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A comparison of the implementation process of the European Water Framework Directive in five member states

Edited by

Y. Uitenboogaart, J.J.H. van Kempen, M. A. Wiering, H.F.M.W. van Rijswick
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April 2009
The Water Framework Directive (WFD) is one of today’s most comprehensive European Directives and is considered to be of major importance for domestic water management, especially regarding the chemical and ecological conditions of water bodies all over Europe. This book results from a rather simple initial question: How is The Netherlands, compared to other countries, doing in implementing the Directive? Are we front runners or lagging behind? This simple question turned out to produce less simple answers. It raised further questions, e.g. what exactly is the WFD asking member states to do? What are the ‘degrees of freedom’ that the WFD offers? How do member states deal with the substantial and procedural complexity of the Directive and what pathways do they follow? We tried to answer all these questions by setting up a comparative research project from two different angles: the formal implementation and the practical implementation. The formal implementation of the Directive was investigated by Utrecht University, the practical implementation by the University of Nijmegen. Thus, this book is also the result of a joint effort to clarify and connect different dimensions of implementation.

The work in Nijmegen was the responsibility of the Department of Political Sciences of the Environment (Milieu en Beleid); that participates in the multi-disciplinary Centre of Water and Society at the Radboud University Nijmegen. At Utrecht University the project was part of the research project ‘Environmental Quality standards and Emission ceilings in European environmental directives: in search for good implementation and application’ of the Centre for Environmental Law and Policy/Netherlands Institute for the Law of the Sea, Department of Law, Utrecht University.

This book would not be possible without the financial and substantial support of the Netherlands Environmental Assessment Agency (Planbureau voor de Leefomgeving) and the Ministry of Transport, Public Works and Water management. We want to thank the steering committee (see Annex I) of the project for their constructive comments and, now and again, for their patience. Special thanks to all our experts in different countries (see Annex II) who contributed with excellent reports.

Finally we want to thank all interviewees (see Annex II) for taking time for our questions in the middle of the preparation process of the draft-river basin management plans. We wish that their work make Europe a healthier and ecologically more interesting place.

On behalf of all authors,

Yukina Uitenboogaart
Jasper van Kempen
Mark Wiering
Marleen van Rijswick

Nijmegen/Utrecht, April 2009
CONTENTS

Preface
CONTENTS 4
LIST OF ABBREVIATIONS .......................................................... 8
CHAPTER 1 INTRODUCTION ....................................................... 10
  1.1 Introduction ........................................................................ 10
  1.2 Focus of this study ............................................................... 12
  1.3 Relevant content of the WFD ............................................... 13
  1.4 Research Design ................................................................. 26
  1.5 Research questions ............................................................. 30
  References ............................................................................. 31
  Annex 1 ............................................................................... 35
CHAPTER 2 IMPLEMENTATION OF THE WFD IN SIX COUNTRIES – IN A NUTSHELL 37
  2.1 Introduction ........................................................................ 37
  2.2 Main Problems ..................................................................... 37
  2.3 Transposition ...................................................................... 39
  2.4 Organisational framework ................................................... 41
  2.5 Conclusions ....................................................................... 53
  References ............................................................................. 54
CHAPTER 3 THE IMPLEMENTATION OF THE WFD IN THE NETHERLANDS ............................................ 57
  3.1 Introduction ........................................................................ 57
  3.2 Goal-Setting Process ............................................................ 62
  3.3 The Planning Process ............................................................ 65
  3.4 Programme of Measures ...................................................... 68
  3.5 Resources .......................................................................... 70
  3.6 No Deterioration Principle .................................................... 71
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2 Goal Setting Process</td>
<td>141</td>
</tr>
<tr>
<td>6.3 The Planning Process</td>
<td>144</td>
</tr>
<tr>
<td>6.4 Programme of Measures</td>
<td>146</td>
</tr>
<tr>
<td>6.5 Resources</td>
<td>148</td>
</tr>
<tr>
<td>6.6 No Deterioration Principle</td>
<td>149</td>
</tr>
<tr>
<td>6.7 Use of Exemptions</td>
<td>151</td>
</tr>
<tr>
<td>6.8 Integration</td>
<td>152</td>
</tr>
<tr>
<td>6.9 Conclusions</td>
<td>158</td>
</tr>
<tr>
<td>References</td>
<td>159</td>
</tr>
<tr>
<td>Appendix</td>
<td>163</td>
</tr>
<tr>
<td>CHAPTER 7 CASE STUDY GERMANY</td>
<td>165</td>
</tr>
<tr>
<td>7.1 Introduction</td>
<td>165</td>
</tr>
<tr>
<td>River Basin District Meuse and Catchment Characteristics</td>
<td>165</td>
</tr>
<tr>
<td>River Basin Management and Coordination</td>
<td>165</td>
</tr>
<tr>
<td>7.2 Goal Setting Process</td>
<td>167</td>
</tr>
<tr>
<td>Designation of Water Bodies</td>
<td>167</td>
</tr>
<tr>
<td>Setting Formal Standards</td>
<td>170</td>
</tr>
<tr>
<td>General Environmental Goal of good Status</td>
<td>170</td>
</tr>
<tr>
<td>7.3 The Planning Process</td>
<td>170</td>
</tr>
<tr>
<td>7.4 Programme of Measures</td>
<td>171</td>
</tr>
<tr>
<td>7.5 Resources</td>
<td>173</td>
</tr>
<tr>
<td>7.6 No Deterioration Principle</td>
<td>173</td>
</tr>
<tr>
<td>7.7 Use of Exemptions</td>
<td>174</td>
</tr>
<tr>
<td>7.8 Integration</td>
<td>176</td>
</tr>
<tr>
<td>7.9 Conclusions</td>
<td>183</td>
</tr>
<tr>
<td>References</td>
<td>185</td>
</tr>
<tr>
<td>CHAPTER 8 A COMPARISON OF FIVE CASES IN IMPLEMENTING THE EU WATER FRAMEWORK DIRECTIVE</td>
<td>188</td>
</tr>
<tr>
<td>8.1 Introduction</td>
<td>188</td>
</tr>
<tr>
<td>8.2 Goal-setting process</td>
<td>188</td>
</tr>
<tr>
<td>Chapter 8</td>
<td>Page</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Setting objectives and planning</td>
<td>193</td>
</tr>
<tr>
<td>Programmes of Measures</td>
<td>200</td>
</tr>
<tr>
<td>Financial Resources</td>
<td>203</td>
</tr>
<tr>
<td>The Use of Exemptions</td>
<td>205</td>
</tr>
<tr>
<td>The Principle of No Deterioration</td>
<td>207</td>
</tr>
<tr>
<td>Integration in General</td>
<td>210</td>
</tr>
<tr>
<td>Integration: Water and Nature</td>
<td>212</td>
</tr>
<tr>
<td>Integration: Water and Agriculture</td>
<td>213</td>
</tr>
<tr>
<td>Integration: Water and Spatial Planning</td>
<td>216</td>
</tr>
<tr>
<td>CHAPTER 9 GENERAL CONCLUSIONS</td>
<td>218</td>
</tr>
<tr>
<td>Introduction</td>
<td>218</td>
</tr>
<tr>
<td>Findings</td>
<td>219</td>
</tr>
<tr>
<td>On ambitions</td>
<td>222</td>
</tr>
<tr>
<td>Rationales in formal and practical implementation</td>
<td>227</td>
</tr>
<tr>
<td>Interesting practices</td>
<td>228</td>
</tr>
<tr>
<td>Reflection</td>
<td>229</td>
</tr>
<tr>
<td>References</td>
<td>230</td>
</tr>
</tbody>
</table>
# LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMvB</td>
<td>Algemene Maatregel van Bestuur</td>
</tr>
<tr>
<td>APAE</td>
<td>Action Plan for the Aquatic Environment</td>
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<td>AWB</td>
<td>Artificial Water Body</td>
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<td>BauGB</td>
<td>Baugesetzbuch</td>
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<tr>
<td>BNatSchG</td>
<td>Bundesnaturschutzgesetz</td>
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<tr>
<td>CE</td>
<td>Code de l'environnement (French Environmental Act)</td>
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<tr>
<td>DE</td>
<td>Germany</td>
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<tr>
<td>DEFRA</td>
<td>Department for Environment, Food and Rural Affairs</td>
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<td>DG</td>
<td>Directorate-General</td>
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<tr>
<td>DIW</td>
<td>Decreet betreffende het integraal waterbeleid (Flemish Decree on Integrated Water Management)</td>
</tr>
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<td>DK</td>
<td>Denmark</td>
</tr>
<tr>
<td>DKK</td>
<td>Danish Krone</td>
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<tr>
<td>EA</td>
<td>Environmental Agency</td>
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<td>EU</td>
<td>European Union</td>
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<td>GEP</td>
<td>Good Ecological Potential</td>
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<td>GES</td>
<td>Good Ecological Status</td>
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<td>GewBEÜV</td>
<td>Gewässerbestandsaufnahme-, Einstufungs- und Überwachungsverordnung (relevant Landesverordnung in North Rhine-Westphalia)</td>
</tr>
<tr>
<td>HMWB</td>
<td>Heavily Modified Water Body</td>
</tr>
<tr>
<td>LWG</td>
<td>Landeswassergesetz (water acts of the states in Germany)</td>
</tr>
<tr>
<td>MML</td>
<td>Miljømålsloven (Danish Environmental Objectives Act)</td>
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<tr>
<td>MUNLV</td>
<td>Ministerium fur Umwelt und Naturschutz, Landwirtschaft und Verbraucherschutz des Landes Nordrhein-Westfalen (Ministry for Environment, Nature protection, Agriculture and Consumer Protection of North Rhine-Westphalia)</td>
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<tr>
<td>NGO</td>
<td>Non Governmental Organisation</td>
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<tr>
<td>NRW</td>
<td>North Rhine-Westphalia</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>OFWAT</td>
<td>Water Services Regulation Authority</td>
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<td>PoM</td>
<td>Programme of Measures</td>
</tr>
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<td>RBD</td>
<td>River Basin District</td>
</tr>
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<td>RBOM</td>
<td>Het Regionaal Bestuurlijk Overleg Maas (Regional Executive Committee for the Meuse)</td>
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<td>RBMP</td>
<td>River Basin Management Plan</td>
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<td>ROAM</td>
<td>Het Regionaal Ambtelijk Overleg Maas (Regional Administrative Committee for the Meuse)</td>
</tr>
<tr>
<td>RWS</td>
<td>Rijkswaterstaat</td>
</tr>
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<td>SAGE</td>
<td>Schéma d’Aménagement et de gestion de l’eau</td>
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<td>SDAGE</td>
<td>Schéma Directeur d’Aménagement et de gestion de l’eau</td>
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<tr>
<td>SSSI</td>
<td>Site of Special Scientific Interest</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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<td>UKTAG</td>
<td>United Kingdom Technical Advisory Group</td>
</tr>
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<td>WFD</td>
<td>Water Framework Directive</td>
</tr>
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<td>WHG</td>
<td>Wasserhaushaltsgesetz (federal water management act in of Germany)</td>
</tr>
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<td>Wm</td>
<td>Wet Milieubeheer (Dutch Environmental Management Act)</td>
</tr>
</tbody>
</table>
Www: *Wet op de waterhuishouding* (Dutch Water Management Act)
CHAPTER 1 INTRODUCTION

M.A. Wiering, H.F.M.W. van Rijswick, P. Leroy

1.1 Introduction

The Water Framework Directive (WFD) was published in 2000 (2000/60/EC) and functions as a major framework for the protection of water bodies in Europe, both for surface waters (rivers, lakes, transitional waters, coastal waters), and ground waters. It focuses mainly on issues of water quality, the quantity of groundwater and ecology, although the Directive also relates and refers to flooding policies. The promotion of sustainable water use and the improvement of the quality of water systems are its main targets. Besides setting substantial goals for European water quality, the WFD also affects the water policies of EU Member States by prescribing institutional pathways to reach objectives, such as river basin management and participatory approaches (Kaika 2003; Kaika and Page 2005; Meijerink and Wiering 2009). The Directive is considered to be a major agent of change or driving force for integrated water resources management across Europe. It promises to reform the European water sector (Kaika 2003) and aims at harmonisation of policies on water and water quality in EU Member States. The ultimate goal of the WFD is sustainable use of water. The environmental objective as defined in the Directive is to achieve a ‘good status’ in all European water bodies by 2015.

The WFD is explicitly a framework directive. In itself, it does not contain detailed regulations on policy objectives for each water system, nor does it exactly prescribe to take up specific policy measures. It allows Member States a considerable degree of freedom in both the process and outcome of implementation (MNP, Quick Scan 2006), as long as they act within the bounds of pre-existing water directives and other relevant European regulations (i.e. those concerning nature conservation, agricultural sources, etc.). In addition to the new directives (WFD, Groundwater Directive and Directive on Priority Substances), the Member States must also implement the so-called ‘basic measures’ before 2015. These basic measures stem mainly from the pre-existing European water-related directives, such as the Urban Wastewater Directive, Birds and Habitats Directives, Bathing Water Directive, Nitrates Directive, Directive on Integrated Pollution Prevention and Control (IPPC), etc. (see Van Rijswick et al. 2008 for an overview of the directives).

1 ‘Good status’ needs to be achieved for both surface and ground water. ‘Good surface water status’ is achieved when both its ecological and chemical status are at least ‘good’. ‘Good ground-water status’ is achieved when both its quantitative and chemical status are at least ‘good’. When surface water bodies are classified as heavily modified or artificial, good ecological ‘potential’ is the objective.
Member States must prepare a river basin management plan (RBMP) for each river basin district. In general, the different governmental authorities have to inform and consult the involved market parties, NGOs or other stakeholders within a Member State when river basin management plans are being prepared. River basin management plans include, among other things, characteristics of the river basin districts, a summary of the significant pressures and impact of human activity, a list of environmental objectives and a summary of the programme of measures (Annex VII WFD). The EU provides help for the Member States in fulfilling the WFD requirements by way of guidance documents and working groups, in a process of joint implementation and intercalibration.

The aim of the intercalibration exercise is to harmonise the understanding of ‘good ecological status’ in all Member States, and to ensure that this common understanding is consistent with the definitions of the Directive. The exercise is referred to in the Directive (Annex V Section 1.4.1) and the results are important in setting the ecological targets for the natural surface water bodies. The process is still not fully completed, and therefore some results will only be ready for the second phase of the RBMPs in 2015 (RWS Waterdienst 2008). The results up to this point were adopted by the European Parliament and the Council in December 2008.

Once Member States have committed themselves to a specific set of objectives and measures laid down in river basin management plans for the defined water bodies, the EU will supervise and enforce achievement of these objectives within the time frames indicated (see Annex 1). Moreover, not all elements of the Directive are left to the policy discretion of Member States: e.g. the chemical status for all water bodies is directly regulated by European directives or daughter directives (see Section 1.2).

As such, the WFD programme in large part seems to reflect ‘new modes of governance’ on a European scale. In contrast to former European Directives, the WFD is not only oriented towards prescribing standards and norms, but it also prescribes that Member States determine and implement self-imposed objectives and standards to reach a good status of water in Europe. The WFD belongs to the ‘new generation’ of EU environmental policy instruments (see Knill and Lenschow 2000). The institutional implementation literature (foremost: Knill 2001) suggests that this also causes adaptation pressure amongst Member States, and consequently, implementation problems. It is interesting to see how different Member States deal with the policy discretion that the WFD offers. How do they make their choices when setting objectives and determining packages of measures? What procedures and organisational frameworks do they use?
1.2 Focus of this study

The main goal of this study of the implementation of the WFD in a comparative perspective is to gain insight into the implementation processes and practices in other EU Member States. This informs us about ‘how the Netherlands is doing’ with regard to the implementation of the WFD, how other countries deal with comparable policy problems and how other countries are setting their levels of ambition. The report published earlier by the Ministry, *EU KRW Internationaal* (RWS Waterdienst 2008), also asks the question of where the Netherlands stands among other EU Member States in implementing the WFD. However, this report does not elaborate on the processes of implementation extensively. A secondary goal is to learn from the choices made in other countries. For example, what are interesting policy practices in different countries?

There are different approaches used in analysing the policy practices of Member States when it comes to the implementation of European regulations. The literature is very diverse, and can have various theoretical and empirical perspectives.

The proceedings in the formal implementation of EU Directives are usually the subject of legal literature, e.g. the work of Van Rijswick (2001) on the WFD or Vervaele (1999) on comparative studies of formal implementation of EU regulations in general. Studies of the institutional adaptation of EU Member States use a political-institutional perspective to point specifically to the institutional consequences of specific directives (i.e. Knill and Lenschow 2000; Knill 2001; Knill and Liefferink 2007). The Europeanisation literature deals in a more general sense with the impact of the EU on national policies. One ‘follow-up’ question of Europeanisation studies concerns the issue of convergence: to what extent do Europeanisation processes in different Member States lead to convergence? Another might be the leader-laggard question, although this also addresses another aspect of European integration – i.e. the behaviour of Member States in putting policy concepts or programmes on the European agenda and thereby influencing policymaking in Brussels.

This study will focus on a detailed description of the implementation of important elements of the Directive in different countries. ‘Implementation’ is understood as both the formal implementation (transposition, legal framework, formalisation of norms and standards) and the practical organisation and realisation of the goals, principles and prescriptions of EU directives. The study is therefore a collaboration of legally-oriented scholars from the Department of Law at Utrecht University, and policy-oriented scholars from the Department of Political Sciences of the Environment at Radboud University Nijmegen.
Formal implementation and legal perspective

In the legal parts of this study, we focus on the obligations following from the Water Framework Directive itself and on the formal legal implementation in the national law of the several selected countries. Not all aspects of the implementation are researched. The focus lies on the attribution of powers in the field of water management; the legal implementation of ambitions and goal setting; the designation of water bodies; the way norms and standards are legally formulated and regulated in national law; the way exemptions are regulated and the legal meaning of the no-deterioration principle in the national law of the Member States. Finally, we will look at the way in which the integration of water objectives, norms and standards play a role in decision making in the field of water management and other policy fields. For the legal literature on the implementation of the WFD in several Member States see the literature in the references.

Practical implementation and institutional perspective

In the part on practical implementation in this study, we will look at both the ‘substantive’ aspect of the implementation process (setting levels of ambition, dealing with principles, reaching good status), and the organisational-institutional aspect of implementing the WFD (e.g. the general organisational framework, centralised/decentralised institutions, locus of decision making and external integration).

Before we address our research questions, case-selection and the methodology of this study, it is necessary to provide more information on the Directive itself.

1.3 Relevant content of the WFD

‘Water is not a commercial product like any other but, rather, a heritage which must be protected, defended and treated as such.’ This statement in the preamble to the WFD is not just a symbol of the importance of water, but also has a legal meaning. The protection of common heritage requires the strict implementation of EC directives, as became clear from EC Court decisions concerning the implementation of the Habitats Directive. Together with the new approach in EC environmental legislation as mentioned above, this leads to many questions concerning the implementation of the WFD. How does one deal with a strict protection regime that at the same moment is based on a new governance approach that leaves room for policy discretion and the involvement of governments and stakeholders and which have to fit within the legal system of the individual Member States? A great deal of discussion has been taking place during the last decade, each participant in the discussion focusing on his or her own interests, background, and scientific approach. Due to the fact that EC Environmental law has a strong focus on the correct implementation of obligations
following from directives, because that it is the only way in which the European Commission can fulfil its role as the watchdog of EC law, it is of great importance to take a close look at the exact wording of not only the WFD Directive, but also the system of the directive as a whole and the case law on older environmental directives so as to be able to obtain a proper understanding of the obligations following from the WFD. Environmental objectives worded as norms instead of standards seem vague and unfocused, but they form the backdrop for the explanation of the other obligations and instruments.

It is argued that these vague and normative norms are a result of a development towards governance and more proceduralisation and flexibility in environmental law. It is now not only the European institutions that create legal norms and standards, in particular concerning the good ecological status, but also the Member States together with the other parties involved (Krämer 2007; Scott 2000; Scott and Trubeck 2002; Pallemaerts et al. 2006). As far as the Water Framework Directive is concerned, norms and standards are elaborated within the Common Implementation Strategy for the Water Framework Directive.

The main problems of the governance concept are a diminishing ability to enforce regulations because there are less uniform and concrete standards that must be met. Furthermore, there is the possibility of a lack of democratic legitimacy and responsibility in political and legal forums, because legislation is partly made by executive powers and third parties. The controlling role of parliaments is diminishing (Van Trigt, 2007).

Although this all seems quite severe and worrying, a solution for this tension between the more classic government approach and the new governance approaches can be found by using a rights-based approach following from water rights which are provided in European and national legislation (Van Rijswick 2008).

At first sight, the wording of vague objectives and goals appears not to be unconditional and sufficiently clear, as a result of which these provisions do not meet the requirements for having direct effect. The latter is of importance for private parties as it enables them to enforce their rights arising from the directives before the courts. After all, Member States must elaborate the details of the normative goals in river basin management plans and programmes of measures and it is beyond the competence of the courts to make a choice from different instruments because it will restrict the legislator’s discretion in this respect. Nevertheless, there are still protective instruments for NGOs, private parties and other Member States within the same river basin district.

A system with normative objectives is not new; we have seen it before in other environmental directives, such as the ‘significant effects on the environment’ of the EIA Directive, and the ‘favourable conservation status’ and ‘significant effect’ of the Habitats Directive. The European Court of Justice’s case law shows that these provisions may
have direct effect as far as they touch upon the limits of a Member State’s discretionary powers. This requirement must be elaborated by the Member States.²

The more generally drafted environmental objectives in directives provide, as it were, policy restrictions (depending on what is granted by the directive) which the Member States must bear in mind when implementing the obligations arising from the directive. The general – or ultimate – objective must eventually determine the scope of all the obligations, and not just the scope of the provisions that have direct effect. This approach can also be found in the case law of the European Court of Justice.³

Finally, we must also be able to trust the legislator’s loyal commitment to the transposition of the obligations arising from the directive which does justice, as far as substantive law and procedural law are concerned, to the protection of water systems within the EC. If this fails to occur, the European Commission can act in its capacity as the European law watchdog and start an infringement procedure. The direct protection of water interests for private parties or interested third parties before the European courts (the Court of First Instance and the European Court of Justice) is practically impossible. After all, it requires a direct and individual interest, which is often difficult to prove (Jans and Vedder 2008). Private parties do have the possibility to ask the national courts to request a preliminary ruling from the European Court of Justice. More specifically, national courts must guarantee water rights arising from European law.

**General purpose and environmental objectives**

Regarding the WFD there are several levels of goals, standards and more concrete requirements. Member States have to comply with all these obligations and especially the general obligations, for example the obligation that all waters ## should be protected and member states should prevent further deterioration (see article 1 and 4) have an impact on all the obligations following from the WFD and on all water bodies.

As previously stated, we will focus on the obligations concerning the legal establishment of goals and the qualification of these goals as obligations of result or obligations of best efforts; the designation of water bodies; the legal establishment of the exemptions; the legal establishment of the no-deterioration principle and the integration of water management goals, standards and measures in other policy fields.

European water directives often show general goals and environmental objectives drafted as general and qualitative provisions. An example is the Water Framework Directive whose ultimate general goal can be found in Article 1:

³ ECJ case C-213/03 (preliminary ruling) and ECJ C-239/03, Commission vs France on (L’étang de Berre).
It is very important to realise that the general goal of the WFD, which colours all obligations from the directive, is to protect all waters, and all aquatic water systems. The purpose of the WFD is not limited to designated water bodies and their chemical or ecological status.

The ultimate environmental goal of the WFD is to ensure that all European waters are in ‘a good status’. This differs from the general objectives of the Water Framework Directive laid down in Article 1, while the environmental objectives are laid down in Article 4. General objectives do not have direct effect and private parties cannot rely on them before the courts (Jans and Vedder 2008).

Several parts of the environmental objectives will be examined more closely. Beforehand it must be said that the exemptions and general obligations are also laid down in Article 4, which means that they are an integral part of the environmental objectives.

First of all, a distinction is made between the objectives for surface waters and groundwater:
Article 4
Environmental objectives

1. In making operational the programmes of measures specified in the river basin management plans:

(a) for surface waters
(i) Member States shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8;
(ii) Member States shall protect, enhance and restore all bodies of surface water, subject to the application of subparagraph (iii) for artificial and heavily modified bodies of water, with the aim of achieving good surface water status at the latest 15 years after the date of entry into force of this Directive, in accordance with the provisions laid down in Annex V, subject to the application of extensions determined in accordance with paragraph 4 and to the application of paragraphs 5, 6 and 7 without prejudice to paragraph 8;
(iii) Member States shall protect and enhance all artificial and heavily modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status at the latest 15 years from the date of entry into force of this Directive, in accordance with the provisions laid down in Annex V, subject to the application of extensions determined in accordance with paragraph 4 and to the application of paragraphs 5, 6 and 7 without prejudice to paragraph 8;
(iv) Member States shall implement the necessary measures in accordance with Article 16(1) and (8), with the aim of progressively reducing pollution from priority substances and ceasing or phasing out emissions, discharges and losses of priority hazardous substances without prejudice to the relevant international agreements referred to in Article 1 for the parties concerned;

(b) for groundwater
(i) Member States shall implement the measures necessary to prevent or limit the input of pollutants into groundwater and to prevent the deterioration of the status of all bodies of groundwater, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8 of this Article and subject to the application of Article 11(3)(j);
(ii) Member States shall protect, enhance and restore all bodies of groundwater, ensure a balance between abstraction and recharge of groundwater, with the aim of achieving good groundwater status at the latest 15 years after the date of entry into force of this Directive, in accordance with the provisions laid down in Annex V, subject to the application of extensions determined in accordance with paragraph 4 and to the application of paragraphs 5, 6 and 7 without prejudice to paragraph 8 of this Article and subject to the application of Article 11(3)(j);
(iii) Member States shall implement the measures necessary to reverse any significant and sustained upward trend in the concentration of any pollutant resulting from the impact of human activity in order progressively to reduce pollution of groundwater. Measures to achieve trend reversal shall be implemented in accordance with paragraphs 2, 4 and 5 of Article 17, taking into account the applicable standards set out in relevant Community legislation, subject to the application of paragraphs 6 and 7 and without prejudice to paragraph 8;
(c) for protected areas
Member States shall achieve compliance with any standards and objectives at the latest 15 years after the date of entry into force of this Directive, unless otherwise specified in the Community legislation under which the individual protected areas have been established.

2. Where more than one of the objectives under paragraph 1 relates to a given body of water, the most stringent shall apply.
Definitions

To understand these environmental goals properly, Article 2 of the WFD provides several definitions. Looking at these definitions it becomes clear that the environmental status of a water system must be seen as a general expression of the status of a body of surface water or groundwater. This only becomes relevant when it comes to defining whether a water body is in a ‘good’ status classification in accordance with Annex V. This is important in the discussion concerning the no-deterioration principle.

Furthermore, a distinction is made between the good chemical status of surface water and ground water, on the one hand, and the good ecological status of surface waters and the good quantitative status of ground water, on the other.

As far as the good chemical status is concerned, Member States do not have much room for their own policy decisions regarding ambitions; goal setting; the designation of relevant waters including artificial and heavily modified waters and the use of exemptions. For the good chemical status environmental quality standards are or will be regulated in the near future at the EC level, continuing a long tradition in EC water law. Looking at the definitions, the obligations are clear: see Article 2 Section 24 above: environmental quality standards must be met. Environmental quality standards relate to substances, not only ‘priority hazardous substances’, but all substances that may be harmful and the environmental quality substances relate to almost all cases concerning all waters (not only designated water bodies and including artificial and heavily modified waters). It means that also part of the good ecological status will be regulated by environmental quality standards. Quality standards are based on older EC water directives, in the proposal for a daughter directive with quality standards for surface waters, in the daughter directive on groundwater and in national regulations.
Article 2
Definitions
For the purposes of this Directive the following definitions shall apply:
1. "Surface water" means inland waters, except groundwater; transitional waters and coastal waters, except in respect of chemical status for which it shall also include territorial waters.
2. "Groundwater" means all water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.
(...)
8. "Artificial water body" means a body of surface water created by human activity.
9. "Heavily modified water body" means a body of surface water which as a result of physical alterations by human activity is substantially changed in character, as designated by the Member State in accordance with the provisions of Annex II.
10. "Body of surface water" means a discrete and significant element of surface water such as a lake, a reservoir, a stream, river or canal, part of a stream, river or canal, a transitional water or a stretch of coastal water.
(...)
12. "Body of groundwater" means a distinct volume of groundwater within an aquifer or aquifers.
13. "River basin" means the area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta.
14. "Sub-basin" means the area of land from which all surface run-off flows through a series of streams, rivers and, possibly, lakes to a particular point in a water course (normally a lake or a river confluence).
15. "River basin district" means the area of land and sea, made up of one or more neighbouring river basins together with their associated groundwaters and coastal waters, which is identified under Article 3(1) as the main unit for management of river basins.
16. "Competent Authority" means an authority or authorities identified under Article 3(2) or 3(3).
17. "Surface water status" is the general expression of the status of a body of surface water, determined by the poorer of its ecological status and its chemical status.
18. "Good surface water status" means the status achieved by a surface water body when both its ecological status and its chemical status are at least "good".
19. "Groundwater status" is the general expression of the status of a body of groundwater, determined by the poorer of its quantitative status and its chemical status.
20. "Good groundwater status" means the status achieved by a groundwater body when both its quantitative status and its chemical status are at least "good".
21. "Ecological status" is an expression of the quality of the structure and functioning of aquatic ecosystems associated with surface waters, classified in accordance with Annex V.
22. "Good ecological status" is the status of a body of surface water, so classified in accordance with Annex V.
23. "Good ecological potential" is the status of a heavily modified or an artificial body of water, so classified in accordance with the relevant provisions of Annex V.
24. "Good surface water chemical status" means the chemical status required to meet the environmental objectives for surface waters established in Article 4(1)(a), that is the chemical status achieved by a body of surface water in which concentrations of pollutants do not exceed the environmental quality standards established in Annex IX and under Article 16(7), and under other relevant Community legislation setting environmental quality standards at Community level.
25. "Good groundwater chemical status" is the chemical status of a body of groundwater, which meets all the conditions set out in table 2.3.2 of Annex V.
26. "Quantitative status" is an expression of the degree to which a body of groundwater is affected by direct and indirect abstractions.
27. "Available groundwater resource" means the long-term annual average rate of overall recharge of the body of groundwater less the long-term annual rate of flow required to achieve the ecological quality objectives for associated surface waters specified under Article 4, to avoid any significant diminution in the ecological status of such waters and to avoid any significant damage to associated terrestrial ecosystems.
In this research project we mainly focus on the ecological status of surface waters due to the reason that Member States have most policy discretion concerning the objective of good ecological status. We have also not researched the implementation of the ground water protection regime in several Member States.

**Artificial and heavily modified waters**

The good ecological status depends on the type of water and the situation and status of specific water bodies. ‘A good ecological potential’ is useful for artificial and heavily modified waters. The designation of artificial and heavily modified waters is subject to strict conditions.
The classification of several water bodies has to take place in accordance with Annex V of the WFD. The ecological status is mainly an expression of the quality of the structure and functioning of aquatic ecosystems.

**Exemptions**

Exemptions are an integral part of the environmental objectives. There are several possible exemptions to the obligation to attain a good status for all water bodies in 2015. Some of the exemptions have to be used beforehand like an extension of the deadlines (Article 4 (4)) and achieving less stringent objectives (Article 4 (5)) and some subsequently when there is a question of 'force majeur' (Article 4 (6)) or sustainable human activities (Article 4 (7)). All exemptions have their own strict conditions that have to be met and are in any case only temporary. It must be remembered that the ultimate goal of the directive – as laid down in Article 1 – is in all cases the framework within which the Member States have to work. It sets the boundaries for all policy discretion.

3. Member States may designate a body of surface water as artificial or heavily modified, when:
(a) the changes to the hydromorphological characteristics of that body which would be necessary for achieving good ecological status would have significant adverse effects on:
   (i) the wider environment;
   (ii) navigation, including port facilities, or recreation;
   (iii) activities for the purposes of which water is stored, such as drinking-water supply, power generation or irrigation;
   (iv) water regulation, flood protection, land drainage, or
   (v) other equally important sustainable human development activities;
(b) the beneficial objectives served by the artificial or modified characteristics of the water body cannot, for reasons of technical feasibility or disproportionate costs, reasonably be achieved by other means, which are a significantly better environmental option.

Such designation and the reasons for it shall be specifically mentioned in the river basin management plans required under Article 13 and reviewed every six years.
4. The deadlines established under paragraph 1 may be extended for the purposes of phased achievement of the objectives for bodies of water, provided that no further deterioration occurs in the status of the affected body of water when all of the following conditions are met:

(a) Member States determine that all necessary improvements in the status of bodies of water cannot reasonably be achieved within the timescales set out in that paragraph for at least one of the following reasons:
   (i) the scale of improvements required can only be achieved in phases exceeding the timescale, for reasons of technical feasibility;
   (ii) completing the improvements within the timescale would be disproportionately expensive;
   (iii) natural conditions do not allow timely improvement in the status of the body of water.
(b) Extension of the deadline, and the reasons for it, are specifically set out and explained in the river basin management plan required under Article 13.
(c) Extensions shall be limited to a maximum of two further updates of the river basin management plan except in cases where the natural conditions are such that the objectives cannot be achieved within this period.
(d) A summary of the measures required under Article 11 which are envisaged as necessary to bring the bodies of water progressively to the required status by the extended deadline, the reasons for any significant delay in making these measures operational, and the expected timetable for their implementation are set out in the river basin management plan. A review of the implementation of these measures and a summary of any additional measures shall be included in updates of the river basin management plan.

5. Member States may aim to achieve less stringent environmental objectives than those required under paragraph 1 for specific bodies of water when they are so affected by human activity, as determined in accordance with Article 5(1), or their natural condition is such that the achievement of these objectives would be infeasible or disproportionately expensive, and all the following conditions are met:

(a) the environmental and socioeconomic needs served by such human activity cannot be achieved by other means, which are a significantly better environmental option not entailing disproportionate costs;
(b) Member States ensure,
   - for surface water, the highest ecological and chemical status possible is achieved, given impacts that could not reasonably have been avoided due to the nature of the human activity or pollution,
   - for groundwater, the least possible changes to good groundwater status, given impacts that could not reasonably have been avoided due to the nature of the human activity or pollution;
(c) no further deterioration occurs in the status of the affected body of water;
(d) the establishment of less stringent environmental objectives, and the reasons for it, are specifically mentioned in the river basin management plan required under Article 13 and those objectives are reviewed every six years.

6. Temporary deterioration in the status of bodies of water shall not be in breach of the requirements of this Directive if this is the result of circumstances of natural cause or force majeure which are exceptional or could not reasonably have been foreseen, in particular extreme floods and prolonged droughts, or the result of circumstances due to accidents which could not reasonably have been foreseen, when all of the following conditions have been met:

(a) all practicable steps are taken to prevent further deterioration in status and in order not to compromise the achievement of the objectives of this Directive in other bodies of water not affected by those circumstances;
(b) the conditions under which circumstances that are exceptional or that could not reasonably have been foreseen may be declared, including the adoption of the appropriate indicators, are stated in the river basin management plan;
(c) the measures to be taken under such exceptional circumstances are included in the programme of measures and will not compromise the recovery of the quality of the body of water once the circumstances are over;
(d) the effects of the circumstances that are exceptional or that could not reasonably have been foreseen are reviewed annually and, subject to the reasons set out in paragraph 4(a), all practicable measures are taken with the aim of restoring the body of water to its status prior to the effects of those circumstances as soon as reasonably practicable, and
(e) a summary of the effects of the circumstances and of such measures taken or to be taken in accordance with paragraphs (a) and (d) are included in the next update of the river basin management plan.
Important obligations can be found in Article 4 Sections 8 and 9. These provisions ensure that the use of exemptions will not harm—at least not permanently—the achievement of the goals and objectives in the whole river basin and that the level of protection will be at least at the same level as before the WFD entered into force. There are provisions that have often been forgotten in the discussion concerning the WFD, but they make clear that not all investments that have to be taken to fulfil the obligations of the WFD—in particular reaching good status—follow directly from the WFD itself but in many cases from older or other EC environmental directives, such as, for example, the Nitrates Directive (91/676/EEC), the Urban Waste Water Directive (91/271/EEC) or Directive 2006/11/EC. That is the reason why there is a great deal of discussion concerning measures to be taken and investments to be made. One could argue that all measures are a result of the WFD, on the other hand one could argue that only those measures and costs that will be taken in addition to measures and costs based on obligations following from older directives are a direct result of the WFD. This distinction is important when comparing ambitions, measures and resources with regard to the WFD. In this respect it is also important whether Member States already comply with the obligations following from older environmental or water directives.

8. When applying paragraphs 3, 4, 5, 6 and 7, a Member State shall ensure that the application does not permanently exclude or compromise the achievement of the objectives of this Directive in other bodies of water within the same river basin district and is consistent with the implementation of other Community environmental legislation.

9. Steps must be taken to ensure that the application of the new provisions, including the application of paragraphs 3, 4, 5, 6 and 7, guarantees at least the same level of protection as the existing Community legislation.
Combined approach for point sources and diffuse sources

There are several reasons why the good status of waters can be in danger or cannot be attained. Pollution comes from point sources and diffuse sources. The ecological status can be influenced by hydromorphological quality elements, physico-chemical quality elements, biological quality elements and chemical and physico-chemical elements supporting the biological elements (Annex V). To protect all waters from pollution from point or diffuse sources a combined approach is introduced in Article 10. This combined approach gives some discretion to the Member States to choose the most appropriate instruments although many possible instruments follow from existing directives. If there are relevant environmental quality standards – also those regarding the good ecological status - there is some policy discretion in choosing the instruments, but the quality standards must be met in any case (see Article 10 Section 3).

Article 10
The combined approach for point and diffuse sources
1. Member States shall ensure that all discharges referred to in paragraph 2 into surface waters are controlled according to the combined approach set out in this Article.
2. Member States shall ensure the establishment and/or implementation of:
(a) the emission controls based on best available techniques, or
(b) the relevant emission limit values, or
(c) in the case of diffuse impacts the controls including, as appropriate, best environmental practices set out in:
- the Directives adopted pursuant to Article 16 of this Directive,
- the Directives listed in Annex IX,
- any other relevant Community legislation at the latest 12 years after the date of entry into force of this Directive, unless otherwise specified in the legislation concerned.
3. Where a quality objective or quality standard, whether established pursuant to this Directive, in the Directives listed in Annex IX, or pursuant to any other Community legislation, requires stricter conditions than those which would result from the application of paragraph 2, more stringent emission controls shall be set accordingly.

The tool-box in Article 11: the programme of measures

Member States are rather free to choose the appropriate measures by which to fulfil their obligations, although there are many basic measures which are obligatory and are qualified as minimum requirements. They exist anyway if all the obligatory measures are based on other EC legislation mentioned in Article 11 Section 3. All necessary measures have to be laid down in a programme of measures, according to Article 11.

24
summary of this programme of measures has to be part of the river basin management plan. If problems cannot be solved by individual Member States, the Member State can ask the Commission for assistance (Article 12).

Integration with other policy fields

It is because of the general goal and the broad quantitative and normatively described obligations of the WFD that this combined approach and the tool-box available in the programme of measures is necessary and useful. Pollution and other impacts with effects on the good status are not only regulated by water legislation and not only caused by direct discharges into waters. That is one of the reasons why the Member States have the obligation to make an assessment of the impacts on the water systems (Article 5 WFD). Many of the activities with an impact on the status of waters are also regulated in other policy fields. It is therefore necessary to take a look at the regulation and instruments in these other policy fields to see in which way and to what level they take impacts on the water status or the environmental quality standards into account in the decision-making process. We call this the external integration of water objectives in decision making in other policy fields like spatial planning, agriculture and nature conservation.

As far as the WFD itself is concerned, we can see that there are many links between the water objectives and instruments of the WFD and the regulation in other policy fields. To a certain degree the EC leaves it to the Member States how they integrate water interests in decision making in other policy fields.

