

Britta Ammermüller

Assessing Cost Recovery

A New Comparative Framework
in Line with WFD Article 9

This study proposes a comparative accounting framework for assessing cost recovery of water supply and sewerage services for households and agriculture in line with the requirements of Article 9 of the EU Water Framework Directive (WFD). It provides an integrative analysis of the partly contradictory objectives of Article 9 and the Directive's approach to cost recovery. The book defines cost categories and accounting guidelines in line with the specific requirements of WFD Article 9. On this basis, an integrative framework for analysing different financing schemes for water services provision and their compliance with the objectives of Article 9 is developed, along with a pragmatic approach for the incorporation of environmental and resource costs in the overall cost recovery analysis.

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Assessing Cost Recovery

Kommunalwirtschaftliche Forschung und Praxis

Herausgegeben von Wolf Gottschalk

Band 21



PETER LANG

Frankfurt am Main · Berlin · Bern · Bruxelles · New York · Oxford · Wien

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PETER LANG
Internationaler Verlag der Wissenschaften

**Bibliographic Information published by the Deutsche
Nationalbibliothek**

The Deutsche Nationalbibliothek lists this publication in the
Deutsche Nationalbibliografie; detailed bibliographic data is
available in the internet at <http://dnb.d-nb.de>.

Zugl.: Leipzig, Univ., Diss., 2010

Sponsored by the „Finanz- und Wirtschaftsrat
beim Verband Kommunalen Unternehmen“

ISBN 978-3-653-01347-4 (eBook)

15

ISSN 1435-8468

ISBN 978-3-631-61371-9

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Internationaler Verlag der Wissenschaften

Frankfurt am Main 2011

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Acknowledgements

The fascination for economic aspects of integrated water resources management was awakened during an internship with Ulrich Petschow at the Institute for Ecological Economy Research (IÖW) in Berlin. I thank Andreas R. Kraemer from Ecologic Institute for furthering this interest and introducing me to scientific work in environmental policy contexts. I greatly benefitted from my years at Ecologic and the discussions with colleagues and friends there.

The work on this thesis began when I joined the Institute for Infrastructure and Resources Management of Prof. Robert Holländer at Leipzig University. Prof. Holländer encouraged me to follow through with my idea for the thesis topic and I am very grateful for his continued scientific and personal guidance as well as for his sincere interest in my work. I also thank my second supervisor Prof. Thomas Lenk and the chair of my promotion committee Prof. Thomas Bruckner for their support and interest in this project.

I would like to express very special thanks to Prof. Antonio Massarutto, Alessandro de Carli, Vania Paccagnan and Alessandro Lodi from IEFE – Centre for Research on Energy and Environmental Economics and Policy at Bocconi University for their scientific guidance, input and encouragement during my research stay in Milan. I will always cherish the collaboration on this project and beyond. Their valuable methodological feedback and comments on my study design have improved this work. I am grateful for the support of the DAAD, which provided additional funding for my stay at IEFE.

I greatly thank the experts consulted for my illustration cases for their time and interest in this research, notably Issa Nafo, Prof. Andreas Schulz, Bernd van Bömmel and Josef Schön from the *Emschergerossenschaft* as well as Heiner Nobis-Wicherding, Andreas Schmitz, Ricarda Horlacher and Margit Höhndorf from the *Berliner Wasserbetriebe*. Over the years, the work on this thesis greatly benefitted from discussions with Sibylle Pawlowski, Hans-Peter Ewens, Jörg Rechenberg, the members of the LAWA EU Econ und the working group on economics of the Elbe river basin.

I thank my colleagues at Leipzig University, most notably Marcel Fälsch, Sabine Sorge, Sabine Lautenschläger, Enrico Thomas and Tiina Salonen for making Leipzig a wonderful place to work and live. I specially thank Stefan Geyler for his helpful comments on my work. Furthermore, I would like to thank

all colleagues with whom I collaborated on WFD research projects, most notably Bernd Klauer, Herwig Unnerstall and Ingo Bräuer.

Special thanks go to my former colleagues at Ecologic Institute (Thomas Dworak, Benjamin Görlach, Nicole Kranz and Eleftheria Kampa) as well as my new colleagues at Verband kommunaler Unternehmen – VKU (Nadine Steinbach, Nicole Weiß and Dirk Seifert) for stimulating discussions, feedback and moral support. I thank Thomas Abel for providing a flexible and stimulating work environment that allowed me to finish the dissertation in my new job. I also would like to express sincere thanks to Prof. Wolf Gottschalk, Thomas Papsdorf and Hermann Ühlein for their support on this publication.

I wish to thank Sara, Ana-Mari and Nadine for helping me get through the difficult times and for all the support and caring they provided. I thank my parents, my family and my grandmother for their continued encouragement throughout my doctoral studies. I am thankful to my husband Andreas, who not only became a water expert over the years and provided continued commenting on my writing, but showed incredible patience during the long time of homework this project requested. Without you this thesis would not have been possible. Finally, I thank our son Emil, who greatly furthered the completion of this project.

Table of Contents

List of Tables	11
List of Figures	13
List of Fact Sheets	15
List of Boxes	17
1 Introduction	19
1.1 European water policy: from regulation to integration	22
1.2 The European Water Framework Directive	24
1.2.1 Novelties and building blocks of the Water Framework Directive	25
1.2.2 The Common Implementation Strategy Process: harmonising procedures	29
1.2.3 The implementation schedule for the Water Framework Directive	32
1.3 The role of economics in the WFD	33
1.3.1 Explicit functions of economics in the WFD	34
1.3.2 Implicit functions of economics in the WFD	38
1.3.3 Guidance from the CIS process on implementing the economic aspects	40
1.4 Article 9 and its multiple objectives	42
1.4.1 Recovering financial and environmental and resource costs of water services	46
1.4.2 Setting incentives for efficient water resource use	48
1.4.3 Making the polluter pay and ensuring adequate contributions by sectors	50
1.4.4 Establishing transparency of financial flows in the European water sector and guaranteeing the sustainability of infrastructural systems	51
1.4.5 Putting the objectives of Article 9 into perspective	53
1.5 Research questions	54

