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European Commission – General Directorate Environment

Support to Fitness Check Water Policy

Project

**Request for services in the context of the framework contract on evaluation and
evaluation-related services ABAC N°101934**

Institute for European Environmental Policy

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14 June 2011



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This report does not represent any official position of the European Commission but the sole opinion of the authors of the study.

0 EXECUTIVE SUMMARY

The European Commission mandated Deloitte in partnership with IEEP to perform a study *contributing to an integrated evaluation of the body of legislation affecting the protection of EU freshwater resources, in the framework of the "Fitness Check" and the "Blueprint to safeguard EU waters"*.

The purpose of the study is therefore to support a so-called “fitness check” exercise. A fitness check is a new method introduced in the context of the Smart Regulation agenda to check if EU laws meet their objectives in an efficient, efficient and consistent way. It will be applied in specific policy areas to assess if there are gaps, inconsistencies or difficulties in the implementation and if an adaption or a revision of the laws is needed. In this study, the fitness check is applied on the area of protecting Europe’s freshwater resources, which has been chosen as a priority area.

We present in this executive summary our answers to each evaluation question and per evaluation criterion (relevance, coherence, effectiveness and efficiency). At the end of the summary, we present the main challenges (i.e. gaps, inconsistencies or difficulties) that should deserve attention for future policy development.

0.1 Relevance

The evaluation question we have raised on the relevance of EU water policy is:

To what extent do the policies covered by the FC and their objectives address the challenge of sustainable management of EU freshwater resources?

We have identified three main challenges that future EU water policy needs to address, and have provided a snapshot assessment of the extent to which the policy objectives and instruments are sufficient to address these challenges.

1. *Maintaining and reaching a high quality of European freshwaters (good ecological status)*: The introduction of the Water Framework Directive (WFD) has established a policy framework that addresses all relevant aspects of maintaining and reaching a high quality of European freshwaters. The WFD is widely appraised as a good example of an integrated approach to environmental policy-making, particularly with regard to the ecological assessment of ecosystems and the approach to integrated river-basin management. Concerns are raised, however, that the policy objectives of the WFD are overambitious. At this stage it is difficult to judge the reality of such concerns – certainly the objectives are ambitious, but the implementation timetable from 2000 has been, and will be, longer than more any other EU environmental legislation, so that it will be some years before an ex-post evaluation of the level of ambition is possible. There are also concerns that the WFD lacks clarity on some details¹ and leaves a lot of room for diverging interpretation of action requirements.

¹ The WFD has extensive detail on a number of issues (e.g. on characterisation, monitoring or on determination of water status, but also has a number of elements that require interpretation (see earlier

This may make it difficult to ensure that policy objectives are being met, while at the same time allowing the flexibility to help Member States choose the most locally cost-effective measures to deliver those objectives. The instrumental mix in place is broad: While regulatory instruments continue to form the policy core of EU Water Policy, planning and informational and participatory instruments play an increasingly important role. A majority of stakeholders agree that instruments in place are sufficient to pursue EU water quality objectives, but depend mainly on domestic operationalisation (as with all directives). There is an extensive body of information and a diversity of monitoring and assessment tools available. However, assessment of the effective of measures requires good information and data availability and, even with the extensive monitoring requirements of the WFD, these issues remain important challenges (e.g. see earlier discussion on Art 9), and will become more so as the needs to understand and respond to climate adaptation are addressed.

2. *Addressing water availability and water demand:* While the WFD is requiring action to address water availability and tackle water demand, EU Member States enjoy considerable autonomy and flexibility with regard to issues such as adequate pricing of water use. Flexibility allows Member States to adopt measures adapted to their own specific circumstances. However, such divergence should be supported by exchange of experience (from instrument design to lessons learned) between Member States. Economic instruments focusing on efficiency in water supply are not widely used in Europe. An effective approach to better integrating water concerns into key sectoral policies is still missing, particularly with regard to increasing the efficiency of using water in agriculture and buildings. A prioritisation of competing water uses would be helpful, but is missing. The principle of cost-recovery remains widely and controversially discussed, as it has not been sufficiently defined.
3. *Tackling droughts and floods:* Provisions for the problem analysis under the floods directive can be regarded as adequate, and the mapping phase will provide for a major improvement in information available. Drafting the flood risk management would benefit from a much stronger link to integrated land use management. The approach taken so far is rather reactive, in terms of better preparing for floods, rather than mitigating their causes. Some progress is to be noted in terms of addressing the potential of water savings in different sectors, but water scarcity and droughts continue to remain under-addressed as a policy issue. Efficiency standards for water use in building offer strong prospects for future savings. There is no consensus and no clear majorities for future regulatory action on droughts, but widespread agreement on the needs for increased “soft” policy coordination.

discussion for example on Art 9) and, indeed, seeking consensus on interpretation has been a major focus of the development of guidance under the CIS.

0.2 Coherence

The evaluation questions we have raised on the coherence of the water policy is

What is the degree of integration of WFD with the other instruments covered by the Fitness Check (FC)?

Achieving greater policy coherence within European Water Policy was a key reason for introducing the WFD. Both major point sources and diffuse sources are now tackled in one common regulatory framework, and there is no major conflict of objectives or instruments. The WFD complements the regulatory framework of the Urban Waste Water Treatment Directive (UWWTD) and the Nitrate Directive (NID) and reinforces action taken to implement these Directives. However, stakeholders raised the issue of reporting obligations under the different Directives covered by the FC not being coherent with each other (such as reporting cycles of the WFD, NiD and UWWTD). However, since adoption of the WFD, much water law (revised and new) has become increasingly coherent in this regard (and further taken forward through WISE). Clearly, failure to achieve integration of monitoring and reporting obligations may lead to unnecessary burdens on public administrations. Future consideration of WISE and future review of Directives will also assist in enhancing coherence.

What is the degree of integration of fresh water policy with other relevant environmental and sectoral policies? Is the scope for integration of WFD with other policy objectives fully exploited?

There are numerous interaction points with other environmental Directives in terms of land use planning (SEA and Environmental Impact Assessment - EIA Directives), protected areas (Habitats and Birds Directives) and pollution sources (Integrated Pollution Prevention and Control - IPPC Directive). Many stakeholders regard the further harmonisation of reporting requirements and public participation requirements under the different Directives as important, particularly in order to avoid stakeholder consultation fatigue. In spite of existing advice, the extent to which the provisions of the SEA Directive should apply to the River Basin Management Plans (RBMPs) or the Programmes of Measures (PoMs) of the WFD or to both remains unclear. Good progress has been made in terms of clarifying the relationship between the WFD and the Habitats Directive, particularly in view of diverging objectives and deadlines. Stakeholder discussions confirmed that the problems are rather linked to issues of practical coordination than to systemic legal inter-linkages. The links with the IPPC directive are more complex and challenging, particularly with regard to translating pressures on good environmental status and good chemical status to discharge requirements for IPPC permits. Existing IPPC installations were required to have been issued permits by October 2007 – before the completion of PoMs. Therefore, it is possible that the objectives of the WFD and Environmental Quality Standards Directives (EQSD) require the conditions of some permits to be revisited.

In sum, the scope of integration of WFD with other environmental Directives can be considered as fairly advanced, such as with SEA. The relationship with other sectoral policies remains subject of much more controversial discussion. Clearly, there are views from

stakeholders and in the literature that not enough progress on sectoral integration of water concerns has been made over the past years.

A report on OECD countries (OECD, 2011) concluded that, overall, “policies across the agriculture, water, energy and environment spheres are formulated without sufficient consideration of their interrelationship in any comprehensive manner, or their unintended consequences”. However, this is a situation that is changing and “policymaking and decisions have started to involve a higher degree of interdependence”. However, it concluded that greater efforts are needed to deliver improved coherence. Past reforms of the CAP have increased the importance of environmental protection within the overall policy framework of the CAP. Nonetheless, a number of key pressures and impacts arising from farming practice throughout Europe continue to impact on the quality and availability of water. For example, in two thirds of River Basin Districts (RBDs) nutrient enrichment is due to farming practice. Water-related actions taken under the 2nd pillar of the CAP are not sufficient to counteract those pressures exerted on water quantity and water quality by some action funded under the pillar I. Integrating WFD concerns into pillar I of the CAP is a genuine regulatory challenge, as both policies follow very different regulatory philosophies (procedural compliance and regulatory flexibility in case of the WFD versus top-down regulation in case of CAP).

The environmental dimension is still not on equal footing with the economic and social dimension when it comes to priority-setting for funding to achieve greater territorial cohesion. While the Cohesion funds have contributed to measurable improvements concerning water availability, public networks coverage, better quality and improved service continuity, the effectiveness and efficiency of spending remains open to improvements.

In addition to CAP and Cohesion Policy, our analysis finds that links with other sectoral policies need to be considerably advanced in the future, particularly with regard to energy and navigation. On energy policy the driver for some renewable energy sources and targets for biofuel production have implications for water use and water quality and it is important the future policy development in this area is harmonised with water policy objectives. Similarly, there is also renewed emphasis on water-based transport, again with a need for future policy development in this area to be harmonised with water policy objectives.

The OECD (2011) in its assessment of policy coherence concluded with eight elements that are important for policy makers to consider. These are of wide relevance and worth highlighting here:

1. “ensuring strong political commitment;
2. unravelling policy and institutional legacies;
3. designing an optimal policy mix to ensure coherence;
4. developing a shared vision among relevant stakeholders;
5. providing support systems for stakeholders;
6. improving the impact assessment of policy coherence;
7. developing the evidence base of policy coherence; and,
8. communicating the benefits of policy coherence.”

0.3 Effectiveness

The evaluation question we have raised on the effectiveness of the water policy is:

Are the preliminary achievements in line with the stated objectives?

As to the **WFD (and its daughter Directives)**, we mainly looked into the extent to which output objectives have been achieved, as it too early to assess effectiveness in terms of achievement of environmental objectives (or outcomes). As to the transposition of the WFD in national legislation, it can be concluded that the process has been cumbersome with a high number of infringement procedures in relation to non-communication and incorrect and incomplete transposition. First, the transposition deadline (December 2003) was poorly met by the EU15. The new Member States though had progressed well by the date of their accession in 2004. Second, conformity-checks of national transposing legislation revealed widespread shortcomings. Therefore the European Commission has been pursuing many cases of non-conformity. In 2010 it was still dealing with cases against 19 Member States.

Member States managed to identify river basin districts and designate competent authorities by 2004, except for one country. Most Member States reported on time (i.e. by December 2003).

The characterisation of river basins (including analysis of pressures, impacts and economic analysis) proved to be a challenge for many Member States, though most Member States submitted reports on time and put lots of efforts and time into it. The quality of the reports and the level of detail varied considerably, though all Member State reports had data gaps. The economic analysis reports in particular appeared to be incomplete and relatively weak for most Member States.

Most Member States managed to establish monitoring networks for both surface and ground water by 2006, though there were still gaps at that time in some river basin districts or for some water categories. The establishment and implementation of the monitoring programmes is generally considered a great achievement in overall terms, among others because for the first time comparable pan-European data sets to assess the ecological status of surface waters are being gathered as a basis for restoring aquatic ecosystems.

Member States were required to publish RBMPs by 22 December 2009 and to report these plans to the Commission by 22 March 2010. However, as of 14 October 2010, 17 Member States (and Norway) had adopted their RBMPs.

An assessment of the first round of submitted RBMPs is currently on-going, making statements on the degree of factual norm compliance difficult. The quality of information contained in many of the draft RBMPs was rather poor, in particular links to spatial planning were underdeveloped, and foreseen action on economic incentives difficult to assess.

In relation to water pricing, it can be concluded that full cost recovery has not yet been achieved in many Member States and that progress is slow.

As to the **UWWTD**, it can be concluded that wastewater treatment all over Europe has improved during the last 20 years. However, the percentage of the population connected to wastewater treatment in Southern, South-eastern and Eastern Europe is still relatively low compared to other parts of Europe. In the EU-15, the implementation of the Directive presents a mixed picture. On the one hand, key infrastructure is in place in EU Member States and significant investments have been made. As a result water quality has improved in the EU-15. On the other hand, there were still a number agglomerations in the EU-15, among others in Belgium, France, Greece, Italy and Spain, which lack complete waste water collecting systems and treatment facilities, at least according to figures available in 2009 implementation reports. It should however be noted that in recent years in most of these countries considerable progress has been made in this respect. As for the EU-12, implementation of the Directive is subject to transition periods up to 2018. The Directive presents major challenges to these countries. These relate both to the establishment (or improvement) of waste water collection systems and to the development of the necessary levels of treatment to comply with the Directive.

Implementation of the Directive has been and still is a major challenge for many Member States. As a result, the Commission has opened many infringements cases and the European Court of Justice has issued a considerable number of judgements against Member States, including failures to determine sensitive areas, treatment of discharges in these areas, failure to provide secondary or equivalent treatments as well as tertiary treatments or collecting systems for urban waste water.

Implementation of the **Nitrates Directive** has been a major challenge for the EU Member States, resulting in a number of infringement actions by the Commission and a considerable number of ECJ judgements over the years. Nevertheless, progress has been made in reducing water pollution caused/induced by nitrates from agricultural sources. During the last decade, the extent of designation of sensitive areas and the quality of action programmes has improved in several Member States. Additionally, very significant reductions in chemical N and P inputs have taken place across the EU15 since the introduction of the Directive (though 34% of EU15 monitoring stations showed an upward trend in nitrate concentrations in the period 2004-2007). Furthermore, significant investments in manure storage and management have taken place. The Commission report on implementation indicates the stabilisation and gradual improvement of water quality while noting the time lag necessary between the adoption of better practices and improvements in water quality. Further improvements in water quality can now be anticipated and further reinforcement of action programmes is on-going.

Among the respondents to the survey, 44% state that the Directive contributes fully (12%) or to a large extent (32%) to the achievement of the objective to reduce water pollution caused/induced by nitrates from agricultural sources. 47% of the respondents state that the Directive only contributed to some extent to this objective. And 10% considers that it does not contribute at all to this objective.

0.4 Efficiency

The evaluation questions we have raised on the efficiency of the water policy are:

To what extent do the Member States respond to the requirements of the water policy in terms of administrative co-operation and policy coordination?

Are availability of and access to funding a constraint in the implementation of the Directives, as well as of agreed policies on water scarcity and droughts?

In order to assess the efficiency of the FC policy, the study analyzed several key-indicators: a) the extent to which administrations cooperate and coordinate policy implementation, b) the availability and access to funding (that can support the implementation of the FC policy), as well as c) the compliance costs and potential administrative burden entailed by the implementation of the FC policy. Regarding cooperation and coordination, the main achievements that have been observed are: higher transparency in policy implementation, better communication and use of joint-resources by the concerned administration bodies (within and across member states and regions), as well as stronger incentive to avoid trans-boundary conflicts. The study also pointed out several spill-over effects i.e. stronger cooperation in the area of water policy led to higher commitment for cooperation in other policy areas (which is a significant achievement especially as third countries are being involved in the co-management of several basins). Among the shortcomings that may impede upon stronger cooperation and coordination there are: overcoming legacy practices when shifting from a country-oriented to a River Basin-oriented approach as well, as well as placing water policy at the top of the agenda in countries where current developments (e.g. the economic downturn) may require stronger focus on other policy areas.

Regarding funding, the study shows that EU cohesion policy and the second pillar of CAP are perceived as main avenues for funding (at EU-level) in support of the FC policy. Additional EU funds have been secured through LIFE, LIFE+, the Framework Programmes for Research and Technological Development and INTERREG, although in smaller amounts. By and large, member states agree that significant funding is necessary in order to comply with all the requirements of FC policy (especially for younger member states), but they also acknowledge that the largest amount of funding should be generated internally (within member states) as opposed to relying on EU funding only.

Regarding administrative and compliance costs, these are being perceived as acceptable by most of the Public Water Authorities consulted. While significant administrative burden was to be expected especially for the first round of action, subsequent cycles would require less resource and more easily-observable results.

0.5 Main challenges

We present here the main challenges (i.e. gaps, inconsistencies or difficulties in the implementation of the policy) that we have identified along the report. These challenges are related to the four different dimensions covered in our study. For each challenge, we have identified categories on which the European institutions could further act in the coming years to improve the fitness of the water policy. We have also indicatively weighted them according to our understanding of the importance of their impacts on the different categories. Finally, we have ranked the challenges considering their strategic or operational characteristics.

We have created seven categories that could be directly addressed by the European institutions because in its scope of power (EU level) or indirectly by supporting the Member States to further act on these fields (domestic level):

1. EU level:

Incomplete policy: This category concerns legal gaps inside the EU freshwater policy due to possible unclarity of certain aspects or simply due to missing legislation or policy guidance that could further support the achievement of the EU objectives.

Internal coherence: This category deals with gaps that could occur due to overlapping or divergence in the coherence inside the freshwater policy package.

External coherence: This category deals with gaps that could occur due to overlapping or divergence in the coherence between the freshwater policy and other sectoral policy (e.g. agricultural policy, cohesion policy, industrial policy).

2. Domestic level:

Cooperation: This category concerns the insufficient level of cooperation between and inside the countries that could hamper the achievement of the EU water policy goals.

Administrative arrangements: This category deals with missing/inadequate administrative arrangements at national level that could support the implementation of the water policy.

Funding: This category deals with lack of (accessibility of) funding (whatever European or national) that could hamper the achievement of the EU policy goals.

Political agenda: This category deals with the discrepancy/incompatibility between the EU priorities/policy and the national priorities/policy.

Table 1: Challenges related to the water policy

S/O	Challenges	EU level			Domestic level			
		Incomp. policy	Int. coh.	Ext. coh.	Coop.	Admin.	Funding	Pol. agenda
S	Lack of concrete provisions to tackle water demand by other EU policies, particularly with regard to increasing the efficiency of using water in agriculture and buildings.	**		***				
S	Feasibility of the WFD objectives by 2015.		**		**	**	**	***
S	The principle of cost-recovery widely and controversially discussed, as it has not been sufficiently defined.	**			*			**
S	Underutilisation of economic instruments for efficient use of water.			**		**		**
S	Lack of prioritisation of competing water uses (i.e. operationalisation of water hierarchy).	***		**				**
S	Different regulatory approach between the WFD (flexibility) and the CAP (strictness).			***	**			
S	Assess the sustainability of the water use for energy production.			**	*			
S	Strengthen the link between the water policy and the climate change adaptation needs.	*	***	***				
S	Better understanding of the impacts of changes in water problems (drought, floods, water availability) on the industry and agriculture sectors.	***	**	***				
S	Better understanding of the water policy impact on the industry and agriculture sectors.	***	**	***				
S/O	Need for harmonisation of the public consultation processes under the different environmental Directives.	**	***		*			
S/O	Assessment of the RBMPs and the implications for reaching the 2015 targets at river basin level.	**		*				
S/O	Close gaps in urban waste water treatment infrastructures in EU-27.						***	**
S/O	Shift from administrative boundary-focused to river basin-focused policy implementation.				*	***	**	**
O	Information and data availability (e.g. resolution and time series on environmental and economic data), particularly concerning droughts, ground	*			***	**	***	*

S/O	Challenges	EU level			Domestic level			
		Incomp. policy	Int. coh.	Ext. coh	Coop.	Admin.	Funding	Pol. agenda
	water, floods aspects.							
O	Incoherent reporting obligations under the different freshwater Directives.	**	***					
O	Achievement of practical coordination between WFD implementation and Habitats Directive implementation.				***	**		*
O	Need for translating pressures on good environmental status (WFD) and good chemical status to discharge requirements for IPPC permits.		**		***	**		
O	Improving the utilisation and efficiency of the cohesion policy funds.			**		***	***	***
O	Improving economic analysis to inform planning and decision making in the River Basins.	*				**		**
O	Strengthen the comparability of the results of the monitoring programmes (inter-calibration).	**			***	**	*	
O	Designation of adequate vulnerable zones under the Nitrate Directive and further reinforcement of action programmes.				*	**		***
O	Meeting capacity requirements at national/regional level to implement the water policy.				*	***	**	**
O	Clear guidance and capabilities required to write, plan and manage EU-funded projects are limited at national level.	**				***		

*: Possible links between the gap and the category

**: Clear links between the gap and the category

***: Strong links between the gap and the category

S: Strategic level

O: Operational level

1 INTRODUCTION

1.1 Presentation of the report

The European Commission mandated Deloitte in partnership with IEEP to perform a study *contributing to an integrated evaluation of the body of legislation affecting the protection of EU freshwater resources, in the framework of the "Fitness Check" and the "Blueprint to safeguard EU waters"*, a request for services in the context of the framework contract on evaluation and evaluation-related services ABAC (N°101934).

The contract was signed by Deloitte and the European Commission on 9 December 2010. The project really started on January 12, date of the kick-off meeting. The Terms of Reference describe the need for the following reports:

1. A draft Inception report to be submitted no later than 2 weeks after the start of the contract, including a work plan, an indicative list of sources, a list of references or the literature review and the list of stakeholders to be contacted.
2. A final Inception report to be submitted no later than 4 weeks after the start of the contract, integrating the comments from the Commission;
3. A Draft evaluation report to be submitted no later than 16 weeks after the start of the contract, including an evaluation of the degree of effectiveness and efficiency of EU freshwater policy;
4. A Final report taking on board the feedback received from the stakeholders at a workshop, and the comments received from the Commission on the draft evaluation report. It should be delivered no later than 22 weeks after the start of the contract.

This report is structured as follows:

- Section 1 introduces the study, including our understanding and the context of the study.
- Section 2 presents our overall methodological approach that we have used to produce the report of the study.
- Section 3 provides a comprehensive overview of the state of Europe's freshwaters and future challenges, mainly synthesizing findings from the latest 2010 State of the European Environment and Outlook Report. It also reflects on the changing problem structure that European Water Policy is confronted with and discusses links to key socio-economic and policy drivers. The links of water policy and agriculture policy are of obvious importance in this respect.
- Section 4 describes the legislative framework covered under this project and discusses some of its key objectives and instruments. It seeks to classify the main instruments according to their type and effectiveness conditions. The section also looks at policy linkages, concerning both linkages with other environmental policies and linkages with important sectoral policies such as agriculture, energy or transport.
- Section 5 analyses findings on the relevance of the legislative framework covered in this study. Particular attention was paid to the question if this framework is adequately capturing relevant challenges to preserving a high quality of European waters and if the instruments in place are sufficient for the sustainable management of freshwater resources. Is enough attention given to the control of pollution at the

source to reduce Europe's reliance on end-of-pipe solutions (e.g. waste water treatment)?

- Section 6 turns to the assessment of the overall coherence of the legislative framework, both focusing on its internal coherence and external coherence with other policies. Of particular interest is literature that seeks to evaluate if the scope of integration is fully exploited, both with regard to other environmental policies (biodiversity, flood protection, climate change adaption) and other sectoral policies (agriculture, transport, energy).
- Section 7 and 8 synthesizes findings from on effectiveness and efficiency conditions of EU Water Policy. It will particularly aim to assess if findings from the analysis of achievements and shortcomings in transposition and implementation can be explained with regulatory gaps or inconsistencies in the overall policy framework, with a lack of political will or funding or barriers embodied in the current institutional and administrative arrangements in EU Member States and between EU Member States.
- Section 9 presents the conclusions of the study. It summarise the main challenges from the other sections and more particularly focus the gaps that have been identified and on which the Commission could further act in the near future.
- The Annexes:
 - Annex 1: The case studies;
 - Annex 2: The list of references used;
 - Annex 3: The list of stakeholders interviewed.

1.2 Understanding the policy context of this report

1.2.1 *Smart regulation and the role of Fitness Checks*

The purpose of the study is to support a so-called “fitness check” exercise. A fitness check is a new method introduced in the context of the Smart Regulation agenda to check if EU laws meet their objectives in an efficient, efficient and consistent way. It will be applied in specific policy areas to assess if there are gaps, inconsistencies or difficulties in the implementation and if an adaption or a revision of the laws is needed. As stated in the Work Programme for 2010² the fitness checks aim, *"to keep current regulation fit for purpose [...]. The purpose is to identify excessive burdens, overlaps, gaps, inconsistencies and/or obsolete measures which may have appeared over time. Pilot exercises will start in 2010 in four areas: environment, transport, employment and social policy, and industrial policy."* In other words, Fitness Check is about checking that the EU policy instruments, in particular, and in this case, the regulations, contribute to achieve the EU objectives.

In this study, the fitness check is applied on the area of protecting Europe's freshwater resources, which has been chosen as a priority area. The specific aims of the study are to

² http://ec.europa.eu/atwork/programmes/docs/cwp2010_en.pdf

provide the European Commission with a comprehensive state-of-the art assessment of the contribution of the EU policy (i.e. Water Framework Directive, related Directives, Communications) in protecting Europe's freshwater resources to support policy conclusions on the future of the relevant regulatory framework in the field of EU water policy, notably the Blueprint. To this end, the study:

- analyse the coherence, effectiveness and efficiency in implementing and applying the EU Water Policy as well as compliance with institutional requirements of the Policy in European member states and analyse to the degree possible how they affect the achievement of set policy objectives³;
- identify drivers and barriers of implementation, such as inconsistencies, gaps, overlaps, and/or measures and/or requirements that have become obsolete over time as well as administrative, technical and financial capacities of relevant authorities;
- apply an integrated approach towards evaluation, taking into account important thematic inter-linkages of the water issue with issues such as climate change mitigation/adaption (particularly droughts), waste management, urban development (particularly in coastal regions) as well as the issue of cost on (non-)action and the question of administrative cooperation between different river basin authorities to the extent possible;
- focus on specific aspects related to infringements and compliance, providing evidence from infringement procedures and complaints.

As it stands in the Terms of Reference (ToR), the evaluation questions can be summarized as follows:

1. Concerning **effectiveness**, notwithstanding the ongoing implementation of the existing regulatory instruments, are the preliminary achievements in line with the stated objectives?
2. Concerning **efficiency**, could evaluators assess the ongoing implementation of the WFD, with a special focus on the degree of co-operation and policy integration between the river basin level and the different administrative units in Member States, and between Member States in trans-boundary basins? Moreover:
 - Are availability of and access to funding a constraint in the implementation of the Directives, as well as of agreed policies on water scarcity and droughts?
 - Are there regulatory gaps, inconsistencies, overlaps or evidence of excessive administrative burdens?
3. Concerning **coherence**, what is the degree of integration of WFD with the other instruments covered by the FC? Moreover:

³ This assessment is mainly ex-ante and focus on policy outputs rather than policy outcomes as it is too early to assess whether Member States will have achieved the requested "good ecological status" in their river basins, which is due for 2015 only (the end of the first policy cycle of the Water Framework Directive).

- What is the degree of integration of water policy across Member States and sectors, asking in particular whether there are substantial divergences between Member States in defining and implementing the key concepts of the WFD, such as ecological objectives, inter-calibration, monitoring, integrated management of ground and surface waters, pricing policies, etc.?
 - What is the degree of integration and coherence with other policy instruments addressing the use (or re-use) of water for specific purpose, such as drinking water, bathing water, use of water for irrigation, food and drink production, industry, etc?
 - Is the scope for integration of WFD with other policy objectives (e.g. biodiversity & nature protection, flood protection, management of water availability, adaptation to climate change) fully exploited?
 - Are current instruments sufficient for the sustainable management of freshwater resources? For example, is the management of water demand (pricing, "gaps", buildings, agriculture, leakage, implementation of the water hierarchy and land use) and water availability (hydro-morphology, land use and green infrastructure) well covered by existing EU legislation? Are there shortcomings to address?
4. Moreover, we thought that it is particularly relevant to address the question of the **relevance** of the policy: To what extent do the policies covered by the FC and their objectives address the challenge of sustainable management of EU freshwater resources?

These evaluation questions concern a policy field that is just under development. In many ways it enters uncharted territory. The literature review has ensured that the study has taken account of the latest state of the art in academic and non-academic literature. However, given probable gaps in the literature, the interviews were instrumental for creating the information base to answer these questions. The level of depth and detail of information per country / river basin might vary as a consequence of different conditions in the interview phase. However, all efforts have been made to ensure that all evaluation questions are covered to the same degree.

1.2.2 *Towards a Blueprint to safeguard Europe's water*

The origins of European water policy date back to the early 1970s, with the first Environmental Action Programme of the European Community from 1973 being an important milestone (Jordan 2005). This early start of European water policy broadened and deepened over the years, resulting in comprehensive legislation and binding standards on the quality of drinking water, bathing water, on the quality of water for fish and shell-fish, discharges of substances to groundwater, nitrate pollution from agriculture or urban waste water treatment. European water policy developed in a piecemeal approach, tackling problems piece by piece and mainly through regulatory control of point-sources of specific pollutants (Grant and Matthews 2000).

Some considerable successes were achieved regarding the reduction of point-source pollutants in lakes, rivers and coastal areas. However, the piecemeal approach resulted in a fragmented legislation with different, sometimes conflicting aims, definitions, methodologies and means. Shortcomings in implementation were also a result of this

complexity and incoherence of policies (Kallis and Nijkamp 2000). Water quality remained a serious challenge in large parts of Europe at the end of the 1990s (EEA 1999).

Calls for a more integrated approach to European water policy resulted in a substantial change in the overall policy approach, as expressed in the adoption of the European Water Framework Directive (WFD) (Directive 2000/60/EC). For the first time, management and protection of groundwater, inland surface waters, estuarine waters and coastal waters is based on biological and ecological elements and corresponding quality objectives for the whole river basin, with ecosystems and their services being the centre of discussions and management decisions. The WFD extends the scope of water protection to all freshwaters and sets broad quality objectives, aiming to achieve 'good ecological status' by 2015 for waters following certain requirements. This has to be achieved through integrated River Basin Management Plans, which can extend beyond administrative boundaries. The WFD requires EU Member States to involve citizens closely and introduce water pricing policies to 'get the prices right' and recover costs of water use (Grimeaud 2001).⁴

Thus, ambitious policy objectives have to be achieved in a relatively short time-frame. EU Member States are also called upon to implement a range of new and partially far-reaching policy and administrative measures, i.e. drawing up integrated river basin management plans or introducing water pricing policies. Achieving the objectives of the WFD constitutes a huge challenge for EU Member States and water companies (Koeck, 2009).

The WFD specifies a broad framework for policy action that leaves considerable flexibility to EU Member States to further specify policies, instruments and institutional arrangements (Bloech 1999). Assessments of the early transposition and implementation phase revealed a rather low level of implementation. One common interpretation is that policy delays, lower levels of ambition and incoherence in implementation a logical result of a lack of common denominators and lacking clarity of key provisions of the WFD (Boscheck, 2006; EEB and WWF 2005; Moss, 2004; Schmalholz, 2001). Widespread shortcomings were also reported in the first implementation report by the European Commission, and a number of infringement actions have been issued over the last years (CEC, 2007).

Compliance assessments, however, also show that European Member States have established necessary structures and administrative arrangements and that policy learning is taking place in many places, initiating policy changes (Kanakoudis and Tsitsifli, 2010). Reforming water policy and governance is quite a complex undertaking, facing the challenge to bridge several gaps across in a multi-level governance context. These range from administrative gaps (geographical mismatch between functional units and administrative boundaries) and information gaps to policy gaps (sectoral fragmentation) and capacity gaps (personnel, technical skills) and end with funding gaps and incoherence between policy objectives (Akmouch, 2010).

The main question then is whether observed progress is enough to meet the established objectives of the WFD by 2015, or whether additional action is needed. Ten years after the

⁴ Other directives, such as the Groundwater Directive (Directive 2006/118/EC) or the Priority Substances Directives (Directive 2008/105/EC) were introduced later on to elaborate specific dimensions of the legislative framework, for example re requirements with regard to chemical status of water bodies.

adoption of the WFD the Commission has therefore started preparations for a major assessment of European Water Policy, the so- called “Blueprint to safeguard Europe’s water”, which will lay down the foundations for future European water policy and analyse achievements, strengths and shortcomings of current efforts to protect Europe’s waters (Potocnik, 2011). Part of this assessment will be a so-called “Fitness Check of EU Water Policy” that will assess the relevance, coherence, effectiveness and efficiency of the existing legislative framework. As part of this exercise, the European Commission has commissioned a study to collect information from relevant stakeholders and relevant literature.

2 THE FITNESS CHECK EU WATER POLICY: METHODOLOGICAL APPROACH

We have based our methodological approach on three main steps:

1. Framing the study via a detailed analytical framework;
2. Data collection through specific tools, such as literature review of academic and non-academics document, interviews, web-based surveys and workshops with EU freshwater policy’s stakeholders;
3. Analysis of the findings and reporting in this Final report. Through the report, we present the results of the literature review and the interviews and where relevant we present the results of the surveys in specific boxes. At the end of the four main chapters, we present the answers to the evaluation questions. At the end of the report we present our overall conclusions including gaps that could prevent the optimised implementation of the EU freshwater policy.

We present in the section the main tools that have used during the whole study.

2.1 The first step of the study: the analytical framework

In order to clarify our understanding of the fitness check objectives and in line with the Terms of Reference, we have proposed an analytical framework which presents, by evaluation theme, evaluation sub-questions (covering the various dimensions of the main question and allowing us to build our expert opinion and propose a judgement, from different perspectives) and for each of the sub-questions the judgement criteria, the indicators and the source of information for these indicators.

This analytical framework will help us address the scope of all questions. The division into sub-questions gives an overview of what is included in the question and also provides an opportunity to ask additional questions on important points. The analytical framework organises, by evaluation question and sub-question, the following elements:

- judgment criteria on which we have proposed to determine our evaluative judgment relative to the particular evaluation question; the judgment criteria illustrate various dimensions of the evaluation question and sub-questions;
- indicators that were used to feed our judgment criteria;
- the method we have proposed to address the question/issue and collect the necessary information - and the key sources of data and other input.

The analytical framework was used to get from the question to the information needed to address it, but it will also be used to formulate the answer in a structured way.

2.2 The main tools that were used during the study

This section details the tools we have used for this study, namely, the literature review, the interviews, the web-based surveys and the workshop with the stakeholders.

2.2.1 Literature review

The main purpose of the literature review is to contribute to the overarching assessment of the relevance and coherence of current European water policy as well as to the overall analysis of main problems and obstacles preventing the effective and the efficient achievement of agreed objectives. Following the evaluation questions as listed in the section above, we have screened available academic and non-academic literature to compile the latest state-of-the art information and evidence with regard to the following dimensions of the evaluation puzzle:

- *The relevance of European water policy:* Does the current policy framework adequately capture relevant challenges to preserving a high quality of European waters and are the instruments in place sufficient for the sustainable management of freshwater resources? Is enough attention given to the control of pollution at the source and are there any major regulatory gaps?
- *The coherence of European water policy:* To what degree are policy objectives and instruments coherent and to what extent are water policy concerns sufficiently integrated into other environmental and non-environmental policies? Is the scope of integration fully exploited? To what extent are European Member States applying similar approaches to implementing the WFD and related legislation?
- *The effectiveness of action undertaken, as measured in terms of achievements in national implementation:* How do European Member States transpose and implement the objectives and requirements of European Water Policy? Are European Member States applying similar approaches to implementing key concepts of the WFD, such as ecological objectives, inter-calibration, monitoring, integrated management of ground and surface waters, pricing policies? Are conditions of policy relevance and coherence improved or weakened?
- *The efficiency of action undertaken so far, as measured in terms of achievements in national implementation:* To what extent are the current achievements in line with the stated objectives of EU Water Policy and their respective time table for implementation? Are EU Member States choosing the most cost-efficient approaches and is the potential for transboundary policy-learning among responsible administrations fully exploited?

This literature review forms the basis of our analysis. It is supported and complemented with other research methods applied in this project, in particular the interviews and web-based surveys. On the one hand the literature review contributes to the identification of key issues to be discussed with officials and stakeholders during the interviews. On the other,

this literature review supports, verifies and complements the analysis of the data gathered from the interviews and the web-based surveys.

The findings presented in this report are based on a screening of both academic and non-academic sources, looking at evaluation studies, implementation reports, information on infringements, complaints and petitions, position papers and other feedback from stakeholders with regard to the dimensions sketched above. We have systematically screened a compilation of academic journals that regularly publish academic work on water policy issues and used established scientific databases for key-word searches to find additional academic publications.

We constrained the search mostly to literature published over the last ten years, with a priority on recently published literature to be able to capture relevant policy developments. We have cross-checked the publications of European institutions, relevant national administrations and interest organisations. Regarding the latter, we identified those actors that participate regularly in discussions around water policy on a European level and engage themselves with own assessments of policy achievements and shortcomings. We systematically screened their websites and used web-based search engines for further keyword searches. In addition, we have used information generated through the stakeholder interviews to confirm findings from the literature review and fill in gaps. Table 1 presents an overview of the sources screened for this report.

Table 2: Overview compilation of academic and non-academic sources used for the literature review

<p>Scientific Databases used for searches</p> <p><i>Keywords: European water policy, European water law, policy coherence, policy integration, policy implementation, economic instruments, public participation, effectiveness of policy instruments, policy linkages, river basin management</i></p>	<p>ScienceDirect (www.sciencedirect.com) Ingentaconnect (www.ingentaconnect.com) Scirus (www.scirus.com)</p> <p>Most frequently used journal sources included: Agricultural Water Management; Environmental Economics, Environmental Science and Policy, European Environment, European Environmental Law Review, Journal of Environmental Law, Journal for European Environmental & Planning Law, Journal of Hydrology, Science of the total Environment, Water Policy, Water Resources Development, Water Science and Technology, Zeitschrift fuer Umweltrecht, Zeitschrift fuer Wasserrecht</p>
Searches with web-based search engines	<p>Google Scholar (http://scholar.google.com) Google (www.google.com)</p>
European institutions	<p>European Commission – Directorate Environment (www.ec.europa.eu/environment/water/index-en.htm) European Commission – Directorate Environment, Directorate Joint Research Centre, Eurostat and European Environment Agency: Water Information System for Europe (WISE) (www.water.europa.eu) European Parliament Intergroup on Water (http://intergroupwater.eu/home) European Environment Agency (www.eea.europa.eu)</p>
National institutions	Specific references can be found after each case study in annex 1.
Sample of relevant non-academic sources, including web-sites of interest organisations	<ul style="list-style-type: none"> • European Water Partnership (EWP) (www.ewp.eu) • World Wide Fund for Nature Europe (WWF) (www.wwf.eu/freshwater) • European Environmental Bureau (EEB) (www.eeb.org) • European Federation of National Associations of Water and Wastewater Services (EUREAU) (http://eureau.org/) • BusinessEurope (www.besnesseurope.eu)

Source: own compilation

This report focuses on the following legislative and non-legislative instruments of policy action, following the terms of reference for this project (see EC 2011):

- The Water Framework Directive and accompanying daughter directives on groundwater protection and environmental quality standards;
- The Urban Wastewater Treatment Directive;
- The Nitrates from Agricultural Pollutants Directive;
- The Floods Directive;
- The Communication on Water Scarcity and Droughts;
- The White Paper on Climate Change Adaptation.

The selection, excerption and evaluation of relevant academic and non-academic literature has been informed through the overall analytical framework for this project.

2.2.2 *Web-based surveys*

Questionnaire surveys are best adapted to collecting facts and opinions from stakeholders during evaluations. They can be most effectively implemented when an up-to-date list of target groups and their contact addresses is available. Questionnaires are most effective when made up of closed-end questions that give rise to a choice of quantitative or qualitative responses that can then be analysed to produce quantitative data about an intervention's effects, delivery mechanisms, etc. The choice of questions and the need to be able to predict the most relevant responses to them requires a good level of prior knowledge of the target groups, the intervention, its effects, etc. or some thorough preparatory work to acquire this knowledge (e.g. through interviews – see below).

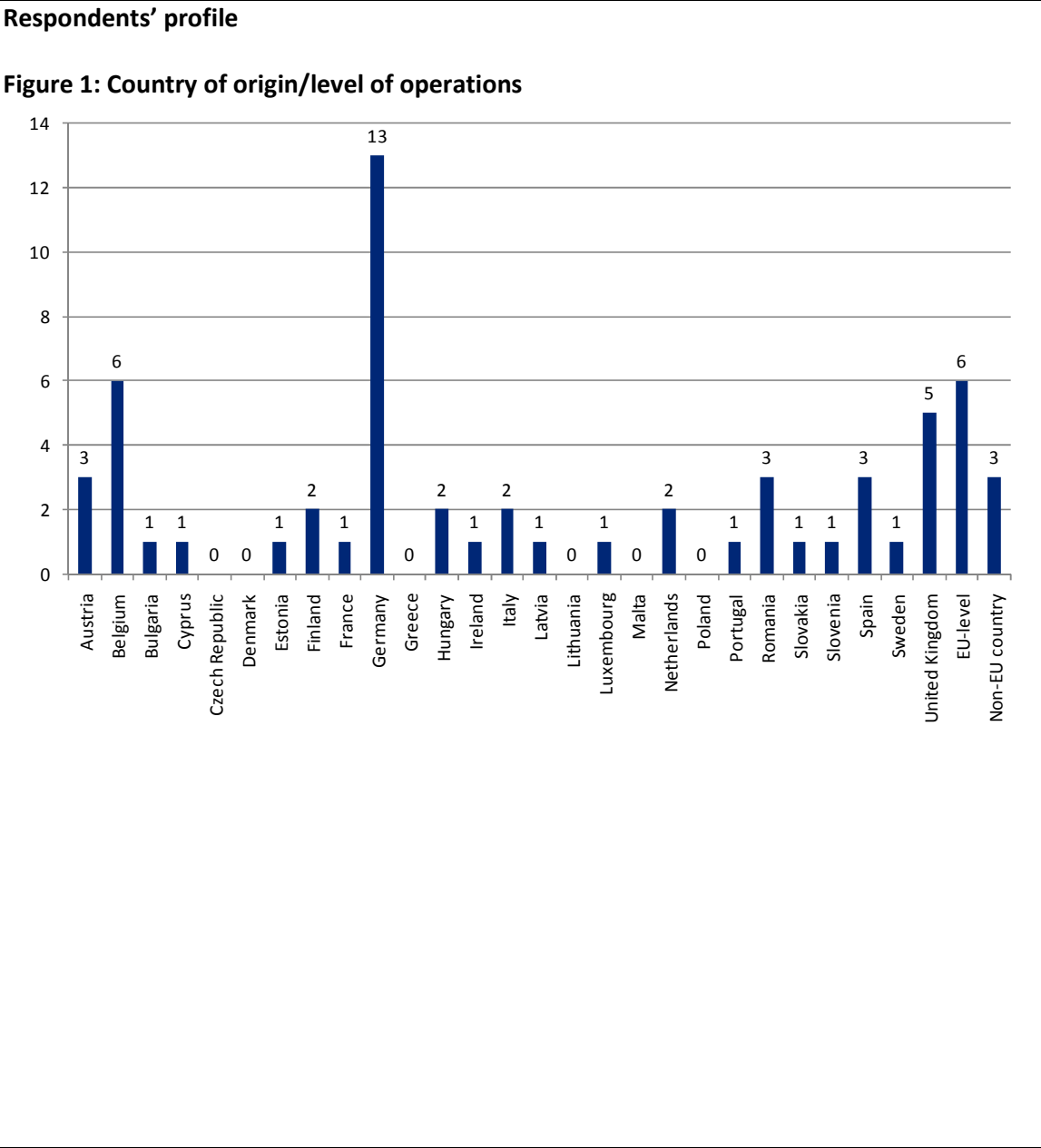
We have conducted three web-based surveys:

- The first one targeting, in all the Member States, the National Authorities relevant for the high-level management and implementation of the of the directives under the EU water policy umbrella; id est the Water Directors mainly;
- The second one will target, in all the Member States, the representatives of river basin management authorities; id est the officials in charge of implementing, monitoring and analysing policy implementation on the field, and also in charge of drafting the required reports (e.g. the River Basin Management Plan, the Flood Risk Management Plan and the report required by the Nitrates' Directive);
- The third one will target other categories of stakeholders such as experts from the industry, NGOs, international organisations and academia.

The Commission has sent the link to the surveys to the relevant e-mail addresses from databases of stakeholders available at the Commission and the person we have interviewed at national level. The questionnaire surveys were EU-wide and addressed questions that have fed indicators of our analytical framework.

The questionnaires were available in English. In total 61 institutions from 26 Member States and from non-EU countries responded to the surveys, around 150 received the invitation⁵. The results of the surveys provide with main trends and overall opinions from different stakeholders involved in the freshwater policy. The aim is not to provide robust statistical analyses considering the number of respondents. Beside the target group of the survey, few other stakeholders would have been able to answer this very specific survey.

We present below information on the profile of the respondents to the surveys.



⁵ Umbrella organisations have also forwarded the survey to their members. It makes therefore not possible to know the exact number of institutions invited to respond.

Figure 2: Respondents' profile – share between Public Water Authorities and Other stakeholders

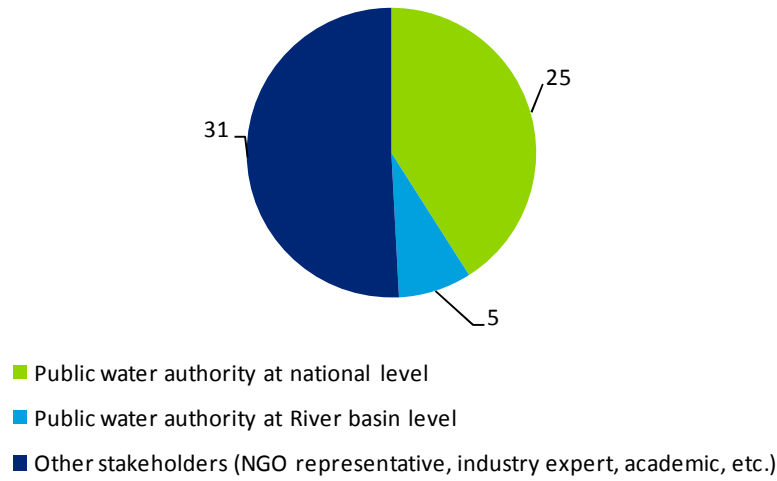


Figure 3: International River Basin Districts covered by the administrative unit (only for Public Water Authorities)

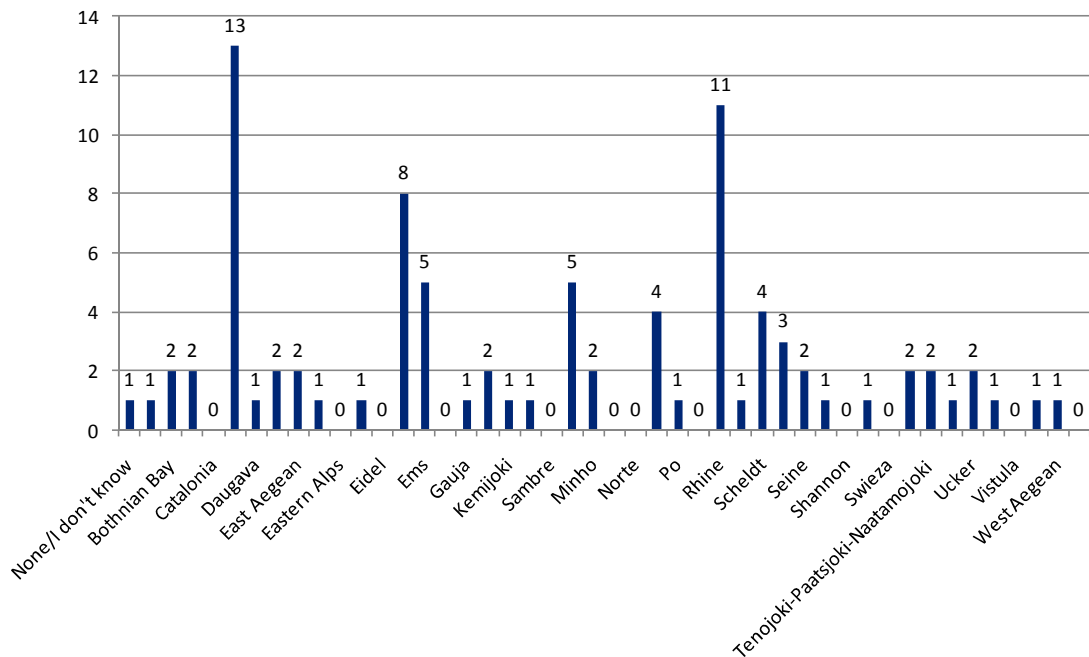
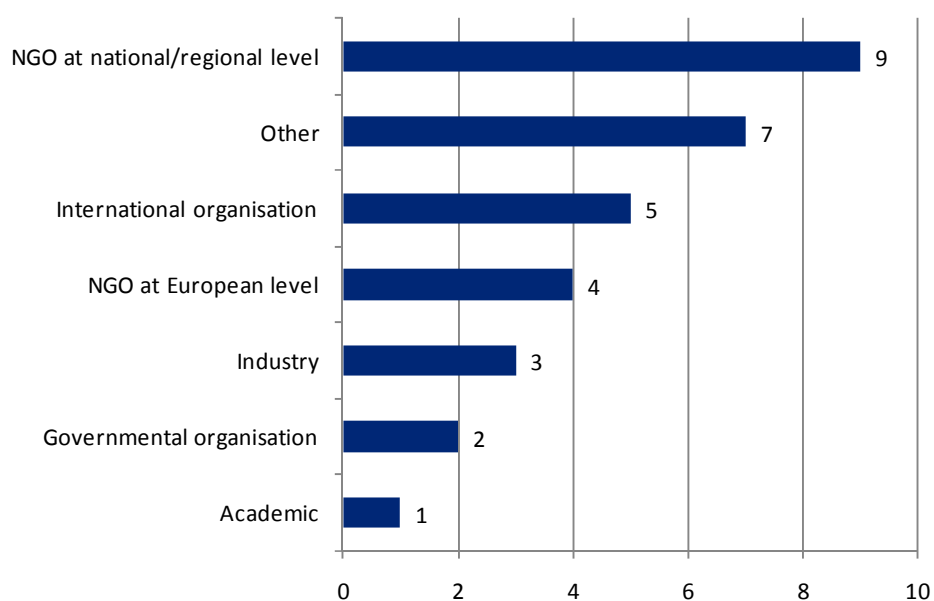


Figure 4: Type of organisation/profile (only for other stakeholders)



2.2.3 Interviews

In the Inception phase of the project, we met different Commission officials from DG ENV in order to improve our understanding of the EU freshwater policy and to receive the coming challenges related to this topic. We have used the information collected to elaborate the overall methodology of the study, notably the analytical framework and the questionnaires.

In the data collection phase of the projects, we have conducted about 50 interviews with:

- Commission officials;
- EU-level key stakeholders;
- Key stakeholders (National Authorities, representatives of the sector, NGOs, etc.) from the five water basins chosen as case study;
 - Scheldt;
 - Danube;
 - Guadiana;
 - Po;
 - Severn.

We have conducted the interviews in English and mainly by phone. The information collected allows us to confirm or supplement findings from the literature review. The results of the interview round are fully and extensively integrated in this report.

2.2.4 *Case studies*

Next to a general assessment of the issues of relevance for the fitness check, we have also analysed these issues in relation to five river basins (see annex 1 for detailed description of the key features of the case studies): the international river basins of the Danube, the Scheldt (FR, BE and NL) and the Guadiana (PT-ES); and the national river basins of the Severn (UK) and the Po (IT-FR-CH). The river basin of the Danube has been chosen because of its international character and because it involves the cooperation of both EU Member States and non-EU Member States with varying levels of economic development. The Scheldt river basin is in particular interesting as it is confronted with the problem of nitrate pollution due to the presence of intensive agriculture and with the issue of different competent authorities at regional and federal level within Belgium. The Severn river basin (UK) has been chosen among others for the issue of flooding. The Spanish-Portuguese river basin of the Guadiana and to a lesser extent the largely Italian river basin of the Po are confronted among others with problems of water scarcity and droughts. Please find below a brief introduction to each of these river basins.

The Danube River Basin

The Danube and its tributaries, transitional waters, lakes, coastal waters and groundwater form the Danube River Basin District (DRBD). For the purpose of the Danube River Basin District Management Plan (DRBM Plan), to be developed under the Water Framework Directive (WFD), the DRBD has been defined as covering the Danube River Basin (DRB), the Black Sea coastal catchments in Romanian territory and the Black Sea coastal waters along the Romanian and partly Ukrainian coasts.

The DRB is Europe's second largest river basin and the most 'international' river in the world, including the territories of 19 countries. The DRBD covers some 800,000 km² and is home to some 83 million people. Those 14 countries with territories greater than 2,000 km² in the DRB cooperate in the framework of the International Commission for the Protection of the Danube River (ICPDR).

All Danube countries with territories of more than 2,000 km² in the DRB are Contracting Parties to the Danube River Protection Convention (DRPC). The European Union (EU) is also a Contracting Party. Austria, Bulgaria, Hungary, Romania, Serbia and Slovakia each constitute 10 per cent or more of the DRB and more than 25 per cent of their national area occur within the DRB.

The Danube Basin Analysis identified four significant water management issues which affect the status of surface and groundwater. These are: pollution by organic substances (from agglomerations, industry and agriculture); pollution by nutrients; pollution by hazardous substances; and hydromorphological alterations.

The Scheldt River Basin

The Scheldt is a lowland river, including the territories of France, Belgium and the Netherlands. As to Belgium, the federal state and the three regions (the Flemish, Walloon and Brussels Regions) are involved in the International Scheldt Commission and in particular in the drafting of the Scheldt River Basin Management Plan as actors on their own.

(The Scheldt's average flow is $115\text{m}^3/\text{s}$, which is three times less than the Meuse flow. In the river basin's downstream parts starting at Ghent, the Scheldt's water level is also under tidal influence. In the subsoil, aquifers create a diversified and complex water system.)

The waters of the Scheldt river basin are in particular affected by a high population density, old industries, intensive agriculture and numerous hydromorphological alterations. As to intensive agriculture, crops are predominant in the south of the river basin district, whereas an intensive cattle breeding is characteristic for the Flemish Region. The hydromorphological alterations result from the numerous physical interventions meant to prevent floods and droughts and to facilitate navigation, such as the construction of banks, dams and locks.

The Severn River Basin

The Severn River Basin District includes next to the River Severn and its main tributaries, the rivers of South East Wales and those of the counties of Avon and Somerset that drain into the Severn Estuary. The River Severn is the longest river in the United Kingdom and flows into the Severn Estuary. The Severn River Basin District is home to over 5.3 million people and covers $21,590\text{ km}^2$, with about one third of the district in Wales. The district has several major urban centres, though much of it is rural in character. It contains important habitat and wildlife areas and about 80% of the land is managed for agriculture and forestry.

Key water management issues include: the diffuse pollution from nutrients, sediments and pesticides from rural land management; pollution from nutrients from sewage treatment works and other intermittent discharges from the sewerage network; pollution from ammonia and dangerous substances from sewage treatment works and intermittent discharges and from other sources; metal and other pollution due to historic mining activity; high degree of physical modification of rivers and estuaries; and flooding (major parts of the river basin were flooded severely in 2007).

The Po River Basin

The Po River basin extends from the Alps (in the West) to the Adriatic Sea (in the East) and covers an area of $74,000\text{ km}^2$. While only 5% of the basin lies in Switzerland and France, most of it is situated in Northern Italy. In Italy it is the largest river basin, its main channel is the longest (650 km), and its level of discharges - the highest. The Po river basin counts some 17 million inhabitants, and extends over 24% of Italy's territory. The regions of Piedmont, Aosta Valley, Liguria, Lombardy, Veneto, Emilia Romagna and Tuscany lie partially or completely within it, as does the Autonomous Province of Trento.

The River basin is a strategic region for the Italian economy as it generates nearly 40% of the Italian national GDP through intensive industry, agriculture and tourism. Agriculture in the Po River basin is highly developed, accounting for more than half of the land use in the basin. It is de facto the largest cultivated area in Italy ($30,000\text{ km}^2$), and accounts for 36% of the country's agricultural production. Accordingly, agriculture has the highest water demand among all sectors in the basin, requiring nearly 17 billion m^3 of water per year. About $11,000\text{ km}^2$ of the cultivated area is irrigated, almost exclusively (87%) from surface watercourses.

Trends of diminishing rainfall and increases in both minimum winter and maximum summer temperatures have been observed in the Po river basin. The average annual rainfall in the area for instance has diminished by 20% since 1975.

The main challenges the river basin is confronted with are water availability or scarcity, pollution and a lack of coordination between planning and implementation authorities. Water availability is a problem particularly in summer when water consumption in agriculture is highest. It creates tension among users and worsens problems related to water quality. As to water quality, surface and groundwater is affected by industrial, agricultural and household pollutants. Surface waters suffer from eutrophication, groundwater from high concentrations of nitrates and coastal aquifers from salt intrusion.

The Guadiana River Basin

The Guadiana basin covers an area of 67,133 km² of which about 55,513 km² belongs to the Spanish territory and 11,620 km² to Portugal. The basin comprises three sub-basins: the upper Guadiana and the mid Guadiana on Spanish territory and the lower Guadiana on Portuguese territory.

The most important economic activity in the Guadiana river basin is agriculture, followed by commercial and administrative activities. In recent decades, there has been an increase of industrial activity, as well as tourism in the coastal areas, and an intensification of agriculture.

Most of the land in the basin is used for rain fed agriculture, especially in the upper part of the basin, while meadows are to be found more in the middle and southern parts of the basin. Irrigated crops are grown all along the river basin, though slightly more concentrated in the north western sector of the basin.

Main issues in the upper Guadiana as to water management and water use are: conflicts between agriculture and environmental conservation; major irrigation based on groundwater; over-exploitation of aquifers and loss of wetlands; and low effectiveness and high costs of management and control measures. Main issues in the mid Guadiana are: major irrigation development based on surface water; high storage capacity, which mitigates the vulnerability to climate variability; and technical and policy challenges such as improving efficiency, modernization of irrigation systems, cost recovery (as required by the Water Framework Directive).

In the context of this study, we have written descriptive case studies. We present the five case studies in the annex of the report. The opinions and perceptions collected during the interviews with stakeholders from these five river basins are aggregated and presented in this report.

2.2.5 **Workshop**

At the end of the data collection phase, we have organised a conference with stakeholders from national administrations, NGOs and sectoral federations. The objective of the workshop was to present the main findings of the draft evaluation report and gather the feedback of the stakeholders.

We have therefore organised four workshops after the presentation of our findings on:

1. The effectiveness and needs for EU freshwater policy;
2. The coherence of the freshwater policy with the other environmental policies;
3. The coherence of the freshwater policy with non-environmental policies;
4. The cooperation and administrative machinery behind the policy.

More than 80 people participated in the conference that took place on the 10 May 2011 in Brussels.

2.3 **Data availability and gaps**

European water policy represents a complex field of policy action. It includes a wide range of public and non-public actors and is linked to a range of environmental and sectoral policies. Relevant drivers, pressures, impacts and responses of policy constitute quite complex analytical netting. Water policy is characterised by a high degree of specialisation among experts and practitioners. The body of information on different dimensions of European water policy is huge, including already a huge range of books and journal articles on a wide range of scientific and technological issues only.

Within the literature research for this study we tried to apply a set of broad criteria to cover all relevant aspects that fall into the remit of this study. Issues of policy relevance, policy coherence, policy effectiveness and policy efficiency provided the initial search framework.

However, due to the resources available and the scope of the project we also needed to discriminate literature. Different actions were taken to ensure that all potentially relevant sources of information were screened for a set of keywords (see chapter 2.2.1.). However, it might be that important sources of information have been missed. Information from the interviews was used to fulfil partly these gaps.

Ten years after the adoption of WFD one might expect a burgeoning literature on the broader socio-economic and political implications of this paradigm shift. Much of the available academic literature on European water policy, however, seems to deal with the scientific challenges and available methods of classifying the status of European water bodies, understanding future pathways of environmental development, monitoring needs and data requirements or study aspects of instruments choice, particularly in the realm of economic instruments. Many contributions also focus on single technical or legal aspects of implementing single directives. This is quite a logical development, given the huge scientific challenges that the WFD has put forward to Europe's research communities. It is also a commendable development as it underpins the efforts to come to a shared understanding of the scientific basis that should underpin Europe's efforts to safeguard its water. However, it also aggravates the analysis undertaken in this report, as the assessments of the overall

relevance and coherence of the policy framework in place and its effectiveness and efficiency conditions are rather nascent.

Deliberate efforts have been made to have a comprehensive, but also compact analysis in the different sections. The main aim of this literature review is to provide for an assessment of how well and to what effect the overall policy machinery in place is functioning, but not to provide for an in-depth assessment of single technical, legal or political details. Such an assessment would be out of the scope of this analysis.

3 ANALYSING THE PROBLEM: STATE OF EUROPE'S FRESHWATERS AND FUTURE CHALLENGES

3.1 Overview

Considerable success has been achieved in reducing the discharge of pollutants to fresh and coastal waters, leading to considerable freshwater water quality improvements. Inland bathing waters are a prominent example. However, pollution levels remain significant in several European rivers, directly affecting marine coastal environments. Groundwater pollution remains a relevant concern too, as the latest 2010 State of the European Environment and Outlook Report has shown (EEA, 2010).

Larger areas, particularly in the south of Europe, are affected by scarcities of water, while competing uses increase demand across Europe. On the other hand, Europe is suffering from a rise in the frequency of major floods and related floods damage. European water bodies have also been majorly altered through physical modifications, leading to changes in water flows, habitat fragmentation and obstructions of species migration.