The river basin approach and competent authorities

The essence of river basin management is that the responsibility for problems is not shifted on to others, not to the upstream areas nor to the downstream areas of the river basin (Keessen, Van Kempen and Van Rijswick, 2008). These aspects are also called good neighbourliness. The principle of not shifting responsibilities is elaborated in principles and points of departure based on customary international law treaties, directives and national legislation. The parties involved (both governments and private parties) in a river basin bear joint responsibility for its management. The aim of integrated water management is to make water systems meet their objectives and to distribute the related advantages and burdens as justly and as fairly as possible over all the parties involved in the river basin. It also distributes the responsibilities over several policy areas. Modern European water management is based on river basins as a management unit. River basins ignore state boundaries or a country’s administrative regions (the national state, provinces and municipalities). A major distribution issue is the distribution of powers, rights and duties between different states in a transboundary river basin area and, following that, the distribution of these powers, rights and duties in the parts of this
river basin in one state. The WFD requires the assignment of river basins and river basin districts within their territory and Member States must ensure appropriate administrative arrangements including the identification of a appropriate competent authority that oversees the application of the rules of the WFD within each river basin district (Article 3). It is not necessary to create a specific authority which is responsible for water management, because institutional organization is a power that lies with the Member States, although as far as responsibilities are concerned, there are good reasons to create an authority with special powers, a functional government like the Dutch water boards. The choice for the river basin approach, including the appropriate authorities, also has its disadvantages. Firstly, a major disadvantage lies in the distribution of responsibilities and powers in policy areas other than water (integration principle). Secondly, the European tier of the river basin approach is not compatible with the general system of individual Member States having obligations to reach the objectives in their part of the river basin instead of joint Member States within a transboundary river basin. At the moment this can only be solved by cooperation between states and administrative bodies, which for this reason is obligatory (Article 3, Sections 4 and 5).

1.4. Research Design

Our comparative study of the implementation of the WFD is composed of different phases. The first phase took place in 2008 when the Radboud University Nijmegen wrote a ‘Kick off’ document to introduce the research project and to explain the empirical and theoretical perspectives that were relevant to the study. Thereafter, Utrecht University joint the research project to do a supplementary research on legal questions that was fully integrated in all reporting activities. From then on it was a joint project. In the following stage, we wrote so-called ‘quick scans’ for six countries: the Netherlands, Germany/North Rhine-Westphalia, France, England and Wales, Denmark and Belgium/Flanders. These quick scans are available at www.centrumvooromgevingsrecht.nl. Chapter 2 of this report is based on these quick scans and describes the main structures and essential background information of the implementation process in a selection of countries on the basis of then available literature. After this stage, we focused on the case studies, which we designed based upon the information gathered during the quick scan -part of this study. The case studies - and the results derived from them - form the main part of this report.

Quick scans

During the quick scan period, we selected five countries in addition to the Netherlands. These countries (France, Denmark, Germany, Belgium and the UK), were chosen mainly for the degree of comparability and learning potential they offered.
With regard to comparability, we looked for Member States that faced problems similar to and comparable with the Netherlands. From the EU Commission Staff Working Document on WFD implementation we learned that the

[...] impact of agriculture is considered as the ‘crucial issue’ for almost every water category regarding pollution and has the highest priority. In a great majority of the countries, agriculture is the cause of severe problems. In some parts of Europe agriculture has an impact on the reduction of flows of rivers and groundwater (COM 2007)

Other problems which we considered were morphology, the affects of hydropower, flood defence, reservoirs and (once again) agriculture, as well as household and municipal wastewater and ‘other sources of pollution’ such as diffuse sources and transport. Although all countries were expected to have problems with agricultural pollution, the Member States which were expected to be most similar to the Netherlands would be those with intensive livestock farming and intensive fertilisation, as is found in Germany, France, the UK, Denmark and Belgium.

From the viewpoint of ‘learning potential’, we first sought countries that showed interesting, smart and creative solutions to water quality problems. Second, we wanted to include countries that were environmentally ambitious in general, such as the Scandinavian countries (including Denmark). Third, we selected for organisational features: here, again Denmark was interesting because of a decentralised political system and France was interesting because of river basin oriented organisations.

Furthermore, the selection was determined by the availability of information on the implementation process and a certain variety in methods of implementation (e.g. integrated river basin management, integrated legislation, or the lack thereof).

The quick scans focused mainly on: 1) the water policy arrangement before WFD implementation; 2) how WFD principles were treated before implementation; 3) identifying the main challenges; 4) transposition of the WFD; and 5) the implementation of the WFD principles in practice to date.

The quick scans answered the following questions:

- What, in a nutshell, are the main organisational and legal frameworks used by Member States to implement the WFD?
- How do Member States deal with the obligation to respond to the main principles of the WFD?
- What are the steps in implementation they have taken place thus far?
- How do Member States organise river basin management?
- Is it already possible to draw some preliminary conclusions on the changing water policy domains and their institutional arrangements?
What are the next steps in the research project, in terms of further focusing questions, expectations and suggestions for case selection?

The quick scans were useful for painting an up-to-date picture of the implementation process on broad canvases, and the conclusions were used to ask questions and discuss hypotheses which could be tested in the case studies in the next phase of the research project.

Case studies

In the following stage we selected four countries for a more detailed description in the case studies, focusing on a specific basin or sub-basin in each country and on more specific topics and questions. We chose the Dommel catchment in the Meuse River Basin District in the Netherlands as the reference sub-basin. In Denmark, we decided to look at the Odense Fjord basin specifically, and in France at the Loire-Brittany River Basin District and its sub-basin Baie de St Brieuc. In England our focus was the Anglian River Basin District and Wensum catchment. The Meuse River Basin District in North Rhine-Westphalia was also selected for our study, and the Rur catchment was specifically looked at as our case study focus area.

We recognised that some aspects (e.g. how the goals and standards for meeting the WFD are developed) would only become clearer when we studied the process of preparing the river basin management plans (RBMPs) more closely. The case studies would provide more understanding in this area. This report consists mainly of the case studies and the results derived from these case studies.

Research methodology

For the legal research, we use primary sources as legislation and policy documents as well as legal literature from the various countries (Neuray 2005; Bohne 2005; Czychowski and Reinhardt 2007; Howart and McGillivry 2001; Dobrenko and Sironneau 2008; Van Rijswick 2001, Van Rijswick et al. 2008). Furthermore, questionnaires are sent to and answered by national legal experts in the field of environmental and water law. Visits to the various sub-river basins have been organised so as to conduct interviews with experts in the field of implementing the Water Framework Directive in several sub-river basins and regions. For Denmark the legal research is based on literature, questionnaires and interviews only, because legal documents such as legislation were not available in English, German or French.
For the study into the practical implementation of the WFD in the selected countries, we primarily used sources such as policy documents, and where possible, Article 5 reports and information relevant for the draft RBMPs. In the case of Denmark, we looked at reports of the second phase Pilot River Basin projects as part of the Common Implementation Strategy. We conducted interviews with relevant authorities in the selected countries at various levels (central and decentral), such as relevant ministries, municipalities and water boards. We also interviewed relevant stakeholders, mainly environmental NGOs and agricultural organisations. Before and after the interviews we corresponded with some of the interviewees to gather additional information and to verify our findings. We ceased the gathering of materials for all case studies at the beginning of December 2008, just before the publication of the draft River Basin Management Plans. We did not systematically compare our own findings with these drafts, but did look at the process of preparing them.

It should, of course, be noted that this report reflects the authors’ interpretations and does not represent the opinions of Member States.

Selection of topics

Because it was not possible or useful to describe and discuss all elements and principles of the Directive, the research team discussed a selection of principles with the Advisory Committee of the research project (begeleidingscommissie).

In the case studies we looked at the process of WFD implementation in the selected countries by focusing on two themes: 1) the process of goal setting and, 2) the integration of WFD objectives in the decision-making process regarding water management and especially other policy fields. The process of goal setting can be seen as the substantial ‘core’ of the Directive, and this was the process which the countries were involved in and preoccupied with at this stage (2007-2008) of the implementation process (see Annex 1 for WFD timetable). The integration of water management with other policy fields is an important aspect of the WFD implementation since the WFD aims to contribute to integrated resources management and integrated river basin management. Within the goal-setting process, we focused specifically on some key issues which included: the designation of water bodies, the setting of goals, standards, the planning processes, the designing of the programme of measures, the use of exemptions, and the application of principle of no deterioration. Under the theme of integration, we investigated the activities, rules and ideas regarding integration. We focused on the integration of WFD implementation with other policy fields, namely nature, agriculture and spatial planning.

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1 In 2004, Member States were obliged to submit summary reports of the analysis according to Article 5 WFD. Article 5 consists of obligations to complete an analysis of the characteristics of the River Basin District, a review of the impact of human activity and an economic analysis of water use (see Annex 1).
1.5 Research questions

The comparative perspective is useful for gaining insight into the implementation processes and practices in other EU Member States. This gives us information on how to position the Netherlands in implementing the WFD and how other countries deal with comparable policy problems, and how they are setting their levels of ambition (are we leaders or laggards?). In addition, the comparative perspective makes it possible to learn from the solutions used by other countries: for example, what are some of the interesting policy practices used in other countries?

From a policy science point of view, a derived goal is to learn more about the styles of regulation and political cultures in different Member States, and the general impact of ‘Europe’ in daily water and environmental policy practices.

From a legal point of view we hoped to find solutions to existing problems in the Netherlands regarding the implementation of European environmental law, more specifically the implementation of directives on air quality and nature conservation. These problems, which had a great impact on decision making and economic activities of all kinds, were caused by the way in which the Dutch government implemented the European directives together with the Dutch system of access to justice. These factors led to an enormous amount of court cases and severe delays in economic activities. It became clear that other countries did not have these problems or, at least, they were not so serious. For the implementation of the WFD it seems more than useful, therefore, to see whether we can learn from the way other countries legally establish implementation.

The first theme (see ‘Selection of topics’ in the previous section) was to see how the goals and ambitions reflected in the WFD were implemented by the Member States and how they influenced the level of ambition in the water policy arrangements. This was not an easy task because the WFD, as far as the ecological goal setting process is concerned, did not prescribe strict standards and norms, but mainly prescribed procedures and process criteria (although in addition to references to pre-existing and new EU standards and norms). The main question here was how the Member States had dealt with the ambitions and goals of the WFD and what the possible arguments were for doing things in a specific way. This was done by looking at both the different procedural steps that were taken and by reflecting on the expected end results (as far as this was possible to detect). From this information, we tried to derive general rationales (as a line of reasoning or set of arguments), which we typified as an ‘environmental-science rationale’, a ‘legal rationale’, an ‘economic rationale’ or a ‘political rationale’.

Related questions are:

- How are the objectives (in general) set legally and practically?
• How are the water bodies designated (in natural, heavily modified and artificial water bodies)?
• How are the norms and standards legally established?
• How are the goal setting and planning processes organised in practice?
• What legal bases do the Programmes of Measures have and how are the Programmes of Measures developed in practice?
• Is the budget for water management expected to be increased due to the WFD?
• How is the use of exemptions legally established and how are the exemptions practically utilised?
• How is the principle of no deterioration legally established and implemented in practice?

For the second theme, integration is the focus of our research. Questions asked in this section of the case study are:

• How is the integration legally ensured in general?
• How is the integration between the WFD and other policy sectors (agriculture, nature and spatial planning) legally ensured and what does such integration look like in practice?

We will address these questions in the following chapters. Chapter 2 summarises the information of the quick scans in six countries and gives the general problem context and organisational features of each country. Chapters 3 through 7 present the case studies of the Netherlands, France, Germany, England/Wales and Denmark. We finish in Chapter 8 with the comparison of the cases and our general conclusions in Chapter 9.

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### Annex 1

<table>
<thead>
<tr>
<th>Activities</th>
<th>Activities</th>
<th>Relevant article and documents</th>
<th>Completion deadline</th>
<th>Submission to EC deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transposition</td>
<td>Transposition of the WFD into national legislation: a reference to the Directive must be made in relevant laws, regulations and administrative provisions. Member States must communicate adopted provisions to the Commission.</td>
<td>Art. 24</td>
<td>22 December 2003. (Art. 24.1) For the ten Member States that joined the European Union later than 2003, the date of accession was the deadline for transposition of the Directive.</td>
<td></td>
</tr>
<tr>
<td>Identification of river basin districts and competent authorities</td>
<td>Identify river basins lying within their national territory and assign them to River Basin Districts. Identify competent authorities. Submit to the Commission a list of all international and national competent authorities with whom they participate.</td>
<td>Art. 3, Art. 24, Annex I</td>
<td>22 December 2003 (Art. 3.7)</td>
<td>22.06.2004 (Art. 3.8)</td>
</tr>
<tr>
<td>Characteristics of the river basin district</td>
<td>Prepare a detailed analysis of the characteristics of their river basin districts, including a review of the pressures and impacts of human activity on surface and groundwater, and an economic analysis of the use of water. Register protected areas lying within the river basin district.</td>
<td>Art. 5, Art. 6, Annex II, Annex III, Annex IV</td>
<td>22 December 2004 (Art. 5.1)</td>
<td>The Commission expects summaries of reports within three months of completion, at the latest therefore by 22 March 2005. (Art. 15.2).</td>
</tr>
<tr>
<td>Monitoring programmes</td>
<td>Member States must establish monitoring programmes and make them operational.</td>
<td>Art. 8</td>
<td>22 December 2006 (Art. 8.2)</td>
<td>Submit summary of the reports within three months of completion, at the latest by 22 March 2007 (Art. 15.2).</td>
</tr>
<tr>
<td>Programme of measures</td>
<td>Based on the results of the analysis required by Art. 5, identify a programme of measures for achieving the environmental objectives under Art. 4.</td>
<td>Art. 11, Art. 4, Art. 5, Annex VI</td>
<td>22 December 2009 (Art. 11.7)</td>
<td></td>
</tr>
<tr>
<td>River basin management plans</td>
<td>Produce and publish a River Basin Management Plan for each RBD including the designation of heavily modified water bodies and the planned steps towards recovery of costs for water services.</td>
<td>Art. 13, Art. 4, Annex VII</td>
<td>22 December 2009 (Art.13.6)</td>
<td>Send copies of the river basin management plans to the Commission within three months of completion, at the latest therefore by 22 March 2010 (Art. 15.1).</td>
</tr>
</tbody>
</table>

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5 The Directive entered into force on the day of its publication (Art. 25), which was 22 December 2000. This is why when the provision states ‘four years after the date of entry into force of this Directive’ the deadline for completing the report becomes 22 December 2004.

6 Article 15 obligates Member States to submit the reports within three months of completion, which adds three more months to 22 December 2004.
<table>
<thead>
<tr>
<th><strong>Water Pricing Policies</strong></th>
<th>A summary of programmes of measures should also be included.</th>
<th>Art. 9</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operationalisation of programme of measures</strong></td>
<td>Implement water pricing policies that enhance the sustainability of water resources.</td>
<td>Art 11</td>
<td>22 December 2012 (Art.11.7)</td>
</tr>
<tr>
<td><strong>Interim report programme of measures</strong></td>
<td>All the measures must be made operational.</td>
<td>Art 15</td>
<td>22 December 2012 (Art. 15.3), 2018 and 2024 (within three years of the publication of each RBMP).</td>
</tr>
<tr>
<td><strong>Review and update of analyses and reviews</strong></td>
<td>Submit an interim report describing progress in the implementation of the planned programme of measures.</td>
<td>Art 5</td>
<td>22 December 2013 (Art.5.2) and 2019 and 2025</td>
</tr>
<tr>
<td><strong>Environmental objectives to be achieved</strong></td>
<td>Good surface water status, good ecological potential and good surface water chemical status for heavily modified waters, good groundwater status and compliance with any standards and objectives for protected areas.</td>
<td>Art. 4</td>
<td>22 December 2015 (Art. 4.1(a) (ii) and (iii))</td>
</tr>
<tr>
<td><strong>Review and update of RBMPs</strong></td>
<td>RBMPs must be reviewed and updated at the latest fifteen years after the date of entry into force of the Directive and every six years thereafter.</td>
<td>Art. 13</td>
<td>22 December 2015 (Art.13.7) and 2021</td>
</tr>
<tr>
<td><strong>Extensions for achieving environmental objectives</strong></td>
<td>Extensions are limited to a maximum of two further updates of the RBMP except in cases where the natural conditions are such that the objectives cannot be achieved within this period.</td>
<td>Art. 4.4</td>
<td>22 December 2021 and 2027</td>
</tr>
</tbody>
</table>
CHAPTER 2 IMPLEMENTATION OF THE WFD IN SIX COUNTRIES – IN A NUTSHELL
Problems, transposition and organisational framework

J.J.H. van Kempen and Y.J. Uitenboogaart

2.1 Introduction

To get an impression of the implementation process in Western-Europe, we made six quick scan studies: the Netherlands, Belgium/Flanders, France, Germany/North Rhine-Westphalia, England-Wales and Denmark. This was done mainly on the basis of existing literature and comparative reports. This chapter is based on the quick scans (see www.centrumvooromgevingsrecht.nl). The quick scans provide general information on the response of these countries to the principles of the WFD and describe their first formal and practical steps in implementing the WFD.

In addition to being useful for painting a picture of the implementation process on broad canvasses, the quick scans aided the selection of the case basins in the case studies phase and helped formulate new questions which were addressed in more detail in the next phase of the research project. The quick scans were not meant to fully answer the original research questions, but rather to ask more specific ones and give more focus to our research.

Before we proceed with the case studies in Chapters 3 through 7, which describe and analyse the implementation process in more depth, we will first sketch out the main structures and essential background information of the implementation process in a selection of countries based on these quick scan reports. What were the main problems concerning water issues in the selected Member States? How did they transpose the WFD? What was the main organisational framework that they set up to implement the WFD?

2.2 Main Problems

The Netherlands

In the Netherlands overall, the challenges are great. The Dutch refer mostly to problems of supply and depletion. Water quality is affected by point sources, diffuse sources and effects of modifications of the flow regimes of rivers, through abstraction, regulation and morphological alterations. Pesticides, fertilisers and nutrients such as nitrates and phosphorus are major threats to groundwater and surface waters. Nutrients cause problems of acidification and eutrophication (overfertilisation of waters). In some parts of the Netherlands, salinisation and droughts can be a problem.
Germany

The failure to achieve the WFD objectives related to surface water bodies in Germany can probably be attributed in most cases to physical alterations affecting the hydrology and/or geomorphology of a water body, as well as transverse structures such as weirs and sills that impede the upstream migration of fish and smaller aquatic organisms (Borchardt, Bosenius et al. 2005). Another important factor is nutrient input from diffuse sources, mainly agricultural activities, as well as chemical pressures from wastewater treatment plants and precipitation drainage (Borchardt, Bosenius et al. 2005). Concerning groundwater, the challenge is also that the quality status is hindered mainly by the input of nutrients from agricultural areas.

England and Wales

Government departments and agencies in Britain acknowledge that diffuse source pressure is the greatest threat to achieving good ecological status in UK waters by 2015 (Johnes 2005). Another concern in England, especially in areas in the south-east, is the risk of drought in the summer, related to irrigation needs (De Heer, Nijwening et al. 2004). Although agricultural use of water is limited, during the dry months when the availability of river water decreases, the increased demand from agriculture seems to be contributing to drought in some areas (Nielsen 2005). The low flows in rivers caused by over-abstraction is another concern (Tunstall and Green 2003). A further issue in England and Wales is flooding. In England, 10% of the country is at risk from flooding, a risk that comes mainly from the sea rather than from rivers (Tunstall and Green 2003). Leakage of sewers and sediments are also known problems.

France

In France, the main challenge with regard to quality concerns diffuse pollution (nitrates and pesticides), micro-substances and micro-biological contamination. Assuring the good quality of drinking water and the reduction of priority substances are also important challenges. Quantitative issues are prominent on the agenda, such as the challenge of low surface water in summer, groundwater depletion and flooding. Groundwaters are threatened by over-consumption from every type of water use. Some deep groundwater bodies – like the ones which supply Paris and Bordeaux – may be completely depleted in the next decades if no serious measures are taken.

Denmark

Being surrounded by so much water, Denmark’s domestic environmental policy has focused to a considerable degree on the aquatic environment (Andersen 1997). During the 1970s and 1980s, Denmark focused on minimising pollution from point sources. At the present time, the primary concern is the diffuse pollution (with nutrients) of surface waters and the leakage of nitrates, pesticides and other harmful substances into surface and groundwater (Dørge and Windolf 2003). Farmland covers around two-thirds of the national territory (Dørge and Windolf 2003). Around 80% of the nitrogen outlet into Danish freshwaters is caused by diffuse pollution from farmland (Dørge and Windolf
The ecological status of surface waters, especially of the minor streams, is another worry (Dørge and Windolf 2003). Danish streams are mainly influenced by physical changes, such as outlet of wastewater and abstraction of water for drinking purposes or irrigation (Nielsen 2004). Groundwater was one of the major political subjects on the agenda in 1990s (Enemark 2002). In some parts of the country, water abstraction is greater than the exploitable level. The groundwater abstraction rates have fallen by 40% since 1990, but both water abstraction and consumption have stabilised in recent years. The quality of groundwater is affected primarily by the infiltration of nitrates and pesticides from agricultural land (NERI 2005).

Belgium/Flanders

In Belgium, even though the problems between the three regions are different, the main problems with the water system are quite similar. An important problem is the poor water quality and the subsequent need to develop a better performing system for water purification. At the beginning of the 1990s, the water quality improved remarkably, but at the end of the 1990s this favourable development stagnated. Industry has already put a great deal of effort into purifying wastewater, and it is now up to the agricultural sector to increase its efforts to reduce its impact on the environment and the aquatic environment. In case of households, the most important ambition is to further develop and renovate the existing sewage and water treatment infrastructure. Another problem that pops up on the policy agenda, mostly in the light of the poor ecological status of water, is the poor ecological structure of watercourses. Under the discursive umbrella of ‘ecological adjustments’ (ecologische herinrichting), efforts are now being made to re-adapt the structure of watercourses. Furthermore, as is the case in other countries, historic contamination of watercourses leaves traces in water beds. Besides problems relating to water purification, ecological structure and water beds, the three Belgian regions increasingly have to cope with flooding.

2.3 Transposition

The Netherlands

The WFD has been transposed into Dutch Law by the WFD Implementation Act which has integrated the WFD into existing acts, consisting of the Water management act (Wet op de waterhuishouding, hereinafter referred to as Wwh) and the Environmental management act (Wet milieubeheer, hereinafter referred to as Wm) (Stb. 2005, no. 303, 21 June 2005).

It is expected that in September 2009 a new, fully integrated Water act (Waterwet) will come into force (Stb. 2009, no. 107, 12 March 2009). The WFD will be fully integrated into this law, except for the environmental quality standards and the monitoring, which will be implemented in environmental legislation (Wet milieubeheer) after 2009. The environmental quality standards for the river basins and the monitoring obligations will be regulated in more detail in an Order in Council based on the Wm (AMoB
kwaliteitseisen en monitoring water) (Article 5.2b Wm, see www.kaderrichtlijnwater.nl and Backes, Kruyt and Van Rijswick 2007).

**Germany/North Rhine-Westphalia**

In German law the WFD has been implemented in existing acts, consisting of changes to the federal Water management act (Wasserhaushaltsgesetz, hereinafter referred to as WHG), changes to the respective Water acts of the Länder (Landeswassergesetz, hereinafter referred to as LWG), and the issuing of regulations for the Länder (Landesverordnung). Since this report focuses on North Rhine-Westphalia, only the LWG and Landesverordnungen of this state shall be discussed.

The WHG is a federal framework law. Although since 2006 the German Constitution has changed and since then the federal state has a konkurrierende Gesetzgebungskompetenz (art. 74 I, No. 32 Grundgesetz) and is no longer limited to ‘framework law’, this has not (yet) influenced the WHG as it is now in force (2008). The provisions of the WHG are not directly binding on the citizens of the Länder (Inspectie Verkeer en Waterstaat 2004, p. 16). The Länder have transposed this federal framework into their LWGs, which bind their citizens. For constitutional reasons, until 2006 the WHG could only be amended to include the general intent of the WFD. Therefore, some provisions could not be incorporated into the WHG, but had to be transposed by the states. These provisions not only concern procedural requirements such as arrangements to set up the programmes of measures and the RBMPs and the conducting of public consultation, but also the standards for monitoring the status of waters (Winnegge and Maurer 2002). Now the constitutional competences have changed, it is to be seen how German water law will develop in the future. A first step on this road, which is expected to be long and winding (Czychowski/Reinhard 2007, Einl. 8), will be the chapters on the proposed federal Umweltgesetzbuch (environmental law book).7

The relevant Landesverordnung in North Rhine-Westphalia is the Gewässerbestandsaufnahme-, Einstufungs- und Überwachungsverordnung (hereinafter referred to as GewBEÜV). This regulation transposes annexes II, III and V of the WFD.

**England and Wales**

It should be noted that the UK consists of three jurisdictions. This report will not discuss implementation in Northern Ireland or Scotland, but only in the jurisdiction of England and Wales. The transposition of the WFD in the UK was completed in each of the countries separately. England and Wales chose not to implement the WFD into existing acts, but instead to draft new legislation in the form of secondary law. The implementation legislation for England and Wales primarily consists of The Water Environment (Water Framework Directive) Regulations 2003 for England and Wales,

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7 Siedler/Zeitler/Dahme, WHG, München 2008, 35. Erg.lieferung, 6/2008, Vorb. WHG 5b provides an overview of the draft Umweltgesetzbuch as far as the water law is concerned.
Statutory Instrument 2003 No. 3242 (hereinafter referred to as the Regulations). The Regulations are legally binding.

**France**
The WFD has been transposed into French law by Law 2004-338\(^8\) and mainly consists of changes and additions to the Environmental Act (*Code de l’environnement*, hereinafter referred to as CE).\(^9\)

**Denmark**
The WFD has been formally implemented into Danish Law through one legislative act: the *Miljømålsloven* (hereinafter referred to as MML).\(^10\) The MML integrates the adoption of water management plans and the adoption of management plans for the preservation and improvement of Natura 2000 sites. The MML defines which public bodies have the competence to adopt plans and which procedures have to be followed.

**Belgium/Flanders**
In the 1980s, the main competences for water management, among many others, were regionalised. There are three regions – the Flemish region, the Walloon region and the region of Brussels-Capital. In the water sphere, the federal (national) government is the only one which is responsible for the management of coastal waters, drinking water pricing, and representing Belgium in European and international forums. Every region has a different style in water management. In this report, the focus is on Flanders.

In Flanders, the WFD was transposed into the Decree on Integrated Water Management of July 18th 2003 (*Decreet betreffende het integraal waterbeleid*, hereinafter referred to as DIW). The DIW defines a classification of water systems into river basins and river basin districts, sub-river basins and sub-sub-river basins. It defines the goals and principles of integrated water management and transposes particular obligations of the WFD with regard to environmental goals, analyses and assessments, policy measure programmes, monitoring programmes and the register of protected areas.

### 2.4 Organisational framework

**The Netherlands**

**Authorities**
The formal competent authority as obligated by the WFD is the Dutch Minister of Transport, Water Management and Public Works. In Dutch water law and management, there is a distinction between management at the national level of the larger waters

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\(^{9}\) Apart from changes in the CE, it also comprises some changes in the *Code de l’urbanisme* and in the *Code général des collectivités territoriales*.

\(^{10}\) Act no. 1150 of 17 December 2003 on Environmental Objectives.
larger rivers, canals, lakes and coastal waters), and the management of smaller regional waters. Due to this historical decentralised approach in the Netherlands, there are three additional competent authorities regarding water management, each with its own competences (Chapter 3 Waterwet, Van den Berg, Van Hall and Van Rijswick 2003).

- On the regional level, the provinces are the competent authorities for strategic planning;
- For operational planning and the water management of the regional water system the regional water boards are the competent authorities;
- Finally, the municipalities have tasks in the field of urban water management, especially regarding waste and rain water collection, and ground water management in urban areas.

Issues that need to be addressed on a national level range from basic monitoring principles, the criteria for denominating the various types of water bodies to the final decision on the river basin management plan and its programme of measures. To make sure that goals and measures fit within the overall picture for the river basin involved, those responsible consult closely with the international river commissions for the Meuse, Scheldt and Ems. The WFD is also a prominent issue in the international discussions between Rhine Water Directors. As far as possible, however, decisions are made in close cooperation with other relevant ministries, provinces, water boards and municipalities.

**Competences**

The Minister of Transport, Water Management and Public Works, together with the Minister of Agriculture, Nature Conservation and Food Quality and the Minister of Housing, Physical Planning and the Environment, are responsible for national water planning and policy.¹¹

They produce a strategic document in which the four Dutch RBMPs (published in January 2009 at: www.nationaalwaterplan.nl and www.kaderrichtlijnwater.nl) and summaries of the PoMs will be integrated in the RBMPs. Besides, the Minister of Transport, Water Management and Public Works also makes operational plans for the river basin districts. These operational management plans include the necessary part of the programmes of measures. The management of national waters is carried out by the regional offices of the Directorate-General for Public Works and Water Management (Rijkswaterstaat).

Provinces (Provinciale staten) make strategic plans for the parts of regional waters lying within their territory. The provinces draw up strategic plans for regional water management such as the provincial water plan or an integrated provincial omgevingsplan following the main direction of the national policies, mainly of spatial planning, environmental policy and water policy (Article 5 Meuse Report). A provincial

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¹¹ Planning is regulated in Chapter 4 of the Waterwet.
*omgevingsplan* is an integrated plan containing the spatial planning on a provincial level, the environmental management plan, the plan for mobility and the water plan.

Operational management plans for regional waters are made by the regional water boards (*waterschappen*), the competent authority, for all aspects of regional water management, including groundwater (after the coming into force of the Waterwet) and waste water treatment. The water boards have the task of advising the provinces on the norms and environmental objectives, depending on the water body and the use.

Municipalities are responsible for urban water management, especially the gathering and transporting of waste water and rain water (based on the *Wet op de waterhuishouding* and later on based on the Waterwet). They also have a duty of care towards groundwater management in urban areas. Therefore, municipalities make a waste water plan (*rioleringsplan*) which is based on the *Wet milieubeheer*. Municipalities are also responsible for the regulation of discharges into the sewerage system (*Wet milieubeheer*, after the coming into force of the Waterwet).

With all these national, regional (provincial) and water board plans together, the RBMPs and the PoMs will be implemented in Dutch water law.

After the entry into force of the *Waterwet* in 2009, there will only be one ‘water licence’ for all activities with an impact on the water system. Competent authorities are the Minister of TPW (for larger waters) and the regional water boards for all activities with an impact on regional waters. Only permits for larger groundwater abstractions will be dealt with by the provinces (*gedeputeerde staten*). Municipalities are responsible for discharges into the sewerage system and individual regulation takes place in a licence based on the Wm.
Germany/North Rhine-Westphalia

Authorities
There are no authorities with executive powers that have specifically been assigned for the overall management of each of the ten River Basin Districts. The Minister of Environment is the competent authority who reports to the EC. Furthermore, the following competent authorities (Maßnahmenpräger) can be distinguished.

The federal government is responsible for the management of national waterways (§ 7 Bundeswasserstraßengesetz). At the level of the Länder, the competent authority is designated by the law of the Land (§ 26 (1) WHG). Several authorities can be distinguished:

- the supreme water authority (oberste Wasserbehörde);
- the high water authority (obere Wasserbehörde) and
- the lower water authority (untere Wasserbehörde).
In North Rhine-Westphalia, the oberste Wasserbehörde is the Ministry for the environment (Ministerium für Umwelt und Naturschutz, Landwirtschaft und Verbraucherschutz). The obere Wasserbehörde is the Bezirksregierung. The untere Wasserbehörde is the Kreis or the kreisfreie Stadt (§ 136 LWG).

**Competences**
The oberste Wasserbehörde is responsible for the management of the main water bodies (such as the Ruhr, Lippe, Sieg and Ems) (§ 91 (1) 1 in conjunction with Anlage 2 I LWG). It formally determines the RBMPs and programmes of measures (§ 2d LWG). The obere Wasserbehörde is competent for large constructions such as water treatment plants.

The untere Wasserbehörden are responsible for everything else. Specific implementation occurs here. Municipalities (Kommunen) are subordinate to the untere Wasserbehörden. A Kommune can either be a Stadt (when it is a town) or a Gemeinde (when it is a village) or a Kreis. Tasks that cannot be well managed by the often small Gemeinden or smaller towns, are administered by the Kreise (counties), which are also Kommunen. The greater towns do not belong to a county (kreisfreie Städte). Municipalities in Germany have a double character and twofold tasks. On the one hand, they administrate their own interests and local tasks (kommunale Selbstverwaltung). On the other hand, they function as lower Land authorities, e.g. with regard to nature conservation or water management. If they act in this field of Land administration and law, they are bound by the instructions of the higher state authorities, the Bezirksregierung and the ministry. In North Rhine-Westphalia, both obere and untere Wasserbehörde give contracts to the water boards (Wasserverbände) to do the operational work of measures in water. The water boards are artificial persons in public law and each water board has its own Act by which it is founded and which attributes competences to it. It is for instance the task of the Eifel-Rur water board to return the surface water bodies in its area to their near natural state (§ 2 (1) 3 Eifel-Rur-Verbandgesetz). Water boards can differ considerably in size. The water boards are arranged according to sub-basins. Their members are, amongst others, Kommunen, Kreise and industry (Interview).
Figure 2: Water Management in NRW – relevant authorities

**England and Wales**

**Authorities**
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 of Defra (for England) and the Welsh Assembly Government (for Wales) (Article 2(1) Regulations). They must exercise their relevant functions so as to ensure compliance with the requirements of the Directive (Article 3(1) Regulations). For further implementation, the Competent Authorities – as mentioned in Article 3(2) WFD – are designated. For England and Wales the Competent Authority is the Environment Agency (Written Ministerial Statement of 11 December 2003 to announce transposition of the WFD), a non-departmental public body.

**Competences**
For each RBD, the Environment Agency must prepare and submit an RBMP (Article 11(1) Regulations) and a PoM (Article 10 (1) Regulations) to the appropriate authority for approval. In addition, sub-basin plans (called ‘supplementary plans’) may be prepared by the Environment Agency (Article 16 (1) Regulations). The appropriate authority then decides if the plan and its environmental objectives and PoM are
approved or (partly) rejected (Articles 14(1) and 10(3) and (4) Regulations). If approved, all public bodies must take the RBMP and any sub-plan into consideration (Article 17 Regulations). Moreover, the appropriate authorities must secure that the PoMs are coordinated for each RBD (Article 3 (2) Regulations).

The Environment Agency is responsible for meeting the water quality requirements of the WFD on the national level (Questionnaire England & Wales), by monitoring the water environment, licensing abstractions, discharges and other uses of the water environment and ensuring compliance. The Environment Agency is in turn answerable to the Ministers and hence to Parliament.


Figure 3: Water Management in England and Wales

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13 The Environment Act 1995 set up the Agency and established its powers and functions.
France

Authorities
At the national level, the Ministry of Environment (Ministère chargé de l’environnement) organises the state policy in the water domain in general (Décret 2007-995 of 31 May 2007 and Décret 2000-426 of 19 May 2000). At the level of the river basins, the river basin coordinator (préfet coordonnateur de bassin) coordinates the actions of the prefects of the regions and the departments (Article R213-14 CE). In the text of the CE, no link is made with the Competent Authority of the WFD.

Competences
The water agency (agence de l’eau) is the executive body for the decisions taken by the river basin committee. The river basin committee (comité de bassin) adopts the RBMPs. These need approval from the river basin coordinator (Article R213-4 CE). The river basin coordinator also draws up the PoM, which must consequently be approved by the river basin committee (Articles L212-2-1, R212-19, R212-20 and R212-21 CE). The sub-plans are normally determined by the state representative in each department (préfet de département, hereinafter referred to as the prefect) (Article L212-3 CE).

The administrative supervision of the water courses is the responsibility of the prefects in each department and the mayors (Article L215-7 CE). The prefects are competent to give permission in the water domain (such as classified installations). The mayors issue construction permits and ensure the prevention of pollution at the local level (Questionnaire France).

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14 The article of the CE refers to the ‘administrative authorities’. In French water law, this refers to the prefects and the mayors (Questionnaire France).
15 Amongst other installations mentioned in Article R 214-1 CE.
Figure 4: Institutions involved in Water Management in France

Denmark

Authorities
In Denmark, there are only two administrative levels regarding water management: the State (the Ministry of Environment and its agencies and local centres) and the 100 Local Councils (municipalities). These are the main actors in the WFD implementation. The regional level has very little power. They can become involved in the process as coordinators if required by the municipalities, but no real power is granted (Dubois 2007).

The Ministry of Environment is installed as the competent authority for the Danish RBDs (§2 (3) MML). Since May 2007, the Ministry of Environment has one more major agency next to the Agency of Forest and Nature and Environmental Protection Agency which is the Agency for Environmental and Spatial Planning (DG Water 2008). Seven Environmental Centres have been created under this new Agency, which are divided over the four RBDs.

Competences
The Ministry of Environment proposes and adopts the RBMPs (vandplan) (§ 28 (1) & (3) MML) and the PoMs. This competence has been delegated to the Agency for Spatial and Environmental Planning (Questionnaire Denmark). The RBMPs are prepared by the Environment Centres. In making an RBMP, collaboration between several Environment Centres is necessary. Each RBMP will be made based on sub-basin plans. The affected
state, regional and municipal authorities can object to the proposed RBMP within a set deadline (§ 28 (2) MML). The plan will consist of environmental objectives and suggestions for a programme of measures. The municipalities draw up the Municipal Action Plan. These action plans should clarify how the RBMP and its PoM will be realised within the municipality’s territory (§ 31a MML). These plans should be adopted within one year after the RBMP has been published (§ 31c MML). The PoM must ensure the fulfilment of the objectives of the RBMP (§ 24 MML). The main responsibility for municipalities is to make sure that the objectives set at the Environment Centre level are achieved. Municipalities issue permits in the field of water (Interview).

<table>
<thead>
<tr>
<th>Level of Governance</th>
<th>Water Management Authorities</th>
<th>Competence Related to WFD Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>Ministry of Environment</td>
<td>RBMPs Sub-Plans Programme of measures</td>
</tr>
<tr>
<td></td>
<td>7 Environment Centres</td>
<td></td>
</tr>
<tr>
<td>Decentral</td>
<td>Municipalities</td>
<td>Implementation of measures through Municipal Action Plan</td>
</tr>
</tbody>
</table>

Figure 5: Water Management and relevant authorities in Denmark

Belgium/Flanders

Authorities
In general, the following authorities are responsible for water management in Flanders:

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.

Specifically in relation to the WFD, other authorities are important:

Flemish legislation deals with RBDs in their international context. It states that the International Scheldt Commission is appointed as the competent authority for the RBDs of the Scheldt, the IJzer and the Brugse Polders (Article 19 (1), (3) and (4) DIW). The International Meuse Commission is appointed as the competent authority for the RBD of
the Meuse (Article 19 (2) DIW). The Flemish government functions formally as a backup actor (see the next section on competences and Article 19 DIW).

Moreover, the DIW determines that the establishment of a Coordination Commission on Integrated Water Management is the task of the organizational level of the Flemish region. The Coordination Commission on Integrated Water Management is responsible for the preparation, planning, supervision and follow-up of integrated water management in Flanders. The Coordination Commission on Integrated Water Management gathers together all competent actors in water management, including public servants from the agriculture and spatial planning departments. By institutionalising a multi-level and multi-sector platform, internal and external integration are positively stimulated.

For each of the sub-RBDs, 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-RBDs, 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-basin.

**Competences**

Formally, the competent authorities must determine the RBMPs (Article 19 DIW). Only if they cannot determine joint RBMPs for the international RBDs will the Flemish government determine RBMPs for the Flemish parts of the RBDs (Articles 22 (2) and 33 DIW). The RBMPs must be determined by 22 December 2009 at the latest (Article 34 (1) DIW). The Flemish government is also responsible for determining PoMs for each RBD or one PoM for the entire Flemish territory (Article 64 DIW). PoMs must be determined by 22 December 2009 at the latest and must be reviewed and updated every six years; their measures must be introduced at the latest three years after the PoMs have been determined (Article 66 DIW).