1.6	Methodology and scope of the thesis	56
1.7	Plan of the thesis	58
2	Theoretical considerations on cost-recovery and pricing of water services	61
2.1	Water and its dimensions: implications for water services provision ...	61
2.1.1	Water as an environmental good	63
2.1.2	Water as a social good	64
2.1.3	Water as an economic good	66
2.1.4	The market structure for the provision of a multi-faceted good	69
2.2	Cost-recovery of water services: a multi-dimensional concept requiring interpretation	75
2.2.1	Possible interpretations of the concept of cost-recovery	76
2.2.2	Which costs to recover? Definition and delineation of cost categories according to Article 9	86
2.2.3	Cost factors in water services provision	104
2.2.4	Framework conditions and cost drivers	112
2.3	Water pricing as a tool for achieving cost-recovery and beyond	117
2.3.1	Potential objectives and limits of water pricing	118
2.3.2	Operationalising water pricing: an introduction to water pricing models	127
2.3.3	Specificities of user groups: pricing water services for households	135
2.3.4	Specificities of user groups: pricing water services for agriculture	135
2.4	WFD Article 9 and its implications for cost accounting and pricing of water services	140
2.4.1	The definition of water uses and water services and related implications	141
2.4.2	Environmental and resource costs: substantiating the concept .	145
2.5	Difficulties related to a European comparison of cost-recovery and water pricing	154
3	Methodology for a comparative assessment of cost-recovery in line with WFD Article 9	157
3.1	Analytical prerequisites: the ideal path to cost-recovery according to WFD Article 9	157
3.2	Cost-recovery in line with WFD Article 9: the basic assessment framework	161

3.2.1	Definition and delineation of parameters for the cost assessment	163
3.2.2	Accounting for financial costs of water service provision	165
3.2.3	Accounting for revenues in water service provision	180
3.2.4	Assessing environmental costs and their recovery	186
3.2.5	Assessing resource costs and their recovery	198
3.3	Linking the assessment components: implementation pathways and adaptation needs	204
3.3.1	Complementary information for a comparative evaluation: background information on the investigation area	205
3.3.2	Testing the relevance of Article 9 exemptions in justifying divergences from the ' <i>ideal path</i> ' to cost-recovery	207
3.3.3	Mapping out present approaches to cost-recovery and adaptation needs	211
3.4	Assessing the implementation of the complementary objectives of WFD Article 9	211
3.4.1	Assessing the adequacy of incentives for efficient water resource use	214
3.4.2	Assessing the implementation of the polluter-pays principle and the adequacy of contributions from other water uses	216
3.4.3	Assessing the sustainability of infrastructural systems and the transparency of financial flows	218
3.5	Plan of procedure for assessing cost-recovery and overall attainment of Article 9 objectives	220
4	Illustrative cases: testing the methodological framework	231
4.1	Aim and scope of the illustration cases	231
4.2	Background information on the selected illustration cases	232
4.2.1	The German water sector and the illustration cases of Emscher and Berlin	233
4.2.2	The Italian water sector and the illustration case of Emilia-Romagna	253
4.3	Testing the framework: illustrative examples on key steps	261
4.3.1	Testing Step 1: accounting for financial costs in water service provision	261
4.3.2	Testing Step 2: accounting for revenues in water service provision	273
4.3.3	Testing Step 4: assessing environmental costs and their recovery	286
4.3.4	Testing Step 5: assessing resource costs and their recovery	311

4.3.5	Testing Step 7: evaluating the relevance of exemptions from Article 9	317
4.3.6	Testing Step 9: analysing the complementary objectives of Article 9	321
5	Conclusions and outlook	331
5.1	The problem statements of the thesis revisited	331
5.2	Main findings of this thesis	333
5.2.1	The requirements of WFD Article 9 and the prerequisites for a methodological assessment framework	334
5.2.2	Lessons learned from the empirical illustration cases	335
5.2.3	Potential influence of the applied analytical procedure on results	337
5.3	Outlook on further research needs	338
6	Literature	341
7	Annex	371

List of Tables

Table 1:	Milestones of WFD implementation	32
Table 2:	Classifying water services under full and spare system capacity	73
Table 3:	Different approaches to cost-recovery	79
Table 4:	Possible financing approaches for water services provision	83
Table 5:	Examples of administrative costs	97
Table 6:	Operation and maintenance costs in water services provision to households	107
Table 7:	Summary overview on water pricing models	134
Table 8:	Environmental costs of water services	153
Table 9:	Indicators on the general characteristics of the investigation area	205
Table 10:	Remaining information requirements on additional Article 9 objectives	213
Table 11:	General characteristics of the German water sector	235
Table 12:	General characteristics of the Emscher river basin	242
Table 13:	General characteristics of drinking water service provision in Berlin	247
Table 14:	Basic facts on the technical system (Berlin)	247
Table 15:	Evolution of water demand in Berlin, 1992–2007	249
Table 16:	General characteristics of irrigation water service provision in Emilia-Romagna	260
Table 17:	Overview on cost categories for drinking water service provision in Berlin	268
Table 18:	Fixed tariff component (Berlin)	277
Table 19:	Connection fee (in Euro) as of 28 January 2009 (excluding 7 percent VAT) (Berlin)	278
Table 20:	Conditions for investment contributions on the replacement of connections (Berlin)	279
Table 21:	Tarification scheme for irrigation water provision from open canals (CBRO)	285
Table 22:	Status of implementation: reconstruction of the Emscher river basin	291

Table 23:	Internalisation instrument 'Abwasserabgabe'	299
Table 24:	Selected measures from the Programme of Measures for the Emscher river basin	305

List of Figures

Figure 1:	The economic aspects of the WFD	35
Figure 2:	The explicit and implicit objectives of Article 9	45
Figure 3:	Transparency of costs and financing mechanisms of water services provision and sustainability of infrastructural systems	52
Figure 4:	Article 9 objectives and associated requirements for the implementation process	54
Figure 5:	Plan of the thesis	58
Figure 6:	Different Dimension of Water	62
Figure 7:	Total economic value and its composition	68
Figure 8:	Classifying goods and services: excludability and rivalry	70
Figure 9:	The WFD cost categories put into perspective	87
Figure 10:	Capital versus asset maintenance	89
Figure 11:	Elasticity of water demand along the demand curve	124
Figure 12:	The requirements of Article 9 for water services and water uses	144
Figure 13:	Depicting the 'ideal path' to cost-recovery according to Article 9	158
Figure 14:	Overview on cost categories for the assessment of cost-recovery	162
Figure 15:	Environmental costs	187
Figure 16:	Step-wise approach for the assessment of environmental costs	189
Figure 17:	Step-wise approach for the assessment of resource costs	200
Figure 18:	The Emscher river basin (embedded in the area commonly known as 'Ruhr Area')	239
Figure 19:	Organisational structure of the Emscherergenossenschaft	246
Figure 20:	Organisational structure of the Berliner Wasserbetriebe	252
Figure 21:	The case study area of the Consortio di Bonifica della Romagna Occidentale	257
Figure 22:	Water protection zones operated by the Berliner Wasserbetriebe	267