Earlier rounds of reporting under the Water Framework Directive (WFD) revealed that not-achieving good ecological status by 2015 is a relevant threat to a larger proportion of European freshwaters (40% in surface waters, 30% of groundwater in 2004, with new data to become available through the delivery and assessment of WFD implementation plans in 2011 and 2012 (EC 2007).

3.2 Water quantity and flows

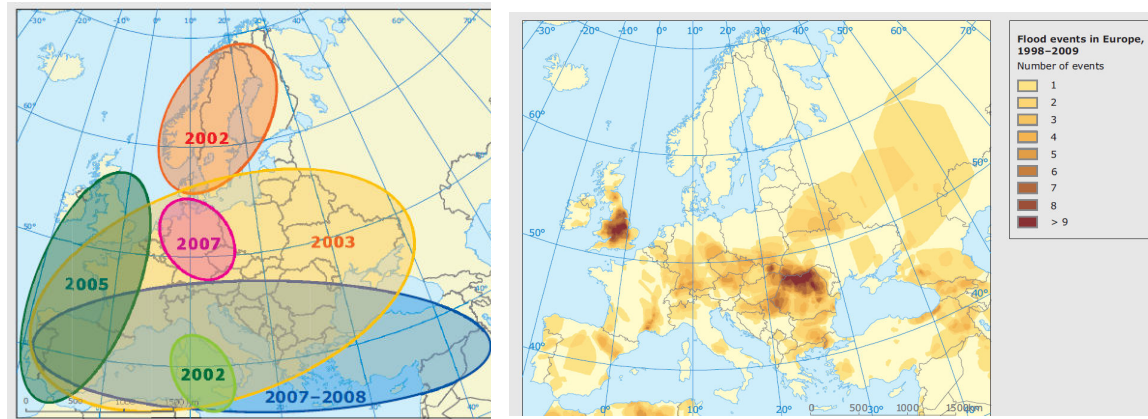
Water scarcity is an increasing problem in a number of EU Member States. Particularly South Eastern Europe is reported to face increasing periods of drought, with diverse economic and social impacts such as declining crop yields. Droughts also hit South Western Europe during 2004-2006 (EEA 2010, see figure below).⁶ Environmental ministers have recognised the seriousness of the problem of water scarcity and droughts – back in June 2010 the Council invited all EU Member States to take appropriate action (see COM (2011)133 final).

Water demand continues to increase from competing sources, leading to stronger pressures. While water abstraction rates fell in the majority of EU Member States, particularly in the eastern EU Member States, overexploitation remains a local challenge in many parts of Europe. In many local conditions, demand exceeds availability, impacting on adequate water supplies to service critical and vulnerable ecosystems and their services. European larger cities increasingly rely on surrounding regions for their water supply and have become more exposed to water stress conditions, a situation irrigated agriculture production in Southern Europe is already facing for quite some time and which is becoming increasingly relevant for the tourism sector.

⁶ According to the Third Follow-Up report to the Communication on water scarcity and droughts in the European Union, three European Member States (CZ, CY, MT) face continuous water scarcity and five European Member States reported that they experience droughts or rainfall levels lower than the long-term average (FR, PT, HU, ES, UK) (COM (2011)133 final).

Major floods have increased in intensity, resulting in over 175 major floods over the last ten years in Europe, particularly in the Alps, but also many urban parts of England, for example. Costs of floods have increased markedly as a consequence (EEA 2010).

Figure 5: Main drought events in Europe (2000-2009) and occurrence of floods (1998-2009)



Source: EEA 2010

Europe's waters have experienced considerable physical changes over time, resulting from structure development such as dams for hydropower, supply infrastructure for irrigation, infrastructure and activities related to navigation (e.g. canalisation, straightening, deepening, bank reinforcement etc). As a consequence, a minority of European rivers are still in their natural state or only slightly to moderately altered. Flow regimes, a major determinant of the ecosystem functions and services in rivers, are changing, both in terms of seasonal and daily flow regimes. Many rivers face pressures in terms of changes in hydrological regimes, interruption of river and habitat continuity, disconnection with wetlands/floodplains or change in erosion and sediment transport leading to a diverse set of impacts (change and loss of habitat diversity, disruption of species diversity etc.) (EEA 2010).

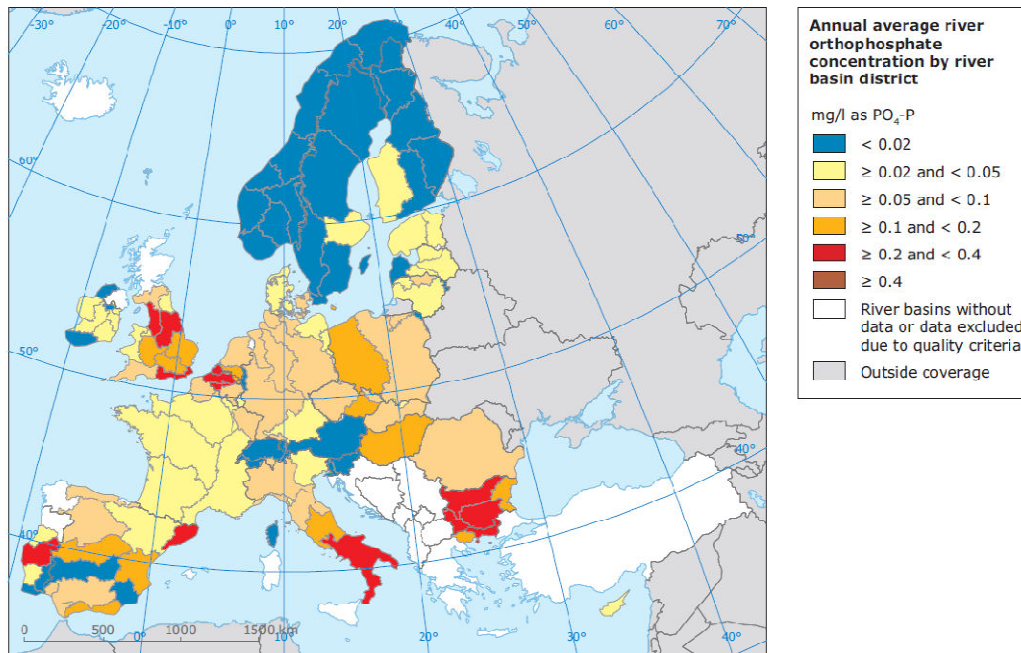
3.3 Water quality

Water quality continues to be affected by eutrophication in several parts of Europe. Freshwater bodies show a mix of different pollutants, including nutrients, biocides, industrial and household chemicals or pharmaceuticals, and much of this pollutant load is finally affecting the quality of coastal waters. High levels of concentration have impacts on freshwater fauna and flora; chemicals, pesticides or metals can be toxic, for example, to aquatic life and impact on fertility patterns. Poor water quality impacts on human health through different exposure routes, but also brings about economic costs: water and wastewater treatments bind significant capital and operating costs.

Freshwater eutrophication is often debated, as impacts manifest themselves quite visibly, for example in the proliferation of algae blooms. Eutrophication is often caused by excessive concentrations of phosphorus. Example data on annual orthophosphate concentrations show that some European rivers suffer from excessive contributions, while a large share of monitoring stations (42 per cent) record a long-term decline over the period 1992-2008,

mainly due to urban waste water treatment efforts and bans on the use of phosphate in detergents (EEA 2010, see figure below).

Figure 6: Annual average river orthophosphate concentration (mg/l as PO₄-P) in 2008, by River District

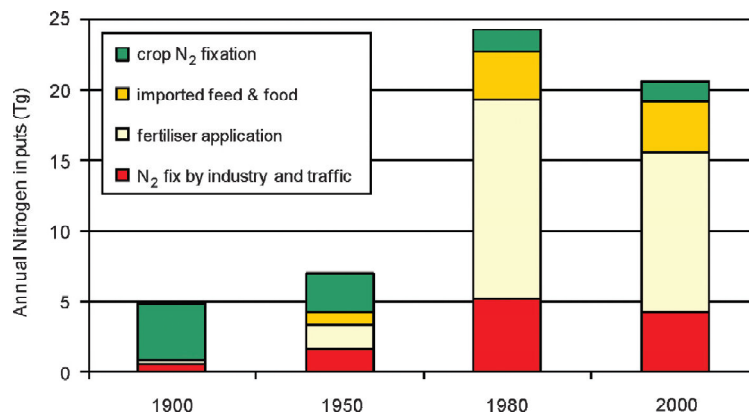


Source: EEA 2010

Nitrogen loads are another problem. For example, high levels of nitrogen in European rivers lead to subsequent eutrophication in receiving coastal waters. Over the last century, Europe has tripled its annual nitrogen inputs (Sutton et al, 2011, see figure below). Declining trends in nitrate concentrations are now reported in 30 per cent of European rivers (EEA 2010). Nitrogen loads are also of concern to groundwater resources; current reporting shows that a number of groundwater sites suffer from concentrations above tolerable threshold levels.⁷

⁷ In spite of their ban, triazine pesticides like atrazine and simazine continue to be found in ground waters across Europe, and quality standards for pesticides in rivers have been exceeded on several occasions, albeit at low frequency in the last years. Organic pollution shows clear downward trends in many European rivers, relieving problems with biological oxygen demand, but further improvements face the challenge of levelled downward trends in recent years.

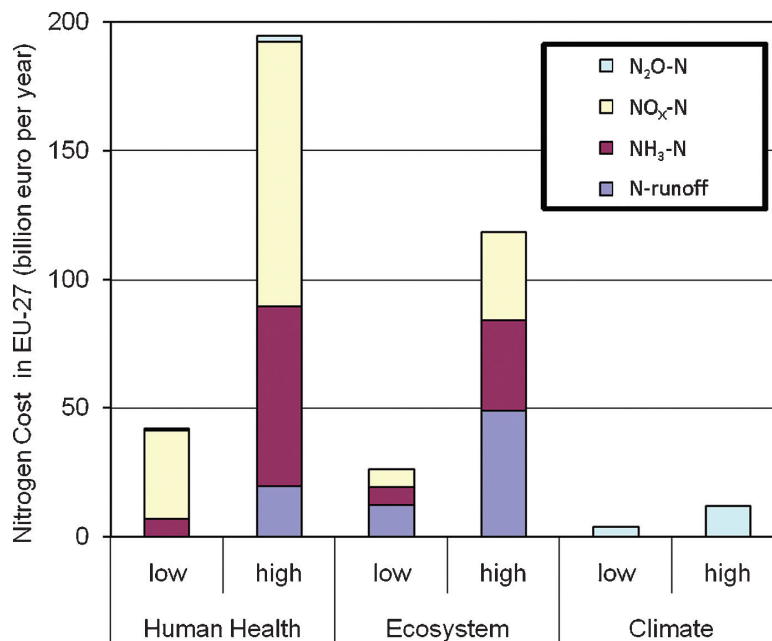
Figure 7: Annual nitrogen inputs (TG) in Europe, 1900-2000



Source: Sutton et al. 2011

There is ample evidence that too much nitrogen harms the environment. The biggest emitter is agriculture. The European Nitrogen Assessment has estimated the potential welfare losses due to nitrogen emissions in EU-27 (see figure below).⁸ A key conclusion of the large-scale assessment is that the costs clearly outweigh the benefits and that an integrated approach to reductions of all N pollutants is highly desirable (Sutton et al, 2011).

Figure 8: Estimated nitrogen costs in EU 27 (billion Euro per year)



Source: Sutton et al 2011

⁸ The huge uncertainties implicit in this assessment need to be noted. As the Summary for Policy Makers states: "Apart from the uncertainties inherent in valuing the environment, including the use of 'willingness to pay' approaches for ecosystem services, the main uncertainties in these estimates concern the relative share of Nr in PM to human health effects and of Nr to freshwater eutrophication effects [22.6]."

3.4 Changing problem structure

Rising demands from competing uses and the impacts of climate change are expected to increase the pressure on Europe's water resources, underlining the importance of increased efficiency and savings in water use. Constraints in the availability of water start to seriously impact on parts of Europe's economies, for example, and due to increasing and prolonged periods of droughts larger cities particularly in the south of Europe face supply problems, necessitating costly water transports. Increasing rates of floods, on the other hand, showcase the need for better linking the water regulation framework with Europe's spatial planning frameworks and relevant information and monitoring systems.

Further improvements in reducing pollution loads, where Europe has a strong regulatory framework in place already, will often need to be achieved through targeting of diffuse sources, which is more demanding both in terms of technology and regulatory approaches. There is considerable scope for greater implementation of source control measures across all sectors (EEA 2010). This concerns particularly agriculture, but also the urban environment which is relevant here as a source of diverse pollutants emission, including chemicals, metals, pharmaceuticals, nutrients or pesticides, and agriculture remains the most relevant sector for water pollution.

It is worthwhile to note the changing problem structure of water policy in Europe, where a focus on reducing emissions of single pollutants (specific measures) has increasingly become replaced by a focus on integrated approaches to increasing efficiency of resources which aim seek to balance drivers of consumption demand, set incentives for change in behaviour and integrate a wider ecosystem and services perspective into the policy core of other sectoral policies, which should become more adaptive. Implementing such a systemic approach to EU water policy is much more difficult to implement (EEA, 2010).

3.5 Socio-economic and policy drivers

Changes in the quality and quantity of European waters are prominently influenced through a whole set of socio-economic drivers such as agriculture, industry, household consumption, energy, tourism and as a result by other policy areas which (aim to) impact on these drivers, both within and beyond the environmental policy field. Agriculture and the urban environment remain the two most important sources of water pollution in Europe.

Agriculture has major, both negative and positive, impacts on the water environment. Diffuse pollution from agriculture remains a serious concern, particularly regarding nutrients from fertilisers, pesticides, sediments, excrements from live-stock or organic pollution as a consequence of manure. Drainage of agriculture land is resulting in the loss of important features in the rural landscape for attenuation and storage of agriculture pollutants, such as small ponds or wetlands. Measures funded under Pillar I of the CAP are often contributing heavily to these impacts. Agri-environment measures provided under Pillar II of the CAP aim to mitigate these negative impacts, and preserve important features of the rural landscape, but their effectiveness is not guaranteed in all cases.

Also EU's Cohesion Policy, under which objectives for economic, social and territorial cohesion are pursued through the Structural and Cohesion Funds, has implications on the

(water) environment through its funding of major infrastructure projects. Efforts are now being made to ensure the environment is taken better into consideration when developing and implementing these projects and environmental spending increasingly takes place through the Structural and Cohesion Funds. However, particularly large scale infrastructure project have the potential to seriously impact on river flow and integrity of aquatic ecosystems, for example.

The urban environment is another important source of pollution, particularly through diffuse sources of pollution from domestic premises, industrial plants or transport networks. Household consumption often results in discharge of household chemicals, pharmaceutical products, medicines, for example while transport results in the discharge of, among other things, heavy metals such as zinc that can have toxic effects. Use of pesticides is also often happening in a rather uncontrolled approach. During the past, larger storm events in cities have also exceeded the capacity of the sewage collection systems, leading to relieving measures that bypass plant treatment. Consequently, wide range pollutions are released though combined waste directly to receiving water courses.

Water and energy are closely interrelated, as the production of the latter is critically dependent on the availability of the first, particularly for cooling purpose. Close to a fifth of European water demand is estimated to be generated by the energy sector (UNEP-DEWA Europe, 2007). During the 2003 heat waves, nuclear reactors at inland sites in France, for example, were shut down or were reduced in their power output. Additionally, reactors in France, Spain, Italy or Germany were allowed to discharge water drained from the plants cooling systems at temperatures much higher than the allowed maximum temperature, leading to increased pressure on the aquatic environment of rivers such as high concentrations of ammoniac, which is regarded as toxic for aquatic fauna.

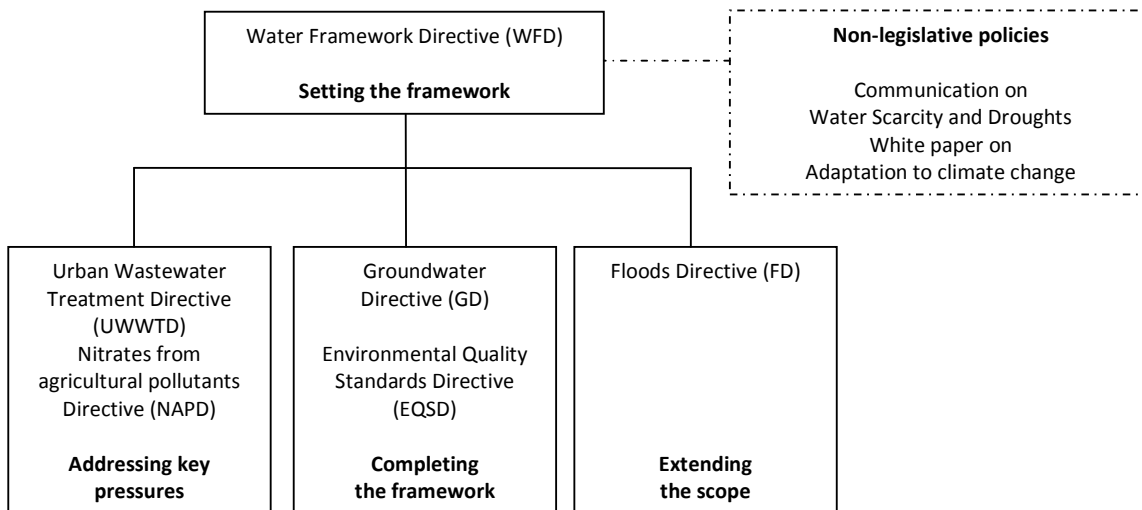
EU water policy *sensu stricto* is dependent on these other policy areas for achieving its environmental objectives. Within the environmental policy area, EU policies on pollution control for instance are also crucial for achieving environmental objectives in the water field. Setting permit conditions for water discharges under the Integrated Pollution Prevention and Control (IPPC) Directive (now replaced by the Industrial Emissions Directive) for instance is important in this respect.

4 THE EU WATER POLICY FRAMEWORK IN BRIEF

4.1 Main purpose and basic linkages

This report focuses on those legislative and non-legislative tools of European water policy that are covered by the EU Water Policy Fitness Check (see figure below).⁹

Figure 9: The Policy Framework covered by the Fitness Check of EU Water Policy



Source: Own Compilation based on EC 2011 and Faergemann 2010

Briefly, the linkages and interactions of the different directives and non-legislative policy tools can be described as follows:

- The Water Framework Directive (WFD) provides the main policy framework for preserving and restoring the quality of European water bodies. It clusters measures within a common rule framework for all water-related and water-relevant legislative action. Regulatory approaches of previously adopted directives remain their validity under this frame if not specified otherwise.
- The Groundwater (GWD) and the Environmental Quality Standards Directives (EQSD) are daughter directives to the Water Framework Directive. They are directly linked and further clarify and complement the legislative framework of the WFD by providing operational guidance and additional criteria.
- The Urban Wastewater Treatment Directive (UWWTD) and the Nitrates Directive (ND) are cornerstones of the emission-oriented approach to water protection. They are linked to the Water Framework Directive, i.e. implementation should be mutually supportive, but implementation cycles are not synchronised and the Water Framework Directive does not directly change the obligations of those Directives.¹⁰
- The Floods Directive (FD) expands the scope of the framework of European Water Policy towards flood risk management. The directive is strongly linked to the WFD

⁹ See the Roadmap for the Fitness Check EU Water Policy for justification of this focus of analysis.

¹⁰ Though the WFD seeks to bring those obligations into a more coherent water management process.

implementation process, as flood risks management plans should be coordinated with River Basin Management Plans (RBMPs) and reviews should take place in a cycle synchronised with the Water Framework Directive implementation. The WFD is supposed to mitigate impacts of floods (Art. 1).

- The implementation cycle of the WFD is relevant for European efforts to address water scarcity and droughts as well as adapting to climate change, as outlined in the Communication on Water Scarcity and Droughts and the White Paper on Climate Adaptation. This concerns particularly the requirement for European Member States to introduce policies for water pricing and water metering within the context of the programme of measures under RBMPs, but also the requirement of drawing up draught action plans, where necessary and appropriate.

In a nutshell, EU Water Policy has developed over time from a series of scattered policies focused on specific issues to a broad, far-reaching policy framework that seeks to tackle most problems of concern to water management. However, the effectiveness of the policy framework largely depends on the operationalisation through EU Member States that enjoy a considerable degree of autonomy and flexibility in this respect.

4.2 Objectives and instruments of EU Water Policy

4.2.1 *Setting the Framework – the Water Framework Directive*

The WFD establishes long-term objectives for water protection in the EU, which apply to surface waters, that is lakes, rivers, transitional waters (estuaries) and coastal waters (up to one nautical mile from land) and to ground waters.¹¹ EU Member States are required to:

- prevent deterioration of ecological quality and pollution of surface waters and protect, enhance and restore polluted waters, in order to achieve good water status in all surface waters by 31 December 2015.
- prevent deterioration of groundwater quality, restore polluted groundwater, and ensure a balance between abstraction and recharge of groundwater, in order to achieve good groundwater status in all groundwater by 31 December 2010.
- comply with all standards and objectives relating to Protected Areas by 31 December 2010, unless otherwise specified in the Community, national or local legislation under which the individual Protected Areas have been established.

The key criterion for judging performance is the achievement of ‘good ecological status’. Waters will be classified into five classes, being ‘high’, ‘good’, ‘fair’, ‘poor’ and ‘bad’. ¹² Objective achievement can be subject to derogations (again subject to meeting defined criteria), such as cost implications, technical feasibility, unfavourable natural conditions that require more time or designation of heavily modified water bodies (HMWBs), which only

¹¹ 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

¹² Surface water status includes chemical, biological and hydromorphological elements. Hydromorphology includes tidal patterns, connectivity to groundwater, channel morphology, flow regimes, and the condition and structure of riparian, inter-tidal and lake-shore zones.

need to achieve good ecological potential, instead of good ecological status.¹³ The directive has been described as “potentially groundbreaking legislation”, as the water environment needs not only to be protected from pollution and other threats, but water systems need to be regarded as an essential part of broader ecosystems which need to be managed, and sometimes be rebuild in core components (Moss 2008). This needs to happen within an ambitious timeframe, calling for important policy action to be delivered by 2015 (see table below).

Table 3: timetable for the implementation of the Water Framework Directive

Year	Issue	Reference
2000	Directive entered into force	Art. 25
2003	Transposition in national legislation Identification of River Basin Districts and Authorities	Art. 23 Art. 3
2004	Characterisation of river basin: pressures, impacts and economic analysis	Art. 5
2006	Establishment of monitoring network Start public consultation (at the latest)	Art. 8 Art. 14
2008	Present draft river basin management plan	Art. 13
2009	Finalise river basin management plan including programme of measures	Art. 13 & 11
2010	Introduce pricing policies	Art. 9
2012	Make operational programmes of measures	Art. 11
2015	Meet environmental objectives First management cycle ends Second river basin management plan & first flood risk management plan.	Art. 4
2021	Second management cycle ends	Art. 4 & 13
2027	Third management cycle ends, final deadline for meeting objectives	Art. 4 & 13

Source: EC 2011, http://ec.europa.eu/environment/water/water-framework/index_en.html

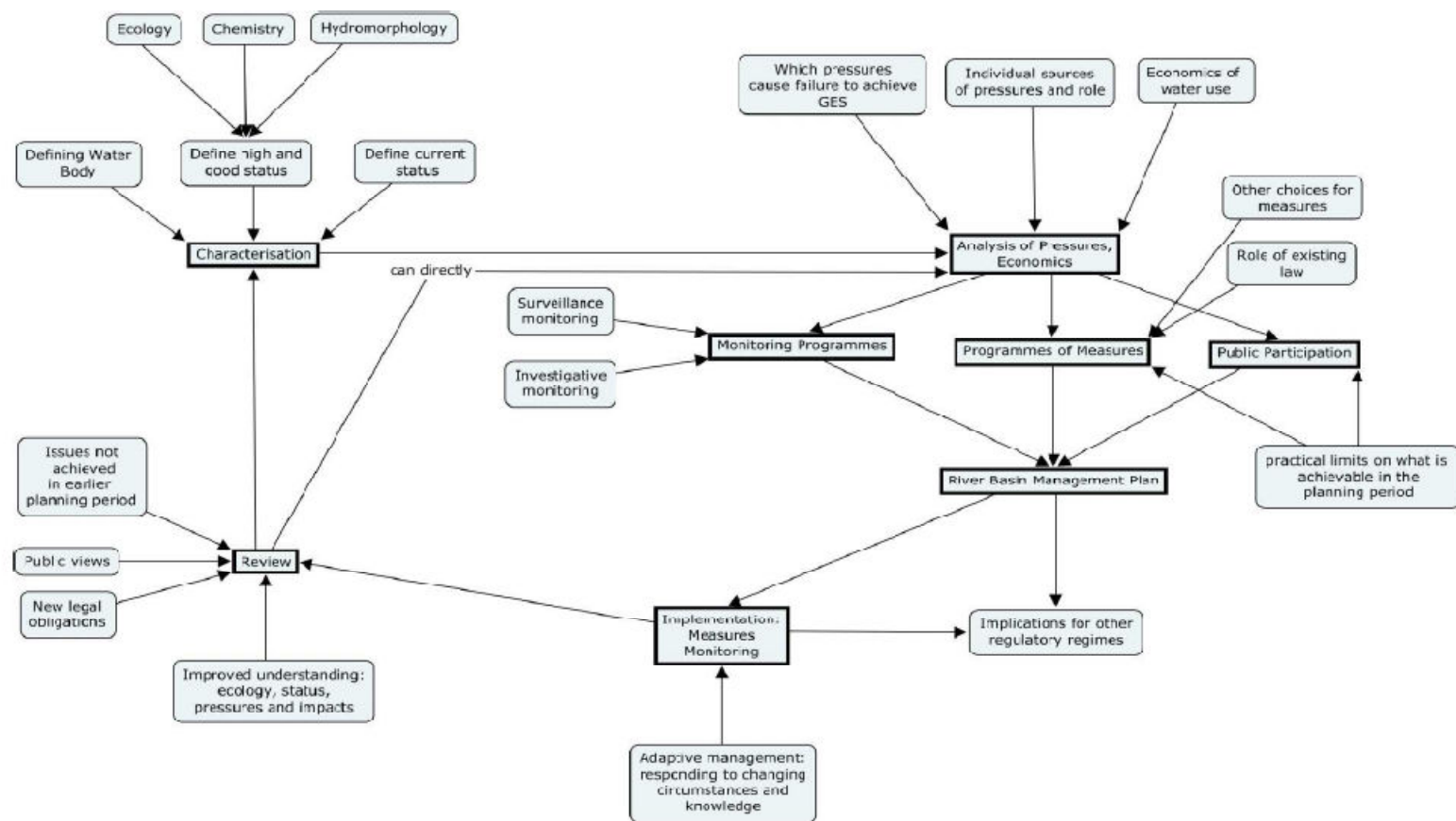
The WFD combines emission limit values and quality standards in an overall regulatory framework (so called combined approach¹⁴). On the source side, it requires that as part of

¹³ Under the derogations scheme of the WFD, a surface water body can be designated as artificial or heavily modified when restoring its hydromorphology in order to achieve good status is likely to have significant adverse effects on a range of waters, including impacts on the environment and water regulation, flood protection or land drainage (Art. 4.3). However, derogations only apply if the benefits served by the artificial or modified characteristic of the water body in question cannot reasonably achieved by other means which are a significantly better environmental option, for reason of technological feasibility or disproportionate costs. That means, that derogations cannot simply be granted to artificial or modified waters, but that any environmentally better options needs to fail the test of technical feasibility or disproportionate costs (Scottish Environment Link, n.a.).

¹⁴ Note that the term ‘combined approach’ is not an invention of the WFD process. It has been introduced in European law in the IPPC Directive 96/61/EC.

the basic measures to be taken in the river basin, all existing technology-driven source-based controls must be implemented as a first step. But over and above this, it also sets out a framework for developing further such controls. The framework comprises the development of a list of priority substances for action at EU level, prioritized on the basis of risk; and then the design of the most cost-effective set of measures to achieve load reduction of those substances, taking into account both product and process sources.

Figure 10: Overview of WFD planning process and factors affecting each stage

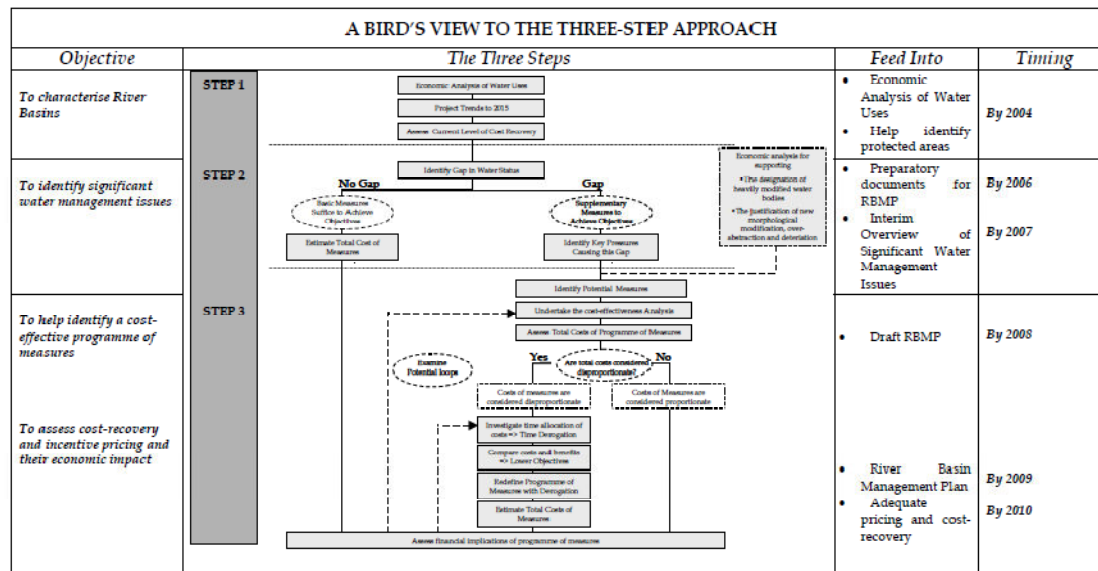


Source: Farmer and Cherrier 2010

River Basin Management Plans are the backbone of the directive implementation process. They need to be developed for Europe's 110 river basins. Each plan, which is to be updated every six years, should define the character of waters, the aspired "good status" and identify suitable (i.e. cost-effective) measures to bridge the gap, including an economic analysis of water uses, trends in water supply, demand and investments and current levels of cost-recovery. Programmes of measures should be operational by 2012. Furthermore, plans should specify a monitoring programme both for a general assessment of water status for specific threats to it.

The plan also acts as a vehicle for consultation with the public, which should be more closely involved into the process of developing the plans. The directive emphasizes the need to "get the prices right" and for this purpose requires that water pricing policies are in place by 2010 that should provide enough incentives to use water efficiently across different sectors (Art. 9). The final aim is to achieve recovery of costs of water use, including environmental and resource use costs, reflecting the "polluter-pays principle". The figure below illustrates the interplay of the elements the economic analysis and river basin management planning in a three-step approach.

Figure 11: Meeting requirements for economic analysis under the WFD



Source: EC 2002

4.2.2 Complementing the framework - the daughter directives of the Water Framework Directive (GD, EQSD)

Implementing the new GD requirements is integrated into the implementation tasks of the Water Framework Directive. Thus the Directive requires (Farmer 2011):

- Groundwater 'threshold values' to be established by the end of 2008. The pollutants to be addressed (nationally or within river basin districts) are those that are identified under the Water Framework Directive as contributing to groundwater bodies being 'at risk'. These threshold values are to be set out in the River Basin Management Plans developed under the Water Framework Directive.

- Pollution trend studies are to be carried out by using existing data and data that are required to be collected by the Water Framework Directive.
- Pollution trends are to be reversed where there is 'any significant and sustained upward trend' so that environmental objectives are achieved by 2015 by using the programmes of measures set out in the Water Framework Directive. Thus details of how Member States are to tackle such trends are to be set out in the River Basin Management Plans.
- Measures to prevent or limit inputs of pollutants into groundwater are to be operational so that the environmental objectives of the Water Framework Directive can be achieved by 2015. This shall include the prevention of inputs of substances identified as hazardous under the Water Framework Directive and action on other pollutants so as to prevent deterioration in quality. However, Directive 2006/118/EC also provides exemptions to these requirements, such as in the event of technical limitations and of measures being 'disproportionately costly'.
- Reviews of technical provisions of Directive 2006/118/EC are to be carried out in 2013 and every six years thereafter.

The EQSD supports the WFD implementation by introducing chemical objectives through setting harmonized environmental quality standards for surface waters regarding 33 'priority substances' and eight other pollutants and includes a requirement to phase out discharges, emissions and losses of 13 'priority hazardous substances' within 20 years. The Directive sets two types of environmental quality standard: annual average concentrations and maximum allowable concentrations. The former are for protection against long-term and chronic effects, the latter for short-term, direct and acute eco-toxic effects. Furthermore, the environmental quality standards are differentiated for inland surface waters (rivers and lakes) and other surface waters (transitional, coastal and territorial waters). By 2009, Member States are required to set up an inventory of emissions, discharges and losses of pollutants for river basins on their territory. These inventories are to be published in their River Basin Management Plans developed under Directive 2000/60/EC. The Commission is to report on progress towards compliance with the reduction or cessation objectives in 2018 (Farmer 2011). The EQSD introduced the concept of "mixing zones" to account for the fact that it may not be possible to meet environmental quality standards close to discharge points. In "mixing zones", concentrations of the priority substances may exceed the relevant environmental quality standard if they do not affect the compliance of the rest of the surface water with the environmental quality standard. A description of the approaches and methodologies applied to derive mixing zones and the measures taken with the aim to reduce the extent of the mixing zones in the future have to be described in the RBMPs of EU Member States.

Many of the developments under this Directive are to be implemented in an integrated way with the WFD, i.e. the definitions of the WFD apply and measures taken are to be set out in the RBMPs of EU Member States.

4.2.3 ***Addressing key pressures – the UWWT Directive and the Nitrates Directive (NiD)***

The UWWTD seeks to reduce the pollution of freshwater, estuarial and coastal waters by domestic sewage, industrial waste water and rainwater run-off – collectively, ‘urban waste water’. It sets minimum standards, and timetables for their achievement, for the collection, treatment and discharge of urban waste water in all settlement areas and areas of economic activity (also called agglomerations) with a population equivalent (PE) (COM 2010). It introduces controls over the disposal of sewage sludge, and requires the ending of sewage sludge dumping at sea (agricultural use is covered by the Nitrates Directive). Designating sensitive areas is a key policy tool under the UWWTD – the nature of water bodies stipulates the treatment requirements and deadlines (Farmer 2011).¹⁵

Full implementation and compliance with the UWWTD is a key condition for meeting the objectives of the WFD. Waste water collection and treatment has to be in place for the EU-15 Member States, while EU-12 Member States have been granted transitional periods for specific agglomerations. The UWWTD poses huge investment challenges for the EU Member States – in fact, the UWWTD is one of the most cost-intensive directives of the *acquis*, receiving a considerable share of co-funding under the Cohesion Funds.

The NiD seeks to reduce or prevent the pollution of water caused by the application and storage of inorganic fertilizer and manure on farmland. It is intended both to safeguard drinking water supplies and to prevent wider ecological damage arising from the eutrophication of freshwater and marine waters generally. Member States are to identify surface freshwaters, particularly those used or intended to be used for the abstraction of drinking water, and groundwater that contain (or could contain) the threshold level of 50mg/l of nitrates. They are also required to identify those freshwater bodies, estuaries, coastal waters or marine waters that are eutrophic or are expected to become eutrophic. All known areas of land, which drain into waters identified in this way and contribute to nitrate pollution, are to be designated by Member States as ‘vulnerable zones’. The identification is to be reviewed and if necessary revised at least every four years. The Directive requires EU Member States to establish so called codes of good agricultural practice, which should be implemented by farmers on a voluntary basis. Moreover, Action Programmes relating to vulnerable zones are to be established by December 1995 and implemented by December 1999. These programmes are compulsory and should introduce action to tackle pollution loads, such as limitations of fertilisers to be applied or maximum amount of manure to be applied, in addition to the measures laid down in the voluntary codes of good agricultural practice. They are to be revised at least every four years. The NiD forms an integral part of the WFD implementation process, marking the key policy tool available to EU water policy to address water quality related pressures from agriculture.

¹⁵ Discharges to waters classified as ‘normal’ must have in place secondary treatment by 31st December 2000 for discharges greater than 15,000 PE for all receiving waters. Discharges to inland and estuarine waters of between 2000 and 15,000 PE and those between 10,000 and 15,000 PE to coastal waters must receive secondary treatment by 31st December 2005. All discharges less than 2000 PE must receive ‘appropriate treatment’ by the end of 2005, as must discharges with PE between 2,000 and 10,000 to coastal waters.

4.2.4 Expanding the scope – the Floods Management Directive (FD)

The FD applies to all types of floods whether they originate from rivers or seas, or occur in urban and coastal areas. The focus is on the processes of management, rather than any specific obligations on the level of flood defence, etc. Implementation is to be carried out in the following three stages:

- 1) An initial assessment of each river basin's flood risk and their associated coastal zones to be carried out by 20 December 2011,
- 2) the development of flood hazard maps by 20 December 2013, to identify high-, medium- and low-risk areas following an assessment of humans and assets at risk, including those areas where occurrences of floods would be considered an extreme event and
- 3) the production of flood risk management plans by 22 December 2015, to include measures to reduce the probability of flooding and its consequences, including working with neighbouring countries where necessary.

Updates should occur every six years thereafter that take into account the impact of climate change. The Directive sets up a process of review of flood risk planning and integrates the processes into those of the Water Framework Directive including public involvement and transparency. The Floods Directive is a major departure into quantitative water management.

4.2.5 Non-legislative action on scarcity and droughts and climate adaptation

The area of quantitative water management has been further elaborated through a Commission Communication on Water Scarcity and Droughts (COM(2007)414). The Communication sets out options for reducing the impact of droughts and planning for water scarcity. It is a non-legislative document which stresses the need for an integrated policy approach, including a hierarchy of measures prioritising water demand management over and full implementation of the WFD.¹⁶ It also sets in place a process to review progress on this issue.

The Communication foresees seven policy options:

- Putting the right price tag on water
- Allocating water and water-related funding more efficiently
- Improving drought risk management
- Considering additional water supply infrastructures
- Fostering water efficient technologies and practices
- Fostering the emergence of a water-saving culture in Europe
- Improve knowledge and data collection

The White paper on adaptation to climate change (COM(2009)147) was published on 1 April 2009. It was accompanied by three sectoral papers on agriculture, health and water, coasts and marine issues, and suggested that further sectoral papers could be presented in the

¹⁶ According to the proposed hierarchy, water demand measures should be prioritised and alternative supply options only considered when the potential for water saving and water efficiency increase has been fully exhausted.

future. Building on an earlier Green Paper (COM(2007)354), the White Paper set out a framework to reduce the EU's vulnerability to the impact of climate change. The framework outlined was intended to complement action by Member States, particularly in the area of information exchange and support to policy coordination in case of transboundary climate adaptation needs and risk management and to support wider international efforts to adapt to climate change, particularly in developing countries. It was also designed to evolve in the light of further evidence becomes available. The White Paper itself makes strong links to water policies. The Water Framework Directive does not, itself, directly address climate impacts, although, guidance on adaptation under the Directive has been adopted which explicitly explores the interaction with planning and objectives under the Directive.

5 RELEVANCE OF THE POLICY FRAMEWORK IN PLACE

5.1 Framing the analysis of relevance

A key benchmark for the relevance of the EU Water Policy framework is whether the objectives and strategic orientations of the policies in place are adequately capturing and addressing relevant challenges to preserving a high quality of European waters and whether the instruments in place are sufficient for the sustainable management of freshwater resources (i.e. whether they are equipped to provide effective responses to important problem drivers and thus tackle the causes of the problem, not address the problem symptoms.)

Section 3 provided a sketch of current challenges to EU Water Policy. It particularly highlighted the problems of water availability in parts of Europe and the need to reduce water demand effectively. A key factor to take into consideration is the degree to which current policy objectives and instruments are geared towards effectively tackling the challenges of a) water availability and water demand, b) of droughts and floods, as well as c) the question of how water leakages are addressed.

Concerning the use of policy instruments, it is key to ask whether the full mix of theoretically-available policy instruments is utilised, and whether its operationalisation can be regarded as adequate or not. Of particular importance is the question addressing whether enough attention is given to pollution control at the source in order to reduce the reliance on end-of-pipe solutions (e.g. waste water treatment), i.e. if relevant policy instruments are in place, or not.

5.2 Relevance of policy focus and instruments

5.2.1 *Assessment of the policy focus*

The analysis distinguishes between a broader, generic policy focus (i.e. specific pollutants-emissions or outcome and quality-oriented objectives as well as objectives on water demand and water quality) and a more specific policy focus on droughts, floods and leakages, following the criteria of the Fitness Check. The table below provides an analysis of the policy foci of the legislative and non-legislative tools that are analysed in this report. There is widespread agreement both in the literature as well as the interviews that - since the entry into force of the WFD – European Water Policy is guided by an adequate focus on ecological objectives and aquatic ecosystems and their services, as well as the links to terrestrial ecosystems that depend on them.¹⁷ All important water issues are principally addressed by the policy framework that is currently in place. Nonetheless, an analysis of relevance reveals regulatory gaps in the policy framework and areas that suffer from a lack of clarity or detail in provisions, which are already planned to be or could be addressed under the forthcoming EU Blueprint to safeguard Europe's Water.

¹⁷ See for example Farmer, 2010, Moss 2004

Table 4: Policy focus of the legislative and non-legislative tools of European Water Policy

Directives/non-legislative tools	Generic				Specific		
	Emission-oriented	Outcome/quality-oriented	Water Demand	Water Availability	Droughts	Floods	Leakage
WFD	•	••	•	•	•		
GWD	•	••					
EQSD		••					
UWWTD	••						
NiD	••						
FD						••	
Droughts and scarcity communication			•	•	•		•
Climate adaptation white paper				•	•	•	

•• covered in detail

• covered broadly

Please note that this table represents the expert judgement of the authors of this report only. It has not been subject to interviews or stakeholder consultation.

Source: Own compilation

Emission-orientation and water quality-orientation

The focus shift from controlling single pollutants to diffuse sources of pollution, and wider water quality criteria linked to the geomorphological and biological status of rivers and lakes, is expected to help better address some of the key pressures on European water bodies, particularly diffuse source pollution and site contamination, which cannot be tackled through upgrading water-related infrastructure, such as sewage treatment systems only (Kanakoudis and Tsitsifli, 2010).

The WFD is widely appraised as a good example for integrated approaches to environmental policy-making, flagging the ecological assessment of ecosystems and the approach to integrated river-basin management including water pricing as important policy innovations (Huitema and Bressers, 2011; Mostert, 2010). It has been argued that the introduction of the combined approach “involved greater stringency as compared to the previous “parallel approach” which allowed Member States to meet either emission limits or water quality objectives” (Howarth, 2010) (it should be noted that the term ‘combined approach’ first entered EU policy delivery with the 1996 IPPC Directive). However, it is not clear how far the combined approach under the WFD will deliver additional outcomes, although the broad objective setting combined with flexibility of options for measures holds significant potential benefits. Interviewees agree that depending upon the political will, culture and habit of looking into the spirit of the law versus the letter of the law, great improvement can be achieved with regards to water quality. However, many of the interviewees for this report stated that the target of achieving good water status by 2015 may be too ambitious, given the significant investments required, which sometimes compete with other priorities (that may be higher on the agenda in times of economic recovery) (EEA, 2010a).

Water demand and availability

A comprehensive legislative framework is in place, which also recognises the challenge of addressing water demand and availability of water. However, due to its broad framework character, the WFD lacks clarity in detail and leaves a lot of room for diverging interpretation of action requirements.

While promoting sustainable water use, some authors argue that quantitative aspects of water resource management are not explicitly targeted in the WFD and note that water quantity should be addressed only according to its impacts on water quality (Kallis and Butler, 2003).¹⁸ However, the WFD states that good groundwater status “means the status achieved by a groundwater body when both its quantitative status and its chemical status are at least good”. Accordingly, EU Member States cannot be compliant without the quantitative status of their groundwater bodies being good – irrespective of quality.¹⁹ The approach to addressing quantitative water concerns is thus embedded in the WFD. Although the WFD does not explicitly use the term, effectively, by setting core ecological objectives, it establishes a requirement for minimum ecological flows (or minimum ecological levels) for water bodies as a key objective for introduction of quantitative management measures.

The WFD requires an analysis of past and future trends of water demand and related risks, but the demand for water is largely determined by other policies, such as the Common Agricultural Policy. An effective approach to policy integration is still lacking on a European level (Herbke et al 2006). Improving water efficiency is a key part of Europe’s efforts to address water scarcities; yet the efficient use of water in critical areas such as buildings or in agriculture is not addressed in the WFD and not sufficiently regulated elsewhere (Dworak et al. 2007; Biols, 2009).

¹⁸ The division of water quality and water quantity issues is caused by the institutional set-up of the European Union competencies, i.e. water quality aspects fall under the remit of the environmental policy competence of the EU and its qualified majority voting procedures, while aspects of water resource management require unanimity in the Council. The Commission was thus forced, when preparing the proposal for a WFD, to avoid a clear link to water resource management aspects as this would have affected the legislative base of the WFD, which was back then Art. 130r (Kallis & Butler, 2003).

¹⁹ In addition, the ESD states in Annex V for quantity that ‘Conditions consistent with the achievement of the values specified above for the biological quality elements’ this is far removed from saying quantity is not targeted. To get anything like the biological outcomes, quantity is clearly a focus. In effect the chemistry requirement is similar – we need the quality and quantity to get the biology.

Regulatory action on droughts and water scarcity?

An extension of the existing policy framework is controversially discussed between the European institutions. A group of EU member states is clearly in favour of regulatory action to address the impacts of droughts and water scarcities in general.

Addressing droughts through a specific European Directive was not a preferred option by many interviewees. The main argument was that drought is a highly-localized phenomenon and pan-European regulation may not be able to take into account regional particularities. The answers of interviewees were split with regard to addressing water scarcity. Several interviewees, mainly from the EU-10 Member States required stronger guidance and even additional regulation from EU level.

The interviewees also pointed out various solutions for addressing water scarcity and drought. Among these, three have been mentioned repeatedly during interviews: a) using green water resources (e.g. rainwater, groundwater) to cover deficits in blue water (e.g. rivers, lakes, etc.); b) reusing treated wastewater (which has just the right amount of nutrients due to the treatment processed) for agriculture, which is one of the biggest consumer (but not always payer) in many Member States; c) improving water-use and infrastructure efficiency, as a large water amounts are being lost before reaching the end-user (e.g. by sending text messages with the weather forecast to farmers in certain regions of a Member State, the water used for irrigation decreased significantly, as farmers knew that they should expect rain the following day, and would not use irrigation water for crops).

Environmental objectives apply to all surface waters, divided into water bodies (Art 4 WFD).²⁰ Water bodies have been described as either “discrete or significant elements of water in the case of surface water” or as in the case of groundwater as “distinct volumes within an aquifer”. Related are questions about accounting for small abstractions (cumulatively or individually) and accounting for total water abstraction (quantity of raw water or volume of treated water) (Gibbons et al. 2007). No definition is being given in the WFD or implementation documents on temporary effects that can cause fluctuations in the conditions of water bodies and hence should, nor should not, be considered as deterioration of status, although Art 4.6 outlines the circumstances where temporary effects can be addressed. The concrete designation of water bodies and abstraction processes remains the subject of discussions, particularly with respect to limits in data availability and uncertainties in model data (Mostert et al, 2010 – based on three case studies).

While key emerging challenges such as increased occurrence of floods, increased levels of water scarcities and droughts and adaptation to climate change are acknowledged, the objectives lack clarity and operationalisation or, as in the case of climate change adaptation - do not really set out a binding policy frame for EU Member States. The WFD itself does not mention explicitly risks posed by climate change - it broadly refers to the need of identifying and collecting information on key anthropogenic pressures, however, and it requires EU Member States to take action (Dworak and Leipprand, 2007). However, the philosophy of the WFD is to counter human impacts and only in the case of heavily modified water bodies to seek to achieve the best outcomes within particular human impacts.

Furthermore, the current policy framework lacks a prioritisation of competing water uses. Such a prioritisation would be relevant to guide preventive and regulatory action in cases of

²⁰ With the exemption of pollution from priority substances and priority hazardous substances.

drought and scarcity adaptation planning (Farmer and Cherrier, 2010). It is conceded that this is a difficult topic for regulation given the wide diversity of local and regional conditions. However, without clearer guidance it will be difficult for EU Member States to find a common line on criteria when, for example, to issue restrictions for certain water uses or not, in order to prevent future deterioration of water bodies.²¹

Overall feasibility and suitability of approaches

In addition, several concerns with regard to the feasibility of the policy objectives of the WFD are repeated throughout the literature. First of all, many measures required to reach good status may require time to fully unfold their impacts, and a response from the ecosystem needs to be added to that account. Pending on the specific circumstances it can take years to decades for aquatic ecosystems to reach the aspired “good status”, making 2015 a difficult, if not in many cases impossible to reach target (Hering et al, 2010).²² Some groundwater aquifers may be particularly slow to respond, as seen by changes to nitrate concentrations following controls to limit nitrogen application. However, some measures can result in rapid improvements. Controls on point source discharges of industrial or urban pollutants or hydromorphological changes for fish migration all can have rapid positive impacts. Although Member States effectively have two further river basin planning cycles to reach good status (2027), the danger is that they will not use this time to account for time lags in implementing measures and for ecosystem responses, but simply to delay action.

Achieving the objectives of the WFD requires a large degree of institutional cooperation across policies and administration, often necessitating policy and institutional change, which is slow to materialise (Moss, 2004; Moss, 2008). The WFD has placed significant responsibility on EU Member States to further design the planning process, but provides little formal instructions in terms of organising negotiation and cooperation procedures (Hedelin, 2008).²³

Standardising sampling and analysis procedures, coming forward with approaches to quantifying dynamic and complex biological communities and dealing with huge gaps and uncertainties in data, has been much higher than originally thought. Problems of information availability when drafting RBMPs are critically flagged – in a number of cases ecological assessment and planning were disentangled to a certain degree, thus

²¹ The Water Scarcity and Droughts Network has suggested that a key priority should be to provide a minimum amount of domestic drinking water, independent of climatic conditions, to account for human health and well-being aspects (European Commission 2008). This finding is backed by survey research undertaken within the context of the FP7 SCENES-research project among European Member States on priorities for European Water Policy, which ranked domestic supply (health concerns, fire fighting) and support to ecological objectives as key priorities (Farmer 2010).

²² In a meta-study of 240 recovery studies across terrestrial and aquatic ecosystems Jones and Schmitz calculated a mean recovery time of between 10 to 20 years for freshwater, brackish and marine systems. Although fraught by problems of limited data availability (insufficient data for pre-perturbation times) which render the assessment of recovery rather subjective, the study nonetheless illustrates the time range that is needed to be taken into account. Some measures will need decades rather than years to fully unfold their impacts (Jones and Schmitz 2009).

²³ In addition, Kallis and Butlern highlight the fact that demands on administrative capacity might particularly overwhelm the capacities of less developed Member States (Kallis & Butler, 2003).

undermining effective action to reach policy objectives (see chapter 7 – Effectiveness - on achievements and implementation (Hering et al, 2010; Lyche Solheim A, 2008; Shmutz, 2007; Furse, 2006).

The WFD requires stakeholder consultation and participation to draw up RBMPs which should include - resembling an effective participation process – the deliberations about the definition of priorities. The setting of water objectives is technically an objective scientific approach, as is the economic analysis in river basins. However, stakeholders can hold different views (more or less stringent or ambitious) than these analyses conclude. Derogations and extensions are introduced to help tackle these problems, but are thought to increase the likelihood of delays in implementation and a weakening of targets defined in the directive (Green and Fernandez-Bilbao, 2006).

More generally, different contributors to the academic literature have critically assessed the role, function and nature of the scientific concepts that underpin the objectives of the WFD. Assessment systems have been criticised for being too complex and prone to errors that could result in costly consequences, i.e. wrongly placed investments (Hedelin and Lindh, 2008).²⁴ Moreover, both contributions to the literature and many of the interviewees argued that WFD assessment systems seek a level of detail in understanding that is not necessary, given that simpler parameters (i.e. water transparency) can provide a sufficient understanding of ecological status. Furthermore, the assessment systems are believed to lack a focus on the generic health of the aquatic ecosystems (Samal et al, 2009).²⁵

There is also concern about controls on specific substances. For instance, several interviewees pointed out that, the lack of regulation preventing pharmaceutical substances in general - and metabolites in particular (e.g. birth control pills) - from being disposed of in the sewage system, generated genetic modifications to some of the aquatic species in certain areas. This is paired with the fact that the UWWTD does not require such a stringent treatment of wastewater that would neutralize metabolites (due to the costly investments that these additional filters would entail).

Positions that advocate the use of simpler parameter systems than those currently being applied are themselves subject of criticism: there was a lack of empirical proof that these simpler parameters could be taken out from the restricted set of water bodies where they are demonstrated and applied for the wider range of different regions and water bodies and their stressors the WFD approach (monitoring of biotic communities) is concerned with (Hering et al, 2010).

Last not least, achieving good status is discussed in terms of its overall ambition and suitability to serve as the effective paradigm for protecting Europe's freshwaters: will water bodies that are in "good status" be sufficient to preserve Europe's aquatic ecosystems and

²⁴ How to include uncertainty estimates into assessment schemes is, for example, not resolved yet, but remains a major challenge of the next phase of WFD implementation.

²⁵ In this respect, Dufour et al have pointed out that more attention needs to be paid to the realities man-changed landscapes, their local and regional specifics and constraints of restoration activities that should be regarded as an important approach but not as a goal per se (Dufour, 2009).

their services?²⁶ This may, therefore, require a broadening of objectives for water management. Thus while it is important to retain the strong ecologically-based focus of the WFD, further emphasis may be needed in the future on protecting or enhancing the ecosystem services of waters. It is possible that the delivery of the ecological objectives of the WFD may largely achieve this, but the question will only be resolved as implementation of the WFD proceeds.

5.2.2 *Assessment of the policy Instruments*

The analysis follows a widely used typology of policy instruments, distinguishing regulatory standards, economic incentives (market-based instruments), spatial planning instruments, information and procedural instruments and cooperative measures (voluntary or negotiated) (Jaenicke, 2003).

They can be described as follows:

- *Regulatory instruments* include standards, normally on either design (requiring the use of a particular technology) or performance (prescribing the maximum amount of pollution from a source of emission or the state appropriation and designation of a specific land-use for a specific area (protected areas);
- *Economic instruments* include pollution taxes and charges (revenue), subsidies, payments for services (pillar II of the CAP), tax allowances, green public procurement (expenditure), tradable permits and licenses (property rights) and user-benefits and environmental liability;
- *Spatial planning instruments* include regional planning systems and land-use and urban planning systems;
- *Information and participatory instruments* include environmental labels for products and processes, environmental reporting, access to information and justice rights, information campaigns and educational measures;
- *Cooperative instruments* include voluntary commitments from target groups (such a commitments from companies to voluntary reduce emissions of pollutants) or negotiated agreements between public authorities and targets groups without regulatory action.

Policy instruments are seldom applied alone, but in a mix of different instruments. The overall composition of the policy mix is then an important factor in determining its policy relevance, i.e. how many instruments are included and much weight is assigned to each of them (OECD, 2007). In the remainder of this subsection, the overall mix of EU water policy instruments will be assessed. The table below provides an overview assessment for the different instrumental categories discussed above.

²⁶ Analysis suggests that “high status” sites have higher occurrence and abundance of threatened species than “good status” sites, and thus should play a more prominent role (Aroviita et al, 2009)

Table 5: Policy instruments as specified in the legislative tools and non-legislative policy tools of European Water Policy

Directives/non-legislative tools	Instruments				
	Regulatory instruments	Economic instruments	Planning instruments	Information/participatory instruments	Cooperative instruments
WFD	•	•	••	••	•
GWD*	••				
EQSD*	••			•	
UWWTD	••				
NiD	••	**			
FD			••	••	
Droughts/scarcity communication				•	
Climate adaptation white paper			•	•	•

•• covered in detail

• covered broadly

* re planning instruments the GWD and EQSD are integrated into the RMBP process of the WFD. It is not recorded here as a separate instrument entry.

** Certain articles of the NiD are linked to the cost-compliance scheme of the CAP pillar I, thus acting as an economic incentive.

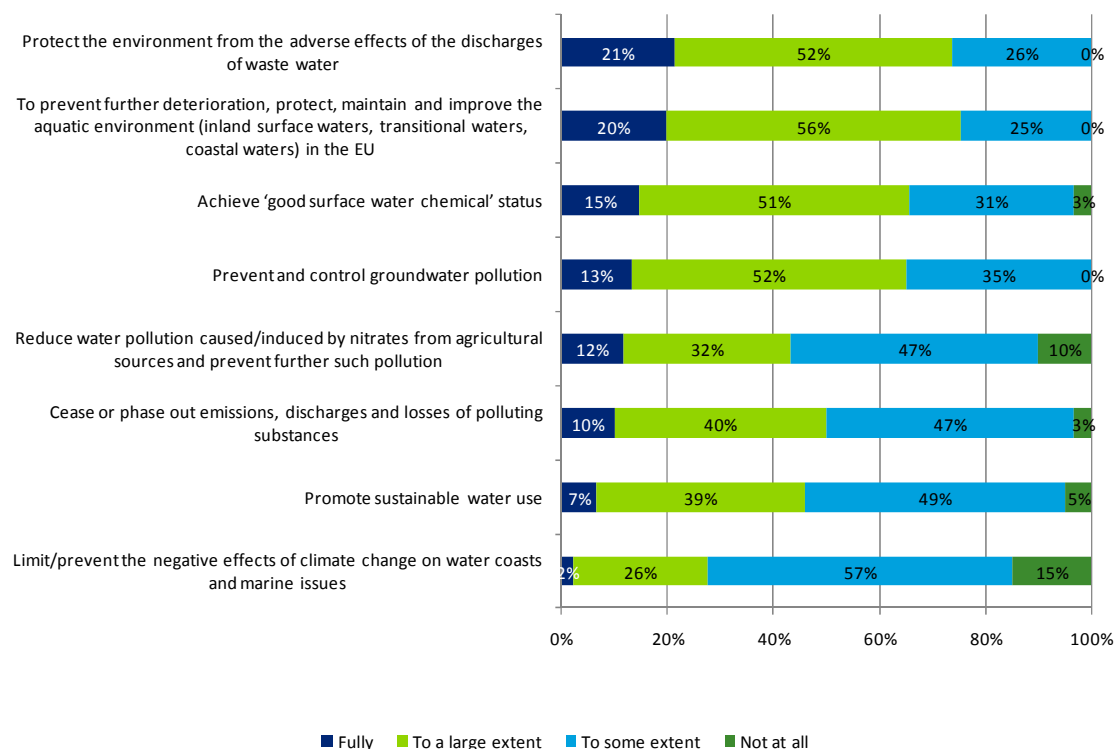
Source: Own compilation

General assessment of the current instruments of the EU Water Policy

Assessing the overall relevance of the instruments of EU Water Policy takes into consideration stakeholders' opinion on the extent to which they are contributing to address the objectives of a) water quality, b) water availability and water demand, c) droughts and floods and d) water leakages as well as whether the instruments are suitable to address them.

The figure below shows that in general, stakeholders consulted perceive that the instruments of EU Water Policy contribute to address the objectives set.

Figure 12: extent to which the instruments of EU Water Policy contributes to the objectives set



The analysis demonstrates that a good share of stakeholders consulted perceive that the current instruments of EU Water Policy contribute fully or to a large extent to protecting the environment from the adverse effects of the discharges of waste water (73%), prevention of further deterioration, protection, maintenance and improvement of the aquatic environment (inland surface waters, transitional waters, coastal waters) in the EU (76%). Stakeholders also indicated that they contributes fully or to a large extent to achieve 'good surface water chemical' status (66%) and to prevent and control groundwater pollution (67%).

More nuance is brought when assessing the relevance of the policy instruments in contributing to a) reduce water pollution caused/induced by nitrates from agriculture sources and prevent further such pollution, b) cease or phase out emissions, discharges and losses of polluting substances and c) promote sustainable water use.

