE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9	3	2	1	1	0	1	0	0	0	0	1
SI - DA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	2	1	1	0	1	0	0	0	0	1
UK - SW ²	NA	NA	NA	88.4	11.6	0	79.3	20.7	0	100	0	0	80.8	19.2	0	NA	3	2	1	1	0	0	0	0	0	0	1
TOTAL (Average)	46	26	28	48	32	20	35	35	20	71	17	12	40	20	40	27	18	5	15	12	12	7	6	6	2	2	6

¹ Preliminary designation and numbers provided are only indicative

² Heavily Modified Water Bodies data is for the main section (tributaries: 25%)

³ Risk assessment: 4 categories instead of 3 (categories probably at risk and probably not at risk were added)

Table G. Data Gaps and General Comments. Question 4.1, 4.5 and 5.1.

CODE	Question 4.1 (1)							Question 4.1 (2)						Q. 4.2	Question 5.1				
	Explanations provided	Lack of Human Resources	Lack of Time	Lack of Expertise	Lack of Eco. Data	Lack of Eco. Data At Hydro. Scale	Methodologies Not Available	List of Data Gaps Provided	Eco. Importance of Water Uses	An. of Forecast and Baseline	Cost-Recovery Analysis	An. of Env. and Res. Costs	An. of Incentive Pricing	Selection of Measures	Specific Action Listed	Easily Accesible	Provided on the Internet	Developed with Consultation	Developed with Participation
AT - DA	0							0						1	1	1	1	0	
BE - SC	1	0	0	0	1	0	0	0						0	1	1	0	0	
DE - DA ¹	1	0	0	0	1	1	1	0						0	1	1	1	0	
DE - EL ¹	1	0	1	0	0	0	0	1	0	0	0	1	0	0	1	1	0	0	
DE - EM ¹	1	0	0	1	1	1	1	0						0	1	1	0	0	
DE - MR ¹	1	0	1	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	
DE - WE ¹	1	0	0	1	1	1	1	0						0	1	1	0	0	
DK - AA	0							0						1	1	1	1	0	
EE - EE	1	0	0	0	1	1	0	1	0	1	0	0	0	0	1	1	1	1	
ES - GA	0							0						0	1	1	0	0	
FI - KY															1	1	1	1	
FR - RH	0							1	0	0	0	1	0	0	0	1	1	1	
FR - SN	1	0	0	1	1	0	1	0						1	1	1	1	1	
GR																			
HU - DA	1	0	0	0	1	1	0	1	0	1	1	0	0	0	1	1	0	0	
IE - SI	1	0	0	0	1	1	1	0						1	0	1	1	0	
INT - ME	1	0	0	0	1	1	1	1	1	1	1	0	0	0	1	1	0	0	
INT - UR ¹	0							0						0	1	1	1	0	
IT																			
LV - LI	1	0	0	0	1	1	1	1	0	1	1	1	0	0	1	1	1	0	
NL - RD	1	0	0	0	0	1	0	0						1	1	1	1	1	
PL - VI	1	1	1	1	1	0	1	1	0	0	1	1	0	0	1	0	0	0	
PT - TR	1	0	0	0	1	1	1	1	1	0	1	0	0	1	1	0	0	0	
RO - PR	1	1	1	1	1	1	1	0						1	0	0	0	0	
SE	1	0	1	0	1	1	0	1	1	1	1	1	1	1	1	0	0	0	
SI - DA	1	0	0	0	1	1	1	0						0	1	1	0	0	
UK - SW	1	0	0	0	0	0	0	0						1	1	1	1	1	
TOTAL (Count)	19	2	5	5	16	14	12	10	3	5	7	6	2	3	14	20	21	13	7