Figure 23: Overview on financing scheme for existing internalization measures	292
Figure 24: Analysis of the degree of internalisation of Type I EC with present measures	296
Figure 25: Financial flows in water supply service provision in Berlin	329

List of Fact Sheets

Fact Sheet 1:	Operation and maintenance costs	167
Fact Sheet 2:	Depreciation	170
Fact Sheet 3:	Opportunity cost of capital	173
Fact Sheet 4:	Administrative costs	176
Fact Sheet 5:	Other direct costs	179
Fact Sheet 6:	Revenues collected through endogenous revenue components	182
Fact Sheet 7:	Revenues collected through exogenous revenue components	185
Fact Sheet 8:	Rough analysis for detecting Type I EC	192
Fact Sheet 9:	Identifying Type II EC	196
Fact Sheet 10:	Rough analysis of resource costs stemming from ecosystem services	202
Fact Sheet 11:	Accounting for financial costs (Berlin)	269
Fact Sheet 12:	Accounting for endogenous revenue components (Berlin)	280
Fact Sheet 13:	Rough analysis for detecting Type I EC (Emscher)	303
Fact Sheet 14:	Identifying Type II EC of wastewater services provision (Emscher)	310
Fact Sheet 15:	Rough analysis of resource costs stemming from ecosystem services (Emscher)	313
Fact Sheet 16:	Rough analysis of resource costs through irrigation water service provision (Emilia-Romagna)	318

List of Boxes

Box 1: Economics in the WFD – scattered evidence 34

Box 2: Article 9 of the Water Framework Directive 44

Box 3: Approaches to cost-recovery – four polar cases 80

Box 4: Economic valuation of benefits: revealed and stated preference
methods 146

Box 5: General guidelines for the cost assessment 163

Box 6: Evaluation of existing internalization instruments 191

Box 7: The role of expert judgement 203

Box 8: Earmarking of revenues (internalisation instruments) 217

Box 9: The financing scheme for the reconstruction of the Emscher river
basin 293

1 Introduction

Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.

EC Water Framework Directive (2000/60/EC), Preamble (1)

Fresh water resources are essential for sustaining life on our planet, enabling economic development and maintaining environmental services. An integrated approach for ensuring the sustainability of fresh water resources use has, however, long been neglected in European water policy. Today, the sustainability of many European river basins is at stake, both in terms of quantitative availability as well as in qualitative terms (EUROPEAN COMMISSION 2007, GLEICK ET AL. 2001, EUROPEAN PARLIAMENT AND EUROPEAN COUNCIL 2000). Over-abstractions put many aquifers and wetlands in Europe at risk. This problem is strongest in Southern Europe, but extends more and more to regions in the north of Europe. In consequence, the ecological status of river basins degrades, ecosystem services can no longer be fully provided for and the survival of aquatic species is threatened. With increasing imbalances at the regional level between supply and demand, intersectoral and interregional competition for water resources increases. These water quantity problems often amplify existing problems of water quality and pollution (EUROPEAN COMMISSION 2000). While the number of heavily polluted rivers has decreased over the past twenty years, also due to concerted actions by international river basin authorities, quality improvements are mainly recorded in large rivers and diffuse pollution, particularly from agriculture, remains problematic throughout Europe. Against this background of increasing water scarcity and pollution problems, economic instruments and principles have increasingly been recognised by national and European policy makers alike as a valuable addition to the traditional water management tool box (EUROPEAN COMMISSION 2001, OECD 1999A).

Water was recognised early on as an important field of environmental policy for the European Community. But until the ratification of the EC Water Frame-

work Directive (WFD, 2000/60/EC) in 2000¹, a large variety of independent directives on singular water policy issues hampered the move towards an integrated management of Community waters. With the WFD a number of decisive novelties were introduced to European water policy. Overall, the Directive aims to achieve “good status” for all Community water bodies by the year 2015², acknowledging the fact that *“common principles are needed in order to coordinate Member States’ efforts to improve the protection of Community waters in terms of quantity and quality, to promote sustainable water use, to contribute to the control of transboundary water problems, to protect aquatic ecosystems, and terrestrial ecosystems and wetlands directly depending on them, and to safeguard and develop the potential uses of Community waters”* (WFD preamble (23)).

With the WFD, the integration of economics into European water policy and management gained significant momentum. It is the first environmental policy directive at the European level that draws on economic instruments, methods and principles throughout its implementation process to reach its ambitious objectives. The use of economic approaches gives credit to the understanding that the Directive’s goals can only be reached within the foreseen timeframe, if economic rationales are invoked regarding water use and allocation, and implementation costs are minimised. In its preamble, the Directive acknowledges the complex and multifaceted dimensions of water, all of which translate into different and at times contradictory claims on its usage and allocation. Despite its economic take, the WFD regards water *“not [as] a commercial product like any other but, rather, [as] a heritage which must be protected, defended and treated as such”* (WFD preamble (1)).

With its economic elements, the WFD fosters a shift away from the traditionally dominant water supply management towards water demand management approaches, recognising that supply side management often does not provide sustainable solutions and may shift problems locally to other areas or over time, i.e. onto next generations (MASSARUTTO 2004A, ROTH 2001). Demand management approaches instead try to better use available resources through efficient allocation. To this end, Article 9 of the WFD demands that account be taken of the principle of cost-recovery for water services, including environmental and resource costs, and for an adequate contribution of water uses

1 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, OJ EC L 327, 22/12/2000, p.1.

2 The Directive provides the possibility of extending the deadline for reaching its objectives by a maximum of two six-year implementation cycles, i.e. to 2027 at the latest.

(disaggregated into at least industry, household and agriculture) to this cost-recovery according to the polluter-pays principle.³ Furthermore, it calls for water pricing policies that provide adequate incentives for efficient resource use by the year 2010. While water pricing is invoked for reaching the Directive's objectives, it is not considered a one-size-fits-all solution to European water management problems, but rather as an opportunity that *"should be given due consideration, to ensure it promotes more efficient and less polluting use of our scarce water resources"* (EUROPEAN COMMISSION 2000).