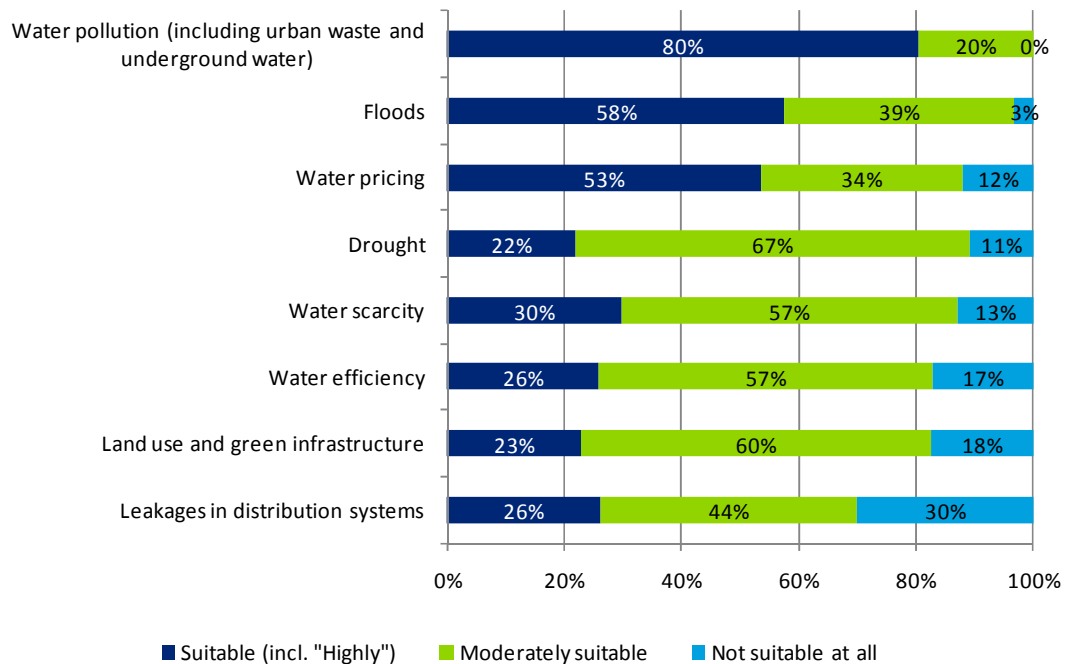
Contributing to the limitation or prevention of the negative effects of climate change on water coasts and marine issues scores last, with only 28% of stakeholders believing that the current instruments of EU Water Policy address this challenge.

As regards the suitability of the EU Water Policy instruments, the vast majority of stakeholders (80%) indicate that the former are suitable to address water pollution (including urban waste and underground water) as illustrated by the figure below.

More than 50% highlight that the relevant instruments of EU Water Policy are appropriate to address floods and water pricing while moderately suitable to address drought, water scarcity, water efficiency and land use, and green infrastructure.

30% of stakeholders indicate that the instruments of EU Water Policy are not adequate to address the challenges related to leakages in distribution systems.

Figure 13: extent to which relevant instruments of EU Water Policy are suitable to address challenges



Regulatory instruments clearly play a prominent role in the overall instrument mix of EU Water Policy (see table 4). This concerns both standards for pollution, and the designation of specific areas for water protection. The WFD and the FD add a strong planning component, in as far as they require the development of river basin management plans and flood risk management plans as policy instruments.

Regulatory instruments

In a nutshell, EU Water Policy provides for a comprehensive regulatory framework that avoids a narrow focus on end-of-pipe solutions. Through the UWWTD and the ND, but also through the IPPC/Industrial Emissions Directive, but also the Plant Protection Products Directive (not covered under this analysis) and others²⁷ specific legal measures are provided

²⁷ Other Directives with specific source controls for pollution to water not included as basic measures include: Waste Incineration Directive, Landfill Directive, Titanium Dioxide Directives and, more broadly, the National Emission Ceilings Directives and contributing law such as that on vehicle emissions

that allow for tackling water pollution at source. EU Member States are required to include all relevant measures that are binding under different European directives as “basic measures” into their programmes of measures and complement them with supplementary measures where needed.²⁸

Spatial planning instruments

The link of these instruments to the main spatial planning frameworks in EU Member States is, however, not clearly specified

A general gap in the instrumental framework of EU Water Policy concerns the integration of water concerns into spatial planning frameworks for land use (Biesbroek and van der Knaap, 2007; Moss 2004). Links to the overall spatial planning frameworks need to be better conceptualised and understood in practice. It has been noted that the WFD implies, if correctly interpreted, far-reaching changes to existing spatial planning frameworks in Europe. Physical land-use planning is under national jurisdiction and EU Member States pursue very different planning frameworks and procedures. Actors in charge of spatial planning are informed by a focus on administrative units, not necessarily functional units as RBD as required by the WFD. Several interviewees also mentioned that, without higher-level scrutiny for consistent spatial planning, bad practices in this area may lead to long-term damage (as was the case in one of the new Member States where a significant part of the forest cover got destroyed, this entailing massive changes in the water circuit, leading to severe drought.)

The planning implications and the needs for revising spatial planning frameworks become even more significant when looking at transboundary RBDs and RBPMs (White and Howe 2003)²⁹. There is no widely agreed shared understanding how water management concerns should be integrated into regional spatial planning strategies and what role RBMPs should have in case of a successful integration (Green and Fernandez-Bilbao, 2006).

Better planning is strongly linked with water demand management, where the current policy mix is expandable. Those administrative actors in charge of water protection are often not those in charge of allocating and administering water abstraction. At the moment, there are few concrete opportunities for authorities concerned with water protection to meaningfully intervene into the allocation practice of water resources on a national level. Only a few member states have taken concrete action to reduce pressure that is on water resources, including banning an increase of water abstraction in over-exploited areas or the configuration of volumes of water that can be sustainably extracted. Improving guidelines

²⁸ “Basic measures” include Implementation of measures required by the following directives: the Bathing Water Directive (76/160/EEC); the Habitats Directive (92/43/EEC), the Birds Directive (79/409/EEC), the Drinking Water Directive (80/778/EEC) as amended by Directive (98/83/EC); the Major Accidents (Seveso) Directive (96/82/EC), the Environmental Impact Assessment Directive (85/337/EEC), the Sewage Sludge Directive (86/278/EEC); the Urban Waste-water Treatment Directive (91/271/EEC), the Plant Protection Products Directive (91/414/EEC); the Nitrates Directive (91/676/EEC) and the Integrated Pollution Prevention Control Directive (96/61/EC).

²⁹ The strong transboundary interaction with planning is also a theme of the Floods Directive

and tools to deal with overexploitation of water resources should be a key priority for further coordination processes under the WFD (Farmer, 2010).³⁰

Economic instruments

The question whether the instruments as enshrined in the WFD and the related directives covered under the Fitness Check of EU Water Policy are sufficient for the sustainable management of freshwater resources or not cannot be answered without looking at the concrete enforcement and implementation on the national level (see chapter 7). EU Member States have considerable autonomy in implementing the provisions (Scott and Holder 2006). Especially economic instruments that are principally well-suited to address concerns of water availability and reduction of water demand are crucially dependent on the concrete design within the development of measures of programmes under the RBMPs.

Economic instruments are anchored in the WFD, but their specification in the directive relates mainly to principal aspects of instruments choice; the WFD requires that EU Member States “shall take into account” principles of cost-recovery of uses and “consider” water pricing, charges or taxes as potentially cost-effective means to reach the objectives of the WFD when setting up their programmes of measures in accordance with economic principles.³¹ The WFD requires EU Member States to establish water pricing by 2011 and to ensure that water-pricing policies provide adequate incentives for efficient water resource use, but it does not provide further information on what would constitute an “adequate” incentive. It leaves much room and flexibility for the EU Member States in responding to these requirements (Aubin and Varone, 2002). It is also important to note that supplementary measures under the WFD to achieve any of its objectives can include any type of appropriate economic instrument. The WFD encourages the development of new instruments and instruments fit for purpose.

As several interviewees point out, certain Member States have a longer tradition for water pricing and cost-recovery than others, and this has been largely dependent on the availability of fresh water resources in those countries/regions. However, it is necessary that other Member States (specifically the ones for which water availability is/will be a challenge) implement measures along “the consumer pays” principle, especially if greater transparency in terms of cost recovery is expected. Besides transparency, higher cost recovery could allow water providers to invest in infrastructure maintenance, in order to reduce leakage, which seems to be a key factor in managing water scarcity, according to several interviewees across the EU.

³⁰ In view of prolonged experience of water scarcity, several EU Member States have implemented action to restrict general use of water (France) or use of water for irrigation (RO, SE, CY) (COM 2011).

³¹ The main steps according to the implementation strategy for the WFD comprise a) estimating the costs of each measure, b) appraising the effectiveness (environmental impact) of each measure and c) ranking of cost-effectiveness.

Information instruments

Information instruments play a relevant role, both under the WFD and the FD.

Access to information and participation is of crucial relevance both for the production and implementation of RBMPs and FRMPs. In addition, the access to information is also crucial for public accountability of those in charge of drafting and implementing the RBMPs and related reports. Last but not least, access to information is key to modifying consumption habits, with an impact on both water quality and quantity. For instance, clear information on the real cost of water, and the impact of water scarcity on the daily life of people (at present or in future) could lead citizens to be more mindful of their consumption habits, and also to require higher transparency in the application of the consumer pays principle.³²

Information is also a relevant source for the implementation process. Therefore, a lot of emphasis has been put on providing overall guidance to support and streamline implementation processes in EU Member States, particularly through installing the Common Implementation Strategy (CIS) Group which has issued 26 detailed guidance documents on a whole range of implementation aspects of the WFD so far (Farmer, 2011).

There is an extensive body of information and a diversity of monitoring and assessment tools available. However, information and data availability remain core challenges for EU Water Policy, particularly on challenges such as droughts and floods, groundwater quality and adaptive management, interaction between water policies and other policies and the link between water and the wider discussion around ecosystem services and related trade-offs. Information on water quality related to floods is sparse and information on flood movement (particularly in urban areas) quite limited. In environmental assessments, hydrological and ecological processes are often not sufficiently linked. Furthermore, information gaps in some socio-economic data are highlighted (Beniston and Stoffel, 2011, with further information). Overall, increased efforts to harmonise and streamline methods of data collection and analysis across Europe are highlighted, pointing to a need for enhanced coordination under the WFD or even calls for further regulation (EEA 2010).

Voluntary agreements play an important role in other policy areas of relevance to water, particularly in agriculture. Cooperative agreements between water companies, farmers and public authorities exist in many EU Member States and are found to often go beyond statutory rules, partially due to the fact that information exchange is targeted to site-specific requirements and water companies are ready to advise and financially support farmers in changing agricultural practice (Heinz 2008). Nonetheless, the main instrumental mix of EU water policies does not put much emphasis on voluntary agreements and other cooperative instruments. It is basically up to the EU Member States to determine the degree to which voluntary instruments are used.

³² Also, by being informed of the specific impact of certain substances/products on the environment, could lead consumers to ask for a removal of those substance from the supply chain, or to stop buying certain products (e.g. although tap water is most of the times suitable for consumptions, many people still prefer to buy bottled water, leading to plastic recipients ending up in rivers or on beaches, with birds swallowing and choking with small pieces of the recipients.)

While a broad information base is in place, conditions of “good spatial fit” and “good institutional interplay” have been identified to be of major relevance for success and effectiveness of implementation (Moss, 2004).³³ Institutional interplay is particularly challenging with respect to the aim of the WFD to introduce economic instruments. Good institutional interplay is also complicated by the fact that actors who are in charge of protection water bodies on a national level are often not the ones who decide the allocation of water resources (Strosser et al, 2007) (EEA, 2005a). The problem of institutional interplay can also be a challenge in linking the actions of pollution control regulators with those responsible for water management (Farmer and Cherrier, 2010).

Assessing the legislative quality of instrumental provisions of the WFD

It has been stressed that the obligation for reaching “good status” under the WFD will be heavily qualified by national interpretations of “cost-effectiveness” and “disproportionate” costs. Some authors have further argued that the provisions of the WFD and also its guidance documents are hardly suited to ensure a coherent implementation according to the objectives of the directive, given the lack of political commitment at the Member State level, but also due to the manifold derogation possibilities and insufficiency in some of the legal formulations (Howarth 2010).

How binding provisions should be and the extent to which the polluter-pays-principle was to be applied under the WFD was an object of controversial discussions during the legislation adoption process (Unnerstall, 2007, also Kaika and Page, 2003). The implications of the polluter-pays principle and the principle of cost-recovery in art. 9 of the WFD are not precisely defined, particularly concerning the services provided for water uses (Brouwer et al, 2009). Full cost-recovery is not likely, since the WFD does not require that all costs are covered, but requires only that “the principle of cost-recovery should be taken into account” (Dworak et al. 2006). There have been many discussions as to what needs to be included and how it should be applied in practice, with environmentalists pointing to weaknesses in the current definitions, particularly with respect to the polluter-pays-principle (Gruene Liga, 2010). Among the interviewees, many share the view that, although economic and human-impact analyses of water are difficult to conduct (and take years to get validated in practice), they are key to turning “the consumer pays” from principle into reality.

The WFD requires a harmonised approach to water pricing, but rightfully not a harmonised approach to water prices, which would be difficult in view of diverging regional conditions (Elnaboulsi, 2009). Yet the WFD does not include a definition of costs, particularly not of environmental and resource costs. This leaves a number of methodological and factual problems related to the choice of accounting standards for financial costs, environmental costs and distribution of costs unsolved (Unnerstal, 2007).³⁴ The concrete design of policy

³³ “Spatial fit” concerns the overlap between territorial borders of political and administrative organisation and the borders of the bio-geophysical resources to be managed, whereas “institutional fit” refers to the degree to which policy and institutional requirements coincide with existing policies and institutional arrangements on a national level that can be difficult to change in their path-dependency (Nilsson, 2006).

³⁴ This is important with regard to the challenge of policy integration, i.e. particularly with regard to phasing out environmental harmful subsidies and better coherence of water and other non-environmental policies.

instruments like water pricing, water quotas or water markets is firmly under national jurisdiction. While water pricing policies have been applied for centuries in Europe, current systems tend to largely ignore externalities, but are also often characterised by monopolistic or oligopolistic conditions that de-prioritise demand-side management measures (Bithas, 2008). Economic instruments focusing on efficiency in water supply are not widely used in Europe and remain controversially discussed, particularly within the agriculture sector.³⁵

On 19-20 October 2010 an important workshop³⁶ was held to discuss current experiences in addressing economic issues within the implementation of the WFD and future possible developments. With regard to current implementation it was noted that:

- A variety of methodologies and approaches have been developed and applied in Member States for the implementation of the different aspects of Article 9 of the WFD, including on cost recovery for water services; definition, estimation and internalisation of Environmental and Resource Costs (ERC); the application of the flexibility associated with Article 9 implementation; the application of the polluter pays principle; the adequate contribution of water uses to the recovery of costs of water services and the evaluation of water pricing policies with regards to the provision of incentives for efficient water use in order to reach the environmental objectives of the Directive.
- Most Member States had a clear idea of cost recovery regarding financial costs of water supply and sewerage services. However, this was not the case for ERC. Therefore, there has been the use of proxies, particularly in relation to the estimation (e.g. cost-based methodologies) and internalisation (e.g. via existing mechanisms such as charging) of ERC.
- Data gathering is a common challenge for Article 9 implementation, including issues of data availability, format, ownership, collection and processing of different data formats and the related costs. The main data/information gaps in relation to cost recovery estimation were for the agricultural sector.
- On cost recovery it was reaffirmed that a 100 % cost recovery is not required by the WFD in all circumstances, but it is important to explain the current cost recovery rates in order to improve transparency.
- Most Member States reported to have incentive pricing policies in place, some already for some time, others recently implemented.
- While incentive pricing policies should contribute to reaching the WFD objectives, a common understanding of the role of incentive pricing and its contribution to achieving the objectives is an area of uncertainty. The low price elasticity of demand

³⁵ For example, different instruments such as water quotas, water pricing or water markets exist, but assessments of impacts and effectiveness differ widely in the literature (Blanco-Guiterrez 2011, Rogers et al. 2002). Using economic instruments for irrigation management is also fraught by a lack of studies that allow for a comparison of local conditions, both physically and institutionally (Bjornlund et al. 2007).

³⁶

See:

http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/implementation_convention/workshop_economics/wfd-economics-workshop-o/ EN 1.0 &a=d

for water was highlighted, thus other incentive instruments beyond pricing need to be considered.

The workshop also considered future needs regarding economic issues within the implementation of the WFD. Views included:

- It would be beneficial to update guidance documents in order to address the problems with the current guidance (e.g. resolve contradictions) and to bring in practical experiences from the first RBMP cycle.
- It would be useful to have an "active clarification by the CIS" on methods, e.g. how to assess cost recovery, on definitions of environmental and resource costs, including possible minimum standards for Art. 9 implementation.
- No further work on guidance documents and/or definitions and methodologies for Article 9 implementation was necessary. The focus of further work should be on 'moving beyond' Article 9, such as on how pricing and other economic instruments could contribute to achieving WFD objectives.

Assessing instrumental provisions in other directives and non-legislative tools of EU water policy

Different directives suffer from individual regulatory challenges, such as the limited list of priority substances defined under the EQSD which is largely due to technical difficulties and political implications of harmonising EU standards. The high diversity of national standards prevents the creation of a level-playing field. Interviewees pointed out that the CIS process can not ensure general applicability and interpretation standards of several ecological 'standards' (It seems that Member States have to put some additional effort into harmonising the above, because at the moment -depending on the technology used and the tradition for interpreting findings slightly different across various Member States- there is no single, EU-approved set of standards that could make data easily comparable). Several interviewees noted that without clear guidelines on setting ecological standards (regarding applicability and interpretation) Member States can qualify the same body of water as being of different status (e.g. poor v. good water quality), and hence take less than the necessary measures required to bring water to a good status within the set timeframe. This ambiguity can also hinder the transfer of best practices (i.e. in the absence of comparable frames of reference, the measures aimed at improving the status of certain bodies of water may fail).

Diffuse pollution sources pose a regulatory challenge, and more integrated approaches to permitting (linking different relevant directives such as IPPC) have proven successful when they have been applied in EU Member States. However, according to several interviewees, addressing diffuse source pollution effectively is challenging because of at least two main reasons: a) being diffuse, it is difficult to spot and fix it, as is the case for single-source pollution, and b) even if prevention and management measures are being implemented, it is difficult to know in the short run if they are the right ones to have the problem fixed. A European harmonisation approach could help fill an important gap, but is currently seen to be politically not feasible.

The provisions for the problem analysis in the FD can be regarded as adequate, and the mapping phase will provide for a major improvement in information available for raising public awareness, particularly through the development of the WISE information system (as both the literature review and the interviews show). However, the mapping phase would benefit from a further obligation to map high probability floods, for example. The third stage of drafting flood risk management plans has, however, a very soft link to spatial planning requirements. It has been noted by different authors that preparing for floods management and increasing the effectiveness of responses to unforeseen events would benefit from stronger linking responsibilities for emergency response and floods assessment and management. A widespread perception is that the approach taken so far in Member States is rather reactive, in terms of better preparing for floods, rather than mitigating their causes, which would benefit from a better defined approach to integrated land use management, which is a key challenge for the EU Blueprint for Water. Limits to soil protection as well as the new phenomenon of increased frequency of rapid floods constitute future challenges. The FD can facilitate a more proactive approach as it encourages risk analysis and mapping to address future challenges (such as climate change).

In the 2007 Communication on Water Scarcity and Droughts a number of policy options to address water savings in key sectors such as agriculture, buildings or industrial processes were presented, with a view to support policy learning and coordination among EU Member States in the absence of legislative requirements (COM(2007)414).³⁷ The most recent evaluation of the process shows that most EU Member States have not introduced legislation on water efficiency standards in buildings or for water using devices (EC, 2011a). Discussions around the post-2013 policy-framework of the Common Agricultural Policy (CAP) offer prospects for better integrating water concerns into farming practice. The inclusion of the Water Framework Directive into the scope of cross-compliance rules under the Common Agricultural Policy is currently under discussion (COM(2010)679). The European Commission is also considering options for harmonising requirements on water savings in buildings.³⁸

Reducing water leakages from water distribution networks is the subject European Member States are implementing different actions, such maintenance and renovation, updating guidelines or efforts to better understand and quantify leakage effects (EC, 2011a). Targeting water leakages will be a main aim of the forthcoming proposals under the “Blueprint for Safeguarding Europe’s water” (EC, 2011a).

³⁷ Options were based on a proposed hierarchy of water uses, with water demand management measures to be considered the priority and extraction of new water resources to be considered as a last resort when all demand-side management measures have been fully exhausted.

³⁸ Building up on the Communication on Water Scarcity and Droughts, the European Commission is also considering options for developing European-wide requirements for water performance of buildings, including a new directive similar to the Energy Performance of Buildings Directive (Nam 2010, see also EurActiv cover from 06.04.2011 <http://www.euractiv.com/en/sustainability/water-efficiency-saving-blue-gold-links dossier-500591>)

5.3 Conclusions

The evaluation question we have raised on the relevance of EU water policy is:

To what extent do the policies covered by the FC and their objectives address the challenge of sustainable management of EU freshwater resources?

We have identified three main challenges that future EU water policy needs to address, and have provided a snapshot assessment of the extent to which the policy objectives and instruments are sufficient to address these challenges.

1. *Maintaining and reaching a high quality of European freshwaters (good ecological status):* The introduction of the WFD has established a policy framework that addresses all relevant aspects of maintaining and reaching a high quality of European freshwaters. The WFD is widely appraised as a good example of an integrated approach to environmental policy-making, particularly with regard to the ecological assessment of ecosystems and the approach to integrated river-basin management. Concerns are raised, however, that the policy objectives of the WFD are overambitious. At this stage it is difficult to judge the reality of such concerns – certainly the objectives are ambitious, but the implementation timetable from 2000 has been, and will be, longer than more any other EU environmental legislation, so that it will be some years before an ex-post evaluation of the level of ambition is possible. There are also concerns that the WFD lacks clarity on some details³⁹ and leaves a lot of room for diverging interpretation of action requirements. This may make it difficult to ensure that policy objectives are being met, while at the same time allowing the flexibility to help Member States choose the most locally cost-effective measures to deliver those objectives. The instrumental mix in place is broad: While regulatory instruments continue to form the policy core of EU Water Policy, planning and informational and participatory instruments play an increasingly important role. A majority of stakeholders agree that instruments in place are sufficient to pursue EU water quality objectives, but depend mainly on domestic operationalization (as with all directives). There is an extensive body of information and a diversity of monitoring and assessment tools available. However, assessment of the effective of measures requires good information and data availability and, even with the extensive monitoring requirements of the WFD, these issues remain important challenges (e.g. see earlier discussion on Art 9), and will become more so as the needs to understand and respond to climate adaptation are addressed.
2. *Addressing water availability and water demand:* While the WFD is requiring action to address water availability and tackle water demand, EU Member States enjoy considerable autonomy and flexibility with regard to issues such as adequate pricing of water use. Flexibility allows Member States to adopt measures adapted to their own specific circumstances. However, such divergence should be supported by

³⁹ The WFD has extensive detail on a number of issues (e.g. on characterisation, monitoring or on determination of water status, but also has a number of elements that require interpretation (see earlier discussion for example on Art 9) and, indeed, seeking consensus on interpretation has been a major focus of the development of guidance under the CIS.

exchange of experience (from instrument design to lessons learned) between Member States. Economic instruments focusing on efficiency in water supply are not widely used in Europe. An effective approach to better integrating water concerns into key sectoral policies is still missing, particularly with regard to increasing the efficiency of using water in agriculture and buildings. A prioritisation of competing water uses would be helpful, but is missing. The principle of cost-recovery remains widely and controversially discussed, as it has not been sufficiently defined.

3. *Tackling droughts and floods*: Provisions for the problem analysis under the floods directive can be regarded as adequate, and the mapping phase will provide for a major improvement in information available. Drafting the flood risk management would benefit from a much stronger link to integrated land use management. The approach taken so far is rather reactive, in terms of better preparing for floods, rather than mitigating their causes. Some progress is to be noted in terms of addressing the potential of water savings in different sectors, but water scarcity and droughts continue to remain under-addressed as a policy issue. Efficiency standards for water use in building offer strong prospects for future savings. There is no consensus and no clear majorities for future regulatory action on droughts, but widespread agreement on the needs for increased “soft” policy coordination.

6 COHERENCE OF THE POLICY FRAMEWORK

6.1 Framing the analysis of policy coherence

Policy coherence and environmental policy integration are established principles to promote sustainable development and are enshrined in the TFEU (Lafferty, 2004, see TFEU Art. 11). Approaches and instruments for environmental policy integration have found widespread recognition in the academic literature and have been practically pursued on a European level through the 6th Environment Action Programme and particularly through the so called Cardiff-Process of environmental policy integration (Lenschow, 2002). Integration of water concerns into other policy areas is approached through various channels, include those mentioned but also concrete regulatory settings as for example through linking the CAP pillar I cross-compliance with the NiD.

However, environmental concerns can be successfully integrated into different sectoral policies such as agriculture, energy or transport, but the outcomes of these efforts can sometime be negative because of unaccounted conflicts between objectives and instruments leading to negative impacts in other policy areas.⁴⁰ Policy integration efforts thus need to be coordinated within an overall coherent policy framework.

Policy coherence has not been the subject of similar interest in the academic literature.⁴¹ It has been more broadly in the non-academic literature, particularly in the work of international organisations such as OECD. There is widespread agreement that policy coherence is essentially about ensuring that policies are coordinated and complementary, and do not contradict one another, following the main definition put forward by the OECD (OECD, 1996). However, although in-coherence of policy design has been noted as one main reason for policy implementation failures, the concept is conceptually under-developed and has received little empirical examination (May et al, 2006). Full complementarity and consistency is an unrealistic criterion for policies that comprise of a variety of issues and thus pursue different objectives. Therefore, a minimum criterion for policy coherence refers to the absence of major conflicts between policies. Moreover, policy coherence requires that policies need to reinforce their effects (i.e. synergies) to the extent possible while minimising negative trade-offs.

Issues of policy (in)-coherence often arise within individual policies, among different sectoral policies and across different levels of EU governance; incoherence within individual policies is easier to address since it does not involve the same degree of inter-institutional decision-making as required in case of achieving greater coherence among different policies.

⁴⁰ The promotion of 1st generation of biofuels is an important example (WorldWatchInstitute and Sierra Club)

⁴¹ A large part of available literature focuses on issues of coherence between international regimes and organisations, particularly in the area of development policies (Ruddy and Hilty 2008; Oberthur and Gehring 2006; OECD 1996). Additionally, analysis has been published on the impacts of policy tools such as Sustainable Development Strategies on the policy coherence in sectoral policies. However, these contributions do not provide for an explicit focus on coherence links with water policy (Steurer et al. 2010;). Not too much work is applying a comprehensive methodological approach to assessing policy coherence within and between different policies.

In this section we focus on the analysis of the first two aspects, i.e. policy coherence within EU Water Policy (*internal coherence*) and coherence with other environmental policies and sectoral policies such as the Common Agricultural Policy, energy, navigation, etc. (*external coherence*).⁴² The requirements of the water policy need to also be put in relation with the requirements of relevant environmental directives – a key question is whether the policy and administrative requests put forward to EU Member States largely differ and thus impose a higher administrative burden on the administrations, as well as higher compliance costs to companies operating across the Member States. External and internal incoherence of water policy could thus have huge implications. We will address this question on the basis of an analysis of coherence of requests for monitoring and reporting, designation protected areas, public consultation and development of management plans.

Policy coherence needs to have a frame of reference (“coherence to what?”). For the purpose of this study, we have assessed how coherent the requirements of different non-water related policies are with the objectives and requirements of European Water Policy. In this context, different types of legal interaction can be thought of (see Table below).

Table 6: Overview of legal interaction and coherence

Legal interaction between Directives	Coherence indicator
Definitions	Do definitions mean or imply the same thing by the same term or phrase, or not?
Objectives, both for the environment and regulation objects	Are objectives, targets and tasks conflicting and if yes to what degree?
Instruments	Are instruments compatible or mutually exclusive in their focus and approach, i.e. regulatory standards prescribing action versus autonomy in choosing approaches.
Processes	Are processes compatible for generic timetable, operational implementation and reporting obligations?

Own compilation

A caveat needs to be made: this report focuses on providing a high-level view rather than going into the detail of analysing single objectives and instruments across different policy areas and providing an detailed examination of hard and soft legal links and their coherence.

6.2 Coherence of EU Water Policy

Achieving greater policy coherence within European Water Policy was a key reason for introducing the WFD. The directive is in the process of repealing seven directives of the first generation of EU Water Policy and complemented and completed other key water-related legislation, particularly the UWWTD and the NiD.⁴³ Introducing the WFD helped to settle

⁴² While the analysis in section 4 will focus on coherence of achievements in implementation this report will not look at the coherence of linkages between the European and the international level, as this analysis is would exceed the resources and scope of this analysis.

⁴³ The directives repealed were those on surface water, two directives on measurement methods and sampling frequencies and exchanges of information on fresh water quality, the fish-water, shellfish water

some of the policy inconsistencies that were present under the previous piecemeal approach to EU Water Policy.

The directives covered under the EU Water Policy Fitness Check and further relevant water directives contain various provisions and requirements for EU Member States to monitor and collect data, draw up management plans, designate specific protected areas or organise public consultations (see table below). Accordingly, the inter-linkages between the directives are manifold, creating potential for (negative/positive) policy overlaps.

Even within the WFD there can be issues of coherence. For example, it requires that the Commission review the list of priority substances every four years instead of every six years to fit the WFD planning cycle. An additional difficulty in WFD Art 16 is the obligation to come up first with the list and then two years later with the standards. This latter aspect has been partly solved with Art 10 of the EQSD. There are also other potential issues of coherence within water policy, such as the overlap between the WFD and Marine Strategy Framework Directive in coastal waters and the status of protection of shellfish waters after the Shellfish Waters Directive is repealed by the WFD in 2013. However, these specific water Directives were not included in the scope of the Fitness Check and, therefore, further analysis is not appropriate here.

Table 7: Overview of requirements of directives covered by the Fitness Check and other relevant water policy directives

	Monitoring & Data Collection	Management & Implementation Plans	Designation of areas	Public Consultation
WFD	Yes	Yes	Yes (surface water for drinking)	Yes
GWD	Yes	Yes**	No	Yes***
EQSD	Yes	Yes**	No	Yes***
UWWTD	Yes	Yes (if needed)	Yes	Only information
NiD	Yes	Yes	Yes	No
FD	Yes	Yes	Yes (areas of potential flood risk)	Yes****
BWD*	Yes	Yes	Yes (annual revision)	Yes
DWD*	Yes	No	No	Only information
MSFD*	Yes	Yes	No (only inventory)	Yes

* not considered under the Water Policy Fitness Check, but introduced here for the completeness of the picture. Analysis refers to the new Bathing Water Directive

** no self-standing requirements for drawing up plans, but management planning is required as part of the RBMP process under the WFD.

*** as part of the public consultation requirements under the WFD

**** Art. 10(2) of the FD requires EU Member States to encourage active involvement of interested parties in the production, review and updating of flood risk management plans, in close coordination with the WFD implementation process, without specifying, however, further concrete action requirements.

Source: own compilation, adapted from Fredericksen et al 2008

Policy overlaps can generate inconsistencies and contradictions among directives, which may lead to overall negative policy outcomes. However, overlaps are not necessarily

and groundwater directives and the directives on dangerous substance discharges. Operative provisions are included in the WFD, allowing for their repeal (Art. 22 WFD, see Castro 2009).

problematic. However, related policies can also ensure complementarity, when gaps in the objectives or instruments of one are compensated through provisions of another Directive.

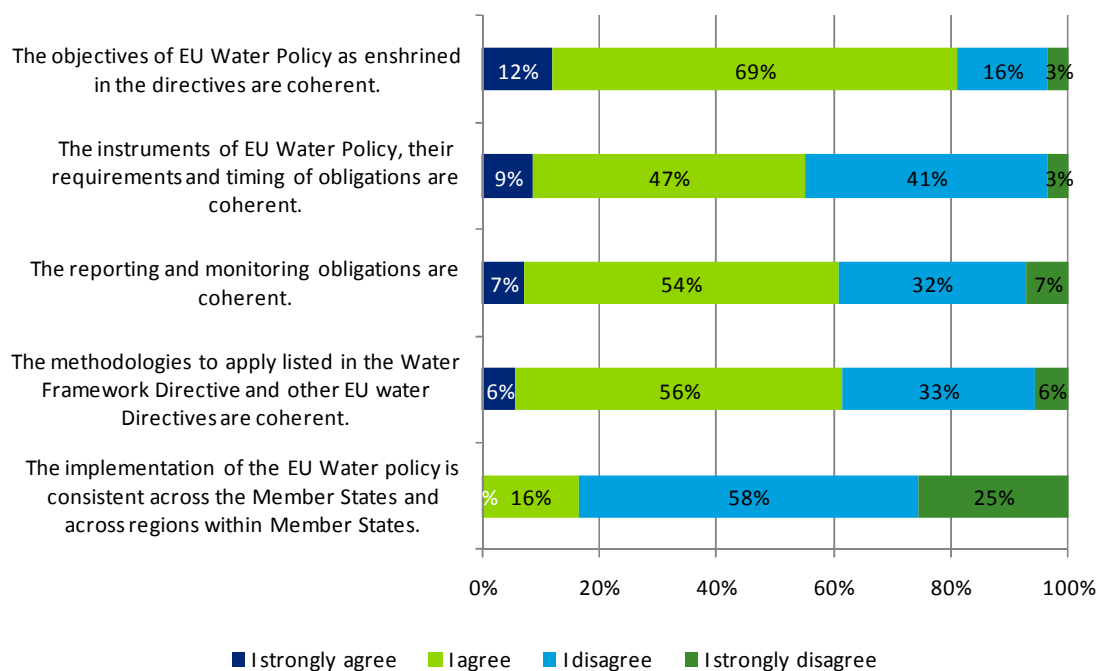
In a nutshell, both major point sources and diffuse sources are now tackled in one common regulatory framework. A major conflict where the achievement of one objective is hampered by policies implemented to achieve another objective- cannot be detected.

The full complexity of interactions and their coherence will again only be discovered in the implementation phase, where potential inconsistencies between broad framework rules and specific rule approaches would become more apparent (Farmer 2011).

Stakeholders' assessment of the overall policy coherence of EU Water Policy

The figure below provides an overview of the perceived coherence of the EU Water Policy. It is clear that the objectives of EU Water Policy as enshrined in the different directives are perceived as coherent.

Figure 14: stakeholders' assessment of the overall policy coherence of EU Water Policy



Opinions are rather divided when it comes down to the coherence of the reporting and monitoring obligations, the methodologies to apply (listed in the WFD and other EU Water Directives) as well as the coherence of the instruments of EU Water Policy, and their reporting requirements. It was indicated that, for instance, the reporting schedules the management plans of WFD and FD (6 years cycle of management plan) and action plans of the Nitrates Directive (4 years revolving cycle) are not coherent.

It has also been reported that the implementation of the EU Water Policy is perceived as inconsistent across the Member States and across regions within Member States.

Coherence between WFD, GWD, FD and EQSD

As daughter directives, the GWD and the EQSD are integrated into the procedural framework of the WFD with regard to RBMPs and public consultation. It is also the case for the FD, based on which Flood Management Plans need to be drafted and integrated with RBMPs. In terms of monitoring and data collection, a great achievement (since the introduction of the WFD and of the daughter directives) has been the moving towards more harmonised approaches for sampling and analysis procedures across Europe. Still, as mentioned in section 5.2.2, there is an extensive body of information and a diversity of monitoring and assessment tools available, and this makes benchmarking and the transfer of best practices difficult across (sections of) river basins. Moreover, several interviewees noted that more coherence is needed with regards to the definition of the key terms in some of these directives. However, in spite of all the difficulties, uncertainties and methodological complexity entailed, this process has helped to significantly improve coherence among the directives, one example being the underpinning of biological data-set (Hering et al, 2010).

Coherence between WFD, UWWTD and NiD

WFD, UWWTD and NiD are strongly linked in their efforts to tackle nutrient discharges into waterways, noting that the focus of the UWWTD is considerably larger. In a nutshell, the approach taken by the WFD creates positive overlaps and reinforces action under the UWWTD and NiD, although their main approaches differ quite substantially. While NiD, UWWTD and WFD altogether identify problems in waters (leading to area designations), the former two directives standardise the response to these problems. In contrast, the WFD requires an adaptive, non-standardised response to these.

Effective waste-water treatment is a key pre-requisite for reaching the objectives of the WFD, and the measures under the UWWTD are likely to be instrumental for the Programmes of Measures (PoMs) under the WFD. The WFD, in turn, complements the regulatory framework of the UWWTD that does not cover agglomerations under 2000 PE, for example. Especially in rural regions with strong reliance on small scale water supply from ground waters, the WFD provides a framework for addressing appropriate sanitation and waste-water treatment to reach good status by other means than those addressed through the UWWTD. Generally, the objectives of the WFD may require more stringent measures than those foreseen by the UWWTD for urban waste-water treatment in the case of sensitive water bodies being at risk (Vinceviciene, 2006). Also flexible in their policy instrumentation, the environmental objectives of the WFD are likely to increase general pressure on EU Member States to more effectively comply with the provisions of the UWWTD and adopt stringent measures in the context of setting up the PoMs under the WFD.

A similar case of positive reinforcement occurs for the NiD. The NiD and the WFD strongly overlap in terms of their policy focus and objectives. The NiD requires MS to reduce nitrate pollution via designation of nitrate vulnerable zones and the production of related action plans including measures such as the restriction of manure use by farmers in these designated areas. It does not, however, specify environmental quality objectives in the

European Member States (i.e. Member States are required to implement the rules of the directive only, which stipulate action on the farm level). This contrasts with the requirements of the WFD where RBMPs and PoMs are required to achieve specified environmental outcomes, and where national authorities are requested to define suitable action. The effectiveness of measures taken under the NiD has been subject to repeated criticism, in conjunction with the slow speed and varying approaches to implementation of the directive in EU Member States (Howarth, 2010, de Wit et al 2002). For instance, while some interviewees point out the obsolescence of the NiD and its process-oriented v. result-oriented approach, other interviewees believe that it is specifically due to the prescriptive nature of this directive that significant improvement has been achieved with regards to nitrates pollution.

Inter-linkages between the WFD and the NiD and UWWTD also concern the designation of protected areas, or specially designed zones. The WFD requires an inventory of protected areas, including areas identified by the WFD or other European directives, which are protected either for their use (fisheries, drinking water) or for the protection of important habitats or species that directly depend on these areas.⁴⁴

The specific provisions for the protected areas under the directives remain unchanged, but the WFD adds weights through summarising all protected areas in relation to water, allowing for an analysis of overlaps and inter-linkages and assessing whether protected areas are likely to achieve their objectives by 2015.

The implementation of the WFD will reinforce action taken under the NiD, based on the non-deterioration obligation of the WFD (Dworak et al 2007).⁴⁵ The action programmes under the NiD should be part of the PoMs under the WFD. Farmer (2003) points to an important coherence issue in the wider context of linkages between the WFD, NiD and the CAP: if the rules of the CAP are interpreted in the same way for the WFD as they are interpreted for the NiD then difficult questions could arise with regard to funding action conducive to the WFD implementation under the agri-environment schemes of the 2nd pillar of the CAP. ⁴⁶ The ongoing discussion about options to introduce the WFD requirements into the cross-compliance regime of the 1st pillar is therefore important also from a point of policy coherence between different water-relevant directives.

⁴⁴ These include water bodies used for the abstraction of drinking water; areas designated to protect economically significant aquatic species (areas protected under Freshwater Fish Directive 78/659/EEC; Shellfish Directive 79/923/EEC), recreational waters (areas protected under Bathing Water Directives 76/160/EEC and 2006/7/EC) and the nutrient sensitive areas (areas protected under Nitrates Directive 91/676/EEC; Urban Wastewater Treatment Directive 91/271/EEC).

⁴⁵ Principally the WFD changes the overall approach of EU Water Policy towards the Common Agricultural Policy. Under the NiD the opportunities to control for environmental pressures from agriculture were limited. Under the WFD the opportunities arising from the quality objectives framework are broader, as EU Member States are forced to consider new approaches to tackling agricultural pressures.

⁴⁶ Action supposed to support the implementation of the NiD is not eligible for funding under the agri-environment schemes. For example, why action of on farmer to reduce phosphate pollution would be eligible for funding under agri-environment schemes while action of another farmer to reduce nitrate pollution would not be eligible.

In terms of methodologies for data collection, analysis and reporting, linkages between the WFD (including GWD and EQSD) and the NiD and the UWWTD are established and documented through the guidance documents under the Common Implementation Strategy (CIS) process (see Farmer 2011). Member States and Commission have jointly developed technical specifications for reporting under WISE (Water Reporting System for Europe).⁴⁷ However, most interviewees raised the need for better harmonising metrics and reporting schedules. Indeed, reporting cycles under the WFD and the NiD differ, however. The WFD requires a review and reporting on RBMPs every six years (with an interim report in the middle of the cycle – Art 15.3), while the NiD has a 4-year review and reporting-cycle. Reporting cycles also differ for the WFD and the UWWTD, where EU Member States need to report on a bi-annual basis when necessary. Reporting cycles for the revised BWD and DWD differ too and thus contribute to the incoherence of reporting cycles (see table below).

Table 8: Reporting obligations under different Directives

Directive	Reporting requirements*
Water Framework Directive	Every 72 months (interim report at 36 months)
Environmental Quality Standards Directive (integrated in WFD reporting)	Every 72 months
Groundwater Directive (integrated in WFD reporting)	Every 72 months
Urban Wastewater Treatment Directive	Every 24 months (if necessary)
Nitrates Directive	Every 48 months
Floods Directive	Every 72 months
Revised Drinking Water Directive	Every 36 months
Revised Bathing Water Directive	Every 12 months

** in fact, there are different reporting requirements under each directive, which for the sake of overview simplicity have been pooled as per directive, as they do not differ in the timings of their delivery*

Source: Own compilation based on EEA-EIONET Reporting Obligations Database

Requirements concerning public participation and information are not coherent between the WFD and the UWWTD and NiD. The WFD puts strong emphasis on public participation in relation to RBMPs (but not PoMs). The UWWTD and the NiD do not contain provisions (NiD) nor relate to information processes (UWWTD) (Fredericksen et al 2008).

⁴⁷ WISE is a partnership of the European Commission (DG Environment, Joint-Research Centre and Eurostat) and the European Environment Agency. As a shared information system, WISE functions as the main gateway for all information on relevant European water issues and pools relevant information and data collected by the European institutions (see <http://water.europa.eu/>).

6.3 Coherence between EU Water Policies and other relevant environmental policies

A large number of other environmental policies are linked to the EU Water Policy framework. Important directives included in the analysis within this report include⁴⁸:

- The Environmental Impact Assessment Directive (EIA) (85/337/EEC);
- The Strategic Environmental Assessment Directive (SEA);
- The Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC);
- The Integrated Pollution and Prevention Control (IPPC) Directive (2008/1/EC) and the Industrial Emissions Directive (2010/75/EU).

Interaction points between the directives relate to land use planning (EIA and SEA Directives), protected areas (Habitats and Birds Directives), pollution sources (IPPC Directive and the Industrial Emissions Directive) and participation of stakeholders (Public Participation Directive).

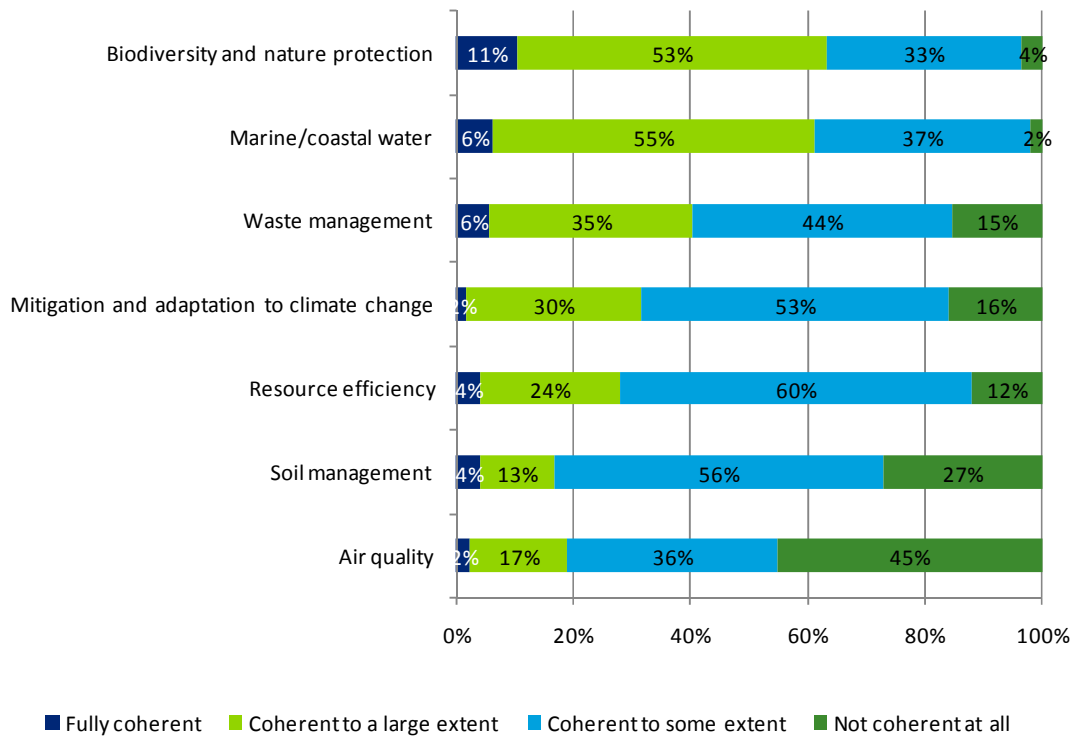
As many of the interviewees pointed out (and will be further elaborated in the following sub-section based on the literature review,), there is a clear need for better integration of water policy with relevant environmental directives. A stepping-stone in this respect would be the harmonization of reporting schedules, to prevent the duplication of work (leading to administrative burden). This may require amendment of law, but much could be achieved through additional guidance and full harmonisation of systems, such as within WISE.

⁴⁸ It is not the purpose of this report to describe these directives in greater detail. A useful overview is provided in Farmer, 2011. It is worth noting that the list is not exhaustive but that other directives are relevant as well such as the Seveso II-Directive (96/82/EEC), the Plant Protection Products Directive (91/414/EEC) or the Reporting Directive and Decision (91/692/EEC; 94/741/EEC) as well as the Landfill Directive (99/31/EC), the Incineration Directives (89/429/EEC, 89/369/EEC, 94/67/EEC) or the Sewage Sludge Directive (86/278/EEC) or the Marine Framework Strategy Directive. For reasons of handling complexity of the analysis and space for the analysis these directives are not included in the analysis under this report.

Stakeholders' assessment of the coherence of EU Water Policy with other environmental policies

The figure below provides an overview of the perceived coherence of the EU Water Policy with other environmental policies.

Figure 15: stakeholders' assessment of the overall policy coherence of EU Water Policy



The analysis reveals that more than 60% of the stakeholders consulted believe that the Directives of the EU Water Policy are coherent (fully or to a large extent) with biodiversity and nature protection and marine/coastal water policies.

The EU Water Policy is perceived as coherent to some extent with the following environmental policies: Waste management, Mitigation and adaptation to climate change, Resource efficiency and Soil management.

Almost half of respondents indicated that there is no coherence with air quality policy.

6.3.1 *Links with the EIA and SEA Directives*

There is a clear overlap between the provisions of the WFD with the EIA and SEA Directives, but the degree of policy coherence differs. An overview of linkages is provided in figure below. Concerning the objectives and definitions there is no major conflict between the directives, but there are also no direct links and a number of questions come up with regard to mutual influence. This concerns, for example, the definition of what is meant by “public”, “plans” and “programmes” in the context of the WFD (see below). The EIA- and SEA-Directives as well as the Public Participation Directive (which both amended the EIA Directive and has an autonomous scope) share a common definition, whereas the WFD does not contain a definition.

It has been argued that it is unclear to which extent the provisions of the SEA Directive should apply to the RBMPs or the PoMs of the WFD or to both (Benneth and Sheate 2005). Commission guidance on the implementation of the SEA Directive includes “water resources plans” plans within the scope. This would seem to include RBMPs, but this is not specified. The CIS guidance states that this should be defined on a case-by-case basis. SEA is needed if the RBMPs and POMs provide a framework to develop consents of projects that fall under the EIA and/or are likely to have significant environmental impacts, focusing on impacts in other environmental media than water, as the RBMPs and POMs have the objective to improve water status. A more systemic application of the SEA process to the process of developing RBMPs and PoMs is seen as a useful means to integrate the concerns of other environmental directives (Frederiksen et al. 2008).⁴⁹ Furthermore, Arts 5 and 11 of the SEA Directive encourages co-ordinated or joint assessment of planning processes, which can aid the positive practical coherence of the SEA Directive and WFD. Positive overlaps also exist between the assessment of options and measures under the WFD and the assessment of alternatives under SEA and EIA Directives as well as the alternatives in carrying out objectives under the Habitats Directive. Procedural harmonisation could support synergies between the directives (Carter and Howe 2005). Increasing the practical interaction between the SEA and EIA Directives and RBMPs would also enable a better integration with the national and local procedures for spatial planning.

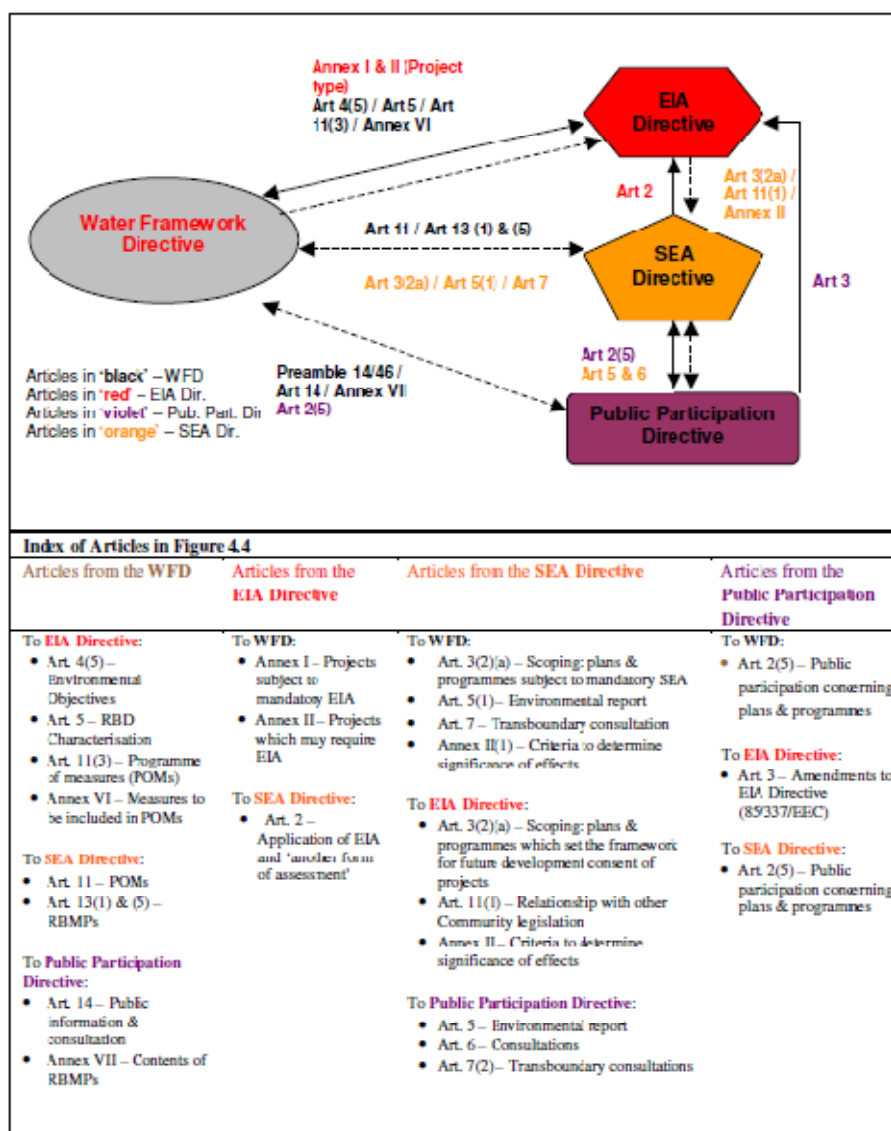
Overlaps exist with regard to public consultation processes on plans and programmes and with regard to the role and functions of competent authorities. Monitoring requirements are not fully synchronised in practice under the EIA-, SEA- and WFD-processes. This is not an aspect of the law as the monitoring requirements under the EIA and SEA Directives are vague compared to the WFD. Rather it is an issue of practical application. Certainly the information generated for projects under the EIA-Directive could be very useful for the development and implementation of RBMPs under the WFD (Benneth and Sheate, 2007). It has been noted that provisions on timing of production of plans and public consultation processes on these plans would benefit from a greater harmonisation between these and other environmental directives as it could help national administration to better deal with

⁴⁹ It has been noted that the SEA process would be well suited to provide a forum through which the process of drafting RBMPs could be facilitated. There is a discussion whether, legally speaking, RBMPs and PoMs fulfil the criteria for SEA, and EU Member States handle this question differently. The question of scale arises as well – SEAs carried out under the RBMP will overlap with SEAs of local development plans or SEAs applied under the Habitats Directive (Bennet and Sheate 2007).

overlapping issues and avoid “stakeholder involvement fatigue” (Frederiksen et al, 2008). The Directives do not inhibit such harmonisation and, therefore, it is an issue of improved practical application and, therefore, practical coherence with Member State application that can deliver these benefits.

The Commission’s latest reviews of the application of the EIA Directive (COM(2009)378) and of the SEA Directive (COM(2009)469) were published in 2009. For example, on SEA, the Commission found only a very few Member States reported that they had established monitoring methods or drawn up national guidance on how to establish monitoring indicators. The Communication found that there is a need to develop capacity in the Member States so as to ensure effective implementation of the SEA Directive. For the EIA Directive the Commission pointed out that the different threshold levels set by the Member States have clear implications for the amount of EIA activity in each of the Member States, even of similar size. Furthermore, there were still several cases in which cumulative effects were not taken into account, while problems remained when it came to eliminating ‘salami slicing’ practices, especially for big investment plans. These issues arising from practical application of the Directives have implications for the practical interaction with the WFD.

Figure 16: Linkages between WFD, EIA and SEA Directive



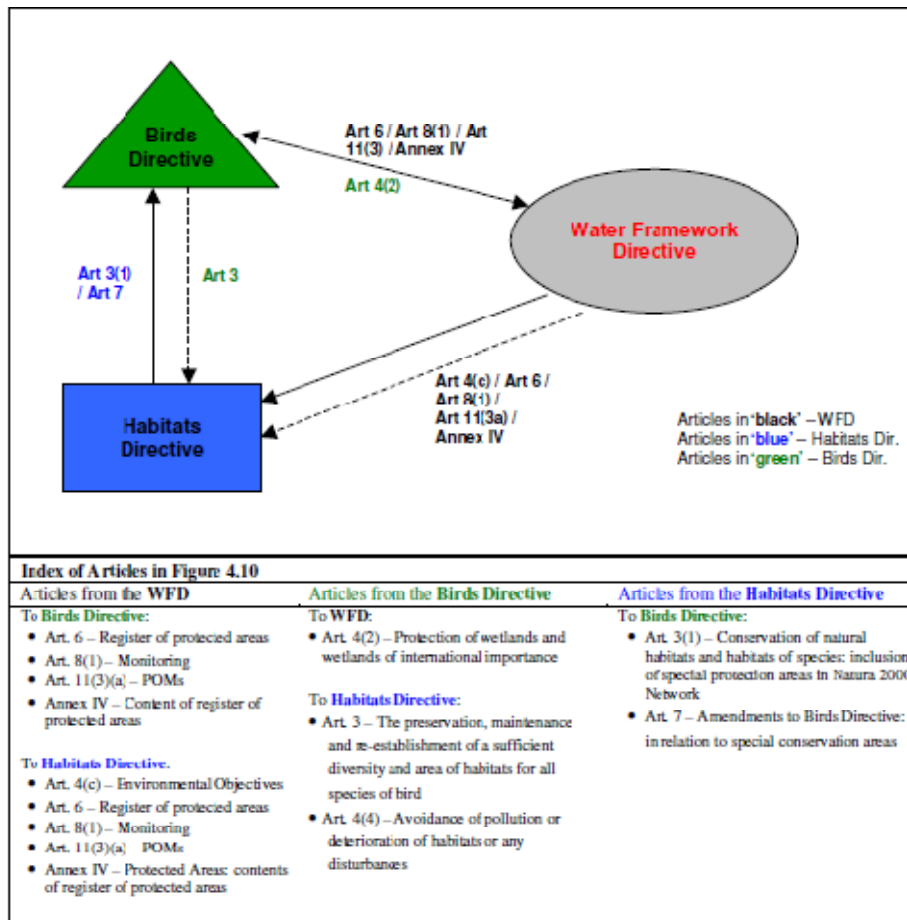
Source: Bennet and Sheate, 2007

6.3.2 Links with the Habitats and Birds Directive

Both the WFD and the Birds and Habitats Directives (BHD) seek to protect aquatic ecosystems and ensure a sustainable use of natural resources. Accordingly, inter-linkages and synergies between measures are manifold (see CEC 2010, see Figure below).⁵⁰

⁵⁰ Art 1 (a) of the WFD clearly states that EU Member States shall protect and enhance the status of aquatic ecosystems and also of terrestrial ecosystems and wetlands that are dependent directly on aquatic ecosystems. Art 6 of the WFD requires EU Member States to set up a register of protected areas that should include those protected areas under BHD which are of relevance to the maintenance or improvement of the status of water.

Figure 17: Links between the WFD and the BHD



Source: Sheate and Bennet 2007

The objectives of the directives are not the same, i.e. the WFD requires “good ecological status” (WFD) whereas the BHD require “favourable conservation status” (see Mee et al. 2008). In case of different objectives for a water body, Art. 4.1 WFD stipulates that “the most stringent shall apply”, i.e. it can be required to reduce emissions of a certain pollutant beyond the needs of “good environmental status” in order to reach “favourable conservation status”. The general assumption is that BHD requirements will be paramount with WFD POMs. It is important to note that while both the WFD and BHD set objectives relating to the ecology of waters, the WFD sets general requirements for the health of ecosystems, while the BHD are more specific, including addressing species (e.g. mammals) not explicitly included in the WFD. CEC (2010) considers that this relationship supporting water protection from different perspectives is an example of coherence between the Directives.

A difference between the directives concerns deadlines for achieving standards and objectives. The WFD is very clear on this point as all standards and objectives should be achieved by 2015, including the water-dependent Natura 2000-sites where water-related objectives are linked to achievement of “favourable conservation status”. The HBD, however, does not specify any date for reaching standards and objectives, though it requires that measures should be put in place within six years of the adoption of a Site of

Community Importance.⁵¹ Moreover, conservation status of a species or habitat at national level is assessed every six years (and compared to earlier assessments). Following up on the first assessment in 2007, the next assessment is due in 2013 (CEC 2010). Use of extensions under the WFD does not allow for derogating from the objectives and measures under the BHD. They need to comply with the requirement to EU Member States to document progress vis-à-vis the last status assessment of Natura 2000 Sites.

Criteria for water bodies and water-dependent Natura-2000 sites are different. Defining whether and when status classes are synonymous poses a difficult scientific and legal challenge. Some habitat types under the BHD are known to require more stringent conditions in terms of “favourable conservation status” than those that would be necessary to reach “good environmental status” under WFD. Unless it is unambiguous which conditions apply (from among relevant directives), the implementation of measures may focus on short-term solutions (usually with less investment entailed) instead of sustainable (but more costly) solutions. The implementation of the HD needs to take account of human activities that might affect its objectives. Any such activities that negatively affect a protected habitat type or the conservation status of a natural habitat of a protected species, or the species directly in a Natura 2000 site, are either prohibited (Art. 6.2) or subject to precise conditions (Art. 6.3 & 6.4 HD).

Exemptions for socio-economic reasons in case of plans or projects with detrimental impact on either water bodies or Natura2000 sites are informed through different criteria under the WFD and the HBD, although there are common elements to these criteria. However, if a plan or project does not fulfil the conditions for exemptions under one directive, it might not be authorized by authorities under both directives (CEC 2010). Measures proposed under HBD for water-dependent Natura 2000 sites need to be coordinated with measures taken under the WFD. When setting up PoMs under WFD early dialogue of authorities is needed to ensure that measures choice is informed by the right understanding of the objectives of both directives, thus adding to the requirement for administrative coordination.

6.3.3 *Links with the IPPC Directive and Industrial Emissions Directive*

The IPPC Directive is focused on the installation scale, whereas the WFD looks at the scale of the river basin and water body. However, in tackling point sources of emissions the WFD through the EQSD and the GWD looks at the installation scale too (Farmer and Cherrier, 2010). The directives require emissions controls and a progressive reduction of pollution from priority substances and ending of emissions, discharges and losses of priority hazardous substances. IPPC permits will need to be “WFD proofed”, i.e. ensure that IPPC installations comply with the requirements of the WFD, GWD and EQSD. Regulators will need to have a sufficient understanding of the legal requirements and information on pressures arising from IPPC installations, requiring a clear understanding of negative impact these may have on the status of surface and groundwater. The inventory of pressures required in RBMPs needs to account for all pressures from IPPC installations. Translating

⁵¹ Moreover, measures to help avoiding further deterioration of habitats need to be implemented already when the respective site is proposed by a EU Member State.

pressures on good environmental status and good chemical status to discharge requirements for IPPC permits poses a key challenge (Farmer and Cherrier 2010).