The basin executive approves the basin management plans prepared by the basin secretariat and gives advice on the draft river basin management plans. Although the basin management plans are approved by the basin executive, these plans have to be adopted by the Flemish government. This act of adoption is a kind of (political) supervision (Questionnaire).
The main task of the water board is to draw up a draft sub-sub-RBMP and to advise on the draft sub-RBMP. The sub-sub-RBMPs are integrated in the sub-RBMP of the relevant sub-RBD (Questionnaire).

Figure 6: Water Management and relevant actors in Flanders

<table>
<thead>
<tr>
<th>Level</th>
<th>Dialogue platform</th>
<th>Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>International river basin district</td>
<td>International commissions (for Scheldt and Meuse)</td>
<td>International river basin district management plans</td>
</tr>
<tr>
<td>Flanders</td>
<td>Coordination Commission for Integrated Water Management</td>
<td>Flemish parts of the international river basin district management plans</td>
</tr>
<tr>
<td>Sub river basin</td>
<td>Sub river basin authorities (bekkenbestuur, bekkenraad, bekkensecretariaat)</td>
<td>Sub river basin management plans</td>
</tr>
<tr>
<td>Sub sub river basin</td>
<td>Water boards (waterschappen)</td>
<td>Sub sub river basin management plans</td>
</tr>
</tbody>
</table>

Table 1: Structure and planning of the integrated water policy at different levels (Source: CIW 2007)
2.5 Conclusions

Main Problems

Every Member State studied here has mentioned diffuse nutrient input into water bodies (mainly from agricultural activities) as one of the main problems facing them with regard to reaching the WFD objectives. At the same time, hydromorphological alteration is also mentioned as one of the main pressures. Although the selected countries are all known to have considerable alteration to their hydromorphology due to intensive land use for agriculture as well as high population density, the Netherlands preliminarily designated a significantly higher percentage of water bodies as HMWBs (this will also be discussed in the case studies and comparison in the following chapters). In preliminarily designating its water bodies for the purpose of Article 5 (Characterisation of the river basin district), the Netherlands designated 95% of its water bodies as HMWB or AWB. This percentage is considerably higher than other countries, and is followed by Belgium with 53%. The original designation in other countries varies from 10% to 38% (the designation of water bodies in North Rhine-Westphalia was altered from 27% AW and HMWB at first to 60% a few years later. It is remarkable that the Netherlands has exceptionally large quantities of AWBs. When looking at only the HMWBs, the percentage of the HMWBs in the Netherlands is close to that of Belgium and the UK. The designation of water bodies as HMWB or AWB is usually contested by NGOs, even in Denmark, which designated less than 10% of its waters as HMWB or AWB. This is because once a surface water body is designated as HMWB or AWB it is exempt from the objective to reach ‘good ecological status’ and can aim for ‘good ecological potential’ instead.

Transposition

The option of issuing laws purely for the implementation of the WFD was chosen in England and Wales. In Germany, France and the Netherlands, the existing water legislation was amended in order to transpose the WFD. In the Netherlands, it is expected that in September 2009 a new, integrated water management act (Waterwet) will come into force which will incorporate the implementation legislation following from the WFD. Denmark has adopted a unique method by developing the MML which not only transposes the WFD but also the Habitats Directive. Belgium has newly developed the DIW at the time of transposition, but the initiation started earlier than the adoption of the WFD.

Organisational Framework

Most countries have opted for the national (central) state (the Netherlands, England and Wales, Denmark) to take the lead in the River Basin Districts (RBDs) that exist within their administrative borders. In Germany, most of the relevant competences are allocated at the Länder (i.e.: not the federal) level. In France, Germany, the Netherlands, England & Wales and Denmark, no new organizational structures were introduced by the WFD. These countries are using existing structures. As an exception, in Flanders a
new authority has been created called the Coordination Commission on Integrated Water Management which is responsible for the two RBDs that exist within its territory.

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CHAPTER 3  THE IMPLEMENTATION OF THE WFD IN THE NETHERLANDS
The Meuse River Basin District and the Dommel Catchment

Y.J. Uitenboogaart, J.J.H. van Kempen, H.F.M.W. van Rijswick, M.A. Wiering

3.1 Introduction

Characteristics of the Meuse River Basin District and the Dommel Catchment

The river Meuse begins in Northern France, flows through Belgium and ends in the Netherlands. In total, the Meuse River Basin covers about 36,000 km² with about 7,700 km² of this area being in the Netherlands. The position of the Netherlands as a delta is understood to be a disadvantage for both water quality and flooding issues. Above all, the level of change in hydromorphology is extreme in the Netherlands. It is considered extremely difficult and sometimes impossible to bring the water bodies to a natural condition. Other problems such as the agricultural impact on water are considered more similar to other countries.

The Dommel system is characterised by a large number of streams that originate in Belgium Limburg. In fact, 20% of the Dommel catchment is located in Belgium. The Dommel catchment in the Netherlands is in total about 142,000 ha (1,420 km²). The Dommel River in the Netherlands is 85 km in length. Other streams in the catchment are the Kleine Dommel, the Beerze, the Reusel and the Leij. The Dommel catchment consists of both wet and dry environments. There are various water types: 2% canals, 59% bogs, lakes and ponds, 14% stream headwaters, 19% stream middle or lower waters and 6% rivers (Ministerie van Verkeer en Waterstaat 2004). Land use in the Dommel catchment is as follows: 1% water, 24% nature, 3% infrastructure, 54% agriculture, 3% recreation, 10% housing and 5% industry (Ministerie van Verkeer en Waterstaat 2004). The most common agricultural activity in this area is cattle breeding and other intensive livestock farming.

We used the Dommel as the reference case for the other cases in this research project. We looked for catchments that had similar challenges in implementing the WFD: a combination of a high population density in some areas, intensive land use by the agricultural sector and a severely changed hydromorphology. The Dommel is, however, a relatively green basin area when compared to other Dutch regions.

Challenges identified in the Dommel catchment
The main challenges faced in the Dommel catchment in implementing the WFD and meeting the environmental objectives are summarised as follows (Interview):

1) Nutrient input from the agricultural sector. First and foremost, in the Dommel catchment, agricultural factors play the main role in not meeting the environmental objectives of the WFD, due to nitrate input and hydromorphological pressure.

2) Cadmium and zinc from Belgium (cross-border pollution). No restoration measures can be taken, because a) clean-up is too expensive, and b) pollution would immediately take place again because the input of substances from across the border is not solved. The water board of the Dommel expects the WFD to help in solving this problem, but thus far nothing has changed.

3) Sewage (sewage treatment plants and sewage overflows in cities like Eindhoven).

4) River restoration is increasingly difficult because the total number of parcels of land that need to be purchased for restoration purposes make it an expensive operation, and the land is often hard to purchase.

5) Climate change necessitates even more room for water.

6) Medicine, hormone-like substances and some heavy metals are not effectively filtered, and these substances are expected to cause more problems in the future.

In general it can be stated that hydromorphological measures are expected to improve the ecological quality of surface waters in the Dommel catchment, but only to a certain extent. To reach the objectives of the WFD, it is necessary to also reduce the emissions from agricultural sources, which requires supplementary measures.

**River Basin Management and its coordination: The Meuse River Basin District and the Dommel catchment**

**RBD Meuse**

The Dutch part of the Meuse River Basin District (Stroomgebied Maas) can be divided into about 50 surface water bodies (oppervlaktewaterlichamen) (Ministerie van Verkeer en Waterstaat 2004). In order to simplify the reporting, these bodies were originally clustered into fourteen sub-basins (deelgebieden). At a later stage the clusters were based upon the administrative borders of the water boards. The groundwater bodies are identified separately from the surface water bodies, and there are four of them identified within the Meuse River Basin District (Ministerie van Verkeer en Waterstaat 2004).
There are tiers of different responsible institutions having different administrative borders, as is described in the summary of the quick scan. Within the Meuse River Basin District, there are five regional offices of the DG Water (Rijkswaterstaat – RWS) that are responsible for managing the national waterways. There are four provinces which delegate the water management tasks to the water boards,\(^{16}\) and seven water boards which are responsible for setting the environmental goals and implementing the measures on the regional surface waters. Each of the authorities makes its own plans for water management. The RWS prepares the Beheerplan RWS, the provinces prepare the Waterhuishoudingsplan and the water boards prepare the Waterbeheerplan. The RBMP for the Meuse RBD therefore consists of a combination of plans on the national, provincial and regional (water board) level. The municipalities also play a role, but there is no formalised plan based on water legislation wherein their water management tasks are laid down. Municipalities have to make a wastewater plan based on the Environmental Management Act (Wet milieubeheer) in which local water management policy regarding waste water, rainwater and urban ground water management will be laid down.

A so-called Klankbordgroep (stakeholder group) was set up in 2005 for the Meuse RBD. All major stakeholders in the basin are directly or indirectly represented: drinking water companies, nature-area managers, farmers, sport-fishermen, industry and environmental organisations.

There are two committees operating at the RBD Meuse level: the Regional Administrative Committee for the Meuse (Het Regionaal Ambtelijk Overleg Maas – RAOM), and the Regional Executive Committee for the Meuse (Het Regionaal Bestuurslijk Overleg Maas – RBOM). The RBOM is the executive platform for all the water authorities, including the administrators/directors of provinces, the water boards, a number of municipalities, as well as the regional directors from the Ministry of Transport, Public Works and Water Management, and the Ministry of Agriculture, Nature Conservation and Food Quality. It is important to point out that the decisions on targets and measures are to be taken by the relevant authorities described above (DGW 2008). The Regional Administrative Committee of the Meuse (RAOM) consists of officials from these same authorities.

At the National level, there is the Coordination Office for the Rhine and Meuse (Coördinatiebureau Rijn en Maas) which coordinates the endeavours of the organisations in the basins. The River Basin Coordinator for the Rhine and Meuse (stroomgebiedcoördinator voor Rijn en Maas) is responsible for the implementation of the WFD in these two districts. Via the National Directors Group for Water (Landelijke 16 Water boards are organised around a river basin, dividing water systems in the Netherlands into 27 (sub) basins. The water boards are functional decentralised governmental bodies and collect their own taxes. For the purpose of WFD implementation, these sub-basins are clustered into 4 River Basin Districts. This is a new arrangement for the Netherlands.
Regiegroep Water), the reports for the plans for the Meuse RBD, together with the report for the Rhine Delta, are offered to the State Secretary of the Ministry of Transport, Public Works and Water Management. This official also chairs the National Governmental Committee for Water (Landelijk Bestuurlijk Overleg Water – LBOW) and is ultimately responsible for the implementation of the WFD (Ministerie van Verkeer en Waterstaat 2004).

Figure 7: Relevant authorities and their administrative borders in the Dutch Meuse River Basin District (Figure 2.8 p. 34)
The Dommel

The Water Board of the Dommel (Waterschap De Dommel) is responsible for the Dommel’s surface water bodies, except for the national waters, which are looked after by the regional office of the DG Water (Rijkswaterstaat). There are two provinces that are part of the catchment: North Brabant and Limburg. North Brabant has 136,000 ha of the catchment, while the other 6,000 ha of the catchment is located in Limburg. This small section of the Dommel catchment falls under the responsibility of the Water Board Peel en Maasvallei. Therefore, the main actors in the Dommel catchment are the Province of North Brabant and the Water Board of the Dommel.

For the management of the Dommel catchment, it is important to look at the so-called ‘integrated regional planning processes’ (gebiedsprocessen), which started in September 2006. In these processes the Water Board of the Dommel works with the municipalities, provinces and the RWS on so-called Water Programmes (waterprogramma’s) for a specific region or sub-sub river basin. There are four sub-sub river basins identified in the Dommel catchment: they are the ‘Boven Dommel’, ‘Beneden Dommel’, ‘Beerze en Reusel’ and ‘Zandleij’. These regional Water Programmes include quantitative water management (e.g. flooding, drought, water levels) and qualitative water management (e.g. WFD, nature conservation, urban water management), or both. The regional Water Programmes themselves do not have an official status. The regional stakeholders participate in a specific stakeholder group (Klankbordgroep) for the Dommel river basin.
The participants in the Dommel planning process, especially the Water Board, chose to work with these Water Programmes. This form of organisation is not used in all Dutch water boards.

3.2 Goal-Setting Process

Designation of Water Bodies

Legal establishment of designation

Under the current legislation, which has been revised because of the implementation of the WFD, the Minister of Transport, Public Works and Water management, the Minister of Housing, Physical Planning and Environment and the Minister of Agriculture, Nature Conservation and Food Quality are responsible for establishing the national water plan (called \textit{nota waterhuishouding}) for the main water courses (called \textit{rijkswateren}) (Article 5 (1) Wwh). This plan includes the four Dutch River basin management plans (see \url{www.nationaalwaterplan.nl}) and in the national water plan they designate water bodies as artificial, heavily modified or natural (Article 5 (3) Wwh). The provinces are responsible for making a provincial water plan (called \textit{provinciaal plan voor de waterhuishouding}) for regional water courses (Article 7 (1) Wwh). In this plan, they designate water bodies as artificial, heavily modified or natural (Article 7 (4) Wwh).

The water boards are responsible for making a water plan (called \textit{beheerplan}) for the regional water courses for which they are responsible (Article 9 (1) Wwh). In this plan, they can designate water bodies as artificial, heavily modified or natural (Article 9 (3) Wwh), but until now the water boards have not used this competence due to the fact that the first river basin management plans are still to be made. For the first river basin management plans the designation will take place at the provincial and national level. Thereafter – during the second time period of the river basin management plans – the new Waterwet will enter into force (see below).

When the new Waterwet comes into force, the three above-mentioned Ministers will be responsible for making a national water plan (called \textit{nationaal waterplan}) (Article 4.1 (1) Waterwet). This plan also contains the Dutch RBMPs (Article 4.1 (3) (a) Waterwet). In this plan, they designate water bodies in the main water courses as artificial, heavily modified or natural (Article 4.5 (1) (b) Voorontwerp Waterbesluit). The provinces are responsible for making a strategic regional water plan (called \textit{regionaal waterplan}) (Article 4.4 (1) Waterwet). In this plan, they designate water bodies in the regional water courses as artificial, heavily modified or natural (Article 4.9 (1) Voorontwerp Waterbesluit). Water boards are responsible for establishing an operational management water plan (called \textit{beheerplan}) for the regional water courses for which they are responsible (Article 4.6 (1) Waterwet). However, water boards will no longer be able to designate water bodies as artificial or heavily modified under the new Waterwet. This is done because these tasks are strongly connected to the setting of norms and therefore should take place in more strategic documents, according to the legislator (Kamerstukken II, 2006-2007, 30818, no.
3, p. 36-37). It is also in line with the way competences are used under the Wet op de waterhuishouding after the implementation of the Water Framework Directive (Implementatiewet kaderrichtlijn water).

**Designation in practice**

For the national waters, the designation is carried out by the DG Water (Rijkswaterstaat). For the regional waters, the water boards advise the provinces in designating water bodies. The Netherlands has preliminarily designated a relatively large number of HMWBs and AWBs compared to other countries (EC 2007). In total, the Netherlands has only seventeen water bodies which are designated as natural water bodies, or to put it differently – only seventeen water bodies which are not specifically designated as HMWBs or AWBs. This includes the Wadden Sea. Only a few of the Meuse water bodies in the Province of Limburg are characterised as natural water bodies. The Dommel catchment has no water bodies that are designated as natural.

The main reason for designating most of the water bodies as HMWBs or AWBs is physical; there are many hydromorphological alterations made in river systems in the Netherlands. At the present time, none of the water bodies can achieve the scores for all parameters necessary for the ‘natural’ status. The main bottleneck is the hydromorphological alterations made to the water bodies, which are difficult to undo and which would require radical measures from the agricultural sector as well as urban areas.

Some believe, however, that it might be possible for a small number of water bodies to reach the targets for all parameters (Interviews), and therefore for those water bodies to be designated as natural water bodies. Also, water bodies with small hydrological changes that do not affect the ecological function (and that therefore potentially come close to fulfilling good ecological status in the future) are still designated as HMWBs (Interview). It is stressed, however, that designation of water bodies can be updated in the future.

Although the WFD does not require Member States to bring water bodies up to the reference condition, or ‘high’ status, but asks for ‘good’ status, some believe that responsible actors still fear that designating water bodies as natural (or in fact not designating them as HMWB) will force them to set very ambitious goals and national standards, with high risks of failure (Interviews). This is because the term ‘natural’ is associated with the reference or undisturbed condition.

For the regional water bodies, the water boards make proposals to the provinces on how to designate their water bodies. Although the water boards are not formally responsible for the designation since the designation will be formally laid down in national and
provincial water plans, they provide the information and propose how the water bodies should be designated.

**Setting Formal Standards**

**General Environmental Goal of Good Status**

The *Waterwet* has three important general goals, with among others the protection of waters in compliance with the WFD (Article 2.1 *Waterwet*). The *Waterwet* uses more or less the same wording as the WFD: protection and improvement of the chemical and ecological quality of water systems. The use of all competences of the water managers must be in accordance with these goals (Van Rijswick e.a. 2008).

The general environmental goal of reaching good status as such is not mentioned in the *Waterwet*, nor is the deadline of 2015. This objective and the deadline are laid down in the *AMvB Kwaliteitseisen en monitoring water* (Article 4 (1) & Article 7 (1) *AMvB Kwaliteitseisen en monitoring water*).

**Specific Environmental Goals**

The actual water quality standards are based on the Environmental Management Act (Article 5.2b Wm) and will be laid down in the *AMvB Kwaliteitseisen en monitoring water* (Article 2.11 *Waterwet*).

**Type of Obligations**

The goal of reaching the good status/good quality is not formulated as specific as an obligation of result. The reason is that the legal system of the *Waterwet* does not require such a statement. Although there has been a great deal of discussion in the Netherlands concerning the question of whether the WFD provides obligations of result, it can be concluded that at this point in time it is accepted that the environmental objectives of the WFD must be read as an obligation of result.

The *AMvB Kwaliteitseisen en monitoring water* is currently being prepared and so is not yet in force. As far as we can say at this moment, it is foreseen that the environmental quality standards will not be formulated as limit values or intervention values (*grenswaarde*). The Dutch legislator will probably choose for a target value (*richtwaarde*) (see for instance Article 4 (1) of the current proposal) (see Backes, Kruyt and Van Rijswick 2007).

For more information on the way water boards deal with the goals and standards for the good ecological status in practice see Minderhout 2007.
3.3 The Planning Process

Since most of the water bodies in the RBD Meuse or the Dommel sub-basin are designated as HMWBs or AWBs, good ecological potential (GEP) becomes their main ecological objective. When setting the GEP, the ‘Prague method’ is applied. With this method, first the existing state of the water body is examined, instead of the reference state. This determines what can possibly be done to improve the existing situation. All possible measures are then considered. Goals are usually set after considering the economic feasibility of measures that can be applied. Water boards have a lead in this task (Interview). Measures that are too expensive or that damage the function of water for human use are eliminated, and goals are set in a way that make them attainable with measures that are feasible to implement (mostly set for 2027).

Up and down the staircase – Trapje op/trapje af

For setting goals and making plans for the WFD in general, the usual sequential decision-making method for the regional waters (where the process starts at the national level, then moves to the provincial level and then to the water boards and municipalities) is not applied (Interview). Responsibility is given to the lower levels from the beginning. The water authorities argue that the WFD itself also asks for water management at the operational level. According to the AMvB Kwaliteitseisen en Monitoring Water, the so-called two-phase approach (up and down the staircase – trapje op/trapje af) is applied here. During the first phase, a bottom-up approach is taken, beginning from the water board level (up the staircase/trapje op). Water boards propose their plans (waterbeheerplan), which are assessed by the provinces, who also make their own plans (waterhuishoudingsplan). These are then assessed by the Ministry of Transport, Public Works and Water Management in national planning (Nota voor de waterhuishouding/ beheerplan voor de rijkswateren).

However, with this method, there could be the problem of provincial governments and water boards applying standards that are not in line with the central government’s intentions. Therefore, if necessary, in the second phase the process could be reversed (down the staircase/trapje af). The Minister gives instructions to the provinces to change their plans, and the provinces in turn give instructions to the water boards before the plans are definitively adopted. When the plans are all adjusted and harmonised in this way, standards (and the environmental objectives) become legally binding as part of the provincial water management plan (provinciaal waterhuishoudingsplan) or the water management plan (waterbeheerplan) of the water boards. Some refer to this as a ‘contracting method’, where each level of government has the maximum legitimacy (Interview).

This method is considered valuable, as it is believed to lead to maximum legitimacy and accountability as well as good working ‘spirit’ (Interview). This in turn is believed to
lead to better, well-prepared decisions and, leads therefore to better execution of the measures, mainly due to ensured support for these measures at the lower levels. Therefore, it is believed that there is less effort needed from the national government to create extra incentives or to ‘push’ other authorities.

**River Basin Management Plans (RBMPs)**

At the level of the Meuse river basin, the Regional Executive Committee for the Meuse (RBOM) is a crucial committee. It makes the proposal for the Meuse part of the River Basin Management Plan (RBMP). This proposal has to be connected and adjusted to both the national part of the RBMP, as well as the international part of the RBMP. The proposal is produced as follows. Firstly, the so-called ‘basic document’ (*Basis document KRW Meuse*) is prepared, based on the integrated regional planning processes (*gebiedsprocessen*) (see Section 1.1 as well as section below) that formulate goals, measures, costs/benefits and the underlying considerations that were brought in by several authorities and stakeholders for every specific sub-sub-river basin (regional Water Programmes). This information is brought together in the basic document ‘WFD Meuse’, containing a list of goals, measures, an overview of costs and benefits, and the considerations (*afwegingen*) for the entirety of the Dutch part of the Meuse river basin. The water boards play an important role in collecting and evaluating these data and considerations. Subsequently, the Regional Executive Committee (RBOM) advises the different governmental authorities (municipalities, national agencies, provinces, water boards), and they discuss this information again in the regional planning processes and use it as a basis and guideline for their own formal planning documents.

After different versions are discussed, the drafts of the formal planning documents of the municipalities, water boards, provinces and national agencies are, together with the foundation of the basic document, finally delivered to the national level as input for the RBMP. The national level combines these drafts and proposals with the proposals for other river basins in the Netherlands and lays down the goals per water body, as well as the measures (summarised) and considerations. This is also combined with the ex-ante analysis of the Netherlands Environmental Assessment Agency (recently renamed the *Planbureau voor de Leefomgeving*), which contains the evaluation of costs and efficiency of measures.

**Integrated regional planning**

Considering the setting of the ecological goals in the Dommel area, the Water Board determined goals in the integrated regional planning processes through the use of so-called defaults (*standaardafleidingen*), categorised by common types of water bodies in its river basin. According to the basic document ‘WFD_Meuse’ (version 3.1/ April 2008, pp. 11 and 13) the goals are presented in two ways:
1) The goals compared to the natural reference for four groups of indicators (maatlatten), which shows how far the goals are set from the good ecological status (distance to target from the natural reference) and

2) On the basis of a specific goal for 2027, (normally the good ecological potential) that is set through the Prague Method of packages of proposed measures. Information is given on the current situation (2008), the end-goal in 2027 and an internal intermediate policy goal for 2015 (Basic Document WFD_Meuse, version 3.1/ April 2008, p. 13).

During the process of setting the standards in the Dommel river basin, there was discussion on how to set ecological goals and goals for related chemical substances in a situation where water bodies are modified or heavily modified and where the ideal ecological situation is hard to reach. Part of the ecological goal setting is about the chemical conditions of water bodies needed to reach GEP, especially when dealing with nitrates and phosphorus. The water board was involved in the working group ‘physical-chemical conditions’, which was trying to determine goals and standards for toxic substances (nitrite and ammonium) in the context of HMWB. This was a form of regional derivation (regionaal afleiden). Normally, for chemical substances, goals and standards are derived from an ‘ideal’ situation comparable to a natural water body (good ecological status).

However, with regard to HMWB or AWB and reaching GEP, there are clearly circumstances – such as hydromorphological recovery and improvements in streaming – where improvements are very limited. These circumstances should also be considered when deriving the goals for related substances such as nitrates and phosphorus, which are important for the ecology of water bodies. Why strive for a high standard for some of the chemical elements for ecological status (concerning nitrates and phosphorus) that belong to an ideal ecological situation that will not be reached anyway? It turned out, however, that it was impossible to define these derived goals for specific chemical substances due to a lack of knowledge and experience. For nitrates and phosphorus, it was decided to use the national standards that belong to good ecological status, although they are considered to be very stringent (Interview, see also basic document WFD Meuse, p. 11).

In addition to the integrated regional planning processes, stakeholders were also involved at the Meuse River Basin District level through a sounding board group on this level (Klankbordgroep). They remained outsiders, however, confronted with the complicated and technically detailed process of goal setting and planning (Interview). Working with a Klankbordgroep was not considered suitable for discussing all of the steps taken in the implementation process, since it was considered to be very time consuming. The Klankbordgroup was involved when it came to general plans and outcomes. They were consulted on processes and decisions, but transparency was difficult.
Reflection

As described earlier, water boards suggest goals and design measures which must be assessed by the provinces and the national government. Once the goals and measures are laid down by the provinces in their plans as well as in the plans for the water boards, water boards are bound to implement these measures for the regional surface water bodies. It should be noted that water boards are not responsible - nor do they have the authority - for other sectors that affect the quality of water, such as the agricultural sector. This means that the goals and measures of water boards are designed within their competences. As far as the agricultural sector is concerned, no actions can be expected. The agricultural sector in the Netherlands does not explicitly need to contribute to realising the WFD objectives. This can be considered as highly problematic, especially because such a decision at the national level is not in compliance with Article 9 of the Directive: the polluter pays principle and full recovery of costs.

3.4 Programme of Measures

In the Netherlands a programme of measures can be found in all the existing water plans (strategic plans as well as management plans) of the central government, the provinces and the water boards.

In 2007, the RWS and the regional water managers (water boards) listed measures (RWS regional measures package) to reach the environmental goals in 2015 and 2027. Most of the regional water managers listed the measures that are to be implemented in the period 2010 to 2027. There was not always a distinction made between the already existing or already planned measures and the extra WFD measures. However, according to the RWS regional measures package, about one-third of the investments expected in the years up to 2027 are thought to be related to the ‘extra’ WFD measures, and the majority of the investments for these measures is to be invested before 2015 (see next section: Resources) (Ligtvoet, Beugelink et al. 2008). This means, that in the Netherlands many measures are to be implemented in the first WFD planning cycle.

At the national level we can refer to this RWS regional measures package. For surface water bodies, spatial and hydromorphological measures are predominant, such as nature-friendly banks and shores, re-meandering of small streams or canals, fish-passages, by-passes of rivers or side channels of rivers. With the introduction of the WFD, water management in the Netherlands changed from focusing on removing polluting substances to looking at ways of creating the desired ecosystem (Interview). Substantial ecological improvements are expected, especially for the regional water bodies (Ligtvoet, Beugelink et al. 2008). However, as described earlier, ecological targets for many water bodies will most likely not be reached, even in 2027. There are only a few measures that are source-oriented, such as sewer water treatment and improvement of sewer overflows for phosphorus and nitrates. Source-oriented measures where diffuse pollution from the agricultural sector can be reduced are not listed in the RWS
regional measures package. Again, these measures do not fall under the responsibility of water boards, but are to be taken care of by the national manure policy (Ligtvoet, Beugelink et al. 2008). Also, water boards cannot interfere with spatial planning policy to improve the ecological quality of their water bodies.

This picture holds true for the Meuse river basin and Dommel catchment: spatial measures and measures concerning fish population, fish migration and the wastewater chain are considered most important for the Meuse. When it comes to diffuse sources stemming from agriculture (nitrates and phosphorus, fertilisers) the regional water managers are predominantly looking to the national government to propose measures or extra measures and new policy programmes. The Meuse river basin is planning new research activities (e.g. nitrates research in the Mergelland area, industrial use of water and new measures for point sources) to investigate and anticipate future measures.

For the Dommel catchment, the WFD did not lead significantly to new or extra measures, but only to an increase in research and an increase in the integration of plans and measures. Nor did it lead to extra expenditure, apart from a small increase in the subsidy from the central government (Interview). The feasibility of meeting the quality standards is very low in the catchment, not only because of budgetary issues, but mainly because of the international nature of some of the substances as well as the fact that the water boards cannot demand agriculture to reduce pollution (Interview). Therefore, goals are to be attained mainly through use of the already existing measures in the Dommel catchment.

**Reflection**

For surface water bodies in the Netherlands, the measures suggested by the water boards (for regional waters) and the RWS (for national waters), which are to be taken for the WFD, are mainly spatial and hydromorphological measures. There are only a few measures that are source-oriented. Agricultural policy is under the authority of the national government and the spatial planning of the provinces. However, as we have seen previously, the national government will not impose extra measures on the agricultural sector.

Because water managers are afraid of not reaching self-set ambitious targets and to be accountable for these goals and ambitions - as they are considered as obligations of result - this might lead to a situation in which more ambitious goals will *not* be laid down in their water plans. In the Dommel catchment as well, there has been an adjustment of the pace of implementing measures because of the WFD, and sometimes this means that the pace is set lower in the official water plan document (Interview). Because of the WFD, more realistic goals are being set. For example, formerly the goal for the river restoration programme was to complete the restoration of 80 km in six
years. Today, the goal is formally stated as 50 to 60 km. But in practice, the efforts in restoration might achieve more than the formally stated goal.

3.5 Resources

It is difficult to see what measures are actually implemented due to the WFD, and therefore it is difficult to estimate the cost involved in the implementation of the WFD in the Netherlands. The estimation (Ligtvoet, Beugelink et al. 2008) shows that during the period 2007 to 2027, investments in the complete RWS regional package of measures will amount to a total of approximately 7.1 billion euros. Of this total investment, it is calculated that about two-thirds is based on the already proposed or existing measures and policies and so one-third is associated with extra measures for WFD implementation. This means extra measures in the Netherlands for WFD implementation will amount to approximately 2.9 billion euros. About 65% to 70% of these WFD related investments are to be invested during the period prior to 2015.

Of the total costs mentioned above, the water boards are accountable for 5.4 billion euros and RWS for 1.7 billion euros (Ligtvoet, Beugelink et al. 2008). The annual cost of the total RWS regional package of measures for society is estimated to be 390 million euros per year. It is estimated that about 60% of these costs will be covered by the water boards, 15% by the municipalities, another 15% by the RWS and 3% by the provinces. Extra increase of charges by water boards is expected to be about 0.7% per year. About 75% of the increase in charges will be paid by households and the rest by businesses. Again, these are the costs which will be covered by taxpayers for the entire water management programme until 2027, one-third of which is believed to be related to WFD (extra) measures. This means that the cost increase related to the WFD is considerably lower than 0.7% per year.

For the Dutch part of the Meuse river catchment, the estimated costs of the total integrated water management programme (including flooding policies, drought, etc.) are 3.4 billion euros in total, of which 0.9 billion euros involve new and additional policy. Approximately 1.3 billion euros of the total costs are WFD related.

Reflection

The Netherlands has a history of securing budgetary funding for water and separating it from other taxes. Because the water boards exist solely for the purpose of water management, the funds they raise from their taxes do not have to compete with other policy areas, as is mostly the case in other countries. As a result, it is believed that the Netherlands spends a lot more on water management (and reaching the WFD objectives) than do other countries, such as Germany, for example (Interview). Still, the Water Board of the Dommel does not recognise significant increases in budget related to the
WFD process (Interview). The Water Board of the Dommel was already taking measures before the WFD and had partly anticipated the new Directive. The cost of water management has increased slightly, and this will indeed be subsidised by the national government. However, this amount is said to be rather insignificant.

3.6 No Deterioration Principle

Legal establishment
The WFD Implementation Act formulated the principle of no deterioration in the wording of the former stand-still principle and this means that no deterioration should occur concerning the quality of all waters, unless it is caused by one of the reasons mentioned in the exemptions laid down in Article 4 WFD (Article 5.2b (4) Wm). Due to the fact that this could mean that this is a stricter obligation than required by the WFD, the law will be amended in such a way that no deterioration will refer to the status of a water body, so the principle is interpreted as a deterioration of status class. The WFD Implementation Act also states that the Wm needs to ensure that the status of water bodies does not deteriorate where environmental quality norms are in force. Since it is not yet clear whether the WFD will require no further deterioration at all, or just no deterioration of status class, the law may be the same whatever interpretation is given by the Court of Justice.

The AMvB Kwaliteitseisen en monitoring water gives a more detailed interpretation of the principle. According to the AMvB, deterioration is assessed across the status class and per water body (Article 16 (1) and (2) AMvB Kwaliteitseisen en monitoring water in conjunction with Article 5.2 (4) Wm). Also, a deterioration is not assessed at any moment in time, but only between planning periods of six years. In 2015 it will be assessed whether there is a deterioration. The first planning period will be compared to the situation at the beginning of the planning period on December 22, 2009. In 2021, the second status classes of the second planning period will be compared to those of the first, and so on (Explanatory note of the AMvB Kwaliteitseisen en monitoring water, p. 31).

An exception to the rule that deterioration in a water body is not allowed is described on page 31 of the Explanatory note of the AMvB Kwaliteitseisen en monitoring water: deterioration of the status class of a single water body is (under special circumstances) allowed if it would lead to a significant improvement in the water quality of the RBD as a whole. According to the explanatory note, this is in line with Article 4 (1) (a) (i) and appendix V.1.3 of the WFD.

Practical interpretation
It is also said that the principle of no deterioration is already widely accepted by society (Interview). The main message is to not obstruct good environmental developments, and that it is useless to interpret this concept too strictly because then nothing can be
achieved. The concept of no deterioration can be very helpful in achieving the goals of the WFD, as became clear in the past when the principle was also used for granting licenses based on the Pollution of Surface Waters Act (Wet verontreiniging opperlaktewateren, emissie-immissietoets) and in the water assessment process (watertoets) (Interview). Although the AMvB Kwaliteitseisen en Monitoring Water indicates that the principle is in effect as of 2009, the reference date is sometimes considered to be 2000, since this was the deadline for transposing the Directive (Interview).

In the Dommel catchment, pollution that originates in Belgium is of relevant concern (Interview). No restoration measures can be taken against this pollution; not only would it be extremely expensive to remove the pollution which is already present in water and soil systems, but also because the water body would be immediately re-polluted since the input of substances has not been addressed.

### Monitoring and check points

The national government decided to use only data which were collected from WFD-specific check points for the purpose of monitoring designated water bodies and determining deterioration, as well as for the other purposes involved in the implementation of the WFD. In the Dommel, there are 26 water bodies identified, but there are only fifteen WFD-specific check points (Interview). These check points can represent other water bodies (or parts of water bodies) that are similar and have no check points. It has been questioned whether the fifteen WFD-specific check points are representative for other water bodies. It is argued by the national government that using additional data from other existing check points will be too expensive. However, it seems that there are political reasons behind the strategic placement of the monitoring points (Interview).

#### 3.7 Use of Exemptions

**Legal Establishment**

The only exemptions from reaching the specific goals of the AMvB Kwaliteitseisen en monitoring water that can be made will be those mentioned in Article 4 of the WFD. The exemptions in this AMvB are the same as those in the WFD (Article 2 of the current proposal). Moreover, the use of exemptions must be justified in the RBMPs (Article 2 AMvB Kwaliteitseisen en monitoring water) (Syncera Water e.a. 2005 and Zijp e.a. 2007).

**Practical use of exemptions**

In general, it has been informally agreed that the goal of meeting the ‘good’ status is 2027, not 2015. Most water bodies will not meet the good status/potential by 2015. The measures will be implemented in phases (Ligtvoet, Beugelink et al. 2008). Extension of deadlines will therefore be extensively used for the water bodies that are unlikely to
meet the goals in 2015. This will mainly mean a change in the time schedule (Art. 4.4) and not (as of yet) a change in the actual objectives (Art. 4.5) (Interview). The ex-ante evaluation speculates that it would be difficult, even in 2027, to reach the ecological targets. Even with the maximum possible use of measures, about 50% of regional waters will not reach the ecological objectives (GEP) even in 2027. The Dommel catchment hardly has specific goals for 2015 (Interview). It is expected that even in 2027, some substances, such as cadmium, will not be reduced to an acceptable level.

There is discussion in the Netherlands about the reason behind this image of a substantial number of water bodies not meeting the environmental objectives, even in 2027 (Interview). It is still uncertain whether the estimation of the expected cost involved for implementation is considered disproportionate and could therefore be sufficient reason for legitimising the phases of implementation (Ligtvoet, Beugelink et al. 2008). The extension possibility of the WFD is perhaps being overly used (Interview).

The reason why Article 4.5 (lowering of objectives) is not used at the moment is because: 1) it is better to keep the ambition high, 2) the government does not have enough knowledge and does not know the impact of the instruments that are to be implemented and 3) even though it is known that the Netherlands will not achieve the goals in 2027, it is very difficult to say what standard will be reached (Interview). This is impossible at this stage. The use of Article 4.5 will need clearly defined alternative goals. In 2021, the Netherlands can decide whether to lower the objectives for 2027 or not.

3.8 Integration

General integration

In the Netherlands, no form of general integration with other policy fields has been established. There will be no formal legal obligation regarding competences in other policy fields to take the water quality standards into account.

Because the national water plan (RBMP) is made by more than one Minister (Minister of TPW, together with the Minister of Agriculture, Nature Conservation and Food Quality and the Minister of Housing, Physical Planning and Environment), all these Ministers have to take the water quality standards into account when decisions are taken at a national level. Other governmental bodies have no explicit obligation to take water quality standards into account.

The AMvB Kwaliteitseisen en monitoring water has chosen for a link between the competence to make water plans (at each governmental level) and the water quality standards. This means that whenever a water plan is made, the water quality standards must be taken into account.
When water authorities take specific decisions (like granting a licence), they have to take their own water plans into account. In this way water quality standards will have an influence in more specific decision making. All activities in the field of water management, however, as well as legal decisions such as practical measures, may not lead to non-compliance with the goals of the Water Act.

The forthcoming Waterwet will integrate nine existing water acts and will introduce an integrated water permit, thus improving the objective of internal integration.

Nature and Water

Legal establishment
As already stated in 3.1, the Ministry of Agriculture, Nature, and Food Quality also signs the national water plan in which the river basin management plans are incorporated. By doing this a political agreement with the RBMPs is established, which legally means that the Minister of Agriculture, Nature, and Food Quality should take the RBMPs into account when taking decisions in the field of Nature Conservation (Van Rijswick 2007). More in general, most – but not all – protection measures taken in the field of nature conservation will have a positive effect on the good ecological status of surface waters and the other way around. By means of the obligations following from the WFD for the protected areas (registered due to Article 6 of the WFD) a strict use of exemptions is obligatory. Furthermore, most provinces make integrated environmental plans dealing with water, the environment, spatial planning and nature conservation (Omgevingsplannen).

In Practice
Natura 2000 is understood to be a completely different process in terms of organisation, objectives and time frames etc., and is therefore difficult to integrate (Interview). While the WFD sets a deadline of 2015 with two possible extensions of six years each, the Birds and Habitat Directives set no deadlines for reaching final goals. At the same time, ensuring no deterioration and improvement of ecological conditions carrying out the Birds and Habitats Directives are ongoing obligations (Keessen and Van Rijswick 2008).

At the beginning there was tension between the WFD and Natura 2000 obligations, since actors from both Natura 2000 and the WFD expected each other to do the task. Natura 2000 actors expected part of their responsibilities to be covered by the WFD, since it had authority over the protected areas. WFD actors expected Natura 2000 to implement its protected area provision. Moreover, at the level of the ministries and the provinces there was a lack of coordination; it was not clear to the water boards what was expected of them, and measures related to Natura 2000 were not clearly defined. At the same time, it was felt that water boards were not waiting for extra obligations from Natura 2000.
However, in the end, water boards are responsible for all uses of water, including those related to Natura 2000 (Interviews).

In the 2007 policy document ‘Policy Vision for Nature Management’ (Beleidsvisie Natuurbewerking), from the Ministry of Agriculture, Nature Conservation and Food Quality, it was stated that coordination is needed. The idea was that for areas with high urgency according to the Natura 2000 conservation standards, the water quality conditions should be ensured under the WFD before 2015 (Ligtvoet, Beugelink et al. 2008).