1 Dependent on States

Table H. Data source

CODE	Title	Link	Date published
AT - DA	1) Österreichischer Bericht der IST-Bestandsaufnahme – Zusammenfassung der Ergebnisse für Österreich; 2) Österreichischer Bericht der IST-Bestandsaufnahme – Ökonomische Analyse der Wassernutzung	http://www.wassernet.at/article/articleview/32069/1/5659	Mar-2005
BE - SC	1) karakterisering van het vlaamse deel van het internationale stroomgebiedsdistrict van de schelde; 2) 'internationaal stroomgebiedsdistrict van de schelde – analyse – overkoepelend rapport		1) 2004 2) 2005
DE - DA	Umsetzung der Europäischen Wasserrahmenrichtlinie 2000/60/EG (WRRL). Bericht zur Bestandsaufnahme gemäß Art. 5, Anhang II und Anhang III, sowie Art. 6, Anhang IV, der WRRL für das Deutsche Donaugebiet	http://www.wasserrahmenrichtlinie.bayern.de/wrrl_live/navigation/show.php?id=247&nodeid=247&p=	Feb-2005
DE - EL	Zusammenfassender Bericht der Flussgebietsgemeinschaft Elbe über die Analysen nach Artikel 5 der Richtlinie 2000/60/EG (A-Bericht)	http://www.fgg-elbe.de/dl/a-bericht_national_fge_elbe.pdf	Mar-2005
DE - EM	1) Bericht ("Teil A") der Internationalen Flussgebietseinheit Ems, Bericht 2005 EG-Wasserrahmenrichtlinie 2) Anlage: Wirtschaftliche Analyse zum deutschen Teil der Flussgebietseinheit Ems		
DE - MR	Bewirtschaftungsplan Mittelrhein - 1, Bestandsaufnahme 2004- Bestandsaufnahme gemäß Art. 5 und 6 der EG-Wasserrahmenrichtlinie	http://www.wasserblick.net/servlet/is/29557/	Feb-2005
DE - WE	Bericht Flussgebietsgemeinschaft Weser: Bewirtschaftungsplan Flussgebietseinheit Weser - Bestandsaufnahme 2005		
DK - AA	1) Basisanalyse 2004, Århus Amt 2) Rapport om karakterisering og analyse af vanddistrikter mv. i henhold til artikel 5 i vandrammedirektivet (direktiv 2000/60/EF)	1) www.aaa.dk/aaa/index/serviceomraader/nm/nm-vandmiljoe/nm-basisanalyse.htm 2) http://www.mst.dk/default.asp?Sub=http://www.mst.dk/vand/06000000.htm	1) 2004, 2) 2005
EE - EE	Implementation of the WFD Art 5 requirements in Estonia. Summary report on all water basins	www.envir.ee/helcom/art5report.pdf	Mar-2005
ES - GA	Informe resumen de los artículos 5 y 6 de la Directiva Marco del Agua Demarcación Hidrográfica del Guadalquivir		Apr-2005
FI - KY	1) Suomen yhteenveto vesien ominaispiirteiden ja vaikutusten alustavasta tarkastelusta 2) Alustava selvitys Kymijoen-Suomenlahden vesienhoitoalueen merkittävimmistä vesistä 3) Suomen vesihuoltolaitosten kustannuskattavuus	http://forum.europa.eu.int/Public/irc/env/wfd/library?l=/framework_directive/implementation_documents_1/wfd_reports/member_states/finland&vm=detailed&sb=Title	Mar-2005
FR - RH	Etat des Lieux. Bassin Rhône-Méditerranée	http://195.167.226.100/DCE/RM/RM_etat-des-lieux.htm	Apr-2005
FR - SN	1) Etat des lieux. Bassin Seine Normandie et cours d'eau côtiers normands 2) Circulaire DCE 2004/06 relative à l'analyse de la tarification de l'eau et à la récupération des coûts de services	http://www.aesn.fr/index.php?id=1699	1) 2004 2) 2004
HU - DA	Report on the characteristics of the Danube river basin, impacts of human activities and economic analysis of water uses	www.euvki.hu	Mar-2005
IE - SI	1) Shannon River Basin District Characterisation & Analysis Summary Report; 2) The characterisation and analysis of Ireland's river basin districts. National Summary Report (Ireland); 3) Economic Analysis of Water Use in Ireland'	http://www.shannonrbd.com ; 1) http://www.kmm.co.uk/files/news1/file/ShIRBD%20Summary%20Report%20Final.pdf ; 2) www.wfdireland.ie	1) Dec-2005, 2) 2004
INT - ME	Roof report on the international coordination according to article 3 (4) of the analysis required by article 5 of directive 2000/60/EC	www.kaderrichtlijn.nl	Mar-2005
INT - UR	Internationales Bearbeitungsgebiet Oberrhein, Bericht zur Bestandsaufnahme, 134 Seiten	http://www.wrrl.baden-wuerttemberg.de/servlet/is/3577	Mar-2005
LV - LI	Characteristics of the River Basin Districts. Assessment of antropogenic pollution load on surface waters and groundwaters. Economic Analyses.	http://www.lva.gov.lv/zinojumi/wfd2005_lv/	Mar-2005
NL - RD	Charachterisation of the Rhine delta according to the article 5 of the WFD. Main report.	www.kaderrichtlijnwater.nl	Dec-2004
PL - VI	Raport dla Obszaru Dorzecza Wisly Art 5	http://www.bgw.gov.pl/raporty/Raport_dla_Obszaru_Dorzecza_Wisly.pdf	Mar-2005
PT - TR	Relatório síntese sobre a caracterização das regiões hidrográficas prevista na Directiva-Quadro da Água	http://dqa.inag.pt/dqa2002/port/relatorios/Relatorio_Artigo5_PT-SETEMBRO.html	Sep-2005

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