The IPPC Directive remains in force until 7 January 2014, when it is repealed by the Industrial Emissions Directive. The interaction between the water directives and the Industrial Emissions Directive with regard to permitting and monitoring is largely unchanged compared to IPPC. However, the new Directive has significant enhanced requirements on inspection, including a requirement for inspectors to examine the impact of installations on the environment. This has been added to aid coherence with other legislation, such as the water Directives and would mean additional tasks for authorities compared to current practice in some Member States (Farmer and Cherrier, 2010).

Concerns have been raised that using fixed quality objectives (on the one hand) and minimum standards and a case-by-case “Best Available Techniques”- approach (on the other hand) could create regulatory uncertainty and conflicts between water managers and permitting authorities (Tooley 2006).⁵² On the other hand, the IPPC Directive (and IED) makes it clear that permit conditions should not allow emissions from an installation to breach an environmental quality standard in EU law. Such quality standards are not only numerical standards, such as in the EQSD, but also others such as GES of Favourable Conservation Status (Farmer and Cherrier 2010). Requirements for permitting and data collection systems under both directives should complement each other, particularly in the case of discharges for substances under the EQSD. What is required from IPPC installations under the PoMs under the WFD and what the prospects for emissions reductions are (particularly with regard to reductions of size of so called mixed zones under the EQSD) needs to be transparently communicated to permitting authorities. Substantial cooperation and information exchange between water and permitting authorities is required (Farmer and Cherrier 2010). Good cooperation is thus important.

It has been noted that there is no lack of legal consistency between the directives. Differences in legal interpretation are mainly informed through factors operating on the level of national administration authorities. Scaling up the individual approach to point-source emission (under the IPPC) in order to achieve accumulation effects is much more challenging (Farmer and Cherrier 2010). The prescription of administrative arrangements under the WFD adds to a range of administrative requirements imposed by different directives that strongly vary and impose additional administrative burden, particularly in terms of permitting and inspection capacities of public authorities, but also in terms of compliance costs for the concerned industries. Streamlining and harmonising requirements would therefore be of great benefit (Tooley 2006).⁵³

⁵² For example, emission reductions required under the WFD to achieve “good status” could go beyond the “Best available technology”-requirements under the IPCC Directive.

⁵³ For example, both directives foresee public participation and consultation, but requirements differ: the WFD allows for much greater dialogue about objectives and measures and gaining public opinion, whereas the IPPC approach foresees a more narrow consultation on concerns over impacts seriously to alter permit decisions based on BAT (Farmer and Cherrier 2010).

An additional issue of interaction is that of implementation timetables. Existing IPPC installations were required to have been issued permits by October 2007 – before the completion of POMs. Therefore, it is possible that the objectives of the WFD/EQSD require the conditions of some permits to be revisited.

Interactions between the IPPC and the UWWTD relate to specific discharge conditions under the UWWTD that apply to IPPC installations as minimum conditions. No major coherence issues apply in this case.

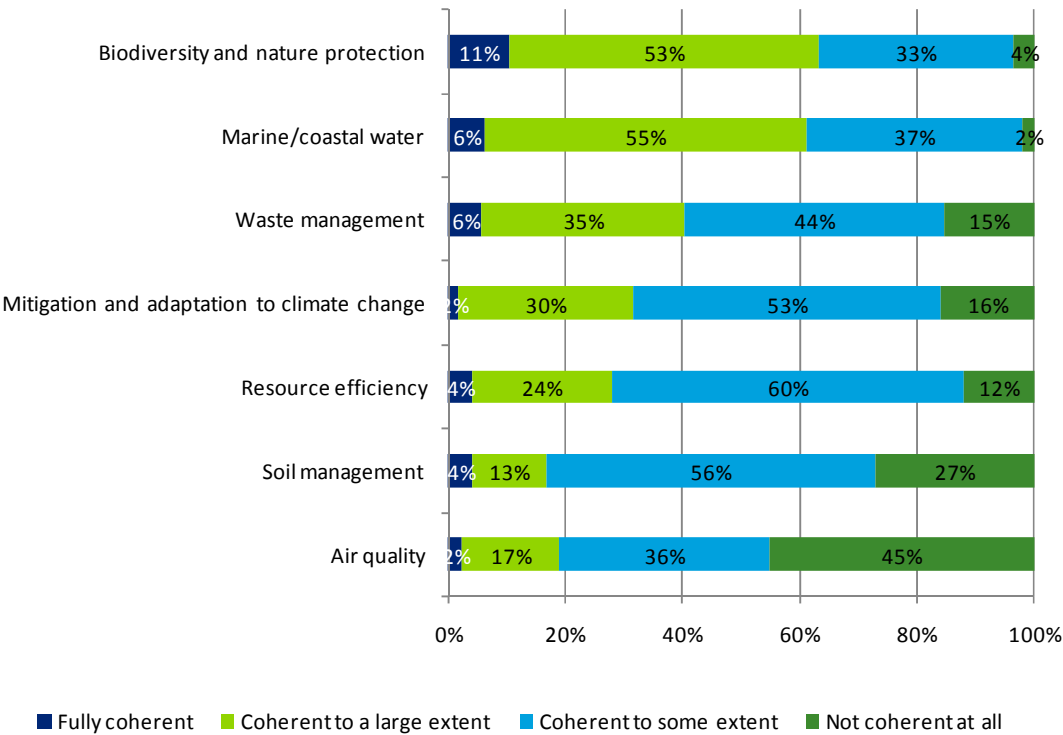
6.4 Coherence between the EU Water Policy and sectoral policy

We present in this section an overview of the coherence of the water policy with other sectoral policies such as Navigation, Energy, REACH or foreign aid and trade. We have made a specific focus on the coherence of the water policy with the Common Agriculture Policy (CAP) and the cohesion policy considering the degree of integration of the water policy with these two other policies as stressed by the respondents of our surveys.

Stakeholders’ assessment of the coherence of EU Water Policy with other environmental policies

The figure below provides an overview of the perceived coherence of the EU Water Policy with other environmental policies.

Figure 18: stakeholders’ assessment of the overall policy coherence of EU Water Policy



The analysis reveals that more than 60% of the stakeholders consulted believe that the Directives of the EU Water Policy are coherent (fully or to a large extent) with biodiversity

and nature protection and marine/coastal water policies.

The EU Water Policy is perceived as coherent to some extent with the following environmental policies: Waste management, Mitigation and adaptation to climate change, Resource efficiency and Soil management.

Almost half of respondents indicated that there is no coherence with air quality policy.

6.4.1 ***Common Agricultural Policy***

One of the most important links of EU Water Policy concerns the Common Agricultural Policy (CAP). Agriculture is a major user of water. Over the past decades, the CAP has been a key driver of farming practices that in many cases enhanced water pollution and scarcity, especially when payments were coupled with the production of water intensive crops. Policy changes enacted through the 2003 CAP reform and the so called health check of the CAP (2008) included decoupling of payments to farmers, increasing emphasis on rural development and introducing cross-compliance. These reforms have increased the importance of environmental protection within the overall policy framework of the CAP (Dworak et al, 2009).

In May 2011 Water Directors endorsed guidance for administrations on making WFD agricultural measures clear and transparent at farm level. This has yet to be formally published. It noted that RBMPs some specify detailed provisions relating to farmers, e.g. clearly specifying land management measures such as buffer zones, wetlands, cover crops, conversion of arable land to grassland, but for others the PoM “remains a strategic document and does not contain all details of what needs to be done to implement specific measures at farm level”. It concludes that “in making PoMs operational, the objectives and requirements needed to achieve the outcomes must be very clear”.

The risks assessments completed under the WFD process by 2004/2005, as well as the input from interviews confirmed the continued relevance of a number of key pressures and impacts arising from farming practice throughout Europe. These include unsustainable water use for irrigation (paired with leakage), increased groundwater pollution as a result of nitrate and pesticide leaching, reduction of groundwater and river flow levels, secondary effects such as soil erosion or disappearance of wetlands, negative ecological impacts of practices such as diverting water courses for irrigation purposes or hydro-morphological changes as a consequence of land drainage, as well as disappearing habitat because of intensive agriculture in (agriculture-unsuitable) areas that had been classified for -instance- as sensitive and UNESCO heritage. Agriculture is a key source of diffuse pollution. For example, in two thirds of RBDs nutrient enrichment is due to farming practice, and in nearly half of RBDs water contamination from priority substances comes from agriculture (Kampa et al, 2009).

Water issues are addressed to a certain extent under the cross-compliance scheme of pillar I of the CAP. However, this does not include the specifications of the WFD, which builds on two main approaches, namely statutory management requirements (SMR) and Good Agricultural and Environmental Condition (GAEC).⁵⁴ Moreover, the ending of the “set-aside provisions” under pillar I which was agreed as part of the Health Check is expected to increase water pressures. SMR provisions for cross-compliance include specific articles of the ND and further water protection measures that may be included in GAEC standards. SMR provisions need to be clear, legal obligations at the farm level, which the NiD provides. For WFD obligations to be included as future SMRs it is necessary that the Directive set out clear farm-level requirements. The following are such farm-level obligations (unpublished guidance from Water Directors, endorsed May 2011):

- Abstraction of water for irrigation without a permit (WFD Article 11.3.e)
- Discharging waste water directly to water courses or indirectly using percolation through soil without a permit (WFD Article 11.3.g and j)
- Application of pesticides not in accordance with the rules (time of application, type of pesticide, application close to water courses, etc.) (WFD Article 11.3.h)
- Modifying a riparian area of a water body without authorisation (WFD Article 11.3.i)

Of course, such obligations may instead also be included within GAEC and the provisions within GAEC could be amended or extended to address further requirements on farmers to deliver water outcomes.

More important for water protection purposes is pillar II of the CAP, the so called Rural Development Policy (RDP), where water and the implementation of the WFD are one of several priorities, which is co-financed by the European Agricultural Fund for Rural Development (EAFRD) and EU Member States. Financial support is provided for a total of 37 measures organised in three thematic axes and a fourth axis called LEADER.⁵⁵ Water issues can be addressed under all three thematic axes. An overview of measures eligible for funding is provided in table 8 (Dworak et al 2009).

EU Member States need to prepare Rural Development Programmes (RDPs) that shall inform about plans for implementing measures in the planning period 2007-2013. They are subject to approval by the European Commission. According to a review of these programmes, the water-relevant measures planned reflect well the priorities identified under the risk assessments according to Art. 5 WFD (Herbke et al, 2006).

⁵⁴ Cross-compliance under the 1st pillar of the CAP applies to European farmers in two ways. First, farmers need to respect the so called Statutory Management Requirements which reflect the provisions of relevant EU Directives and Regulations. They cover, among other, the Nitrates Directive, the Groundwater Directive or the Sewage Sludge Directive (to some extent). Second, farm land needs to be kept in Good Agricultural and Environmental Condition (GEAC) in order to be eligible for claiming payments. The main focus here is on soil protection, but also the reduction of diffuse pollution is addressed, for example establishing buffer strips alongside water courses by 2012 or compliance with authorisation procedures for use of water for irrigation purposes from 2010 onwards (Council *Regulation* (EC) No 72/2009, (EC) No 73/2009 and (EC) No 74/2009).

⁵⁵ Axis I concerns improving the competitiveness of agriculture and forestry (minimum financial contribution of EAFRD is 10 per cent), Axis II concerns improving the environment and the countryside (minimum financial contribution of EAFRD is 25 per cent) and Axis III concerns the quality of life in rural areas and diversification of rural economies (minimum financial contribution of EAFRD is 10 per cent).

CIS guidance points to the strong links between the WFD implementation and the RDPs implementation, which should contribute to achieving the objectives of the WFD. However, in practice, links between the RDPs and the WFD implementation process are less clear and often not articulated, mainly due to the fact that the RDPs were adopted before the RBMPs were adopted (Dworak et al, 2009). In total, RDPs provides useful financial support to contribute to the implementation of the WFD, particularly through agri-environment and forestry-environment payments, natural handicap payments, use of advisory services or training (Cooper et al, 2010). Irrigation efficiency and efforts to address nitrate and pesticide pollution feature prominently in many RDPs.⁵⁶ In terms of budget for water-related measures, agri-environment measures are most important, while, more importantly, the majority of EU Member States spend their budget on axis I measures (modernisation of the agricultural sector and the agri-food sector) (Dworak et al, 2009).⁵⁷

While providing many useful incentives, it is also widely agreed that the water-related actions taken under the 2nd pillar of the CAP are not sufficient to counteract those pressures exerted on water quantity and water quality by some action funded under the 1st pillar and thus contribute effectively to the implementation of the WFD. Bringing the WFD requirements better in line with the cross-compliance schemes under the 1st pillar of the CAP is widely regarded as an important next step for the post 2013 CAP policy framework and an important issue to be addressed in the forthcoming *Blueprint to Safeguard Europe's Water* (EC, 2011b)

In conclusion, the unpublished guidance from Water Directors, endorsed May 2011, states that “in order to ensure that all relevant administrative sectors take into account the implementation of the WFD and that synergies between different objectives are achieved, close cooperation between water planning authorities and other sectors is needed”, including the agriculture sector. It emphasises the need to make full use of water protection measures already available under the current CAP. It summarises examples of how the current CAP could be used to better contribute to meeting WFD objectives:

- Re-specifying the GAEC requirements (on the basis of a common framework of standards) to meet the objectives of the WFD.
- Granting support to specific types of farming which are important for the protection or enhancement of the environment (Art. 68 of Council Regulation (EC) No 73/2009).
- Taking full advantage of agri-environmental measures under Article 39 of the Rural Development Regulation (RDR).
- Making use of Article 38 of RDR that offers support to farmers in order to compensate mandatory measures resulting from the implementation of the WFD.
- Implementing other relevant measures of Axis 1, Axis 2 and Axis 3 of Rural Development Programmes, as identified and described in the final report on the “WFD and Agriculture Linkages at the EU Level” (Dworak et al, 2009).

⁵⁶ Other water pollutants, such as pharmaceuticals, phosphorus or organic pollution, are, however, less often included in the RDPs.

⁵⁷ Agri-environment measures are mandatory for the RDPs, but optional for farmers to participate.

Table 9: Generic measures relevant for water under the Rural Development Policy (check for update)

+++ very relevant (positive) --- very relevant (negative) 0 not relevant
 ++ relevant (positive) -- relevant (negative)
 + indirect linkage (positive) - indirect linkage (negative)

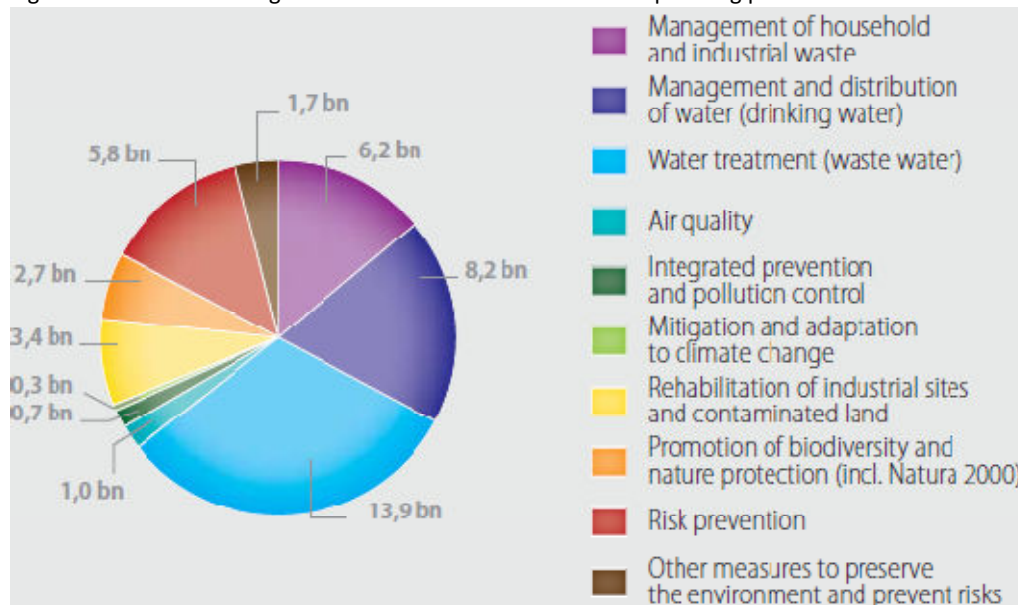
	Pollution	Alterations of hydrologic regimes	Hydro-morphological modification	Soil erosion
Rural Development Axis I				
Natural disaster & prevention actions (Art. 20 b ((vi))	0	0	+++	+++
Vocational training and information actions (Art. 21)	+++	+++	+	+++
Setting up of young farmers (Art. 22)	+	+	0	+
Early retirement (Art. 23)	+	+	0	+
Use of advisory services (Art. 24)	+++	+++	+	+++
Setting up management, relief and advisory services (Art. 25)	++	++	+	++
Modernisation of agricultural holdings (Art. 26)	+++/-	+++/-	0	+++ /-
Improvement of the economic value of forests (Art. 27)	+	+	+	+
Infrastructure related to the development and adaptation of agriculture and forestry (Art. 30)	++/-	++/-	--	+++ /-
Meeting standards based on community legislation (Art.31)	+++	+++	++	+++
Semi-subsistence farming (Art. 34)	+/-	+/-	0	+/-
Rural Development Axis II				
Natural handicap payments in mountain areas and payments in other areas with handicaps (Art. 37)	++	++	++	++
NATURA 2000 payments and payments linked to the WFD (Art. 38)	+++	+++	+++	+++
Agri-environmental payments (Art. 39)	+++	+++	+++	+++
Non-productive investments (Art. 41)	++	++	++	++
First afforestation of agricultural land (Art. 43)	+++	++/-	+++	+++
First establishment of agroforestry systems on agricultural land (Art. 44)	+++	++	+++	+++
First afforestation of non- agricultural land (Art. 45)	++	++/-	+++	+++
Natura 2000 payments (Art. 46)	+	+	+	+
Forest-environment payments (Art. 47)	++	++	++	++
Restoring forestry potential and introducing prevention actions (Art. 48)	0	0	+	+++
Non-productive investments (Art. 49)	++	++	++	++
Rural Development Axis III				
Conservation and upgrading of the rural heritage (Art. 57)	++	++	+	++
Skills acquisition and animation (Art. 59)	+/-	+/-	+/-	+/-

Source: Dworak et al. 2009

6.4.2 Cohesion Policy

The Cohesion Policy provides for the second big European spending framework, and in terms of investments into water and wastewater infrastructure it is the most important European policy. For example, in the funding period of 2000 to 2006, well over 100 projects were funded in the field of water supply only (Council of the EU, 2011). Cohesion funding for environment-related action amount to around 104 billion Euro, whereas the European Commission estimates a total amount of 44 billion Euro to be available for direct environmental investments, include water management and distribution as well as water treatment (EC, 2010e).

Figure x: Cohesion funding allocated to the environment in the planning period 2007-2013



Source: EC, 2010f

Over the years, important efforts have been made to provide a greater relevance to environmental aspects in the actual funding under the funds. Investments into water infrastructure have helped to achieve a greater water quality (EC, 2010e). Again the WFD provides for a good example how a perspective on environmental aspects of territorial cohesion can be linked with concrete policy development.

It has been noted though that the environmental dimension still is not on equal footing with the economic and social dimension when it comes to priority-setting for funding to achieve greater territorial cohesion. In its core Cohesion Policy focuses on economic growth and social development and does little to account for important inter-linkages between project-related impacts, such as increased water and air pollution and their link to protected and natural areas (EEA, 2010e). Significant shortcomings in streamlining environmental concerns, continued bureaucratic rigidities as well as problems with co-financing rates remain serious points of criticism (WWF, 2011).

In an assessment of structural measures spending on water issues (waste water and drinking water) (ECA, 2009a, 2009b, 2010) the European Court of Auditors highlighted measurable improvements concerning water availability, public networks coverage, better quality and

improve service continuity, thus demonstrating the important role that Cohesion funds can have in helping to deliver the outcomes required by EU water law and policy. However, the Court also stressed that the effectiveness and efficiency of spending was often not satisfactory and that several projects clearly operate within limited efficiency. The focus of funding is often on building infrastructures to exploit new sources of water supply rather than to focus on other, alternative solutions such as reducing the losses of water or using more accessible resources. Supply-side measures dominate, whereas demand-side measures are largely ignored. The Court also noticed that existing forecasts of water demand often do not take into account recent downwards trends in per-capita water consumption but rather extrapolated outdated assumption on water demand (ECA, 2010). It should be noted that these assessment for waste water concerned spending in the late 1990s and mid-2000s and on drinking water from the early 2000s. Therefore, it is unlikely that spending programmes would have been influenced by the strategic analysis and planning under the WFD. Therefore, any assessment of the true effect of an interaction between Cohesion spending and the WFD will need to be undertaken for a later period.

Charging water costs to water users is enshrined in the WFD as a key policy principle. It has been picked up in the Commission's guidance on carrying out Cost-Benefit-Analyses for the programming period 2007-2013, requesting that an adequate tariff structure should be set up to cover operating and maintenance costs but also a significant part of the asset's depreciation (CEC, 2006).

6.4.3 *Other sectoral policies*

While many interviewees point out that water is crucial to almost any economic sector, the need to better integrate water policy with certain sectoral policies (besides CAP and cohesion) is stringent.

Navigation and related practices (e.g. dredging) seem to be among these key-sectors. Cutting river side-arms and water bed scooping may lead to flood plains and habitat disappearing, together with enhancing the risk for floods. While it is being argued that water-borne transportation may be more CO₂ effective than land-based transportation, several interviewees pointed out that the difference in CO₂ emissions is insignificant. As navigation is nevertheless an important sector, scaling down significantly would probably be unfeasible and economically unwise. Therefore, alternative solutions have been put forward by several interviews, dealing mainly with minor changes in ship design - an aspect that would limit dredging and the cutting of side-arms of rivers.

Energy seems to be another key sector related to water. As most interviewees pointed out the environment/habitat-related objectives of the WFD are not aligned with the goals of green energy policy and related policies (e.g. cooling water which is used in all power generating plants). In short the energy policy aims to shift focus to greener sources, hydropower being one of them. However, this goal is not without shortcomings. One of them is the fact that building hydropower plants can disrupt habitat not only locally but also along the course of a river (e.g. consider fish migration which may be difficult when appropriate passes are not created). Also, some countries/regions seem to be tapping most

of the hydropower capacity available locally, without actually needing all the energy produced. This is partly due to the incentives linked to green policy; based on this, funds have sometimes been granted for building hydropower plants that cannot produce more energy than a car battery (hence the investment does not outweigh the cost of habitat loss in that area.) There is also a major energy interaction between water and bioenergy. Water use for such crops presents a major change in the interaction with agriculture policy and there needs to be an alignment between these policies. OECD (2011) highlights this problem, but also cautions that the exact nature of the interactions between bioenergy production and water outcomes “have not been fully evaluated”.

Additional alignment is required for chemicals controls. Several interviewees pointed out the need for better public information, which could lead to changes in consumption habits. Had the public been informed about the negative impact of certain substances, the public opinion could push for these substances to be removed from the supply chain (at smaller costs than if required through regulation) by simply not buying the products which incorporate them. The REACH Regulation provides the opportunity for significant data to be generated on the risk of many substances and mixtures and this can assist in future reviews of priority substances under the WFD/EQSD.

Better information could also lead the public to change habits regarding the disposal of pharmaceutical products, which has been shown to have a crucial impact on habitat and human health (e.g. fish in certain water bodies polluted with metabolites developed genetic modifications and became unsuitable for human consumption). As no EU regulation currently requires the neutralization of metabolites by urban wastewater treatment plants, educating consumers to use take back schemes, for example, instead of the toilet to dispose of pills could have an impact, although most substances enter water bodies through excretion (Kampa and Varda, 2008). The interaction between EU water law and EU medicines law has been examined by Keessen, Freriks, A. and van Rijswijk (2010). They note that even though the potential risk to health and the environment of medicine derivatives in water bodies is “low”, nevertheless stakeholders see the need for EU law, not least because of the role of the internal market on sale of medicines and the framework protection measures for water set out by the WFD. The authors note that there have been steps taken to improve coherence between these two areas of law, but “these two bodies of legislation lack the required coherence to tackle the problem”. This is because there is both a lack of water standards and monitoring obligations relating to medicines. The authors argue that the way forward should be to amend water legislation to address this gap. It should also be noted that assessments of new medicines only address health impacts and the authors also argue that wider environmental issues should be assessed and made public. Therefore, to aid coherence with water law, medicines law should also be amended on this assessment issue.

Another two key-areas are foreign aid and trade which, for the purpose of this analysis, need to be considered in relation with CAP. As several interviewees pointed out, free trade of agricultural products is not sustainable in the long run, as long as some farmers have to pay for water while some do not. A vicious circle is being created where third countries provide produce at lower prices than of the ones grown in the EU (because the former usually do not incorporate the price of water.) This leads to many EU consumers buying

foreign-grown produce, which hinders EU farms. It also causes under-pricing of non-EU produce, which prevents local currencies from getting stronger, as they could if the produce were priced at the same level as in the EU (i.e. account for the water price). If local currencies were stronger, more locals would remain in their country instead of migrating, supporting the growth of local economies and minimizing reliance on foreign aid coming from EU and other countries.

While several interviewees pointed out additional policy areas (e.g. mining, fisheries), the above seemed to prevail in terms of urgency of alignment with water policy. On top of this, a large number of interviewees called for a triple-bottom-line approach when considering alignment. In other words, instead of only focusing on the “ecological” or the “economic” benefits of better alignment, policy makers should also look at the “social” aspects (i.e. if most inhabitants of a rural community are employed by a single company, which is being required to make massive investments to comply with fast-changing policy requirements, the company may prefer to go out of business, thus leaving a large part of the community jobless.)

6.5 Conclusions

The first evaluation questions we have raised on the coherence of the water policy is

What is the degree of integration of WFD with the other instruments covered by the Fitness Check (FC)?

Achieving greater policy coherence within European Water Policy was a key reason for introducing the WFD. Both major point sources and diffuse sources are now tackled in one common regulatory framework, and there is no major conflict of objectives or instruments. The WFD complements the regulatory framework of the UWWTD and the NID and reinforces action taken to implement these Directives. However, stakeholders raised the issue of reporting obligations under the different Directives covered by the FC not being coherent with each other (such as reporting cycles of the WFD, NiD and UWWTD). However, since adoption of the WFD, much water law (revised and new) has become increasingly coherent in this regard (and further taken forward through WISE). Clearly, failure to achieve integration of monitoring and reporting obligations may lead to unnecessary burdens on public administrations. Future consideration of WISE and future review of Directives will also assist in enhancing coherence.

What is the degree of integration of fresh water policy with other relevant environmental and sectoral policies? Is the scope for integration of WFD with other policy objectives fully exploited?

There are numerous interaction points with other environmental Directives in terms of land use planning (SEA and EIA-Directives), protected areas (Habitats and Birds Directives) and pollution sources (IPPC Directive). Many stakeholders regard the further harmonisation of reporting requirements and public participation requirements under the different Directives as important, particularly in order to avoid stakeholder consultation fatigue. In spite of existing advice, the extent to which the provisions of the SEA Directive should apply to the RBMPs or the PoMs of the WFD or to both remains unclear. Good progress has been made

in terms of clarifying the relationship between the WFD and the Habitats Directive, particularly in view of diverging objectives and deadlines. Stakeholder discussions confirmed that the problems are rather linked to issues of practical coordination than to systemic legal inter-linkages. The links with the IPPC directive are more complex and challenging, particularly with regard to translating pressures on good environmental status and good chemical status to discharge requirements for IPPC permits. Existing IPPC installations were required to have been issued permits by October 2007 – before the completion of PoMs. Therefore, it is possible that the objectives of the WFD and EQSD require the conditions of some permits to be revisited.

In sum, the scope of integration of WFD with other environmental Directives can be considered as fairly advanced, such as with SEA. The relationship with other sectoral policies remains subject of much more controversial discussion. Clearly, there are views from stakeholders and in the literature that not enough progress on sectoral integration of water concerns has been made over the past years.

A report on OECD countries (OECD, 2011) concluded that, overall, “policies across the agriculture, water, energy and environment spheres are formulated without sufficient consideration of their interrelationship in any comprehensive manner, or their unintended consequences”. However, this is a situation that is changing and “policymaking and decisions have started to involve a higher degree of interdependence”. However, it concluded that greater efforts are needed to deliver improved coherence. Past reforms of the CAP have increased the importance of environmental protection within the overall policy framework of the CAP. Nonetheless, a number of key pressures and impacts arising from farming practice throughout Europe continue to impact on the quality and availability of water. For example, in two thirds of RBDs nutrient enrichment is due to farming practice. Water-related actions taken under the 2nd pillar of the CAP are not sufficient to counteract those pressures exerted on water quantity and water quality by some action funded under the pillar I. Integrating WFD concerns into pillar I of the CAP is a genuine regulatory challenge, as both policies follow very different regulatory philosophies (procedural compliance and regulatory flexibility in case of the WFD versus top-down regulation in case of CAP).

The environmental dimension is still not on equal footing with the economic and social dimension when it comes to priority-setting for funding to achieve greater territorial cohesion. While the Cohesion funds have contributed to measurable improvements concerning water availability, public networks coverage, better quality and improved service continuity, the effectiveness and efficiency of spending remains open to improvements.

In addition to CAP and Cohesion Policy, our analysis finds that links with other sectoral policies need to be considerably advanced in the future, particularly with regard to energy and navigation. On energy policy the driver for some renewable energy sources and targets for biofuel production have implications for water use and water quality and it is important the future policy development in this area is harmonised with water policy objectives. Similarly, there is also renewed emphasis on water-based transport, again with a need for future policy development in this area to be harmonised with water policy objectives.

The OECD (2011) in its assessment of policy coherence concluded with eight elements that are important for policy makers to consider. These are of wide relevance and worth highlighting here:

1. “ensuring strong political commitment: the success of policy coherence in agriculture and water policies relies on high level political commitment, leading to increased focus on evidence based policy coherence, which is critical to foster political support. In this regard the role of parliamentarians is critical, as they are key players in promoting national agricultural and water reforms and they can explain to their constituencies the positive or negative impacts of reforms for the agriculture and water sectors;
2. unravelling policy and institutional legacies: disentangling the policy legacies of decades of single industry (agriculture and water) policies is a highly complex undertaking, but this is critical if greater policy and institutional coherence is to be achieved. This is of particular importance where agricultural production and input support policies lead to inefficiencies in water resource use, the undervaluation of scarce water resources, and exacerbate water pollution;
3. designing an optimal policy mix to ensure coherence: an important challenge that policy makers face is designing and implementing coherent agriculture and water policies that do not impede structural adjustment or create new distortions in these sectors. In particular, this should involve considering the full range of policy instruments, market approaches, communicative strategies and cooperative agreements between different agriculture and water stakeholders, and also recognise that policy coherence is an all encompassing notion across the full range of government policies;
4. developing a shared vision among relevant stakeholders: this refers to the process by which stakeholders can develop a common vision, agree shared values, make collective informed decisions and manage together agriculture and water linkages from the catchment to national and international levels. This process involves integration of water users, polluters, scientists, government institutions and other interested stakeholders. Tradeoffs can then be initiated between these various interests, in an open and transparent way and where the focus is on synergy and winwin solutions in seeking greater coherence;
5. providing support systems for stakeholders: to support the implementation of more coherent policies, requires training and education of the main stakeholders (e.g. farmers, water managers). This support system should form a pivotal strategy for raising awareness of sustainable management of agriculture and water systems;
6. improving the impact assessment of policy coherence: policy coherence impact assessment could be improved by strengthening linkages between ex-ante impact assessments, ex-post joint evaluations and joint programming and monitoring systems, and by enhancing multi-stakeholder monitoring of the impact of policy coherence in the agriculture and water sectors at the local, regional, national and international level;
7. developing the evidence base of policy coherence: there is only limited research documenting the evidence of coherent policies, partly due to the difficulties of evaluating agriculture and water cross-sectoral policies, especially in quantitative terms. A key challenge is to identify indicators that would capture the impacts of policy coherence (and incoherence) when cause and effect are not always

identifiable and where results may appear only in the medium to long-term, including a clear commitment to gather field based evidence in a systematic fashion; and,

8. communicating the benefits of policy coherence: increasing awareness and dialogue at different levels of government and society more broadly, of the benefits that can flow from greater policy and institutional coherence should be widely communicated, as well as the costs of inaction.”

7 ASSESSING EFFECTIVENESS: ACHIEVEMENTS AND SHORTCOMINGS IN TRANSPOSITION AND IMPLEMENTATION

7.1 Framing the analysis of effectiveness

Assessing policy effectiveness

So far the analysis has revealed that the framework of EU Water Policy can be regarded as solid in terms of its overall relevance and coherence. Gaps and inconsistencies certainly exist, particularly due to the nature of a framework Directive that provides for a procedural framework and hence does not provide requirements how to operationalise areas such as setting economic incentives. It is stressed over and over again in both the academic and non-academic literature that the implementation practice of EU Member States is of key relevance, particularly in those areas that are crucially dependent on EU Member State action such as drafting PoMs and the role of economic instruments therein.

Policy effectiveness, in short, concerns the analysis and judgement if the expected objectives and targets of policy action have been achieved in practice, or, to put it in another way, it concerns the assessment of the gap between the outputs and outcomes of current policy action and envisaged objectives and targets (EEA, 2001). However, the interaction between policy action and its impact on the environment, and also human behaviour as a key driver, is necessarily complex. It is quite common to distinguish between the inputs, outputs, outcomes and impacts of a policy action.⁵⁸

For the purpose of this evaluation, we are particularly concerned with the output (policy measures adopted on the various kind) coupled with the outcomes (target group responses to the policy measures adopted) where possible. The latter is, however, difficult to apply, as most of the policy action under the WFD is yet to come and hence responses from target groups are difficult to establish within the context of a robust analysis. For the same reason it is premature to assess the impacts of the policy action taken in terms of the WFD, as PoMs are to be adopted in the years to come. Where available, the review utilises information on the policy effectiveness of “older” Directives such as the UWWTD and NiD.

In terms of appraising policy action, it is also important to account for the differences in formal and factual norm compliance of EU Member States with the provisions of EU environmental policy and law. Formal norm compliance relates primarily to the record of a EU Member State with regard to transposing the requirements of European legislation into national law, hence it is concerned with an output-based effectiveness perspective. Factual norm compliance goes beyond this line. An assessment of factual norm compliance seeks to

⁵⁸ Whereby inputs relate to the human and financial resources devoted to the policy action and policy outputs refer to the measures adopted in order to meet established objectives. Policy outcomes then relate to the impact of these measures on human behaviour, i.e. the responses from the original target group to the requirements of the measure taken, whereas impacts refer to the latest piece of the chain, i.e. the observable changes in the environment, but also in human health, as a consequence of the policy action taken (EEA 2001).

address how well the EU Member States is implementing the requirements of the legislation in the daily practice and which effects this implementation action produces, hence it is concerned with both an output and an outcome-based effectiveness perspective.

Formal norm compliance can be assessed against some core indicators such as the number of infringement actions launched by the European Commission. They provide for overview information how well the transposition of a Directive has been undertaken. Principally, there are three forms of national infringements of EU legislation, i.e. cases (Krämer, 2008):

- where a Member State did not transpose (on time) EC secondary legislation into its national legal order (non-transposition);
- where the Member State transposed secondary EC legislation in an incomplete or incorrect way (incorrect transposition); or
- where a Member State did not correctly apply primary or secondary Community law in concrete cases (incorrect application).

Different types and degrees of incorrect application might occur. Member States might not comply with the organisational obligation to set up the legal and administrative framework for the proper application and enforcement of the transposing legislation. But even if they manage to set up this legal and administrative framework, they might fail to ensure this framework gets applied. Either the competent or other authorities might fail to apply EU legislation on the ground, either private actors such as economic operators or citizens might fail to apply it EU law in practice.

Factual norm compliance is much harder to assess as there are no comparable (quantitative) indicators. The number of infringements is not a perfect indicator as it does not provide information on the actual size of the implementation problem in a respective area. Looking at the number of judgements by the European Court of Justice provides a similarly constrained picture. Areas with a high number of infringements need not necessarily be the areas where implementation problems are the most significant, either in environmental or economic terms (damage costs).

Accordingly, this section is primarily interested in understanding how well current efforts in implementing the WFD are in-line with the stated objectives of the WFD implementation process, but also other relevant output-related objectives for other Directives covered under this analysis. This analysis is mainly based on a review of the latest state of implementation of the Directives and other non-legislative tools covered under this analysis as well as a review of the related academic literature and relevant non-academic publications. It proceeds with a Directive-by-Directive analysis approach. The analysis is necessarily compact, yet aims to provide a comprehensive overview as to enable a “big-picture” discussion, whether the machinery of EU Water Policy is working on the grounds.

Assessing the causes of policy effectiveness as measured in terms of achievements in implementation

Establishing an overview of current trends is the one key aim of this section. Linking these observations to a discussion of the potential causes is a secondary aim of this section, as it

helps to discuss barriers to a successful implementation of the WFD and other relevant Directives and their concrete origins, i.e. are they influenced by stipulations of the EU policy framework or do they stem from the respective implementation conditions on a national level?

There are a number of causes – some legal, some political, some economic and some linked to different European legal cultures – why ensuring compliance with the requirements of the environmental *acquis* in Europe remains a challenging task (Rechtschaffen, 2007). They refer to shortcomings in definition and operationalisation of the policy framework, but also problems of “spatial fit” and “institutional interplay”, as previously discussed, i.e. the degree to which the intended objectives of European policies match with the policy objectives, interests and administrative capacities as well as vested interests of policy stakeholders at a national and local level. The degree to which monitoring and enforcement tools are in place is another factor that might explain compliance issues. These factors will be further discussed in section 7.6.

In a nutshell, European environmental policy and law enforcement and implementation largely rests on cooperative, partnership-based approaches, given the larger absence of direct enforcement tools at the European level (Demmke, 2004).⁵⁹ Implementation and law enforcement is thus dependent on both the ability and willingness of EU Member States, i.e. it is a mix of acceptance (*legitimacy*), will to enforce (*power*) and capacity to act (*management*). There is not one dominant factor that can help explain implementation failures. Rather, different factors influence each other.

We will come back to this discussion in section 7.6. For the purpose of our discussion, the factors at the bottom of figure xx are highly interesting, particularly with regard to capacities and institutional path-dependencies. However, the caveat needs to be made that the available literature on these factors is rather slim and our discussion will be rather exploratory than exhaustive.

7.2 Water Framework Directive

7.2.1 General picture - achievements

After initial implementation deadlines were poorly met by many EU Member States, all Member States have now completed all steps in relation to these first deadlines (except Malta as to monitoring programmes for inland surface water). These initial deadlines include:

- the requirement to transpose the Directive into national law by December 2003;
- the requirement to identify River Basin Districts by December 2003;
- the duty to designate and identify competent authorities by June 2004;
- the requirement to analyse the characteristics of the river basin districts, including a review of human activity’s pressures/impacts on surface and groundwater and an

⁵⁹ Moreover, citizen or private enforcement of EU legislation is allowed only restrictively, in contrast to the US. Citizens are not enabled to take legal action against individual facilities that breach environmental law requirements (although complaints to the Commission are allowed), and in some Member States environmental groups even face enhanced problems in bringing suits in national courts (Krämer, 2004).

- economic analysis of the water use in river basin districts and to report summaries of these analyses to the Commission by March 2005; and,
- the establishment of monitoring programmes for the assessment of water status by December 2006.

It needs to be noted though that the process has often been cumbersome and characterised by a higher number of infringement procedures (see section 7.2.2.). The table below provides for an overview of how well the original objectives of the WFD implementation process have been met.

Table 10: Achievements of objectives of the WFD implementation process

Year	Issue	Achievement at time of original deadline	Achievement now
2003	Transposition in national legislation	poor	Overall sufficient
2003	Identification of River Basin Districts and Authorities	Moderate	Overall sufficient
2004	Characterisation of river basin: pressures, impacts and economic analysis	moderate	Moderate
2006	Establishment of monitoring network	moderate	Overall sufficient
2006	Start public consultation (at the latest)	Moderate	Moderate
2008	Present draft river basin management plan	poor	-
2009	Finalise river basin management plan including programme of measures	moderate	Moderate
2010	Introduce pricing policies	Difficult to assess but rather poor	Difficult to assess but rather poor

Source: Own compilation

7.2.2 *Record on transposition*

The transposition of the WFD by the EU15 (December 2003 deadline) was poorly met, but the new Member States had progressed well by the date of accession in 2004 (CEC, 2007; IEEP). Therefore, the Commission in 2004 launched eleven legal infringement cases for ‘non-communication’.

There have been a number of judgements by the European Court of Justice against Member States for failure to transpose all, or part, of the Directive. These concern Germany (C-67/05), Belgium (C-33/05), Italy (C-85/05), Portugal (C-118/05) and Luxembourg (C-32/05).

Incomplete and incorrect transposition

The European Commission stated in its 2009 annual report on application of EU law that the correct implementation of the WFD may be affected by the incomplete and incorrect transposition by a number of Member States.

The first implementation report published in 2007 already revealed widespread shortcomings in the transposition. In relation to the key provisions the first evaluation concluded:

- that Article 4 on environmental objectives has been poorly transposed;
- that provisions of Article 4(7) on modifications and developments which affect the water environment are often not transposed;
- that several national laws fall short to introduce the cost recovery obligations from Article 9 and the related definition of 'water services';
- that some Member States fail to transpose properly the obligation regarding public participation (Article 14). Only three Member States appeared to have an overall satisfactory transposition (Austria, Malta and Portugal) (CEC, 2007a; CEC, 2007b).

Therefore the European Commission has been pursuing many cases of non-conformity since 2007, some of which have been closed and not referred to the ECJ. In 2010 the Commission was still dealing with infringement cases against 19 Member States, some of which were closed by the end of 2010. Currently, there are 15 cases open, several of which will be closed soon as all issues have been solved.

Bad application

Up until 2009 most of the European Commission's work on infringements in relation to the WFD focussed on issues of non-communication and incomplete and incorrect transposition. If cases of bad application were dealt with, they mostly related to formal aspects of application such as whether national authorities had designated competent authorities, whether they had drawn up reports on monitoring networks, whether they had undertaken the environment and economic analyses in relation to their river basins, etc (EC, 2009a; EC, 2010a). Since 2010 the Commission also started enforcement activities in relation to the Member States' requirement to adopt River Basin Management Plans by December 2009. (See section 7.2.6 for more details.)

The ECJ condemned Spain for having failed to designate a competent authority (C-516/07). However, in 2010 the Commission sent a letter of formal notice to Spain as it had not taken all necessary measures to comply with this ECJ judgement. The ECJ also condemned Greece (C-264/07) and Italy (C-85/07) for failure to undertake the necessary analyses for some or all of their river basins. As for Italy only the pilot river basin district of the Serchio and parts of the river basin districts of the Eastern Alps and the Northern, Central and Southern Apennines were concerned, whereas for Greece all river basins were concerned.

In 2009 the Commission took decisions on two infringement cases regarding the absence of a report on monitoring networks. It decided to close the case against Greece and to refer the case against Malta to the European Court of Justice (EC, 2010a). In December 2010 the

ECJ ruled against Malta for its failure to comply with the monitoring requirements of the WFD (C-351/09).

In April 2011 the Commission announced it would refer Belgium, Denmark, Greece and Portugal to the ECJ for their failure to submit RBMPs. In Belgium, the Brussels-Capital Region and Walloon Region only started public consultations in 2011 and expect to publish their plans in 2011 and 2012, respectively. Denmark aims to publish its plans in September 2011, following the end of public consultations in April 2011. Greece has not yet started public consultations and will only publish its plans by March 2012. Portugal is expected to start public consultations in 2011 but it is not yet clear when the plans might be adopted (EC Press Release).

Table 11: Overview of the key results of initial conformity assessment of transposing legislation

MS	Transposition date	Infringement linked to transposition	Consultant report available	Overall result of initial conformity analysis	Transposition of key provisions				
					4	4.7	9	14	Definition of water services
AT	2003		Yes	+	+	+	+	+	+
BE	2002-2006	2004/0005	Partly	-	-	-	-	-	-
BG	2005-2006		No	<i>See notes</i>					
CY	20/02/2004		Yes	+/-	+	+	+/-	+	+
CZ	2001-2004		Yes	-	-	-	-	-	-
DE	2003-2006	2004/0017	Yes	-	+	+	-	+	-
DK	17/12/2003		Yes	-	-	+	-	+	-
EE	2001-2005		Yes	-	-	-	-	-	-
EL	2003-2007	2005/2226	No	<i>Non conformity infringement case on-going</i>					
ES	31/12/2003		Yes	-	-	-	+/-	+	+
FI	31/12/2004	2004/0108	No	-	+/-	+	-	+/-	-
FR	21/04/2004	2004/0048	Yes	-	-	-	+/-	+	+/-
HU	2004		Yes	-	-	+	-	+/-	+
IE	2003-2005		Yes	-	-	-	-	+/-	-
IT	May 2006	2004/0059	No	-	-	-	+	+	+
LT	25/09/2003		Yes	-	-	+	-	+	+
LU	Not transposed	2004/0073	-						
LV	12/09/2002		Yes	-	-	+	-	+	-
MT	23/04/2004		Yes	+	+	+	+	+	+
NL	2005	2004/0086	No	-	-	-	+/-	+	+/-
PL	3/06/2005	2004/2309	Yes	-	-	+	+/-	+	+
PT	29/12/2005	2004/0120	No	+	+	+	+	+	+
RO	2004-2006		No	+/-	+	+	+	+/-	+
SE	1/08/2004	2004/0142	Yes	-	-	-	-	+	-
SI	2003-2006		Yes	-	-	-	+/-	+/-	+/-
SK	2002-2005		Yes	-	-	+	-	+	+
UK	2003-2004	2004/0152	Yes	-	-	-	-	+	+

LEGEND

+	Initial transposition analysis has not identified significant non conformity or these appear to be minor
+/-	Initial transposition analysis has identified missing elements or non-conformity issues that require further analysis
-	Initial transposition analysis has identified missing elements or non-conformity issues that appear to be major

Notes:

All infringement cases are non-communication cases except 2005/2226 against EL which is non-conformity. Infringement cases for EL, IT and LU are still opened. The rest of the non-communication cases are closed. For Bulgaria it was not possible to make a complete conformity analysis at this stage. An amendment of the water law has been adopted in 2006 and the information available indicates that this may overcome some of the shortcomings identified in the analysis of the previous transposition legislation.

Source: (CEC, 2007b)

Complaints and legal proceedings by NGOs

Several environmental NGOs have decided to submit complaints or opinions to the Commission or to go to national courts to address shortcomings of the RBMPs. In England and Wales, WWF-UK and Angling Trust Limited have addressed the court to seek permission to challenge the legality of RBMPs. In Spain Ecologistas en Acción has submitted a complaint to the European Commission (EEB, 2010). In the Netherlands the NGO 'Vereniging Natuurmonumenten' sent a letter in November 2010 to the European Commission to inform it about the Dutch government's intention to repeal or postpone measures from the Dutch Programs of Measures. Dutch NGOs have also reviewed the Dutch RBMPs and have sent their analysis to the European Commission in December 2010. The analysis concludes that the RBMPs fail to comply with the WFD (Vereniging Natuurmonumenten et al, 2010).

In 2006 WWF and the European Environmental Bureau (EEB), on behalf of 17 national environmental NGOs, submitted a horizontal complaint to the European Commission asking to open an infringement procedure against 11 Member States for failure to correctly apply the Directive and in particular for failure to correctly interpret the term 'water services' (WWF, 2006).⁶⁰ This issue has been addressed by the Commission in its non-conformity infringement cases.

Concerns of NGO's on the transposition of the WFD

The Directive requires Member States to assess what proportion of water service costs (abstraction and discharge, dams, dykes, transfers), including environmental damage and resource loss, are paid for by water users (households, navigation, hydropower, industry and agriculture, etc). The Directive also obliges countries to adequately distribute those costs using the 'polluter pays' principle. This principle provides essential incentives to reduce environmental damage and generate the money required to achieve the directive's environmental objectives (WWF and EEB, 2006).

However, 11 Member States have limited the economic appraisal to public drinking water supply and waste water treatment or collection, thus excluding infrastructures such as dams and dykes serving hydropower, navigation, agricultural irrigation and drainage and flood defence. This leads to a situation where many infrastructures already identified as a major environmental problem, will be exempted from any transparent economic assessment and citizens, who already pay substantial water prices, could be charged even higher prices to cover for the damage caused by businesses (WWF and EEB, 2006).

7.2.3 Identification of river basins and competent authorities

The process of identification of river basin districts and competent authorities is complete by now. 110 RBDs have been identified across the EU 27, 40 of them are international. Most European Member States reported to the European Commission on time. Nine infringement procedures were launched regarding "non-communication" against Belgium, Denmark, France, Greece, Italy, Malta, Poland, Spain and Sweden, and nearly all cases except for Spain were resolved by 2004 (CEC, 2007b). In overall terms, institutional arrangements in place are found to be sufficient (Kanakoudis and Tsitsifli, 2010). This does not, however, allow for

⁶⁰ The countries concerned were Austria, Belgium, Denmark, Estonia, Finland, Germany, Hungary, Ireland, Poland, Sweden and the Netherlands.

the conclusion that the issue of practical coordination and policy integration in the day-to-day practice is thereby solved.

In Italy, for example, the task of drafting the RBMPs was only designated to the river basin authorities (the District Authorities to be more precise) in 2009 by law 13/2009. In Spain, it was decided to establish a committee of competent authorities for each river basin district to supervise and cooperate in the drafting and implementation of the RBMPs and the Programs of Measures. However, the committees were not established until late 2008 and have only recently started operating, but without any evident improvement in real and effective inter-administrative cooperation (Hernández-Mora and Ballester, 2011).

7.2.4 *Environmental and economic analysis*

Most Member States have submitted reports on time and have put lots of efforts into these first analyses. Over 90 reports were submitted. Two Member States have been condemned for failure to undertake the analyses for some or all of their river basins. The quality of reports and level of detail vary considerably, however. All MSs are required to fill in data gaps to provide a solid basis for the 2009 River Basin Management Plans (RBMPs) (CEC, 2007). All Member States have now reported.

It has been noted that most EU Member States based their assessments on current data and do not include future policy developments as well as economic trend developments into their analysis. A limited number of five EU Member States have been found to provide full information on specific pressures, and 12 EU Member States were found to provide information on the importance of different pressures (Kanakoudis and Tsitsifli, 2010).

Designation of water bodies as heavily modified or artificial

Before environmental objectives for water bodies can be set, the Member State authorities need to designate surface water bodies on the basis of their ecological quality. They can designate a water body to one of the following three categories: normal or natural water body, heavily modified water body (HMWB) or artificial water body (AWB). This designation has implications for the overall good status obligation to be achieved. Only natural water bodies have to achieve good ecological status, unless an exemption is justified. HMWBs and AWBs only have to achieve good ecological potential (Keessen et al, 2010).

The table below shows that the percentage of HMWBs and AWBs differs significantly among river basin districts across Europe. This follows mostly from the great differences in natural conditions and water problems among EU Member States and river basins. The Netherlands for instance has designated more than 95 per cent of its water bodies as heavily modified or artificial (and 96.5 per cent in the Dutch Scheldt river basin district), whereas percentages are much lower in for instance southern Member States. It should, nevertheless, be taken into account that some flexibility exists at Member State level. Differences in ambition may indeed result from differences of methodologies and assessment criteria.

In relation to this, some concerns have been expressed, mainly by environmental NGOs but also academic researchers, in some Member States (in particular those with very high percentages of heavily modified and artificial water bodies) that the designation process was not always in conformity with the WFD and that the designation process could have been more transparent and ambitious (Crabbé and Wiering, 2010; Keessen et al, 2010; Vereniging Natuurmonumenten et al, 2010).

Table 12: The designation of water bodies in several river basin districts

	HMWB	AWB	Total
RBD Scheldt in France	26 %	12 %	38 %
RBD Scheldt in Walloon Region (Belgium)	35.4%	15.2%	50.6%
RBD Scheldt in Brussels Capital Region (Belgium)	67%	33%	100%
RBD Scheldt in Flemish Region (Belgium)	50%	27.5%	77.5%
RBD Scheldt in the Netherlands	34%	62.5%	96.5%
RBD Severn (United Kingdom)	16.2 %	10%	26.2%
RBD Guadiana in Spain	17.6%	4.1%	21.7%
RBD Guadiana in Portugal	13.8%	0.8%	14.6%
RBD Po (Italy)	6.1%	15.7%	21.8%

HMWB: heavily modified water body

AWB: artificial water body

Source: own compilation on the basis of the respective RBMPs

Economic Analysis

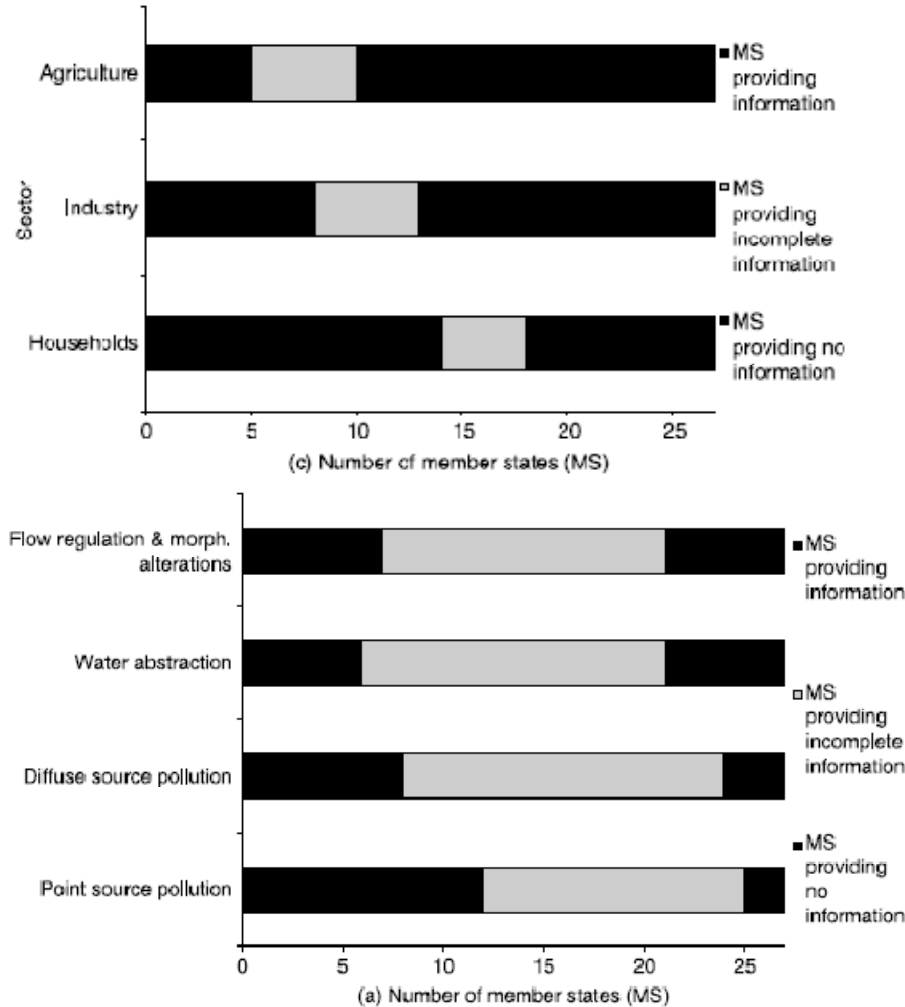
In relation to the economic analysis of water use, the Member States were required to provide information to enable the calculation of recovery of costs of water services and information for judging the cost-effective combination of measures in the PoMs. However, most EU Member States have provided incomplete economic analysis reports (Figure 19). The quality of information varied greatly, and the economic analysis is generally considered the weakest part of the overall assessment regime of the WFD. For instance, half of the Member States did not supply any information in their reports on cost recovery for the three main sectors (agriculture, households and industry). Furthermore, most Member States that had supplied information on cost recovery have not taken into account environmental and resource costs. And most Member States were not able to clearly identify water services (EC, 2007b; Kanakoudis and Tsitsifli, 2010).

Since 2005 many Member States improved their economic analysis in preparation of the RBMPs. In relation to this, it was stated at a CIS workshop on WFD economics in October 2010 that a variety of methodologies and approaches were developed and applied in reported Member State cases for the implementation of the different aspects of WFD Article 9 on the recovery of costs for water services. These aspects, closely related to the economic analysis of water use, included among others: the recovery of costs for water

services; the definition, estimation and internalisation of environmental and resource costs; the adequate contribution of water uses to the recovery of water services; and the evaluation of water pricing policies in terms of contributing to the achievement of the WFD objectives. It was also highlighted that though Member States had a clear idea of cost recovery as regards financial costs of water services (water supply and sewerage services), they did not have a clear idea of the environmental and resource costs of these services. Furthermore, it was highlighted that difficulties with data generate a major challenge for the implementation of Article 9: data availability, format, ownership, collection and processing of different data formats and related costs (CIS, 2010).

In relation to the use of cost-effectiveness analysis (CEA) for the selection of measures, it was stated that approaches vary between Member States. Whereas some Member States already have experiences for many years, other Member States only started CEAs. In addition, it was mentioned that the assessment of costs is easier and more certain than the assessment of effectiveness (CIS, 2010).

Figure 19: Information provided on environmental pressures per water body and on sectors considered for cost recovery of water services



Source: CEC 2007b

7.2.5 *Record on the establishment of monitoring programmes*

All Member States have reported on the establishment of monitoring programmes in accordance with Article 8 and Annex V of Directive 2000/60/EC, with the exception of Malta, which did not report on surface water monitoring programmes (COM(2009)156). Greece reported late, i.e. after a ruling by the ECJ. Overall, there is a good monitoring effort across the European Union, with more than 107,000 monitoring stations reported for monitoring of surface water and groundwater under Directive 2000/60/EC. However, gaps exist in individual river basin districts or individual water categories. For instance, there were still many river basin districts where the necessary assessment methods for biological quality elements were not yet in place. This was particularly true in the countries that joined the EU in 2004 and 2007 (CEC, 2009a; IEEP, 2011).

The implementation of the monitoring programmes is considered a great achievement in overall terms (Ferreira et al, 2007; Hering et al, 2010). For the first time comparable pan-European data-sets to assess the ecological status of surface waters are being gathered as a basis for restoring aquatic ecosystems. Other achievements are that many sampling and analysis procedures have been standardised across Europe and that substantial investments have been made in taxonomy. The development process and the resulting methods also pushed progress towards a shared common understanding of applied aquatic ecology in the European Union. Knowledge has also been generated increasingly through cooperation between researchers, technicians, water managers, and to some extent stakeholders and politicians (Hering et al, 2010).