Water quality measures for Natura 2000 sites are now put in the regional water management plans and management plans related to national waterways (Interview). In this case, the Ministry of Agriculture, Nature Conservation and Food Quality or the national water authority pay for these measures. For regional surface waters the integration is less clear. Water boards pay for the measures that contribute to the implementation of Natura 2000 and measures which have a direct relationship with water system management. For some nature management plans, completion is speeded up to be able to add to the WFD river basin management plans. Nature management plans fall under the responsibility of the provinces, the Rijkswaterstaat, the Staatsbosbeheer and the Ministry of Defence. Since the provinces are responsible for both groundwater management as well as the Natura 2000 site, integration at this level can be expected. However, after the Waterwet comes into force, the provinces will no longer be the competent authority for groundwater management. Coordination, however, is still known to be poor (Interview).

Agriculture and Water

Legal establishment

The first legal instrument for integration between water and agriculture is – again - the signing of the National Water plan, which includes the RBMPs by the Minister of Agriculture, Nature, and Food Quality (see under integration of water and nature conservation). Furthermore, a system is being developed which should lead to water quality standards being taken into account in the authorization process for pesticides, the so-called Beslisboom water (Van Rijswick and Vogelesang-Stoute 2007 & 2008).

Furthermore, most provinces make integrated environmental plans dealing with water, the environment, spatial planning and nature conservation (Omgevingsplannen).

Finally, Dutch water legislation has its own instrument to protect the quality of surface waters and ground water by pollution from manure and pesticides (Wet verontreiniging oppervlaktewateren, Wet bodembescherming, Waterwet). This water legislation is a consequence of obligations following from the Nitrates Directive, the Groundwater Directive and Directive 76/464/EEC (now 2006/11/EC). It must be said that even EC law
devotes special attention to agriculture when the protection of waters is concerned (Van Rijswick 2007b).

In Practice
Concerning the integration with the agricultural sector, measures to reduce nitrates and phosphorus are expected to be derived from the Nitrates Directive (Interview). Measures taken because of the Nitrates Directive will slowly increase the water quality, and therefore contribute to achieving the WFD goals, though probably not enough to meet the WFD objectives. By 2027, the nutrient load of regional surface water bodies will be 16% less for phosphorus and 24% less for nitrogen (ex-ante). Such reductions will be made mainly through expected improvements in sewerage treatment and by existing and proposed manure policy, and not through extra WFD measures. About 50% of regional surface water bodies are not expected to meet the nutrients standards even in 2027 (Ligtvoet, Beugelink et al. 2008).

Next to the hydromorphological alterations, agricultural activities and their impact on water are the largest threat to WFD implementation, and the relative importance of the agricultural sector will only continue to increase. After all the water management measures (RWS regional measures package) are taken in 2027, it is expected that 75% of the nutrient load in regional water bodies will originate from the agricultural sector (Ligtvoet, Beugelink et al. 2008). Reducing the nutrient load is considered difficult, not only because water boards have no power to change agricultural practices, but also because of the severe accumulation of nutrients in agricultural soils, which will be released to the water in coming decades. Some measures can be taken for the sector, such as the creation of manure-free zones. However, such measures will only be carried out through negotiations with farmers on a voluntary basis, where such changes in activities by farmers need to be subsidised. Moreover, the impact of such measures is questioned, since the leaching of nitrates from soils will be considerable.

Integration between the WFD and the agricultural sector is considered difficult within the country. Actors in the water sector are asking the government to address nutrient-related problems to be able to meet the WFD objectives. At the same time, parliament has asked that no measures or extra measures be imposed on agriculture (Interview and parliamentary motion Van der Vlist). There has probably been strong lobbying by the agricultural sector to prevent extra pressure being imposed on the sector in addition to the already existing manure policy, which is a match to the political economic interests. A ‘level playing field’ must be maintained among the farmers across Europe as well. The Netherlands will not apply stricter rules to farmers than other countries do.

Secondly, nitrates also come into the Netherlands from Germany and Belgium. It is difficult for the Dutch government to impose strict measures on its own farmers in this situation. The national government is seeking coordination at the European level to
support reduction of nitrate input into water by farmers by integrating the Common Agricultural Policy, Nitrates Directive and the WFD. The revised Common Agricultural Policy is still not fully used to improve the performance of farmers in reducing environmental problems.

In the Dommel catchment, the product-value of the agricultural sector is still growing, and this holds true for agricultural land as well. This means that it is only becoming more difficult for the water board to buy land alongside water bodies for restoration purposes (Interview). To improve water quality, the water board can make use of stimulus measures, such as subsidies or pilot projects. In addition, the water board can prevent leaching or discharges by placing filters, which does not affect agricultural activities. However, such measures are expensive and considered to be infeasible. They also do not meet the WFD requirement of Article 9, which states that costs for water services should be recovered.

**Spatial Planning and Water**

**Legal establishment**

The integration between water management and spatial planning takes place in several ways and will be improved after the entry into force of the Waterwet (Groothuijse and Van Rijswick 2005). External integration between water policy and spatial planning takes place at the planning level, except for the municipal spatial plan (bestemmingsplan). It is important to realise that plans (except for the local bestemmingsplan) in the Netherlands are not legally binding. External integration by way of coordinating several plans is therefore more a policy instrument than a legal instrument.

First, there is the signing of the national water plan and the RBMPs by the Minister of Housing, Spatial Planning and the Environment. This will lead to water interests being taken into account in decision making in the field of spatial planning.

Furthermore, most provinces make integrated environmental plans dealing with water, the environment, spatial planning and nature conservation (Omgevingsplannen).

The national and regional water plans of the new Waterwet are both so-called structuurvisies as meant by the Law on spatial planning (Art. 4.1 (1) and Art. 4.4 (1) Waterwet). This means that the authority that makes the water plans explicitly indicates what part of the water plan will have spatial impact. This implies that the water quality norms will only effect spatial planning if one of the water plans (either the national or regional plan) demands that measures be taken that involve spatial changes to achieve the quality standards. Moreover, these measures must also be transformed into general rules based on the Spatial Planning Act by the central government or the province. It is by means of these general rules that policy decisions laid down in plans will have legal
effect and ensure that water interests can be given special attention in the decision making in the field of spatial planning (AMvB Ruimte, provinciale verordeningen).

Apart from the instrument of coordinated planning, there is also the *watertoets* (water assessment), which already existed before the adoption of the WFD. Through this instrument, water boards can advise authorities that take spatial planning decisions on the consequences of those decisions for water management (Article 3.1.1 *Besluit ruimtelijke ordening*). In their advice, they will take the quality standards of the AMvB *Kwaliteitseisen en monitoring water* into account. The authority taking the spatial decision must justify any derogation from this advice in its decision (Article 3.1.6 (b) *Besluit ruimtelijke ordening*). In this way, the quality standards might influence (albeit in a non-binding way) the decisions in spatial planning.

The AMvB *Kwaliteitseisen en monitoring water* does not say much about spatial planning. According to the explanatory note of this AMvB (p. 19), the quality standards set in the AMvB will only have a very limited effect on decision making in the spatial planning process (De Gier et al. 2007 and Van den Broek, Nijmeijer and Van Rijswick 2008).

Finally, water boards have their own legislation including a licensing system (*keur* and *ontheffing* based on the *Waterschapswet*) which makes it possible to regulate undesirable activities that could harm the water system.

**Other integration aspects**

Apart from the integration with policy domains above, there are various other policies and developments relevant for WFD implementation. We will only mention them briefly:

- the integration with existing wastewater management, sewage and purification policies;
- the ambitions and policies concerning ground and surface water levels and drought issues (*Gewenst Grond- en Oppervlaktewater Regime*);
- reconstruction areas. These are integrated, area-specific policies for reconstructing and developing agriculture. The policies were initiated due to the problems of animal diseases and environmental pollution, and gradually evolved towards an integrated policy including issues of landscape, nature conservation, spatial planning, sustainability, rural communities and water management.

### 3.9 Conclusions

In the Netherlands, the WFD is implemented through a decentralised system, where water boards play a central role. Although formal standards and norms for good status are set at the national level through the AMvB *Kwaliteitseisen en monitoring water*, the
goal setting for regional water bodies that are HMWBs and AWBs are conducted at the sub-basin level in river basin management plans led by the water boards. While the Ministry is eventually responsible for the implementation of the WFD in the Netherlands, the water boards take the lead in not only setting the targets, but also designing appropriate measures, mobilizing resources and implementing measures. Of course, the water boards already played a vital role in water management in the Netherlands long before the implementation of the WFD. However, what is different is that the Netherlands has now opted even more for a bottom-up sequence of decision-making methods for its regional waters (trapje op/trapje af) in implementing the WFD. Earlier, the process started at the national level, which then cascaded down to the provincial and then to the water boards and municipalities.

For the implementation of the WFD, the process starts at the water boards, although the framework and methods are pointed out by the national level. The water board of the Dommel in turn proceeded with the implementation of the WFD through so-called ‘water programmes’ which are organised around smaller basins. In setting goals and measures for the Dommel catchment area, the water board works with four of those water programmes, involving related municipalities and stakeholders. It is not only a very decentralised, but also an integrated process, as the programmes deal with a variety of water-related policy implementations, of which only one is the WFD. This decentralised process (integrated regional planning processes; gebiedsprocessen) is considered valuable as it is believed to maximise legitimacy and accountability as well as creating a good working spirit, leading to well prepared decisions and resulting in a better execution of the measures.

It is well known that the Netherlands has designated most of its water bodies as HMWBs and AWBs. The main reason for this outcome is most probably physical: the hydromorphological changes made in river systems in the Netherlands is considered to be exceptionally severe. However, there is still room for considerations other than physical-scientific arguments to play a role in the designation process. The Netherlands (at the national level) has chosen a pragmatic approach from the start. From the various interviews it was understood that the authorities directly involved had problems with the use of the word ‘natural’ and the category of ‘natural water bodies’. They feared that once a water body was designated as natural that it would have to be brought back to an undisturbed state. Although this is not exactly what the WFD asks for, there are different consequences related to designating a water body as either natural or heavily modified. An additional reason for pragmatism could be that water boards are concerned about the consequences of accountability towards the EU if certain ambitions are very manifest. They do not want to be held responsible for high standards on paper, when they are dependent on others and might not be able to meet the demands. Some targets are already difficult enough to reach with the existing policy.
In the Netherlands, the water boards play an important role in the designation process, although they do not make the final decision. It is important to point out here that the water boards have no authority on issues beyond water management (such as spatial planning and agricultural activities), and are dependent on other authorities and stakeholders when it comes to attaining good status/potential of water bodies. Without being able to foresee exactly what are ‘significant adverse effects’ or ‘disproportionate costs’ with relation to the required hydromorphological changes for sectors other than water, they are assigned the task of proposing designation.

From the study by the Planbureau voor de Leefomgeving (PBL – Netherlands Environmental Assessment Agency) on the RWS - regional measures package, the Netherlands expects an increase in the total budget for water management due to the implementation of the WFD. It should be noted, when discussing the extent of WFD related measures, that the Netherlands complies with the obligations in many other water-related EU regulations (such as the Urban Wastewater Directive, and in large part the Nitrates Directive). For some countries, effort is still needed to meet the requirements of other directives, and they are classifying related measures as WFD measures, which is not the case in the Netherlands.

The measures to meet the WFD requirements are predominantly spatial and hydromorphological measures. Therefore, with the introduction of the WFD, substantial ecological improvements are expected especially for the regional water bodies. However, ecological targets for many water bodies will most likely not be reached even in 2027. The extensive use of the WFD extension clause is therefore intended.

While one of the main challenges for the Netherlands in meeting the WFD objectives is diffuse pollution from the agricultural sector, the water boards do not have the power or the responsibility to deal with that sector. They refer to the national level and indeed put pressure on the national government to address the problems related to intensive agriculture, fertilisers and pesticides. However, the national government is not taking – and partly is not able to take – measures itself to further address the diffuse pollution problem. More importantly, it partly explains why the Netherlands is struggling to reach the environmental objectives even in 2027, being unable to tackle the core problem of diffuse pollution from the agricultural sector. According to some, it seems as if it has been forgotten that it is the Member State, the national government, which is responsible for achieving the requirements of the WFD in good time. This means that the responsibility for taking the necessary measures at the national level, for example for diffuse pollution from nitrates and pesticides, is at least as important as all the measures that are proposed and will be taken by the water boards. Shared responsibility for reaching the WFD directives means that all governmental authorities should live up to their responsibility.
At the same time, the national government seems to claim extensive changes and efforts related to the WFD and that the WFD has had great impact, while the catchment level (the Dommel area) gives the impression that ‘not much has changed’. In the Dommel catchment area, the water actors do not experience substantial changes because of the WFD. They claim that the goals are not new. This is different from what the national government claims. But here it could be that the WFD is not a big incentive for the Dommel to do this in another way because they were planning the same measures before the WFD came into force. In other words; the high level of ambitions is continued. Maybe it is different for other water boards. For some other water boards, the WFD might have provided an impulse for ecological restoration.

The concern, however, is that WFD implementation is subject to an arrangement which is too informal. The Dutch policy culture is not considered to be as legalistic as in France or Germany or the UK. The availability of legal instruments is not a problem because legislation in several policy fields offers enough instruments to influence decision making in all policy fields. The fear, however, is that the national and the provincial levels will be reluctant to use these supervisory and enforcement instruments, because they do not fit very well in the Dutch policy culture of negotiating and looking for compromises. This might cause problems at the European level. To avoid this, clear obligations and responsibilities are necessary.

The external integration of the WFD with other policy sectors is not equally legally established for all policy fields. The central government is reluctant to increase the pressure on or the regulations for the agricultural sector to reduce its nutrients inputs into water as its main concern is to ensure fair competition with the other countries concerning this sector.

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CHAPTER 4  THE IMPLEMENTATION OF THE WFD IN DENMARK

The sub-basin: Odense Fjord Basin

Y.J. Uitenboogaart and J.J.H. van Kempen

4.1 Introduction

Characteristics of the Odense Fjord (sub) River Basin

The Odense Fjord river basin, situated on the island of Funen is our case basin in Denmark. The Odense basin encompasses an area of about 1,046 km² (this is roughly one-third of Funen). The catchment drains into the Odense Fjord, and the River Odense runs through it. Watercourses stretch to a length of about 1,100 km, and there are approximately 2,600 lakes and ponds that are larger than 100 m². The River Odense is the largest river on Funen, which is about 60 km long. The catchment of this river is approximately 625 km² (Environment Centre Odense 2007b). In this basin, very small watercourses occupy a large proportion of the basin watercourse network.

The population of the catchment is about 246,000 (density: 234/km²). In Odense, the population is 182,000, which makes it the third largest city in Denmark (Environment Centre Odense 2007b). In the sparsely built-up areas, 10% of the population is not connected to the sewerage system. The main land use in the area is agriculture. About 68% of the basin is used for agricultural activities. About half of the registered farms are livestock farms. The livestock density (livestock units – LU) is about 0.9 LU/ha farmland on average within the basin. Livestock production in the basin has increased in recent years and the trend is expected to continue, especially for pig production (Fyns Amt 2003; Environment Centre Odense 2007b). Of the crops produced in the basin, only 10% are for grass fodder, the main crop is cereal grains.

The land use in the rest of the basin is distributed as follows:

<table>
<thead>
<tr>
<th>Land use in %</th>
<th>Odense River Basin</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Built-up areas</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Farmland</td>
<td>68</td>
<td>70</td>
</tr>
<tr>
<td>Woodland</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Natural/semi-natural</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>countryside</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetlands</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 2: Land use (given in percentages) for the Odense river basin and Denmark. Source (Environment Centre Odense 2007)

According to the Environment Centre Odense, drainage, watercourse regulation, regular watercourse maintenance and the reclamation of former wetlands (meadows and mires
in the river valley and elsewhere, shallow lakes and fjords), have been carried out over the years to meet the agricultural requirements for arable land (Environment Centre Odense 2008). These activities have increased physical pressure on the water bodies, however, especially on watercourses and wet habitats, and have increased the nutrient loading of lakes and coastal waters as well due to reduced natural turnover of the nutrients that leach from the fields.

Approximately 55% of the agricultural land in the basin is drained. Most of the lowland areas within the river valleys are cultivated. A large proportion of the watercourses in the pilot river basin are regulated, primarily to meet the need for arable land. Thus, at least 25% of the watercourses are culverted. Of the remaining open watercourses, 60% are estimated to be regulated (straightened, deepened, etc.). Reclamation and drainage of former wetlands has resulted in the disappearance of more than 70% of the large meadows and mires over the past 100 years. Thirteen of the larger lakes have disappeared due to land reclamation. Regarding the coastal areas, Odense River Basin is among the areas on Funen where the most extensive land reclamation has been carried out, with low-lying coastal areas and some marine areas having been diked in and reclaimed. The shoreline of Odense Fjord has thereby been reduced from approximately 150 km in length to the present approximately 67 km, and 22 islands have disappeared from the fjord.

**River Basin Management and its coordination**

The Odense sub-basin belongs to the River Basin District (RBD) Jutland and Funen, which covers in total fifteen of the sub-basins (see Map 1: the large circle on the left indicates RBD Jutland and Funen). The five Environment Centres spread over the RBD Jutland and Funen prepare the sub-basin management plans for each of the fifteen identified sub-basins. An Environment Centre would be responsible for about three to four sub-basin plans. The River Basin Management Plan (RBMP) Jutland and Funen will therefore be a compilation of fifteen sub-river basin plans, including the Odense river basin plan. Municipalities are then responsible for drawing up the Municipal Action Plans, making a detailed programme of measures, and they are also responsible for the implementation of measures to ensure that the goals set in the sub-basin plans are achieved. Consequently, some municipalities will be dealing with more than one sub-basin plan.
Map 1: Denmark's four water districts (shown with Roman numerals) and the 23 sub-catchments for which there will be 23 separate water management plans to be made. The light lines in the map indicate the administrative borders of each of the seven Environment Centres belonging to The Ministry of Environment.

The Environment Centre Odense is responsible for drawing up the sub-basin management plan for the Odense basin. The Environment Centre Odense is also responsible for three other sub-basins, since it is responsible for the entire island of Funen. The island of Funen is divided into four sub-basins (the island in the middle in Map 1). There are ten municipalities on the island. Since the Odense basin is spread over seven municipalities, seven Municipal Action Plans are relevant to the management of the Odense basin. Consequently, municipal borders do not coincide with the basin borders. From the perspective of a municipality, the municipality of Odense has to draw up its Municipal Action Plan while implementing three river basin management plans on Funen (Environment Centre Odense 2007a). Below is a figure showing different layers of organisations and management units, and the position of the Odense River Basin.
4.2 Goal-Setting Process

Designation of Water Bodies

Legal Establishment
From the MML, it is not clear who exactly designates water bodies as natural, heavily modified or artificial. Article 15 MML does lay down the criteria for a water body to be designated as artificial or heavily modified. Those are the same as the ones mentioned in Article 4 (3) WFD.

Designation in Practice
According to the European Commission’s first stage WFD implementation report, Denmark provisionally designated a remarkably low number (less than 10%) of its water bodies as HMWBs and AWBs (this was done earlier in the Article 5 report) in comparison to other Member States (EC 2007). There seemed to be a rather straightforward interpretation of the WFD, where water bodies that were currently modified, but could potentially be brought to natural conditions, should strive to meet good ecological status instead of good ecological potential (Interviews). There was also an observation that the Environment Centre Odense did not concern itself too much about whether the water body was preliminarily identified as HM or Natural, as it was recognised that a similar effort/cost would be associated with the implementation.
regardless of the designation (Interview). The HMWBs are not exempt from WFD obligations.

For the Odense pilot management plan, very few water bodies were designated as HMWBs – in fact only the coastal waters (seventeen water bodies in total). Although the Article 5 Report identified some lakes as heavily modified water bodies, in the pilot management plan, none of the lakes were designated as such (Environment Centre Odense 2007a). It is important to point out that the pilot management plan did not identify (and hence designate as HMWBs) all of the many former lakes within the basin which had disappeared over past decades due to the land reclamation/drainage that was implemented to meet agricultural requirements for arable land. A total of 84 km of watercourses were designated as artificial. In the pilot plan these water bodies were assigned to meet the GEP (Environment Centre Odense 2007b).

However, more water bodies could still be designated as HMWBs, because the political assessment of the draft sub-basin plans are currently being conducted at the ministerial level.

Setting Formal Standards

General Environmental Goal of Good Status
The general environmental goal of the WFD (good status) is defined in Section 12 of the MML, with the deadline being 22 December 2015. According to the MML, good status means the same as defined in Article 2 (18) and (20) of the WFD. If more stringent quality requirements or shorter deadlines are set under other legislation, these apply (§ 20 MML).

On 13 November 2007, the European Commission submitted an opening letter to the Danish government due to its wrongful implementation of the WFD. The Commission claimed – amongst other things – that the Danish implementation did not fully comply with the requirements for targets for environmental objectives in Article 4 of the WFD. The Danish government partly accepted the criticism but the legal changes promised in the response to the Commission have, to date, not been adopted (Questionnaire).

Specific Environmental Goals
The general goal of good status will be further elaborated in a statutory order. As the European intercalibration process is still underway, this statutory order has not yet been issued (Interview).

Neither the adopted water plans nor the PoMs are binding for polluters or private citizens (Questionnaire). The RBMPs or sub-plans and the PoMs are legally binding for the relevant authorities (most often the municipalities) in their administration, including the control of diffuse and point sources of pollutants. Hence, discharge permits issued to
citizens or companies by the municipality must comply with the plans and the PoMs (Interview).

**Type of Obligations**

When the WFD was drafted and approved by the Member States, Denmark interpreted the obligation of good status as an obligation of best effort (Interview). The wording of Section 12 MML is as follows: ‘By 22 December 2015, at the latest, all surface water and groundwater shall meet the objective of good status, with the exceptions listed in Sections 15-20’. Although Danish law does not make a distinction between the two different wordings of the WFD (‘aim to achieve’ or ‘aim of achieving’ on the one hand and ‘shall achieve’ on the other), this does not mean that the wording of the MML implies obligations of result, according to some interviewees. It is usually the case that this wording means that it is legally binding (Interview).

The values which will be defined by the water plans are considered as intervention values. According to the preparatory work of the MML, the limit values defined in the plans are binding (Questionnaire).

**Extra**

For previous EU water directives, Section 14 of the Environmental Protection Act requires that the Minister of the Environment should implement binding quality standards for water adopted in the previous directives. In practice, however, this has never been considered binding but only a target which might be reached in the future (Questionnaire).

4.3 **The Planning Process**

**National level, the political process**

In the beginning, Denmark took a very open approach to the implementation of the WFD. The Ministry of Environment and the Ministry of Agriculture set up an ‘Actors’ Group’ in 2004, consisting of representatives from NGOs, municipalities, counties and the agricultural sector. The group was supposed to advise the government on how to implement the WFD and to set goals (Interview). The group met frequently (about fourteen times in a year) until July 2005 (Interview). The discussions held during the meetings were rather technical/scientific, and not too much emphasis was put on what was politically possible (Interview). This was particularly valued by some of the members. An interviewee recalls the relatively strong emphasis on environmental objectives at this stage (Interview).

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17 Since 1996, binding environmental quality standards have been established for dangerous substances by a statutory order. For other directives, guiding standards according to the directives have been established for relevant parameters (Interview).
The picture changed quite abruptly, however. The demand for goals and ambitions put forward by the majority of the Actors’ Group (not only environmental NGOs but also water suppliers, ex-county representatives and even some agricultural representatives) was very high (Interview). The government soon noticed the high costs involved for implementation of the WFD, and removed stakeholders’ involvement from the process. In the summer of 2005, the government presented a document to the Actors’ Group; in 2006 this document became Denmark’s preliminary goals for the intercalibration work. This interim Danish definition of good ecological status was based mainly on the existing objectives from the County Regional Plans (see quick scan, page 2). At the same time, the members of the Actors’ Group were told that this was not to be discussed further in the group (Interview). The Actors’ Group was never summoned after that point. Some interviewees believed that behind this scene was a troika consisting of the Office of the Prime Minister, the Ministry of Finance and the Ministry of Economic and Business Affairs, which informally seemed to have decided that the issue was not suitable to be discussed with stakeholders (Interview). After that point, the Ministry of Finance began to take a lead in WFD-related discussions.

A committee (the Godtfredsen Committee, named after the chairman of the committee from the Ministry of Finance) was established to estimate the cost of WFD implementation and to calculate in a straightforward manner the most economically efficient measures for implementing the WFD in Denmark. This required focusing on measures to reduce diffuse P and N pollution from the agricultural sector (see the Programme of Measures section). At this point, economic concern became the main focus of the discussion concerning the WFD in Denmark.

This Committee involved a range of ministries: the Ministry of Finance, Ministry of Economic and Business Affairs, Ministry of Taxation, Ministry of Food, Agriculture and Fisheries, Ministry of the Environment and, at the very last meeting, the Ministry of Climate and Energy. Discussions within the Committee, however, were said to be dominated by the Ministry of Finance, the Ministry of Food, Agriculture and Fisheries and the Ministry of the Environment (Interview). In the summer of 2007, the Godtfredsen Committee produced a report on its economic analysis of the WFD implementation in Denmark.

The Committee also produced three scenarios as its second phase investigation, which were never published (Interview). These scenarios were based on the definition of good status. There were three scenarios: the expected outcome of the intercalibration process (scenario 2), a higher ambition (scenario 1), and a lower ambition (scenario 3) (Interview). The ambition of scenario 1 was considered higher than that expected by the WFD itself. The government preferred the second scenario, and the discussion is still ongoing. However, some adjustment might be made if the results of the intercalibration work turn out to be more ambitious than scenario 2, which was pursued by the government (Interview). Although the intercalibration work was a parallel process to
the work of the Godtfredsen Committee, it turned out that the definition used for this scenario was close to the intercalibration results that were officially published in October 2008. However, some modification might be foreseeable: for rivers, the intercalibration results were close to scenario 2, while for lakes and coastal-waters, the intercalibration results were in between scenario 1 and 2 (Interview). The scenarios serve as the basis of the government’s discussion about the use of exemptions.

The results of the intercalibration results adopted by the European Commission following the parliamentary procedure of 30 October 2008 will soon be put into law, which will replace the interim goals based on the Country Regional Plans. There are discussions as to what extent these new goals derived from the intercalibration results differ from the interim goals, and how they affect the planning and ambition setting so far. Some believe that not much change is expected, meaning that the environmental objectives based on the Danish County Regional Plans are similar to the work of the intercalibration process. Where changes are expected (for lakes and coastal waters) the intercalibration work might push for higher objectives in Denmark. For deep lakes specifically, more stringent objectives will be applied in the further planning process (Interview).

Conversely, a number of people are worried that some of the objectives in Denmark will be lowered by the intercalibration results (meaning that the national interim goals were more ambitious), while others have an impression that this is not the case. Another concern expressed is that the WFD objectives will be achieved without special efforts for rivers and lakes (Interview). This concern is based on the opinion that some of the objectives of the County Regional Plans were so low that these objectives have already been reached, and that it means no efforts are required. Others argue that if some WFD objectives have already been reached, then this is due to the efforts taken in Denmark regarding diffuse and point source pollution during more than two decades of water planning and management.

**Sub-Basin Management Plan at the Environment Centre Odense**

In parallel with the political goal-setting process at the central government level, river basin management plans are being prepared by the Environment Centres. Ecological goals are set at the sub-basin level by the responsible Environment Centre. The Environment Centre Odense is therefore responsible for setting the environmental objectives for the sub-basin Odense. However, it should be noted that prior to the administrative reform conducted in Denmark in 2007, counties were responsible for the tasks that today are carried out by the Environment Centres. This means that the pilot project to prepare the Odense River Management Plan has mainly been carried out by Fyn County. Today, employees at the Environment Centre Odense who are responsible for WFD implementation are mainly those who were previously responsible for the same tasks in Fyn County.
Until the results of the intercalibration process are adopted in a statutory form by the Danish government, the goals that the Environment Centres are using will be based on the interim goals proposed by the government in 2006, which were in turn based on the old goals previously set by the counties in their Regional Plans (see quick scan, page 2). Once the intercalibration results are officially put into law in Denmark, the goals that are set at the Environment Centre level might need some modification. It is unclear whether the intercalibration results will decrease or increase the ambition level as discussed earlier.

Drafting of the Odense sub basin management plan has been a technical process, focusing not on cost, but on the WFD requirements (Interview). Some are of the opinion that the pilot has proven that WFD implementation could be successfully and satisfactorily implemented without outrageous cost (Interview). Currently, the drafting process is in the political phase, where resources and political considerations are discussed at the ministerial level. According to the interviewees, this will most probably mean that the technically ambitious goals will be weakened, more water bodies will be designated as heavily modified, and more exemptions will be invoked (Interview).

Some interviewees claimed that the national government was not particularly fond of the Odense pilot project at the beginning, since the plan contained too many politically unpopular measures that focused on the agricultural sector (Interview). However, at that point, the responsibility for conducting the pilot basin project was vested in the hands of Odense County, and the central government could not do much about it even if it had wanted to. At the present time, the central government also recognises the importance of addressing the need for the agricultural sector to meet WFD objectives as was also expressed by the Godtfredsen Committee’s report, which focused on the most cost-effective measures for addressing the diffuse pollution caused by nutrients from the agricultural sector (see Section 2.4. Programme of Measures and Appendix 4). This does not mean that the central government has come to a conclusion on what will be done. The experience from the Odense River Basin is said to have provided important input to the work in the Godtfredsen Committee (Interview).

There seem to be some reasons behind this rather ambitious management plan in Odense. First of all, this was carried out as a WFD Common Implementation Strategy pilot project, meant to test whether or not the WFD was technically implementable, without considering the political feasibility. Moreover, the Fyn County Council, which was previously responsible for the Odense pilot project, was said to have been more politically ‘green’ in comparison to the national government (Interview).

4.4 Programme of Measures

In Denmark, municipalities are responsible for the actual implementation of the programme of measures. Each municipality is required to prepare a Municipal Action
Plan to ensure the goals set by the Environment Centres in its sub-basin management plan are met. Before the municipalities draw up their action plans, the Environment Centres prepare a catalogue of the most cost-effective measures for guiding the municipalities in their implementation process.

For the Odense pilot basin management project, the Environment Centre Odense first listed all the existing measures (basic measures) that had already been adopted but not yet fully implemented (see Appendix 2). Such measures were in line with the already existing directives such as the Nitrate Directive and the Wastewater Directive, but also with national programmes including the Regional Plans, the municipal wastewater disposal plans and the Action Plan for the Aquatic Environment III (Environment Centre Odense 2007b). The expected status of water bodies, taking these basic-measures into consideration, was ‘baseline 2015’. Baseline 2015 was the foundation for determining the supplementary measures that were needed to ensure achievement of the environmental objectives of the WFD.

Some assumptions that were made for baseline 2015:

a) Agricultural measures pursuant to APAEIII were equally distributed throughout Denmark.

b) Presently ongoing set-aside of a total of 608 ha (8,000 to 15,000 in total in DK) for wetland pursuant to APAEIII is assumed to be fully implemented.

c) Any changes in livestock production on livestock holdings would not increase losses of nutrients etc., to the environment.

The majority of water bodies in Odense are at risk of not meeting a good status by 2015 without supplementary measures (See Appendix 1, for the result of risk analysis). The supplementary measures were selected on the basis of a cost-effectiveness analysis. These measures were aimed at reducing point-source pressures, physical pressures and diffuse nutrient loading from agriculture (See Appendix 3 for supplementary measures for the Odense pilot).

According to the pilot report, ensuring the full achievement of the environmental objectives (with a limited use of exemptions) in the Odense basin would cost about DKK 94 million (equivalent to 13 million euros) per year. The main activities were directed at reducing diffuse pollution from the agricultural sector. Of the costs, 46% were associated with these measures. The most important measures here included environmental optimisation of crop production by means of increased area of catch crops, and a reduced N fertilisation norm as well as the setting aside of arable lands, especially for re-establishing wetlands. In fact, 19% (12,480 ha) of the farmland was to be set aside in total, not only for wetlands but also for permanent grasslands as well as buffer zones where extensive farming was to be partially allowed. Setting aside farmlands also was expected to improve the physical conditions.
Of the costs, 43% were associated with measures to reduce point-source pressure. However, it was generally understood in Denmark that the cost-effectiveness of measures for reducing nitrogen would be much higher when addressing the diffuse pollution from the agricultural sector as compared to the point sources from other sectors. The cost effectiveness of the setting aside of arable land for wetlands was expected to be 42DKK/kg N, and for improved wastewater treatment for sparsely built-up areas it was 1,037DKK/kg N.

Whether the cost of supplemental measures for meeting WFD environmental objectives was disproportionately expensive for the society (political assessment) was not included in the pilot project. However, the Odense management plan stressed that the amount required was not significant. Compared to the total expense for water use in the Odense basin at that time, which amounted to DKK 612 million, and taking into consideration the total income and production value of DKK 116,600 million, the costs for the WFD correspond to an increase in the total expense for water from 0.5% to 0.6% of total income and production value. However, the political assessment of the cost was to be made by the central government. At the same time, the project did not consider how the programme of measures was to be financed, in other words; who was to cover the costs. Another important aspect was that this pilot management plan did not look into the extent to which the available legislation ensured implementation (Environment Centre Odense 2007a).

In parallel to the work of the Environment Centres on the programme of measures, the Godtfredsen Committee also listed the most cost-effective measures that Denmark could make use of in implementing the WFD. The resulting report which came out in 2007 consisted mainly of measures related to the agricultural sector, where a combined reduction of N and P was aimed for (Schou, Kronvang et al. 2007) (see Appendix 4). The next year, committee selected seven of the most cost-effective measures out of the 22 measures (see Appendix 4). The committee, led by the Ministry of Finance, was not overly sensitive about the political issues surrounding cost, but simply looked for the cheapest option for Denmark (Interview). The report also stated that the uncertainties were related to 1) the demand for the products produced; 2) politics and 3) the practical application of the measures. The political appraisal of the Godtfredsen measures is most likely taking place as the present report is being written. Such political assessment could result in the use of more extensions of deadlines than had been planned so far in the Odense pilot project (Interview).

The municipalities will have a chance to react to the draft management plans before the official phase of public consultation. The problem is, even if the municipalities make complaints about some of the issues in the draft plans, the decisions reacting to the

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18 The finalisation of the draft RBMPs will be delayed until early 2009. A final decision as to the municipal and public consultation procedure is therefore pending.
complaints by the government (Ministry and Environment Centres) will most probably be made only after the municipalities have prepared their Municipal Action Plans in 2010. The Environment Centre’s list of programme of measures might grant some freedom for the municipalities to choose which measures to apply within their territory. However, the Environment Centre will decide the pollution reduction target, and if the potential for reduction is the same or smaller than the target, then the municipality will have little or no freedom in choosing the measures. It is still under discussion as to how strictly the sub-basin plans should be prepared by the Environment Centres and to what extent the plans should allow for flexibility for the municipalities in reaching the goals set by the Environment Centres. A statutory order on Municipal Action Plans will be issued after the summer of 2009, and this order will establish the powers of the municipalities in enforcing the measures. However, it is not yet fully clear if municipal powers in the existing legislation are sufficient, or if additional powers are needed (Interview).

4.5 Resources

As mentioned earlier, it is still not clear who will cover the expected costs of fulfilling WFD objectives. Everyone, including municipalities and the agricultural sector, is anxious about who will be responsible for the costs of WFD implementation (Interview). In any case, it is clear from both the Godtfredsen Committee and the Odense pilot plan that the planned budget for water management will increase in order to meet the WFD obligations. It seems that the political decisions concerning the implementation funding, as well as where to find the resources, will apparently come at the last minute. The basin plans will then be ready (at least in draft form). This means that targets and measures may also be renegotiated until the last minute, especially if the costs turn out to be higher than anticipated or if distribution of costs turns out to be highly problematic.

There is some indication of where the resources might be generated from. Through the modulation process under the new Common Agricultural Policy – involving a reduction in direct payment – a large part of the budget allocated for rural development will be earmarked for environment and nature issues; this could provide part of the financing for the WFD measures related to farming. This funding for the agricultural sector is expected to help to achieve WFD objectives quite significantly (Interview). Farmers’ associations support this. Meanwhile the central government is expected to raise resources from taxpayers (Interviews). One of the interviewees recalls that when the Godtfredsen Committee’s report was presented, that it estimated the costs for compensating the farming sector at about 2 billion euros.
4.6 No Deterioration Principle

Legal Establishment

Although the principle of no deterioration is not formally implemented as a principle (Questionnaire), it is reflected in the MML: ‘deterioration of the status of all surface water bodies and all groundwater bodies shall be prevented (§11 MML).’ According to this article, the principle applies per water body and per status class.

In Practice

There is some disagreement amongst the interviewees concerning the date from when the principle becomes applicable. Some say it applies from the date the action plans come into force (i.e. 2009), others say it has applied from 22 December 2003, when the MML entered into force, still others link the date to the PoMs (i.e. 2012), because the principle is connected to these programmes in the first sentence of Article 4 (1) WFD. Interviewees also recognise that activities may endanger the attainment of the objective before it enters into force, resulting in the principle having effect even before it formally enters into force.

The principle is also incorporated in the RBMPs, in the same wording as in the MML. The drafts currently contain guidelines on how to deal with applications for permits in relation to the no deterioration principle.

Some complaints were made by NGOs regarding water management by the municipalities to the Environmental Board of Appeal, referring to the no deterioration principle of the WFD (Interviews). Complaints were made on specific issues, such as the extension on pig farms and discharge from the farms influencing surface water status (17 January 2008, Nordfyn Kommunes – municipality of Northern Funen, Bogense). What is meant by deterioration and the starting date is expected to become clearer if there is a court decision about a specific case (Interview).

The Odense pilot management plan includes guidelines (Section 6.5, p. 73) with regard to issuing permits for discharges of wastewater and for other activities that affect the state of the water in the Odense basin. It is clearly stated that any deterioration in the status of water bodies is to be prevented. It also continues to state that no increase in direct or indirect pollution of surface waters is permissible unless this restriction leads to increased pollution of other water bodies. This means that it can be acceptable to allow increased pressure/pollution of a water body if this is the only way to prevent/hinder increased and serious pollution of another water body.
4.7 Use of Exemptions

Legal Establishment
Section 16 of the MML provides for derogation from the highest standard in case reaching it is technically infeasible or disproportionately costly. Moreover, Section 17 of the MML grants derogations from the highest quality caused by changed physical conditions. The wording of the exemptions is a copy of the WFD (Interview).

Exemptions in Practice
It is expected that the ministerial level might make certain decisions regarding where to use the exemptions when it comes to agricultural diffuse pollutions, while for other issues, Environment Centres will decide where to use the exemptions (Interview). The Agency for Spatial and Environmental Planning has presented a guidance memorandum on how to use the exemption clause of the Directive for the Environment Centres. All of the possibilities for the exemptions will be used, but especially the extension of deadlines (Art.4.4).

The Agency clearly sees that it will not be possible to meet good status by 2015 for some of the water bodies, especially due to the diffuse pollution from agriculture. It will be cheaper to spread the costs associated with the measures for reducing diffuse nutrient pollution from the agricultural sector over several planning cycles. If it is necessary to claim some land for this purpose, the price will rise quickly. Prolonging the time frame to the third cycle will thus reduce the costs involved (Interview).

The scenarios prepared by the Godtfredsen Committee are serving as the basis for the government discussion about the use of exemptions. However, it is not known to what extent the use of exemptions should be expected if scenario 2 (which is favoured by the central government) is pursued. No decision by the central government has been made about the extent of the use of exemptions so far.

Odense River Basin
In the Odense pilot basin management plan, the aim is clear: to achieve a good status for most of the water bodies before the end of 2015. What is interesting to mention here is the expected use of the extension clause for water bodies that currently have heavily modified characteristics, but are not designated as HMWBs, as the ultimate objective is to achieve good ecological status (GES) and not good ecological potential (GEP). The hydromorphological modifications made to water bodies will not necessarily be brought back to the natural state in the first planning cycle in some cases (see Text Box).
In addition, some historical accumulation of substances in the basin (nutrients and phosphorus) found in sediments in lakes and the fjord will be too expensive to remove, and therefore the extension clause is to be used for these cases. In general the pilot project uses an extension of deadline instead of setting less stringent objectives. Some changes to the use of the extension clause for the Odense Basin could be made in the actual management plan.