The overarching aim of Article 9 is to establish transparency of financial flows in the European water sector, by asking which costs are encountered in water services' provision and how these costs are recovered.⁴ However, achieving the overarching aim of Article 9, namely transparency of financial flows and associated water pricing policies that aim at sustainable water services provision and efficient resource use, is severely hampered by the difficulty of comparison among Member States. The definition of cost categories to be considered in the assessment of cost-recovery as well as the accounting for subsidies and cross-subsidies varies considerably across Member States. As pointed out by the EUROPEAN COMMISSION in its Communication on water pricing in 2000, *"The existing accounting rules used by Member States imply different ways of calculating costs. Also, the costs of different services can be included into water prices. As a result, comparisons between the costs of water supply and treatment services, water prices and existing levels of cost-recovery are often misleading. The adoption of common definitions for key cost variables would facilitate the comparison between costs and prices and benchmarking for different water services, uses and countries."*

This study aims to address this need and proposes a comparative accounting framework for assessing cost-recovery of water supply and sewerage services for private households and agriculture under different institutional, geographical, economic, legal and social-cultural conditions. The assessment framework is set-up with a view to delivering a pragmatic tool that is able to expand over the years as more reliable data becomes available and is equipped to accommodate national particularities.

The following sections give an introduction to the evolution of European water policy up to the WFD (Chapter 1.1) and highlight the objectives and

3 Unless otherwise noted, references to articles refer to the EC Water Framework Directive (2000/60/EC).

4 Transparency would imply that comparable assessments are conducted in all European Member States, which would also help to facilitate the to-date severely hampered water price comparisons (cf. HOLLÄNDER ET AL. 2008, METROPOLITAN CONSULTING 2006, OECD 1999, UBA 1998).

novelties introduced by the WFD in general (Chapter 1.2) and its economic elements in particular (Chapter 1.3). Next, the partly contradictory aims of Article 9 are analysed with a view to gaining a deeper understanding of its explicit as well as its implicit objectives (Chapter 1.4). The chapter sets the basis for the selection of relevant theoretical underpinnings in Chapter 2 and the methodological development for the comparative assessment of cost-recovery in Chapter 3. It presents the research questions addressed in this thesis (Chapter 1.5) and outlines the methodology employed in this study (Chapter 1.6). The chapter concludes with a brief overview of the structure of the thesis (Chapter 1.7).

1.1 European water policy: from regulation to integration

While water policy was recognised early on as an important topic for European environmental policy and coordination, it has undergone fundamental changes over the last three decades and moved from a regulation-centred policy framework to one of integration. Three distinct phases can be distinguished, when assessing the evolution of European legislation on water (EUROPEAN COMMISSION 2009, BLÖCH 1999). The first phase was mainly concerned with reducing or preventing water pollution through standard setting for Community waters and related uses.⁵ The directives enacted during this phase, which entered into force between 1975 and 1980, are characterised by a regulatory approach towards water management. They specify environmental quality targets or limit values for individual parts of the aquatic ecosystems, categorised by a specific function (e.g. the Surface Water Directive 75/440/EEC ‘for drinking water’) or by the function attributed to them (‘shellfish’ and ‘fish water’) (HOLTMEIER 1997, MOSTERT 2003). In retrospect, the first phase of Community water protection policy is criticized for its scattered legislative framework, providing different regulatory and management requirements for different water types. This led to implementation difficulties for the responsible administrative agencies and hampered a coherent implementation process across Member States.

5 The first phase of European legislation on water was initiated by the European Commission’s five-year Environmental Action Programmes (EAP) of 1973, which lay down the objectives and principles of European environmental policies (EUROPEAN COMMISSION 2002). The evolution from a regulatory to an integrative stance towards water and environmental policy in general can also be witnessed by the changing focus of the EAPs over the following years: the fourth EAP (1987–1992) widened the perspective of environmental policy to other EC policy fields, while the fifth EAP (1993–2000) recognised environmental protection as an equally integral and important element for decision-making as social and economic considerations.

By 1990, problems with surface water pollution became increasingly apparent across Europe, with rising eutrophication levels in fish and coastal waters, visible algae bloom and an overall deterioration of aquatic ecosystems. The start of the second policy phase was marked by the Ministerial Seminar on Water in Frankfurt⁶ in 1988, which reviewed the existing legislation on water and identified a number of gaps and related policy options. In response, two new legal instruments were adopted in 1991. They set stricter rules on water pollution emanating from urban settlements and the agricultural sector. With the Urban Wastewater Treatment Directive (UWWTD) (91/271/EEC), new standards for wastewater treatment were established and made obligatory even for small agglomerations.⁷ The Nitrates Directive (91/676/EEC) addressed water pollution from agriculture through legally binding measures, limiting the use of animal fertilizer in agriculture. It was complemented by a Directive on Pesticides (91/414/EEC) containing provisions on the authorisation and use of pesticides in agriculture. Finally, the Directive on Integrated Pollution and Prevention Control (IPPC) (96/61/EEC) focused on large industrial installations and established new rules for emissions control relevant to the water sector.⁸

Despite these regulatory interventions at the Community level, however, criticism of the lack of consistency in water protection policy continued, and pressures for a 'fundamental rethink' (BLÖCH 1999) of European water policy increased. European activities in the field of water were constrained by a lack of integration: existing Directives usually addressed a specific problem (e.g. dangerous substances 76/464/EEC), focused on specific sectors (e.g. urban settlements, the agricultural sector) or established water quality targets for individual types of waters (drinking water, fish waters, bathing waters, groundwater). This segmented approach was increasingly considered an inadequate response to the pressing problems in river basins across Europe, which seemed to require coordination across policy fields and administrative boundaries. To address these needs, the European Water Framework Directive (2000/60/EC) was set up. It entered into force on 22 December 2000, and established the third phase

6 The conclusions of the Community Water Policy Ministerial Seminar in Frankfurt in 1988 highlighted the need for Community legislation covering ecological water quality (WFD preamble (2)).

7 The UWWTD provided for secondary (biological) wastewater treatment in agglomerations with more than 2000 person equivalents (p.e.), and even more stringent treatment for settlements with more than 10000 p.e. in designated sensitive areas and their catchments.

8 In addition, the so-called Seveso II Directive (96/82/EEC) was adopted during this policy phase, which contains guidelines for controlling and dealing with dangers from major accidents.

of European policy on water protection.⁹ It introduced substantial changes to this long-established policy field (BOSENIUS AND HOLZWARTH 2006, BLÖCH 1999) and may be regarded as the most important piece of European legislation in the field of water management in decades. The following section gives an overview of the objectives and innovations introduced by this new legislative framework.