Table 13: Overview of successes and problems encountered in the implementation process of the Water Framework Directive related to ecological assessment of water bodies, of causes, consequences, already applied solutions and recommendations

Issue	Successes	Problems encountered	Already applied or initiated solutions	Future recommendations
Assessment of ecological status National assessment systems	<ul style="list-style-type: none"> – Assessment systems reflecting different stressors for most BQEs and water types now available, adapted to the needs of member states – Transparent development process involving scientists, water managers and stakeholders 	<ul style="list-style-type: none"> – Effort and long time period required for development – Degree of complexity of some assessment systems – Different and partly incomparable systems by member states – Lack of data for developing indicators of some widespread pressures (e.g. hydromorphology) – Lack of reference sites in Central and Mediterranean Europe 	<ul style="list-style-type: none"> – Intercalibration of national assessment systems 	<ul style="list-style-type: none"> – Further improvement and harmonisation of assessment systems based on experiences of first cycle of intercalibration and monitoring
Uncertainty in assessment	<ul style="list-style-type: none"> – Principle of giving status classifications as probabilities best developed to reflect sources of sampling and analysis variability – Simple underlying statistical principles developed – Stimulated pan-European training in identification 	<ul style="list-style-type: none"> – Only few assessment systems have included uncertainty estimation – Communication of the concept of uncertainty to water managers – Due to data constraints, less developed for assessing uncertainty due to temporal variability 	<ul style="list-style-type: none"> – For selected assessment systems quantification of sources of variability, e.g. sampling and identification error 	<ul style="list-style-type: none"> – Standardised approach for uncertainty estimation or all assessment systems – Improved training in sampling and identification and further standardisation of biological recording to minimise sources of error – Restrict sampling to one season if possible, to reduce natural variability – Improve site-specific assessment models (prediction systems), once sufficient data are available, esp. for sites close to type boundaries
Typology	<ul style="list-style-type: none"> – Typologies or prediction systems have been developed by all member states – Developed typologies enable higher precision of ecological assessment 	<ul style="list-style-type: none"> – Need to find the balance between being too specific (too many types) and being too general (types do not sufficiently reflect natural variability) 	<ul style="list-style-type: none"> – Broadly defined types for rough ecological assessment (e.g. 'common types' used for intercalibration) – Improved typology for some of the 'Geographical Intercalibration Groups' – Improved prediction models to overcome general problems of typologies 	
Intercalibration	<ul style="list-style-type: none"> – Methods for intercalibration were developed – Intercalibration was successfully completed for several BQEs and water types – Many assessment schemes now intercalibrated have comparable class boundaries 	<ul style="list-style-type: none"> – Differences in national assessment systems, due to biomonitoring traditions – Original WFD approach for intercalibration (small number of sites representing class boundaries) was not feasible – Effort and time required for intercalibration has been more than expected – Dissemination of intercalibration approaches and results 	<ul style="list-style-type: none"> – Intercalibration methods based on 'common metrics' – New intercalibration guidance to ensure more consistent ways to compare, evaluate and adjust the assessment systems (intercalibration approaches) 	<ul style="list-style-type: none"> – Increased effort to disseminate the need for intercalibration – Clearer guidelines on robustness/uncertainty of metrics to be included in intercalibration
Combination of assessment results ('one-out all-out principle')	<ul style="list-style-type: none"> – Reduced type II errors (water body is falsely classified as good or high), in line with the precautionary principle – Sufficient protection of most sensitive BQE for different pressures 	<ul style="list-style-type: none"> – Increased type I error (water body is falsely classified as moderate or worse), risk of applying measures where they are not really needed 		<ul style="list-style-type: none"> – Estimate the degree of type I and type II errors for each assessment system – Improve metrics and monitoring programmes to minimise variability. – Skip metrics and BQEs with too high variability – Consider other combination rules in future amendments of the WFD
Assessment of Heavily Modified Water Bodies (HMWB)	<ul style="list-style-type: none"> – Application of appropriate quality targets which can be achieved following restoration – Two well-suited approaches for assessing HMWB available (CIS approach and Prague approach) 	<ul style="list-style-type: none"> – HMWBs have not been regarded in many assessment systems – No agreement yet on which approach should be primarily used 		<ul style="list-style-type: none"> – Assessment of HMWB should be based on the same metrics as for natural water bodies

Source: (Hering et al, 2010)

Monitoring systems				
Monitoring data	<ul style="list-style-type: none"> - Huge amounts of data on aquatic communities is being collected (useful for many purposes) - Sampling and assessment systems are standardised within countries and sometimes between countries - Following intercalibration ecological status classes are comparable between member states 	<ul style="list-style-type: none"> - Comparability of original data between countries is limited due to different sampling methods, taxonomic resolution and density of sampling sites - Original data are not centrally stored - Monitoring focused on biological structure, not on function or ecosystem services 	<ul style="list-style-type: none"> - Establishment of a Europe-wide central monitoring network composed of selected surveillance monitoring sites (e.g. linked to EEA EIONET or WISE) 	<ul style="list-style-type: none"> - Links of national databases to central systems such as WISE to increase accessibility of data
Surveillance monitoring and operational monitoring	<ul style="list-style-type: none"> - Surveillance monitoring and operational monitoring are being used effectively to fulfil WFD purposes - Programmes for long-term monitoring (surveillance monitoring) and for planning restoration (operational monitoring) are available in most countries 	<ul style="list-style-type: none"> - Very few surveillance monitoring sites in many member states, which limits European State-of-Environment overviews, as well as the detection of emerging stressors and long-term trends - No Europe-wide data base on surveillance monitoring 		<ul style="list-style-type: none"> - Establishment of a Europe-wide central monitoring network composed of selected surveillance monitoring sites (e.g. linked to EEA EIONET or WISE)
Monitoring requirements of WFD and other European legislation	WFD filled important gaps in surface water monitoring and management	<ul style="list-style-type: none"> - Definitions of objectives and requirements of WFD and other directives are not always consistent - Potential synergies of monitoring systems resulting from different directives not fully exploited 	<ul style="list-style-type: none"> - Guidance on Eutrophication (2009) recommending how to read across different directives and conventions recently published presenting a harmonisation of the different objectives 	<ul style="list-style-type: none"> - Clear geographical definition where the WFD ends and where the MSFD starts - Exploring and using synergies of monitoring for different directives for other pressures than eutrophication
River basin management plans (RBMPs)				
Bridging ecology and management in RBMPs	<ul style="list-style-type: none"> - Management decisions are based on ecological effects of stressors on structure rather than on the stressor itself - Plans are drafted for entire catchments, irrespective of administrative borders 	<ul style="list-style-type: none"> - Deriving management decisions from ecological data are difficult in case of complex multi-stressor situations - Results of ecological assessment were often not available in time for the first version of RBMPs - How stressors and biological structure affect ecosystem services is not well understood - Some metrics are not related to specific pressures (general degradation metrics) and are difficult to apply to plan restoration measures 		<ul style="list-style-type: none"> - Make dose-response relationships between stressors and the biotic response available well before the design of the second cycle of river basin management plans (concerning the effects of degradation and of restoration) - Consider further development of functional indicators that reflect ecosystem services - Develop political instruments that will guarantee enforcement of RBMPs
'Good status' as general quality target	- Generally applicable target for all 'natural water bodies' in all member states	<ul style="list-style-type: none"> - High status sites may play a key role for maintaining aquatic biodiversity 	<ul style="list-style-type: none"> - WFD prohibits the deterioration of ecological status, including the degradation of high status sites to good status sites - Judging restoration success through operational monitoring 	<ul style="list-style-type: none"> - Establishing a network of 'high status sites' as key areas for protecting aquatic biodiversity, and to ensure ecosystem services for all types of water bodies
Ecological status response to restoration	- Stimulated synthesis of experiences on biotic responses to traditional restoration measures (oligotrophication, pollution control)	<ul style="list-style-type: none"> - Response of biota to restoration measures in complex multi-stressor situations poorly predictable - Lack of data and experience on spatial and temporal scales required for restoration 		<ul style="list-style-type: none"> - Dedicated monitoring of a subset of restoration sites with a higher spatial and temporal resolution both before and after restoration measures are implemented - Long-term monitoring of restoration measures to analyse spatial and temporal requirements of ecosystems to recover
Ecological and political timescales	<ul style="list-style-type: none"> - Clear goal to reach good ecological status for all water bodies by 2015 (extension to 2027 possible) - RBMPs are developed accordingly 	<ul style="list-style-type: none"> - Implementation and success of restoration measures requires long time periods - Insufficient knowledge on how fast biota will respond to restoration - Long time needed to implement measures that require land use change - Time lags due to internal nutrient loading and low re-colonisation potential expected 	<ul style="list-style-type: none"> - Consider direction towards goals when assessing restoration success, not simply whether target is attained or not 	<ul style="list-style-type: none"> - Disseminate results and expectations concerning the time spans required for recovery to avoid frustration of water managers - Prioritisation of measures concerning the recolonisation potential
Emerging stressors	<ul style="list-style-type: none"> - WFD principle of bioassessment (comparing observed and expected community) reflects potentially the impact of all stressors 	<ul style="list-style-type: none"> - Assessment metrics often focussed on 'traditional stressors' (organic pollution, eutrophication) - No metrics for the effects of emerging stressors (climate change, siltation, alien species) included 	<ul style="list-style-type: none"> - Research examining impacts of climate change on reference conditions - WFD-CIS Guidance on how to handle climate change and alien species are drafted and will soon become available 	<ul style="list-style-type: none"> - Exploring response trajectories and resilience of metrics - Keeping assessment systems flexible and adding metrics specific for emerging stressors (such as temperature preferences for climate change effects)

Source: (Hering et al, 2010)

The establishment of harmonised monitoring programmes remains a challenge nonetheless. The design of monitoring programmes reported to the European Commission is extremely variable in terms of monitoring station density, sampling frequency, sampling methods and taxonomic resolution. As a result the comparability of original data between Member States is limited. As such these differences do not constitute a problem for Member States, as these differences will not hinder them in taking adequate regional restoration measures. However, it will put limits to Europe-wide comparisons as these will be done on the coarsest resolution. Therefore, the potential to use the large amounts of biological information on the status of European surface waters, that are now being collected in the context of WFD monitoring, to contribute to other objectives than those of the WFD, is limited. Those alternative objectives might be among others: monitoring the effects of emerging stressors; improving our knowledge of species distributions and species invasions; and Habitats Directive/Natura 2000 species inventories and biodiversity records. However, the EEA EIONET or WISE stations may provide a Europe-wide central monitoring network composed of selected WFD surveillance monitoring stations of the Member States. see also table above) (Hering et al, 2010).

Despite huge efforts in developing new assessment methods, no generally applicable European method resulted. The methods that have been developed differ among Member States, differ among biological quality elements and differ among water categories and types. However, it should be noted that ecological assessment methods and data have improved overall and that the variety of assessment methods across Europe reflects the diversity of water body types and pressures (Hering et al, 2010).

In its 2009 annual report on the application of EU law the European Commission expressed its concern about the absence of exhaustive national methods for assessing the ecological status of surface water bodies. It stated that this may affect the correct implementation of the WFD (EC, 2009).

7.2.6 Present and finalise draft River Basin Management Plans (RBMPs)

Member States were required to publish RBMPs by 22 December 2009 and to report these plans to the Commission by 22 March 2010. At the beginning of April 2011, the state of play was as follows: 20 Member States and Norway had adopted their RBMPs, but for Cyprus, Denmark and Slovenia, although consultations had been finalised, the plans were still awaiting adoption. However, in four Member States (Belgium, Greece, Portugal and Spain) the consultations were still ongoing or had not even started (See figure below.)

In 2010 infringement cases were open against 12 Member States for having failed to submit their RBMPs on time. Some cases could be closed quickly, for 10 other cases reasoned opinions (second warning letters) were sent: Belgium, Cyprus, Denmark, Greece, Malta, Slovenia, Spain, Romania, Poland and Portugal.

The Commission decided in April 2011 to refer four Member States to the ECJ (Belgium, Denmark, Greece and Portugal). In Belgium, the Brussels-Capital Region and Walloon Region only started public consultations in 2011 and expect to publish their plans in 2011 and 2012, respectively. Denmark aims to publish its plans in September 2011, following the end of

public consultations in April 2011. Greece has not yet started public consultations and will only publish its plans by March 2012. Portugal is expected to start public consultations in 2011 but it is not yet clear when the plans might be adopted (EC Press Release).

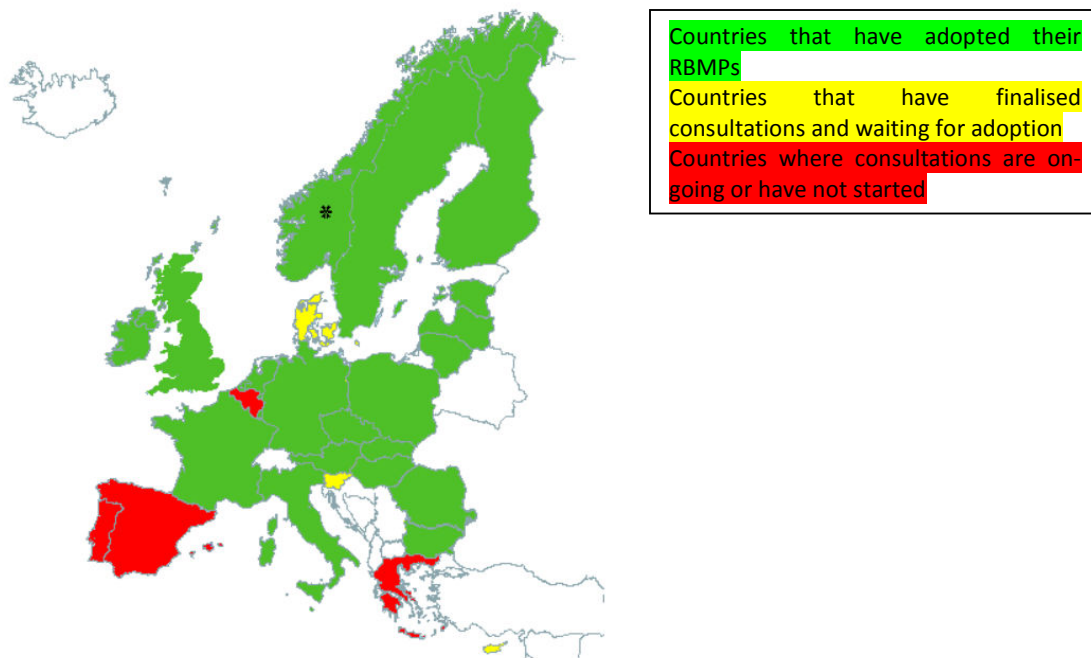
Next to these national RBMPs, several international RBMPs have been published by international river basin districts. These plans relate to the Danube, Rhine, Elbe, Ems, Meuse, Scheldt and Odra.

An assessment of the first round of submitted RBMPs is currently ongoing, making statements on the degree of factual norm compliance difficult. A study that assessed the draft RBMPs that were available by autumn 2009 in terms of the foreseen action on agriculture and water links found that the quality of information contained in many of the draft RBMPs was rather poor. Importantly links to spatial planning were underdeveloped and foreseen action on economic incentives difficult to assess (Dworak et al 2010). This has also been a key conclusion of an assessment commissioned by the European Environment Bureau that analysed how nutrient emissions were planned to be tackled in available draft RBMPs in selected RBDs (EEB 2010).

Ecological assessment and RBMPs

The WFD aims to base water management decisions on ecological assessment. However, links between the ecological status of water bodies and the restoration measures taken are obscure in many RBMPs. This is due to the delayed development of the assessment systems and the establishment of monitoring programmes. In particular the effort required for developing assessment methods was flagrantly underestimated. As a result assessment methods were often not available when RBMPs had to be drawn up in 2008-2009. Furthermore, there has been no central guidance available on how to transfer the results of ecological assessment into water management decisions such as the drafting of the RBMPs and the Programs of Measures (Hering et al, 2010).

Figure 20: Adoption of RBMPs by EU and EEA countries



Source: http://ec.europa.eu/environment/water/participation/map_mc/map.htm

Shortcomings in linking results from ecological assessments to political action, hence the drafting of RBMPs, have received major criticism from environmental NGO's which concluded on a basis of an evaluation of draft RBMPs concerning nutrients pollution strategies that no real ambition to go beyond the status quo and reform existing policies was visible. Moreover, it was criticised that discussion around indicator design and monitoring were drowning in complexity and hampered by a lack of will, instead of relying on well-established and robust parameters of pollution control (EEB 2010).

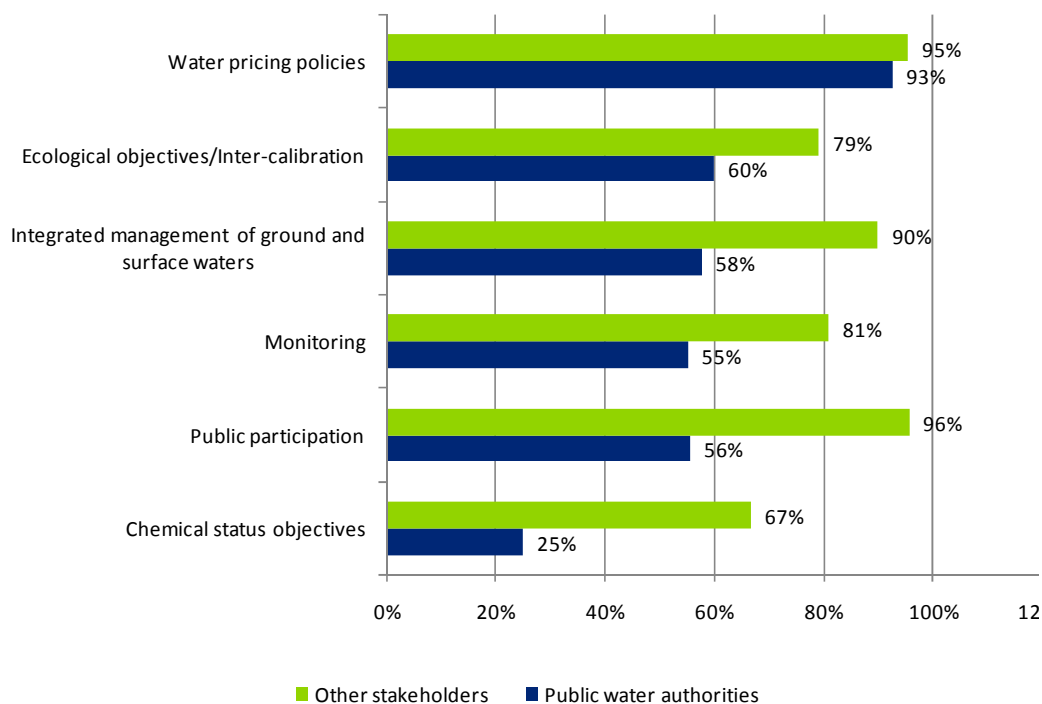
7.2.7 Assessing the overall effectiveness of implementation of the WFD

The WFD leaves much room for discretion that the Member States adopt different approaches concerning the implementation of fundamental parts of the Directive. There are significant differences between Member States regarding their ambitions and the legal meaning they give to the obligations following from the Water Framework Directive. Approaches differ for instance in relation to the designation of water bodies, the setting of environmental objectives, the use of exemptions, internal and external integration (Keessen et al, 2010).

Stakeholders' opinion on whether there are substantial divergences between Member States in defining and implementing the key concepts of the EU Water Policy

The figure below shows that the most remarkable divergence between Member States is to be found in the definition and implementation of pricing policies. Public Water Authorities consulted are almost equally divided as concerning the other statements while the vast majority of other stakeholders consulted indicated that there are, in their opinion, substantial divergences across Member States.

Figure 21: stakeholders' opinion on the consistency of the definition and implementation of the key concepts of the EU Water Policy across Member States



When it comes to the divergence across Member States in defining and implementing the key concepts of the EU Water policy, it was indicated that divergences might be justified by the need to tailor to the national/regional situation. As reported by stakeholders, while there is a need to agree on common objectives and measurement instruments, there is a need for flexibility and adaptability at national, regional and local level.

From the literature it can be concluded that the use of exemptions is widespread. The available exemptions are the extension of the deadlines from 2015 up to 2027, achieving less stringent environmental objectives and a temporary deterioration or deterioration caused by new developments. The most frequently used exemptions are the extension of deadlines and the use of less stringent objectives (EEB, 2010; IEEP, 2011; Keessen et al, 2010).

As to the extension of the deadlines, the literature indicates that in general the biggest efforts are kept for the last management cycle 2021-2027. Some countries are very straightforward setting immediately the deadline for achieving good status at 2027. And for some Member States who put forward 2015 as the deadline for achieving good status, it can already be foreseen that good status will not be achieved in all waters or in all respects and as a result exemptions will be invoked (EEB, 2010; Keessen et al, 2010).

Table 14: Number of surface water bodies for which extension of deadline beyond 2015 is needed in river basins in the Netherlands

River Basin	Total number of surface water bodies	Number of surface water bodies with deadline extension	Percentage of bodies with deadline extension (%)
Eems	22	18	82
Maas (Meuse)	155	137	88
Rijn (Rhine)	491	422	86
Schelde (Scheldt)	56	48	86
Total	724	625	86

Source: (Projectteam stroomgebiedbeheerplannen, 2009)

The use of exemptions are in particular foreseen in relation to ecologically desirable changes in hydromorphology as these changes require lots of time, money and the voluntary cooperation of farmers. It is for instance relatively difficult for authorities to acquire land adjacent to the water bodies to create buffer strips. Expropriation could be used, but authorities consider this in general as harmful for the good relations with the agricultural sector. Many authorities therefore opt to change river banks in specific areas within the river basin first and to postpone restoration measures for other water bodies up until the second or third planning period (Keessen et al, 2010).

In a 2010 snapshot assessment EEB concluded that many delays in ending eutrophication were inadequate: five of the six river basin districts and regions, which provided information to the researchers, aimed at restoring less than one third of the surface water which suffers from excessive nutrients by 2015; the rest is to be restored some 10 years later (EEB, 2010).

The designation of water bodies does not occur on the basis of the same criteria. Denmark for instance looks at the best status that a water body can achieve, whereas the Netherlands look at the initial status irrespective of the status that a water body can achieve. Also differences exist in how member States qualify good status obligations and environmental objectives. Some qualify the obligations concerning the achievement of good status as obligations of best efforts and the environmental objectives as target values, whereas most qualify them as obligations of results and intervention values. Without having

checked all RBMPs, it seems that most Member States are making use of exemptions in their RBMPs, in particular the exemption to postpone the achievement of good status. However, some Member States such as the Netherlands and the UK are more straightforward than others in the use of this exemption.

From a study of a selection of draft RBMPs, it appears that the no deterioration principle is implemented in many different ways across (sub) river basins. These differences relate among others to the time from which deterioration is measured, whether deterioration may occur within a status class or between status classes and whether compensation for deterioration with improvements elsewhere in the (sub) river basin is possible (Keessen et al, 2010).

It is a key purpose of the WFD to account for differences in physical circumstances and water challenges across European river basins through providing flexibility in responding to EU Member States. However, diverging interpretation and operationalisation environmental objectives and approaches concerning the implementation of the WFD may hamper the implementation process in later phases, in particular when EU Member States sharing an international river basin disagree on crucial points (Keessen et al, 2010). Also an EBB study argued that there were 'serious doubts over the effectiveness of the WFD implementation to change specific and well known unsustainable water management practices' (EEB, 2010).

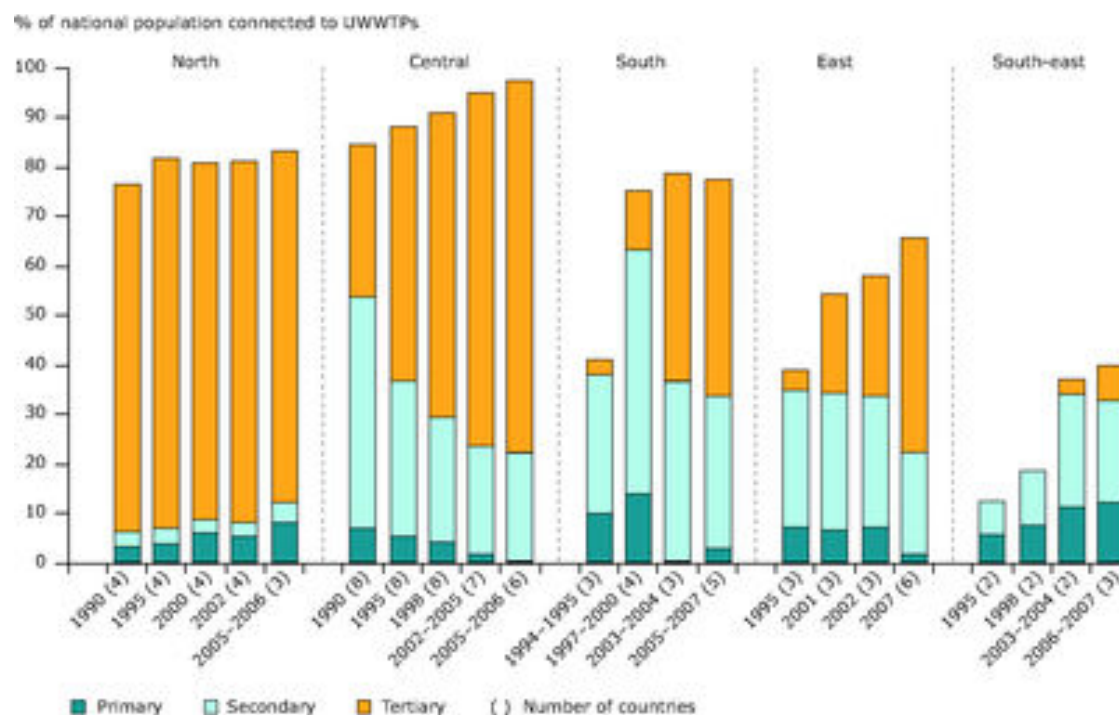
7.3 Urban waste water treatment Directive

7.3.1 *General achievements*

According to the European Environment Agency (EEA), wastewater treatment all over Europe has improved during the last 15-20 years. The percentage of the population connected to wastewater treatment in Southern, South-Eastern and Eastern Europe has increased during the last ten years (see figure below), but is still relatively low compared to central and Northern Europe. Populations of Western Europe demonstrate a connectivity of over 90 per cent, Northern and Southern Europe 80 per cent, Eastern Europe 50 per cent and South-Eastern Europe only 35 per cent. The majority of populations residing in Northern countries, and over half in Western Europe are connected to waste water treatment plants that utilize tertiary treatment. This is compared with 20 per cent in Southern and Eastern regions and less than 5 per cent in the South East (Romania, Bulgaria and Turkey). Furthermore, only around 50 per cent of wastewater in southern European countries, 25 per cent in Eastern Europe and 20 per cent in South East Europe, receive secondary treatment (EEA, 2010a; IEEP, 2011).

In the EU-15, i.e. those Member States that joined the EU in the period before 2004-2007, the implementation of the Urban Waste Water Treatment Directive (hereafter: UWWT Directive) presents a mixed picture. On the one hand, key infrastructure is in place in several Member States and significant investments have been made elsewhere. As a result water quality has improved in the EU-15 (EC, 2009a).

Figure 22: Changes in wastewater treatment in regions of Europe between 1990 and 2007



Source: EEA

On the other hand, in the EU-15, there are still a number of agglomerations which lack complete waste water collecting systems and treatment facilities. According to the 2009 Commission implementation report, these agglomerations were to be found among others in Belgium, France, Italy, Greece and Spain. (EC, 2009a; EC, 2009b) (see section below on infringements). In its 2008 annual report on the application of EU law, the Commission stated that around 25 per cent of the 8,000 larger cities and settlements, that were subject to 1998 and 2000 collection and treatment deadlines, were suffering from significant infrastructure deficits (CEC, 2008). However, considerable progress has been made in recent years, with the exception of Italy. Belgium and France are nearing compliance. Spain and Greece are making progress too.

As for the EU-12 Member States, the implementation of the Directive is subject to transition periods in relation to the building of the necessary waste water infrastructure. These transition periods are recorded in the respective Accession Treaties, which amend the relevant EU legislation. The Directive presents major challenges to these countries. These relate both to the establishment (or improvement) of waste water collection systems and to the development of the necessary levels of treatment to comply with the Directive. The majority of the population of the new Member States live in catchments that are considered to be sensitive areas. This means that the minimum level of treatment required includes nutrient removal. The implementation is furthermore characterised by the fact that the EU has made financial support available (EC, 2009a).

The Commission published its fifth UWWT Directive implementation report in August 2009 (CEC, 2009b). Only 18 of the 27 Member States provided a complete dataset by the 30 November 2008 cut-off date: Austria, Belgium, Germany, Denmark, Finland, France,

Luxembourg, Netherlands, Portugal and Sweden from EU-15 and Cyprus, Estonia, Hungary, Lithuania, Latvia, Romania, Slovenia and Slovakia from EU-12.

For the 18 Member States that submitted reports, the following conclusions were noted:

- Collecting systems were in place for 93 per cent of the total pollution load. Secondary treatment was in place for 87 per cent of the load. More stringent treatment was in place for 72 per cent of the load. The secondary and more stringent treatment which was in place reached the required reduction levels for only approximately 90 per cent of the load.
- 297 big cities (i.e. agglomerations with more than 150,000 p.e.) were reported with a total generated load of 130 million p.e. More than 98 per cent of this load was collected. 90 per cent of the pollution load received secondary treatment or more, but at least 8 per cent received less than secondary treatment (10 million p.e.).
- 10 big cities (5.2 million p.e.) did not have secondary treatment at all.
- Overall, 99 per cent of the load subject to compliance was collected, 86 per cent received secondary treatment and 85 per cent received more stringent treatment.
- 86 per cent of the total generated load produced in big cities (111,9 mil.p.e.) is discharged in sensitive areas out of which 76 per cent of the total generated load receives more stringent (tertiary) treatment. Remaining load of 14 per cent (17,4 mil p.e.) produced in big cities/big dischargers is discharged in 'normal' or 'less sensitive' areas.
- In normal and less sensitive areas 38 per cent (6,6 mil p.e.) of the generated big city load receives secondary treatment, and 46 per cent (7,98 mil. p.e.) receives more stringent tertiary treatment, at a standard, therefore, higher than that required by the Directive.⁶¹

7.3.2 *Infringements*

Infringements - ECJ judgements

Since the entry into force of the Directive, there have been a considerable number of ECJ judgements against the EU15. Member States have been condemned for all kinds of failures as made clear in the following paragraphs. For each type of the most important failures, we list several ECJ judgements. Please note that some ECJ cases touch upon several types of failure at the same time and might therefore be mentioned more than once.

First of all, several Member States have been condemned by the ECJ for failure to adequately transpose the Directive into national law. In 1996 for instance Greece (C-161/95), Germany (C-297/95) and Italy (C-302/95) were condemned by the ECJ for this reason. In 2004 there was a judgement against Belgium (C-27/03).

Second, several Member States have been condemned for failure to ensure that all agglomerations are provided with collecting systems for urban waste water, at the latest by

⁶¹ Please note these figures only relate to those Member States that had submitted full reports to the Commission on time. Figures for all 27 Member States would have given a less positive picture.

31 December 2000 for those with a p.e. of more than 15,000, and at the latest by 31 December 2005 for those with a p.e. of between 2,000 and 15,000 and in the case of urban waste water discharging into sensitive areas, at the latest by 31 December 1998 for agglomerations of more than 10,000 p.e (Article 3). The countries concerned are: Belgium in 2003 (C-27/03), Greece in 2007 (C-440/06) and 2004 (C-119/02), Portugal in 2009 (C-530/07) and Spain in April 2011 (C-343/10).

Third, several Member States have been condemned for failure to determine sensitive areas on the basis of criteria set out in Annex II of the Directive: Spain in 2003 (C-419/01), France in 2004 (C-280/02) and the UK in 2009 (C-390/07).

Several Member States have been condemned for failure to meeting one or more of the deadlines in relation to ensuring that urban waste water entering collecting systems shall before discharge be subject to secondary treatment or an equivalent treatment: 31 December 2000 as for agglomerations of more than 15,000 p.e.; 31 December 2005 as for agglomerations of 10,000-15,000 p.e.; and 31 December 2005 as for agglomerations of 2,000-10,000 p.e. Following Member States were condemned: Belgium in 2003 (C-27/03), the UK in 2007 (C-405/05), Greece in 2007 (C-440/06), Ireland in 2008 (C-316/06), Portugal in 2009 (C-530/07) and Spain in April 2011 (C-343/10).

Member States have also been condemned for failure to provide for tertiary treatment (i.e. more stringent treatment than secondary treatment) for discharges to sensitive areas from agglomerations with a population equivalent (p.e.) greater than 10,000 p.e. by 31 December 2008 (**Article 5**). Among others following countries were condemned: Belgium in 2000 in relation to the Brussels Region (C-236/99), Italy in 2002 (C396/00) and 2006 (C-293/05), Spain in 2005 (C-416/02) and 2007 (C-219/05), Greece in 2004 (C-119/02) and France in 2004 (C-280/02).

Cases pending before the European Court of Justice

Despite major progress made by the EU15, some are still facing some implementation problems in relation to a number of agglomerations – a relatively limited number of agglomerations given that there are more than 23,000 agglomerations across the EU. This is among others shown by the fact there are still some cases pending before the ECJ. Italy, for instance, has been referred to the ECJ in December 2010 (C-565/10) for failure to provide a number of agglomerations with urban waste water collecting systems and to provide for secondary or an equivalent treatment of urban waste water. Also the UK was referred to the ECJ (in June 2010) for failure to provide adequate collecting systems and treatment facilities in some agglomerations (C-301/10). In June 2010 Belgium was referred to the ECJ for non-compliance with an ECJ judgment from 2004 (C-27-03), and more in particular for not collecting and/or treating in a satisfactory manner part or all of the urban waste water from a number of agglomerations despite having undertaken major efforts. (EC press release IP/10/835, 24/06/2010). Portugal has been taken to the ECJ in May 2010 for several infringements (C-220/10), among other for failure to apply correctly the criteria of the Directive when designating areas as sensitive or less sensitive and for failure to provide adequate collecting systems for urban waste water and adequate treatment. Also Ireland was taken to the ECJ in March 2009, among others for failure to fully and correctly identify

sensitive areas, for failure to demarcate sensitive areas sufficiently precise and for failure to provide tertiary treatment.

Other open infringement cases

Next to the cases pending before the ECJ, there are several open infringement cases which have not (yet) been referred to the ECJ. We mention here a few. For instance an infringement case has been opened against Belgium for its failure to provide adequate systems for collecting and treating waste water from small agglomerations (p.e. between 2,000 and 10,000). Also action was taken against Finland and Sweden for its failure to put in place the required infrastructure for collecting and treating waste water in areas with a population of between 2,000 and 15,000 inhabitants and in agglomerations of over 10,000 inhabitants which discharge into areas that are designated as sensitive. In relation to providing for tertiary treatment for discharges to sensitive areas from agglomerations with more than 10,000 p.e., action was also taken by the Commission against Greece and Luxembourg. As regards Greece action was taken for failure to comply with the ECJ judgement in case C-119/02; action against Luxembourg concerned failure to comply with a 2006 ECJ judgement in case C-452/05.

Conclusion

From the previous paragraphs on infringements it can be concluded that implementation of the Directive has been a major challenge for the EU15 Member States. As a result, the Commission has opened many infringements cases and the European Court of Justice has issued a considerable number of judgements against Member States, including failures to determine sensitive areas, treatment of discharges in these areas, failure to provide secondary or equivalent treatments as well as tertiary treatments or collecting systems for urban waste water. As many of these infringement cases have been closed in the end, it can be concluded that considerable progress has been made by the EU15 to fill remaining gaps in infrastructure in recent years.

7.4 Nitrates Directive (NiD)

7.4.1 General achievements

Implementation of Directive 91/676/EEC has been a major challenge for the Member States, resulting in lots of infringement action by the Commission and a considerable number of ECJ judgements throughout the years.

In 2002 the Commission pointedly concluded in an implementation report (COM(2002)407) that although the Directive was ten years old, many Member States had only begun to take it seriously in the previous two years.

The latest implementation report from the Commission (COM(2010)47 and SEC(2010)118), published on 9 February 2010 and covering the EU27 and the period 2004-2007, states that the contribution of nitrogen from agriculture to surface waters decreased in many Member

States, but it was still responsible for over 50 per cent of the total nitrogen discharge to surface waters. 15 per cent of EU27 monitoring stations had average nitrate concentrations above 50 mg nitrate per litre, 6 per cent had between 40 and 50 mg nitrate per litre and 13 per cent 25-40 mg nitrate per litre. Approximately 66 per cent of the groundwater stations had a concentration below 25 mg nitrate per litre. Regions with high concentrations (above 40 mg per litre) were parts of Estonia, South-East Netherlands, Belgium-Flanders, centre of England, several parts of France, Northern Italy, North-East of Spain, South-East Slovakia, Southern Romania, Malta and Cyprus. Also many stations along the Mediterranean coast had relatively high values (EC, 2010b; EC, 2010c).

Compared to the previous report for the EU15 many stations showed stable concentrations, but 34 per cent showed an upward trend. Member States used different criteria to assess the trophic status of fresh surface waters, thus comparisons were difficult to make. In 40 per cent of the reported stations the surface water was defined as oligotrophic or ultra-oligotrophic, while in 33 per cent the water was defined as eutrophic or hypertrophic. Malta and Hungary had the highest proportion of hypertrophic waters and Bulgaria and Latvia the highest proportion of oligotrophic waters. Of the EU27 area, 39.6 per cent had been designated as a vulnerable zone. Portugal, Belgium and Italy increased their vulnerable zone area during 2004-2007 and Spain during 2008-2009. All Member States had established one or more action programmes. Most covered the required measures; however, the Commission considered that some needed further reinforcement in order sufficiently to protect water quality against nitrogen pollution, such as provisions on storage provisions, balanced fertilisation and establishment of periods during which fertilisation is banned. Also, although the storage capacity for manure increased, insufficient storage capacity for manure was among the most cited difficulties which Member States encountered during the implementation of action programmes. The majority of farmers subjected to control showed a high compliance with the measures of the action programmes, although poor record keeping and low awareness were cited as factors contributing to compliance problems (EC, 2010b; EC, 2010c).

The EEA assessment on nutrients in freshwater⁶² published in December 2010 shows that average nitrate concentrations in European ground waters increased from 1992 to 1998, and have remained relatively constant since then (EEA, 2010b). The assessment also shows that the average nitrate concentration in European rivers decreased by approximately 9 per cent between 1992 and 2008 (from 2.4 to 2.2 mg/l N), reflecting the effect of measures to reduce agricultural inputs of nitrate. Therefore it concludes that due to the Nitrates Directive and national measures the nitrogen pollution from agriculture has been reduced in some regions during the last 10-15 years. However the following deserves attention. Whereas a significant decrease in river nitrate concentrations was observed at 29 per cent of the stations, there has been a significant increase at 16% of the stations (an additional 5% marginally significant). The Member States with the highest proportions of river stations with significant decreasing trends are Denmark, the Netherlands, Czech Republic and Germany. Across Europe as a whole, the rate of improvement is still slow (EEA, 2010b).

⁶² Please note that the EEA assessment uses other data than the Commission implementation reports. Whereas the EEA data are representative for the water quality of the whole territory of a country, the Commission data only relate to the water quality in agricultural land.

Another EEA assessment published in May 2010 concluded that in countries that reported data, 85 per cent of stations reported no changes in oxidised nitrogen levels in transitional, coastal and marine waters in the period 1985-2005 (EEA, 2010c). Some 12 per cent of measuring stations reported a decreasing trend in oxidised nitrogen concentrations in 2005, whereas increasing trends were reported by 3 per cent of stations.

ECJ judgements

The ECJ has condemned several Member States throughout the years for failure to identify waters actually or potentially affected by pollution from nitrates (in accordance with Annex I of the Directive) and/or to designate areas of land which drain into waters identified in accordance with Annex I as 'vulnerable zones'.

The ECJ has judged against several Member States for failure to identify waters actually or potentially affected by pollution from nitrates: the UK in 2000 (C-69/99), France in 2002 (C-258/00), Ireland in 2004 (C-396/01) and Belgium (Flemish and Walloon Regions) in 2005 (C-221/03). The UK in particular was condemned because it had only identified such waters that were used as drinking water sources. The ECJ stated that this was a too narrow interpretation of the Directive.

Among others Spain in 1998 (C-195/97) and 2005 (C-416/02), France in 2002 (C-258/00), the UK in 2000 (C-69/99) and Ireland in 2004 (C-396/01) were condemned by the ECJ because of failure to designate vulnerable zones.

Several Member States have been condemned for failure to establish codes of good agricultural practice: Spain in 1998 (C-195/97) and Luxembourg in 2010 (C-526/08).

The ECJ has also judged against some Member States for failure to establish action programmes to control nitrates: Spain in 2000 (C-274/98) and Ireland in 2004 (C-396/01). Other countries such as the Netherlands (C-322/00) and Luxembourg (C-526/08) were condemned for having non-compliant nitrate action programmes.

The Netherlands was condemned by the ECJ in 2003 because it failed to ensure that the action programmes include measures which Member States have prescribed in the code(s) of good agricultural practice, next to the measures in Annex III and because it failed to take, in the framework of the action programmes, such additional measures or reinforced actions as they consider necessary if, at the outset or in the light of experience gained in implementing the action programmes, it becomes apparent that the measures in Annex III and those prescribed in the code(s) of good agricultural practice will not be sufficient for achieving the objectives of the Directive. The Netherlands was in particular condemned for failure to include in its action programme any binding rules requiring that, on each farm or livestock unit, the capacity of storage vessels for livestock manure must exceed the capacity required for storage throughout the longest period during which land application in the Netherlands is prohibited (C-322/00). Also Luxembourg was condemned in 2010 for failure to ensure that action programmes included certain rules and/or measures (C-526/08).

Some Member States have been condemned for failure to carry out sufficient monitoring of nitrate concentrations in surface waters and ground waters (for the purpose of designating and revising the designation of vulnerable zones): Italy in 2001 (C-127/99), Luxembourg in 2001 (C-266/00) and Ireland in 2004 (C-396/01). As for the Italian case the ECJ concluded that in at least five regions monitoring was not carried out in accordance with Article 6, that in five other regions and in the two autonomous provinces the way in which the monitoring was carried out was not entirely satisfactory and that in three other regions the complete lack of information indicated that monitoring obligations were not complied with. As for the other case Luxembourg was condemned because of its failure to designate an adequate monitoring authority.

Some Member States have been condemned for failure to provide sufficient reporting information to the Commission. This requirement is closely related to the monitoring requirement, as the reports which the Member States are due to submit to the Commission every four years cover among others: a map showing waters actually or potentially affected by nitrate pollution, and the location of designated vulnerable zones; and a summary of the monitoring results. In this respect the ECJ judged among others against Luxembourg in 2001 (C-266/00) and against Belgium in 2005 (C-221/03).

In 2002 Germany was condemned by the ECJ in relation to its interpretation of point 2 of Annex III to the Directive 'amount of livestock manure applied to the land' (C-161/00). German national legislation allowed for loss of nitrogen to the atmosphere to be taken into account, so that the amount of nitrogen applied to land was not the total amount of nitrogen in manure, but that amount minus what was lost to the atmosphere. Although the ECJ concluded that the wording in the Directive was 'not without ambiguity', it concluded that the German legislation did not comply with the obligations of the Directive.

Luxembourg was also condemned in 2001 because its national law only regulated organic fertilizers, whereas the Directive also regulates chemical fertilizers and because it had only imposed restrictions on the application of nitrogen on grounds which were water saturated, flooded, snow covered for more than 24 hours or frozen, which was judged to be too limited (C-266/00).

Other open infringement cases

In October 2010 Spain received a reasoned opinion (second warning) for its non-compliant designation of vulnerable zones.

Luxembourg has been sent a first warning in November 2010 for its failure to comply with an earlier ECJ judgement in case C-526/08 (failure to establish codes of good agricultural practice).

Spain has received a reasoned opinion in November 2010 for its non-compliant nitrate action programmes, whereas Greece and Poland received first warnings for the same reason in March 2010 and September 2010 respectively.

Poland received a first warning because of its failure to sufficiently designate vulnerable zones and to adopt adequate nitrate action programmes.

In 2010 an infringement case was still open against France for having adopted non-compliant action programmes.

7.5 The Groundwater, Environmental Quality Standards (EQS) and Floods Directives

Overall, it is too early to assess the effectiveness of the (new) Groundwater Directive (2006/118/EC), the Environmental Quality Standards Directive (2008/105/EC) as well as the Floods Directive (2007/60/EC), as these are relatively new Directives. Furthermore, as the first two Directives are subordinate Directives to the WFD, their effectiveness will have to be assessed together with the WFD's effectiveness.

It is in particular too early to examine levels of practical implementation or application as the major deadlines for practical implementation lie in the future. For the Floods Directive for instance those deadlines are as follows: a preliminary assessment of each river basin district's flood risk to be carried out by 20 December 2011; the development of flood hazard maps (showing the likelihood and flow of the potential flooding) and flood risk maps (showing the impact) by 20 December 2013; the production of flood risk management plans (showing measures to decrease the likelihood or impact of flooding) by 22 December 2015; and updates every 6 years thereafter that take into account the impact of climate change.

In order to examine the level of practical implementation of the Groundwater and the EQS Directives, the contents of the RBMPs adopted by the Member States will need to be analysed. In this respect it should be noted that the Commission will investigate these plans in 2011 and will publish the results of this assessment in spring 2012 as part of its 'Blueprint'.

Nevertheless, infringement cases opened by the European Commission so far might already give an indication, though very preliminary, of the potential effectiveness of these Directives. These infringements are obviously right now only related to non-communication or late communication (as opposed to incorrect or incomplete transposition and incorrect application). Member States had until July 2010 to transpose the EQS Directive into national legislation, until 26 November 2009 to transpose the Floods Directive and until 16 January 2009 to transpose the new Groundwater Directive.

In relation to the (new) Groundwater Directive, the Commission sent first warnings on non-communication to 20 Member States in April 2009 (EC, 2010b). By the end of 2010 all Member States, except Germany and the Czech Republic, had communicated their transposing acts. Reasoned opinions were sent to both countries. Germany subsequently communicated its transposing legislation and the case was closed. The Czech Republic, however, was referred to the ECJ and was subsequently condemned on 22 December 2010 (C-276/10). The Commission is currently carrying out conformity-checks of the national transposing measures.

In relation to the Floods Directive, the Commission opened several infringement cases for non-communication of transposing acts. By November 2010, there was only one case of full non-transposition and some cases of partial transposition. The Commission has subsequently sent reasoned opinions to Finland, France, Poland, Czech Republic, Austria and Luxembourg. In the meantime Poland and France have been referred to the ECJ. By the time of publication of this report, all Member States had, however, notified complete transposition. The Commission is currently carrying out conformity-checks of the national transposing measures.

In relation to the EQS Directive, the Commission opened in autumn 2010 infringement cases for non-communication against 22 Member States. The Commission expected to close most of these cases in the first trimester of 2011.

7.6 Water scarcity and droughts and climate change adaptation

7.6.1 *Water scarcity and droughts*

The Commission published on 21 March 2011 its third follow-up report (COM(2011)133) on its 2007 Communication on water scarcity and droughts. It found that water scarcity was experienced by various Member States and was not limited to the Mediterranean region. Mitigation actions and restrictions of uses had been implemented in various Member States; France restricted general water use, while Romania, Sweden and Cyprus restricted irrigation uses. It was reported that authorisation procedures for water abstraction are widespread in the EU and that some Member States such as Ireland and Malta were improving their existing procedures in order to comply with the Water Framework Directive (EC, 2011b).

According to Commission 3rd implementation report, several Member States integrate water scarcity and drought issues into RBMPs (such as Belgium, Spain, Italy, the Netherlands, Hungary and Romania). Another study found that processes for developing and reviewing drought plans had not been really established in the framework of developing RBMPs and that linkages between water management and rural development programmes are not effectively linked in practice. Aspects of droughts are often weakly considered in existing, supply-oriented water planning practice in many countries that fail to cope with the adverse impacts of droughts (Xerochore, 2010). As previously indicated in this report, few Member States have implemented water efficiency standards in buildings. Some had integrated it within the River Basin Management Plans (RBMP), but only in a minority of cases. Water efficiency had also been addressed through reduction of leakages in distribution systems and agricultural uses. Studies suggested that as much as 50 per cent of the water abstracted was lost in distribution in certain parts of the EU. Thirteen of the twenty one countries which responded to the Commission reported the implementation of measures to reduce leakage – this included regular maintenance works and the integration of measures to restore water networks in RBMPs (EC, 2011b).

Eight Member States had introduced water-tariffs and five more were currently developing tariffs. An assessment had been launched by the Commission on water pricing policies for the agricultural sector. The Commission reported on a lack of comparable quality data

across the EU. However, coordination of activities among EU Member States is in place and active. Indicators were being developed under the Common Implementation Strategy for the period 2010-2012 and a set of vulnerability indicators were also being developed to analyse the water related impacts, both with a strong emphasis on water scarcity and droughts, for example (EC, 2011b).

As the need to fully implement the Water Framework Directive, especially the provisions on water tariffs and compulsory metering, RBMPs and drought management plans, is one of the seven key challenges identified by the 2007 Communication to move towards a water-efficient and water-saving economy, it is relevant to note that several of the Member States where water scarcity and/or drought is expected to be most severe had not published their RBMPs in December 2010.

7.6.2 *Climate change adaptation*

The Commission Staff Working Document on 'Climate Change and Water, Coasts and Marine Issues' recalled that a number of existing EU policies such as the Water Framework Directive and the Floods Directive contribute to adaptation efforts.

It outlined six actions, four of which addressed water issues. Firstly, a set of guidelines and tools (guidance and exchange of best practice) should be developed by the end of 2009 to ensure that the RBMPs required under the Water Framework Directive are climate proofed. Secondly, Member States must take climate change into account in the implementation of the Floods Directive. Thirdly, the Commission will assess the need for further measures to enhance water efficiency in agriculture, households and buildings. Fourth, the potential for policies and measures to boost ecosystem capacity for water storage should be explored, in particular in the context of the upcoming reviews of the Water Framework Directive and the Water Scarcity and Droughts strategy.

For most of these measures it is still too early to assess achievements and shortcomings in their implementation, except for the first measure. Water Directors of EU Member States indeed issued a guidance document on adaptation to climate change in water management on 30 November 2009 (EC, 2009c). The document covers following themes: how to handle available scientific knowledge and uncertainties about climate change; how to develop strategies that build adaptive capacity for managing climate risks; how to integrate adaptive management within key steps of producing RBMP; how to address the specific challenges of managing future flood risk; and how to address the specific challenges of managing future water scarcity. It is now up to the Member States to ensure that the second-generation RBMPs which are due by the end of 2015 are climate-proof. It is however too early and beyond the scope of this study to assess the extent to which the measures in the first RBMPs are climate-proof and to what extent measures relevant for climate adaptation will actually be implemented. Moreover, many interviewees pointed out that, in the absence of a) clear EU guidelines for assessing risks related to climate change, b) examples of cause-effect best practices that can ensure adaptation to climate change and c) key performance indicators for these practices, it is very unlikely that Member States will invest significant resources in this policy area.

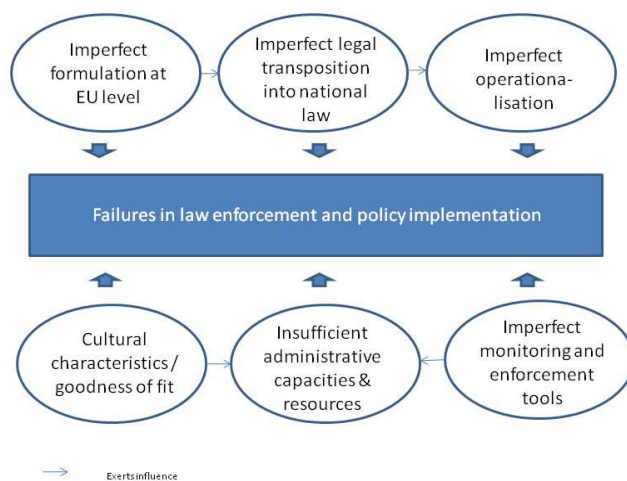
7.7 Factors that influence achievements and shortcomings

As discussed in section 7.1., conditions of “goodness of fit” in terms of “good spatial fit” and “good institutional interplay” are important factors for explaining the record of achievements under European water policy (see figure below). Whether or not the policy framework put in place is sufficient to help safeguard European freshwaters (in terms of the relevance and coherence of EU water policy and in terms of complementary or contradictory of other EU policies) is also strongly determined by political and administrative capacities and practice on a national and local level. Hence a discussion that solely focuses on needed changes in EU legislation has its shortcomings. Implementation conditions and problems of policy integration and coordination at a national level need to be taken into account as well.

It is also important to note that implementation failures cannot always be related to the authorities in charge of implementing a given policy framework. Importantly, private actors as the final target group of the regulation can decide to defy the regulation and public authorities might not have the means to chase them up in a proper way. This highlights the fact that practical deviations from implementation requirements do not always reflect intentional behaviour by public authorities. It is often unintentional in the way that public authorities can have limited means to respond to cheating behaviour of their target groups (Richardson 2001).

Failures in policy implementation and enforcement are informed by a wider range of interconnected drivers that span the European and the domestic level (see figure below).

Figure 23: causes for failures in implementation and enforcement



Source: developed on the basis of information in Richardson, 2001

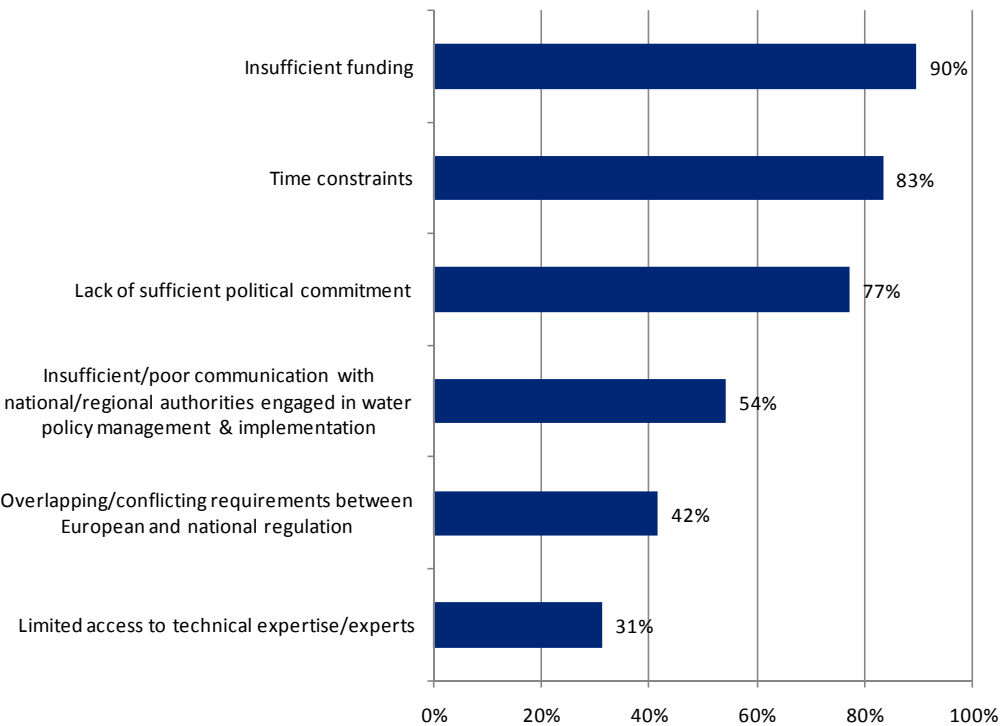
The previous analysis in this report has provided substantial information on factors of imperfect formulation at a EU level, imperfect legal transposition into national law and imperfect operationalisation. It has, however, not noted yet to which extent these are

perceived to cause problems of implementation. Before this discussion can be concluded it is important to briefly reflect on the other factors of the explanatory framework.

Stakeholders’ views on the main difficulties encountered when implementing national policy based on water directives

The figure below shows that insufficient funding (90%) and time constraints (83%) represent the most often cited difficulties when implementing national policy based on water directives. Such difficulties are closely followed by the lack of sufficient political commitment (77%). Respondents indicated that in some case they are missing political commitment and support due mainly to the national priorities in terms of policies.

Figure 24: stakeholders’ views on the main difficulties encountered when implementing national policy based on water directives



It has been reported, for instance, that these difficulties might stem from insufficient capacity in water management authorities; low absorption capacity for EU funds; insufficient experience in interdisciplinary work; reluctance among Ministries to cooperate; insufficient appropriation of value of ecosystem services versus economic gains from unsustainable infrastructure projects; insufficient funds for data collection/monitoring.

Political-cultural characteristics and “goodness of fit”

Börzel et al (2007) have found that politically powerful Member States are most likely to violate European law, when it is not congruent with their domestic policy interests and/or costly to implement, hence underpinning the relevance of “good institutional interplay”. The best compliers are often rather small EU Member States with highly efficient bureaucracies. Political power and political will are thus important explanatory variables. However, countries with similar political power like the UK, Germany, Spain or France show different implementation records when it comes to European environmental policy.. It is therefore important to take note of the relevant role of administrative capacities (particularly organisational effectiveness and efficiency) as well.

Implementation problems can also be linked to differing attitudes regarding compliance with EU norms, which is linked to the respective political culture in a given EU Member States. Some Member States are characterised to have a developed ‘culture of norm compliance’, whereas others are found to have a laxer attitude regarding compliance with EU norms. The political culture is then often characterised by “*clientelism*” and patronage. The more an EU policy challenges or contradicts the corresponding policy at the national level, the higher the need for a Member State to adapt its legal and administrative structures in the implementation process. Legal and administrative changes involve high costs, both material and political, which public authorities are little inclined to bear. A policy misfit is therefore closely related and intertwined with a misfit at the level of political and administrative culture (Börzel et al, 2007).⁶³

Insufficient administrative capacities and resources

Different factors mediate outcomes such as the number of actors involved and the overall capacities of those actors in charge of implementing EU water policy and those in charge of administering key water uses, such as in agriculture. Capacity of institutions includes individual competencies of staff (knowledge and skills of individuals), organisational capacities (planning and decision-making procedures, resources, organisational culture), enabling environment (legal and policy frameworks) and partnerships and networks (describing the quality of interaction and cooperation between relevant public and private actors). Factors such as an inadequate number of personal, inadequate training and expertise, inadequate equipment or gaps in communication and networking are oftentimes observed to hamper the effectiveness of implementation activities (ten Brink and Farmer, 2005).

Demands for increased enforcement and implementation capacities come at a time when many EU member countries are having problems to maintain their public expenditures for the environment, or are actively downsizing them. This process started well before the economic crisis in 2007 and budgets have come under greater pressure since then. As no EU Member State has a particularly high share of public spending for the environment in per

⁶³However, the question of norm compliance might be of less relevance in a situation, where a framework Directive allows for much room and flexibility in implementation behaviour at the domestic level.

cent of GDP, cuts already apply on a rather low general level of spending. In the current economic crisis many governmental bodies in the Member States are under significant budget constraints and, therefore, it may be expected that ensuring sufficient budgets to deliver effective supervision and enforcement activity may be problematic. This is of particular concern to an ambitious and capacity-intensive implementation process such as the implementation process of the WFD, which requires not only the development and operationalisation of new monitoring programmes, but also the design of new institutional arrangements and the introduction of new policy instruments, particularly in view of the strengthening of economic instruments.⁶⁴

In addition, the degree to which responsibilities are organised and shared both vertically and horizontally is of major relevance to the implementation of environmental policy. For example, unclear responsibilities and cumbersome coordination processes between different authorities involved in the implementation process are often found to be major obstacles to an effective implementation. The more authorities are involved, the greater the potential for diverging opinions and interests. Hence it can become much more difficult to find a compromise if the legislative piece under consideration is politically contested, particularly if there are different political majorities at different levels of governance. The WFD foresees a significant change in the way freshwater protection is organised which affects multiple sectoral stakeholder interests, particularly when addressing issues of water demand and allocation of water resources.

Even if legal and technical expertise is available to a sufficient degree, the implementation process might be severely hampered by unclear coordination mechanisms. The European Commission has noted several times that assignment of monitoring and implementation responsibility, national databases on transposed Directives and close cooperation between those government officials responsible for negotiating Directives and those government officials responsible for implementing Directives are key elements of good practice. Often, however, different authorities with competing interests intervene in the process of implementation, leading to a weakening of implementation efforts up to the possibility of 'symbolic implementation'. It is too early to concretely assess the WFD implementation process from this perspective. This will require a full account of all RBMPS and their PoMs.

Imperfect monitoring and enforcement tools

A major barrier towards a more effective enforcement of EU environmental law at national level relates to the lack of political priority given to environmental inspections in some Member States and as a result the limited resources available for inspecting authorities to develop a fully effective system of environmental inspections.

Also at EU level barriers to an effective enforcement of EU environmental law remain. One of these barriers are the limited resources and powers of the European Commission, which does not have the resources and powers to carry out systematic and comprehensive checks

⁶⁴ It is, however, also important to note that sources of funding for such activities are not always dependent on government budgets. A survey of some Member State's enforcement bodies (ten Brink and Farmer, 2005) found that these could be divided into three groups according to their funding sources, and that fees do play a major role in some EU Member States.

on the application and enforcement of EU law (Allio & Fandel, 2006). Although Member States are required to provide full information about the formal transposition of Directives into national or regional law, there is limited information about the organizational stage of implementation (in which the legal and administrative framework for the proper application and enforcement of the transposing laws is set up) and even less about the operational stage of implementation, i.e. compliance in practice (Wennerås, 2007).

Unlike other policy areas of European law, such as competition, veterinary, customs, regional and fisheries policy, the Commission does not have investigative/inspection powers or staff empowered with the prerogative to control the effective application 'on the ground' of EU environmental law. The Commission may ask the Member State to allow for inspections, but this lies completely within the discretion of the Member State and such requests are not likely to be honoured in cases where infringements may be discovered (Wennerås, 2007). Moreover, European water policy explicitly is designed as a procedural policy in terms of implementing the WFD. It is in the responsibility of EU Member States to ensure that measures are taken in line with the intended objectives of the Directive.

7.8 Conclusions

The evaluation question we have raised on the effectiveness of the water policy is:

Are the preliminary achievements in line with the stated objectives?

As to the **WFD (and its daughter Directives)**, we mainly looked into the extent to which output objectives have been achieved, as it too early to assess effectiveness in terms of achievement of environmental objectives (or outcomes). As to the transposition of the WFD in national legislation, it can be concluded that the process has been cumbersome with a high number of infringement procedures in relation to non-communication and incorrect and incomplete transposition. First, the transposition deadline (December 2003) was poorly met by the EU15. The new Member States though had progressed well by the date of their accession in 2004. Second, conformity-checks of national transposing legislation revealed widespread shortcomings. Therefore the European Commission has been pursuing many cases of non-conformity. In 2010 it was still dealing with cases against 19 Member States.

Member States managed to identify river basin districts and designate competent authorities by 2004, except for one country. Most Member States reported on time (i.e. by December 2003); for nine Member States infringement procedures were launched, all of which were resolved by 2004, except for one.