4.8 Integration

Integration in general
In general, all state and local authorities are bound by the RBMPs and the Municipal Action Plans when decisions are made based on all other legislation and they must ensure the implementation of the PoM (§ 3 (2) MML). Formally, the authorities must ensure compliance with the plan, but whether this will work in practice is rather doubtful.

Internal Integration
According to a statutory order from 2006 on water supplies, the authorities (the municipalities) shall take into account, among other things, the size of the groundwater (or surface water) body and the protection of the environment and nature when a permit for water abstraction is issued (Interview).

Text Box: Use of extension in Odense Pilot River Basin Project

Rivers: In the Basin, there is about 240 km of culverted watercourse, which amounts to 25% of the watercourses (Environment Centre Odense 2007b). These watercourses have not been designated as HMWBs. However, most of these watercourses will be granted the extension provision: ‘due to environmental, technical and socio-economic considerations, it is not considered possible to plan and carry out measures to ensure good ecological status in these water bodies by 2015, and therefore for these water bodies, decisions on environmental objectives and associated measures for achieving them will thus be postponed until the next planning period’ (Environment Centre Odense report). The efforts will still be made, especially for those watercourses given high quality objectives, to reach a good status.

Lakes: Although no lakes in the Odense basin have been designated as HMWBs, some of the lakes which were previously provisionally designated as HMWBs are dried out. Some of these lakes have since been completely re-established. However, the pilot plan points out that it has not been decided if the rest of these dried-out lakes are to be re-established during the first planning period or in the next planning period, in the latter case making use of the extension provision (Environment Centre Odense Pilot Project Report).

Coastal Waters: As mentioned earlier, in total, 17 coastal water bodies have been designated as HMWBs. According to the pilot plan, GEP will be applicable to only five of these water bodies. For the remaining twelve water bodies (which are diked-in or drained areas), decisions on environmental objectives and associated measures for achieving them are to be postponed until the next planning period, due to the same reasons as the culverted watercourses (Environment Centre Odense Pilot Project report).
It is still rather unclear whether authorities will also take the objectives of the WFD into account when they issue permits for the discharge of waste into the water or for the abstraction of water for industrial, agricultural or drinking water purposes. To date, no proposal for a plan has been published, so the contents of the proposed plans is unknown (Questionnaire). Since the statutory order of 2006, the quality standards have been considered to be binding regarding the issuing of new permits for the discharge of pollutants. It should however be noted that this has no effect on the discharge of pollutants which are not subject to new permits. Moreover, this scheme seems to be only partly applied by the local councils (Questionnaire).

Nature and Water

Legal Establishment
The entering into force of the MML in 2003 harmonised the implementation of the WFD and the Birds and Habitat Directives. The MML integrates the adoption of water management plans and the adoption of management plans for the preservation and improvement of Natura 2000 sites.

Integration in Practice
At the time of transposition, these directives were under the responsibility of two different agencies: the Environmental Protection Agency, which dealt with the WFD and the Forest and Nature Agency, which took care of the Birds and Habitat Directives. Today, the three directives are under the responsibility of one agency, the Agency of Spatial and Environmental Planning. This was the result of the national administrative reform in 2007, which merged the Water Division (only) from the Environmental Protection Agency with some (but not all) divisions from the Forest and Nature Agency and the seven Environment Centres. Still, the management of the directives is separated at the national level, taken care of by different divisions within the Agency. The WFD (except for coastal waters) is taken care of by the Water Protection Division, whereas coastal waters and the Birds and Habitats Directives are taken care of by the Nature Division of the Agency for Spatial and Environmental Planning. True integration between nature and water management occurs in Denmark at the municipal level. In practice, this means that each municipality must develop a Municipal Action Plan consisting of measures it plans to implement in accordance with the Environment Centre’s river basin management plan(s) as well as the management plan(s) for Natura 2000. These two plans are prepared in parallel, and Environment Centres need to make sure that the plans are not in conflict. While some measures have positive effects concomitantly for the management of water and nature, the Ministry of

19 In Denmark 246 Natura 2000 plans are being prepared: one plan for each Natura 2000 area. Nine of these areas are situated within the River Basin Odense Fjord.
Environment has published a report indicating what should be handled under the WFD implementation process and what should be the measures for Natura 2000 sites. It is commonly understood that the WFD is providing the basis for the surface water quality on which the Natura 2000 objectives can be achieved (Interview). Through integrative implementation of these directives, conflicts between the directives appear to come to the surface earlier and solutions can be searched for sooner.

**Text Box: Natura 2000 and the WFD in Odense**

An example of a conflict between the WFD and Natura is the WFD-measure: ‘re-creation of wetlands and the re-establishment of natural hydrology in the river valley.’ This cost-effective WFD measure retains nutrients by re-creating the greater natural turnover of leached nutrients, and at the same time, reducing the physical pressures on rivers by allowing them to meander. This measure, however, means that Natura 2000 habitats adapted to the artificial hydrology (caused by drainage and regulation of river valley) experience local flooding and threaten the survival of some Natura 2000 species. In practice the conflict could be avoided because the re-creation of wetlands often leads to the possibility of re-creating new, similar Natura 2000 habitats to compensate for the flooded habitat (Interview).

There are seven Natura 2000 sites located in the Odense Basin, covering approximately 8,000 ha. In addition, three wetland habitat types are protected under the Nature Protection Act (Environment Centre Odense 2007b). The Fyn County Regional Plan for 2005-2013 has also designated areas of special scientific interest and specified quality objectives, and since the administrative reform, the plan has been accorded legal status through a National Planning Directive (Environment Centre Odense 2007b). The Odense pilot plan takes the Birds and Habitats Directives well into consideration. The plan stresses that the WFD permits for more stringent environmental objectives than a ‘good status’. The plan explicitly addresses in which cases a higher objective should be set (see Text Box below).

**Text Box: Case for more stringent objectives in Odense**

For example, if the water body already has a better than good status, if it has previously been assigned the highest quality objective in the Regional Plan, or if it has been designated as a Special Area of Conservation pursuant to the Habitats Directive, the goal is ‘high ecological status’. If a lake has been assigned as an ‘area of scientific interest’ (which includes all Natura 2000 sites) in the old Fyn County Regional Plan, then the high ecological status is also used as its objective. Therefore, by attempting to reach the high ecological status for these areas under the WFD obligations, the requirements for the Natura 2000 sites are met. It is believed that high ecological status will concomitantly ensure favourable conservation status. Out of the twelve main lakes, six have been given high ecological status as their environmental objective. For the coastal area, the northwest, outer part of the fjord has been designated as a reference area of scientific interest in the Regional Plan, and therefore this body also
Agriculture and Water

As has already been illustrated, the main discussion and concern in Denmark focuses on how to reduce the diffuse nitrates pollution from the agricultural sector. The Godtfredsen Committee’s report shows 22 measures to be applied for this purpose. Moreover, the Odense pilot plan shows that the majority of the implementation cost is allocated to measures in the agricultural sector. It is widely recognised that diffuse pollution is the biggest challenge for Denmark when implementing the WFD. In comparison, this problem dwarfs all others (Interview). In relation to this, it is also generally understood that the cost-effectiveness of measures is higher when addressing diffuse pollution from the agricultural sector as compared to other measures that address sewerage treatment, for example.

The agricultural sector has been involved in the WFD implementation process from the beginning. In fact, in cooperation with the Ministry of the Environment and the Ministry of Food, Agriculture and Fisheries, the two ministries organised the ‘Actors’ Group’ (a stakeholder group) in 2004 at the national level.

The main concern for the agricultural sector is the new Environmental Permit Law on Livestock Expansion20 which was enacted in January 2007. In principle, this new regulation makes it easier to issue permits to livestock farms for expansion. There has been a warning from the European Commission, questioning whether this new law is in compliance with the Directive on Environmental Impact Assessment (Interview). Environmental NGOs question why such a law has come out when the entire nation should be involved in implementing not only the WFD, but also the Nitrates Directive and the Habitats Directive.

However, there have been cases in which municipalities have interpreted the law in a much stricter manner, and were hesitant to issue permits. They are aware that they will soon have to implement the Municipal Action Plans to meet the objectives set by the Environment Centres in their RBMPs as well as the plans for the Natura 2000 sites. Issuing permits today might mean buying those permits back in the near future in order to be able to meet the objectives. This could be very expensive for the municipalities. In some cases, farms have been granted permits if the new modification or expansion would not increase pollution at all. How can municipalities do this? The law has its own standards to be used for permits, but also states that every case needs to be evaluated, and that for special cases more stringent rules may be applied. Municipalities often refer to the case of the Wadden Sea21 when refusing permits. It seems that Natura 2000 is

20 Lov om miljøgodkendelse m.v. af husdyrbrug.
21 Judgment of the court of 7 September 2004 in Case C-127/02. Directive 92/43/EEC – Dutch case. ‘The competent authority […] are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site.’
putting more pressure on municipalities to not issue permits easily than the WFD. The situation depends on the municipality and its politics.

In the first year, 2,300 applications were submitted and only 147 permits were issued (Interview). Another reason for this ‘deadlock’ or ‘standstill’, as perceived by the agricultural sector, was the lack of capacity in municipalities to suddenly having to process such an amount of applications.

**Action Plan for the Aquatic Environment (APAE I, II, III)**

Since the 1980s, these plans have contributed to reducing agricultural pressure on terrestrial natural habitats and the aquatic environment (see quick scan). The APAE III for the period 2005-2015 is closely related to the WFD as well as the Habitats Directive (APAE III 2004). This ten-year agreement period is set to harmonise with the WFD and Natura 2000 management planning cycle. The diffuse nitrogen runoff from agriculture into watercourses in the Odense basin has already decreased by 20% to 30% due to the APAE (Environment Centre Odense 2007b). Similarly, for the period up to 2015, the third APAE is expected to further reduce nitrogen loading of the aquatic environment by approximately 15%, and phosphorus surplus applied to fields by around 50% (Environment Centre Odense 2007b). The third phase of the APAE focuses on the agricultural sector.

Under this programme, some measures are based on voluntary action (combined with subsidies) such as the setting aside of farmlands. The objective was to set aside 30,000 ha of farmlands nation-wide as buffer-zones alongside rivers and lakes before 2009. What has been achieved so far is about 400 ha (Interview) (see quick scan). A further 20,000 ha is to be set aside by 2015 under the APAE III. A total of DKK 375 million was to be allocated between 2004-2009 for such initiatives. Other actions are more general and obligatory, including a tax on the mineral phosphorous in feed and, a tightening of regulations regarding late crops and requirements for utilisation of nitrogen in livestock manure, etc.

In Odense, the expected results derived from the APAE are fully incorporated into the 2015 baseline calculation. Since this programme is known for not achieving the voluntary objectives, there is speculation that the baseline for Odense might turn out to be too optimistic. The APAE III is being evaluated in 2008 and will be evaluated again in 2011. With the evaluation, it is possible to assess the effects of the efforts in relation to the objectives of the RBMPs as well as the Natura 2000 plans (APAE III 2004).

**AGWAPLAN**

In 2005, the Danish Agriculture Advisory Group initiated the AGWAPLAN (http://www.agwaplan.dk/agwaplan.htm), a 2 million euros EU-funded LIFE project. Twenty-three farmers in Aarhus and the Environment Centre Aarhus were involved in the initiative. This pilot project was to demonstrate how the environmental objectives of
the WFD for N and P in surface and groundwater could be reached in farming areas via the voluntary implementation of good agricultural practices (GAP) by farmers. The AGWAPLAN was initiated by the Danish Agriculture Advisory Group because they had seen that the Odense pilot project was very much a top-down process, and they wanted to take an approach that was from the perspective of farmers. It sought to investigate what could be done by farmers to meet the challenges of the WFD, and concentrated efforts on vulnerable zones, avoiding the use of general regulations and improving cost effectiveness.

There is a general acceptance by all parties that there should be measures to reduce diffuse pollution from the agricultural sector. Some have the opinion that to address the sector, farmers will have to be compensated, and that paying farmers will be the only way to achieve success with the WFD, since making farmers pay for their pollution would be out of the political discussion (Interviews).

**Spatial Planning and Water**

**Legal Establishment**

Because the MML (which is the foundation of the RBMP) is legally superior, the regional development plans and the municipal spatial plans have to follow the requirements in the RBMPs. New permits must respect the RBMPs (Interview).

**Integration in practice**

Spatial planning is also under the responsibility of the municipalities. As mentioned earlier, spatial planning must respect the RBMPs (or the sub-basin plans respectively) and the Natura 2000 management plans. However, in practice it is difficult to speculate to what extent this will be the case. Municipalities usually place the top priority on issues such as unemployment and urban development, and they are not used to taking this degree of responsibility for water and nature.

The three largest Environment Centres take care of the national interest in municipal planning, such as city development, industry, landscape, nature and recreation. These Environment Centres issue permits for spatial planning, taking over the tasks for the smaller centres which also issue permits for industries. To avoid confusion, all seven Environment Centres are dealing with RBMPs and Natura 2000 management plans.

**Sewage Treatment and Water**

**Legal Establishment**

According to the Environmental Protection Act, the municipal wastewater plan shall be consistent with the RBMP. This provision will enter into force when the final RBMPs will be published by 22 December 2009 (Environmental Protection Act, Section 32, Paragraph 7.2 and accompanying notes 5 and 25).
The municipal wastewater plan lays down rules for the overall treatment and discharge within the municipality, including plans for the establishment and maintenance of sewer systems, deadlines etc. The authorities shall act in accordance with the waste water plan in their administration, i.e. when granting discharge permits to citizens or companies or municipal wastewater treatment plants etc. (Interview).

Integration in Practice

Sewage treatment is also under the responsibility of the municipalities. It is, however, not considered to be a big problem. The Danish municipal wastewater treatment plants are quite advanced, and therefore removing even more nutrients from the sewage plants is very expensive. About 10% of the population in Odense lives in sparsely built-up areas outside the sewerage system. The Odense pilot management plan includes measures for those areas, even though the cost is relatively high.

4.9 Conclusion

The overall definition of the goals is set at the central level by the Ministry of the Environment. Specific objectives for individual water bodies are set by the Environment Centres. As soon as the intercalibration work is formally published, a statutory order will make sure that the overall definition of the goals is legally binding. Until then, Denmark uses objectives that were derived by the Counties somewhat earlier for the Counties’ Regional Plans. Environment Centres also define their environmental objectives based on those objectives.

Although Environment Centres play a major role in setting the environmental objectives and designing the programme of measures, the municipalities are responsible for the implementation of the measures to meet the WFD objectives through their Municipal Action Plans and to ensure the goals set in the sub-basin plans are achieved. Since the administrative reform, municipalities receive considerably more responsibilities in the WFD implementation process. However, their role and capacity is still under discussion. On the one hand, it is still unclear to what extent the Environment Centres’ sub-basin plans allow for local discretion by the municipalities in reaching the goals set by the Environment Centres. On the other hand, it is also not clear whether municipalities’ powers in existing legislation are sufficient or if additional powers are needed (Interview) to successfully implement necessary measures.

The focus is on impact by diffuse pollution from agriculture. The measures that are considered most cost-effective in Denmark predominantly focus on reducing diffuse pollution from the agricultural sector. The municipalities are likely to enforce those measures through the Municipal Action Plans. It is not yet clear if the municipalities receive more legal power in order to execute some of the measures. In any case, the agricultural sector is concerned about the possible introduction of general obligatory
rules without compensations and is eager to be involved in the process. It even initiated its own pilot project in the form of the AGWAPLAN. Another possible reason for a rather active attitude by the sector in the WFD implementation process could be that the sector speculates that it will receive generous subsidies from the government. They do understand that something has to be done sooner or later, and if the sector is to be affected, it is better to be compensated.

Apart from the focus on diffuse pollution from agriculture in implementing the WFD, the integration of nature and water management in Denmark has been clearly established under the framework of *Miljømålsloven*. The national government as well as the Environment Centre Odense realises the synergetic outcome in implementing those related directives (WFD, Habitat and Birds) simultaneously.

Ambitions at the Environment Centre Odense’s pilot project are rather high. This is most probably due to the fact that the draft management plan for the Odense basin has been drawn up as an EU pilot project to see if the WFD was technically implementable at all. At the same time, it was also pointed out that the Fyn Region, being responsible at the beginning for this project, had a rather green government. The Environment Centres also do not receive an indication for a concrete budget with which the WFD has to be implemented. Answers to the questions of ‘how much’ and ‘by whom’ will only become clear at the last moment. Meanwhile, the Environment Centre Odense has demonstrated that the cost involved in the implementation of the supplementary measures is not outrageously high. How this will be perceived by the politic is still unknown.

One point to mention is that in the Odense pilot project the use of extension has been popular for water bodies that have characteristics of hydromorphological changes which are destined to meet the good ecological status in the future, but not at the moment. Instead of designating water bodies with high hydromorphological changes as HMWB and set GEP instead of GES, the preliminary Environment Centre Odense designates such water bodies as natural with the intention to bring the status back to good status. The extension clause is then used to postpone not only the achievement of the good status but the actions to attain such status altogether.

*References*


Questionnaire Denmark: A response to written questions by Peter Pagh, professor of Environmental Law at the University of Copenhagen.

**Interviewees**

Jens Thygesen, Danish Society for Angling, 8 September 2008, Vejle

Hans Roust Thyssen, Danish Agricultural Advisory Service, 9 September 2008, Århus

Harley Bundgaard Madsen, Environment Centre Odense, 10 September 2008, Odense

Stig Eggert Pedersen, Environment Centre Odense, 10 September 2008, Odense

Thorben E. Jørgensen, Odense Municipality, 10 September 2008, Odense

Henning Mørk Jørgensen, Danish Society for Nature Conservation, 11 September 2008, Copenhagen

Henning Karup, Agency for Spatial and Environmental Planning, Ministry of Environment, 11 September 2008, Copenhagen

Steen Pedersen, Agency for Spatial and Environmental Planning, Ministry of Environment, 11 September 2008, Copenhagen
Appendix 1: Risk Analysis WFD Implementation in Odense Pilot River Basin Project
<table>
<thead>
<tr>
<th>Water body type</th>
<th>Water bodies at risk (% of number)</th>
<th>Reason for lack of compliance with objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watercourses</td>
<td>&gt;90%</td>
<td>Physical pressures (regulation and curving of watercourses, watercourse maintenance and drainage of river valleys for agricultural purposes, obstructions to the free passage of fauna)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wastewater discharges (stormwater outfalls, sparsely built-up areas)</td>
</tr>
<tr>
<td>Lakes</td>
<td>88%</td>
<td>Nutrient loading, especially from agriculture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nutrient release from nutrients accumulated in lake sediment</td>
</tr>
<tr>
<td>Coastal waters</td>
<td>100%</td>
<td>Nutrient loading, especially from agriculture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wastewater discharges, especially from sparsely built-up areas and stormwater outfalls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hazardous substances from households, industry and shipping, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physical pressures, for example from dredging of shipping fairways, raw materials extraction, fishery and marine dumping of harbour sediments</td>
</tr>
<tr>
<td>Groundwater</td>
<td>92%</td>
<td>Nitrates loading from agriculture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hazardous substances that leach from former industrial sites, etc. or in connection with pesticide use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pressure from overexploitation of the water resource (reduced water flow in watercourses and through lakes, drying-out of wetlands and intrusion of salt water, etc.)</td>
</tr>
<tr>
<td>Wetlands</td>
<td>(% of area)</td>
<td>Reduced area, fragmentation of terrestrial ecosystems and drying-out (lowering of the groundwater table) of wetlands due to draining, land reclamation and water abstraction</td>
</tr>
<tr>
<td>Coastal meadows</td>
<td></td>
<td>Nutrient loading, especially from agriculture, in particular atmospheric deposition of ammonia nitrogen</td>
</tr>
<tr>
<td>Freshwater meadows</td>
<td></td>
<td>Pesticide loading</td>
</tr>
<tr>
<td>Mines</td>
<td>30–70%</td>
<td>Overgrowth of habitats due to the lack of natural grazers</td>
</tr>
<tr>
<td></td>
<td>&gt;50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;75%</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Environment Centre Odense 2007a)
Appendix 2: Baseline 2015 in Odense Pilot River Basin Project

Table 6.3  Baseline 2015 – Assumptions

<table>
<thead>
<tr>
<th>Initiated measures and assumptions</th>
<th>Dose</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Nitrogen</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Change in wastewater discharge to water bodies (tonnes/yr)</td>
</tr>
<tr>
<td>Diffuse nutrient and pesticide loading – agriculture (Total cultivated land in the river basin: 68,421 ha)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action Plan on the Aquatic Environment III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catch crops; increased area</td>
<td>3,216 ha</td>
<td>47</td>
</tr>
<tr>
<td>5% higher utilization of the N content of manure</td>
<td>68,421 ha</td>
<td>29</td>
</tr>
<tr>
<td>EU Agricultural Reform (CAP) + improved utilization of the N content of manure</td>
<td>68,421 ha</td>
<td>5</td>
</tr>
<tr>
<td>Structural development (reduction in area relative to 2007)</td>
<td>2,624 ha</td>
<td>40</td>
</tr>
<tr>
<td>Agri-environmental measures – buffer zones and wetlands</td>
<td>90 ha</td>
<td>8</td>
</tr>
<tr>
<td>Sale/sale of land for reforestation (preferred)</td>
<td>680 ha</td>
<td>6</td>
</tr>
<tr>
<td>Sale/sale of land for wetlands (AP &amp; E III)</td>
<td>600 ha</td>
<td>15</td>
</tr>
<tr>
<td>Gathering Forests – reduced airborne nitrogen emissions</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reduced N emission from agriculture, power stations, traffic, etc.</td>
<td>Whole DK</td>
<td>0</td>
</tr>
<tr>
<td>Livestock production – progress 2004-2015</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>50% increase in production (pigs) by Danish Agricultural</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reduction of pressure from point sources</td>
<td>4,291 properties</td>
<td>5</td>
</tr>
<tr>
<td>Sparsely built-up areas – improved wastewater treatment</td>
<td>10 WWTPs</td>
<td>2</td>
</tr>
<tr>
<td>Wastewater treatment plants – improved wastewater treatment through optimization of operation</td>
<td>10 WWTPs</td>
<td>2</td>
</tr>
<tr>
<td>Stormwater outfalls – overflow pipes at outfalls from combined sewage systems</td>
<td>131 localities</td>
<td>5</td>
</tr>
<tr>
<td>Stormwater outfalls – overflow pipes at outfalls from separate sewage systems in lake catchments</td>
<td>4 localities</td>
<td>-1</td>
</tr>
<tr>
<td>Dredged waste depositary – Slibo G 5. Remedial measures to protect Odense Fjord</td>
<td>1 locality</td>
<td>50</td>
</tr>
<tr>
<td>Enterprises – Pyramidal Cr-P Plant. Reduction of phosphorus from cooling water discharge by re-mixing the River Oddeni, etc.</td>
<td>1 locality</td>
<td>3</td>
</tr>
<tr>
<td>Contaminated sites – remediation</td>
<td>107 localities</td>
<td>10</td>
</tr>
<tr>
<td>COMBINED EFFECT AND COST</td>
<td>350</td>
<td>5</td>
</tr>
</tbody>
</table>

*Upland farming is defined as farming lying more than one metre above the normal high water level in the adjacent watercourse onto which the runoff takes place.

(Source: Environment Centre Odense 2007b)
## Appendix 3: Supplementary Measures in Odense Pilot River Basin Project

### Table 6.4

<table>
<thead>
<tr>
<th>Measure</th>
<th>Effects</th>
<th>Economic cost (DKK 1,000)</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WFD Programme of Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cost-effective dosing of measures to meet the environmental objectives for water bodies and terrestrial natural habitats in Odense River Basin</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measure</strong></td>
<td><strong>Nitrogen</strong></td>
<td><strong>Phosphorus</strong></td>
<td><strong>Reduced physical pressure</strong></td>
</tr>
<tr>
<td><strong>Effects</strong></td>
<td><strong>Change in discharge to riverbeds (tonnes)</strong></td>
<td><strong>Change in discharge to riverbeds (tonnes)</strong></td>
<td><strong>Reduction by 10%</strong></td>
</tr>
<tr>
<td><strong>Appendix 3: Supplementary Measures in Odense Pilot River Basin Project</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1. Cotton crops: Increased area</strong></td>
<td>11.100</td>
<td>115</td>
<td>0</td>
</tr>
<tr>
<td><strong>2. Additional 5% increased utilization of the N content of manure</strong></td>
<td>41.150</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td><strong>3. P fertilization regulation. Difference between applied and removed phosphorus of field level</strong></td>
<td>38.720</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td><strong>4. P fertilization regulation. Reduction of P fertilization of cereal with high P index (20% of all land)</strong></td>
<td>35.100</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td><strong>Appendix 3: Supplementary Measures in Odense Pilot River Basin Project</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5. Cotton crops: Increased area</strong></td>
<td>6.450</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td><strong>6. Additional 5% increased utilization of the N content of manure</strong></td>
<td>12.115</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td><strong>7. Reduced N fertilization norm (-15%)</strong></td>
<td>12.059</td>
<td>92</td>
<td>0</td>
</tr>
<tr>
<td><strong>8. P fertilization regulation. Difference between applied and removed phosphorus of field level</strong></td>
<td>2.760</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td><strong>9. P fertilization regulation. Reduction of P fertilization of cereal with a high P index (20% of all land)</strong></td>
<td>3.214</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td><strong>Appendix 3: Supplementary Measures in Odense Pilot River Basin Project</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11. Land for afforestation (established)</strong></td>
<td>6.529</td>
<td>3</td>
<td>0.153</td>
</tr>
<tr>
<td><strong>14. Permanent grassland</strong></td>
<td>2.564</td>
<td>3</td>
<td>0.083</td>
</tr>
<tr>
<td><strong>12. Restrictions on cultivation of land potentially subject to erosion</strong></td>
<td>2.209</td>
<td>2</td>
<td>0.267</td>
</tr>
<tr>
<td><strong>Appendix 3: Supplementary Measures in Odense Pilot River Basin Project</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>13. Land for afforestation (established)</strong></td>
<td>3.165</td>
<td>3</td>
<td>0.183</td>
</tr>
<tr>
<td><strong>14. Permanent grassland</strong></td>
<td>2.514</td>
<td>6</td>
<td>0.130</td>
</tr>
<tr>
<td><strong>15. 5 m buffer zones along watercourses in lake catchments</strong></td>
<td>1.75</td>
<td>3</td>
<td>0.17</td>
</tr>
<tr>
<td><strong>16. 10 m buffer zones around ponds in lake catchments</strong></td>
<td>2.66</td>
<td>3</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>Appendix 3: Supplementary Measures in Odense Pilot River Basin Project</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spillway protection measures</strong></td>
<td>4.504</td>
<td>4</td>
<td>0.206</td>
</tr>
<tr>
<td><strong>17. Spillway protection measures</strong></td>
<td>2.906</td>
<td>2</td>
<td>0.100</td>
</tr>
<tr>
<td><strong>18. Reduced flow of catchment of humus from water supply wells (100 m zone - water treatment)</strong>*</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Reduction of physical pressure on watercourses</strong></td>
<td>5.90</td>
<td>5</td>
<td>0.20</td>
</tr>
<tr>
<td><strong>20. Catchment of watercourse maintenance combined with sedimentation removal in their valley through the establishment of 55, 150 and 50 m watercourse zones along the small medium and large subwatersheds (and re-establishment of floodplains corresponding to riverside or countryside 13)</strong></td>
<td>2.055</td>
<td>2.60</td>
<td>3</td>
</tr>
<tr>
<td><strong>21. Landspreading of substances, buying out of spreading grain, straw, etc.</strong></td>
<td>2.055</td>
<td>2</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>Reduction of pressure from point sources</strong></td>
<td>2.055</td>
<td>2</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>22. Spillway protection measures</strong></td>
<td>1.516</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td><strong>23. Polyester treatment plants - improved watercourse treatment</strong></td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>24. Spillway protection measures</strong></td>
<td>2.906</td>
<td>2</td>
<td>0.100</td>
</tr>
<tr>
<td><strong>Special measures - terrestrial natural habitats</strong></td>
<td>5.90</td>
<td>5</td>
<td>0.20</td>
</tr>
<tr>
<td><strong>24. New beneficial natural habitats (coastal meadows, riparian meadows and ditches)</strong></td>
<td>5.90</td>
<td>5</td>
<td>0.20</td>
</tr>
<tr>
<td><strong>25. Reduced ammno nitrogen emissions from livestock holdings (51 LCF)</strong></td>
<td>0.90</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>26. Nitrogen management - grazing down, haymaking etc. on present semi-natural habitats</strong></td>
<td>0.90</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>27. Nitrogen management - grazing down, haymaking etc. on present semi-natural habitats</strong></td>
<td>0.90</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>28. Improved hydrological conditions (dewatering of drainage ditches)</strong></td>
<td>0.90</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

*Upstream flow is defined as fluvial flow being more than one metre above the normal high water level in the adjacent watercourse that is the cutoff level plane.*

**L.C.F. Livestock Unit:** L.C.F. = the quantity of livestock (milk, milking, etc.) measured in tonnes of feed, e.g. 1 Jersey cow, 25 slaughter pigs, etc.
Appendix 4: Godtfredsen Committee List of Measures

The definitive list of the seven most cost-effective measures for reducing diffuse N and P pollution related to the agricultural sector recommended by the Godtfredsen Committee for implementing the WFD in Denmark are: numbers 1, 2, 7 and 14 in particular, and in addition numbers 19, 9, 13 (and partially number 3). However, no decision has been made in terms of the application of these measures.

<table>
<thead>
<tr>
<th>Changed farming methods</th>
<th>Primary effect</th>
<th>N-emission</th>
<th>P-emission</th>
<th>Financial cost</th>
<th>Economic cost</th>
<th>Welfare economic cost per unit of primary effect</th>
<th>Climate gases</th>
<th>Ammonia</th>
<th>Pesticides</th>
<th>Biodiversity and landscape</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conversion of extensive cattle production to organic production methods</td>
<td>N</td>
<td>6-41 kg/ha</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>2. Ammonia fertilisers in stead of NO₃</td>
<td>N</td>
<td>6-8 kg/ha</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3. Catch crops – current practice</td>
<td>N</td>
<td>12-15 kg/ha</td>
<td>-</td>
<td>300-600 DKK/ha</td>
<td>368-722 DKK/ha</td>
<td>7-64 DKK/kg N</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Optimised use of catch crops</td>
<td>P</td>
<td>20-45 kg/ha</td>
<td>-</td>
<td>315-700 DKK/ha</td>
<td>398-820 DKK/ha</td>
<td>4.41 DKK/kg N</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5. Demand for injection of manure from harvest to April 1, b.</td>
<td>P</td>
<td>a. 6-8 kg N/ha</td>
<td>a. 0.01-0.125</td>
<td>b. 25-75</td>
<td>DKK/kg</td>
<td>b. 4.41 DKK/kg N</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>No till or plowing from harvest to April 1</td>
<td>N</td>
<td>10-35 kg/ha</td>
<td>b. 0.025-0.250</td>
<td>DKK/kg</td>
<td>DKK/ha</td>
<td>DKK/kg N</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6. Reduced N-application by 80%</td>
<td>N</td>
<td>3-6 kg/ha</td>
<td>-</td>
<td>87-191 DKK/ha</td>
<td>120-236 DKK/ha</td>
<td>2.4-82 DKK/kg N</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>7. Harvest of hay in stead of permanent grass</td>
<td>N</td>
<td>26-100 kg/ha</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>(pure mowing)</td>
<td>N</td>
<td>13-64 kg/ha</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>8. Reduced N-application to pastures</td>
<td>N</td>
<td>16-77 kg/ha</td>
<td>-</td>
<td>205-1 575</td>
<td>345-1 580</td>
<td>4.76 DKK/kg N</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>(chore grass)</td>
<td>N</td>
<td>20-85 kg/ha</td>
<td>-</td>
<td>205-1 575</td>
<td>345-1 580</td>
<td>4.76 DKK/kg N</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>(pure grass)</td>
<td>N</td>
<td>55-110 kg/ha</td>
<td>-</td>
<td>415 DKK/ha</td>
<td>485 DKK/ha</td>
<td>2.4 DKK/kg N</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>9. Catch crops in two years after plowing of permanent pastures</td>
<td>N</td>
<td>5-7 kg/ha</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10. Early sowing of winter crops</td>
<td>N</td>
<td>12-25 kg/ha</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11. Only winter crops and under sowing of catch crops on fields with high risk of soil erosion</td>
<td>P</td>
<td>12-35 kg/ha</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12. Reduced P-application</td>
<td>P</td>
<td>25-60 DKK/ha</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>13. Fertilisers in stead of manure</td>
<td>N</td>
<td>24-28 kg N/ha</td>
<td>0.01-0.1 kg</td>
<td>200-250 DKK/ha</td>
<td>250-500 DKK/ha</td>
<td>8-12 DKK/kg N</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Table 8: continued</td>
<td>Primary effect</td>
<td>N-emission</td>
<td>P-emission</td>
<td>Financial economic cost</td>
<td>Welfare economic cost</td>
<td>Welfare economic cost per unit of primary effect</td>
<td>Climate gases</td>
<td>Ammonia</td>
<td>Pesticides</td>
<td>Biodiversity and landscape</td>
</tr>
<tr>
<td>-------------------</td>
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<td>------------</td>
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<td>-------------------------</td>
<td>----------------------</td>
<td>-----------------------------------------------</td>
<td>--------------</td>
<td>---------</td>
<td>-----------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Change in land use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Permanent energy crops on land in rotation</td>
<td>N/P</td>
<td>30-55 kg/ha</td>
<td>0.002-0.1/100 kg/ha</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+/−</td>
</tr>
<tr>
<td>15. Permanent grassland on with high risk of soil erosion</td>
<td>P</td>
<td>26-66 kg/ha</td>
<td>0.06-0.250 kg/ha</td>
<td>1.20-2.800 DKK/ha</td>
<td>3.60-6.800 DKK/ha</td>
<td>14.400-113.000 DKK/kg P</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>16. Buffer zones with permanent grassland adjacent to lakes and streams</td>
<td>P</td>
<td>26-66 kg/ha</td>
<td>1-3 kg/ha</td>
<td>1.900-2.600 DKK/ha</td>
<td>3.60-6.800 DKK/ha</td>
<td>120-600 DKK/ha</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>17. Permanent grassland on high lying fields</td>
<td>N</td>
<td>26-66 kg/ha</td>
<td>0.06-0.250 kg/ha</td>
<td>1.20-2.800 DKK/ha</td>
<td>3.60-6.800 DKK/ha</td>
<td>54-262 DKK/kg N</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>18. Afforestation of agricultural land</td>
<td>N</td>
<td>30-70 kg/ha</td>
<td>?</td>
<td>2.140-3.880 DKK/ha</td>
<td>2.560-6.040 DKK/ha</td>
<td>36-139 DKK/kg N</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+/−</td>
</tr>
<tr>
<td>19. Permanent pastures or grassland in river valleys</td>
<td>N/P</td>
<td>100-150 kg/ha</td>
<td>10-30 kg/ha</td>
<td>590-1.100 DKK/ha</td>
<td>900-1.700 DKK/ha</td>
<td>6-17 DKK/kg N</td>
<td>(+)</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

| Technical measures |
|-------------------|---------------|------------|------------|-------------------------|----------------------|-----------------------------------------------|--------------|---------|-----------|---------------------------|
| 20. Incineration of livestock manure | P | 0.7-6.3 kg/ha | Case dependent | Case dependent | Case dependent | Case dependent | + | (+) | + |
| 21. Stop dredging of streams | Changes physical conditions | 10-45 kg/ha | 10-30 kg/ha | 590-1.100 DKK/ha | 900-1.700 DKK/ha | Excl. saved costs dredging | (+) | (+) | + |
| 22. Restoration of streams | Changes physical conditions | 10-45 kg/ha | 10-30 kg/ha | ? | ? | (+) | (+) | + |

NB: Derived environmental effects are indicated with an ∗ (positive effect) and ∗∗ (negative effect).

The effect on P relates to the number of hectares occasionally flooded.

The effect on P relates to the number of hectares occasionally flooded.

Source: (Schou, Kronvang et al. 2007)
CHAPTER 5  THE IMPLEMENTATION OF THE WFD IN FRANCE
Loire-Brittany River Basin District and its sub-basin, the Baie de St Brieuc

M. Bourblanc, A.M. Keessen, J.J.H. van Kempen

5.1  Introduction

Characteristics of the River Basin District Loire-Brittany and the Baie de St Brieuc sub-basin

In this case study we will focus on the WFD implementation process in the River Basin District Loire-Brittany, and particularly on one of its sub-basins, the Baie de St Brieuc (see Map 1).

The Baie de St Brieuc basin has an area of approximately 1,100 km², and a population of 196,500. The municipality of St Brieuc is home to 25% of the permanent population living in the bay. The river basin is mainly used for the cultivation of agricultural lands (72%) and grasslands (10% of the SAGE territory). These grasslands are located mainly in the upper stream zone of the river basin. Livestock farming is very significant in the area (800,000 pigs, 8,000,000 poultry and 71,000 cows). The problem of impermeability of the ground is crucial (approximately 9% of the total surface).
Map 2: Location of the Baie de St Brieuc within the River Basin District Loire-Brittany

Water quality is threatened by high concentrations of nitrates and pesticides. It seems that Brittany is not very advanced as far as nitrates related to drinking water is concerned. People consider that they are almost ‘there’, that they just need to continue on the same track and all the efforts invested in the last ten years in Brittany will pay off. For them, the nitrate problem is almost solved, it is now only a question of time (Interviews). However, for parameters like eutrophication and green seaweed, nitrogen discharge in agricultural areas seems to be very problematic.

The high concentration of nitrates and pesticides challenges the region to provide an acceptable level of quality for drinking water. Since drinking water facilities are very small (serving only one or several communities) there is a lack of sophisticated purification installations to clean surface or ground water to permissible quality for drinking water. In addition, there may be a problem of quantity, both for ground water and surface water. If the water flow becomes too low, then the temperature of the artificial lake that is used as a source for drinking water production becomes too high, and consequently unfit for consumption due to bacteriological problems and algae growth. Some drinking water facilities in this sub-basin will have to be closed because they cannot meet the 50 mg/l nitrate norm.

In the Baie de St Brieuc, the quality of coastal waters is especially at risk. The problem here is the ecological quality. The quality is obviously endangered because green seaweed appears
on many beaches during the summer, to the detriment of the tourism sector. The green seaweed is caused by nitrates, the concentration of which is far too high, especially since the nitrate objective of a maximum of 50 mg/l which was set for drinking water is actually too high for ecological purposes. Although the green seaweed may be seen as the main problem here, local public authorities would like to consider it in a more positive way, i.e. that the seaweed is consuming the surplus of nitrate in the water (Interview). Their viewpoint cannot be supported, however, since the SDAGE, in accordance with the WFD, has identified green seaweed as a problem, and since the decrease of the seaweed has been set as an environmental objective. There is controversy at the local level about the toxicity of this seaweed for humans.

Other problems relating to the quality of coastal waters is the bacteriological quality of the water and micro-pollution. The mussel harvest in Brittany (10% of the French production) is below standard when the bacteriological quality of the water is too low, which affects up to 30% of the mussels harvested each year in Brittany. Above all, in the Baie de St Brieuc, Natura 2000 wetlands require protection and function as buffer zones. Their protection, coupled with correct land use, could lead to the improvement of coastal waters. Yet wetlands are still being destroyed, because spatial planning for urbanisation development is not used to meet these objectives as well.

The ecological quality of rivers is also at risk, first of all by artificial modifications such as dams. These dams are used for generating electricity, for protecting coastal villages from flooding, for roads or railways or for the commercial activity of a harbour. These dams usually lack fish ladders and bypasses to allow fish to travel up and down the river. Therefore, rivers have a problem of continuity of fish migration for salmon and alewife.

In sum, in Brittany, green seaweed on beaches seems to be the main problem. Partially linked to this, the discharge of phosphorous is also of major concern. Finally, since the morphological state of the rivers has been taken as an indicator for a good biological status of waters, some members of the Water Agency are concerned that this criterion could be extremely constraining in the French context (Interview).