1.2 The European Water Framework Directive

The European Water Framework Directive (WFD) establishes a comprehensive framework for the long-term protection of all water bodies in the Community, including inland surface waters, transitional waters, coastal waters and groundwater. The key objective of the WFD is to establish ‘*good water status*’ in all Community waters by 2015. More specifically, the Directive’s aims include (EUROPEAN COMMISSION 2007, BLÖCH 1999:67)¹⁰:

- Achieving ‘*good status*’ of all Community waters by the year 2015 and preventing the deterioration of the status of aquatic ecosystems (Article 4)¹¹,
- Establishing water management in accordance with the hydrological entities of river basins (Article 3),
- Promoting sustainable water use facilitated by economic approaches and incentive pricing policies (Articles 5 and 9),

9 On the basis of the European Commission Communication (COM/1996/59/final) to the European Council and European Parliament in February 1996 a first draft of the Directive establishing a framework for Community action in the field of water policy or, in short, the Water Framework Directive, was already developed in 1996.

10 The relevant articles from the WFD are cited as a reference for the interested reader. In general, it is recommended to consult the English version of the WFD, the language in which the Directive was negotiated, as inaccurate translations gave rise to ample discussions (cf. e.g. UNNERSTALL 2005, SCHMUTZER 2005 and Chapter 1.3 below)

11 For groundwater, good status is measured in terms of both water quantity and chemical water quality, and for surface waters, ecological water quality and chemical water quality have to be taken into consideration in the assessment of ‘good status’. These objectives are much broader than the objectives of previous water directives. In recognition of the fact that changes to morphology may make good ecological status very difficult to meet in surface waters, another category was introduced: for those water bodies, which qualify as ‘*Heavily Modified Water Bodies*’ (HMWBs) and ‘*Artificial Water Bodies*’ (AWBs), a ‘*good ecological potential*’ has to be reached by 2015. In addition, the WFD also requires that no deterioration in water status takes place and that protected area objectives (established under existing Community legislation) are met (cf. CIS Guidance Documents No. 13 “*Overall Approach to the Classification of Ecological Status and Ecological Potential*” for further details, CIS 2003b).

- Establishing a ‘*combined approach*’ that addresses both point sources through emission limit values and diffuse pollution through quality standards (Article 10),
- Progressively reducing discharges and emissions of certain priority substances and phasing-out discharges of priority hazardous substances (Article 16),
- Contributing to the mitigation of the effects of floods and droughts (Article 1),
- Getting Europe’s citizens more involved with water resources management through public participation during the entire implementation process (Article 14).

In addition to the qualitative objective of improving water status across Europe and moving to an integrated management of water resources, the WFD aims to streamline legislation on water resources at the European level. After a transitional period, it replaces seven of the ‘*first wave*’ directives¹² and harmonises the implementation of the overall set of legislative acts on water by referring to existing directives in river basin management plans, the primary tool for achieving the Directive’s objective.

1.2.1 Novelties and building blocks of the Water Framework Directive

With the WFD, a number of novelties were introduced to European water policy. In general, it can be classified as a hybrid type of directive (Moss 2004), containing attributes of traditional command-and-control approaches, together with a reliance on new tools such as cost-effectiveness analysis or processes of inter-agency negotiation and public participation. The following paragraphs review briefly the most prominent features of the WFD.

Managing Europe’s waters by hydrological entities

For the entire WFD implementation process, the hydrological boundaries of river basins (i.e. the natural geographical and hydrological units) constitute the

12 The replacement of the old directives is foreseen in two steps: by 2007, the Surface Water Directive (75/440/EEC), the Exchange of Information Directive (77/795/EEC) and the Sampling and Analysis Directive (79/869/EEC) are repealed. By 2013, the Shellfish Water Directive (79/923/EEC), the Fish Water Directive (78/659/EEC), the Groundwater Directive (80/68/EEC) and the Dangerous Substances Directive (76/464/EEC) are revoked. Special daughter directives were enacted on groundwater (2006/118/EC) and on priority substances (2008/105/EC).

main points of reference. Theoretically, administrative and political boundaries will accordingly become less relevant to water management in the Community. While river basins already figured prominently in the management of water resources of a number of European Member States (e.g. the '*Agence de l'Eau*' in France or the river basin authorities in Spain), this was not the case for most Member States and required the creation or empowerment of appropriate institutional bodies.¹³ The necessary overhaul of existing management structures and administrative procedures poses a considerable challenge to Member States. Such challenges are often described as 'problems of fit' (Moss 2004), since ecosystem units are usually incongruent with existing political-administrative spatial units. In addition to a spatial reorganisation, the WFD requires an increased coordination with other policy-fields, including agriculture, soil protection, land management and nature protection. However, these policy fields can often only inadequately be influenced by the water sector (RUMM ET AL. 2006) leading to 'problems of interplay' (Moss 2004) between institutions, stakeholder groups and disciplines. In addressing these problems, the WFD is expected to exert a notable influence on administrative structures for water management within Europe (KESSLER 2006).

Programme of Measures for reaching Good Status

In order to reach the objectives of the WFD, i.e. good water status in all Community waters, a large number and variety of measures will have to be undertaken in river basins across Europe (cf. Article 5 reports and draft River Basin Management Plans). According to Article 11 of the WFD, the necessary measures for bridging current gaps in water status (i.e. for bringing all water bodies up to the level of 'good status') are to be described for each river basin district (or for the part of an international river basin district within a Member State's territory) in a so-called Programme of Measures (POM) by 2009.¹⁴ The selection of the most suitable measures for reaching good status should be undertaken with regard to the measures' cost-effectiveness¹⁵, in order to

13 According to WFD Article 3 (2) and 3 (4), Member States are required to make "*appropriate administrative arrangements*" including the identification of a "*competent authority*" in order to ensure necessary national and international coordination for a successful WFD implementation.

14 The need for measures has been assessed as part of the Article 5 reports (cf. below) on the basis of a '*risk assessment*', which investigated the risk of failing to reach good water status by 2015 without additional measures extending beyond business-as-usual activities.

15 In the past, technical measures were often favoured in water management. With the WFD approach to the cost-effectiveness analysis, all types of measures are treated equally in the

ensure that the Directive's objectives are reached at minimum cost (see Section 1.3.1.2). In general, the POM contains two categories of measures, namely 'basic measures' and 'supplementary measures'. Basic measures are required by existing legislation (e.g. in order to comply with the Nitrate Directive or the UWWTD¹⁶) and constitute minimum requirements for the POM. They have to be undertaken in any case and are not subject to an assessment of their cost-effectiveness. Should the basic measures be insufficient for reaching the Directive's environmental objectives, further so-called supplementary measures have to be undertaken (according to Annex VI, Part B of the WFD). The WFD provides a first non-exhaustive list of potential supplementary measures, including e.g. economic and fiscal instruments, codes for good practices, voluntary agreements and research and development projects.¹⁷ The POM is set up on the basis of a first analysis of the risk of failing the Directive's objective if no additional measures are undertaken (according to Article 5). The Programme of Measure forms part of the River Basin Management Plan.