The characterisation of river basins (including analysis of pressures, impacts and economic analysis) proved to be a challenge for many Member States, though most Member States submitted reports on time and put lots of efforts and time into it. The quality of the reports and the level of detail varied considerably, though all Member State reports had data gaps. Therefore all Member States were required to fill in those data gaps with a view to provide a solid basis for the 2009 RBMPs. The analyses were mostly based on existing data and did not include future policy developments and economic trend developments. The economic

analysis reports in particular appeared to be incomplete and relatively weak for most Member States.

Most Member States managed to establish monitoring networks for both surface and ground water by 2006, though there were still gaps at that time in some river basin districts or for some water categories. The establishment and implementation of the monitoring programmes is generally considered a great achievement in overall terms, among others because for the first time comparable pan-European data sets to assess the ecological status of surface waters are being gathered as a basis for restoring aquatic ecosystems.

Member States were required to publish RBMPs by 22 December 2009 and to report these plans to the Commission by 22 March 2010. However, as of 14 October 2010, only 17 Member States (and Norway) had adopted their RBMPs. At that time Poland, Slovenia and Romania had finalised consultations, but their plans were still awaiting adoption. In eight Member States (Belgium, Cyprus, Denmark, Greece, Lithuania, Portugal and Spain) the consultations at that time were on-going or had not even started. In 2010 the Commission opened infringements cases against 12 Member States. In April 2011 it decided to refer four Member States to the European Court of Justice.

An assessment of the first round of submitted RBMPs is currently on-going, making statements on the degree of factual norm compliance difficult. A study that assessed the draft RBMPs that were available by autumn 2009 in terms of the foreseen action on agriculture and water links found that the quality of information contained in many of the draft RBMPs was rather poor. Importantly, links to spatial planning were underdeveloped, and foreseen action on economic incentives difficult to assess.

In relation to water pricing, it can be concluded that full cost recovery has not yet been achieved in many Member States and that progress is slow.

As to the **UWWTD**, it can be concluded that wastewater treatment all over Europe has improved during the last 20 years. However, the percentage of the population connected to wastewater treatment in Southern, South-eastern and Eastern Europe is still relatively low compared to other parts of Europe. In the EU-15, the implementation of the Directive presents a mixed picture. On the one hand, key infrastructure is in place in EU Member States and significant investments have been made. As a result water quality has improved in the EU-15. On the other hand, there were still a number agglomerations in the EU-15, among others in Belgium, France, Greece, Italy and Spain, which lack complete waste water collecting systems and treatment facilities, at least according to figures available in 2009 implementation reports. It should however be noted that in recent years in most of these countries considerable progress has been made in this respect. As for the EU-12, implementation of the Directive is subject to transition periods up to 2018. The Directive presents major challenges to these countries. These relate both to the establishment (or improvement) of waste water collection systems and to the development of the necessary levels of treatment to comply with the Directive.

Implementation of the Directive has been and still is a major challenge for many Member States. As a result, the Commission has opened many infringements cases and the European

Court of Justice has issued a considerable number of judgements against Member States, including failures to determine sensitive areas, treatment of discharges in these areas, failure to provide secondary or equivalent treatments as well as tertiary treatments or collecting systems for urban waste water.

Implementation of the **Nitrates Directive** has been a major challenge for the EU Member States, resulting in a number of infringement actions by the Commission and a considerable number of ECJ judgements over the years. Nevertheless, progress has been made in reducing water pollution caused/induced by nitrates from agricultural sources. During the last decade, the extent of designation of sensitive areas and the quality of action programmes has improved in several Member States. Additionally, very significant reductions in chemical N and P inputs have taken place across the EU15 since the introduction of the Directive (though 34% of EU15 monitoring stations showed an upward trend in nitrate concentrations in the period 2004-2007). Furthermore, significant investments in manure storage and management have taken place. The Commission report on implementation indicates the stabilisation and gradual improvement of water quality while noting the time lag necessary between the adoption of better practices and improvements in water quality. Further improvements in water quality can now be anticipated and further reinforcement of action programmes is on-going.

Among the respondents to the survey, 44% state that the Directive contributes fully (12%) or to a large extent (32%) to the achievement of the objective to reduce water pollution caused/induced by nitrates from agricultural sources. 47% of the respondents state that the Directive only contributed to some extent to this objective. And 10% considers that it does not contribute at all to this objective (see figure 8).

8 ASSESSING EFFICIENCY: ACHIEVEMENTS AND SHORTCOMINGS IN TRANSPOSITION AND IMPLEMENTATION

8.1 Framing the analysis of the efficiency

Efficiency relates inputs (monetary and non-monetary resources) to the production of an output, making the input-output ratio the most common measure of efficiency. Effectiveness again relates input and output to the final objectives to be achieved (Mandl et al. 2008). Assessing the efficiency of a policy often boils down to the question how cost-effective the choice of measures has been and whether targets could have been achieved at lower costs. The assessment of costs can differ with regard to the perspective taken, i.e. whether the focus is on costs to the end-user, government or the wider society, for example. Cost-efficiency then refers to the ratio between additional costs raised and net impact of the policy or single policy measure (Joosen, Harmelink 2005).

In case of the WFD implementation process, the assessment of the efficiency of measures chosen is not possible at the current stage, as the PoMs under the RBMPs will become operational only by 2012. Hence, we will focus in the remainder of this article on the question, how EU Member States are responding to the cooperation requirements of the WFD process, with focus on both cooperation in international river basin districts and within EU Member States. The efficiency of the integrated approach to river basin management is largely dependent on good cooperation between relevant authorities and different users, particularly in the case of trans-boundary river basin management. Low levels of cooperation can lead to situations of high inefficiency in choosing problem responses, increasing administrative costs and adding little added-value to the overall problem-solution. Given the fact that the requirements of the WFD process can imply far-reaching changes to existing policy and administrative settings, it is relevant to avoid any unnecessary burden and ensure that the chosen approach to implementation delivers outputs efficiently.

However, a single benchmark for efficiency in implementing the WFD and related legislation is not possible, as the administrative practice in EU Member States differs too largely. We will thus refer to very broad criteria only, i.e. the extent to which EU Member States set-up interactive processes of collaboration and coordination with regard to establishing RBMPs, both in a domestic and trans-boundary perspective. Funding is another item that cuts across the effectiveness and efficiency distinction. A key question here is how efficient EU Member States are using funds available to the implementation of different directives under question, mainly funding available from EU Cohesion Policy funds. This analysis will refer to the implementation of the UWWTD as an illustrative example rather than to the implementation of the WFD. It will also concentrate on delivering a snapshot picture based on different evaluation reports rather than going into detail of evaluating different programmes or measures.

Administrative burden and compliance costs were a key feature in the interviews and web-based survey conducted for this study. According to the European Commission, administrative burden refers to those costs that can be specifically linked to information that businesses would not collect and provide in the absence of a legal obligation, i.e.

administrative activities enterprises only undertake because they are required to do so by regulation (DG ENTR 2011). This account does not qualify a statement on the overall sustainability or benefits of such practice. Rather than aiming at a formal assessment of administrative burden and compliance costs in EU-27 we will present in the remainder of this chapter some of the key information and perspectives from stakeholders on administrative burden and compliance costs and point to recurring topics and insights.

8.2 Cooperation

8.2.1 *International cooperation in international river basin districts*

WFD requirements

Art 3(4) WFD:

*‘Member States shall ensure that the **requirements** of this Directive for the achievement of the environmental objectives established under Article 4, and in particular all **programmes of measures** are **coordinated** for the whole of the river basin district. For international river basin districts the Member States concerned shall together ensure this coordination and may, for this purpose, use existing structures stemming from international agreements.’*

Art 4(4) WFD:

*Where a river basin district extends beyond the territory of the Community, the Member State or Member States concerned shall **endeavour** to **establish appropriate coordination** with the relevant non-Member States, with the aim of achieving the objectives of this Directive throughout the river basin district. Member States shall ensure the application of the rules of this Directive within their territory.*

In short, the WFD requires Member States in an international river basin district to coordinate the adoption of measures taken in the national part of the river basin. As far as third countries or non-Member States are concerned, Member States only have to endeavour to establish the appropriate coordination (Keessen et al, 2008)

Implementation

The aspect where the most serious shortcomings have been identified is in relation to international coordination.

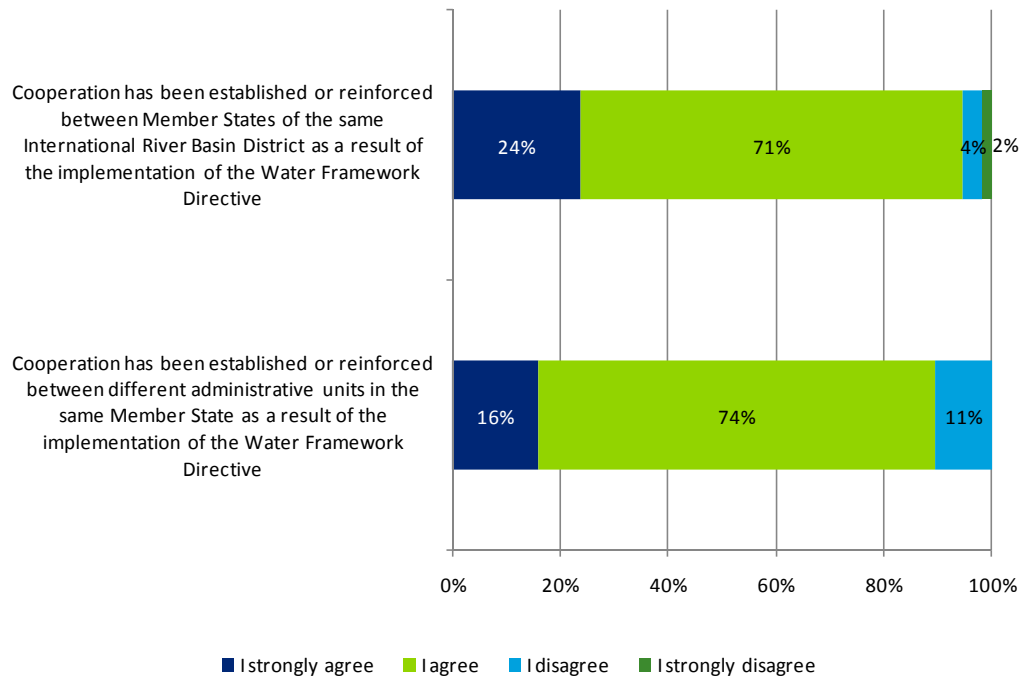
Stakeholders’ views on the cooperation concept brought by the implementation of EU Water Policy

One of the important aspect of the study looked at is the establishment of coordinated measures at River Basin District level as required by the WFD.

The figure below illustrates stakeholders’ opinion on whether the implementation of the WFD established or reinforced the cooperation aspect. It can be seen that the vast majority

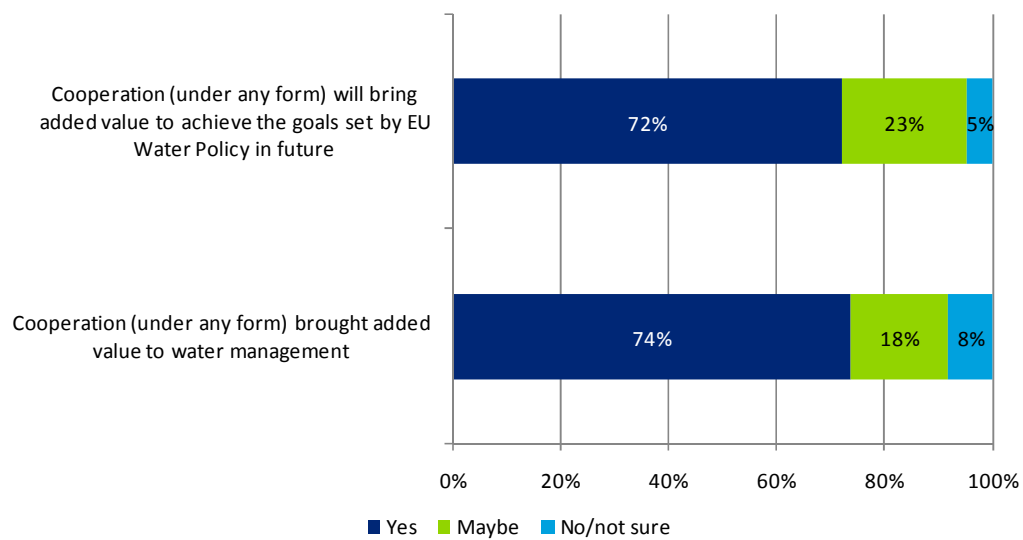
of stakeholders consulted indicated that the cooperation both between different administrative units in the same Member States and among Member States of the same International River Basin District has been established or fostered as a result of the implementation of WFD.

Figure 25: stakeholders' opinion on the extent to which the implementation of the WFD established or reinforced the cooperation between administrative units of the same Member State and across Member States



In addition to this views, a good share of stakeholders consulted also highlighted that the cooperation established or reinforced thanks to the implementation brought added value to water management and will bring in the future added-value to achieve the goals set by the EU Water Policy (respectively 74% and 72% of stakeholders consulted), as illustrated in the figure below.

Figure 26: stakeholders' perception of the added-value of the cooperation

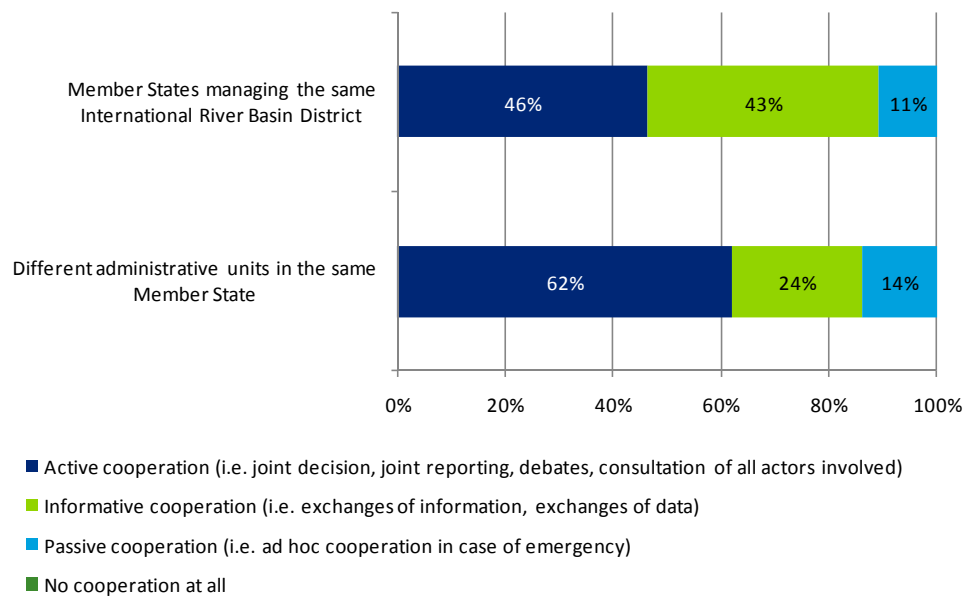


The added-value resides mainly in the exchange of information, good practices and experience which will lead to common definitions and goals and to a successful implementation of the EU Water Policy. However, it was mentioned that structures to support and facilitate cooperation should be made available such as EU guidance documents, management tools and incentives to carry out common projects in order to further enable trans-boundary cooperation.

Going further into details, Public Water Authorities were asked to define the nature of the cooperation and to identify potential barriers to successfully cooperate.

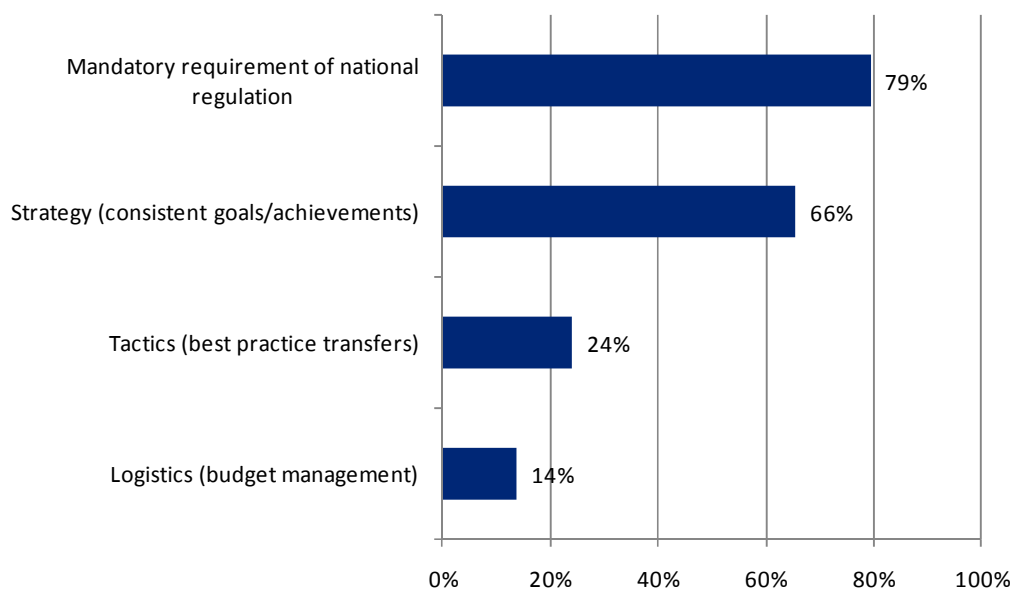
The figures below show that the cooperation is mainly active (61%) within different administrative units in the same Member State and (44%) between Member States managing the same International River Basin District, followed by informative cooperation (25% and 44% respectively).

Figure 27: Public Water Authorities' definition of the nature of the cooperation



Besides the mandatory requirement of national regulation, stakeholders (66%) also indicated that the cooperation (in any form) bears strategic reasons as it allows to pursue consistent goals and achievements. A smaller share of stakeholders (24%) indicated that they would use cooperation to transfer of best practices.

Figure 28: Public Water Authorities' perception of the main reasons behind enhanced cooperation



When it comes to transfer of best practices and knowledge sharing, 57% of the Public Water Authorities consulted reported that policy practice that has been developed in their realm

of responsibility might be considered as good practice worth sharing with other Member States while 63% indicated that they actually transferred or intend to transfer best practices from other administrative units in their country and/or other Member States.

Figure 29: Public Water Authorities' identification of best practices considered as good practice worth sharing with other Member States

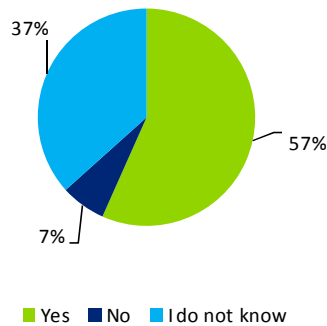
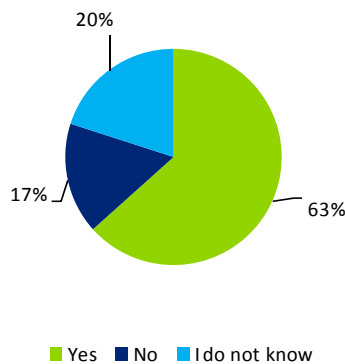
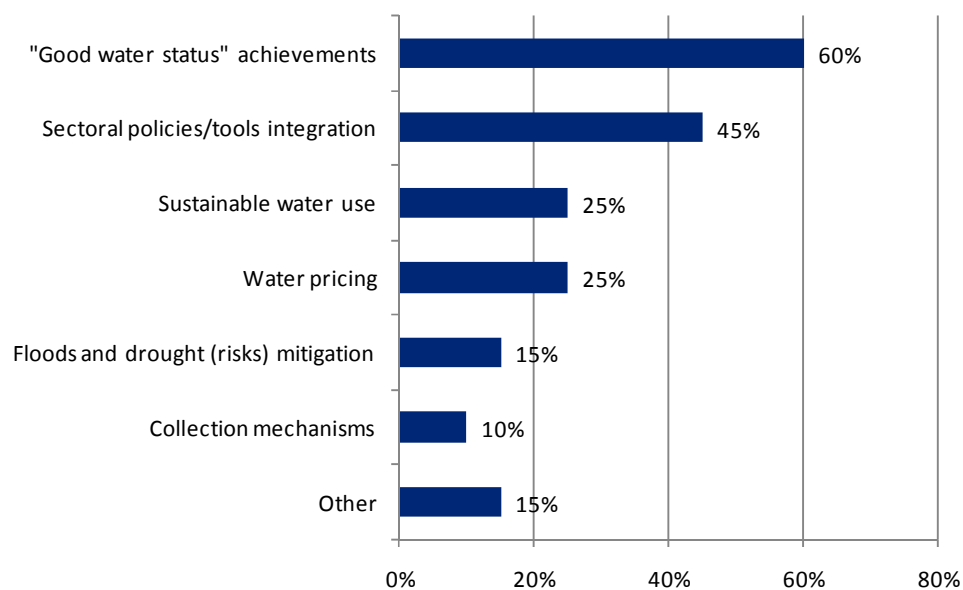


Figure 30: Public Water Authorities' identification of best practices transferred or intended to transfer from other administrative units/Member States



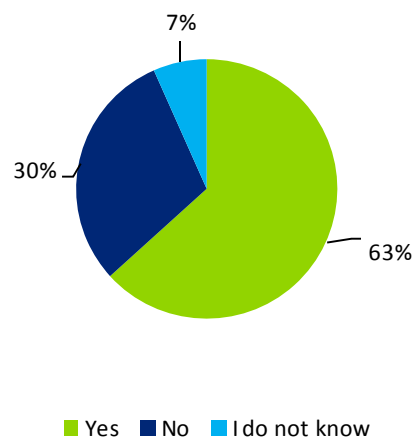
For this latter statement, best practices were mainly related to “good water status” achievements and sectoral policies/tools integration.

Figure 31: best practices transfer area



Despite the positive feedback on cooperation, 63% of Public Water Authorities consulted still highlighted that there remains barriers to cooperation. Amongst others, governance arrangements (different administrative structures and political processes), language difficulties, lack of human and financial resources and cultural differences were mentioned.

Figure 32: Public Water Authorities' opinion on barriers to cooperation



The Commission identified in its 2007 implementation report international coordination as one of the implementation issues suffering from the most serious shortcomings. The most advanced arrangements for international river basins exist for the Danube (see box below), the Elbe, the Meuse, the Odra, the Rhine and the Scheldt (see box). For these trans-boundary rivers, multilateral agreements are in place and international commissions are

coordinating the national efforts in the WFD implementation for the entire basin. The most advanced international river basins have developed and adopted joint RBMPs (so-called roof reports or A-reports), joint Article 5 reports and joint monitoring reports and have coordinated issues such as the designation of water bodies as heavily modified or artificial and the use of exemptions. Some river basins have also defined a river basin specific list of hazardous substances, an innovation introduced by the Rhine RBD and taken over by some other international river basin districts. Obviously, there are differences in the approach, ambitions and mechanisms among these six river basin commissions, bearing in mind that some of them have to balance priorities coming from EU Member States as well as third countries (for which certain requirements may not even be on the agenda, let alone being binding). However, there is an information exchange mechanism in place among the different international river commissions which results in sharing good approaches and learning from each other (CEC, 2007a; CEC, 2007b), and, overall, interviewees mentioned that the WFD tremendously facilitated dialogue and cooperation among EU and non-EU countries, and in certain instances also had spill over effects in other policy areas

Examples of advanced trans-boundary cooperation

The case of the Danube River Basin District

The International Commission for the Protection of the Danube River (ICPDR), founded in 1998, is responsible for the implementation of the WFD in the Danube river basin. The Danube River Protection Convention (DRPC) forms the political framework that underpins the international cooperation within the ICPDR. Fourteen out of 19 Danube river basin countries are contracting parties and legal members of the ICPDR. Furthermore, the European Community is a contracting party. Italy, Switzerland, Poland, Albania, and FYROM, which have only minor shares in the Danube river basin, cooperate with the ICPDR. Contracting parties that are non-EU Member States and for which the WFD requirements are not binding, have made a voluntary commitment to implement the WFD under the DRPC.

The ICPDR stimulates management-oriented research and coordinates the various activities of the contracting parties and observers, including those of many NGOs and other stakeholders. The development of the first Danube RBMP in 2009 constituted a milestone of cooperation among scientific, political, and public organisations. Key stressors and pressures have been identified, a new basin-wide monitoring network has been established, and numerous conservation and restoration sites have been designated. A major challenge in the management of the Danube river basin will be to establish synergies among the competing interests of navigation, hydropower production, flood protection and nature conservation (Sommerwerk et al, 2010).

The case of the Scheldt River Basin District

Within the International Scheldt Commission, intense cooperation has been established between the Parties' experts. This resulted in the development and approval at the end of 2004 of the roof part, i.e. the transnational part, of the analysis of the international Scheldt river basin district, as end deliverable of the multilateral alignment of the analyses carried out as required by Article 5 WFD. In 2005 a list of major water management issues at the level of the international district was published. From 2005 to 2009 exchange of information took place concerning procedures applied during consultations of the public and about their results. In 2006 coordinated implementation of status and trend monitoring networks of ground and surface waters took place, which was followed by a coordinated evaluation of the water bodies' status and of the good status objectives. In December 2009 the management plan's roof report was approved by the plenary of the International Scheldt Commission, after consultation of the public by the six competent authorities (France, Flemish Region, Walloon Region, Brussels Capital Region, Federal State of Belgium and the Netherlands) (CIE, 2009; ISC, 2009).

The Commission is working and supporting (also financially) these international efforts, in particular in the context of the International Commission for the Protection of the Danube River since it promotes application of the WFD in the new Member States and non-EU Member States sharing the Danube catchment.

For other trans-boundary river basins between Member States, there are often bilateral agreements in place which work to a larger or lesser extent and which only partially are now re-directed towards the WFD implementation. The information provided by some Member States is not always conclusive, in particular in the case of bilateral cooperation between Bulgaria and Greece, Italy and Slovenia, Portugal and Spain (see box) and Finland and Sweden.

Example of transboundary cooperation between Spain and Portugal in the Guadiana river basin

Cooperation between Spain and Portugal in relation to the implementation of the WFD in the Guadiana River Basin District takes place under the umbrella of the *Convenio de Albufeira*, an international agreement signed between the two countries in order to boost cooperation and sustainable water use in relation to their shared water bodies. The agreement, which entered into force in January 2000, deals with the protection of surface and ground water bodies, aquatic and terrestrial ecosystems and sustainable water use in the river basins shared by both countries (Miño, Limia, Duero, Tajo and Guadiana river).⁶⁵

According to interviewees, some cooperation between Spanish and Portuguese authorities indeed exists, but is often considered as insufficient. The coordination of the drafting of the Guadiana RBMPs between Spain and Portugal mainly took place at the operational level, i.e. within the management bodies of the *Convenio de Albufeira* (i.e. within the WFD working group and a specific coordination group for the Guadiana). So far six joint meetings have taken place to coordinate the technical aspects of the RBMP. Two other meetings are planned in the near future.

For river basins that Member States share with non-EU Member States, there are some significant open issues to resolve. The most positive example is the International Commission for the Protection of the Danube River (ICPDR) in which all non-EU Member States are politically committed to implement the WFD in the Danube within the timelines foreseen in the WFD. More difficult is the cooperation between the Baltic EU Member States (Estonia, Latvia, Lithuania and Poland) and Russia, Belarus and Ukraine on one hand and the cooperation between Bulgaria, Greece and Turkey on the other. The Commission requested and received a mandate from the Council to open negotiations for these trans-boundary waters in order to have a more solid basis for cooperation (CEC, 2007a; CEC, 2007b).

⁶⁵ Convenio de Albufeira: <http://www.cadc-albufeira.org/>

8.2.2 *Cooperation between authorities within Member States*

There are many differences between Member States with respect to the number and diversity of authorities involved in water management. As a result the set up of competent authorities (CAs) is also very diverse across the Member States. Some Member States have one competent authority for one river basin district, whereas others have several competent authorities for one river basin district. And some have even one competent authority for several river basin districts. These diverging approaches result from differences in the national legal and institutional framework on water management, in using existing administrative structures and in the distribution of competences of water management within governments.

In relation to the institutional framework some Member States, in particular countries with a federal structure, water management falls at least partially under the competence of sub-national or regional authorities. This is among others the case in Belgium, Spain and Italy (see case studies). In relation to the distribution of water-related competences: some Member States share these competences across several ministries, whereas in other Member States these competences fall (mostly) under one ministry.

Whether or not one or many authorities have been designated as ‘competent authorities’, in many Member States water-related competences are distributed over a high number of authorities and administrations at different government levels. The case studies show that some Member States managed to set up good cooperation processes for the drafting of the RBMPs and PoMs despite the fragmentation of responsibilities and competences in the water policy field, whereas other Member States had many difficulties in setting up timely and effective cooperation processes (see box and case studies in annex for some examples).

Examples of cooperation within Member States

Cooperation within the Netherlands

As the Dutch ministry responsible for the implementation of the WFD did not have sufficient expertise and competences to implement the WFD and was therefore dependent from other public authorities such as the provinces, waterschappen and the municipalities, it was obliged to consult with these and other authorities and stakeholders to create support and coordinate policies. In order to develop and adopt the RBMPs, multiple platforms for coordination and dialogue have been established in the Netherlands both at the national and regional level. This institutional set-up, the so-called ‘*dubbele kolommenstructuur*’, is composed of a national pillar and a regional pillar for each of the seven sub river basins in the Netherlands. Both pillars are further divided into political deliberation bodies, administrative deliberation bodies and technical working groups or product teams.

An important feature of the cooperation process, was the existence of several coordinating deliberation forums in order to coordinate the activities of the national and regional pillars. The most important deliberation forum was the deliberation among the RAO chairs in which also the ‘Dutch river basins coordination office’ participated, a small organisation built up around the person of the river basin coordinator for the Netherlands (*stroomgebiedcoördinator Nederland*).

Ten Heuvelhof et al (2010) have come to the conclusion that this double pillar structure (including the efficient coordination between the pillars) has contributed significantly to timely adoption of the Dutch RBMPs (including the Dutch part of the Scheldt RBMP) (Ten Heuvelhof et al, 2010).

Cooperation within the Spanish Guadiana RBD

Cooperation between authorities has been limited so far in the Guadiana river basin, as is the case in most river basins in Spain. As the RBMPs and Programs of Measures require policy initiatives from different levels of government and from different sectors, the creation of a committee of competent authorities for each river basin district is needed to supervise and cooperate in the drafting and implementation of the RBMPs and the Programs of Measures. However, the committees were not established in Spain until late 2008 and have only recently started operating, but without any evident improvement in real and effective inter-administrative cooperation (Hernández-Mora & Ballester, 2011). In the end, the Committee of Competent Authorities did not provide the required cooperation between administrations and authorities. In general there has been a lack of cooperation and political will and, as a result, a lack of integration of the different policies into the (draft) RBMP. The Committee did not provide cooperation at technical level. It only provided a platform for debate on the draft RBMP at political level.

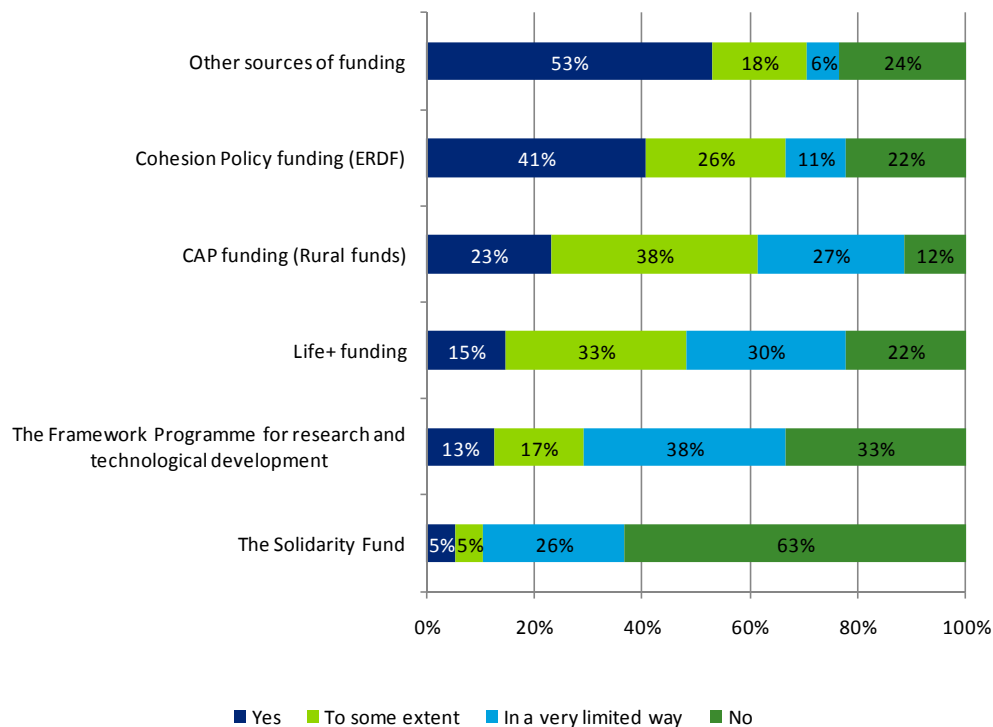
Finally, it should be noted that the implementation of the WFD triggered national governments to change or to consider changing the existent governance arrangements in the water policy field. In Ireland, for instance, the government came to the conclusion that the existent governance arrangements are too complex. Therefore, the Irish government is now reviewing the governance arrangements with a view to simplify them. Also in Germany, authorities are learning from the first cycle of WFD implementation. Efforts are being undertaken to streamline the numerous working groups at river basin, national and regional level.

8.3 Funding

Stakeholders' views on the availability of funds to implement EU Water Policy

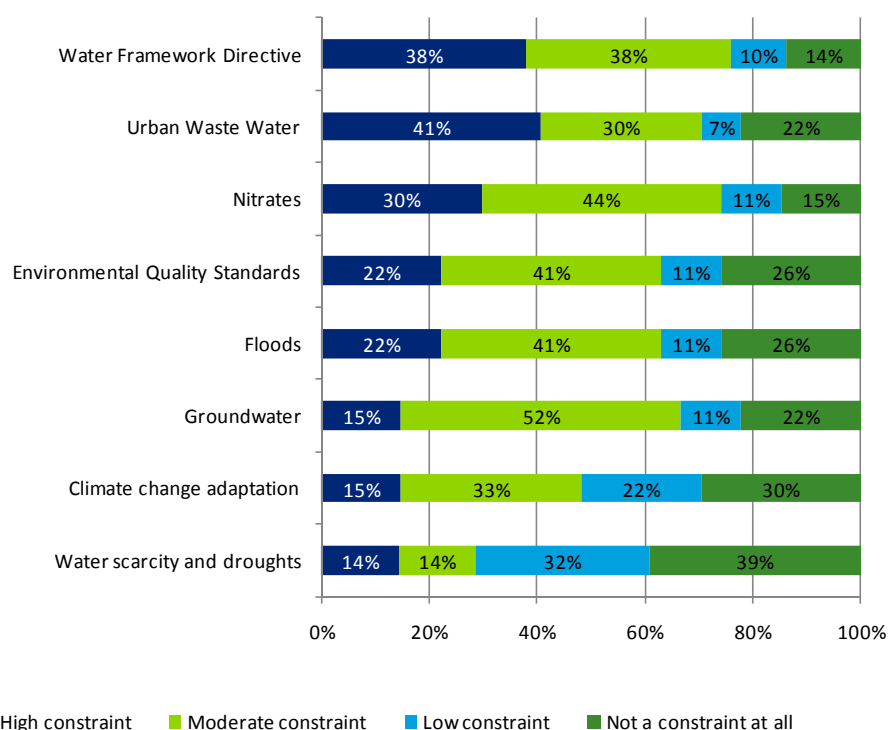
When asked which of the available funding schemes is used to finance the implementation of EU Water Policy, 53% of Public Water Authorities consulted indicated that national and/or regional funding (other sources of funding) are used to a large extent to finance the implementation of EU Water Policy. As regards EU funds), they use mainly Cohesion Policy funding (ERDF) and CAP funding (Rural funds).

Figure 33: funding schemes used to finance the implementation of the EU Water Policy



The figure below shows that the majority of Public Water Authorities consulted expressed from 38% to 41% of Public Authorities found that the availability of and access to funds are a high constrain to the implementation of the WDF and the UWWTD while from 41% to 52% indicated that fund constraints are moderate as regards the implementation the ND, EQSD and FD. It is perceived that there are lower funds constraints as regards the communications on Climate change adaptation and Water scarcity and droughts.

Figure 34: perception of the extent to which the availability of and access to funds constrain the implementation of EU Water Policy



8.3.1 General

Many Member States have experienced and are experiencing funding problems for different parts of EU water policies (see example of Spain in section 8.3.2). For instance in the case of implementation of the Urban Waste Water Treatment Directive (UWWTD), many Member States have had/are having difficulties to meet the deadlines in relation to the collection and treatment of urban waste water as a result of the high costs of the required investments.

Despite these funding problems, considerable EU funding has been available for some water policies for many years. In particular EU cohesion policy and the second pillar of CAP (see following sections for more details) provide considerable financial support to respectively investments in urban waste water treatment plants and investments at the level of farms (in particular through the so-called agri-environment measures). Also other EU funds, though to a lesser extent, have provided financial support to certain aspects of water policies at national level (e.g. LIFE and LIFE+, the Framework Programmes for Research and Technological Development and INTERREG).

INTERREG

The EU INTERREG IIIA Programme for Ireland/Northern Ireland, for instance, gives financial support to the North South Shared Aquatic Resource (NS Share) Project. This project was set up to deliver the objectives of the WFD between August 2004 and March 2008 in a region covering the North Western International River Basin District, the Neagh Bann International River Basin District and the North Eastern River Basin District (in Northern Ireland). The project aimed among others to support the characterisation of the river basin districts, the development of RBMPs and PoMs and the harmonisation of the methods and approaches to implementation of the WFD between Northern Ireland and the Republic of Ireland.

Source: <http://www.wfdireland.ie/> and <http://www.nwirbd.com/project.html>

As funding needs in relation to the implementation of the WFD and other water Directives will remain big in the coming years, substantial EU funding will be needed from the EU cohesion policy and rural developments funds, especially for infrastructure investment in the new Member States. In particular, the implementation of the WFD, the UWWTD, the Nitrates Directive, the Drinking Water Directive and the Marine Strategy Framework Directive will require substantial funding in the years to come. But also in the realms of climate change adaptation, the financing needs will be substantial, as climate change impacts will exacerbate water-related problems and challenges (e.g. floods, water scarcity and droughts). In relation to the latter, it should be noted that the uptake of cohesion policy funds made available for investments in 'risk prevention' (flooding, forest fires, storms, etc) is lagging behind compared to investments in waste water treatment. The uptake of these investments is in particular weak in Spain, Greece, Hungary, Poland and Romania (EC, 2010d).

Cost-effectiveness of urban waste water treatment policies

According to a 2005 EEA study some Member States seem to have more cost-effective approaches towards urban waste water treatment than others. The study in particular compared the policies of the Netherlands and Denmark as to their cost-effectiveness – it also studied the policies of France, Spain, Poland and Estonia but the data for these countries did not have the same level of detail to allow for a cost-effectiveness analysis – and came to the conclusion that the early and consistent implementation of the polluter-pays-principle in the Netherlands has resulted in a high degree of cost-effectiveness. Economic instruments have been used to provide incentives to polluters such as industry to reduce pollution at source, rather than opting for the more expensive end-of-pipe solution of public waste water treatment. As a result of these incentives provided to dischargers to reduce their effluent at source, less investment in public waste water treatment was needed. The Netherlands, which was close to compliance with the UWWTD at the time the EEA study was carried out, has constructed about 40% less public waste water treatment plant capacity than Denmark. It has therefore spent a lower share of GDP on water pollution control than Denmark and the other Member States (EEA, 2005b).

On the other hand, Denmark, which also fully complies with the UWWTD and managed to reduce discharges to surface waters by more than 90% (by 2005), seems to have had a more costly approach to implementation. Construction of urban waste water treatment plant capacity and the associated investment have been considerably higher per capita than in the Netherlands. This seems to result from the fact that the polluter-pays-principle and economic instruments have not been applied in the early stages of the Danish water pollution control policies. The waste water tax was introduced relatively late in Denmark and industrial discharges to the public sewage system have been cross-subsidised until 1992, whereby the bills were effectively passed on to households. This limited attention being given to control at source in the 1970s and 1980s appears to have contributed to the construction of rather comprehensive capacity of public waste water treatment plants (EEA, 2005b).

The previous shows in particular that the investment needs can be reduced as a result of a better use of economic instruments (such as full-cost pricing) and that this may lead to a more efficient use of EU funds. The analysis indeed suggests that Member States with low or inadequate water pollution levies or no full-cost pricing of urban waste water treatment, may overinvest in excessive urban waste water treatment capacity if they do not take into account the potential for reducing discharges from industrial sources (EEA, 2005b).

8.3.2 Funding from EU Cohesion Policy

EU cohesion policy has given considerable financial support, through the Cohesion Fund and the European Regional Development Fund (ERDF), to water-related investments, especially investments in waste water collection and treatment infrastructure and water supply networks (see also section 6.4.). In the period 2000-2006 €9 billion was allocated to the EU15 and €5.6 billion to the EU10 (Hjerp et al, 2011). The European Court of Auditors, for instance, came to the conclusion that cohesion policy funding has contributed to improving the supply of water for domestic use and waste water treatment, at least in the Member States audited (ECA, 2009a; ECA, 2010; European Court of Auditors, 2009).⁶⁶

Given the scale of investment needs, this support is insufficient in many new Member States, but also in some other Member States. For the EU12 it is estimated that about €35 billion will be needed over the next ten years to comply with the UWWTD (CEC, 2007). However, it is also suggested that cohesion policy investments could be reduced through increased cost recovery from water users, even in new Member States where the constraints of affordability are expected to be greatest. In this respect, it is being proposed to link the implementation of the WFD and the water pricing requirements in particular to cohesion policy (i.e. making cohesion policy funds conditional upon compliance with water pricing and other WFD requirements), thereby providing the right incentives for increased cost recovery (Hjerp et al, 2011).⁶⁷

⁶⁶ The audit on water supply networks focused on projects co-funded during the 2000-2006 programme period in Spain, Greece, Portugal and Italy. The audit on urban waste water treatment focused on projects co-funded during the 1994-1999 and 2000-2006 programme periods in Spain, Portugal, Greece and Ireland.

⁶⁷ Full cost recovery has not yet been achieved in many Member States and progress is slow (CEC, 2007a).

The EEA for instance concluded in a 2005 study on urban wastewater treatment policies in selected countries that Spain, despite generous financial support from EU funds (including about €3.8 billion or half of Spain's investment in sewage treatment, from the Cohesion Fund), had not achieved compliance with the UWWTD. In addition, it was concluded that the EU funds for urban waste water treatment investments may have resulted in some lack of interest in domestic financing. The Spanish water pollution levy at that time was very low, with low collection rates, and Spanish industry invested less than 0.15% of its gross value added annually on water pollution control (EEA, 2005b).

While many interviewees pointed out that having more funds available could speed up water policy implementation, most acknowledged that it is mainly up to each Member State to set up funding mechanisms to support the required investments. It is a fact that younger Member States usually start from more challenging positions than older Member States when it comes down to wastewater treatment infrastructure for instance. However, the funds available under cohesion policy aim to compensate for this lag, assuming that there is sufficient absorption capacity. However, as several interviewees pointed out, the absorption capacity is limited in many of the countries that could benefit by cohesion funds. The current downsizing of public administration across EU, the limited expertise of the remaining staff (technical, proposal writing skills, foreign languages, project management), as well as the limited ability to match EU funds, prevents several Member States from making the most of the money available.

Furthermore, there has been criticism on how well the funds are targeted. In centralized countries (e.g. Bulgaria) decisions on investments are made at national level and are often not adapted to local needs as a one-size-fits-all approach is being applied. Sometimes large-scale technological options are favoured over cheaper, less-technology oriented and small-scale alternatives.

The European Court of Auditors came to the conclusion that although the cohesion policy funding has contributed to improving the supply of water for domestic use, better results could have been achieved at lower cost. For instance, too much focus was put on exploiting new water sources and transporting the water over long distances without considering alternative solutions, such as reducing water leakages and using other nearby resources. Furthermore, some water supply infrastructure was not operational due to missing complementary infrastructure. Therefore it can be concluded that funds could have been used more efficiently (ECA, 2010).

In its audit in relation to waste water treatment, the Court of Auditors concluded that treatment plants co-funded by cohesion policy funds were performing adequately. Nevertheless, some were found to be operating below capacity mainly as a result of problems in completing the network, with many households and industrial users remaining unconnected to the treatment plants and therefore not all of the waste water being treated. In some cases the requirements of the UWWTD were not met with respect to effluent quality. Some of these problems were due to the fact that industrial waste water discharged into the public sewage system had not been fully pre-treated, a requirement to avoid problems in performance of the treatment plant (ECA, 2009b).

8.3.3 *Funding from the Common Agricultural Policy*

Rural development funding under CAP is important for farm-scale investments. Water and the implementation of the WFD is indeed one of several priorities of Pillar II of the CAP, the so-called Rural Development Policy (RDP), which is co-financed by the European Agricultural Fund for Rural Development (EAFRD) and EU Member States.

Financial support is provided for a total of 46 rural development measures organised in four axes. Each Axis contains a number of measures under which support payments of different kinds such as investment grants and annual payments can be offered on a voluntary basis to farmers, foresters, etc. Axis 2 ('improving the environment and the countryside') contains 13 measures that can be used to address environmental, including water, needs and to bring about improvements above that required by legislation. Therefore, the measures to be used are chosen by the Member States (which co-fund them), are elaborated in a wide number of Rural Development Programmes (RDPs) and are voluntary with respect to uptake by the farmer (Farmer, 2011).

An analysis of 76 Rural Development Programmes within the EU (Farmer et al, 2008), found that almost €34.4bn was planned to be spent on the agri-environment measure (Axis 2), but its distribution between Member States was highly variable. Sweden allocates the greatest proportion of the funds available to it to this measure, with 54% of total public expenditure (TPE), which refers to the combined total of the EAFRD and national co-financing.

Austria, Denmark, Finland and the UK each allocate in excess of 30% of TPE. In contrast, 11 Member States allocate less than 20% of TPE to the agri-environment measure, including Greece, Portugal, Romania and Spain. The pattern of expenditure also varies significantly within Member States that have a regional structure. Within Spain the amount allocated to Axis 2 varies from 19% of TPE in the Basque Country to 48% of TPE in Castilla La Mancha. Within Italy, Umbria allocates 43% of TPE to Axis 2, whilst the neighbouring region of Lazio allocates 32% of TPE. Therefore, the uptake and potential effectiveness of the agri-environment measure will vary significantly between different political units at the same governance scale and this makes cross-scale analysis particularly complex. The amount of funding allocated to Axis 2 is, however, only one variable factor. Even seemingly similar measures vary in design and delivery on closer examination. For example, one action that farmers may receive funding for is the creation of buffer strips to protect water courses. However, these vary in scale. The RDP for Denmark funds 10 to 20 m broad buffer zones along water courses or lakes, while the minimum width in France is 5 m (Farmer, 2011; Farmer et al, 2008).

In total, RDPs provides useful financial support to contribute to the implementation of the WFD, particularly through agri-environment and forestry-environment payments, natural handicap payments, use of advisory services or training (Baldock et al 2011). Irrigation efficiency and efforts to address nitrate and pesticide pollution feature prominently in many RDPs. In terms of budget for water-related measures, agri-environment measures are most important, while, more importantly, the majority of EU Member States spend their budget on axis I measures (modernisation of the agricultural sector and the agri-food sector) (Dworak et al, 2009).

However, it should be noted that despite the fact that the EAFRD Regulation identifies a range of environmental protection objectives which might be eligible for funding support, these are not always taken up by the Member States and, where they are, not to the extent that is possible under the Regulation (Farmer, 2011).

In addition, while providing many useful incentives, it is also widely agreed that the water-related actions taken under the 2nd pillar of the CAP are not sufficient to counteract those pressures exerted on water quantity and water quality by some action funded under the 1st pillar and thus contribute effectively to the implementation of the WFD.

It should also be noted that the requirement for co-financing can limit application of the rural development funds, just like in the case of cohesion policy funds.

8.4 Administrative burden and compliance costs

Perceived administrative costs and compliance costs

The administrative costs for the national/regional administrations due solely to the implementation of the EU Water Policy is perceived as acceptable by most of the Public Water Authorities consulted when it comes to additional reporting requirements and additional controls. The figure below shows that additional monitoring requirements are considered as bringing substantial additional administrative costs.

Figure 35: perceived administrative costs for the national/regional administrations due to the implementation of the EU Water Policy

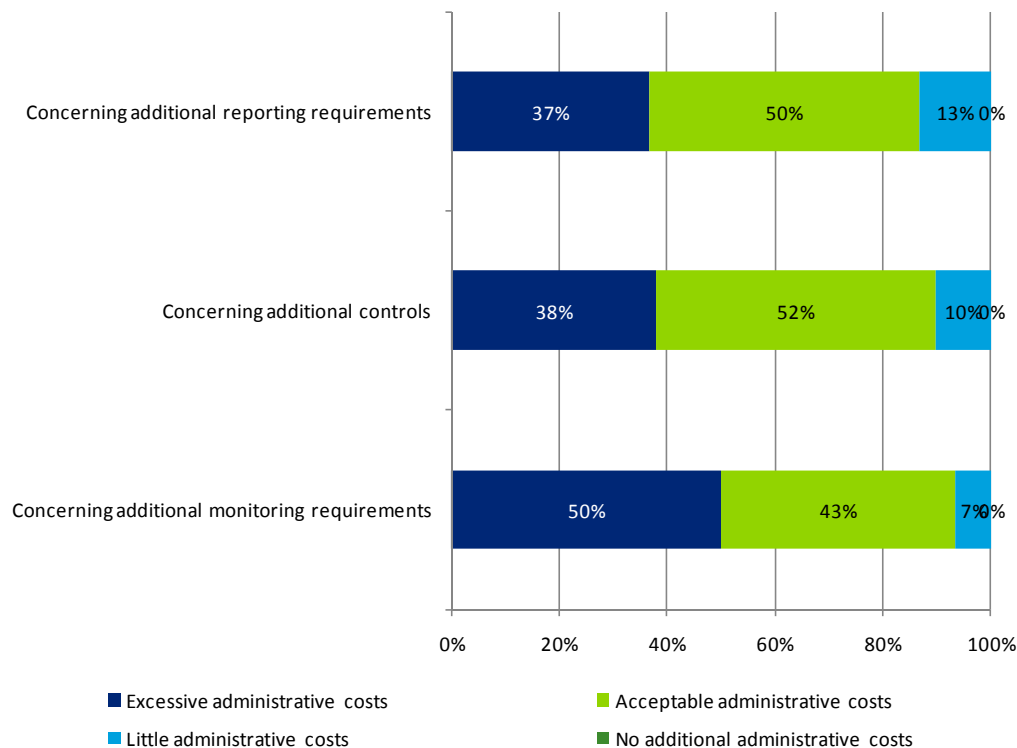
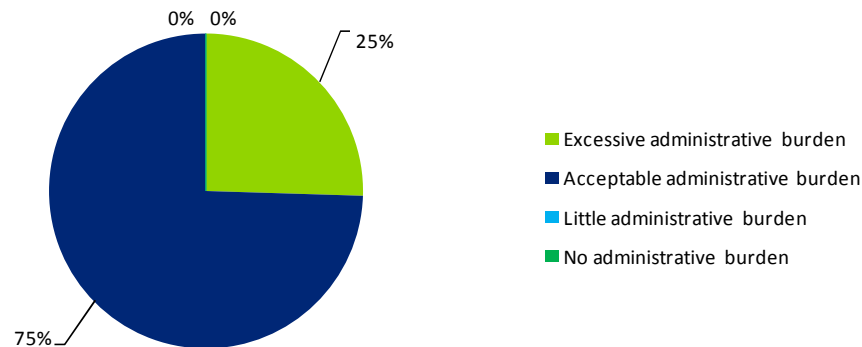


Figure 36: perceived administrative burden (additional administrative activities and compliance costs) for the industry and the agriculture due to the implementation of EU Water Policy



As regarding the administrative burden that the implementation of the EU Water Policy loads on the industry and the agriculture, 75% of the stakeholders consulted indicate that the additional administrative activities and compliance costs are of an acceptable level.

Many interviewees pointed out that the administrative burden and compliance costs entailed by implementing water policy are significant, especially because reporting requirements cover a myriad of aspects, and relevant policies have different reporting schedules. However, their opinions differed when asked about the sustainability of such practices (drafting, implementation, measurement and reporting).

Some explained that significant administrative burden was to be expected especially for the first round of action (when trial and error are expected to be resource consuming for something that has not been done before). However, they expected that subsequent cycles would require less resource and more easily-observable results. Some other interviewees pointed out that unless reporting schedules for different directives were aligned, the duplication of efforts is inherent.

There were also interviewees who pointed out that the administrative burden is far from significant given the importance of the policy objectives to be achieved. However, most interviewees admitted that they are relying on input from EU level for the second round of reporting, as this would help them better fine tune the Programs of Measures.

Regarding compliance cost (i.e. the cost born by the private sector in order to comply with regulation), several interviewees pointed out that water policy should be implemented with a triple-bottom-line perspective in mind. While the benefits of water policy to the environment are undeniable, public managers and policy makers should also keep in mind the social and economic benefits that need to be aligned with environmental objectives (i.e. in order to prevent companies going out of business and boosting unemployment because they are constantly required to comply with best-available technologies when making investments).

8.5 Conclusions

The evaluation questions we have raised on the efficiency of the water policy are:

To what extent do the Member States respond to the requirements of the water policy in terms of administrative co-operation and policy coordination?

The Water Framework Directive together with the related directives have been having a significant impact on River Basin administrative cooperation within and among countries. For bigger River Basins (e.g. Danube, Scheldt) cooperation existed even before the implementation of the water directives, and was often institutionalised under the scrutiny of joint-governance structures such as the International Commission for the Protection of the Danube River (ICPDR) or the International Scheldt Commission, to name just a few. However, the water policy is often seen as the catalyst that enabled cooperation at a higher level. For instance, the water policy was a stepping stone in the process of signing River Basin cooperation agreements with third countries. It also helped bringing at the same table administrative bodies that were not communicating with each other previously. As a result, there is greater transparency in (trans-boundary) policy implementation, better communication and use of joint-resources (e.g. funding, capacity-building workshops, best-policy transfer) for policy planning and implementation, as well as stronger incentive to avoid trans-boundary conflicts. Opportunities for spill-over effects were also created, as trans-boundary cooperation under water policy triggered cooperation in other policy areas as well.

However, shifting from a country-oriented to a River Basin-oriented approach also generated/brought to light several challenges to joint policy implementation. Despite the steps already made, each country involved (and in particular third countries) have their own priorities, and water policy may be competing with items that are currently higher on the agenda (e.g. reconstruction, social security that requires high leverage especially in the aftermath of the economic crisis, etc.). Therefore, achieving agreement and cooperation on all items listed by water policy may not be feasible under the current circumstances. Also, even within the EU, countries start from various levels in terms of implementation requirements. While for some old Member States water quality may hardly be an issue at the moment (due to policy actions initiated decades ago), for newer Member States (of which some do not yet have wastewater treatment plants complying with EU standards) water quality may be a top priority; hence, drafting joint RBMP may be challenging, especially when arguing where funding should go first. Last but not least, it is a fact that clashes and overlaps exist among administrative portfolios of bodies within Member States; therefore, before aiming at River Basin administrative alignment, countries still need to look into this matter internally. Even if governance-related challenges (such as the ones mentioned above) would be solved, cooperation would not be able to respond to all requirements that it is tasked with. Policy transfer-although successful in some areas, cannot be achieved across the board given the region-specific particularities that make some measures function (better) in certain places versus others. Also, even when running joint projects with EU-funding, the Member States involved may have different capacities of matching the funding, despite their willingness to cooperate.

Overall, water policy is considered to have greatly contributed to trans-boundary cooperation but more efforts are being needed (both at individual Member State and regional levels) in order to shift from administrative boundary-focused to geography-focused policy implementation.

Are availability of and access to funding a constraint in the implementation of the Directives, as well as of agreed policies on water scarcity and droughts?

Many Member States have experienced and are experiencing funding problems for different parts of EU water policies. For instance in the case of implementation of the Urban Waste Water Treatment Directive (UWWTD), many Member States have had/are having difficulties to meet the deadlines in relation to the collection and treatment of urban waste water as a result of the high costs of the required investments. Despite these funding problems, considerable EU funding has been available for some water policies for many years. In particular EU cohesion policy and the second pillar of CAP provide considerable financial support to respectively investments in urban waste water treatment plants and investments at the level of farms. Also other EU funds, though to a lesser extent, have provided financial support to certain aspects of water policies at national level (e.g. LIFE and LIFE+, the Framework Programmes for Research and Technological Development and INTERREG).

Moreover as mentioned above, the Member States have different capacities when it comes down to absorbing EU funding. It is widely acknowledged that newer Member States face more challenges than older Member States; this is mainly because newer Member States sometimes lack the capacity to match EU funding, and also because the capabilities required to write, plan and manage EU-funded projects are limited (e.g. specific knowledge in project writing and management, inability to work in foreign languages – which is crucial in trans-boundary projects, or recent downsizing across the EU that has human capital spread thin across multiple assignments, etc.).

Regarding availability, it has been acknowledged that EU funding is not expected to cater for all budgeting needs related to water policy implementation. However, more funding streams could be made available especially in areas addressed by a limited number of funding avenues because they are perceived as falling in between two/more policy sectors (e.g. aquatic fauna).

Are there regulatory gaps, inconsistencies, overlaps or evidence of compliance costs and unnecessary administrative burdens?

The administrative costs for the national/regional administrations due solely to the implementation of the EU Water Policy is perceived as acceptable by most of the Public Water Authorities consulted. While significant administrative burden was to be expected especially for the first round of action, subsequent cycles would require less resource and more easily-observable results.

The additional administrative activities and compliance costs that the implementation of the EU Water Policy loads on the industry and the agriculture are perceived by most of the stakeholders as of an acceptable level. This information comes from sectoral federations and national administrations. In order to have a better view on the administrative burden further analyses involving actors from the field should be required.

9 SYNTHESIS OF THE CHALLENGES

We present in this conclusion the main challenges that we have identified along the report. These challenges are related to the four different dimensions covered in our study: relevance, coherence, effectiveness and efficiency of the EU freshwater policy. For each challenge, we have identified categories on which the European institutions could further act in the coming years to improve the fitness of the water policy. We have also indicatively weighted them according to our understanding of the importance of their impacts on the different categories. Finally, we have ranked the challenges considering their strategic or operational characteristics.

We have created seven categories that could be directly addressed by the European institutions because in its scope of power (EU level) or indirectly by supporting the Member States to further act on these fields (domestic level):

3. EU level:

Incomplete policy: This category concerns legal gaps inside the EU freshwater policy due to possible unclarity of certain aspects or simply due to missing legislation or policy guidance that could further support the achievement of the EU objectives.

Internal coherence: This category deals with gaps that could occur due to overlapping or divergence in the coherence inside the freshwater policy package.

External coherence: This category deals with gaps that could occur due to overlapping or divergence in the coherence between the freshwater policy and other sectoral policy (e.g. agricultural policy, cohesion policy, industrial policy).

4. Domestic level:

Cooperation: This category concerns the insufficient level of cooperation between and inside the countries that could hamper the achievement of the EU water policy goals.

Administrative arrangements: This category deals with missing/inadequate administrative arrangements at national level that could support the implementation of the water policy.

Funding: This category deals with lack of (accessibility of) funding (whatever European or national) that could hamper the achievement of the EU policy goals.

Political agenda: This category deals with the discrepancy/incompatibility between the EU priorities/policy and the national priorities/policy.