River Basin Management and its coordination

The French water planning system is comprised of two levels: the master scheme (Schéma Directeur d’Aménagement et de gestion de l’eau, hereinafter referred to as SDAGE) at the River Basin District level and the scheme at the sub-basin level (Schéma d’Aménagement et de gestion de l’eau, hereinafter referred to as SAGE). There are six SDAGE schemes for the whole country, one for each river basin committee (water parliament) linked to the local water agency (agence de l’eau). A new SDAGE had to be adopted in order to apply the WFD. The SDAGE provides fundamental guidelines for each drainage basin or group of drainage basins and functions as a RBMP (Article L.212-1 CE). The SAGE applies the general objectives of the SDAGE to either a specific group of underground drainage basins or to an underground drainage basin that corresponds to a particular hydrographical area or aquifer system (Article L. 212-3 CE).

22 Ouest France, 07/17/2008 (regional daily newspaper).
The headquarters of the basin authorities (the Water Agency and the River Basin Committee of the RBD Loire-Brittany) is situated in Orléans. For the WFD implementation process, the RBD management task of the Water Agency Loire-Brittany is supported by six regional offices/committees (commissions géographiques). The Brittany Regional Committee (commission géographique Vilaine et côtiers bretons) is most relevant in this case study, as our focus is on the sub-basin Baie de St Brieuc, which is situated within the Brittany Region. The Brittany Regional Committee’s area of responsibility corresponds more or less to the border (administrative and political) of the region and not to the water systems, even though there is no specific link between the members of this regional office and the administrative or political elite of the regional government.

There are 64 municipalities within the sub-basin Baie de St Brieuc. The SAGE Baie de St Brieuc respects the boundaries of all of the 64 municipalities which are gathered into an inter-municipality cooperation structure called the Pays de St Brieuc. The Pays de St Brieuc prepares the SAGE Baie de St Brieuc (see Map 3).

5.2 Goal-Setting Process

Designation of Water Bodies

Legal Establishment

According to Article R 212-11 (I) CE, the designation of water bodies as artificial or heavily modified should take place in the RBMPs. As described in Chapter 2, the river basin committee adopts the RBMPs and the river basin coordinator approves them (Article R 213-4 CE). Consequently, these authorities formally designate water bodies. Article R 212-11 (II) CE lays down the criteria for a water body to be designated as artificial or heavily modified. These criteria are the same as the ones mentioned in Article 4 (3) WFD (Dobrenko B. and Sironneau J. 2008).

Designation in Practice

After public consultation, the prefect classifies watercourses by administrative decision. Concerning the status of water bodies, a temporary water quality diagnosis (état des lieux) was completed in late 2004 in all the river basin committees (performed mostly by technicians from the Water Agency). Following that, some water bodies were classified as being most likely to be designated as highly modified. This has to be confirmed with the new SDAGE, however, since the definition of what good ecological status means has been redefined. A re-evaluation of the designation will intervene each time the SDAGE is renewed.

In the Loire-Brittany River Basin District, there are about 190 water bodies pre-classified as HMWB and 29 pre-classified as AWB. In total, about 11% of surface water bodies are classified preliminarily as HMWBs and AWBs in the Basin District.

<table>
<thead>
<tr>
<th>Water Bodies</th>
<th>Total</th>
<th>HMWB</th>
<th>AWB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface water bodies</td>
<td>Watercourses</td>
<td>1752</td>
<td>62</td>
</tr>
</tbody>
</table>
Setting Formal Standards

General Environmental Goal of Good Status

The CE contains the principles by which to achieve good chemical, ecological and quantitative status or potential (Article L. 212-1-IV CE). The deadline of 22 December 2015 (with the possibility of exemptions) is also transposed (Article 4 of Law 2004-338 & Article L. 212-1-IV CE). The definition of good status and the setting of reference conditions are done in circulaire 2005-12. This circulaire functions as a framework for the drafting of the plans and is to be executed by the prefects.

In French administrative law, a circulaire does not create binding rules and has only internal effects. It is an instrument through which an administrative authority can give instructions to its agents (Questionnaire France). Since a circulaire is the expression of an administrative hierarchical authority, civil servants tend to obey it. However, since a circulaire is not a regulatory act, citizens cannot revoke it. It is true that such a circulaire does not apply to them directly, nevertheless civil servants who take regulatory measures that apply to citizens directly do use these circulaires in order to justify their regulation. Consequently, in our case study, the norms and standards set by this circulaire have been respected in other policy documents, the SDAGE in particular.

Specific Environmental Goals

The SDAGE determines the concrete quality and quantity objectives; these should correspond to a good status (Article 4 of Law 2004-338 and Article L. 212-1-IV CE). The Minister of Environment lays down specific quality standards in a departmental order (arrêté du ministre). The SDAGE should take these norms into account (Article 212-9 CE). Good chemical status in the SDAGE means that the concentrations of pollutants do not exceed the norms mentioned in this departmental order (Article R212-12 CE).

The CE provides that when a local water committee elaborates a SDAGE into a SAGE, it has to ensure that the SAGE is compatible with the global orientation and the objectives of quality and quantity defined by the SDAGE (Article L.212-3 CE). The wording of the CE

\[\text{Table 3: Preliminary designation of water bodies in River Basin District Loire-Brittany}\]

<table>
<thead>
<tr>
<th></th>
<th>Lakes</th>
<th>Transitional water bodies</th>
<th>TOTAL surface water bodies</th>
<th>Ground water bodies</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>143</td>
<td>69</td>
<td>1964</td>
<td>179</td>
<td>2143</td>
</tr>
<tr>
<td></td>
<td>121</td>
<td>7</td>
<td>190 (9.7%)</td>
<td>0</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>0</td>
<td>29 (1.5%)</td>
<td>0</td>
<td>29</td>
</tr>
</tbody>
</table>

24 The préfets coordinateurs de basin, the préfets de région and the préfets de département.
25 Or a good ecological potential in case of HMWBs or artificial water bodies.
suggests that the SAGE specifies which objectives have to be met for specific water courses, but it is possible that the SDAGE sets the objectives for small water courses.

**Type of obligations**

The obligations in Article 4 of the WFD are transposed into French law as obligations of result (Questionnaire France). They ‘must be reached at 22 December 2015 at the latest’ (doivent être atteints au plus tard le 22 décembre 2015, Article L212-1.V CE).

The specific goals are formulated as intervention values. The goals set in the departmental order will probably be used as intervention values, although the texts leave some uncertainty regarding the effective implementation thereof (Questionnaire France).

As far as the rationale behind this legal qualification of environmental goals is concerned, it should be noted that France was recently condemned for not meeting the quality objectives of the Drinking Water Directive, inter alia in Brittany (Judgment of 31 January 2008, Case C-147/07 Commission v France). The judgment and the fear of another judgment in which a penalty payment and a fine may be imposed for a failure to meet the European water quality objectives, seems to contribute to the implementation of the obligations of the WFD as obligations of result. On the other hand, it may also lead to the invocation of exemptions for water courses where it seems impossible to achieve good status in 2015.

### 5.3 The Planning Process

The objectives of the SDAGE are further elaborated in the sub-river basin management plan (SAGE) for areas where measures need to be taken. The SAGE contains the programme of measures by which to achieve the objectives of the SDAGE. It is possible that the SAGE contains objectives that are different from those laid down in the SDAGE, as long as they remain compatible and respect the other objectives, (e.g. those for swimming and drinking water) (Verot 2003). However, only more stringent objectives are permitted.

On a practical and procedural level, environmental objectives stem from two documents that will be merged into a single document by 2009:

- **SDAGE**: A new SDAGE was voted on in 2007 by the river basin committees in the six different river basin districts in France. For Loire-Brittany, it was done in Orléans, where the Water Agency and the River Basin Committee are located. The SDAGE sets high ambitions for a river basin district. The Loire-Brittany SDAGE has completed a public consultation period.

- **The programme of measures (programme de mesures)**: A document prepared by the regional committees of the Water Agencies at a more decentralised level (as compared to the SDAGE), but still as part of the SDAGE drafting procedure.

In theory, the two documents (the SDAGE and the programme of measures) are linked. A summary of each of the six programmes of measures is supposed to be incorporated into the final version of the SDAGE Loire-Brittany. The programme of measures also has to take into
account the potential new ambitions already registered in the early draft of the SDAGE. It has to consider the consequences of this early draft for the deadlines and the setting of environmental objectives. For practical reasons and due to time constraints, however, the two processes have been handled separately, sometimes causing problems of adjustment between the two documents. Thus, we can conclude that the programme of measures and the SDAGE project stem from two different processes.

It is important to note at this point that even though the second document is called ‘programme of measures’, it will not be considered as the definitive measures for WFD implementation. In fact, this document is only utilised to evaluate the time which is necessary to reach good status. Its aim is not to lay out the actual measures that are going to be implemented, but to forecast if and when a good status could be reached (environmental objectives), and how much money would be needed to do so (budgeting task). The use of exemptions is therefore considered first at this regional committee level (see Section 2.7 for more on the use of exemptions).

It is also worth noting that measures evoked in this programme had to be conceived without having a clear definition of (or a clear indication on how to define) the target to be reached, for instance what is a ‘good ecological status for each of the different water bodies’ (coastal waters, surface waters, groundwater, etc.). This means that the regional committee had to undertake a particularly uncertain and difficult task in designing a so-called programme of measures that would enable achieving a goal whose indicators were not already known. This was especially true for the definition of good ecological status for coastal waters, which are of major importance in Brittany.

Thus, the programme of measures prepared at the regional committee level sets the environmental objectives and deadlines for every water body. The programme of measures refers to the current state of the water body (rather than the reference state) in order to determine the date by which the target will be met (2015, 2021 or 2027). In order to set this deadline, the regional committee considers the current status of water bodies (the real life starting point); it anticipates the existing French regulation and its impacts on the quality of water; it takes into account the different voluntary measures and financial incentives that could be applied (Interview). At the first stage, the idea is not about thinking of every single measure that could possibly be implemented to improve the existing situation. Mostly, measures that already exist and have been implemented have been taken into account at that point of the procedure. The exercise was also to extend the implementation of these measures to some other places where it could be useful, and to imagine their impact on the quality of water bodies (‘trend scenario’ or scénario tendenciel in French). The major aim of this exercise was also to calculate from that point (2004, when the exercise began) how much this would cost.

If the regional committee realises that the good status target will not be met by 2015 after evaluating the impact of all the measures already adopted, then it can conceive additional measures as part of the programme of measures. Since the regional committee can conceive extra measures in case good ecological status cannot be met by the 2015 deadline as a result of the already existing measures, we can say that the ambition is to reach the target as soon as possible (by 2015). The evaluation made by the regional committee of its programme of
measures is based on a rough assessment of the pollution pressure on the environment and on the specific resilient capacity of every water body to sustain and naturally eliminate this pollution pressure. This assessment is made by technicians from the Water Agency because scientists are reluctant to commit themselves in such calculations (Interview).

However, it is clear that no radical or very ambitious measures have been thought about in this committee. For instance, crucial measures – such as supporting new agricultural production systems like organic farming or adapting regulatory monitoring based on the environmental stakes – have been rejected by some of the members of the regional committee. Therefore, it is obvious that even though the WFD is taken seriously by the river basin committee and members of the regional committees, it does not lead to the conclusion that very unpopular measures, especially for the agricultural sector, have to be adopted. The commitment to implementing the European directive on time is mitigated by the reluctance of agricultural organisations to adopt more stringent measures than the ones already existing and already seen as very contentious for the agricultural sector (Interview).

During the early stage of the process, the regional committee had not limited itself to a previously fixed financial budget. Indeed, until September 2007, the various regional committees had not received any indication on the maximum global cost of their programme, and they felt free to determine this without any financial constraints. After the regional committee sent the first draft of its programme of measures to the headquarters of the Loire-Brittany Water Agency in Orléans, the Breton regional committee was compelled to lower the ambition of its first programme of measures (2010-2015), and as a consequence, to lower its environmental objectives in order to not exceed what had already been spent on the water policy by the Water Agency in Brittany during the past ten years. Thus, the financial criterion has functioned as another impediment when conceptualising the programme of measures.

Actually, for the Breton water bodies, the regional committee of Brittany was supposed to involve different stakeholders on the same basis as the river basin committee located in Orléans. In practice, however, stakeholders complained that the programme of measures had mainly been decided by technicians from the Water Agency (local delegation of the Loire-Brittany Water Agency) and the civil servant of the DIREN26 (and others members of the regional and departmental state administrations). In contrast to the SDAGE, which is adopted through a broad process of stakeholder participation, stakeholders were consulted only after the decisions were made by the Water Agency and state civil servants of the regional committee. Stakeholders therefore felt that their influence on the regional committee work had been limited (Interviews). However, it did not follow that their willingness and commitment to some actions were not anticipated or taken into account. For instance, the reluctance of farmers to apply certain measures was specifically considered, although indirectly. This way of proceeding was due to the fact that a decision had to be taken quickly, and this process was not viewed (by the Water Agency) as a political process that implied setting environmental objectives but rather as a technical calculation exercise for calibrating how much time would be needed in order to reach a good status. The work done

26 Regional administration of the Ministry for Ecology.
at the regional committee level was not seen as a political phase by the water agency authority.

Apart from the SDAGE, the Water Agency itself is not a policy entrepreneur or ‘policy contractor’ (maître d’ouvrage) in France, but only an investor: it finances actions that have to be undertaken by local political leaders, in the municipalities, in the SAGE operations etc. The legal status of this programme of measures was not clear to everyone. That is why the agricultural organisations in particular (who had invested a great deal in the technical discussions with the regional committee in Brittany), blamed this process for being time consuming and misleading them on crucial decisions. From their viewpoint, these decisions were actually taken ‘behind their back’ in Orléans at the SDAGE level in the river basin committee. Agricultural interests are represented in this river basin committee, and the SDAGE is drafted, but they had not invested much energy in it because they thought it was less strategic than the discussion on the programme of measures at the regional committee level (Interview).

It is very important to note once again that the programme of measures has no legal status. The real measures will be designed and implemented at the SAGE level (the local river basin level), a level that corresponds in our case to the Baie de St Brieuc level, and the SDAGE remains a planning tool only. Therefore, the various measures listed in the programme of measures remain indicative, and do not have any compulsory power. This is another important consequence of this ambiguous status of a programme of measures. There is a potential conflict between people who ‘steer’ the implementation at the central level of the French state using implementation timetables, based on measures they have in mind, and people who actually will design and implement their own action plan, based on their own conception of the adequate measures and on their own willingness (or non-willingness) to put effort into this task.

Since the actors who designed the programme of measures are not the ones who design the real action plan at the SAGE level (these are the local political actors), it is legitimate to think that the realisation of the environmental objectives could encounter some difficulties (especially regarding the extra measures conceived in order to reach a good ecological status as soon as possible). In Brittany, the public and administrative authorities (such as the DIREN) were consulted about the objectives set in the draft SDAGE for Brittany. The draft SDAGE was amended after consultation, but it was not clear whether comments were taken into account or not, as some things changed and others did not. Both the person responsible for the SAGE in Baie St Brieuc and the person working for the DIREN in the Loire-Brittany river basin had the impression that the objectives were set too high (they had been imposed by outside actors), while the local level had not been able to influence these objectives.

It is not evident that the French organisational apparatus and institutional arrangement in water management are major advantages in the WFD implementation process. Indeed, the Water Agency benefits from a huge financial budget, but sometimes cannot spend it easily because of its dependence on the willingness of local political actors to undertake actions. Again, water agencies are not policy entrepreneurs or ‘policy contractors’. As for the local authorities (especially mayors), it is questionable how demanding and ambitious the WFD is, to what extent they have already realised reaching the goals, and how costly its ultimate
environmental objectives are. Municipalities may benefit from water agency subsidies, but it may not be sufficient. In addition, water agencies finance their own measures (through their intervention programme), which may not correspond to the kind of actions local actors actually want to apply.

The French response to the European WFD relies heavily on the engagement which takes place at the local level in concrete actions. It is not certain if the French are fully aware of this. In this regard, the water agencies have organised a very costly campaign of public consultation for the new SDAGE project and programme of measures, which will be followed by an official one in 2009. These initiatives are not so much deemed to represent experiences in participative democracy, but as communication campaigns and pedagogical tools addressed to the local authorities in order to make them more aware of the WFD stakes (Interviews).

Finally, a major handicap in the French configuration is that the State remains responsible for not reaching the environmental objectives on time, even though it is not the authority that defines the policy plan. Again, this process has been decentralised at the river basin level. It is also important to note that the State is the competent authority even though it will not implement the action programme. Lacking financial resources, it can only act through the drafting and enforcement of regulations. It depends on local authorities, who may invest in action plans and voluntary measures, but who will not be sanctioned (fined) if they fail to mobilise actions to achieve WFD objectives.

5.4 Programme of Measures

It is still unclear how the objectives are going to be transposed into emission targets and/or requirements in concrete measures or even what instruments (regulatory, financial, voluntary agreements, information instruments etc.) are going to be used to reach the goal. The three major environmental ambitions (concerning phosphorous, nitrogen and hydromorphology) have been adopted at the SDAGE level. The first two measures (regarding phosphorous and nitrogen) were denounced by agricultural organisations (Interview). Indeed, two French research institutions (Ifremer and Ceva) have concluded that it would be necessary to decrease the nitrogen flux by 30% in watercourses in order to stop the green seaweed phenomenon.

The state has a role to play in the process of implementing the environmental objectives. The SDAGE takes precedence over all administrative decisions. This entails that all the administrative decisions have to be compatible with it, and thus the central government has to integrate its objectives in its different regulations. Nevertheless, water agencies doubt that the State administrations will be able to enforce their regulations (Interview). This is why the water agency has more trust in its financial and voluntary measures to implement the environmental objectives.

In the process of planning and SDAGE preparation, the programme of measures prepared by the regional committees as described earlier, serve to set the goals and timelines for meeting those goals. Meanwhile, defining the appropriate and actual measures is a process decentralised at the SAGE level, meaning that local political authorities take care of this part
of the WFD implementation process. More specifically, for the Baie de St Brieuc SAGE at the
time of our visit to the Baie de St Brieuc (July 2008), the local water committee, under the
responsibility of the Pays de St Brieuc, which groups together several communities, was
preparing the SAGE. According to the coordinator of this SAGE, the SAGE should address
the main issues in the sub-basin, which are the protection of the quality of water used for
drinking water production, coastal waters, Natura 2000 wetlands and the ecological quality
of rivers. Some local discretion can be already be expected. The SDAGE sets continuity of the
river as an objective, but the drafter of the SAGE for the Baie de St Brieuc would like to
include an additional objective: continuity between rivers in order to protect mammals and
to allow them to move freely.

On an organisational level, according to the coordinator of the Baie of St Brieuc, four
problems related to the implementation of measures at the sub-basin level are foreseeable:

- Local authorities may lack the competences to achieve the WFD objectives. For instance, pesticide use is not regulated by law in so far as distance from water is concerned, and therefore buffer zones along watercourses cannot be imposed by the local authorities. This may be possible by extending the buffer zones’ imposition established by the SDAGE for nitrate pressure’s reduction concern to pesticide use’s reduction as well in these buffer zones.

- Municipalities have to find the money and tools to ensure adequate and representative monitoring for the preparation and evaluation of measures and the reporting to the national government to comply with the EU reporting obligation. A lack of resources may therefore seriously hamper the achievement of the WFD objectives, which may be the case as the State only partially finances the monitoring by local authorities.

- Enforcement may be a problem, in particular with regard to nitrates. How can local authorities monitor whether all farmers respect the buffer zones? The administrative authorities or the water police, controlled by the administrative or penal court, may impose sanctions on individuals in cases of non-compliance with the water legislation (L 211-5 et seq. Environmental Code). But there remains the problem of to what extent administrative authorities are going to be able and willing to monitor specific measures designed at the local SAGE level (rather than generically as has formerly been the case).

- The necessity of administrative cooperation might constitute a problem. This problem may occur if the area of the SAGE falls within the administrative boundaries of more than one department. The French organisational structure does not provide for a legal framework for administrative cooperation between the departments, which means that implementation in these sub-river basins depends on the informal cooperation that may or may not be successful.
5.5 Resources

The budget that has been thought of so far by the regional committee is the budget from the Water Agency Loire-Brittany (Interview). About 2.9 billion euros are planned to be spent for water management in the basin district during the period 2010-2015, and most likely the same amount will be invested for the second and third action plans until 2027. Although there is no indication of budget exclusively related to the WFD, there are indications that the water management budget is increasing due to the WFD. The budget allocated to agricultural measures as well as hydromorphological measures has been doubled due to the WFD objectives implementation. It is also said that consumers will have to pay 25 euros/year extra levy on their drinking water bill (compared to what they are currently paying) so as to enable the measures to be applied (Interview).

Up until now, the water agency has worked with a global financial envelope, and it has left open the question of who will pay for it. Today, the water consumer’s levy assures 80% of the water agency budget, farmers only 5% and industrials 15%. In the SDAGE and the programme of measures developed by the regional committee, it is planned that aids in the direction of local public authorities will only represent 22% of the whole water agency expenditures (Interview). This can be compared to the share required, 75%, in recent years for the construction of sewerage treatment plants. Thus, some environmental and consumer associations are beginning to say that it is unfair to continue asking consumers to pay for subventions that will not benefit them any more, since the local authorities no longer need that much money from the water agency to construct the sewerage plants. Farmers benefit greatly from the water agency, but they do not contribute enough to its budget (Interview). Therefore, it would be logical for the environmental associations to ask for a decrease in the levy imposed on consumers.

5.6 No Deterioration Principle

Legal Establishment

The meaning of the principle of no deterioration is formulated in the CE as follows: ‘none of the water bodies in a basin or basin group will be in a status corresponding to an inferior class than it was in at the beginning of the considered period’ (Article R212-13 CE). So the principle is considered per water body and per class. Its starting point is the moment when the current SDAGE started to apply. The application of the principle of no deterioration is legally considered to be the same as that of the stand-still principle (Questionnaire France).

The SDAGE and SAGE shall apply the principle in setting the quality and quantity objectives (Article L. 212-1-IV & Article L. 212-5-I CE).

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27 See the Loire-Brittany SDAGE documents.
28 In French: La prévention de la détérioration de la qualité des eaux consiste à faire en sorte qu’aucune des masses d’eau du bassin ou groupement de bassins ne soit dans un état correspondant à un classement inférieur à celui qui la caractérisait au début de la période considérée.
29 The stand-still principle is called ‘effet « cliquet »’ in French.
No Deterioration in Practice

In practice, the starting point of the no deterioration principle will be 2009, at the moment when the revised SDAGE will apply. The question of its practical interpretation has not yet been raised. Public authorities use the WFD ‘one out, all out’-principle to classify water bodies. However, the question remains whether or not there would be a break in the no-deterioration principle if a case should occur where the chemical water quality of a water body has changed, even though the whole ecological status remains good (Interviews).

As regards the concern about monitoring and checkpoints for water quality, the Loire-Brittany water agency is the authority who orders water quality checkpoint measurements. For this purpose, it has doubled the budget allocated to this task. The fishermen monitoring agency (ONEMA) and a coastal waters public research institute are also policy entrepreneurs for this water quality checkpoint policy. To undertake this task, the water agency can rely on former checkpoints it had from its own organisation, or from checkpoints financed by the local governments (Conseils généraux). The water agency is encouraging other organisations like the Conseils généraux to keep as many checkpoints as possible on their own, as the water agency does not want to finance the water quality checkpoint measuring policy by itself. Environmental organisations criticise the fact that many of the checkpoints (with a historical checking record of more than 30 years) have sometimes been abandoned in the WFD implementation process. Most of the time, these checkpoints are the ones from the DIREN, and their concern is that state administrations no longer have money to invest in water policy. Thus, state administrations expect other organisations to take over their former checkpoint monitoring policy, which is not always possible.

Nevertheless, the WFD implementation process has been a good occasion to refine the water monitoring system in France on some parameters. In some cases, it has caused the re-qualification of a water body wrongly classified as having a good status in the 2004 diagnosis. Environmental organisations are now wondering how these evolving situations are going to be taken into account in the forthcoming revised SDAGE in 2009.

Agricultural organisations consider the new WFD water quality measuring matrix to be more advantageous than the previous ones used by the water agency for their own interests. However, they criticise the fact that several systems are still being used to determine the quality of water bodies, despite the official discourse that water quality checking systems will be harmonised and unified. These different systems originated from several organisations that formerly performed water quality monitoring tasks. According to agricultural organisations, some of them, like the water agency’s Seq’seau system, are said to be obscuring the situation. It has not completely disappeared from the water monitoring system, however.

5.7 Use of Exemptions

Legal Establishment

The possibilities for extending the deadline of 22 December 2015 are formulated in the same way as in the WFD (Art. L. 212-1-V CE). According to the wording of the CE, these exemptions do not apply to the principle of no deterioration. Also, the exemptions of less stringent objectives are transposed (Art. R. 212-16-1 CE).
Exemptions in Practice

Regarding the use of derogations in river basin management plans, a complicating factor is that it is not always clear what good status is, particularly good ecological status. This leaves room for discretion concerning the formulation of objectives and determining what measures should be taken to achieve good status. For instance, what is good status concerning green seaweed on beaches in the summer? Where uncertainty persists due to lack of guidance at the EU or national level, research has to be done first, which means that the SDAGE invokes the postponement of deadline (extension).

The regional committee has in some cases postponed the target of a good status to a later date than 2015, because in some cases it has also anticipated implementation difficulties. For instance, the regional committee has used the deadline extension (2021 and 2027) in cases where it feared it will lack a political commitment to conceptualise appropriate measures. It has also used the deadline extension possibility when it was obviously not reasonable, due to the technical feasibility of the different measures needed for some water bodies to reach a good status by 2015. What we mean by ‘technical feasibility’ has mostly to do with the time of response of the natural elements to new measures implemented, but it also has to do with the existence of ‘policy entrepreneurs’ or ‘policy contractors’, i.e. people at the local level who will undertake the different measures that have to be implemented. So whenever the regional committee feared that there would not be enough political will or enough know-how capacity for a specific area, it postponed the deadline (until 2021 or 2027). The water agency’s employees usually know (or at least can anticipate) whether or not local actors are actually mobilised on the ground for a specific area or for a specific action. They already know, because the water agency has substantial experience in financing negotiated agreements for water quality restoration action plans between drinking water providers, local authorities and farmers. This is even truer in Brittany, where agricultural pollution has been on the agenda since the early 1990s and where the Water Agency has been involved in several voluntary actions between local political authorities and farmers.

At an earlier stage of the planning process, the regional committee set objectives and thought of extra actions in order to reach a good ecological status by 2015 for 60% of the water bodies in Brittany (Interview). As explained earlier (see Section 5.5; The Planning Process), however, the Breton regional committee was compelled to reduce its first ‘programme of measures’ (2010-2015) after submitting its initial plan to the Water Agency, and in consequence, to diminish its environmental objectives in order to not exceed the total amount spent by the Water Agency in Brittany on water policy during the past ten years. After this correction, no more than 46% of the water bodies were expected to qualify for good ecological status in 2015, and a deadline extension will be requested for the remaining water bodies.

However, a new political process has recently had a very important impact on the WFD implementation process in France. The newly elected president, Nicolas Sarkozy, had promised to organise a Grenelle de l’environnement in the Fall of 2007, that is to say an ambitious global orientation plan for the environment in France. During this Grenelle de l’environnement, a major political decision was taken: two-thirds of the water bodies would have to achieve a good status by 2015. This decision was not based on the feasibility of the environmental ambitions as conceived by the water agencies, but had to do with a political
affichage. Thus, this decision was very problematic for the SDAGE and the programme of measures process, whose targets had already been adopted. At the moment of this research it was not clear if the Ministry of Ecology would decide that the 66% target has to be conceived on a national basis. This could mean that the poor record of the Loire-Brittany Water Agency (only 46% of water bodies with good ecological status in the environmental objectives for 2015) could be compensated for by the good record of the Artois-Picardie Water Agency (80% of water bodies with good ecological status). This means that not all the river basin districts would have to fulfil this top down—ambition.

During the Fall of 2008, the revised environmental objectives of the Loire-Brittany river basin again jumped back to 61% of water bodies in good status by 2015. This was because of the permanent update on water diagnosis (new biological indicators were adopted), and because of new measures enabled by the Grenelle I Act. This was possibly related also to the difficulty in finding valuable arguments to request a postponement of the deadline. The projected cost of these new environmental objectives will be 300 million euros extra added to the previous bill.

5.8 Integration

Integration in general

Integration happens at the local level with local authorities having the duty of checking the compatibility of spatial planning and urban planning policies, when they exist, with the SAGE. The same compatibility checking has to happen with the animal husbandries authorisation policy. However, the institutional rules have not been changed enough for us to conclude that the integration process between the WFD and the Breton agricultural policy is satisfactory.

Therefore, the WFD implementation process relates to other policy fields through a participative debate undertaken at the river basin committee level. Integration also takes place at the administrative/state level (through a legal procedure which compels administrative authorities to check the compatibility of their acts with the SAGE and the SDAGE), and at the local level with the municipality having to check the compatibility of its urban and spatial planning policy with the SAGE and the SDAGE. The integration is occurring at a substantial level. However, the compliance with the SAGE and the SDAGE documents is monitored afterwards, after the various acts or policy documents have been passed. This can be seen as a problem. At the procedural level, there have been some improvements, such as the obligation of consulting the SAGE documents in the animal husbandries authorisation examination procedure. At the organisation level, there are still some problems of integration among state administrations, for instance. This can be attributed to an institutional resistance to organisational mergers (state administrations want to stay alive even at the department level) and to the difficulties state actors and local authorities have in cooperating with each other.

Internal Integration
Integration within the water domain has been legally established through the issuing of a new Water Act in December 2006 which changed the CE. The CE now gives the SDAGE a particular legal status concerning administrative decisions and other planning documents. It establishes that the programmes and the administrative decisions concerning water, i.e. authorisations and declarations on the basis of Article L.214-1 et seq. of the CE, have to be compatible or rendered compatible with the provisions of the SDAGE (Article L.212-1XI CE. See also Müller 2004, p. 197). This means that the amendment or withdrawal of plans or administrative decisions due to their non-compatibility with the SDAGE or the SAGE can take place. It should be noted that even existing permits may be amended in order to render them compatible (Article L215-10 CE). The prefect of each department coordinates the policy integration.

According to circulaire DCE 2006-17, administrative decisions need only be compatible with the SDAGEs and not with the programmes of measures. As a result, the courts cannot review the compatibility of administrative decisions with the programmes of measures, but only with the quality objectives of the SDAGEs.

Nature and Water

This is a rather new area of integration. It is not clear how it is going to be handled, but it is assumed that the concerns about wetlands are going to be very problematic to deal with, since there are small wetlands everywhere in Brittany.

Agriculture and Water

The integration in this area is limited to vague declarations, and there are no concrete provisions such as those involved with spatial planning documents. Integration is supposed to take place at the departmental level. Integration is occurring to some extent, at the substantive level (through the cattle raising/husbandries authorisation procedure), but without real efficiency. The level at which compatibility with the SAGE has to be checked is not the most relevant one when wanting better integration of agricultural policy and the WFD. Further development of agriculture in Brittany seems incompatible with the objectives of the SDAGE regarding the coastal water bodies in certain areas of Brittany. Not only must nitrogen use be reduced substantially, but land use must also be altered. This is because ploughing for crops to feed chickens and pigs kept in barns, instead of using the land for cattle grazing, constitutes overly intensive land use. This means that it is likely that in the next SDAGE the exceptions of the WFD will have to be invoked to gain more time for meeting the objectives or to lower them.

Agricultural pollution, which is one of the major concerns in Brittany, has been on the public agenda for fifteen years, and the central government has adopted several regulations tackling this problem. Therefore, the State (either at the central level or regional and local administrations) can be decisive in the WFD implementation if it manages to enforce the compulsory measures already adopted. Its failure to solve this problem previously has caused the French government to be convicted twice (2001 and 2007) of non-compliance with the European Directive on Surface Waters (1975). This motivated a very stringent provision
in the last Water Act of 2006, a provision also partially motivated by the WFD: this act provides the prefect with extra powers for reaching drinking water quality objectives. In areas concerned with drinking water quality problems, a more efficient programme of measures has to be designed. During the first three years of the programme, subsidies can be allocated to farmers in order to compensate for the changes in agricultural practices. At this stage as well, measures are designed on a voluntary basis; they are not mandatory. If no improvement has been registered in surface watercourses after three years, then the prefect can render its programme of measures compulsory without any financial compensation.

Due to European restrictions and concerns about fair competition, the water agencies know it is difficult to spend money helping farmers to comply with the regulation. Thus water agencies would prefer financing voluntary measures. In their ninth action programme\textsuperscript{30}, they have already begun financing measures undertaken by local actors that are inspired by the WFD process and the SDAGE and regional committees’ programme of measures documents. So even though the new SDAGE has not yet been officially adopted, the Water Agency is trying, through its programme of subsidies, to motivate local actors to undertake actions inspired by the early version of the revised SDAGE.

\textbf{Spatial Planning and Water}

\textbf{Legal Establishment}

In addition to the aforementioned general integration, spatial planning documents at the national, regional and municipal level\textsuperscript{31} have to be compatible with the global orientation and the objectives of quality and quantity defined by the SDAGE (Article L.121-3 CE & Article L.122-1, L.123-1 & L.124-1 of the Spatial planning act (\textit{Code de l’urbanisme}). Also the departmental quarry plans (\textit{schémas départementaux des carrières})\textsuperscript{32} have to be compatible with the provisions of the SDAGE (Art. L.515-3 CE).

\textbf{Integration in Practice}

The two relate to each other to the extent that urban and spatial planning documents have to be compatible with the SAGE (one of instruments through which the WFD is going to be implemented at the local level). The integration therefore occurs at the local level and at the substantive level.

\textbf{5.9 Conclusions}

It stems from this analysis that the French government first seems to be taking the European directive implementation process very seriously. On the one hand, the French State has established that the goal is to meet the good status by 2015 and that it has to be interpreted as an obligation of results. On the other hand, and for the same reason, the central political level has a tendency to fix norms and standards of good status in a rather lenient way. The rationale behind that has to do with the fact that France was recently condemned for not meeting the objectives of the Drinking water directive (Surface Waters Directive, 1975) in

\textsuperscript{30} The water agency action programme specifies which kind of actions, undertaken by local policy contractors, the water agency will agree to finance.

\textsuperscript{31} The \textit{schémas de cohérence territoriale}, the \textit{plans locaux d’urbanisme} and the \textit{cartes communales} respectively.

\textsuperscript{32} A decision-making instrument for rational usage of mineral fields and the protection of the environment.
Brittany. The judgment condemning France and the fear of another such decision in which a penalty payment and a fine may be imposed for a failure to meet the WFD objectives, seems to contribute both to set standards which are not at too high a level (so as to reach them), and to set the environmental objectives as an obligation of results.

A second major aspect of the WFD implementation process in France has to do with the decentralised nature of the decision-making process in water management. Indeed, decentralising the WFD implementation to the river basin district level seems to have enabled some ambitions to be realised. This may be surprising, though. Indeed, the river basin committee’s broad stakeholder participation and decision-making process has so far led to a tendency of adopting minimal compromise positions. This is imputable to the high number of veto players in a decision-making process in which so many different interest groups and public representatives participate. For this reason, the former Loire-Brittany SDAGE has always been very cautious and very careful about the economic interests at stake, especially the agricultural ones in Brittany. Here though, setting goals and environmental objectives in Orléans for the whole Loire-Brittany river basin district seems to have turned out to be more strategic for environmental concerns.

Indeed, at the central level, agricultural organisations have very good relaying and lobbying powers towards the agricultural and environmental ministries, which very often leads the environment ministry to censor its policy measures (Bourblanc, 2007). At the decentralised level, however (the Loire-Brittany river basin level), and more specifically at a decentralised level located in a mid-way position between the central and the local levels, agricultural representational groups seem to be less well organised. As stated earlier, agricultural organizations neglected the SDAGE adoption process in Orléans and invested most of their efforts in the regional committee in Brittany, wrongly thinking that this committee had a more essential decisional authority than what was going on in Orléans.

Environmental associations consider that decentralising the goal-setting process at the Breton regional level would have limited the possibility to adopt stringent measures to recover good status. They do not trust political elites, and especially rural mayors, who they perceive as being too close to agricultural economic interests. Environmental groups believe that it is very difficult for such political elites in rural area like Brittany to accept going against agricultural interests that are economically so important for the region. At the level of Orléans, though, the agriculture sector is not that hegemonic. Moreover, agricultural professional unity is difficult to retain when different kinds of farmers are involved (not only pig or poultry farmers, but arable farmers, cattle farmers, fruit farmers etc.): different agricultural organisations are playing against one another. Indeed, for several years, agricultural organisations in Brittany have allowed Breton agricultural organizations to benefit from most of the subsidies allocated by the water agency. They were not impacted by the regulation on agricultural pollution which has only been seen as a Breton problem since the early 1990s.

Now, however, agricultural pollution and water good status is more or less everybody’s concern. It is no longer a problem confined to Brittany and the agricultural sector outside Brittany is also going to be impacted by the regulation on agricultural pollution. That is why agricultural organisations outside Brittany now want their own part of the water agency
financial 'cake' since they are going to need it in order to change some of their agricultural practices. Thus, tensions have appeared among agricultural interest groups – even within the same farmers’ union - and sometimes the Breton agricultural organisations are no longer supported by their agricultural peers outside Brittany. This is how we can explain why a provision on phosphorous and the solidarity between the upper and downstream river basins have been voted on in the new SDAGE. Since this measure was seen to impact the Breton agricultural organizations only, the other agricultural organizations did not want to fight and negotiate a compromise with other sectors in the river basin committee for something that would not impact them. They preferred to save their trade-off power for topics that could actually be more of their concern.

Apart from this central/decentralised/local level organization, a second element explains why some very stringent provisions could have been adopted in the new SDAGE. This has to do with the complexity of the WFD implementation process. Sometimes a water agency’s technicians have to take some major political decisions since different processes are being dealt with at the same time with a rather tight schedule. The same reasoning applies to scientists. Since a major characteristic of the WFD is to have a political commitment adopted without knowing beforehand what it really corresponds to (i.e. requiring an objective of good status without knowing what it exactly means), this gives scientists a great deal of freedom: while political actors, state actors and stakeholders discuss the political content of the WFD implementation process, scientists define, almost on their own, the significance of the terms used in the WFD. No political second step is going to censor scientists’ standards as used to be the case in the past. Actually it is the other way around: in the WFD, the scientific discussion actually takes place as a second step after the political one. It is for this reason that, for instance, the provision on hydromorphology has been adopted in the WFD. Political actors were being busy with other parts of the WFD implementation process, and thus they did not realise how stringent such a definition could have been. Many decisions are actually taken without being able to forecast what could be their consequences. Thus, this is not about being too casual; it has to do with the highly technical nature of the directive: the size of the implementation process, its length and its scope appear to our interviewees to be very demanding.

As a consequence, it is very difficult to account for any real strategy, that is to say tactics that are forecast ahead of time so as to cope with the WFD stakes. Indeed, to admit that such a strategy exists and has been successful for one actor would mean that one is able to master and command the whole WFD process or at least a part thereof, which is absolutely not the case. Actually, most of our interviewees emphasised the great complexity of the WFD process, not only because of the high level of scientific discussion it triggers, but also because of its procedural complexity. It is because of this complexity that Breton farmers’ organisations mistakenly gave precedence to an active participation in the Breton Committee (Commission géographique Vilaine et côtiers Bretons) over discussions in the broader River Basin Committee in Orléans. They took this Breton Committee to be the place to be in order to negotiate the best compromise and the less harmful measures for agricultural interests. They did not understand that what was called a ‘programme of measures’ in the SDAGE process and the environmental objective-setting process should not have been confused with the effective action plans which were going to implement the environmental objectives formulated in the SDAGE. This ‘programme of measures’ discussed in the regional
committee was actually only meant to set a deadline for environmental objectives (and to anticipate extension requests in good time) and to budget a financial programme to accompany the environmental objectives’ implementation. It has never contained any real mandatory measures that could serve to implement SDAGE environmental objectives.