River Basin Management Plans

According to WFD Articles 13 and 15 (and Annex VII), a River Basin Management Plan (RBMP) has to be established and updated every six years for each river basin district. It can be regarded as the main reporting mechanism on implementation progress to the Commission and to the public. According to Annex VII, the RBMP should include a general description of the river basin district's characteristics; a review of the significant pressures and impacts of human activities on the status of surface water and groundwater within the

assessment instead, including technical, institutional, legal, economic or social measures. However, as basic measures which are mandated by prior European directives must be implemented, this flexibility in measure selection is again partly reduced. KESSLER IN RUM ET AL (2006:48).

- 16 For a detailed list of existing legislation considered under '*basic measures*', cf. part A, Annex VI of the Directive. A definition and a list of basic measures are included in Article 11(3) of the Directive. In the context of this study, it should be noted that "*measures deemed appropriate for the purposes of Article 9*" are also classified as basic measures, and therefore qualify as minimum implementation requirements.
- 17 In practice, the distinction between basic and supplementary measures may not be trivial as some measures may qualify under both definitions (e.g. voluntary agreements are listed as supplementary measures, but may also be used as an instrument of the Nitrate Directive). This differentiation is of particular importance for justifying exemptions from the achievement of good status on the basis of '*disproportionate costs*' of measures: basic measures are required by existing legislation and may hence not be regarded as additional WFD-related costs. See Section 1.3.2 for an extended discussion.

river basin district; the identification and mapping of protected areas; a map of monitoring networks and of the results of monitoring programmes; a list of the environmental objectives established under Article 4 for surface waters, groundwater and protected areas, including information justifying any exemptions from these objectives (cf. Section 1.3.2); a summary of the economic analysis of water use (as required under Article 5 and Annex III, cf. Section 1.3.1.1); a summary of the POM adopted under Article 11, including a report on the practical steps and measures taken to apply the principle of recovery of the costs of water use in accordance with Article 9; and a summary of the public consultation and information measures undertaken, their results and the changes to the RBMP made in consequence. A draft of the RBMP had to be made available for stakeholder consultation by mid-2008.

Using economics throughout the implementation process

The need for conserving adequate supplies of a resource for which demand is constantly increasing in most parts of Europe has been a driving force for the integration of economic elements in the WFD (BLÖCH 1999:71). The WFD is the first environmental policy Directive at EU level that explicitly draws on economic approaches throughout its implementation process (i.e. in Articles 5, 9, 11 and Annex II and III). The Directive integrates the polluter-pays principle, aims to establish sustainable water resource use through incentive pricing, uses the cost-effectiveness analysis for singling out relevant measures for reaching the environmental objectives at minimum costs and aims at cost-recovery in water services provision. Economic considerations can also play a role in justifying exemptions from the overarching aim of the Directive, i.e. to achieve good status of all water bodies by 2015. If reaching this objective in time should prove disproportionately costly, either the 2015 deadline may be extended, or the objective may be relaxed. The economic elements of the Directive are reviewed in greater detail below (cf. Chapter 1.3).

Involving the public

The Directive's preamble already stresses that *"the success of this Directive relies upon close cooperation and coherent action at Community, Member State and local level as well as on information, consultation and involvement of the public, including users"*. In Article 14, the WFD requires the responsible bodies for WFD implementation to foster transparency of the planning and implementation processes through citizen involvement. At several points during the implementation process, information and consultation of the (interested) public

are made mandatory, while active participation is only to be encouraged by Member States.¹⁸ Implementing these participation requirements is considered essential to the responsible water agencies for winning the support of policy-makers in other policy fields, increasing the acceptance of measures among the general public and accessing expert knowledge and information about local circumstances.

Applying a combined approach

Historically, there has been a dichotomy in approaches to water pollution control at the European level, with some control instruments and regulations concentrating on limiting emissions at their source, and others focussing on the carrying capacity of receiving waters and the surrounding environment through quality objectives. The WFD addresses pollution control through a so-called '*combined approach*': pollution at its source is limited through emission controls on e.g. wastewater and agricultural fertilisers, but is amended by water quality objectives to ensure that those reduced emissions fit into the local or regional environment, complying with the objective of '*good status*' (BLÖCH 2004). The more stringent approach is then applied in each case. Hence, POM formulate limit values to control emissions from individual point sources along with environmental quality standards addressing the cumulative impact of point emissions and diffuse sources of pollution. Furthermore, a daughter directive of the WFD on priority substances (2008/105/EC) was passed on 24 December 2008. Among others, it addresses the phasing out of priority hazardous substances.

1.2.2 The Common Implementation Strategy Process: harmonising procedures

Experience with former implementation processes of sectoral European water legislation had shown that implementation approaches and outcomes could differ significantly across Europe. Unlike prior water legislation, where no harmonised approach was necessary for achieving the objectives of a certain piece of legislation at least in parts of Europe (e.g. the implementation success of the

18 The core public participation provisions of the WFD refer to the first two pillars of the Åarhus Convention (UNECE 2001) and its three levels of participation of information, consultation and active participation. The WFD requests public consultation specifically for i) the proposed timetable, work programme and role of the public in drafting the RBMP (2006); ii) the overview of major water management issues (2007); and iii) the draft RBMPs (2008).

UWWTD in Germany is not linked to the approach chosen in the Netherlands), an incoherent implementation process would, in the case of the WFD, harbour important drawbacks. With many European river basins transcending territorial and administrative borders, concerted and coordinated action, a common understanding and a joint approach were recognised early on as prerequisites for a successful and (cost-)effective implementation of the Directive (INTERWIES ET AL. 2003). Acknowledging the need for harmonisation and coherence, the European Commission and its Member States developed an unprecedented and new structure at the European level, the so-called Common Implementation Strategy (CIS) for guiding implementation in all river basins across Europe (BOSENIUS AND HOLZWARTH 2006).

The CIS was initiated under French presidency at an informal meeting of EU Water Directors and the Norwegian Water Director in Paris 23–24 October 2000. It is directed at (CIS 2001):

- Developing a common understanding, approaches as well as methodological support and scientific underpinnings on different parts of the WFD implementation process;
- Elaborating informal technical guidance on selected implementation steps, supported by best practice examples;
- Limiting the risk of bad application by offering targeted assistance on those parts of the implementation process requiring further substantiation and interpretation;
- Sharing experiences and resources between the Commission and the Member States and avoiding a duplication of efforts;
- Furthering the involvement of the public and promoting public awareness on the key elements of the WFD; and
- Ensuring coherence between the implementation of the WFD and other sectoral and structural policies at the European level.