Table 15: Challenges related to the water policy

S/O	Challenges	EU level			Domestic level			
		Incomp. policy	Int. coh.	Ext. coh.	Coop.	Admin.	Funding	Pol. agenda
S	Lack of concrete provisions to tackle water demand by other EU policies, particularly with regard to increasing the efficiency of using water in agriculture and buildings.	**		***				
S	Feasibility of the WFD objectives by 2015.		**		**	**	**	***
S	The principle of cost-recovery widely and controversially discussed, as it has not been sufficiently defined.	**			*			**
S	Underutilisation of economic instruments for efficient use of water.			**		**		**
S	Lack of prioritisation of competing water uses (i.e. operationalisation of water hierarchy).	***		**				**
S	Different regulatory approach between the WFD (flexibility) and the CAP (strictness).			***	**			
S	Assess the sustainability of the water use for energy production.			**	*			
S	Strengthen the link between the water policy and the climate change adaptation needs.	*	***	***				
S	Better understanding of the impacts of changes in water problems (drought, floods, water availability) on the industry and agriculture sectors.	***	**	***				
S	Better understanding of the water policy impact on the industry and agriculture sectors.	***	**	***				
S/O	Need for harmonisation of the public consultation processes under the different environmental Directives.	**	***		*			
S/O	Assessment of the RBMPs and the implications for reaching the 2015 targets at river basin level.	**		*				
S/O	Close gaps in urban waste water treatment infrastructures in EU-27.						***	**
S/O	Shift from administrative boundary-focused to river basin-focused policy implementation.				*	***	**	**

S/O	Challenges	EU level			Domestic level			
		Incomp. policy	Int. coh.	Ext. coh.	Coop.	Admin.	Funding	Pol. agenda
O	Information and data availability (e.g. resolution and time series on environmental and economic data), particularly concerning droughts, ground water, floods aspects.	*			***	**	***	*
O	Incoherent reporting obligations under the different freshwater Directives.	**	***					
O	Achievement of practical coordination between WFD implementation and Habitats Directive implementation.				***	**		*
O	Need for translating pressures on good environmental status (WFD) and good chemical status to discharge requirements for IPPC permits.		**		***	**		
O	Improving the utilisation and efficiency of the cohesion policy funds.			**		***	***	***
O	Improving economic analysis to inform planning and decision making in the River Basins.	*				**		**
O	Strengthen the comparability of the results of the monitoring programmes (inter-calibration).	**			***	**	*	
O	Designation of adequate vulnerable zones under the Nitrate Directive and further reinforcement of action programmes.				*	**		***
O	Meeting capacity requirements at national/regional level to implement the water policy.				*	***	**	**
O	Clear guidance and capabilities required to write, plan and manage EU-funded projects are limited at national level.	**				***		

*: Possible links between the gap and the category

**: Clear links between the gap and the category

***: Strong links between the gap and the category

S: Strategic level

O: Operational level

10 ANNEXES

10.1 Case studies

1. Danube river basin – case study

Introduction

The Danube river basin

The Danube river basin covers a total area of 801,000 km² and collects water from the territories of 19 countries in Central and South-Eastern Europe (Germany, Austria, Switzerland, Italy, Poland, the Czech Republic, Slovenia, Slovakia, Hungary, Croatia, Serbia, Romania, Bosnia and Herzegovina, the Former Yugoslav Republic of Macedonia, Albania, Montenegro, Moldova, Bulgaria, and Ukraine) (see Figure 1).

Figure 37: The Danube river basin district



Source: (ICPDR, 2009)

About 83 million people inhabit the Danube river basin, and 60 cities in the Danube river basin have a human population of more than 100,000 (Sommerwerk et al. 2009). The political and socio-economic conditions of the countries in the Danube river basin are more diverse than those in any other European river basin. Although the countries in the Upper Danube are economically prosperous (Germany: GDP of around €36,000 per capita and per year), the countries in the lower basin are among the poorest in Europe (Moldova: GDP of less than €1,000 per capita and per year). Ten countries are EU Member States and one country (Croatia) is an EU Accession Country (ICPDR, 2009; Sommerwerk et al, 2010).

The big socio-economic differences and the political divide into formerly communist and Western countries and the present separation into EU and non-EU countries challenge the establishment of joint basin-wide management strategies. Furthermore, there exists an immense variation in technical development and legal obligations within the basin. For example, the number and standards of urban waste water treatment plants and associated sewage network decreases towards the downstream Danube river basin countries.

The Danube is the second longest river in Europe (2,826 km), and its large delta forms an expansive wetland (area: 5,640 km²) of global importance. The mean annual discharge of the Danube at its mouth is about 6,480 m³/s, corresponding to a total annual discharge of 204 km³. The Danube is divided into three sections that are almost equally long, and separated by distinct changes in geomorphic characteristics: the Upper, Middle and Lower Danube.

A characteristic feature of the Danube is the alternation between wide alluvial plains and constrained sections along the main course. Before regulation, active floodplain width reached 410 km in the Upper Danube and 430 km in the Middle and Lower Danube. In the Upper Danube, most floodplains and fringing wetlands have been converted into agricultural and urban areas, or have been isolated by dams and artificial levees, and therefore are functionally extinct. However, along the Middle and Lower Danube, large near-natural floodplains still remain. Vegetated islands form another (former) prominent landscape element in the Danube river basin. Along the Austrian Danube, about 2,000 islands were present before regulation; today, only a few remain. However, islands are still abundant in the Hungarian/Serbian (Middle Danube) and the Bulgarian/Romanian sections (Lower Danube). Remaining near-natural floodplains and vegetated islands may serve as central sites for conservation and management activities; at the same time, they are sensitive indicators to assess the ecological state of river corridors (Sommerwerk et al, 2010).

The Danube Basin Analysis (DBA) in 2004, which provided the first comprehensive characterisation of the entire Danube river basin, identified four significant water management issues that can affect the status of both surface water and trans-boundary groundwater: pollution by organic substances, pollution by nutrients; pollution by hazardous substances and hydro-morphological alterations. The DBA showed an increase of surface water bodies at risk from upstream to downstream countries due to organic emissions, mainly as a result of insufficient waste water treatment in the middle and lower Danube river basin. The DBA also showed an increase of water bodies at risk of failing to achieve the environmental objectives of the WFD from upstream to downstream countries

due to nutrient emissions. Hydro-morphological alterations, though, were identified as having an impact on most water bodies within the entire river basin, including the upper Danube. The most important pressures related to hydropower production, flood protection and navigation. As a result, the number of water bodies identified as heavily modified was very high throughout the entire basin (ICPDR, 2005a; ICPDR, 2009).

Transboundary cooperation within the Danube river basin district

The International Commission for the Protection of the Danube River (ICPDR), founded in 1998, is responsible for the implementation of the WFD in the Danube river basin. The Danube River Protection Convention (DRPC) forms the political framework that underpins the international cooperation within the ICPDR. Fourteen out of 19 Danube river basin countries are contracting parties and legal members of the ICPDR, i.e. countries with catchment areas bigger than 2,000 km² in the Danube river basin. Furthermore, the European Community is a contracting party. Italy, Switzerland, Poland, Albania, and the Former Yugoslav Republic of Macedonia (FYROM), which have only minor shares in the Danube river basin, cooperate with the ICPDR. Contracting parties, that are non-EU Member States and therefore not legally obliged to implement the WFD, have nevertheless made a voluntary commitment to do so under the DRPC (ICPDR, 2009; Sommerwerk et al, 2010).

The ICPDR stimulates policy/management-oriented research and coordinates the various activities of the contracting parties and observers, including those of many NGOs and other stakeholders (Sommerwerk et al, 2010).

In 2009 the first Danube RBMP was developed. This constituted a milestone of cooperation among scientific, political, and public organisations within the ICPDR. Within the ICPDR the Danube Basin Analysis 2004 (DBA) was developed (see above). The DBA provided the analytic basis for the Danube RBMP, identifying among others key stressors and pressures.

Within the umbrella of the ICPDR a basin-wide monitoring network was established in 1996, the so-called TransNational Monitoring Network (TNMN). In order to comply with the WFD the network was adapted in 2006. The network now includes 81 monitoring stations that provide a basin-wide overview of the status and the long-term trends of surface and ground water quality (ICPDR, 2009).

Effectiveness - compliance

River Basin Management Plans (RBMPs)⁶⁸

Danube River Basin District Management Plan (Part A)

In the Danube RBD, all countries (including most non EU Member States) have been working on their national RBMP. Within the ICPDR the countries of the Danube RBD have developed the Danube RBMP, which has been officially adopted on 10 December 2009 by all Danube countries.

German part of the Danube RBMP

The German part of the international Danube RBMP, just like the other German RBMPs, has been adopted in December 2009. Consultation on the draft RBMP(s) took place between 22 December 2008 and 22 June 2009.

Austrian part of the Danube RBMP

The Austrian part of the international Danube RBMP, as well as the other Austrian RBMPs, has been adopted on 30 March 2010. Consultation on the draft RBMP(s) took place between 27 April 2009 and 27 October 2009.

Slovak part of the Danube RBMP

The Slovak part of the international Danube RBMP, just like the other Slovak RBMPs, has been adopted by the Government on 10 February 2010. Consultation on the RBMP(s) took place between 23 January 2009 and 22 July 2009.

Hungarian part of the Danube RBMP

The Hungarian part of the international Danube RBMP, as well as the other Hungarian RBMPs, has been adopted in early May 2010. Consultation on the draft RBMP(s) took place between 22 December 2008 and 18 November 2009.

Romanian part of the Danube RBMP

A preliminary RBMP of the Romanian part of the international Danube RBMP has been adopted in December 2009. Following a Strategic Environmental Assessment, the RBMP has been finally adopted on 26 January 2011. The first part of the consultation on the draft RBMP took place between 1 January 2009 and 30 June 2009. The second part of the process, during which the updated plans were re-submitted for consultation, took place between 1 July 2009 and 15 November 2009.

Bulgarian part of the Danube RBMP

The Bulgarian part of the Danube RBMP was approved by the Minister of Environment on 22 March 2010. Public consultation on the draft RBMP took place between 22 December 2008 and 22 June 2009.

⁶⁸ Next to the international Danube RBMP, national plans are briefly mentioned for those countries with a share in the Danube RBD of more than 5% (see .

The Danube RBMP and public participation

In December 2008 the ICPDR published the 'Document on the Status of Preparation of the DRBM Plan'. The document was intended to be used for the public participation activities in the countries of the Danube river basin. The draft RBMP was approved by the ICPDR in April 2009 and, subsequently, made publicly available (from 18 May until 31 July 2009). In addition, the ICPDR published a feedback form to collect comments from stakeholders on its website and distributed the form actively to stakeholders. In June 2009 the ICPDR organised several round-table discussions on specific topics with relevant stakeholder organisations (e.g. on the use of phosphates in detergents with representatives from the detergent industry or on the issue of navigation on the Danube with representatives from the navigation sector). A second ICPDR stakeholder Forum on the draft DRBM Plan was organised on 29-30 June 2009 in Bratislava. The first one was organised in 2005 to have an in-depth discussion on the 2004 Danube Basin Analysis (ICPDR, 2009).

The Danube River Protection Convention allows stakeholder groups to be granted observer status to the ICPDR. Organisations holding this status have the possibility to actively participate at ICPDR meetings and expert groups. During recent years, the ICPDR has spent considerable effort in including representatives of relevant stakeholder organisations as observers. At present, 21 organisations have observer status, including non-governmental and not-for-profit organisations. The observers represent interest groups on navigation, hydropower production, dredging, water management, tourism and angling, drinking water production and environmental protection (ICPDR, 2009; Sommerwerk et al, 2010).

Furthermore, the ICPDR organises every year (since 2004) the Danube Day in all Danube countries in order to foster public awareness and public participation.

It should also be noted that in the Upper Danube, environmental NGOs already have a long tradition, are well-established and are embedded into an international network. In contrast, most NGOs in the Middle and Lower Danube are less well-established and are operating in national contexts in which public awareness is less prevalent. Nevertheless, they have gradually increased their membership and political influence since the fall of communism in 1989 (Sommerwerk et al, 2010).

Delineation of water bodies

All Danube countries, except Moldova and Montenegro, have delineated surface and ground water bodies. 681 rivers have been delineated. The Danube River itself is characterised by 45 water bodies. Seven lakes (one transitional) have been delineated. Overall, seven transitional and five coastal water bodies have been identified. For each Danube country, Table 2 provides an overview of the river water bodies; their relation to the overall water bodies within the Danube RBD; their average length and the length of the national river network (ICPDR, 2009).

Table 16: Share of DRBD per country; percentage of state within the DRBD; DRBD population; water body delimitation for all DRBD rivers with catchment areas bigger than 4,000 km² and the Danube River

Country	Share of DRBD (%)	Percentage of state within the DRBD (%)	Population in DRBD (in millions)	Length of national DRB river network	Number of water bodies		Share of all DRBD WBs (%)	Average national WB length (rkm)	
					All	Danube		All	Danube
DE	7.0	16.0	9.7	1,503	53 ⁸	15	7.1	28.4	37.7
AT	10.0	96.1	7.9	2,392	190	13	25.6	12.6	27.0
CZ	2.7	27.3	2.8	598	32	0	4.3	18.7	-
SK	5.8	96.0	5.2	1,811	45	4	6.1	40.2	43.4
HU	11.5	100.0	10.2	3,189	57	4	7.7	55.9	128.1
SI	2.0	81.1	1.8	834	25	0	3.4	33.4	-
HR	4.3	61.9	3.1	1,470	33	2	4.4	44.6	70.3
BA	4.7	74.9	2.9	1,602	35	0	4.7	45.8	-
ME	0.9	55.0	0.2	no information					
RS	10.1	92.8	7.5 ⁹	3,277	63 ¹⁰	10	8.5	52.0	77.0
RO	29.6	100.0	21.6	9,474	182 ¹¹	7	24.5	52.1	370.8
BG	5.8	42.6	3.4	1,291	15	1	2.0	86.1	471.6
MD	1.5	36.2	1.1	837	no information				
UA	4.5	6.0	2.6	1,056	13	1	1.7	81.3	245.2
Total	100¹²		80.5¹³	25,117¹⁴	681¹⁵	45¹⁴	100	38.4	85.8
Danube River					WB number:		Total length (rkm)		
					45		2,857 ¹⁵		

Source: (ICPDR, 2009)

Designation of water bodies as heavily modified or artificial

The RBMP includes the final designation of heavily modified water bodies (HMWBs) for EU Member States. The non EU Member States performed a provisional identification based on the criteria outlined in the DBA 2004. The criterion for the size of water sections >50 km was changed and all water bodies have been fully considered for the designation.

For the international Danube RBMP (Part A), the designation of HMWBs for rivers and transitional waters was performed for the Danube and the tributaries in the Danube RBD with a catchment area bigger than 4,000 km² (ICPDR, 2009).

For the Danube river, the Danube countries agreed on a harmonised procedure for the final HMWB designation (the designation for Croatia, Serbia and Ukraine is provisional) and on specific criteria for a step-by step approach. The designation of HMWBs for the tributaries, however, is based on national methods, although the preconditions for the final HMWB designation (as to both the Danube River and the tributaries) were set by a CIS guidance document.

The harmonised designation of HMWBs for the Danube River has not been easy as the agreed criteria have not been applied by all riparian Danube countries. As the inter-calibration exercise has not yet been completed for all countries in the Danube river basin,

only Austria, Germany and Slovakia have been able to provide water status assessment results with high confidence and perform a final HMWB designation according to the agreed criteria and the CIS guidance. Therefore, figures on the HMWB designation for the Danube River only partially reflect a harmonised outcome based on the agreed ICPDR criteria (ICPDR, 2009).

Out of the 681 river water bodies in the entire Danube RBD (Danube river and tributaries), 270 have been designated as heavily modified (241 final and 29 provisional HMWBs). These represent 40% of the water bodies. 21 water bodies are AWBs. This means that 9,835 km out of 25,117 river kilometres are heavily modified (83% final HMWBs and 17% provisional HMWBs) due to significant physical alterations causing a failure of the good ecological status. 1,592 km of the Danube River itself are designated as heavily modified, representing 56% of its total length (ICPDR, 2005b). Therefore it can be concluded that the number of water bodies identified as heavily modified is very high throughout the entire basin. As mentioned earlier, this is due to hydro-morphological alterations resulting mainly from pressures from hydropower production, flood protection and navigation.

As for lakes and transitional water bodies, of the seven lakes (one being a transitional water), none has been designated as heavily modified and no water body has been identified as artificial. In respect to coastal waters, out of the five coastal water bodies, two have been designated as heavily modified while no water body has been identified as artificial (ICPDR, 2009).

Table 2: The designation of water bodies in the International Danube river basin district – the Danube and the tributaries with catchment areas bigger than 4,000 km²

	HMWBs	AWBs	Total
International Danube River Basin District	40% (270 out of 681)	3,08% (21 out of 681)	43,08% (291 out of 681)

Source: (ICPDR, 2009)

To conclude, it should be noted that WWF in its comments to the draft RBMP (version of 18 May 2009), criticised the HMWB designation process in Bulgaria and Romania. It noted that the Bulgarian and Romanian water bodies in the Danube DRB were entirely designated as heavily modified, despite the fact that crucial ecological data in support of this designation was still missing at the time. This raises the question of inconsistent designation of water bodies as heavily modified or artificial among the countries of the Danube RBD, as water bodies in the Upper Danube, which has been altered much more than the Lower Danube, are at least partially designated as natural (WWF, 2009).

The extension of deadlines beyond 2015

The Danube RBMP (Part A) makes use of the possibility to extend the deadlines for achieving good status beyond 2015 (WFD Article 4(4)) for 259 river water bodies (38%), out of the 681 river water bodies in the Danube RBD.

It should also be noted that for 10 water bodies (1%), it has been decided to apply WFD Article 4(5), i.e. to set less stringent environmental objectives. This exemption is also applied to two coastal water bodies. Because of future infrastructure projects, the exemption provided for by WFD Article 4(7) which allows for deterioration of the water status, is applied to 20 water bodies (3%) (ICPDR, 2009).

It should be noted that the Danube RBMP does not include an analysis of what the main justifications for these exemptions were.

Coherence

A major challenge in the management of the Danube river basin will be to establish synergies among the competing interests of navigation, hydropower production, flood protection and nature conservation.

For instance, it will be a challenge to align (EU) transport policy with EU) water and nature conservation policies. The Danube is navigable for 87% of its total length. Approximately 1,100 ships are registered along the Danube river, which is limited compared to the number of ships registered along the Rhine (about 10,000 ships). Within the transport policy area, the remaining free-flowing river sections and their mobile beds have been identified as 'bottlenecks' for navigation. Therefore, the creation and maintenance of a continuous shipping channel of 2.8 m water depth and 160–180 m width, for most of the year, has been proposed. As a result, the Trans-European Transportation Network (TEN-T, 'Corridor VII')⁶⁹ of the EU competes with concurrent projects to conserve unique habitats and species along the Danube and possibly with the implementation of the WFD (Sommerwerk et al, 2010).

⁶⁹ <http://tentec.europa.eu>

Websites

International Commission for the protection of the Danube River
www.icpdr.org

German central website on the implementation of the WFD
<http://www.wasserblick.net/servlet/is/102556/>

Austrian central website on the implementation of the WFD
<http://www.wasseraktiv.at/>

Ministry of Environment of the Slovak Republic
<http://www.minzp.sk/>

Hungarian central website on the implementation of the WFD
<http://www.euvki.hu/>

Romanian central website on the implementation of the WFD
<http://www.rowater.ro/default.aspx>

Bulgarian part of the Danube RBD
<http://dunavbd.org/>

International Association for Danube Research
<http://www.iad.ges>

Worldwide Fund for Nature/Danube-Carpathian Program
<http://www.panda.org/dcpo>

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ICPDR (2005b) *The Danube River Basin District*. International Commission for the Protection of the Danube River.

ICPDR (2009) *Danube River Basin District Management Plan*. International Commission for the Protection of the Danube River.

Sommerwerk, N, Bloesch, J, Paunovi-ć, M, Baumgartner, C, Venohr, M, Schneider-Jacoby, M, Hein, T and Tockner, K (2010) Managing the world's most international river: the Danube River Basin. *Marine and Freshwater Research*, No 61, (7) pp736-748.

WWF (2009) *Comments by WWF International Danube-Carpathian Programme, WWF Austria, WWF Germany and WWF Hungary on the Draft Danube River Basin District Management Plan, version 6.0 of 18 May 2009.*

2. Guadiana river basin – case study

Introduction

The Guadiana river basin, located in the south-west of Spain, covers an area of 67,133 km² of which about 55,513 km² belongs to the Spanish territory and 11,620 km² to Portugal. The basin comprises three sub-basins: the upper Guadiana and the mid Guadiana on Spanish territory and the lower Guadiana on Portuguese territory.⁷⁰

The most important economic activity in the Guadiana river basin is agriculture, followed by commercial and administrative activities. In recent decades, there has been an increase of industrial activity, as well as tourism in the coastal areas, and an intensification of agriculture.

Most of the land in the basin is used for rain fed agriculture, especially in the upper part of the basin, while meadows are to be found more in the middle and southern parts of the basin. Irrigated crops are grown all along the river basin, though slightly more concentrated in the north western sector of the basin.

The Guadiana river basin is expected to be one of the climate change most negatively affected basins in Spain. Irrigated agriculture will be highly determined by the decrease in water availability, and therefore adaptation in the agricultural sector seems to be crucial.

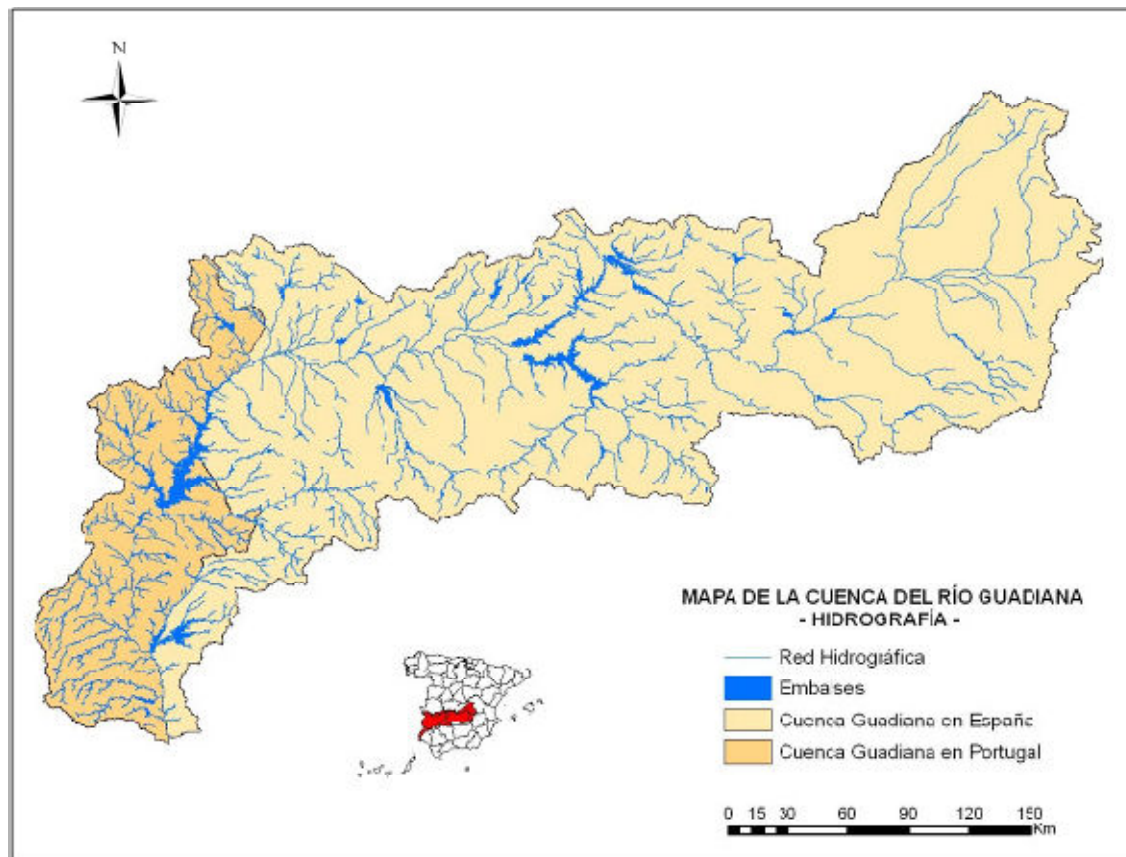
Main issues in the upper Guadiana regarding water management and water use are: conflicts between agriculture and environmental conservation; major irrigation based on groundwater; over-exploitation of aquifers and loss of wetlands; and low effectiveness and high costs of management and control measures. Main issues in the mid Guadiana are: major irrigation development based on surface water; high storage capacity, which mitigates the vulnerability to climate variability; and technical and policy challenges such as improving efficiency, modernization of irrigation systems, cost recovery (as required by the Water Framework Directive (WFD)).

Given the above mentioned conditions and the expected decrease in water availability due to climate change, socio-economic and environmental impacts are expected to be high in the agricultural and irrigation water domains. Policy makers at national and regional levels face the challenge to design adequate climate change adaptation strategies to cope with these impacts.

As the Guadiana river basin covers more than one autonomous region, water planning and management is the responsibility of the central government through its River Basin Authority (RBA) for the Guadiana (Hernández-Mora et al, 2010).

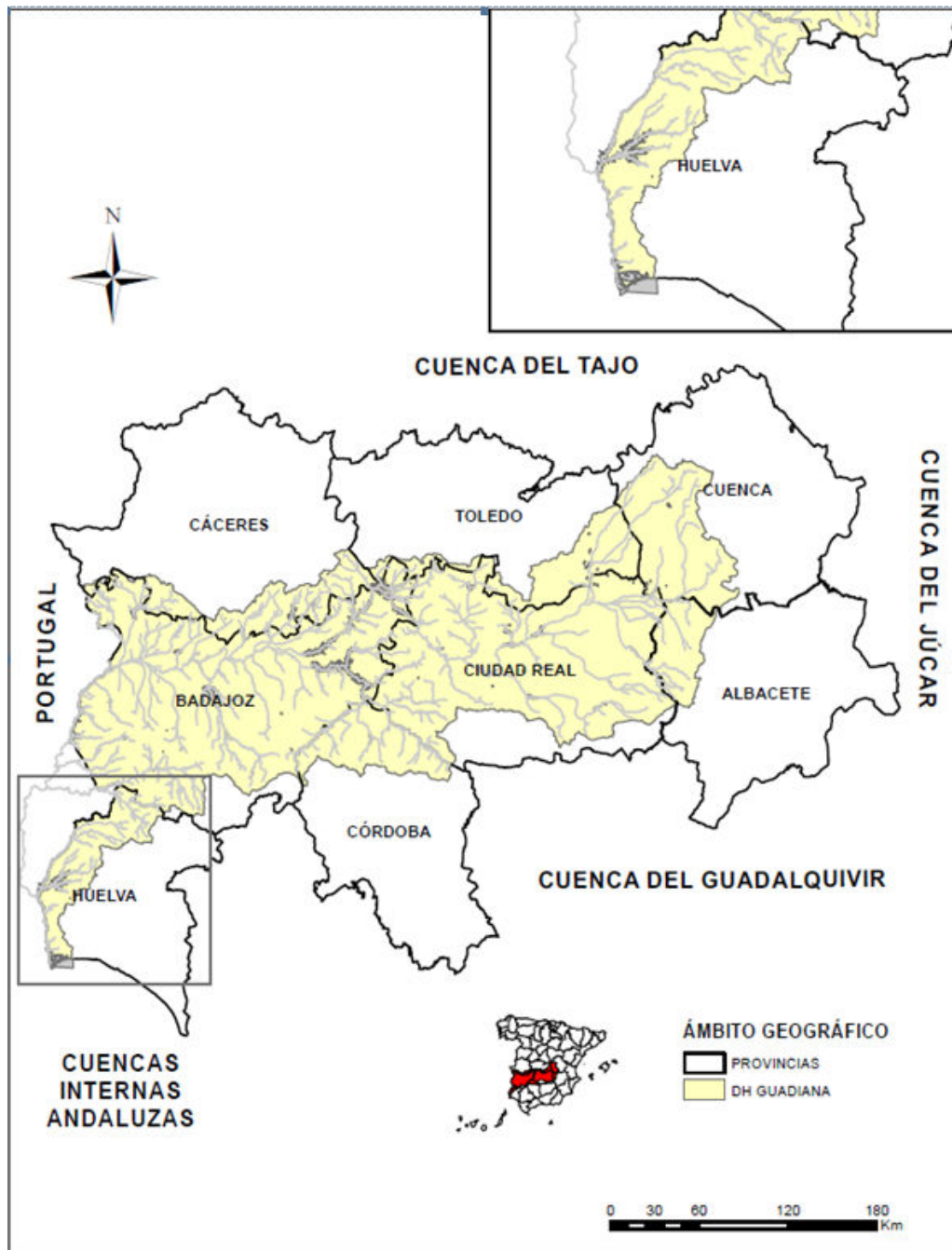
⁷⁰ <http://mediation-project.eu/case-studies/southern-europe-guadiana>

Figure 38: the Guadiana river basin in Spain and Portugal



Source: (MARM and CHG, 2010)

Figure 2: the Guadiana river basin in Spain and the Spanish provinces



Source: (MARM & CHG, 2010)

Effectiveness - compliance

River Basin Management Plans (RBMPs)

RBMP of the Spanish part of the Guadiana River Basin District

The Spanish part of the RBMP for the Guadiana river basin was not adopted by the deadline of 22 December 2009. Since the process of approval of RBMPs has been delayed, the European Commission has opened an infringement procedure against Spain for failing to submit its plans on time: the Commission has so far sent a first ('letter of formal notice') and second warning ('reasoned opinion') to the Spanish authorities. At this moment the planning process is still on-going in many Spanish river basins. In relation to the Guadiana river basin, the draft RBMP will be put to public consultation at the end of May. It is foreseen that the final RBMP will be adopted in spring 2012.

RBMP of the Portuguese part of the Guadiana River Basin District

The Portuguese part of the RBMP for the Guadiana river basin was not adopted either by the deadline of 29 December 2009. In fact Portugal has failed to adopt and submit all RBMPs. It was expected to start public consultation in 2011 but it is not clear when exactly the process will start. Therefore, the European Commission has decided in April 2011 to take Portugal before the ECJ.

RBMPs and public participation

Just like in other river basins in Spain, public participation in water management decision-making in the past has been primarily limited to permit holding water users such as irrigators, hydroelectric companies, industrial users and urban water suppliers. Since agricultural use represents about 92.6 per cent of overall water consumption in the Guadiana river basin, agricultural interests have traditionally dominated public debates on water management. Other values and interests such as ecosystem conservation and other interests of society at large have traditionally been excluded from the decision-making process.

The public participation process in the Guadiana river basin concerning the implementation of the WFD formally started with the publication for consultation of the initial planning documents (timetable, work program and public participation plan) in July 2007. The consultation itself took place from July 2007 to January 2008. To a large extent, the Guadiana RBA's public participation plan follows the guidelines established by the General Water Directorate of the central Ministry of the Environment and Rural and Marine Affairs. This plan divided the basin into three smaller sub-basins and identified all potential stakeholders and grouped them into three categories: public administrations (including local authorities); economic users (including irrigators, industry and hydroelectric companies); and civil society (including recreational users, scientists and environmentalists). In 2008 separate workshops for each stakeholder category and one multi-stakeholder workshop have been organised in each of the three sub-basins to debate the different planning documents (Hernández-Mora and Ballester, 2011).

The RBA also organised public consultation in relation to significant water management issues between July 2008 and January 2009. Related to this, it held thematic basin-wide thematic workshops in 2009 to discuss these issues.

A review of the public participation processes in Spain came to the conclusion that the lack of political will or involvement too often results in weak public participation processes with weak or no integration of their results in water policy. Also the lack of the inter-administrative cooperation contributes to weak public participation processes in the Guadiana and other river basins. Within a context of competing and overlapping responsibilities, this lack of coordination often results in avoiding responsibilities and a lack of clarity of plans and programs and as a consequence in a lack of legitimacy and mistrust towards public participation processes. Next to a lack of coordination between different public administrations, a significant lack of integration exists between the activities of the department within the RBA, which is responsible for developing the RBMP and the Program of Measures (PoM), and the other departments of the RBA. The latter still operate to a large extent according to traditional values and objectives and have not yet internalized the new approach to water policy and management (Hernández-Mora & Ballester, 2011).

The same review concluded that the WFD implementation process contributed significantly to the improvement of the quality and the quantity of publicly available information on the web pages of RBAs. However, it notes that 'it is often difficult to find rigorous technical information that is presented in a user-friendly and synthetic format; is updated regularly; uses language that is adapted to different target audiences; and that makes it possible to identify the sources of the information as well as the key elements or arguments' (Hernández-Mora & Ballester, 2011). The review further concludes that 'the technical nature of the planning documents makes them often difficult to use and understand by the non-specialized public'. Therefore the technical nature of these documents constitutes a barrier to public participation in the planning debates (Hernández-Mora & Ballester, 2011).

It should be noted however that the Guadiana RBA made efforts to highlight changes made in the different documents as a result of the public participation processes with a view to facilitate review by the public and the stakeholders (Hernández-Mora & Ballester, 2011).

As for process design and methodology, it was concluded that the public participation processes often lacked the flexibility to adapt to emerging needs and the realities of different situations. It was also concluded that many process, in particular the early ones, failed to adequately communicate the goals of public participation, sometimes failing to put the initiatives into the context of the implementation of the WFD. Public participation is too often undertaken as a mere formality whereby stakeholder meetings take place separate from the decision-making process (Hernández-Mora & Ballester, 2011).

To conclude, it should be noted that this analysis does not cover the public participation process in relation to the draft RBMP of the Spanish Guadiana river basin as this process was only launched recently.

Designation of water bodies as heavily modified, artificial or natural

According to the *Esquema de Temas Importantes de la Demarcación Hidrográfica del Guadiana* or 'the interim overview of the significant water management issues' for the Spanish part of the Guadiana river basin (MARM & CHG, 2010), the ratio of heavily modified and artificial water bodies in the Spanish part of the Guadiana river basin is around 21.7 per cent (see Table 17), somewhat higher than the 16 per cent Member States had on average provisionally identified in 2007, with the exception of four Member States which had provisionally identified more than 50 per cent of their water bodies as heavily modified or artificial (CEC, 2007). The ratio in the Portuguese part, on the other hand, is slightly below this average (Administração da Região Hidrográfica do Alentejo, 2009).

According to the outline of the management plan (MARM & CHG, 2010), the designation and classification of water bodies in the Guadiana river basin is strongly affected by the geographical condition of the area. As a Mediterranean semi-arid region, the Guadiana river basin is characterized by strong seasonal variations: short periods of rainfall are followed by long dry periods. This phenomenon affects water quality and demand. Indeed, during drought periods most of the Guadiana river tributaries have no water flow and show significant levels of eutrophication. Moreover, as agriculture is the main economic activity, the region presents a high water demand for irrigation. The lack of adequate water supply networks leads to a high exploitation of groundwater sources, especially in the head of the Guadiana catchment, where some aquifers have been declared overexploited, as well as in the Huelva province. The problem of groundwater overexploitation affects not only agriculture, but also the supply to municipalities. According to some academic studies, this situation has increased the requests for river regulation through small dams.

The overview document of the significant water management issues which was published in September 2010, states that the economic analyses were still being carried out in order to understand whether the restoration of the water bodies to its natural status would lead to disproportionate costs compared to the expected results. The number of heavily modified and artificial water bodies was therefore only provisionally. In the meantime, the process of designation of water bodies as heavily modified or artificial has been finalised. The Guadiana RBA has confirmed that the percentages mentioned in the table are still the same.

Table 17: The designation of water bodies in the Guadiana river basin district

	HMWB	AWB	Total
RBD Guadiana in Spain	17,57%	4,15%	21,72%
RBD Guadiana in Portugal	13,76%	0,80%	14,56%

Source: (Administração da Região Hidrográfica do Alentejo, 2009; MARM & CHG, 2010)

HMWB: heavily modified water body

AWB: artificial water body

The extension of deadlines beyond 2015

The Spanish government has opted for using the possibility of extension of the deadline for achieving good status beyond 2015 up to 2027. As stated in the *Esquema de Temas Importantes de la Demarcación Hidrográfica del Guadiana* (MARM & CHG, 2010)

overexploitation of water bodies due to irrigation and farming activities has caused an intensive degradation of quality affecting the natural balance between groundwater and surface water and consequently the good status of water bodies. The use of the possibility to extend the deadlines beyond 2015 has been justified by the Spanish authorities with following arguments: technical infeasibility, the strong socio-economic impact of the required measures and the natural conditions of the area (MARM & CHG, 2010).

Efficiency

Transboundary cooperation within the Guadiana River Basin District

According to the *Esquema de Temas Importantes de la Demarcación Hidrográfica del Guadiana* (MARM & CHG, 2010), Spain and Portugal have signed an international agreement, the *Convenio de Albufeira*, in order to boost cooperation and sustainable water use in relation to their shared water bodies. The agreement, which entered into force in January 2000, deals with the protection of surface and ground water bodies, aquatic and terrestrial ecosystems and sustainable water use in the river basins shared by both countries (Miño, Limia, Duero, Tajo and Guadiana river).⁷¹

Under the Convention two bodies have been established: the Conference of the Parties and the Commission for Development and Application of the Convention (CADC). The Conference of the Parties guarantees the cooperation of the two countries at the highest level by means of representatives appointed by the governments. This body has mainly a political role, meeting whenever the two countries find it necessary to reach consensus on issues related with the Convention's implementation. The CADC has an operational (i.e. deliberative, consultative and supervisory) role. In 2005, Portugal communicated to the EU that the CADC had been designated as the competent authority for coordination of WFD implementation in the Portuguese parts of the shared river basins. Spain informed the Commission of its intention to declare the CADC as well as the coordinating body for the Spanish parts of these river basins (Maia, 2009).

The authorities and administrative bodies involved into the process are: the Spanish Ministry of Foreign Affairs, the Portuguese Ministry of Infrastructure Planning and Territorial Administration, the Spanish Ministry of Environment, the Guadiana River Basin Authority, the Portuguese Water Institute and the Autonomous Community of Andalusia.

The information provided in the *Esquema de Temas Importantes de la Demarcación Hidrográfica del Guadiana* is not conclusive as to what extent this bilateral agreement really works and to what extent it is now re-directed towards the implementation of the WFD.

According to interviewees, some cooperation between Spanish and Portuguese authorities has taken place but is often considered as insufficient. It was, however, noted that the

⁷¹ Convenio de Albufeira: <http://www.cadc-albufeira.org/>

cooperation at technical level has been intensive. Joint meetings take place periodically to coordinate the technical aspects of the RBMP.

In 2009 the *Esquema de Temas Importantes de la Demarcación Hidrográfica del Guadiana* stated that the development of the RBMPs and the PoMs would require a reinforcement of cooperation with Portugal, among others in relation to the organisation of joint meetings, information exchange, integration of data, joint development of informative documents, coordination of the public participation process and conflict resolution (MARM and CHG, 2009).

Cooperation between authorities in Spanish Guadiana

As the Guadiana river basin covers more than one autonomous region, water planning and management is the responsibility of the central government through its River Basin Authority (RBA) for the Guadiana (Hernández-Mora et al, 2010). The Ministry of Environment⁷² has issued general guidelines in 2007 for the drafting of the RBMP, whereas the Guadiana RBA⁷³ has prepared the draft RBMP with the support of an external consultant. There has been some involvement of the Autonomous Communities (in particular through the agriculture and industry departments) in technical working groups addressing specific topics such as diffuse pollution. The municipalities have been involved mainly through public debates.

Cooperation between authorities has been limited so far in the Guadiana river basin, as is the case in most river basins in Spain. As the RBMPs and Programs of Measures require policy initiatives from different levels of government and from different sectors, the creation of a committee of competent authorities for each river basin district is needed to supervise and cooperate in the drafting and implementation of the RBMPs and the Programs of Measures. However, the committees were not established in Spain until late 2008 and have only recently started operating, but without any evident improvement in real and effective inter-administrative cooperation (Hernández-Mora & Ballester, 2011). In the end, the Committee of Competent Authorities did not provide the required cooperation between administrations and authorities. In general there has been a lack of cooperation and political will and, as a result, a lack of integration of the different policies into the (draft) RBMP. The Committee did not provide cooperation at technical level. It only provided a platform for debate on the draft RBMP at political level.

⁷² More in particular by the *Subdirección General de Planificación Hidrológica del Ministerio de Medio Ambiente y Medio Rural y Marino*.

⁷³ More in particular by the *Oficina de Planificación Hidrológica de la Confederación Hidrográfica del Guadiana*.

Websites

Confederación Hiderográfica del Guadiana

<http://www.chguadiana.es/>

<http://planhidrologico2009.chguadiana.es/?url=58> (documentos a consulta)

<http://planhidrologico2009.chguadiana.es/?url=61> (documentos definitivos)

Convenio de Albufeira

<http://www.cadc-albufeira.org/>

Ministerio de Medio Ambiente y Medio Rural y Marino

<http://www.marm.es/es/>

Ministério do Ambiente e do Ordenamento do Território

<http://www.maot.gov.pt/maot/pt/>

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MARM and CHG (2009) *Plan Hidrológico 2009. Anejo B.* Ministerio de Medio Ambiente y Medio Rural y Marino.

MARM and CHG (2010) *Esquema de Temas Importantes. Demarcación Hidrográfica del Guadiana.* Ministerio de Medio Ambiente y Medio Rural y Marino.

3. Po river basin – case study

Introduction

The Po River basin extends from the Alps (in the West) to the Adriatic Sea (in the East) and covers an area of 74,000 km². While only 5% of the basin lies in Switzerland and France, most of it is situated in Northern Italy. In Italy it is the largest river basin, its main channel is the longest (650 km), and its level of discharges the highest. The Po river basin counts some 17 million inhabitants, and extends over 24% of Italy's territory. The regions of Piedmont, Aosta Valley, Liguria, Lombardy, Veneto, Emilia Romagna and Tuscany lie partially or completely within it, as does the Autonomous Province of Trento. Population density ranges from 25 inhabitants/ km² to 1,478 inhabitants/ km² (World Water Assessment Programme, 2009).

The Padano district (i.e. the Po river basin district) is one of the eight hydrographical districts in Italy – the others are Serchio, Eastern Alps, Northern Apennines, Central Apennines, Southern Apennines, Sardinia and Sicily.

The River basin is a strategic region for the Italian economy as it generates nearly 40% of the Italian national GDP through intensive industry, agriculture and tourism. Industrial activity represents 37% of the nation's total. Agriculture in the Po River basin is highly developed, accounting for more than half of the land use in the basin. It is *de facto* the largest cultivated area in Italy (30,000 km²), and accounts for 36% of the country's agricultural production. Accordingly, agriculture has the highest water demand among all sectors in the basin, requiring nearly 17 billion m³ of water per year. About 11,000 km² of the cultivated area is irrigated, almost exclusively (87%) from surface watercourses (World Water Assessment Programme, 2009).

Total water take is 20.5 billion m³/year, accounting for potable uses of 2.5 billion m³/year, 1.5 billion m³/year for industrial use (excluding the electrical energy generation sector), and 16.5 billion m³/year for irrigation use. Groundwater usage is around 6 billion m³/year, and of superficial waters is 14.5 billion m³/year.

Trends of diminishing rainfall and increases in both minimum winter and maximum summer temperatures have been observed in the Po river basin. The average annual rainfall in the area for instance has diminished by 20% since 1975.

The main challenges the river basin is confronted with are water availability or scarcity, pollution and a lack of coordination between planning and implementation authorities. Water availability is a problem particularly in summer when water consumption in agriculture is highest. It creates tension among users and worsens problems related to water quantity. There is for instance an issue of quantitative water rights at interregional level, as a larger amount of water is used by upstream regions such as Piemonte and Lombardia. Along rivers streaming from the Alps, the right to retain water in dams for electricity production is a significant issue. As to water quality, surface and groundwater is affected by industrial, agricultural and household pollutants. Surface waters suffer from

eutrophication, groundwaters from high concentrations of nitrates and coastal aquifers from salt intrusion (Reggi et al, 2007; World Water Assessment Programme, 2009).

Figure 39: The Po river basin

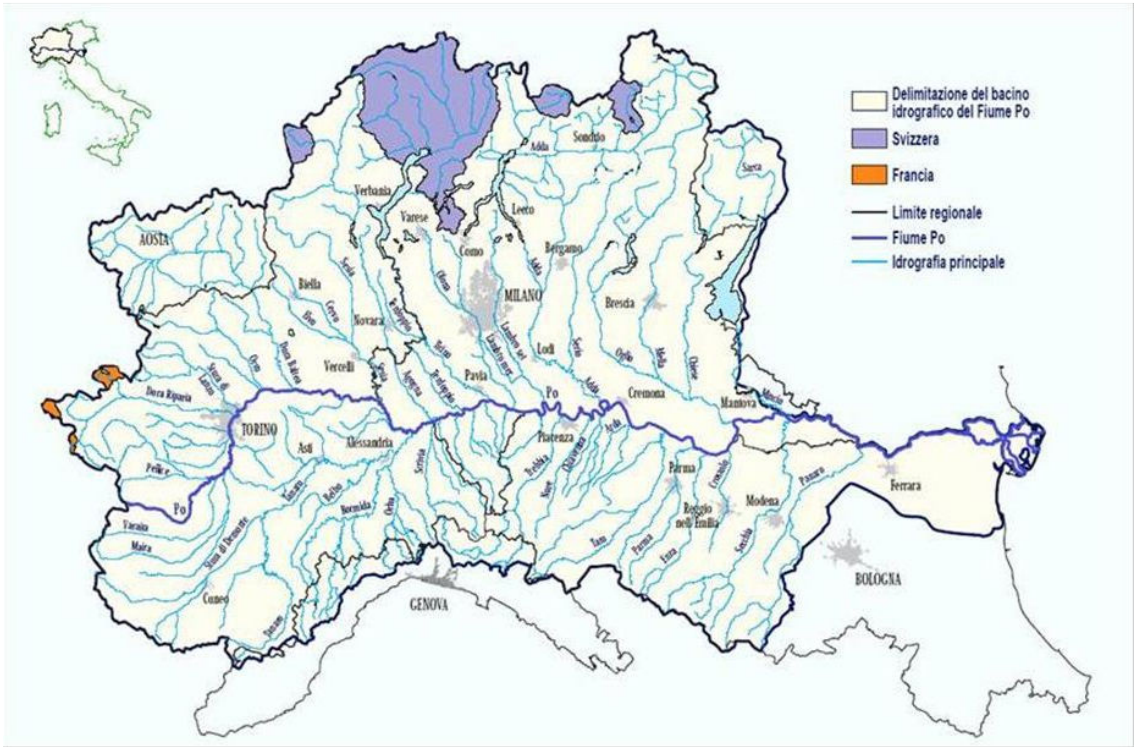
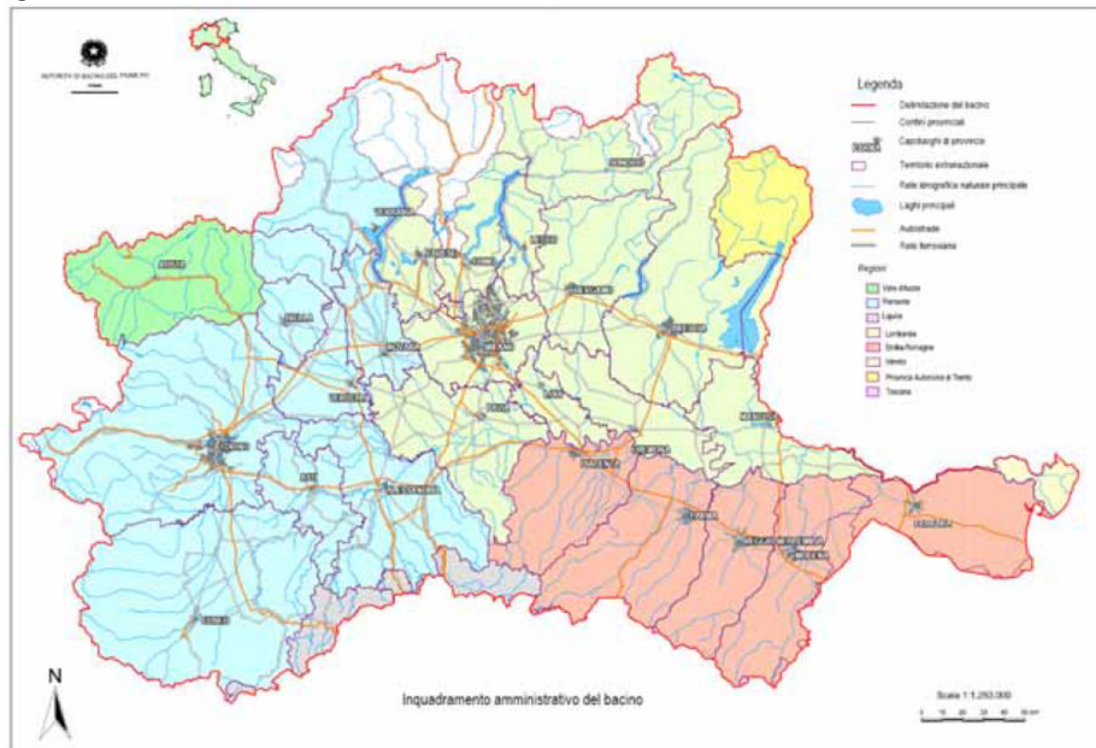


Figure 40: The Po river basin



Source: (Autorità di Bacino del Fiume Po, 2009a)

Effectiveness - compliance

River Basin Management Plans (RBMPs)

Implementation of the WFD in Italy has been very difficult in Italy. In fact the operational implementation of the WFD only started early 2009, hardly one year before the deadline to adopt RBMPs by 22 December 2009. Italy was condemned by the ECJ in January 2006 (C-85/05) for failure to transpose the Directive by December 2003. The Italian government only initiated the implementation process of the WFD with the adoption in 2006 of decree 152/2006 which reformed the entire environmental legislative body in Italy and which replaced in particular decree 152/1999 on water regulation. However, decree 152/2006 only became fully effective in 2009 when law 13/2009 provided for the implementation of the WFD through RBMPs to be drawn up by District Authorities (which can be considered as river basin authorities or RBAs as meant by the WFD). Law 13/2009 provided, as a transitional provision, that the Institutional Committee of the Basin Authorities of National Importance would adopt the RBMPs until the RBAs would have been established and operational (Viaggi et al, 2010).

As the task of drafting the RBMPs was only designated to the river basin authorities (the District Authorities to be more precise) in 2009 by law 13/2009 and the WFD required Member States to adopt RBMPs by the end of 2009, the Italian RBMPs have been drafted in only six months, whereas the WFD provides for a period of three years to develop these plans (WWF Italia, 2011).

The RBMP for the Po River Basin has been adopted on 24 February 2010 by the River Basin Authority (RBA) for the Po. Even though the deadline set for the adoption of the RBMPs was 22 December 2009, the Italian national government postponed the deadline to 28 February 2010 through a legislative decree (*Art. 8, comma 1, del D.L. 194/2009*).

Though Italy managed to adopt the RBMPs more or less in time, the process of drafting the RBMPs took place in a very short time period and this might have occurred at the expense of the quality of the drafting process and of the plans themselves. According to WWF Italy, the RBMPs do not present any substantial modification of the regional water protection plans or the *Piani di Tutela delle Acque* (see box for more details) and the new guidelines and measures included into the plans are superficial and vague (WWF Italia, 2011).

Piani di Tutela delle Acque and other plans

Under DLgs 152/99, each Region was required to draft a water protection plan or *Piani di Tutela delle Acque* in order to achieve the environmental objectives defined by the Basin Authority. In fact, the Basin Authorities of national and interregional relevance were required to define environmental objectives and priorities among the measures to be taken by 31 December 2001 (after consulting the Regions and Provinces). It was then up to each of the Regions within the river basin to develop a water protection plan by 31 December 2003 (after consulting the provinces). Subsequently, it was up to the Basin Authority to check the conformity of the regional plans with the environmental objectives adopted at the level of the (river) basin. The regional plans had to be approved by 31 December 2004 (Civita et al, 2010).

However, this planning system was changed once again with the the adoption of DLgs 152/06 (and later modifications such as DLgs 4/08 and Law l 13/09) through which full transposition of the WFD into Italian law was aimed for. A major change was the introduction of 14 water districts, in which all minor basins were to be merged, and the replacement of the *Basin Authorities* by *District Authorities*. The latter are now in principle responsible for the application of the WFD principles into each district and the drafting of *District Plans* to be composed by a *Hydrogeological Plan* and a *Management Plan*. The latter concerns environmental protection of water bodies and the sustainable management of water resources and integrates measures from the various regional *Environmental Plans*. These regional environmental plans have to be in conformity with the general directives of the district authority, put together in a *Master Plan*, and have to be approved by the district authority (Civita et al, 2010).

RBMPs and public participation

The public participation in the Po river basin concerning the implementation of the WFD has been divided into three stages:

- Public access to information: mainly through public forum between March and October 2009, publication of the official documents on the website of the Po RBA and press releases.
- Consultation: institutional authorities at national and local level, institutional and non-institutional environmental agencies, scientific and technical experts from the academic and non-academic sector and different stakeholders have been involved in the process of consultation. A first preliminary round took place between April and May 2009. A second and final round of consultation took place from July 2009 to January 2010.
- Active participation: from April to May 2009 and from October to November 2009 workshops and meetings have been organised to discuss issues related to the draft RBMP. After the first round of meetings, the need of setting up permanent panel discussions about themes such as agriculture, industry, energy, research and innovation, tourism, fishing and biodiversity has emerged (Autorità di Bacino del Fiume Po, 2010a).

Stakeholders involved have generally expressed positive opinions on the way the participation process has been undertaken. Despite the limitations the Po RBA had to face, such as the absence of a Secretary General until January 2010, a funding deficiency and a delayed start of the consultation process (November 2009 instead of 2006), the RBA has been able to organise meetings and workshops covering a wide range of themes. It provided a real opportunity for exchanging opinions and expertise. On the other hand, the data included in the draft RBMP were not fully up-to-date. Data mainly originated from the regional water protection plans or *Piani di Tutela delle Acque* written under D.Lgs. 152/99. Further analysis was required, especially for the agricultural sector (Legambiente, 2010; WWF Italia, 2009).

Designation of water bodies

The ratio of heavily modified and artificial water bodies in the Po river basin is around 21.77% (see

Table 18), somewhat higher than the 16% Member States had on average provisionally identified in 2007, with the exception of four Member States which had provisionally identified more than 50% of their water bodies as heavily modified or artificial (CEC, 2007).

Designation of water bodies has been carried out in cooperation with the regions and the *Sistema delle Agenzie Ambientali* (ARPA) of the Po river basin, merging already existing data with new ones coming from research activities undertaken between 2003 and 2008. The logical framework used to elaborate data has been set by the Ministry of Environment with a legislative decree (*Decreto 16 giugno 2008, n. 131*) (Autorità di Bacino del Fiume Po, 2010b).

Table 18: The designation of water bodies in the Po river basin district

	HMWB	AWB	Total
RBD Po	6.10%	15.67%	21.77%

Source: (Autorità di Bacino del Fiume Po, 2009b)

HMWB: heavily modified water body

AWB: artificial water body

The use of extensions – the extension of deadlines beyond 2015

The Po RBA has opted for using the possibility of extension of the deadline for achieving good status beyond 2015 up to 2027. As the environmental assessment undertaken by the Po RBA shows, only the ratio of ground water bodies which will achieve the objectives within 2015 is pretty high (81.5%). For surface water bodies, the ratio appears lower: 67.83% of natural rivers will achieve good ecological status within the first deadline (2015). Extensions of the deadline up to 2021 are required for 21.27% and up to 2027 for 10.57% of natural rivers. On the contrary, for lakes the ratio is pretty small: only 39.0% of natural lakes will achieve the objectives within 2015 while further extensions of the deadline are required up to 2021 and even 2027 for 41.0% and 20.0% of natural lakes.

The arguments put forward by the Po RBA to explain the need for an extension of the deadline are: technical infeasibility to achieve the required improvements within the deadline of 2015 and the argument that achievement of these improvements would generate disproportionate costs. In relation to the former, the Po RBA states that further background studies are required in order to better understand the reasons of the alteration of water bodies' ecological status. In relation to the latter, the RBA stated that further cost-benefit analysis are needed (Autorità di Bacino del Fiume Po, 2009b).

Table 2: Percentage of surface water bodies for which good ecological status can be achieved by 2015 or for which an extension of deadline is being proposed

	Rivers			Lakes		
	Natural water bodies	HMWB	AWB	Natural water bodies	HMWB	AWB
Objectives to be met in 2015	67.83%	50.03%	23.43%	39.0%	89.0%	91.0%
Extension of deadline to 2021	21.27%	10.61%	21.45%	41.0%	5.0%	9.0%
Extension of deadline to 2027	10.57%	36.36%	53.47%	20.0%	4.0%	/
Data not available	0.33%	/	1.65%	/	2.0%	/

Source:(Autorità di Bacino del Fiume Po, 2010b)

Table 41: Percentage of transitional water bodies for which good status can be achieved by 2015 or for which an extension of the deadline is being proposed

	Transitional water bodies		
	Natural water bodies	HMWB	AWB
Objectives to be met in 2015	/	/	/
Extension of deadline to 2021	19.05%	/	/
Extension of deadline to 2027	14.29%	/	4.76%
Data not available	19.05%	42.86%	/

Source: (Autorità di Bacino del Fiume Po, 2010b)

Table 4: Percentage of groundwater bodies for which good status can be achieved by 2015 or for which an extension of the deadline is being proposed

	Groundwater bodies		
Objectives to be met in 2015	Extension of deadline to 2021	Extension of deadline to 2027	Data not available
81.5%	4.8%	13.0%	0.7%

Source: (Autorità di Bacino del Fiume Po, 2010b)

Barriers to adequate implementation of WFD in Italy

In the literature several barriers have been put forward which explain the late and inadequate implementation of the WFD in Italy so far.

Environmental and socio-economic differences across the country have hindered the adoption of a single national water policy. Also the distribution of water management tasks among several actors from different administrative levels, including the central government, regional governments, river basin or district authorities, ATOs (*Ambiti Territoriali Ottimali*)⁷⁴, provinces and reclamation and irrigation boards, has been put forward as a barrier to the timely and adequate implementation of the WFD (Civita et al, 2010; Viaggi et al, 2010).

As already mentioned above, the implementation of the WFD in Italy has suffered from significant delays. This is exemplified among others by the fact that only in 2009 a national provision was enacted that RBMPs would have to be drawn up by river basin authorities (RBAs). As a result the proposed measures were designed in only a few months and their evaluation was mostly carried out in parallel with the selection and design of measures and therefore without sufficient detail. Together with the lack of data available from past studies, including basic physical data on water resources, and the lack of economic expertise in Italy in general and in the bodies responsible for developing the RBMPs in particular⁷⁵, it can therefore be concluded that RBMPs have been developed in Italy without a proper evaluation of measures (Civita et al, 2010; Viaggi et al, 2010).

⁷⁴ ATOs are in charge of water distribution for human consumption and industrial use.

⁷⁵ These bodies are traditionally devoted to hydraulic and engineering activities in relation to water management.

The adequate implementation was also hindered by a lack of resources. The first round of RBMP preparation in particular was carried out without any additional resources from the Italian central government (Viaggi et al, 2010).

Efficiency - cooperation between administrations and authorities

Cooperation between authorities in the Po river basin, as in the other Italian river basins, is cumbersome. One problematic aspect of the cooperation between authorities is the absence of a distinct hierarchy between the different administrative levels, i.e. region, province and river basin, and their respective water management plans. The main competences in relation to water management were originally delegated to the regions. Each region enacted its own laws and the provinces were given responsibilities with respect to implementation of these regional laws at local level. The basin authorities had mainly responsibilities in relation to flood control. However, in 2009 *district* authorities were established for each hydrographic district (replacing the existing *basin* authorities) and given the competence to draw up a management plan of the river basin or hydrographical district concerned (Viaggi et al, 2010).

As already mentioned above, the distribution of water management competences among several actors from different administrative levels, including the central government, regional governments, basin or district authorities, ATOs (*Ambiti Territoriali Ottimali*), provinces and irrigation boards, has been put forward as a barrier to the timely and adequate implementation of the WFD (Civita et al, 2010; Viaggi et al, 2010).

A particular obstacle to the proper implementation of the WFD is the existing conflict between state and region. Indeed, when the river *basin* authorities (established with law 183/89) became river *district* authorities with the legislative decree DLgs 152/2006 the Ministries acquired more power regarding river basin management, while previously there was a more balanced distribution of power among the Italian state, the regions and the autonomous provinces. Therefore, the district authority is now a further reason of conflict between state and region instead of being a planning and coordinating authority (WWF Italia, 2011).

Websites

Autorità di bacino del fiume Po

<http://www.adbpo.it/on-multi/ADBPO/Home.html>

RBMP and public participation

<http://www.adbpo.it/on-multi/ADBPO/Home/PianodiGestioneepartecipazionepubblica.html>

RBMP documents

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4. Scheldt river basin – case study

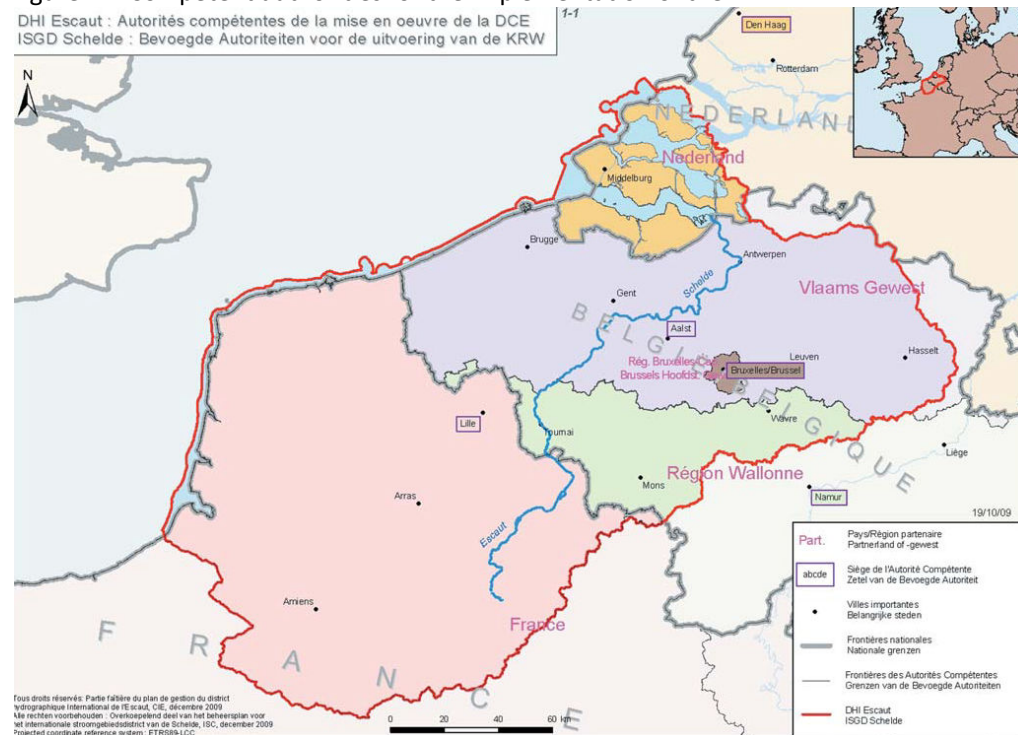
Introduction

The Scheldt is a lowland river, including the territories of France, Belgium and the Netherlands. As to Belgium, the federal state and the three regions (the Flemish, Walloon and Brussels Regions) are involved in the International Scheldt Commission and in particular in the drafting of the Scheldt River Basin Management Plan as actors on their own.