Action plans will actually be implemented mainly at the SAGE (local) level. This phase has not yet started yet. We need the final version of the revised SDAGE to be adopted in 2009 before doing so. Since local political actors are going to play such a significant role in the implementation of the environmental objectives, we can conclude that mainly soft measures (not binding as to the results) are going to be applied, even though different stakeholders and especially environmental actors are going to be part of the discussion. The local context and the high dependency on agricultural economic interests may be a serious obstacle to any ecologically ambitious measure.

So far, the measures that have been conceived in this programme of measures follow a logic of mainly recycling already existing instruments and measures. The programme of measures refers to the current state of the water body (rather than the reference state) in order to determine what can possibly be done to improve the existing situation. Various measures have then been considered. Goals are usually set after considering the political and economic feasibility (but not a precise economic analysis) of measures that can be applied. Actually, no real economic analysis has yet taken place. This exercise may intervene at the (local) SAGE level. However, it seems that other water agencies in France, and especially the Seine-Normandie basin district, have dedicated a more useful amount of time to that effort, compared to what has been done in Loire-Brittany.

Finally, the fact that actors who are going to implement the environmental objectives at the local SAGE level and actors who have designed the environmental objectives are different persons is of a major concern for the sake of implementation. This could entail a real implementation gap and could constitute a serious risk of not meeting the directive’s objectives.
References


Questionnaire France: A response to written questions by Bernard Drobenko, Professor at the Université du Littoral Côte d’Opale, Law Department at Boulogne-sur-mer, and Thi Thuy Van Dinh, PhD Candidate at CRIDEAU, University of Limoges


Interviewees

Philippe Séguin, coordinator for the Water Agency Loire, regional committee for Brittany (Agence de l’eau Loire-Bretagne, délégation Bretagne), August 2008, Ploufragan, Brittany

Wilfrid Messiez, coordinator SAGE Baie de St Brieuc, July 2008, Lamballe, Brittany

Charles Touffet, coordinator for the ministry of ecology (regional delegation-Diren Brittany). July 2008, Rennes

Gilles Huet, Eau et rivières de Bretagne (Environmental NGO in Brittany), August 2008, Guingamp, Brittany

Etienne Ariaux, Chambre d’agriculture de Bretagne (Board for agricultural représentatives in Brittany), July 2008, Rennes
CHAPTER 6  CASE STUDY ENGLAND

River Basin District Anglia and Wensum Catchment, England

A. Crabbé, J.J.H. van Kempen, J. Robbe

6.1  Introduction

Characteristics of the Anglian River Basin District and the Wensum catchment

Location and features of the Anglian River Basin District

The Anglian river basin district covers 27,890 km², from Lincolnshire in the north to Essex in the south and Northamptonshire in the west, to the East Anglian coast. The landscape ranges from gentle chalk and limestone ridges to the extensive lowlands of the Fens and East Anglian coastal estuaries and marshes. The river basin district includes the cities of Lincoln, Peterborough, Norwich and Cambridge, and the large towns of Milton Keynes and Northampton (EA 2008a).

Figure 10:  Maps showing the Anglian river basin district borders, and the Norfolk/Suffolk area. Source: Focus on Pictures (2008)

County Key: Northants = Northamptonshire, Bucks = Buckinghamshire, Berk = Berkshire

In total over 5.2 million people live and work in the river basin district. Two of the four growth areas are largely within the district (Milton Keynes-South Midlands and the London-Stansted-Cambridge growth corridor). The population increased by an annual average of 0.7% between 1992 and 2002 and is forecast to increase by a similar annual rate between 2002 and 2015.

The river basin district is low-lying and intensively farmed. Areas such as the Fens support intensive farming and horticulture. Dairy, cattle and sheep farming are limited, but pig and poultry farming are common. The construction industry is the largest sector in the Anglian river basin district. The most important manufacturing industries are food, drink, tobacco and paper; the most important sectors are printing and publishing; in business services, retailing and health sectors are the largest employers. Figure 2 illustrates land use in England...
and Wales in 2000: from the map it is quite clear that the main land cover in East Anglia is arable.

![Figure 11: Land use England and Wales (2000)](Source: EA 2008b)
![Figure 12: Norfolk and Suffolk Broads](Source: Visit Norwich (2008))

The Anglian river basin district is relatively dry, hot and sunny compared to England and Wales as a whole (EA 2008a). Approximately 60% of freshwater abstraction comes from surface water, with the remaining 40% from groundwater. The chalk in the Great Ouse river basin is one of the most important aquifers in England, with considerable quantities of groundwater being abstracted to meet potable and irrigation demands.

There are 46 European designations in the district for water-dependent features under the Habitats Directive. Special Areas of Conservation protect fifteen species. Special Protection Areas protect 44 bird species under the Wild Birds Directive.

With approximately 20% of the district lying below sea level, several hundred kilometres of coastal and estuary defences protect the coastline. Mudflats and slat marshes are a dominant coastal feature. The landscape has been heavily influenced by Dutch technology, from the influx of clay pantiles to the draining of the Fens. The Norfolk and Suffolk Broads form a network of waterways between Norwich and the coast and are popular for recreational boating (see Figure 3). A recent bid to have them declared a National Park failed, as it would have meant conservation becoming more important than navigation rights.
Characteristics of the River Wensum

The River Wensum is a major tributary of the Norfolk Broads river system. The sub-catchment of the River Wensum includes a large part of central Norfolk, covering an area of approximately 571 km² above Hellesdon Mill. The catchment is lowland and largely rural, with few large urban settlements. The main urban areas adjacent to the River Wensum are Fakenham and East Dereham on the Wendling Beck tributary, located in the upper catchment, and Taverham and Norwich, both located in the lower catchment (See Figure 13).

Other than these towns, there are few urban areas that influence or impinge upon the river in any way (EA 2006b).

Figure 13: Maps indicating the flow and location of the river Wensum
Sources: Natural England (2007) and Joint Nature Conservation Committee (2008)

Historically, the flow in the River Wensum has been heavily modified to provide power to the various mills along its course. This has resulted in the loss of the natural geomorphological functioning of the river and subsequently has resulted in the degradation of important habitats and a reduction in the distribution/abundance of important flora and fauna associated with the river. The degradation of the river has continued in the last few decades due to the termination of milling, and increased silt and phosphate input and subsequent storage within the channel. The River Wensum is still aesthetically attractive, but the degradation of riverine habitats and associated impacts on riverine species has led Natural England to classify the river as being in ‘unfavourable declining’ condition (EA 2006b).\(^\text{33}\)

\(^{33}\) Natural England, a tributary authority to DEFRA, is the integrated countryside and land management agency of England. Natural England was formed in 2006 by bringing together English Nature, the landscape, access and
In 1993, the River Wensum was designated as a riverine SSSI (Site of Special Scientific Interest) under Section 28 of the Wildlife and Countryside Act 1981 (as amended), Section 17 of the Water Resources Act 1991, Section 4 of the Water Industry Act 1991 and Section 13 of the Land Drainage Act 1991. The SSSI citation states:

The Wensum has been selected as one of a national series of rivers of special interest, as an example of an enriched calcareous lowland river. With a total of over 100 species of plants, a rich invertebrate fauna and a relatively natural corridor, it is probably the best whole river of its type in conservation terms. Unusually for a lowland river in England, much of the adjacent land is still traditionally managed for hay crops and by grazing, giving a wide spectrum of grassland habitats some of which are seasonally inundated. The mosaic of meadow and marsh habitats, including one of the most extensive reedbeds in the country outside the Broads, provides niches for a wide variety of specialised plants and animals.

The River Wensum was also notified as a potential Special Area of Conservation in 2000 under the Conservation (Natural Habitats & c.) Regulations 1994 for riverine vegetation and important fish and invertebrate species. The SSSI and Special Areas of Conservation boundaries are more or less concurrent, albeit the Special Areas of Conservation, at 381.74 ha occupies slightly less area than the SSSI (393.31 ha).

Under the WFD the Wensum, as a Special Area of Conservation, will be designated as a Protected Area providing a higher level of protection and further safeguard against habitat deterioration. It is envisaged that the objective to achieve good ecological status will run alongside the achievement of favourable condition for SSSI. The Environment Agency’s preliminary assessment for WFD has indicated the Wensum will likely fall into the water bodies ‘at risk’ category.

**Anglian River Basin District Management and Coordination**

The Water Framework Directive introduces the concept of integrated river basin management based on each of the eleven river basin districts in England and Wales. In England and Wales, DEFRA and the Welsh Assembly Government are the so-called appropriate authorities at the country level. In England and Wales, the Environment Agency (EA) is the competent authority; amongst other things, it is responsible for river basin district planning.

For the Anglian river basin district planning and WFD implementation, a team limited to three persons is appointed responsible: a technical WFD specialist, a river basin district coordinator, and one (part-time working) person responsible for communication and practical organisation of the liaison panel. This team is provided with information by other EA colleagues, and invests extensively in interaction with external partners, mainly via the recreation elements of the Countryside Agency and the environmental land management functions of the Rural Development Service.
liaison panel. The WFD team of the Anglian river basin district has its headquarters in the river basin itself, at the EA offices in Peterborough.


Because the Anglian river basin district is large and environmental pressures complex, the district is subdivided into catchments for planning purposes (EA 2006a: 14). Since the EA sets catchment boundaries for many purposes, e.g. for Catchment Abstraction Management Strategies and Catchment Flood Management Plans, the relationship between these sectoral plans and the river basin planning below the river basin district level remains rather superfluous.

Figure 5 shows an indicative time scale on the river basin district planning process.
Figure 14: Indicative time scale related to the development of the river basin management plans in the UK
Source: EA 2008d
River Wensum Management

As the Wensum is a main river downstream of the River Tat confluence, the Environment Agency is responsible for it. The Kings Lynn’s Consortium of Internal Drainage Boards is responsible for the maintenance of the River Wensum above its confluence with the River Tat, as well as the River Tat itself, the Langor Drain and the Guist Drain (see Figure 4); in total the Kings Lynn’s Consortium of Internal Drainage Boards maintains 132 km of channels in the Wensum catchment. All the main drainage ditches (mostly outside of the SSSI boundary) are maintained by the Kings Lynn’s Consortium of Internal Drainage Boards. Minor land drains are the responsibility of the landowner.

WFD implementation on the sub-basin scale of the Wensum is predominantly the responsibility of the Environment Agency, which is also competent for WFD implementation at the river basin district scale. The EA cooperates with other competent authorities. The list below indicates initiatives that will play an important role in the Wensum achieving good ecological status by 2015, which is of particular importance as the Wensum is indicated as an Site of Special Scientific Interest.

- Natural England, the Environment Agency and the King Lynn’s Consortium of Internal Drainage Boards have developed a River Restoration Strategy (2006). The main aim of the restoration strategy is to restore the natural geomorphological processes of the River Wensum, and in turn rehabilitate the habitats and associated species.
- The Water Level Management Plan (WLMP) is a delivery vehicle and framework via which the physical changes required to restore the River Wensum from an ‘unfavourable recovering’ trajectory would be funded, designed in detail and implemented. The WLMP will assist Natural England and the Environment Agency with meeting DEFRA’s Public Service Agreement targets to have 95% of SSSIs in favourable condition by 2010. Priority is given to wildlife features associated with SSSIs and wildlife features associated with European designated sites underpinned by SSSIs.
- Improving water quality is covered by separate initiatives such as the Natural England’s Environmental Stewardship schemes and the tightening of treated sewage effluent discharge standards at sewage treatment works. The assessment of effect(s) from changes in the quantity of water supply is ongoing through the Review of Consents (RoC) process required under the Habitats Regulations.
6.2 Goal Setting Process

Designation of Water Bodies

Legal establishment
The Regulations define the RBDs in England and Wales (Article 4 (1)). The Regulations do not instruct authorities to register all water bodies in the RBDs in general. However, the Regulations instruct the Environment Agency to identify water bodies which are used (or are intended to be used) for the abstraction of water intended for human consumption and areas and water bodies which are designated or identified as requiring special protection under specific Community instruments (called ‘protected areas’) (Articles 7 (1) and 8). Also, the Environment Agency may prepare supplementary plans which may relate to a particular description of a water body (Article 16 Regulations). This suggests that the Environment Agency can also identify water bodies in general, although it is not legally obliged to do so (Howarth and McGillivray).

In practice
The Environment Agency’s head office has developed an operational process, based on Common Implementation Strategy guidance, to provisionally identify and formally designate AWBs and HMWBs (EA 2008h). The methodology essentially comprises four levels of assessment:
- Level 1 – high level screening | > Provisional identification
- Level 2 – specific qualitative screening | > Provisional identification
- Level 3 – specific semi-quantitative assessment | > Designation
- Level 4 – specific quantitative assessment | > Designation

An initial iteration of the provisional identification was completed by December 2004 to be summarised in the Article 5 Characterisation reports. Figure 15 illustrates the provisional designation for AWBs and HMWBs. The actual designation will be part of the river basin management plans, to be decided upon in December 2009.
The draft Anglian river basin management plan (December 2008) offers information on the provisional number of natural, heavily modified and artificial water bodies within the Anglian river basin district (see Figure 16). More than one out of two (54%) of the 839 Anglian water bodies are classified as being candidate heavily modified. Twenty-nine per cent (29%) are provisionally indicated as natural water bodies, while 15% are candidate artificial water bodies. Eighteen water bodies (2%) have not yet been assessed.

Interviewees stated that the designation of water bodies at the Anglian river basin scale has not incited political or strategic discussions. Discussions, however, did lead to the conclusion that further in time, an evaluation is needed on the number and the borders of water bodies, as administrative burdens (reporting) can become too big in case of a large number of water bodies. Some interviewees also expressed their concern about delineation of water bodies on the Wensum, the focal river in this case study. An excessively fragmented approach in delineating water bodies could imply a threat for reaching nature conservation goals, as it is feared that designating water bodies as

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heavily modified will reduce the ambition to reach high status, even though the
Wensum was formally designated as a Site of Special Scientific Interest (SSSI).

<table>
<thead>
<tr>
<th>Water Category</th>
<th>Natural water bodies</th>
<th>Candidate artificial water bodies</th>
<th>Candidate heavily modified water bodies</th>
<th>Not yet assessed [1]</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>River and canal</td>
<td>202</td>
<td>113</td>
<td>415</td>
<td>1</td>
<td>731</td>
</tr>
<tr>
<td>Lake and reservoir</td>
<td>5</td>
<td>12</td>
<td>12</td>
<td>17</td>
<td>46</td>
</tr>
<tr>
<td>Estuary (transitional)</td>
<td>4</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Coastal</td>
<td>4</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Groundwater</td>
<td>31</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>246 (29%)</td>
<td>125 (15%)</td>
<td>450 (54%)</td>
<td>18 (2%)</td>
<td>839 (100%)</td>
</tr>
</tbody>
</table>

Figure 16: Number of provisional water bodies in the Anglian river basin district.
Source: Draft Anglian river basin management plan (December 2008)
Note: [1] Some water bodies have not yet been assessed. Information on these will be provided in January 2009.

As can be concluded from comparison with Figure 17, the percentage of provisional heavily modified water bodies within the Anglian river basin district (54%) is only slightly higher than the percentage for England and Wales together (50.3%). Still, as 15% of all surface waters are designated as artificial and 54% as heavily modified, a total of 69% of the surface water bodies in the Anglian RBD have been modified or made by man, which is quite high.

<table>
<thead>
<tr>
<th>Water Category</th>
<th>Number of pHMWBs water bodies</th>
<th>Total number of water bodies</th>
<th>% of number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rivers</td>
<td>4826</td>
<td>5666</td>
<td>48.2</td>
</tr>
<tr>
<td>Lakes</td>
<td>265</td>
<td>452</td>
<td>81.6</td>
</tr>
<tr>
<td>Transitional</td>
<td>122</td>
<td>154</td>
<td>91.0</td>
</tr>
<tr>
<td>Coastal</td>
<td>77</td>
<td>69</td>
<td>77.8</td>
</tr>
<tr>
<td>Total pHMWB</td>
<td>3291</td>
<td>6533</td>
<td>59.3</td>
</tr>
</tbody>
</table>

Figure 17: Number of provisional heavily modified water bodies in England and Wales
Source: EA 2008f

Setting Formal Standards

General Environmental Goal of Good Status
The general environmental goal of good status as formulated in the WFD has not been transposed into UK law.
Specific Environmental Goals
The RBMPs must contain environmental objectives and a programme of measures (Art. 10(1) Regulations). While the RBMPs are prepared by the EA, the standards are being formulated by a working group of the EA and some other environment and conservation agencies, called UKTAG. In England and Wales, the UKTAG standards will be used but these have not yet been formally adopted. In April 2008, UKTAG issued its final report to present the environmental standards and conditions (UKTAG 2008). Currently, administrations and environment agencies in England and Wales are considering how the proposed standards and conditions may be implemented. This will be done in a regulation or in a direction (Questionnaire).

Type of Obligations
Although UK lawyers are familiar with the distinction between obligations of result and obligations of best effort, a ministerial interviewee points out that it seems to be a typically Dutch distinction. Nevertheless, some things can be said about the type of obligations in UK law. Although the RBMPs are not yet available, most of the standards are being introduced as intervention values (Questionnaire). It is likely that the UK will take the view that the obligations in Article 4 WFD should in practice be achieved as obligations of result, but will also be mindful that the expression of those obligations is only an ‘aim to achieve’, should there be any difference of opinion with the Commission (Questionnaire).

6.3 The Planning Process
Goal-setting is done by the EA regional offices at the river basin district level. The UKTAG’s environmental standards need to be reflected in the basin objectives in the RBMPs. Figure 18 illustrates the coordination and decision-making on goal-setting across the hierarchy of scales. This description summarises the process:

- Firstly, default objectives are set based on the UKTAG’s efforts on some of the ecological classification work, European intercalibration work and priority substance legislation.
- To meet these objectives, a toolkit of instruments and measures is produced.

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35 These include the Countryside Council for Wales, English Nature, the Environment and Heritage Service (Northern Ireland), the Joint Conservation Council, the Scottish Environment Protection Agency, Scottish Natural Heritage, and the Republic of Ireland’s Department of Environment Heritage and Local Government.
38 They will be published in the last week of December 2008 (Questionnaire).
- Following this exercise, there is a high-level strategic assessment, where the feasibility, costs and cost effectiveness of different options for achieving the default objectives are evaluated.
- The outcome of the assessment is taken into the development of scenarios per RBD, where the use of alternative objectives (for HMWB and AWB, use of extension and exemption) is introduced.
- Programmes of measures are developed for each of the scenarios.
- To eventually draft the RBMPs, the scenarios will be further assessed looking into the cost-effectiveness and disproportionate costs.
- Finally, the choice for a scenario is made and will be submitted to the Secretary of State for approval.

**Figure 18: Coordination and decision-making across the hierarchy of scales**

Source: EA 2006a

The Anglian river basin district management plan was drafted by the Environment Agency, together with the Anglian Liaison Panel. A public consultation round was planned for 22 December 2008 through 22 June 2009, during which people can formulate comments and discuss the proposed actions. These comments will be used to revise the draft plan and produce the first (formal) Anglian river basin district management plan.

At present, only 5% of surface water bodies (rivers, lakes, estuaries and coastal waters) and 65% of groundwater bodies have achieved a good status. The reason these figures are not higher could be due to a combination of several factors, but it is often caused by a single pressure. In the Anglian River Basin District, approximately 180 water bodies
(23%) are currently failing to achieve good status because they do not meet the required standards for a single pressure (high phosphate levels, low dissolved oxygen levels, low invertebrate counts, low fish counts).

6.4 Programme of Measures

Legal Establishment

The Environment Agency must prepare programmes of measures and submit these to the appropriate authority for approval (Article 10 (1) Regulations). The appropriate authority can then approve, modify or reject them. In case of a rejection, the appropriate authority must direct the Environment Agency to resubmit a proposal (Article 10 (3) and (4) Regulations). Eventually, the appropriate authorities must ensure that the programmes of measures are established by 22nd December 2009, made operational by 22nd December 2012 and reviewed/updated every six years (Article 10 (5) Regulations). Moreover, the appropriate authorities must ensure that the programmes of measures are coordinated for each RBD (Article 3 (2) Regulations).

In practice

To ensure timely publication of RBMPs and to fulfil WFD requirements, a series of steps need to be taken. Figure 19 offers a schematic view of them.
In the draft RBD management plans, the programme of measures is part of two annexes: annex C contains the PoM by sector, annex B goes into local measures per catchment. A separate draft impact assessment shows the costs and benefits of implementing the plan. It specifies the impacts of various actions and makes an analysis of the impacts on various sectors. It examines scenario A and scenario B (preferred by the EA) as laid out in the draft RBD management plan, along with scenario C, which is more ambitious but also more costly. The EA will produce a final impact assessment in 2009; it will accompany the river basin management plan when this is submitted to the Ministers for approval.
In contrast to countries such as the Netherlands, there is no discussion on the division of tasks while drafting the programmes of measures and the draft RBD management plan, as the Environment Agency both designs and implements the measures. The EA in turn seems to take a pragmatic approach: what can be reasonably achieved in a cost-effective way? Interviews point out that, until now, no significant discussions have been held on the type of measures to be utilised. Perhaps public inquiries on the draft management plan will change that shortly.

6.5 Resources

In July 2007, DEFRA again estimated the cost of implementing the WFD. Two scenarios were investigated. The first scenario, which aimed at achieving good status in 2015 by implementing all tried and tested measures as soon as possible, was believed to cost 1.3 to 2.5 billion pounds per year.\(^{39}\) The second scenario, which aimed at achieving the objectives in later planning rounds ending in 2021 and 2027 by putting off disproportionate measures, reduced the cost to between 0.7 to 1.35 billion pounds per year. The preference for the phased approach (the second scenario) was expressed explicitly in the preliminary cost-effectiveness analysis. The outcome of these calculations significantly exceeded DEFRA’s estimations at the time the WFD was transposed in 2003: then the cost was estimated at 500 million pounds.\(^{40}\)

Interviewees indicated that the WFD did not lead to an actual increase of the budget. Instead, existing policy measures seemed to be continued as in a ‘business as usual’ scenario. Of course, the government finances the administrative activities to prepare and implement WFD actions. Most likely a discussion on budget will accompany the approval of the RBMPs in 2009, but at this time there are no indications of increasing the water policy budget, nor are there explicit political discussions on the allocation of cost between government, water sector, farmers etc. This may change with the publication of the draft Anglian RBD management plan in December 2008. For each of the three scenarios (A, B and C), the draft management plan contains information on costs and benefits (see Figure 20).

\(^{39}\) On 23 December 2008 the currency converter indicated that 1 GBP = 1.06 EUR.
\(^{40}\) From our source, it is not clear if the estimated cost of implementing the WFD includes ‘Business as Usual’ water management or only relates to extra WFD related measures.
### Costs and Benefits

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Costs</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average annual undiscounted costs (£m)</td>
<td>Total PV (£m)</td>
</tr>
<tr>
<td>Scenario A</td>
<td>35.4</td>
<td>2,079.9</td>
</tr>
<tr>
<td>Scenario B</td>
<td>7.5</td>
<td>249.3</td>
</tr>
<tr>
<td>Scenario C</td>
<td>0.7</td>
<td>4.3</td>
</tr>
</tbody>
</table>

**Figure 20:** Costs and benefits, associated with three scenarios, applying to the Anglian RBD management plan

**Source:** Summary of information in the draft Anglian RBD management plan (December 2008)

**Scenario A** reflects the actions that the WFD describes as basic measures. It also includes some additional measures already put in place to implement the WFD, for example the Catchment Sensitive Farming Delivery Initiative (see further).

**Scenario B** proposes actions that the EA believes should happen, in addition to scenario A. They fall into two categories: new actions that rely on national decisions and legislation, and new actions that are local and rely on initiatives that have been proposed in the Anglian river basin district. Delivering scenario B implies additional costs, over scenario A, for a variety of sectors. The three main sectors bearing these additional costs would be the water industry, central government and the Environment Agency.

**Scenario C** encompasses further actions which, if implemented, could lead to even greater environmental protection and improvement. Better understanding is still needed of how to implement these actions, and on how effective they would be, so that it can be assured that they are feasible and not disproportionately costly. Delivering scenario C implies additional costs over scenarios A and B. The three main sectors bearing these additional costs would be the Environment Agency, angling and conservation, and central government.

### 6.6 No Deterioration Principle
The UK rarely determines high-level principles in legislation. In England and Wales, the Regulations provide no purpose or high-level principles of any kind, including the principle of no deterioration (Questionnaire).

In 2006, DEFRA and the Welsh Assembly Government issued guidance to the EA which briefly mentions the principle of no deterioration (DEFRA & WAV 2006). According to the wording used, the principle is interpreted as the deterioration of status class (DEFRA & WAV 2006, Annex 6). In February 2008, a new draft guidance was published which contains more specific information (DEFRA 2008). This document cannot yet be considered to be statutory guidance. Once in force, it will function as an addition to the previously issued guidance.

The draft guidance also considers deterioration to be **deterioration in status class**. According to the draft guidance, new activities should not be authorised or endorsed without a detailed environmental assessment, showing that the activity would not prevent the objective of non-deterioration being met (DEFRA 2008, points 50 & 51). However, the EA may authorise activities that would be likely to cause a deterioration in status if the benefits of allowing the activity would outweigh the adverse environmental consequences and otherwise comply with WFD requirements (DEFRA 2008, point 56).

For drinking water protected areas, the EA should not only aim to prevent any deterioration between status classes, but also within status classes for the parameters set out in the EC Drinking Water Directive (DEFRA 2008, point 72).

There is also a guidance paper by UKTAG, aimed specifically at the no deterioration principle (UKTAG 2006). In the UKTAG guidance, it is considered that the wording of Article 4(1)a and 4(1)b of the WFD defines this principle as deterioration between status class. The requirement is assumed to **apply to each water body**. According to the guidance, the deterioration of the status of one water body cannot be offset by an improvement in another. Although the status class of a water body is dictated by its worst quality element (one out, all out), the guidance finds a deterioration of the other quality elements to that same class to be a violation of the principle. The guidance gives **no indication as from what date onwards** deterioration must be prevented (UKTAG 2006, pp. 1 & 2).

Apart from this guidance document, the standards formulated by UKTAG are also set with the principle of no deterioration in mind (UKTAG 2008, p. 16).

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41 Issued under Article 20 Regulations.
42 Notably Article 4.7 WFD.
43 The guidances that UKTAG issues lack the statutory provisions on the basis of which DEFRA issues its guidances. If there is no statutory provision as such, then the guidance will not be binding, but may still be something that the body to whom it is addressed will be expected to take into account. However, the UKTAG guidance, or some parts of it, will eventually be acted upon by issuing Directions to the Agency and other bodies if need be (Questionnaire).
Practical Implementation

With practitioners as well, there is no certainty on the reference date for no deterioration. Interviewees refer to the fact that the European Commission will most probably give its opinion later on, during the WFD implementation process. To them, 2006 seems a reasonable starting date for the monitoring programme started at that time. It is clear to everyone, however, that it will take several years to have a well-monitored overview of the actual condition of water systems.

The Ministerial Guidance states that the UK will target the actions of the RBMPs on preventing deterioration, achieving protected area objectives and tackling status failure where there is the strongest evidence of a risk that the ecology will be impacted. This implies that ‘no deterioration’ is high on the minister’s agenda, particularly when it comes to deterioration of water bodies within nature reserves.

6.7 Use of Exemptions

Legal Establishment

Just as the general goal, the exemptions are not mentioned in the Regulations. However, all the UK jurisdictions have stated that the intention is to make the fullest possible use of the exemptions, as an integral part of the WFD implementation (DEFRA 2008). The circumstances under which alternative objectives may be used in England and Wales are outlined in Guidance 13c ‘Draft principles for an objective setting framework for river basin management planning in accordance with the Water Framework Directive’. According to this document, the possibility of extending the 2015 deadline should be explored first, before considering the application of a less stringent objective than good status.

Use of exemptions and extensions in practice

From the point of view of DEFRA, Welsh Assembly Government and EA, the full three periods will be needed to meet the WFD objectives, making use of the extensions clause (cf. UKTAG guidance 13c, mentioned above). Several arguments support this viewpoint (Questionnaire). (1) Economic reasons. It is too expensive to try to reach good status or good potential as early as 2015. Using the full three rounds of the RBMPs is expected to spread out the cost of WFD implementation. (2) Practical infeasibility. It is considered infeasible to reach the goals by 2015 because the ambitions are so high and there are too many water problems to cope with. (3) Scientific uncertainty. What mix of instruments is

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44 Available at http://www.wfduk.org/tag_guidance/Article%2011/POMObjectivesetting/WFD13cObjectivesetting. The UKTAG guidances lack the statutory provisions, on the basis of which DEFRA issues its guidances. If there is no statutory provision as such, then the guidance will not be binding but may still be something that indirectly the body to whom it is addressed will be expected to take into account. However, the UKTAG guidance, or some parts of it, will eventually be acted upon by issuing Directions to the Agency and other bodies if need be (Questionnaire).

45 Or (for ecology in HMWBs): good potential. See page 3 of the guidance document.
most ideal to reach the goals? Even after many years of policy implementation, it is often impossible to assess the effectiveness of instruments over the long term. (4) Physical circumstances. For some substances, it will take more time (longer than until 2015) to see the results of measures.

When 2027 approaches and if it turns out that the goals will not be reached, then DEFRA, Welsh Assembly Government and the EA will probably use the exemptions clause of the WFD. They are rather reluctant to use this clause by 2015 and 2021, as it will be difficult to predict at that time what the final result of the efforts will be.

The English government did not define interim goals (Questionnaire). They argue that interim goals do not allow a flexible approach.

6.8 Integration

Integration in general

In general, each public body, in exercising its functions so far as they affect a river basin district, must have regard to the approved RBMPs and any supplementary plan (Article 17 Regulations). This general obligation is a common formulation, meaning that the body to whom the guidance is given must be able to demonstrate that it is aware of it and – if it departs from it – that it can justify any departure.46

Water authorities consider the water quality norms in their regulatory decisions and policy formulations. Regarding water abstraction permits, there is a general requirement to take current water usage into account, particularly for abstraction controls. Flow is a determining factor for consent, along with protected (pre-existing) rights (sections 39-40 Water Resources Act). The UKTAG conditions and standards limit the volume of abstractions that may be made, depending on the flow and the river type etc, in order to achieve a classification of ‘good’. If a new abstraction will lead to a deterioration in the status classification of a water body, then in the future the permit will probably not be granted (unless an exemption applies) (Questionnaire).

Regarding discharge permits, the quality of the receiving water must still be able to meet the relevant quality standards when any new discharge permit is issued.47 If a new discharge will exceed a mandatory standard, a permit will not be granted. If a new discharge will not breach a quality standard as such, but will nonetheless lead to a

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46 Very rarely, UK law instead uses the phrase ‘act in accordance with’. In that case a guidance is binding, and may have gone through a Parliamentary or Ministerial approval process (e.g. the statutory guidance regarding contaminated land. Because the Environment Agency issues permits regarding water use and most environmental consents, and also produce the RBMPs, there should be no conflict there. A bigger problem might be with land-use planning.

47 Discharges can be authorised under Part III of the Water Resources Act. The actual permits reflect the technical standards in EC law.
deterioration in the status classification, then the permit will probably not be granted (unless an exemption applies) (Questionnaire).

**Nature and Water**

In contrast to the Netherlands, no bargaining has taken place about the responsibilities in taking the lead in the Natura 2000 and WFD obligations. Natural England and the Environment Agency (both under the coordination of DEFRA) each have their competences regarding, respectively, Natura 2000 and WFD.

Natural England is involved in UKTAG, a working group on WFD implementation. Natural England’s participation brings about the possibility of having input into strategic decision-making on the WFD. On the other hand, Natural England is not assigned a leading role in the development of the RBMPs. It is involved in the liaison panel, as a representative of the nature conservation stakeholders. There is no discussion on the leading and coordinating role of the EA in WFD implementation on the river basin scale.

Important for Natural England is that the protection zones (from the Birds and Habitats Directives and other legislation) are taken into account in delineating and designating water bodies. In the Wensum catchment, the delineation and designation of water bodies is considered to be of strategic importance for goal-attainment in Birds and Habitats Directives implementation. By making good choices on delineation, the EA aims to help attain the high ecological objectives of protected areas.

**Agriculture and Water**

Risk assessments for the WFD, carried out by the EA, show that some 44% of waters are unlikely to meet their environmental objectives due to pressures from diffuse pollution, especially agricultural nutrients. New instruments are being put into place to change agricultural and rural policy and its delivery (EA 2006a).

1) A 2003 Common Agricultural Policy reform decoupled agricultural payments from production, and introduced the Single Farm Payment, which approximately 140,000 farmers in England and Wales have applied for. Farm subsidies are no longer paid on the basis of production, but are explicitly linked to demonstrating observance of cross-compliance regulations including a requirement to manage land in good agricultural and environmental condition. Cross compliance complements new agri-environmental schemes, which implies that farmers can be rewarded for positive soil and water management.

2) Government Offices in each English region have been charged with coordinating the development of Regional Rural Development Frameworks. These frameworks seek to bring together regional organisations to agree upon priorities.
covering environmental, economic and social issues. These regional chapters are brought in as part of the England Rural Development Plan and the river basin planning under the WFD.

3) The EA, working with DEFRA and Natural England, has set up the Catchment Sensitive Farming programme. This uses a range of instruments, including advice and incentives, targeted support in priority catchments and, where required, enhanced regulation. The EA has appointed Catchment Sensitive Farming officers in each RBD. The lead Catchment Sensitive Farming officer for each RBD is involved as an officer in attendance at liaison panel meetings.

Furthermore, the agricultural sector is represented in the liaison panel in each of the eleven river basin districts of England and Wales.

The Catchment Sensitive Farming programme is rather unique, compared to other countries. The EA, working with DEFRA and Natural England, has set up the Catchment Sensitive Farming programme to encourage early voluntary action by farmers to tackle diffuse water pollution. The programme is specifically designed to help achieve the 2010 target for Sites of Special Scientific Interest (SSSIs) and, from 2009, the PoMs required under the WFD. The Capital Grant Scheme (subsidies for farmers) is available for the first WFD cycle within the priority catchments which were identified by the Environment Agency and Natural England.

Spatial Planning and Water

Legal Establishment

Current planning legislation for England is consolidated mainly in the Town and Country Planning Act 1990. Parts of the Town and Country Planning Act have since been repealed or amended. Most important in this respect is the Planning and Compulsory Purchase Act 2004. This Act has brought major changes to the system of spatial planning law existing until then and more specifically to the old development plan system. Part I of the Act provides for the new regional spatial strategies. Part II of the Act provides for local development documents.

The regional spatial strategies should provide a broad development strategy for the region for at least fifteen years. Among other things, it is to identify the scale and distribution of new housing and priorities for the environment, transport, infrastructure, economic development, agriculture, and waste treatment and disposal (see Moore 2005). The regional spatial strategies should set out the Secretary of State’s policies in relation to the development and use of land within the region. The regional spatial strategies

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48 It should be noted at the outset that the system of spatial planning operative in England is a complex system. It is, in the words of one author, ‘a system (…) of bewildering intricacy’ (Howarth 2001). As it is impossible to go into all the intricate details, this section is limited to a rough outline of the system as it is today.
should also include policies which contribute to the achievement of sustainable
development in line with Section 39 of the Act. Section 39 requires persons or bodies
responsible for exercising any function in relation to a regional spatial strategy to
exercise that function with the objective of contributing to the achievement of
sustainable development (Moore 2005, pp. 89-90). Whereas until recently the regional
spatial strategies were formed by existing documents, e.g. existing regional planning
guidance from the Secretary of State, it is obvious that amendments to the regional
spatial strategies will be required periodically, particularly if national policies are
changed. Any Revision of the existing regional spatial strategies is the task for the
Regional Planning Boards. For a body to be recognised by the Secretary of State as a
Regional Planning Board, it is required that it should comprise a sufficiently broad range
of stakeholders. These stakeholders, of course, may also be (representatives of) water
companies.

In revising a regional spatial strategy, European legislation, policies, programmes and
functions must also be taken into account, to the extent that they are relevant for the
region. A regional spatial strategy requires a strategic environmental assessment in
accordance with EC Directive 2001/42. Section 6 of the Act provides for community
involvement, or public participation in the preparation of a regional spatial strategy.
Section 7 of the Act and the relevant regulations require the Regional Planning Board to
send the draft revision to the Secretary of State. The Secretary of State has power to
make changes to the draft.

Section 5.13 of the Act requires the local planning authority (hereinafter referred to as
LPA) to keep under review the matters which may be expected to affect the
development of its area of the planning of its development. Among these are the
principal physical, economic, social and environmental characteristics of the area of the
authority, and such other matters as may be prescribed or as the Secretary of State may
(in a particular case) direct. LPAs must have a local development scheme. This scheme
must specify, among other things, the documents which are to be local development
documents and the documents which are to be development plan documents. Central
government control over the extent of a local development scheme is ensured by
requiring its submission to the Secretary of State. The Secretary of State has wide powers
concerning local development schemes. Above all, he has the power to direct the LPA to
make such amendments to the scheme as he thinks appropriate. These powers ensure
that local development schemes are consistent with the policies of the regional spatial
strategy. The local development scheme must also be submitted to the Regional
Planning Board.

Local development documents are in effect a portfolio of documents which collectively
set out the LPA’s planning strategy for its area. The Secretary of State has the authority
to prescribe the form and content of local development documents. In the preparation of
local development documents, the LPA must consider, among other things, national
policies and advice contained in guidance issued by the Secretary of State and the relevant regional spatial strategies. The Secretary of State may also prescribe which local development documents are to be development plan documents. Development plan documents are those documents which are to form part of the LDP.

The relevant regulations concerning the preparation of a local development plan document provide for consultation and public participation. Development plan documents should comply with the strategic environmental assessment required under EC Directive 2001/42. Development plan documents must be submitted to a Planning Inspectorate for independent examination. The purpose of the examination is to determine whether the development plan document satisfies the requirements of the Act with regard to its preparation, and ‘whether it is sound’. The Inspector may propose modifications to the development plan document. These modifications are binding on the local planning authority. Furthermore, the Secretary of State has the power to direct that a development plan document should be submitted to him for approval. Finally, Section 38 of the Act provides that the development plan for an area shall be the regional spatial strategies for the region in which the area is situated, and the development plan documents which have been adopted or approved in relation to that area.

Under the Planning and Compulsory Purchase Act 2004, in dealing with applications for planning permission, the local planning authority must act in accordance with the development plan ‘unless material considerations indicate otherwise’ (Section 38(6) of the Act). In other words, a local development plan is not completely binding.

It follows from the above that the question to what extent water interests are of significance in the present system of spatial planning is somewhat difficult to answer. English spatial planning law as such does not contain any provisions which explicitly prescribe water interests to be taken into account in the preparation and adoption of regional spatial strategies, local development documents, development plan documents and such like, let alone any provisions which prescribe an outcome that is in conformity with the demands of the WFD or ensures that its goals will be attained. Also, as far as we have been able to ascertain, English planning law does not provide for a so-called water test, as does Netherlands law.

This is not to say, however, that water interests and the demands of the WFD do not play any part in English spatial planning. Water is without a doubt relevant to the decision-making in this field and as such, will be taken into consideration. The legal framework in the field of planning law provides ample opportunity for this. The Regional Planning Boards, for instance, which are responsible for the revision of the regional spatial strategies, may comprise (representatives of) water companies and there are also possibilities for water companies and other stakeholders to participate in the preparation of local development documents and development plan documents. However, most important for the extent to which the outcome of the decision-making
process will be conducive to furthering water interests is the role of central government, more specifically the role of the Secretary of State. As we have seen, the Secretary of State has wide powers in the field of spatial planning. As far as meeting the demands of the WFD is concerned, his policy concerning water and his willingness to ensure that other authorities adhere to this policy, are of vital importance.