In order to achieve these objectives, four main activities were identified within the CIS framework (CIS 2001):

- *Activity 1 – Information sharing*: the most important vehicle created under this activity is the internet-based information exchange platform ‘WFD-Circa’, accessible to all interested parties.¹⁹ Furthermore, an extensive num-

19 All documents published within the CIS process are made available on this platform. Furthermore, it establishes linkages to national and river basin specific WFD information and implementation websites. Draft documents from the working groups cannot, however, be accessed by the general public in order to avoid misinterpretation of interim results (EU Commission, Circa-Website).

ber of workshops and conferences have been organised, both at the European and at the national level, to support specific implementation aspects.

- *Activity 2 – Guidance on technical issues*: this task aims to develop informal, legally non-binding technical and scientific guidance documents to support the overall practical implementation process and for testing in pilot river basins.²⁰
- *Activity 3 – Information and data management*: information exchange and reporting under the WFD is partly based on geographical information systems. Therefore, this activity focused on harmonising existing systems, developing guidance and testing a GIS-prototype for WFD implementation.
- *Activity 4 – Application, testing and validation*: under this task, the guidance documents developed under Activity 2 were put to a practical implementation test under real-life conditions in selected pilot river basins to foster a harmonised implementation process.²¹

All guidance developed within the CIS process is legally non-binding, recognising that the implementation of the WFD is *“a responsibility, which resides fully within the competence of the individual Member State. A Common Strategy neither could nor should challenge this fundamental principle of Community environmental law”* (CIS 2001). The legally non-binding nature of the guidance offers the advantage that flexible adaptations to regional or local circumstances

20 From 2003 – 2009 23 legally non-binding guidance documents and technical reports were made available on the following aspects of WFD implementation: economics and the environment – WATECO (no. 1); identification of water bodies (no. 2); analysis of pressures and impacts – IMPRESS (no. 3); identification and designation of heavily modified and artificial water bodies – HMWB (no. 4); transitional and coastal waters (no. 5); towards a guidance on establishment of the intercalibration network and the process on the intercalibration exercise (no. 6); monitoring under the Water Framework Directive (no. 7); public participation in relation to the Water Framework Directive (no. 8); implementing the Geographical Information System elements (GIS) of the Water Framework Directive (no. 9); rivers and lakes (no. 10); Planning Processes (no. 11); role of wetlands in the Water Framework Directive (no. 12); overall approach to the classification of Ecological Status and Ecological Potential (no. 13); guidance on the intercalibration process (2004–2006) (no. 14); groundwater monitoring (no. 15); groundwater in drinking water protected areas (no. 16); direct and indirect inputs in light of the 2006/118/EC Directive (no. 17); groundwater status and trend assessment (no. 18); surface water chemical monitoring (no. 19); exemptions to the environmental objectives (no. 20); guidance for reporting under the WFD (no. 21); updated WISE GIS guidance (no. 22); eutrophication assessment in the context of European water policies (no. 23). All Guidance Documents are available for download at <http://ec.europa.eu/environment/water/water-framework/>

21 By 2002, a pilot river basin network was established including fourteen national or international (sub-)river basins. Testing started as early as 2002 and evolved along with the restructuring of the CIS process (cf. Section 1.3.3).

are possible. On the negative side, harmonisation is not necessarily guaranteed and important leeway for interpretation remains, which may bring the entire harmonisation process into question.

1.2.3 The implementation schedule for the Water Framework Directive

For reaching the WFD's ambitious environmental objective of good water status by 2015 in all European Community waters, a roadmap has been included in the Directive setting clear deadlines for intermediate implementation milestones.

Table 1: Milestones of WFD implementation

Year	Milestone	Reference in the WFD
2000	Directive entered into force	Article 25
2003	Transposition into national legislation	Article 23
	Identification of river basin districts and authorities	Article 3
2004	Characterisation of river basin: pressures, impacts and economic analysis	Article 5
2006	Establishment of monitoring networks	Article 8
	Start of public consultation (at the latest)	Article 14
2008	Presentation of draft river basin management plans for public consultation	Article 13
2009	Finalisation of river basin management plans, including programmes of measures	Article 13 Article 11
2010	Introduction of pricing policies in line with the objectives of WFD Article 9	Article 9
2012	Cost-effective programmes of measures operational	Article 11
2015	Compliance with environmental objectives End of first implementation cycle Finalisation of second river basin management plan	Article 4
2021	End of second implementation cycle ends	Article 4 Article 13
2027	End of third implementation cycle (final deadline for meeting WFD objectives)	Article 4 Article 13

Source: amended from <http://ec.europa.eu/environment/water/>.

Overall, the Directive's implementation is organised as an iterative process: following its entry into force in 2000, the first implementation cycle refers to the period up to 2015. Taking account of the fact that technical difficulties, unfavourable natural conditions or disproportionate costs of measures may prevent Member States from reaching the objectives in time, this first cycle is followed up by two additional six-year implementation cycles. Table 1 briefly summarises important implementation milestones.

1.3 The role of economics in the WFD

Economic instruments were recognised early on as important to European environmental politics. The European Council highlighted already in its first Environmental Action Programme (1973) that Community-wide rules for covering and allocating the costs of environmental protection needed to be developed. Member States and the Council highlighted the polluter-pays principle as a guiding principle for the introduction of economic instruments and for furthering environmental protection. However, environmental levies or charges have barely been drawn upon in European environmental protection law. There are but a few cases in which Member states were obliged, or even allowed, to introduce environmental levies or charges for implementing environmental policy objectives (UNNERSTALL 2005:2).

The WFD is the first environmental policy directive at the European level that explicitly draws on economic instruments along its entire implementation process for achieving its ambitious objectives. While economic aspects have been placed prominently within the Directive's preamble and in two of its articles, and evidence on economics can be found scattered along the entire Directive (see Box 1), the Directive's recourse to economics should not be interpreted as an economisation of European water policy (BRACKEMANN ET AL. 2000). Instead it is evidence of the conviction that reaching the Directive's objectives will require substantial financial resources, which should be put to their economically most effective use, i.e. reaching good status by 2015 will require the selection of those measures that are cost-effective, or exemptions from reaching the objectives can be justified by 'disproportionate costs'. Furthermore, the Directive recognises the potential of economic instruments in promoting sustainable water resources use.