The Scheldt's average flow is 115 m³/s, which is three times less than the Meuse flow. In the river basin's downstream parts starting at Ghent, the Scheldt's water level is also under tidal influence. In the subsoil, aquifers create a diversified and complex water system.

The waters of the Scheldt river basin are in particular affected by a high population density, old industries, intensive agriculture and numerous hydro-morphological alterations. As to intensive agriculture, crops are predominant in the south of the river basin district, whereas an intensive cattle breeding is characteristic for the Flemish Region. The hydro-morphological alterations result from the numerous physical interventions meant to prevent floods and droughts and to facilitate navigation, such as the construction of banks, dams and locks.

Figure 42: Competent authorities for the implementation of the WFD



Source: (CIE, 2009)

Effectiveness - compliance

River Basin Management Plans (RBMPs)

RBMPs of the Belgian parts of the Scheldt River Basin District

The Belgian parts of the RBMP for the Scheldt river basin were not adopted by the deadline of 22 December 2009, with the exception of the RBMP for the Belgian coastal waters which was adopted by the federal State Secretary for mobility on 7 December 2009. The RBMP for the Flemish part of the Scheldt was only adopted and published on 8 October 2010. Consultation on the draft RBMP took place between 16 December 2008 and 15 June 2009.

The Walloon Region, however, did not manage to prepare adequate draft RBMPs in the course of 2009. The government has nevertheless put some rough drafts to public consultation in 2009, but these drafts were deemed inadequate by the European Commission. Therefore the Walloon Region had to come up with a new draft RBMP. However, the Walloon Region only came up recently with a new draft and started public consultations in 2011. It expects to publish its plan in 2012.

The RBMP for the Brussels regional part of the Scheldt river basin has not yet been adopted either. Consultation on the draft RBMP is currently taking place in the Brussels Region and it is expected that the final RBMP will be adopted later on in 2011.

Because of these significant delays in adopting and submitting RBMPs, the Commission announced in April 2011 it would refer Belgium to the ECJ.

RBMP of the Dutch part of the Scheldt River Basin District

The Dutch government adopted the RBMP of the Dutch part of the international Scheldt river basin district on 27 November 2009.

RBMP of the French part of the Scheldt River Basin District

The RBMP of the French part of the international Scheldt river basin district has been adopted on 16 October 2009 by the *Comité de Bassin* and approved on 20 November 2009 by the *préfet coordonnateur de bassin*, i.e. well before the deadline of 22 December 2009.

Roof RBMP for the international Scheldt river basin district

Next to these national RBMPs, a management plan roof report (i.e. a roof RBMP) was adopted for the whole of the international Scheldt river basin district. The roof RBMP was approved in December 2009 after consultation of the public by the six competent authorities.

RBMPs and public participation

Public participation in the Netherlands

During the implementation of the WFD public participation in the Netherlands (and in the Dutch part of the Scheldt river basin in particular) took place at three levels: through formal consultation/participation, through so-called *klankbordgroepen* and through so-called *gebiedsprocessen* (regional processes).

The formal requirements for public participation have been incorporated in Dutch national law. Next to the formal participation processes, public participation took place through so-called *klankbordgroepen* which supported the activities of the national *Regiegroep* (national pillar) and the regional political deliberation committees or RBOs (regional pillar). (For more details on these committees see section 0.) These *klankbordgroepen* were composed of representatives of the land managers and several interest groups. They became active in 2005 and have been involved in the implementation of the WFD until the adoption of the final RBMPs (Ten Heuvelhof et al, 2010).

Also the *waterschappen* have made efforts concerning public participation by setting up 140 regional processes or *gebiedsprocessen*, mostly at the level of a water body. Those regional processes mainly took place between 2006 and beginning of 2008 and aimed to involve stakeholders in reflecting about the most cost-effective solutions for bottlenecks in water management. As a result these regional processes did not only address measures for the WFD, but also synergies between the WFD, Natura 2000 and water safety policies and their implications for land use planning, water management and other policy areas. These regional processes were finalised early 2008 (Ten Heuvelhof et al, 2010).

A study carried out for the Dutch Ministry for Transport and Water (V&W) comes to the conclusion that most involved actors are rather positive about the information provided to the public and the stakeholders during the WFD implementation process. Opinions (from respondents and interviewees), however, are more divided as to the extent to which comments from stakeholders have been taken into account. The study also points at tensions between the time required for a thorough participation process and time pressures and strict deadlines related to the implementation of the WFD. At the level of the *klankbordgroepen* and the regional processes, the argument of timeliness outweighed the argument of thoroughness. EU deadlines were strict and have never been postponed as a result of insufficient or uncompleted participation. In general, respondents and interviewees are positive about the use that has been made of the information available at the regional level. However, opinions are divided as for the creation of public support for measures. On the one hand there are concrete measures that are being supported by different stakeholders. On the other hand clashes of interests remain and in particular environmental NGOs and water companies are unsatisfied with the level of ambition. Nevertheless, most actors agree that a very good result has been achieved as to public participation given the available time and resources (Ten Heuvelhof et al, 2010).

Delineation of water bodies

Water bodies have been delineated quite pragmatically in the different parts of the international Scheldt district. In the Netherlands for instance following reasoning has been made: the objectives of the Water Framework Directive refer to all surface waters, but can be achieved without designating each surface water as a water body – which is in conformity with EU guidelines. The Netherlands has chosen not to delineate and designate all waters as water bodies: water systems such as brooks and ditches which are smaller than 10 km² or 50 ha have been left out.

The threshold in the Flemish Region for surface waters to be designated as water bodies and to be included in the RBMPs has even been higher: water systems smaller than 50 km² have not been included in the plans at river basin level. However, these smaller water courses have been assigned to plans at sub basin level, i.e. at the level of *bekkens* and *deelbekkens*. By doing this the Flemish Region only had to report towards Europe on water systems managed by Flemish water management authorities as opposed to water systems managed by local and provincial management authorities (Crabbé & Wiering, 2010).

Designation of water bodies as heavily modified, artificial or natural

The ratio of heavily modified and artificial water bodies is pretty high in the Scheldt river basin district, in particular in Belgium and the Netherlands (see

Table 19). According to the roof part of the management plan (CIE, 2009) this is due to the strong impact of human activities on the water system in the Scheldt river basin district. However, according to some observers the number of heavily modified water bodies could have been (slightly) lower if the authorities would have been more ambitious, in particular in the Netherlands which has designated a very high percentage of waters as water bodies (Crabbé and Wiering, 2010). The Dutch nature organisations state that the decisions in the Netherlands (including in the Dutch part of the Scheldt district) to designate water bodies as heavily modified (and the decisions about the level of ambition of the ecological objectives) are insufficiently transparent and in many case not in accordance with the requirements of the Water Framework Directive. In their position paper they give several examples of waters, mainly rivers and brooks, which should have been designated as natural water bodies instead of heavily modified water bodies (Vereniging Natuurmonumenten et al, 2010).

Within the context of the International Scheldt Commission, a comparative study was carried out on the criteria used by the different competent authorities to designate heavily modified and artificial water bodies.

Table 19: The designation of water bodies in the Scheldt river basin district

	HMWB	AWB	Total
RBD Scheldt in France	26 %	12 %	38 %
RBD Scheldt in Walloon Region (Belgium)	35.4%	15.2%	50.6%
RBD Scheldt in Brussels Capital Region (Belgium)	67 %	33 %	100 %
RBD Scheldt in Flemish Region (Belgium)	50%	27.5 %	77.5 %
RBD Scheldt in the Netherlands	34 %	62.5 %	96.5 %

HMWB: heavily modified water body

AWB: artificial water body

Within the ISC it has been decided to carry out an economic analysis when designing a water body as heavily modified or artificial in order to get an answer to the question whether the restoration of the water body to its natural status would lead to disproportionate costs compared to the expected results. Economic analyses performed by the ISC on a series of examples within the Scheldt district indicated that the answer to this question is actually determined by the economic interests or benefits of the present use. In case of major economic benefits, it can be assumed that the restoration of a heavily modified water body to its natural status would lead to significant economic costs/damage. Only if the present use provides only a minor economic benefit, for instance for water bodies that are hardly used for navigation or in case the reaching of good ecological status requires little intervention on the water body's morphology, the question will be raised whether the costs of losing the economic benefits of the present use outweigh the benefits of a better environmental quality. So in that case an economic analysis would be required (CIE, 2009).

Therefore it can be concluded that the process of designing strongly modified water bodies has been coordinated to some extent within the international Scheldt district whereby all Parties de facto agreed to use the Prague method for designating water bodies (and setting environmental objectives).

The use of exemptions – the extension of deadlines beyond 2015

The extension of deadlines beyond 2015 in the international Scheldt district

All Parties in the International Scheldt Commission and therefore all RBMPs (including the international one) have opted for using the possibility to extend the deadlines for achieving good status beyond 2015 up to 2021 or even 2027 (see Table 20). All Parties have proposed to phase the implementation of the measures due to technical infeasibility, disproportionate costs and/or natural conditions (CIE, 2009).

Table 20: Number of surface and ground water bodies* for which good status can be achieved by 2015 or for which an extension of the deadline is being proposed

	Groundwater bodies		Surface water bodies	
	Objectives to be met in 2015	Extension of deadline	Objectives to be met in 2015	Extension of deadlines
Frankrijk	3	2	11	53
België Federaal	0	0	0	1
Waals Gewest	3	5	10	69
Brussels Hoofdstedelijk Gewest	4	1	1	2
Vlaams Gewest	2	17	5	177
Nederland	3	1	0	56
Totaal ISGDS	15	26	27	358
* Beperkt tot de grondwaterlichamen behorende tot grensoverschrijdende watervoerende lagen				

Source: (CIE, 2009)

Dutch part of the Scheldt district

The RBMP of the Dutch part of the international Scheldt district invokes for many surface water bodies the possibility of an extension of the deadline for achieving the objectives from 2015 up until 2027. From the 56 surface water bodies in the Dutch part of the Scheldt district the RBMP indicates that for 48 surface water bodies (86%) the objectives will not be met by 2015 and that as a result an extension of the deadline beyond 2015 is required.

For most of these water bodies two arguments are being put forward to explain the need to extend the deadlines: it is not technically feasible to achieve the required improvements within the deadline of 2015; and achieving these improvements requires disproportionate costs (see Table 21). For only three out of the 48 water bodies the extension of the deadline has been justified through the argument that natural conditions prevent the objectives from being achieved by 2015 (Projectteam stroomgebiedbeheerplannen, 2009).

Table 21: Number of surface water bodies in Dutch part of the Scheldt for which justification is given for extending deadlines beyond 2015

	Number of water bodies for which justification is given	Justification (more than one choice possible per water body)		
		Natural conditions	Disproportionate costs	Technically not feasible
Schelde-Zeeland	38	1	37	37
Schelde-Noord-Brabant	6	2	6	5
Schelde - Rijkswaterstaat	4			4
Total	48	3	43	46

Source: (Projectteam stroomgebiedbeheerplannen, 2009)

Flemish part of the Scheldt district

The RBMP of the Flemish part of the international Scheldt district also invokes for almost all surface water bodies the possibility of an extension of the deadline for achieving the objectives beyond 2015. From the 182 surface water bodies in the Flemish part of the Scheldt district the RBMP indicates that for 177 surface water bodies (97.5 %) the objectives will not be met by 2015 and that as a result an extension of the deadline beyond 2015 is required (see Table 20). The extension of the deadline is only justified by the argument of technical infeasibility, at least at the level of the water body. The argument of disproportionate costs is only put forward at the level of the programme of measures. And the argument of natural conditions is only used in relation to ground water bodies (CIE, 2009).

Efficiency

Transboundary cooperation within the Scheldt river basin district

Although every member state or region is responsible for the implementation on its territory of the WFD regulations, coordination is a necessity. Within the International Scheldt Commission, intense cooperation has been established between the Parties' experts (see Figure 43), as shown by the Scheldt district management plan's roof report, which provides a new basis for further cooperation between the Parties (CIE, 2009).

For cross-border rivers and aquifers the competent authorities involved coordinate directly by means of bilateral or trilateral contacts.

The international coordination within the international Scheldt Commission consists of several components and stages. It first resulted in the development and approval at the end of 2004 of the roof part, i.e. the transnational part, of the analysis of the international Scheldt river basin district, as end deliverable of the multilateral alignment of the analyses carried out as required by Article 5 WFD (qualification of water bodies, analysis of pressures and impacts and economic analysis). In 2005 a list of major water management issues at the level of the district was published. From 2005 to 2009 exchange of information took place concerning procedures applied during consultations of the public and about their results. In 2006 coordinated implementation of status and trend monitoring networks of ground and surface waters took place, which was followed by a coordinated evaluation of the water bodies' status and of the objectives in relation to achieving good status. On 10 December 2009 the management plan's roof report was approved by the plenary of the International Scheldt Commission, after consultation of the public by the six competent authorities (France, Flemish Region, Walloon Region, Brussels Capital Region, Federal State of Belgium and the Netherlands). The Parties within the International Scheldt Commission have produced several reports in the period 2003-2008 within the context of the Interreg-Scaldit

project such as a report on cost-effectiveness and a catalogue of the most important existing and planned measures (CIE, 2009; ISC, 2009).

A major instrument for transboundary analysis and coordination are the maps at the level of the international river basin district. As the Parties within the district have been using diverging methods for storage of geographic data, they have been working within the Scheldt Commission to improve the coherence and standardisation of data and to establish coordinated maps on the basis of unified data sources. In addition, the development of a cartographic instrument (webgis) enabled the Parties to exchange information and to carry out a joint analysis (CIE, 2009).

International consultation/coordination within the International Scheldt Commission is being complemented with bilateral consultation/coordination with a view to increase the transboundary coherence within the Scheldt district. The Parties involved in these bilateral contacts report back on this to the International Scheldt Commission. For instance joint bio monitoring campaigns have been carried out in relation to transboundary water courses between the Flemish Region and the Walloon Region and between France and the Flemish Region. Trilateral consultation between France, the Walloon and Flemish Region on the transboundary aquifer of the Kolenkalk (*calcaire carbonifère*) takes place regularly within the International Scheldt Commission. The Netherlands and Belgium regularly exchange information on nitrate pollution problems in the Dutch coastal area of the North Sea, etc (CIE, 2009).

In some cases also permanent bilateral consultation occurs beyond the activities of the International Scheldt Commission aiming for a coordinated and sustainable management of several transboundary water courses. The Flemish-Dutch Scheldt Commission (*Vlaams-Nederlandse Scheldec commissie*), which has been established to implement the long-term vision for the *Westerschelde*, is an example of this type of coordination. Other examples are the consultation between the *waterschap Zeeuws-Vlaanderen* (NL) and the Flemish Region regarding non-navigable water courses and the consultation between the Netherlands and the Flemish Region within the transboundary river basin committee *Kreken en Polders* (CIE, 2009).

Furthermore, more informal, bilateral commissions have been established under the auspices of the *Nederlands-Vlaams Integraal Wateroverleg*.

Local and regional transboundary cooperation in the Netherlands and neighbouring countries

Local and regional water managers can indeed seek to cooperate with each other with a view to coordinate objectives and plans, in particular in relation to smaller water bodies. However, a Dutch study identified some difficulties encountered by Dutch local and regional water managers in finding the right interlocutor(s) on the other side of the border in Belgium (and Germany). This results from the fact that water management is differently organised among countries (Ten Heuvelhof et al, 2010).

The organisation of water management tasks indeed differs between the Netherlands and Belgium. Compared to the Netherlands, competences within the three Regions in Belgium are spread over a

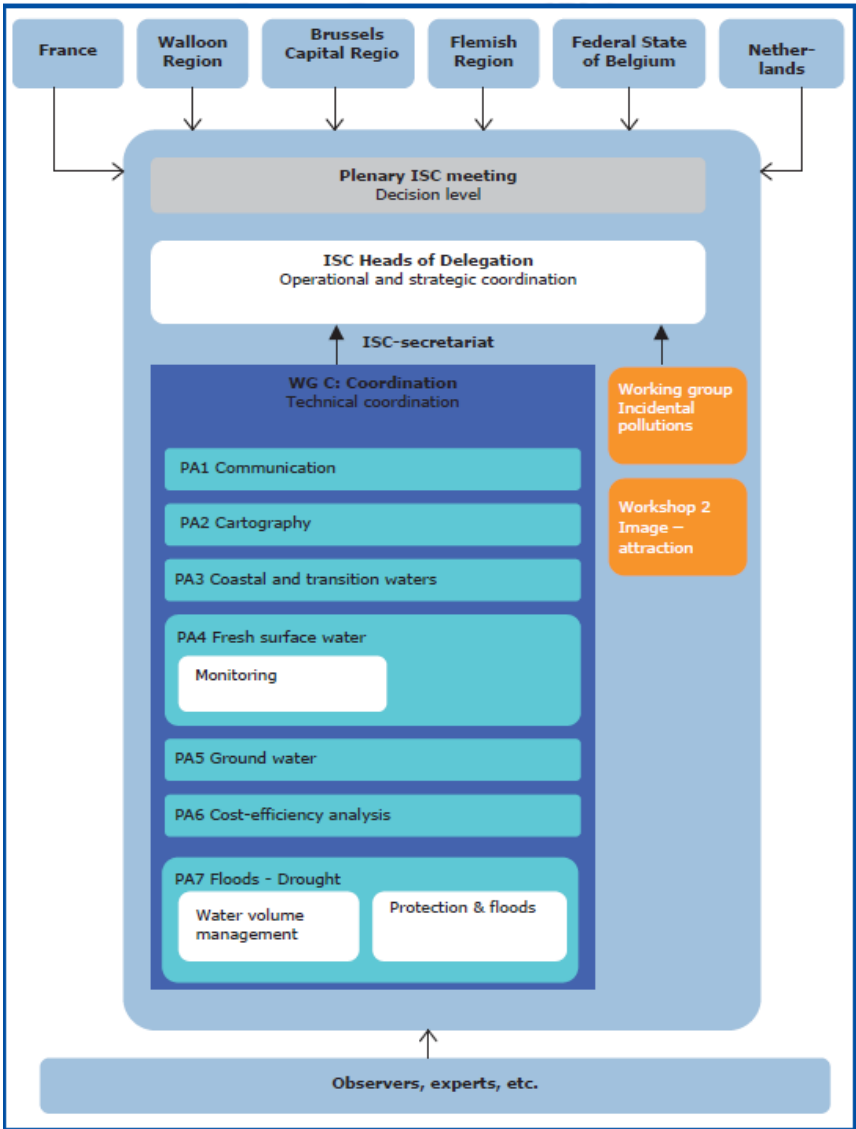
high number of public authorities. These structural differences impede cooperation among public authorities. In addition, cultural differences may constitute an obstacle to cooperation as well (Ten Heuvelhof et al, 2010).

Furthermore, Dutch provinces and *waterschappen* were also hindered to seek transboundary cooperation with their institutional counterparts as there was for a long time uncertainty and ambiguity about the Dutch approach and in particular the objectives of the Dutch parts of the RBMPs.

Opportunities for transboundary cooperation were further limited by the limited time available due to the annual deadlines imposed by the Dutch central authorities on regional cooperation processes. As a result there was only limited time available for alignment with other parts of the (Dutch) RBMPs and even less time for alignment with partners on the other side of the border.

In some international river basins this resulted in a situation in which the quality of the same water body was labelled good on one side of the border and bad on the other side. The study does not specify whether this was also the case for the Scheldt river basin (Ten Heuvelhof et al, 2010).

Figure 43: cooperation within the International Scheldt Commission



Source: (ISC, 2009)

Cooperation between authorities within one Member State

Cooperation between authorities in the Flemish Region in relation to the development of the Scheldt RBMP

The situation in the Flemish Region is characterized by a large number of public authorities at all government levels, i.e. at the level of the Flemish government, at the level of the provinces, at the level of the municipalities and at the level of *polders* and *wateringen*. The government of the Flemish Region is responsible for the management of navigable waterways. Competences in the management of non-navigable watercourses are allocated based on a legal division between non-navigable watercourses of several categories. Provinces are responsible for non-navigable waterways of second category, whereas municipalities are responsible for non-navigable waterways of second category. (Figure 44).

At the level of the Flemish Region, a new authority has been created called the Coordination Commission on Integrated Water Management (*CIW*) which is responsible for the preparation, planning, supervision and follow-up of integrated water management in Flanders. The Commission brings together all competent actors in water management, including civil servants from the agriculture, economy and spatial planning departments and from the nature and forest agency.

Also at the level of sub river basins (*bekkens*)⁷⁶ and sub sub river basins (*deelbekkens*), new structures have been created. For each of the sub river basins (*bekkens*), a basin council, a basin executive and a basin secretariat have been introduced. The basin executive is the policy-orientated decision-making body. It is composed of representatives of the Flemish region, one representative from each province wholly or partly situated in the geographical area of the basin and one representative from each sub-basin of the basin.

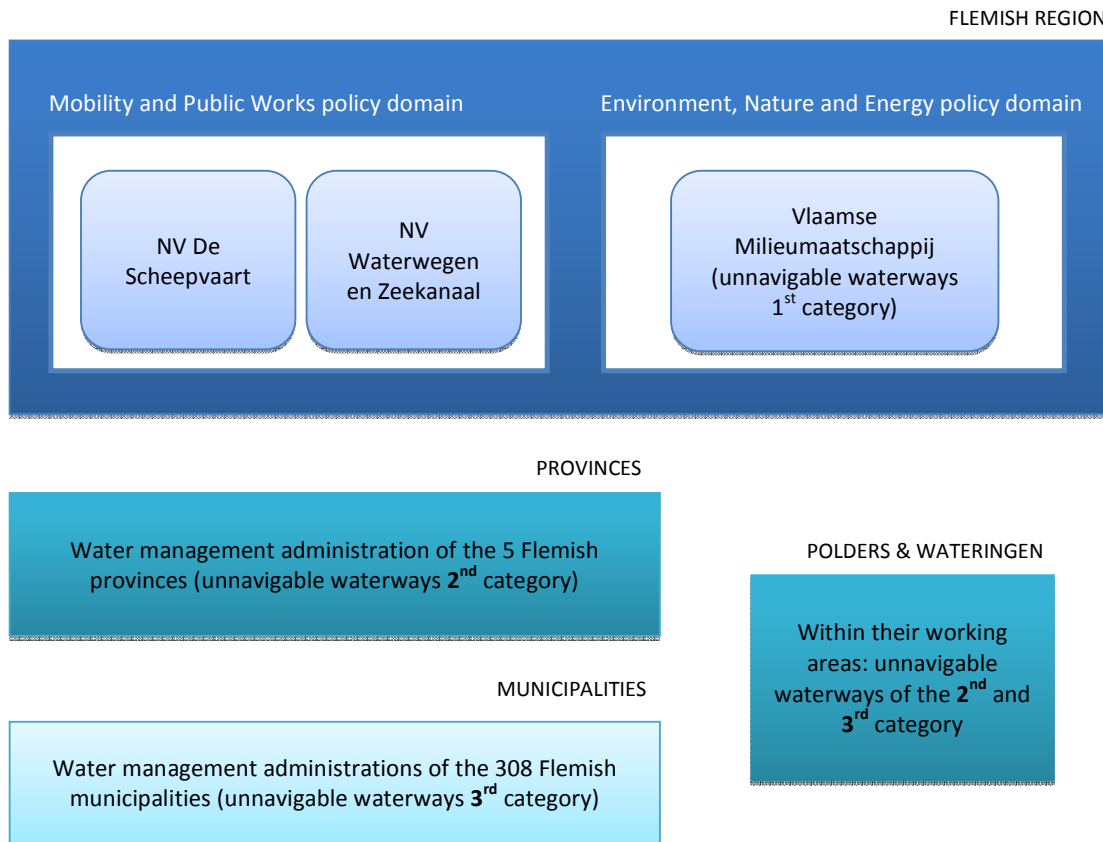
In each of the sub sub river basins (*deelbekkens*), a district water board (called *waterschap*) is to be established at the initiative of the province. The Flemish water board is a form of cooperation without legal personality between the representative of the Flemish region, the province or provinces, the municipalities and the *polders* and *wateringen* situated on the territory of the sub sub basin.

The Flemish RBMP for the Scheldt has been prepared by the CIW (thus involving many administrations and authorities) and has been approved by the government of the Flemish Region. Stakeholders have been involved among others through the advisory council for environment and nature (*Mina-raad*) and the advisory council for socio-economic affairs (*SERV*). Also at the level of sub river basins and sub sub river basins, basin/water management plans have been elaborated. Those plans were adopted by the sub river basin authorities in the summer of 2007. The CIW, subsequently, checked conformity of these plans with the Flemish water policy plan (*waterbeleidsnota*) and aligned these plans with each other. In January 2009 the Flemish government definitively approved the sub river

⁷⁶ For instance the Flemish part of the Scheldt river basin has been further sub-divided into 10 sub river basins or *bekkens*. The 11th *bekken* in Flanders is part of the Meuse river basin.

basin management plans or *bekkenbeheerplannen* (together with the accompanying sub sub river basin management plans or *deelbekkenbeheerplannen*). Elements from these plans were subsequently incorporated in the Flemish part of the international Scheldt RBMP (CIW, 2010).

Figure 44: Water management authorities in Flanders



Source: (Uitenboogaart et al, 2009)

Internal and external integration in the Flemish Region

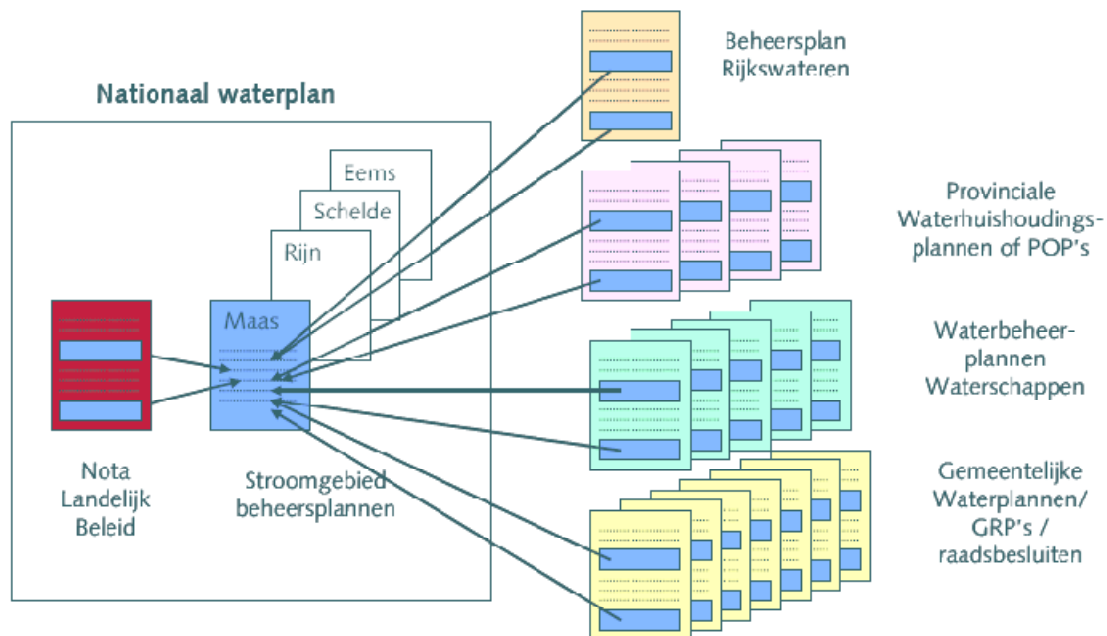
The then Flemish minister for the environment tried in the first half of the 2000s to achieve more internal and external integration at the level of areas or regions through a pretty ambitious transposition of the WFD into Flemish law and the establishment of multiple platforms for coordination and dialogue, at Flemish, sub river basin and sub sub river basin level. By institutionalising a multi-level and multi-sector platform at Flemish level (CIW), internal and external integration are indeed positively stimulated. However, the last couple of years lots of criticism arose on the manifold structures and planning processes provided for in the Flemish decree on integrated water management. The current Flemish government agreement therefore foresees an evaluation and revision of the decree. It is expected that the number of water management plans will be reduced. Furthermore, internal integration or the coordination or alignment of all the initiatives from the manifold

water management bodies and authorities still remains a challenge. The same holds for the external integration between agriculture, nature, spatial planning, transport, etc. remains a challenge, despite the establishment of all kinds of platforms for coordination and dialogue (Crabbé & Wiering, 2010).

Cooperation between authorities in the Netherlands in relation to the development of the Scheldt RBMP

As the Dutch ministry responsible for the implementation of the WFD did not have sufficient expertise and competences to implement the WFD and was therefore dependent from other public authorities such as the provinces, waterschappen and the municipalities, it was obliged to consult with these and other authorities and stakeholders to create support and coordinate policies. As can be seen from Figure 45, elements from local and regional plans (at the level of provinces and waterschappen) and national policy are put together and merged per river basin into one RBMP.

Figure 45: RBMPs and other water management plans

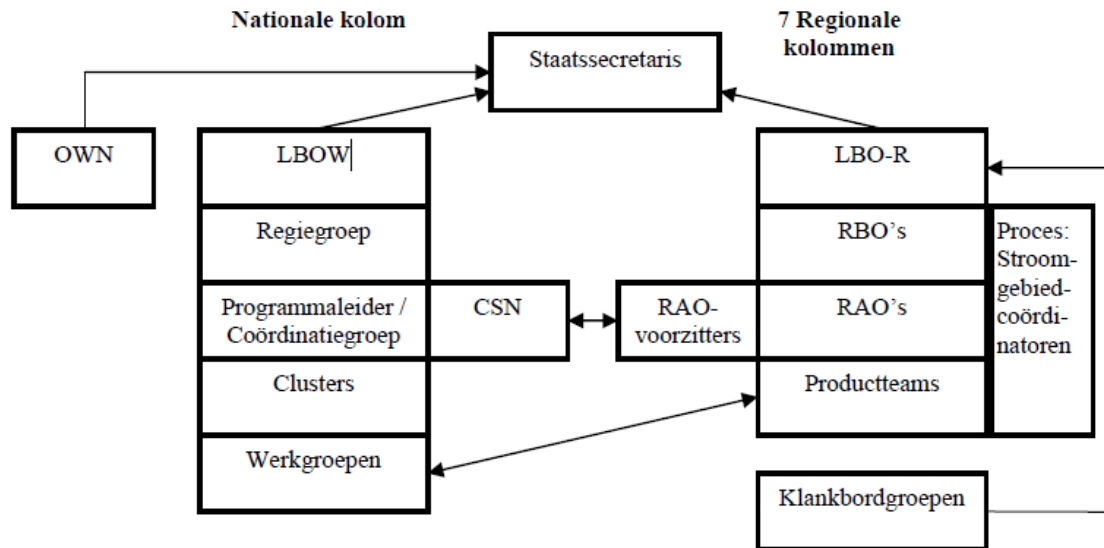


Source: www.kaderrichtlijnwater.nl

In order to develop and adopt the RBMPs multiple platforms for coordination and dialogue have been established in the Netherlands both at the national and regional level. This institutional set-up, the so-called 'dubbele kolommenstructuur' (see Figure 46), which has been anchored in the 2003 national management agreement water (*Nationaal Bestuursakkoord Water*), is composed of a national pillar and a regional pillar for each of the seven sub river basins in the Netherlands. Both pillars are further divided into political

deliberation bodies, administrative deliberation bodies and technical working groups or product teams (Ten Heuvelhof et al, 2010).

Figure 46: the institutional architecture for the development of the Dutch RBMPs



Source: (Ten Heuvelhof et al, 2010)

The national pillar is controlled by the national political deliberation committee on water (*Landelijk Bestuurlijk Overleg Water* or LBOW) in which the state secretary responsible for water policies consults with representatives of the umbrella organisations of the provinces (IPO), *waterschappen* (*Unie van Waterschappen* or UvW) and municipalities (VNG). In this committee national issues and frameworks for regional issues are being dealt with.

In the so-called *Regiegroep* the managing directors of the umbrella organisations and of three national ministries consult with each other. The national ministries were the Ministry of Agriculture, Nature and Food Quality (LNV); the Ministry of Public Housing, Town and Country Planning and the Environment (VROM); and, the Ministry of Transport and Water (V&W).⁷⁷

The coordination group (*Coördinatiegroep*), lead by the program leader/river basin coordinator, was responsible for the preparation of discussions and decisions in the *Regiegroep* and LBOW. In several working groups national frameworks needed for the implementation of the WFD have been developed. The working groups were grouped in six thematic clusters: institutional affairs; land use; water and the city; environment; monitoring, reporting and evaluation; and communication.

⁷⁷ LNV stands for *Landbouw, Natuur en Voedselveiligheid*; VROM for *Volkshuisvesting, Ruimtelijke Ordening en Milieu*; and V&W for *Verkeer en Waterstaat*.

At national level stakeholders were involved through the OWN (*Overlegorgaan Water en Noordzeeaanlegenheden*). This body advised the state secretary directly and on the basis of unanimity.

Next to the national pillar, seven regional pillars have been established in which provinces, *waterschappen* and municipalities cooperate on the basis of their own competences. Each regional pillar is controlled by some kind of regional political deliberation committee (*Regionaal Bestuurlijk Overleg* or RBO), chaired by a member of the provincial executive. In this committee administrators/mandataries from these local and regional public authorities discuss the WFD and take decisions at the level of the river basin and its sub basins.

The 'regional administrative deliberation committee' (*Regionaal Ambtelijk Overleg* or RAO) prepared the discussions and decisions of the RBO. The work of the RAO on its turn was supported by several 'product teams', working groups addressing the implementation of the WFD thematically. The river basin coordinators (*stroomgebiedcoördinatoren*) dealt with the process-related aspects of the WFD implementation on behalf of the national ministry without having a formal role in the regional decision-making. At the top of the regional pillar the chairs of the RBOs consulted three times a year with the state secretary in the 'national political deliberation committee on the regions' (*Landelijk Bestuursoverleg - Regionaal* or LBO-R). This body allowed the participants to put river basin specific or regional issues on the national agenda.

Within the regional pillars stakeholders got involved through so-called '*klankbordgroepen*'. These stakeholder forums reported directly to the RBOs.

It should also be noted that the municipalities for a long time played a rather limited role in the WFD implementation process. In order to increase the involvement of the municipalities new functions were created in 2006: those of the municipal water ambassadors. These water ambassadors have been cooperating intensively with the WFD coordinators of the *waterschappen*.

In order to coordinate the activities of the national and regional pillars several coordinating deliberation forums were in place. The most important deliberation forum was the deliberation among the RAO chairs in which also the 'Dutch river basins coordination office' (*Coördinatiebureau Stroomgebieden Nederland* or CSN) participated, a small organisation built up around the person of the river basin coordinator for the Netherlands (*stroomgebiedcoördinator Nederland*).

Ten Heuvelhof et al (2010) have come to the conclusion that this double pillar structure has contributed significantly to timely adoption of the Dutch RBMPs (including the Dutch part of the Scheldt RBMP). This structure nevertheless poses some risks.

Internal and external integration in the Netherlands

The process of internal integration in water policy had already started in the Netherlands, but is being reinforced and legitimized by the WFD implementation process (Crabbé & Wiering, 2010).

However, as for the integration into or cooperation with other environmental policies and other sectoral policies, the Netherlands scores less well, in particular in relation to Member States such as Denmark and Germany. In Denmark, for instance, water policy and nature conservation policy are developed jointly, whereas in the Netherlands these policy areas are relatively separate worlds. In North-Rhine Westphalia an integrated ministry decides about WFD policies which are centrally coordinated with agricultural, nature and environmental policies. In the Netherlands external integration takes mainly place at the level of areas or regions (through so-called *gebiedsprocessen*) (Crabbé & Wiering, 2010).

Coherence between the WFD and the Nitrates Directive in the Netherlands

In the Netherlands for instance tensions between the WFD and other policy areas became more and more visible as the WFD implementation process evolved. In 2008 in particular tensions with the 4th nitrate action program came to the surface when negotiations on this new action program were launched. During these negotiations it became clear that the adoption of measures which are contrary to other European Directives such as the WFD becomes increasingly difficult.⁷⁸ On the other hand the negotiations with the European Commission in relation to the 4th nitrate action program seem to have had an impact on the implementation of the WFD. It was a very difficult process for the Dutch government to obtain an extension of the derogation (regarding the nitrogen application levels) from the European Commission. In addition, the 4th nitrate action program limits the range of measures that can be incorporated in the RBMPs. The WFD (implementation) therefore may conflict with agreements made in relation to putting/avoiding a further burden on the agricultural sector (Ten Heuvelhof et al, 2010).

⁷⁸ An ex ante evaluation of the WFD by the *Planbureau voor de Leefomgeving* (PBL) shows that due to the unnatural state of the Dutch water systems and the high nutrient concentrations (in particular as for phosphate) the current ecological quality of the regional waters in the Netherlands is moderate and of the national waters is poor (PBL, 2008).

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<http://www.eau-artois-picardie.fr/>

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5. SEVERN RIVER BASIN – CASE STUDY

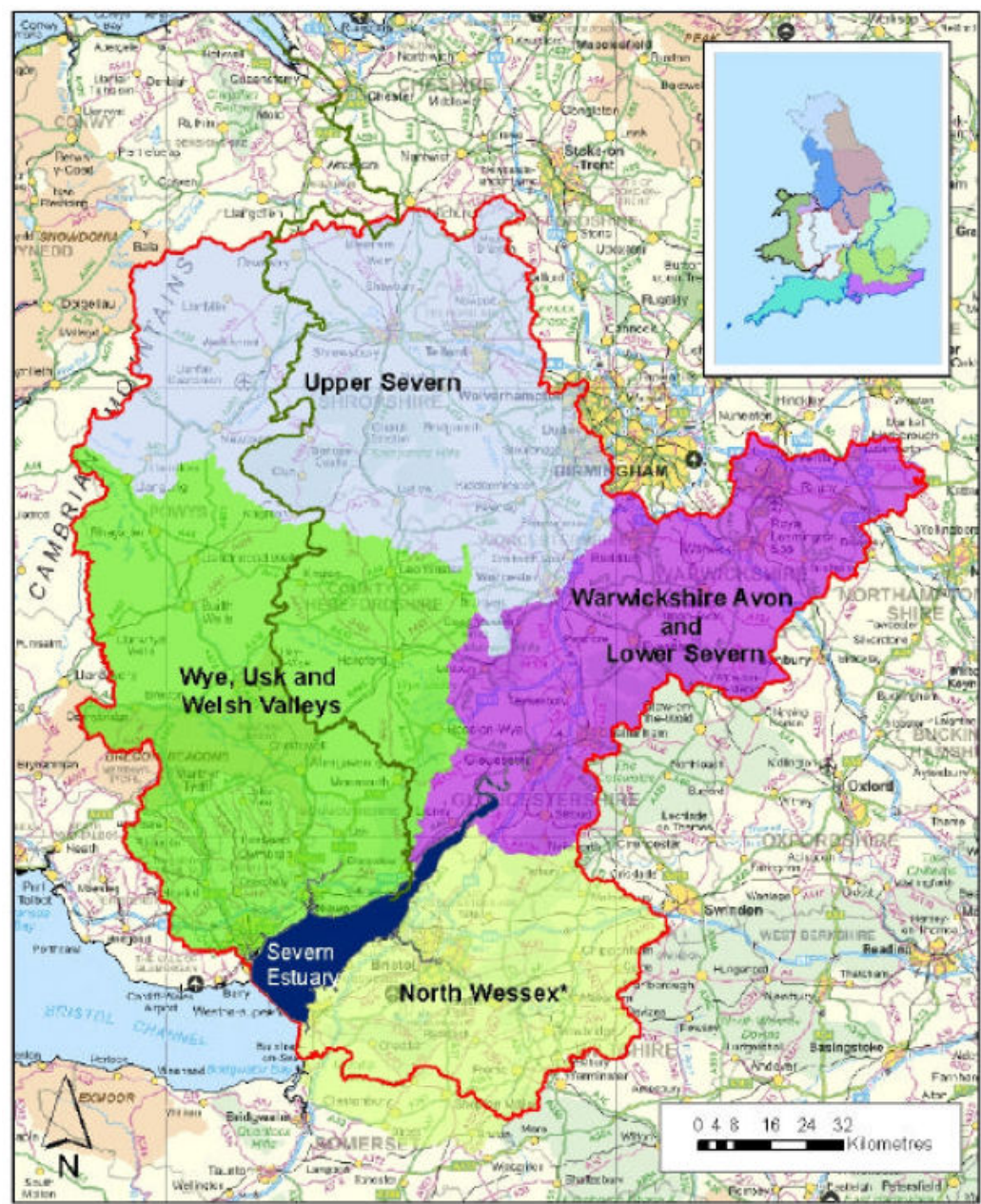
Introduction

The Severn River Basin District includes next to the river Severn and its main tributaries, the rivers of South East Wales and those of the counties of Avon and Somerset that drain into the Severn Estuary. The River Severn is the longest river in the United Kingdom. The Severn River Basin District is home to over 5.3 million people and covers 21,590 km², with about one third of the district in Wales. The district has several major urban centres, though much of it is rural in character. It contains important habitat and wildlife areas and about 80% of the land is managed for agriculture and forestry.

Key water management issues include: the diffuse pollution from nutrients, sediments and pesticides from rural land management; pollution from nutrients from sewage treatment works and other intermittent discharges from the sewerage network; pollution from ammonia and dangerous substances from sewage treatment works and intermittent discharges and from other sources; metal and other pollution due to historic mining activity; high degree of physical modification of rivers and estuaries; and flooding (major parts of the river basin were flooded severely in 2007).

The competent authorities for the implementation of the WFD in the UK are: the Environment Agency (EA) in England and Wales, the Scottish Environmental Protection Agency (SEPA) in Scotland and the Environment and Heritage Service (EHS) in Northern Ireland. As the Severn river basin district (RBD) has been designated as located entirely in England and Wales, the Environment Agency is the sole competent authority for the implementation of the WFD in the Severn RBD (EA, 2009a; Woods, 2008).

Figure 47: The Severn River Basin District



Source: (EA, 2008)

Effectiveness – compliance

River Basin Management Plan (RBMP)

The draft RBMP for the Severn RBD, written by the Environment Agency together with the Severn liaison panel, was made public on 22 December 2008. The consultation period lasted 6 months until 22 June 2009, after which the Environment Agency submitted the plan to the Secretary of State for the Department for Environment, Food and Rural Affairs on 22 September 2009. The River Basin Management Plan was approved by the Secretary of State on 22 December 2009⁷⁹.

RBMPs and public participation

The arrangements for stakeholder involvement and public participation in the UK operate at three levels: national, river basin district (RBD) and local, though the arrangements vary widely in the different regions of the UK. The Severn RBD is one of the nine RBDs in the UK that have been designated as located entirely in England and Wales and, subsequently, solely the responsibility of the Environment Agency.

In relation to the Severn RBMP, there have been a number of consultations on general and specific aspects of implementation. Some of these were led by DEFRA and the Welsh Assembly Government, some by the Environment Agency, and some by other bodies such as the UKTAG (EA, 2009a).

At national or UK level, the United Kingdom Technical Advisory Group (UKTAG) was established to involve stakeholders in the development of UK-wide approaches towards the implementation of the WFD. It essentially focuses on the common interpretation of the technical issues in river basin management planning (Woods, 2008).

In England, DEFRA established a WFD National Stakeholders Group that meets three or four times per year and has members from various stakeholder groups. According to Woods (2008), the Group has been useful in the two-way communication of issues concerning the implementation of the WFD. In Wales, the Welsh Assembly has created the WFD Wales Stakeholders Group. It has/had the considerable task of representing Welsh interests in the Severn RBD (next to the Dee RBD).

At the level of the RBD, the Severn River Basin District Liaison Panel was established to set the strategic overview for river basin planning and agree the measures. The Panel includes representatives of businesses, planning authorities, environmental NGOs, consumers, navigation, fishing, and recreation bodies and central, regional and local government, that is organisations that are responsible for either carrying out actions, or can both represent the public and help drive changes in behaviour (EA, 2009a; Woods, 2008).

⁷⁹ Environment Agency, River Basin Management Plans
http://www.euwfd.com/html/severn_river_basin_district.html

However, below RBD level no formal consultative groups have been set up. This holds for the whole of England and Wales, as opposed to Scotland and Northern Ireland⁸⁰. In the Severn RBD, just like in the other RBDs in England and Wales, stakeholders and the public below RBD level have been involved through existing EA arrangements such as Catchment Abstraction Management Strategies (CAMs), Catchment Flood Management Plans (CFMPs), England Catchment Sensitive Farming Delivery Initiative (ECSF-DI), liaison with River Trusts, Estuary Partnerships and other initiatives and bodies. These arrangements are focused on narrower existing liaison arrangements in place before the implementation of the WFD, whereas involvement by the general public in Scotland and Northern Ireland is planned at a much more local level through groups set up particularly for that purpose (Woods, 2008).

Designation of water bodies as heavily modified, artificial or natural

The ratio of heavily modified and artificial water bodies in the Severn RBD is around 26%, which is significantly lower than the ratios in most national parts of the international Scheldt RBD, but slightly higher than in the Guadiana and Po river basins.

Table 22: The designation of water bodies in the Severn River Basin

	HMWB	AWB	Total
Severn River Basin	16,22%	9,97%	26,19%

Source: (EA, 2009a)

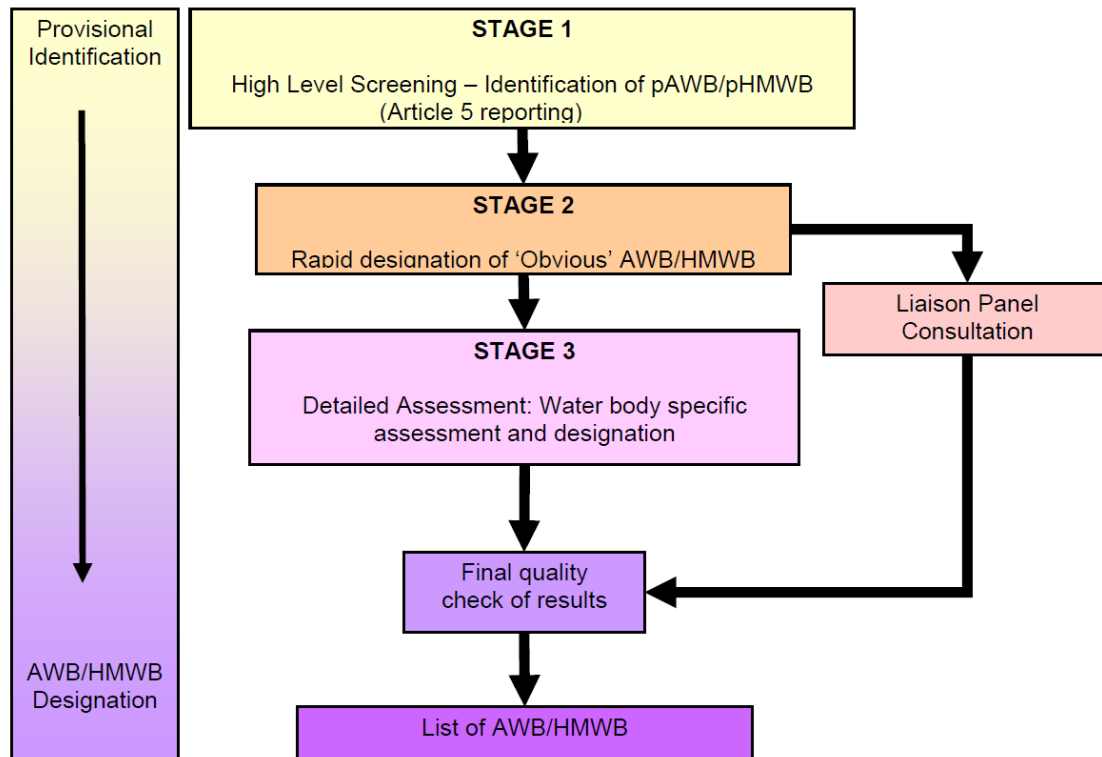
The designation of water bodies as heavily modified or artificial took place in several stages (see figure). In a first stage a list of provisional AWB/HMWBs (pAWB/pHMWBs) was established and which was formed of water bodies that were at risk of failing to achieve good ecological status due to morphological pressures. This risk assessment was completed as part of the river basin characterisation process (environmental analysis).

A two-stage designation process was subsequently applied to this list of provisional AWB/HMWBs: a rapid designation stage to identify 'obvious' AWB/HMWBs followed by a second more detailed assessment stage. The rapid designation stage applied the tests of Article 4(3) WFD to a small number of priority water body uses. For water bodies where it was not possible to designate using the rapid process, a further detailed process was applied. The detailed designation process also applied the Article 4(3) tests but to a wider set of water body (i.e. all eleven specified uses outlined in Article 4(3) of the WFD)⁸¹ and gathered more supporting information and justifications for designation (EA, 2009b).

⁸⁰ In Scotland for instance several new Area Advisory Groups have been established at sub-RBD level: eight new Area Advisory Groups have been set up in the Scotland RBD and two in the Solway Tweed RBD. These Groups aim to contribute to and assist the river basin planning process within their area. In addition, in the Scotland RBD an Area Advisory Group Forum has been set up for each Area Advisory Group with a wide and open membership. The Forums provided the public and stakeholders the opportunity to be actively involved in the river basin planning process (Woods, 2008).

⁸¹ Wider environment; navigation including port facilities; recreation; drinking water supply; power generation; irrigation; water regulation, subdivided into strategic water transfers and impoundment

Figure 48: Summary of steps in the designation of artificial water bodies and heavily modified water bodies for freshwater water bodies



Source: (EA, 2009b)

It should be noted that the detailed designation process comprised of eight steps – at least for heavily modified water body designation; the artificial water body designation process comprised of only five steps. Only at step seven an economic analysis or test was carried out: this step considered the environmental benefit and monetary cost of any 'other means'. Where the 'other means' were disproportionately costly or a worse environmental option, then water bodies could be designated as artificial or heavily modified. If the 'other means' identified were a better environmental option and were not disproportionately costly then the water body could not be designated as heavily modified or artificial. Only a small number of water bodies underwent these economic analyses or tests, as most water bodies had been screened out at an earlier stage (EA, 2009b).

The use of exemptions – the extension of deadlines beyond 2015

The Severn RBMP states that in relation to 67% of rivers, 53% of lakes, 83% of estuaries (or 66% of surface water bodies) and 35% of groundwater bodies, good status cannot be achieved by 2015. In these cases an alternative objective of good status or potential by 2021

releases; flood protection; land drainage; urbanisation; and other equally important sustainable human development activities.

or 2027 is set. No other exemptions have been used such as setting less stringent objectives (EA, 2009a; EA, 2009c).

Table 23: Percentage of surface and groundwater bodies for which good status can be achieved and for which an extension of the deadline is being proposed

	Surface water bodies		Groundwater water bodies	
	Objectives to be met in 2015	Extension of the deadline	Objectives to be met in 2015	Extension of the deadline
Severn River Basin District	34%	66%	65%	35%

Source: (EA, 2009a)

Alternative objectives (i.e. extended deadlines) have been set for a total of 590 water bodies. For 443 water bodies the argument of technical infeasibility has been used and for 498 water bodies the argument of disproportionate costs has been used. The argument of natural conditions has not been used for any the water bodies to extend the deadline (EA, 2009c).

The EA is of the opinion that achieving good status in all water bodies by 2027 will not be possible using only current technologies. It even thinks that achieving 75% good status will require significant changes in land use and water infrastructure, such as a major programme to separate foul and surface water sewers across most of the river basin district. It further states that, by current standards, such changes are extremely unlikely to be economically or socially acceptable. Therefore it concludes that for some water bodies achieving good status by 2027 could be not technically feasible or disproportionately costly (EA, 2009a).

In relation to the extension of deadlines beyond 2015 and other exemptions, it should be noted that national guidance from Defra and the Welsh Assembly Government published in 2006 advised the EA to make full use of the alternative objectives (i.e. derogations, exceptions and defences). It stated that they are an integral part of the WFD objectives and that their use should be a normal part of the WFD objectives (Howarth, 2009).

Efficiency – administrative cooperation

The so-called ‘appropriate authorities’ have ultimate responsibility for the implementation of the WFD in England and Wales. The appropriate authorities are the Secretary of State for Environment, Food and Rural Affairs (for England) and the Welsh Assembly Government (for Wales). They have the general responsibility for ensuring compliance with the requirements of the WFD and may also give guidance or directions to the Environment Agency (EA) (see below), and any other public body on the practical implementation of the Directive. They need to ensure that appropriate economic analysis is carried out, they need to approve proposals for environmental objectives and programmes of measures, and to approve the draft RBMPs (EA, 2009d; van Kempen and Uitenboogaart, 2009).

For further implementation, the 'competent authorities' – as mentioned in Article 3(2) WFD – are designated. For England and Wales the competent authority is the EA, a non-departmental public body. The EA is responsible for carrying out the analysis required for characterisation, monitoring, identifying waters used for the abstraction of drinking water, and establishing a register of those waters and other protected areas. It has to prepare proposals for environmental objectives and programmes of measures for each river basin district, and prepare draft RBMPs. The EA must also ensure public participation in preparation of the RBMP and make certain information required under the WFD accessible to the public (EA, 2009d; van Kempen & Uitenboogaart, 2009).

The EA, which is the sole competent authority in the Severn RBD, has prepared and submitted the Severn RBMP and PoM to the Secretary of State for Environment, Food and Rural Affairs (for England) and the Welsh Assembly Government (for Wales) for approval. Earlier on in the process, the EA had developed a framework for river basin planning which set out its approach, the stages in the planning process and how they would work with stakeholders and link with other planning processes. The framework was developed in collaboration with DEFRA and the Welsh Assembly and was made consistent with their draft guidance for river basin planning (Watson et al, 2009; Woods, 2008).

Several observers have criticised the way the EA has managed the process of drafting the Severn and other RBMPs. Whereas the implementation of the WFD requires multi-party collaboration and integration of decision-making for land and water at different spatial scales, the EA has actually strengthened its control in river basin management by incorporating a range of other organisations as 'co-deliverers' within the process. For instance the development of the RBMPs has been based on limited regional-scale partnership arrangements with very limited input from local actors such as municipalities and environmental action groups. In addition, only organisations with the potential to directly assist the EA with the implementation of the RBMPs and PoMs have been actively involved, while other organisations with legitimate interests or stakes but potentially different water policy/management agendas have been kept at a distance (Watson et al, 2009).

Interviews conducted with members of the Regional Liaison Panel for the North West revealed that meetings often involved very limited debate and conflict and were often used to inform the so-called 'co-deliverers' of the latest policy choices made by the EA or the UKTAG.

According to Watson et al (2009) the 'co-delivery' organisations have been specifically selected by the EA because of their capacity to implement measures but have not been treated as genuine partners in a process of co-decision-making. As a result many of these organisations have refused to formally endorse the (draft) RBMPs because they had little influence over their contents. This might lead to problems later on in the stage of implementation of these plans. Local municipalities for instance have been involved in a very limited way and consequently local interest in and commitment to the RBMPs have been pretty low up until now (Watson et al, 2009).

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10.3 List of interviewees

Country	Name	Function	Organisation
UK	Bob Steer	Manager of Waste Planning and Performance Dept	Severn Trent Water Limited
FR	Emmanuel Cau	Vice President	aménagement du territoire, environnement et Plan climat
BE	Steven Broekx	Researcher	Vito
ES	Maria jose Doval Tedin	Water expert	EC DG REGIO
BE	Julie Tartarin	Director	Escaut Vivant
ES	Ramos Llamas	Director	Foundation Botin. Water observatory Geodynamics Dept. Faculty of Geology
ES	Cristina Danes	Water Director	Confederación Hidrográfica del Guadiana
NL	Jos Timmerman	Senior Policy Advisor	Ministry of Infrastructure and the Environment/ Programme Waterquality and Waterquantity
AT	Karl Schwaiger	Official	Ministry of Environment/ International Water Policy
BE	Veronique Van Den Langenbergh	Staff General Manager	Flemish Ministry of Environment/ Catchment Management
UK	Sonia Phippard +	Acting Director General	Department for Environment, Food and Rural Affairs
EU	Susanne Zänker	Director General	International Association for Soaps, Detergents and Maintenance Products
RO	Gheorghe Constantin	Director	Floods & Wwater Management Authority/Ministry of Environment and Forestry
RO	Liviu Popescu	President	Global Wwater Partnership - Romania
EU	Tania Runge	Senior Policy Advisor	COPA-COGECA
BE	Françoise Onclincx	Responsable de la sous-division "Eau"	Bruxelles Environnement - IBGE
IO	Philip Weller	Executive Secretary	ICPDR
UK	Chris Tidridge	Midlands River Basin Planning Manager	Environment Agency - Midlands
HU	Péter Bakonyi	expert	Water Resources Research Ltd
HU	Gyula Holló	Head of Department	Ministry of Environment and Water

Country	Name	Function	Organisation
IT	Liliana Cortellini	expert	Ministry of Environment, Land and Sea
EU	DIERCKX Ann	Environmental Policy Manager	CEFIC
EU	Irene Lucius	Head of Policy	WWF
ES	Maite Aldaya	academic, expert	United Nations Environment Programme
EU	Aarta Denina +	Policy Advisor	Eurelectric
BG	Vladimir Stratiev	water director + responsible for River Basin Management Plan	Ministry of Environment and Water
DE	Fritz Holzwarth	Deputy Director General for Water-Management	German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
SK	Emilia Kunikova	Expert. Participated in the drafting of the RBMP	Ministry of Environment
UK	Rob Cunningham	Head of Water Policy	RSPB (NGO)
BG	Rosita Petrova	Head of Department "Aquatic ecosystem	Ministry of Environment and Water
RO	Dan Barbulescu	Policy Advisor	Save the Danube Delta
IT	Atef Hamdy	expert, Water Resources Management	IAMBari
IO	Jovanka Ignjatovic	Project Manager	The Regional Environmental Center for Central and Eastern Europe (REC)
IT	Margherita Turvani	academic, expert in Environment, Sustainable Development and Planning	Venice International University
IT	Francesco Puma	Secretary General of the Po River basin	Po River Basin Authority
IT	Giorgio Pineschi	expert	Ministry of the Environment
AT	Helmut Belanyecz	expert	Federation of Austrian fishing and anglers clubs
DE	Heide Jekel	Head of Division/ Cooperation in International River Basins, Freshwater Management Conventions, International Freshwater Protection Law	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
EU	Frédéric de Hemptinne	<i>Head of External Affairs</i>	The European Water Association (EWA)
EU	Fritz Barth	Vice-Chairman	European Water Partnership (EWP)
EU	Durk Krol	Deputy Secretary General	EUREAU

Country	Name	Function	Organisation
EU	Jan Brooke	chairman of the WFD Navigation Task Group	PIANC
HU	Klara Kerpely +	expert	WWF-Hungary
UK	Sarah Faulkner	Policy Advisor	National Farmers Union
EC	Philippe Quevauviller	Officer	DG RTD
EC	Mathieu Fichter	Policy Advisor	DG REGIO
EC	Aymeric Berling	Officer	DG AGRI
EC	Mike Mackenzie	Officer	DG AGRI
EC	Emmanuel Petel	Officer	DG AGRI
EC	René L'Her	Officer	DG AGRI
EC	Julija Laureckiate - Larsen	Officer	DG ENV
EC	David Grimeaud	Officer	DG ENV
EC	Menno Verhij	Officer	DG ENV
EC	Marco Gasparinetti	Officer	DG ENV
EC	Nina Miron	Officer	DG ENV
EC	Sibylle Grohs	Officer	DG ENV
EC	Hans Lopatta	Officer	DG ENV
EC	Henriette Faergemann	Officer	DG ENV

EC – European Commission

EU – Lobby organization

IO – International organization (not-for-profit)