Economic issues are the focus of two articles of the WFD: Article 5 (together with Annex III) asking for an *economic analysis of water use* and Article 9 on the *cost-recovery of water services* (analysed in detail below in Chapter 1.4). Nevertheless, economic aspects can also be found, or are implied, in other parts of the Directive's text and include (CIS 2003):

- An identification of areas designated for the protection of *economically significant aquatic species*;
- The designation of heavily modified water bodies based on an assessment of the significance of the *impact* (including the *economic* impact) on existing uses and *costs* of alternatives for providing the same beneficial objective;
- The provision of support to the selections of the Programme of Measures on the basis of *cost-effectiveness* criteria;
- An assessment of the potential role of *pricing* in Programmes of Measures;
- A pathway for justifying exemptions from reaching the directives environmental objectives (in terms of time or in terms of less stringent objectives) through an assessment of the proportionality of costs and benefits and of *costs* of alternatives for providing the same beneficial objective;
- An evaluation of *costs* of measures in order to come up with *cost-effective* solutions for the control of priority substances.

Source: CIS (2003a).

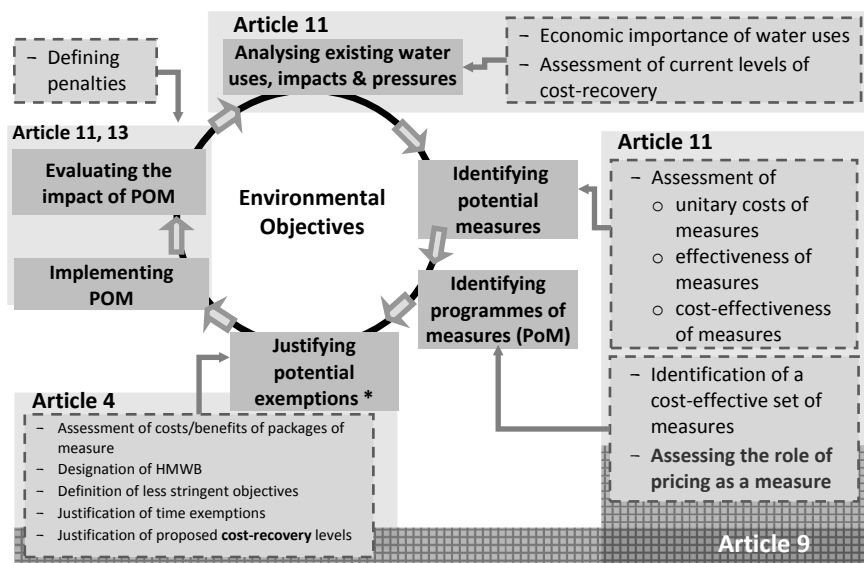
As the WATECO Guidance Document (CIS 2003A) points out, the Directive's economic aspects can be grouped in two categories: those economic aspects that fulfil an explicit function within the Directive and those that can rather be classified as implicit. Nonetheless, the economic elements of the Directive should be considered and tackled as an integral and interlinked part of the overall implementation process (see Figure 1). Both, the explicit and the implicit economic elements of the WFD are reviewed in greater detail in the following sections.

1.3.1 Explicit functions of economics in the WFD

Within the Directive's text, three explicit functions can be identified for economics (CIS 2003A:19). The first explicit function is the economic analysis of water use (according to Article 5 and Annex III). The second explicit function is given by the cost-effectiveness analyses, which are made a mandatory tool for selecting measures (according to Article 11 and Annex III). The third explicit

function concerns Article 9, i.e. the assessment of cost-recovery (including environmental and resource costs), the reference to the polluter-pays principle and the establishment of incentive pricing by 2010. As Article 9 is at the heart of this thesis, it's multiple and partly contradictory objectives are investigated in detail and separately in Chapter 1.4.

Figure 1: The economic aspects of the WFD



Source: adapted from CIS (2003a).

*Note: the justification of potential exemptions and the identification of programmes of measures have been switched and the reference to Articles has been added.

1.3.1.1 The economic analysis (according to Article 5 and Annex III)

As the first guidance document from the CIS process on economics, the WATECO document (CIS 2003A) mainly addressed how to proceed with the first economic implementation milestone of the Directive, the economic analysis. The provisions for the economic analysis are given in Article 5 and Annex III but remain sufficiently vague to leave ample room for interpretation, which was concretised by means of this guidance document at the European level. According to Article 5, an economic analysis is to be prepared for each river basin district (RBD) and should “provide enough information in sufficient detail [...] in

order to make relevant calculations necessary to take into account under Article 9 the principle of recovery of the costs of water services [...] and make judgments about the most cost-effective combination of measures". To comply with these requirements, the WATECO Guidance Document suggests including in the Article 5 economic analyses, an assessment of the following four issues (WWF AND EEB 2006, CIS 2003A).

First, an analysis of the economic importance of water uses should be conducted, in order to assess how important water is to the economy and the socio-economic development of the river basin district. The economic analysis should provide the river basin's economic profile in terms of general indicators (e.g. economic turnover, gross income, employment or number of beneficiaries of significant water uses). In a broader context, the economic analysis of water uses is intended to pave the way for the assessment of significant water management issues to be reported to the public by 2007, as well as the ensuing cost-effectiveness analysis, by initiating investigations of likely trade-offs between socio-economic development and water protection within the river basin.

Second, an assessment of future trends in economic sectors should be undertaken by means of a baseline scenario (BLS), which assesses forecasts in key economic drivers likely to influence pressures and thus water status until 2015. In the BLS, trends in water supply and water demand have to be evaluated. The focus is on changes in general socio-economic variables (e.g. population growth), in economic growth of main sectors as well as changes in the implementation of planned investments linked to existing regulation. Both hydrological as well as socio-economic drivers have to be investigated.

Third, the level of cost-recovery of water services should be assessed in accordance with the requirements of Article 9 of the WFD. Key elements to be investigated in the economic analysis by the end of 2004 include the status of water services, the institutional set-up for cost-recovery, the extent of the recovery of the costs of the water services, the contribution of key water uses to the costs of these services (i.e. for assessing the degree of application of the polluter-pays principle) as well as the incidence of subsidies.²² Furthermore, the current role of economic instruments is to be studied, together with an analysis of present water pricing mechanisms and their role in supporting the achievement of sustainable water management and the overall environmental objectives of the WFD.

22 In order to complete the economic analysis, a definition and delineation of water services and water uses was required. The exact definition is of particular importance for the application of the cost-recovery principle and will hence be discussed under Chapter 1.4.