In connection with this it should once again be noted that each public body, in exercising its functions so far as they affect a river basin district, must have regard to the approved RBMPs and any supplementary plan (Article 17 Regulations). Since all planning authorities are public bodies as defined in the Regulations, it is obvious that they must have regard to the relevant RBMP as well. The importance of spatial and land use planning in meeting the demands of the WFD also receives considerable attention in the previously mentioned River Basin Planning Guidance from the Secretary of State and the National Assembly for Wales. This statutory guidance among other things directs the Environment Agency to establish a liaison panel for each river basin district, comprising representatives of key organisations likely to be affected by the RBMP. Concerning the membership of these panels, the Guidance explicitly mentions local authorities responsible for land use planning measures. The Guidance also expects the Environment Agency to promote and encourage the engagement of other public bodies in river basin planning and the inclusion in public bodies’ plans, policies, guidance, appraisal systems and casework decisions. According to the Guidance this partnership should be a two way process. Other public bodies, such as planning authorities, should be able to influence the river basin planning process, and river basin planning should also influence their plans and strategies.

As noted above, in the field of planning law, the Secretary of State has a dominant position. It would appear from the Guidance that he is well aware of the role water interests can and should play in this field, and of the necessity of forging a relationship between water and spatial planning.

**Integration in Practice**

The EA is working to encourage spatial planners to consider WFD objectives in development plans. Development plans may be Regional Spatial Strategies and Local Development Frameworks in England, and Local Development Plans in Wales. The problem with these plans is that there is a mismatch in the timing: the regional spatial strategies and the development plans are due to be in place before 2009, when the RBMPs are published. To raise awareness of the WFD and the relevance of RBMPs, in 2005 the EA published *Environmental Quality in Spatial Planning*. This guideline explained how to incorporate the natural, built and historic environments into plans and strategies, and included advice on the WFD. In 2006, the EA published another document, *WFD and Planning: Advice to Planning Authorities*. 
Interviewees stated that the influence of the EA on spatial planning affairs remains rather limited. For the EA, it is difficult to intervene in the policy strategies of spatial planners at communal or local government levels, as they fall under another department (Communes and Local Governments) and have other financial streams. While sustainable development is stated to be a main principle in the new spatial planning system, the main objectives of these plans remain economic development.

**Sewage Treatment and Water**

OFWAT sets the price limits that water companies are allowed to charge their customers. This process takes account of water company business plans. In their business plans, water companies describe the services and improvements they intend to provide. These include improvements to sewage treatment needed to meet obligations such as the company’s contribution to WFD programmes of measures. The possibility of intervening via the business plans of a water company is assessed positively by the EA in the light of WFD implementation. Because the WFD sets long-term goals over six-year planning cycles, the water industry has the opportunity to plan for and reduce the environmental impact of its activities in an efficient way over longer time scales than before.

**6.9 Conclusions**

In England and Wales, the central government is responsible for WFD implementation. An internal division of tasks characterises their modus operandi: ministries (DEFRA and Welsh Assembly Government) publish guidance papers and carry out preparatory work, competent authorities (EA) are responsible for the practical implementation and feedback to DEFRA and Welsh Assembly Government.

In implementing the WFD, England and Wales have an historic advantage with the EA already working for decades on a river basin scale. Regional offices of the EA take the lead in river basin district planning with small teams responsible for planning and communication, backed up by massive EA information on water quality, flooding etc. Deconcentrated working is characteristic of WFD implementation in England and Wales.

England and Wales employ a liberal interpretation of European directives, including the WFD: there is no legal establishment of goals, the exemptions and extensions clauses in the WFD are not even transposed into internal law etc. However, this by no means implies a weak organization of WFD implementation. England and Wales take WFD obligations seriously, but are thoroughly pragmatic in their approach. There is an explicit ambition to reach good water quality, no excuses are sought in the designation of a disproportionate number of artificial and heavily modified water bodies, and particularly concerning protected zones there is a clear political will not to tolerate any deterioration. On the other hand, pragmatism rules. England and Wales will no doubt
make use of the full three periods, and also (in the longer term) the use of exemptions is a certainty. Their argumentation is in preparation: disproportionate costs, uncertainty concerning long-term policy effects, physical circumstances hindering goal attainment etc.

With regard to integration, the liaison panels are interpreted as an important vehicle. There is no cynicism on the use of participatory methods to come to an agreement with the sectors. The diffusion of information and open discussions on policy measures are considered essential. Besides this form of organisational integration, the instruments available for WFD implementation are mainly sectoral: the Catchment Sensitive Farming programme is an initiative from the environmental policy domain, and this is also true for OFWAT agreements with the water companies. The English/Welsh implementation of WFD does not seem to result in any substantial or instrumental integration measures.

References


Questionnaire: A response to written questions by Dr Sarah Hendry, Lecturer in Law at the UNESCO Centre for Water Law, Policy and Science, University of Dundee, Scotland


Visit Norwich (2008), Map of the Norfolk Broads and the towns and villages around them, www.visitnorwich.co.uk/broads-maps.aspx, accessed 4 November 2008

Interviewees


David Freeman, Environment Agency, 14 July 2008, Peterborough


Peter Grimble, Natural England, 26 August 2008, Norwich
Richard Leishman, Natural England, 26 August 2008, Norwich

Paul Hammett, National Farmers’ Union, 1 September 2008, Newmarket

Clive Harward, Anglian Water, 2 September 2008, Huntingdon

Robert Hitchin, Environment Agency, 3 September 2008, Bristol
Appendix

In designating provisional artificial water bodies, these criteria were used:

- Size
- Ratio of catchment area to water body area
- The feature has an obviously artificial shape, with one or more straight or regularly curved side.
- Lack of feeder streams or outflows
- Description as ‘quarry’, ‘sand pit’, ‘gravel pit’, ‘peat diggings’ etc on map
- Named as ‘canal’ on maps.
- Has locks shown on OS maps.
- Follows contours rather than flowing down a valley and crossing contours approximately at right angles.
- Water body goes over roads, railways, etc. using ‘aqueducts’ that are sometimes marked on OS maps
- Water body flows through lengthy tunnels
- Channel drains an area already drained by another stream, and may flow into another adjacent catchment.
- Channel runs into a reservoir.
- Channel may be named as a ‘leat’, etc. on OS map.
- There is a black line around the feature, but within coastline.
- The feature is located ‘off-stream’, i.e. it is located adjacent to a river or estuary, not in what one would consider to be the original channel.
- It was not created through a built harbour wall (into transitional or coastal water body)

Source: EA 2008i

To identify provisional HMWBs, water bodies were assessed for the occurrence of morphological pressures:

<table>
<thead>
<tr>
<th>Rivers</th>
<th>Lakes</th>
<th>Transitional</th>
<th>Coasts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank and bed reinforcement (HMC)</td>
<td>road/track development on shoreline</td>
<td>land claim</td>
<td>land claim</td>
</tr>
<tr>
<td>Band and bed resectioning (HMC)</td>
<td>buildings around lake perimeter</td>
<td>Shoreline reinforcement</td>
<td>shoreline reinforcement</td>
</tr>
<tr>
<td>Bank modification (HMC)</td>
<td>impoundment</td>
<td>navigation dredging</td>
<td>navigation dredging</td>
</tr>
<tr>
<td>Embankment (HMC)</td>
<td>modification to the main feeder streams</td>
<td>aggregate dredging</td>
<td>aggregate dredging</td>
</tr>
<tr>
<td>Culverting (HMC)</td>
<td>‘non-natural’ land use around lake</td>
<td>placement of dredged material</td>
<td>placement of dredged material</td>
</tr>
<tr>
<td>Dams, weirs and fords (HMC)</td>
<td></td>
<td>Inshore commercial fishing</td>
<td>Inshore commercial fishing</td>
</tr>
<tr>
<td>Bank poaching (HMC)</td>
<td></td>
<td>Shellfish harvesting</td>
<td>Shellfish harvesting</td>
</tr>
<tr>
<td>Artificial bed material (HMC)</td>
<td>Flow manipulation</td>
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<tr>
<td>Weed cutting and mowing (HMC)</td>
<td>Impoundments</td>
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<tr>
<td>Foot/road bridges (HMC)</td>
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<tr>
<td>Groynes (HMC)</td>
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<tr>
<td>Flow control (HMC)</td>
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Source: EA 2008
CHAPTER 7 CASE STUDY GERMANY
Rur Catchment in the Meuse River Basin District in North Rhine-Westphalia, Germany

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7.1 Introduction

River Basin District Meuse and Catchment Characteristics

The Rur catchment is a tributary to the Meuse River Basin, which includes several countries: France, Belgium (Wallonia, Flanders), the Netherlands and Germany. The tributaries of the Niers, (Eifel-) Rur and Schwalm are mostly in Germany, but flow into the Maas (Meuse) in the Netherlands. Germany, with approximately 3,700 km², has the smallest surface area of the Meuse river basin. However, the German part is not unimportant: of the 7.7 million inhabitants in the Maas Basin area, 23% of them (1.8 million) live in Germany. In comparison, the Netherlands has 39%, the Belgian provinces 31%, and France 7%.

The Rur (Roer in French or Dutch) originates in Belgium, though 90% of the river is located within the state of North Rhine-Westphalia in Germany. The river flows into the Meuse in the Netherlands at Roermond. The total basin area is 2,340 km² and the length of the river is 163 km. The upstream area in Germany is in the Eifel area, which is an area with hills, woods and large water reservoirs. The downstream area is more populated, with both agricultural land and industry. The land use is divided into farmland (34.7%), woodland (26.9%), grassland (16.1%), built-up area (17.9%) and a remainder of 4.4% (www.flussgebiete.nrw.de).

River Basin Management and Coordination

North Rhine-Westphalia (NRW) is responsible for parts of four river basin districts, the Rhine, Weser, Ems and the Meuse. Except for the Weser, the rest of the river basin districts are international. NRW further divides these districts into twelve sub-basins called Teileinzugsgebiete, one of which is the Rur.
The state of NRW consists of five administrative regions (*Regierungsbezirke*, *districts*). The capital of NRW is Düsseldorf, and the largest city is Cologne. The Rur river is situated within the Cologne region of NRW. The Cologne region is further divided into eight *Kreise* (counties) and four *kreisfreie Städte* (county-free towns).

The Rur is in both the Düsseldorf and Cologne region. The most relevant counties (*Flächenkreise*) are:
The counties contain in total 42 municipalities (Gemeinden). The Cologne regional government (Bezirksregierung) has an office in Aachen, which is responsible for the Rur and the southern tributaries of the Meuse (Die Geschäftsstelle Rur und südliche sonstige Maaszuflüsse). The town of Aachen is a county-free town.

Relevant is also the water board (Wasserverband) Eifel–Rur in Düren. The Wasserverbände play a special role in the institutional landscape of Germany, where municipalities cooperate in the associations to ensure an efficient organisation of water supply and sewerage in their working area (Winnegge and Maurer 2002). Many municipalities delegate part of their tasks such as sewage treatment to these water boards (Leussen, Slobbe et al. 2007). The technical, economic and ecological aspects of water management are tackled by the association, which is based on the principle of user participation and local autonomy (Winnegge and Maurer 2002). The river basin approach is most prominently applied in North Rhine-Westphalia (Mostert 1998a), where nine statutory river basin associations (sonderegsetzliche Wasserverbände) form the operational organisation (Winnegge and Maurer 2002). It is only in NRW that the water boards cover the entire river basin areas. In other states of Germany, there are only a few and often smaller water boards.

As noted in Chapter 2, the competent authority of the Meuse RBD in Germany is the Ministry for Environment, Nature Protection, Agriculture and Consumer Protection (MUNLV) of North Rhine-Westphalia. The MUNLV is the oberste Wasserbehörde, the Bezirksregierung is the obere Wasserbehörde and the Kreise and Gemeinden are untere Wasserbehörde. Both obere and untere Wasserbehörde give contracts to the Wasserverbände to do the operational work regarding measures in water management.49

The MUNLV of North Rhine-Westphalia has achieved a significant improvement in the chemical status of the watercourses, mainly by improving wastewater treatment and reducing industrial pollutants. At the same time, however, the morphological structure of the watercourses has deficits (Sewilam, Bartusseck and Nacken 2007).

7.2 Goal Setting Process

Designation of Water Bodies

49 See Figure 2 (Chapter 2) for a comprehensive overview of all authorities and their relationships.
Legal Establishment

According to Article 36b (3) WHG, the designation of water bodies as artificial or heavily modified should take place in the RBMPs. Consequently, the oberste Wasserbehörde (Ministry MUNLV) formally designates water bodies, since it is responsible for determining the RBMPs (see chapter 2). The RBMPs should also state the reasons for designating water bodies as artificial or heavily modified (Article 36b (3) WHG). Article 25b (2) WHG lays down the criteria for a water body to be designated as artificial or heavily modified. Those are the same as the ones mentioned in Article 4 (3) WFD. The LWG does not provide any rules concerning the designation of water bodies (Czychowski and Reinhardt, 2007).

Designation in Practice

How to characterise watercourses?

The characterisation process of watercourses is considered to be the first important step in the actual implementation of the WFD. The German working group of the Federal States (LAWA) has specified a quality classification system with fourteen different hydromorphological indicators. A stretch of water (100 m segment) can be assessed in seven categories for each of these indicators, ranging from natural to completely changed (Sewilam, Bartusseck and Nacken, 2007, p. 2039). On the basis of such a system, however, about 120,000 watercourse segments would have to be investigated in order to evaluate them and discuss rehabilitation measures, which is almost impossible due to the small number of experts in the field (idem p. 2040). This is one of the reasons why a decision support system (DSS) was designed to model specific effects of specific measures, in so-called ‘if-then rules’, which are based on different scenario’s (Sewilam, Bartusseck and Nacken, 2007). The DSS was, however, not used to draft the programme of measures, but will, according to the Ministry, be used as a tool to take measures in the future for more specific planning. We will return to the programme of measures in Section 2.4.

Designation of water bodies in NRW

Because of new information and changing political preferences, the designation of water bodies has seen major changes in the implementation process of the WFD in North Rhine-Westphalia in recent years. First, a designation took place in 2004-2005 for NRW, with around 23 % Heavily Modified Water Bodies (HMBW), 4 % Artificial Water Bodies (AWB) and the rest (63 %) being ‘natural’ (other) Water Bodies (NWB) (Borchardt et al. 2005 see Figure 13).

This original designation had a higher number of Natural water bodies in comparison to the neighbouring areas of the Netherlands and Lower Saxony. After the election of 2005, in which the political regime changed its colours from Red/Green to Black/Blue (from
Christian Democrat to Liberal), this designation was redone and altered. At the beginning of 2008, it became clear that the new designation resulted in a larger number of HMWBs. According to one of the interviewees, there was a reduction of almost 50% in the number of water bodies that were originally designated as Natural, and a 50% increase in HMWBs. In a new overview, NRW water bodies were listed as about 60% HMWBs and AWBs, and 40% NWBs.

According to the Ministry, the new designation of HMWB was mainly carried out in order to be consistent with the methodology used in the rest of Germany and other European countries, and in order to comply with CIS guidance document No. 4 (Identification and designation of heavily modified and artificial water bodies).

Designation was partly based on new information on modifications of water bodies (for example, had a water body been modified in the past?). In addition, other assessment methods for structural degradation were taken up. Not unimportantly, a questionnaire for farmers (Frageboge) was set up by the agricultural representatives as a basis for new information. Agricultural stakeholders, important to the process, were of the opinion that in the first designation process, water bodies were wrongly designated as ‘natural’.

Of course, questions were raised. The nature conservation organisations were very surprised and even disillusioned by this change of course. According to one of the interviewees, these were in fact political decisions. It could be interpreted as a way of creating more policy discretion and flexibility, and weakening the ambition for water bodies to reach a good status. In general, it can be said that a good ‘ecological potential’ (for HMWBs and AWBs) was defined on the basis of the feasibility of goals and measures, and was thus more pragmatically defined as compared to good ecological status (for natural water bodies), which is based on a reference condition and is more ‘environmental-science-based’. A second argument, stressed by another interviewee, was that NRW was adjusting to its neighbours, mainly to the designations in the Netherlands, but also to those in Lower Saxony, where both had designated higher numbers of HMWBs overall. This was most apparent in border areas.

One of the problems with the reference conditions for water bodies is that watercourses can have several different ‘natural references’ during their course (e.g. from rapid streams to slow rivers). In the Rur area, some water bodies change from natural to heavily modified when going from upstream to downstream. Therefore, designation also depends on how specifically the water bodies are categorised.
Setting Formal Standards

General Environmental Goal of good Status
The WHG contains the general goal of good status (§ 25a, § 25b, § 32c and § 33a WHG). It does not contain a deadline by which to reach these goals; that has to be set by the states (§ 25c WHG). According to the WHG, the states are responsible for determining the relevant measures. Also, the laws of the states must make it obligatory for RBMPs (Bewirtschaftungsplan, § 36b WHG) to be drafted and programmes of measures (Maßnahmenprogramm, § 36 WHG) to be set.

In North Rhine-Westphalia, the LWG contains the general goal of good status. This goal should be reached by 22 December 2015 (§ 2c LWG).
The GewBEÜV transposes Annexes II, III and V of the WFD and contains the reference conditions.

Specific Environmental Goals
The WHG and LWG do not contain the specific quality standards. These will probably be determined in the RBMPs. The GewBEÜV does contain specific quality standards for priority substances and for substances being part of the ecological status. Eventually, all goals and measures per water body are summmed up in the so-called Wasserkörpersteckbriefe (Interview).

Type of Obligations
The formulation of the general goals in the WHG can be perceived as an obligation of result ('Gewasser sind so zu bewirtschaften, dass ein guter Zustand/gutes Potenzial erhalten oder erreicht wird', which can be translated as ‘water bodies should be so managed that a good status/potential shall be obtained or achieved’). This is also the opinion of the ministerial interviewees (Interview). The formulation of the obligations in the LWG also resembles that of an obligation of result (a good status/potential is to be achieved, ist zu erreichen). As far as the specific goals are concerned, the good chemical status shall be defined by intervention values. Substances that are part of the good ecological status are formulated as intervention values as well (GewBEÜV). It is still a point of discussion at the level of the LAWA whether or not other substances shall be formulated as intervention values (Interview).

7.3 The Planning Process

The Obere Wasserbehörde at the level of the Bezirkregierung (districts)\(^5^0\) is a key policy actor in the implementation of the WFD. Every sub river basin has a specific administrative

\(^5^0\) In the Netherlands, no such administrative layer exists.
agency or ‘bureau’ (Geschäfstellen) at this level, which is not bound to the administrative borders of Bezirke, but to the sub river basin itself. At this level, the content of RBMPs (Bewirtschaftungsplan) is discussed, and goals are proposed for the sub river basin. The goals and draft measures for specific areas (sub-sub river basins) are discussed in so-called Runde Tische (round tables). Municipalities, Wasserverbände and NGOs can attend these round table meetings.

**Setting objectives/goals in steps**

NRW is using the LAWA method in setting the objectives for natural water bodies (good ecological status) and the Prague method\(^{51}\) for the HMWBs (good ecological potential). The standard way of setting GEP, following the Prague method is starting with an estimation of maximum potential, which can be derived from reference conditions (e.g. resembling natural water bodies). After this, all possible measures are collected (initially without looking at the costs). Next, the feasibility of these measures is considered, to determine what is possible and what is impossible (without extreme economic, ecological or societal costs). Finally, feasible and efficient measures are chosen to reach a good ecological potential. For the regional waters, goals and measures are usually set by the level of the district agency, the Geschäftsstelle for sub river basins. The Ministry coordinates and supervises this process. In this coordination process, the Ministry can ask questions about different solutions in comparable cases (sub river basins or water bodies). Ultimately, the Ministry is responsible for the RBMP and decides on the selection of goals and measures.

### 7.4 Programme of Measures

A summary of the programme of measures must be laid down in the river basin management plans. The programme of measures is formally the responsibility of the national government of the Länder, in our case the MUNLV. The actual implementation is carried out by the districts (Bezirksregierungen), the Kreise / kreisfreie Städte and the Landwirtschaftskammer on the one hand, and by the municipalities, the water boards (Wasserverbände), the state (both federal and Länder) and individual farmers as Massnahmenträger - who are implementing measures - on the other (Interview).

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\(^{51}\) See also the Introduction of this report. There are different methods possible to reach GEP and GES. The Royal Method starts from the 'end state' reference conditions and then determines the High Ecological Status (for Natural Water Bodies) and Maximum Ecological Potential (for HMWBs and AWBs), which are then used to derive the objectives that are reflecting good ecological status and good ecological potential. The Prague Method begins with the current (modified or artificial) status of water bodies and derives objectives that are possible and feasible to reach improvements. At the end, it is also directed towards reaching good ecological potential.
Programme of Measures in practice

The process of designing and deciding upon programmes of measures, which is especially crucial for reaching good ecological potential in HMWBs and AWBs, is showing an ambiguous picture in NRW. For some of the river basins, the MUNLV is using a Decision Support System (see Section 2.1 Characterisation of water bodies) as a tool to support decision-making for future measures in order to allocate resources and develop programmes of measures in NRW. The Decision Support System was implemented for seven rivers (Stever, Berkel, Sieg, Niers, Issel, Wienbach and Ottersgraben). The Berkel case was elaborated in more detail (Sewilam, Bartusseck and Nacken 2007). For example, to go from Class 6 to an improved morphology of Class 3, the development time can be set at eighteen years with minimum costs; by that time Class 3 can be reached in 75% of the river segments (Sewilam, Bartusseck and Nacken 2007, p. 2046).

But the options for ecological targets and programmes of measures are also intensively discussed in the district offices of the Bezirksregierung and the round table discussions. So, although there are general decision-making tools for programmes of measures, the process of deciding upon measures in NRW is not clear. There are problems in deciding upon the actual sets of measures to realise a GEP. One of the interviewees said that it was yet unclear what was meant by a good ecological potential. ‘Until that is clear, one has to do all that is possible.’ He added that measures were proposed as general targets per water body. This interviewee, who was involved in many working groups and Runde Tische, said that in the process of round tables the participants at first defined the measures that would have a positive effect on the status of the surface water bodies. Unfortunately, it was not possible to appraise the costs of all the fixed measures, because of the lack of nationwide terms of reference. Therefore, there was no general view of how much money was needed. In addition, it was not clear who had to pay the costs and during what time period. These questions have to be answered before a prioritisation (with timelines) of measures is possible. This interviewee pointed out that cost-benefit analyses are done by the Ministry, but that no information was available from them to enable stakeholders to have good discussions on efficiency of measures or to use when deciding upon actual measures. This was frustrating for some of the deeply involved stakeholders.

The Ministry made clear that the concept of the planning of measures often did not allow the calculation of costs on the scale of water bodies. A top-down approach was applied, meaning that certain fields of measures for a group of water bodies were identified first. These programmatic measures were agreed during the Round Table discussions. The planning was often not detailed enough to calculate costs anyhow, so this will be done in the coming years as the further steps towards a detailed planning will be taken (bottom-up process). If any cost-data on the scale of water bodies were available, these were also given to all stakeholders. In the end most participants of the
Round Table agreed with the concept of planning ‘top-down’, allowing for flexibility in the future to realise these measures.

Reflecting on this discussion, it actually reveals a more general problem with the goal-setting process in the WFD. To be able to decide on ecological (and chemical) conditions, ecological targets, probability and feasibility of all sorts of measures and societal and economic costs of these measures, there must be enough information to be able to decide what measures have to be realised in what time period. The involved stakeholders must be provided with all information available and must be able to balance very different interests. This is asking for full rationality from all the people involved, when they in fact suffer from bounded rationality due to insufficient information, scientific uncertainties, and their own interests being at stake, which they are expected to defend.

7.5 Resources

There is some information available on estimated costs of measures on the sub-sub river basin level, in schemes and schedules of goals and measures. At the time of our research, however, we did not have an overview of total costs for the Rur area, or an overall costs/benefits analysis for WFD in North Rhine-Westphalia as a whole. There was also no reference found to a costs/benefits analysis of the implementation in NRW that could be compared to other countries (e.g. the Netherlands). Very recently, with the publication of the draft RBMP, the Minister revealed information on costs (Uhlenberg 2008, see www.flussgebiete.nrw.de). The Ministry announced a plan to add 10 million euros to the water management budget in 2009, and in total, 50 million euros for 2010 and thereafter in connection with the WFD. With these additional financial resources, there will be a total of 40 million euros available in 2009 and 80 million euros for 2010 and thereafter.

In close cooperation with the central agricultural organisation (Landwirtschaftskammer), a part of these financial resources is destined for agriculture, in the form of consultation and advice for farmers concerning nutrient management. This consultation will be supported with 1.5 million euros for the first year, and with 3 million euros every year from 2010 (Uhlenberg 2008).

7.6 No Deterioration Principle

Legal Establishment

The principle of no deterioration (called nachteilige Veränderung vermieden or Verschlechterungsverbot) is laid down in the WHG (§ 25a, § 25b, § 32c and § 33a WHG) and already existed in German law before the introduction of the WFD. The principle is not laid down in the LWG. The principle which is laid down in the WHG is formulated

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52 This is part of the draft RBMP that was published at the end of 2008.
in general terms only. According to the WHG, it should be further elaborated in the RBMPs.

The principle encompasses every influence that is neither positive or neutral with regard to the water status in an ecological or chemical respect. Some authors are of the opinion that a deterioration within status classes is allowed, while others, like Reinhardt (2007, p. 1028) say that German law does not permit this, and that even minor changes are not allowed. This view was also confirmed in an interview. Still others say that deterioration within status classes is allowed as long as it is not significant (Interview). Legislation is shaped in such a way that plans or permits in principle must be denied if deterioration (in whatever way it might finally be defined) were to take place.

The current principle applies since the day the WFD entered into force. Its wording is expressly not exactly the same as in the WFD (‘further deterioration’) and omits the word ‘further’, because that would not fit within the German water protection legislation (Reinhardt 2007, p. 1026).

**No Deterioration in Practice**

The environmental objectives, the environmental quality standards and the no-deterioration principle are applied to all waters (not only designated water bodies). At the same time, a more pragmatic approach is chosen when it comes to the question of when one could speak of ‘deterioration’. The meaning of the principle of no deterioration is perceived quite differently in practice. According to some interviewees and the EU-guidance documents, deterioration is allowed within status classes and only forbidden between classes. Not all interviewees were in agreement on this, however. The interviewees also gave different opinions concerning the starting date of the principle. Some confirmed the starting point as the year 2000 (when the WFD entered into force), others were of the opinion that the principle applied, and only could be applied, from the moment the monitoring data became available (i.e. 2003). The monitoring is done by the Landesamt für Natur, Umwelt und Gebrauchsschutz.

### 7.7 Use of Exemptions

**Legal Establishment**

The WHG lays down the exemptions in § 25c and § 25d. The deadline mentioned in the laws of the states can be extended if no further deterioration occurs, if technical or natural reasons do not allow for the goals to be reached in time, and if the costs of reaching the goals within the determined time frame would be disproportionate. The states are allowed to set less strict goals if human activities (which cannot be avoided) or natural circumstances do not allow for the goals to be reached or only with disproportionate costs, if further deterioration is avoided, and if they reach the best possible ecological and chemical status.
Exemptions in Practice

As in other countries, it will be difficult in Germany to reach the goals of the WFD in the given time frame. For Germany as a whole, it was estimated in 2004 that 14% of the surface water bodies were likely to meet the objectives, 24% was estimated as ‘possibly at risk’ and 60% was described as ‘at risk of failing the objectives’ (Borchardt et al. 2005). It is hard to give an estimation of the percentage that will be postponed to 2021 or 2027. For wastewater management, the targets are set at 2015. According to a draft document on the goals for the Rur river basin, most of the goals are to be reached ‘later than 2015’ (Interview). We could not rely on an overview of exemptions to 2021 or 2027, but the impression was that the majority of the area-specific programmes were not set at 2015, but were anticipating exemptions in time. In the interviews, mainly the costs of hydromorphological measures and the difficulties of buying out agricultural land (property rights) were mentioned. About 33% of the river length in the Rur catchment area will reach good ecological status, and about 71% of the river length will reach good chemical status.

As far as the use of less stringent goals is concerned (usually referred to as Ausnahme; in effect the lowering of targets in a specific case, and also part of exemptions), some problematic substances are discussed, e.g. the problem of copper and zinc because of runoff due to the former mining of metal ores (Alter Erzbergbau). NRW will use an exemption before 2015 for brown coal mining (Braunkohletagebau). This is explained in Textbox 7.1. The problem is the enormous impact on the groundwater levels in the area and the ecosystem in general. Through a long-term Brown Coal Plan, NRW wants to compensate these implications for the hydrological situation. Brown coal mining is also affecting cross-border groundwater systems on which the Netherlands depends. For pollution by nitrates, NRW foresees a longer period being necessary to reach the WFD goals. It is already clear that the goals for nitrates cannot be reached in 2027, but the exemption of lowering the targets will not be used.

Sometimes there are obvious physical reasons for not reaching the targets, such as with large reservoirs in the river basin. The large reservoirs in this area are the Rurtalsperre, Urtalsperre and Oleftalsperre, and this concerns specific problems with heavy metals from deep underground. These problems cannot be solved in the short term and will affect the future water quality (First International Scientific Symposium on the River Meuse 2002, p.21). Although, according to the recently published results of the 2006 to 2008 monitoring phase, the ‘effluents’ of the above-mentioned reservoirs (Urtalsperre, Oleftalsperre and Rurtalsperre) do not show any violation of the environmental quality goals for metals, there are sources of metals in the upper courses, e. g. the Schwarzbach in the upper Rur area because of the weak acid pH-value of the swamp water (Interview). There are also metal sources in the catchment area of the Urtalsperre and Oleftalsperre which are caused by geological conditions.
Brown coal mining and the Water Framework Directive: Garzweiler II

Brown coal mining is on the whole a massive interference in the natural balance of the ecosystem. Since the extraction of brown coal is carried out in dry mines, extensive lowering of the water table and sumping measures are necessary. In Garzweiler II the water table has fallen more than 200m; 80-150 million m³/a groundwater has been extracted during a period of up to 40 years.

To compensate for the effects of the brown coal mining in Garzweiler II, an extensive and ambitious catalogue of objectives has been drawn up (Brown Coal Plan). According to this, the water table in groundwater-dependent wetlands must, for instance, remain in the same state as before the impact of brown coal mining, and their biodiversity must be retained.

In order to meet these objectives, measures are being taken with a planning horizon of about 100 years. These include the infiltration of water into an aquifer, discharging water into the surface water (approx. 40 - 89 million m³/a), water treatment and, from 2030, the transition of Rhine water to refill the remaining pit (…)

If one compares the WFD objectives for the quantitative condition with the status in the individual groundwater bodies in the catchment areas, Niers and Schwalm, it is clear that the good quantitative condition is jeopardised by the lowering of the groundwater. (…) the possibilities of dealing with this conflict of objectives in line with the WFD are as follows:
• Extension of time in accordance with Art 4 (4) WFD.
• Formulation of less strict ecological objectives in accordance with Art. 4 (5) WFD.
• Feasible provisions to minimise the negative effects in accordance with Art. 4 (7) WFD.

based upon Meiners, H.G., 2002, p.34

The brown coal mining (Garzweiler II) is an example of willingly lowering the standards for 2015 because the standards cannot be met for groundwater bodies.

7.8 Integration

General

Within the competences of the water authorities, lower authorities are bound by the instructions of higher authorities. The RBMPs Ministry supervises the Bezirksregierungen and the Bezirkregierungen supervise the lower water authorities. The higher administrative body has a general power to annul decisions of a lower body.

As far as other than water authorities are concerned, the situation is as follows. The RBMPs are legally binding on all authorities. However, there is no general legal instrument to oblige other authorities to take them into account. Although there is no general legal instrument with which the Ministry could influence decisions of other ministries or lower authorities, there are diverse legal instruments that ascertain policy integration, at least to a certain extent. When considering the legal instruments for policy integration and binding rules, one has to take the content of the RBMPs into account. As
far as the RBMPs contain conservation measures that protect existing situations, these factual situations are often legally protected by planning law or nature conservation law. If, for example, a river and its banks and meadows are of great natural importance, they are in most cases already designated as a special protection area or a different kind of nature protection area. Furthermore, the spatial planning system assures that areas with special functions for certain purposes, such as, e.g., areas adjacent to rivers which serve as a retention area (Überschwemmungsgebiete), have been assigned as such in higher spatial planning (Raumordnung) or local spatial planning (Flächennutzungsplan). Most parts of the RBMPs, however, contain planned actions, things to be done. A legal instrument for the external integration of those measures does not make much sense. That seems to be the reason why, as far as we could examine, there is no substantial discussion about the existence of or the need for legal instruments for the external integration of RBMPs.

On the organisational and institutional level, a few characteristics of the implementation in NRW are important. First of all the Competent Authority, the Ministry for Environment, Nature protection, Agriculture and Consumer Protection of North Rhine-Westphalia (MUNLV), is in itself a combination of very different policy fields and socio-economic interests. Integration can be, and has to be somehow, accomplished within the Ministry itself. Secondly, there are organizational and procedural institutions that function as platforms to attain integration, such as the steering group (Lenkungsgruppe) that exists at the ministerial (Länder) level where groups of different interests meet as well (governmental authorities, water boards, fish boards, nature boards, agricultural organizations, etc.) This steering group gives advice and influences the groups at the different round tables in the region. In these round tables (Runde Tische) in all thirteen sub-river basins (Teileinzugsgebiete) and sub-sub-river basins (planning entities; Planungseinheiten, 83 in total) the different policy interests are determined ‘around the table’. These round tables are an important platform for integration and influence; at the level of the districts, the Bezirksregierung is trying to balance these different stakeholders’ interests.

Nature and Water

Legal Establishment and Integration in Practice
To start with, it has to be noted that conflicts between nature conservation measures and water management requirements do not occur very often. On the contrary, usually nature conservation measures are an important tool in supporting the realization of RBMPs. This is especially true if areas adjacent to surface waters have been designated under one of the manifold regimes of area protection which the Bundesnaturschutzgesetz (BNatSchG) and the nature conservation acts of the Länder provide. If, for instance, an area has been designated as a nature protection area (§ 23 BNatSchG), everything which
could result in a deterioration or substantial disturbance of such an area is forbidden. Usually that protection serves the protection of the included or adjacent waters, too.

§ 31 BNatSchG requires that the Länder make sure that (all) surface waters, including their banks and adjacent belts, are protected as habitats for local animal and plant species and that they are developed in such a way that they can fulfil their function as part of a coherent ecological network. This provision is (no more than) a programmatic requirement for the Länder, which leaves a great deal of discretion as to how this goal will be reached. It is questionable whether this provision, which aims to integrate water management and nature conservation, has any concrete legal effect.

In practice, an important and special provision is the ‘general interference clause’ (allgemeine Eingriffsregelung) laid down in § 18 ff BNatSchG and the respective nature conservation acts of the Länder. § 18 BNatSchG requires that any action that could influence nature and the landscape whenever this has a negative effect on the functioning of the ecosystem or the overall appearance of the landscape (Landschaftsbild) should meet the criteria laid down in § 19 BNatSchG. These criteria mainly exist of three requirements. Firstly, every negative influence that can be avoided is forbidden. Secondly, the interests of nature and landscape protection have to be weighed against all other interests. Thirdly, the adverse effects of any action negatively influencing nature and the landscape have to be compensated. Those requirements are applied everywhere, even in places which do not fall under any special protection regime. If compensation of the natural functions of an area is not possible at the place or nearby where the negative effect occurs, financial compensation, which has to be spent for nature conservation purposes, is sufficient. In practice, financial compensation is often applied. The money gained by applying § 19 BNatSchG, respectively the corresponding paragraphs in the nature conservation legislation of the Länder, is a very important source for financing nature development projects, which often also serve the goals or actions of an RBMP.

Thus, it can be concluded that, although there is no legal requirement in nature conservation or water law that forces nature conservation authorities to realise an RBMP, nature conservation law and measures usually support the goals of an RBMP. That is especially true for the general interference clause, which makes it possible to generate fairly substantial financial resources that can be used for nature conservation and water management purposes. Where RBMP’s mainly contain activities that have to be realised, an instrument that generates some money for these activities is in the end possibly much more effective than a legal provision which declares a RBMP “binding” for nature conservation law and - measures.
Agriculture and Water

Legal establishment

As far as the integration of RBMPs into the agricultural policy and law is concerned, one has to realise that the influence of agricultural activities on the water bodies is mostly due to diffuse sources. Diffuse sources are not easily regulated by individual permits or similar instruments. On the one hand, these diffuse sources are regulated by general rules. German law contains quite a few general regulations, mainly in order to fulfil the requirements under the Nitrates Directive, which regulate the use of manure or pesticides on river banks or near waters. The most important rule in this respect seems to be § 3 VI of the Federal Manure Regulation (Düngeverordnung), which forbids the use of manure within certain distances (between 1 and 10 meters) of surface waters. Furthermore, especially § 90a LWG (NRW) has to be mentioned here. Some years ago, this provision, which introduces general Gewässerrandstreifen (‘bank-belts’) was added to the LWG NRW, mainly to fulfil the requirements of the WFD. Although the WFD does not explicitly require such a rule, the legislator thought that this was necessary (Filser 2005). Art. 90a LWG NRW determines that there are Gewässerrandstreifen adjacent to all surface waters. These belts are five or ten metres wide. Within these belts the use of pesticides is forbidden. However, under certain circumstances exceptions are possible. The use of manure is not generally forbidden (Zilkens, 2007) but can be forbidden by the untere Wasserbehörde, if that is necessary to realise an RBMP (§ 90a VI sub. 3 LWG NRW).

Besides these general rules, more far-reaching restrictions on agricultural activities are, as in other countries, usually determined by voluntary agreements. Additionally, changes of land use for agricultural purposes are governed by planning law (as described later) and nature conservation law (as described previously).

Theoretically, the WHG and the water acts of the Länder require a permit, whenever an agricultural activity has any effect on the quality of surface waters. In such a case, the farmer makes ‘use of’ the surface water and has to obtain a permit for doing so (§ 2 I WHG). That also covers diffuse agricultural activities (Zilkens 2007). When deciding on such a permit, the untere Wasserbehörde is bound by the RMBPs. Thus, theoretically, the integration of water management into agricultural regulations is not that necessary, because these activities are governed by water law itself. However, this is in theory. In practice, diffuse sources of pollution are usually not regulated by individual permits. § 2 I WHG and the respective norms in the water laws of the Länder are not applied to normal agricultural activities.

Integration in Practice

Besides the existing regulations concerning agricultural sources and pollution described above, and the additional measures that were already taken to anticipate the WFD, it is still necessary to implement new measures specifically for agriculture. NRW is following
a cooperative mode of implementing by signing a voluntary agreement (convenant) with the central agricultural representative organisation, the Landwirtschaftskammer, and others such as other Landwirtschaft organisations, the organisation of Wasser- und Bodenverbände and the Arbeitskreis für Hochwasserschutz und Gewässer NRW as signatories. It is well known that agriculture is a strong interest in NRW and has regained influence since the last election in 2005. Feasibility of measures in the WFD usually means not having a major negative impact on agriculture. The Ministry is seeking legitimacy and support for reaching substantial goals, but does this by balancing economic and ecological interests and avoiding additional negative impacts on agriculture.

Because of the dependency of the Ministry on the cooperation of agriculture, it is seeking ways to avoid a deadlock in which agriculture is forced to implement measures against its will. On the other hand, agriculture in NRW can be held accountable through the good agricultural practice (Gute Fachlichen Praxis) and on the basis of already summarised existing environmental obligations, such as the manure legislation.

**Stepping-stones approach**

For the competent authority, a cost-efficient way to reach a good status of waters is the stepping-stones approach (the so-called Trittsteine) (Deutscher Rat für Landespflege 2007; Uhlenberg 2008, p. 7). It was adopted because many experts stated that for the ecological functioning of a water system, a certain number of sections with good hydromorphological conditions is sufficient, and thus presents a cost-efficient way of reaching good status/potential. The concept needs stepping stones, which are relatively small, but it also requires sections, which work as bases for the species. These sections are quite long (around 1 km) and have quite high demands concerning hydromorphological conditions, thus also needing a significant amount of area.

In this approach, the agricultural organisations can search for specific areas of agricultural land that can be reserved for adjustments to fit in WFD-related measures. This is a way to combine ecological and agricultural activities and goals, but with very limited implications for land use and agricultural land use. Lack of budget to pay for measures for water quality improvements leads to a strong focus on the creation of these stepping stones to meet the demands of the WFD (Landtagsbericht WRRL 2007, pp. 3, 5). The stepping-stone concept is not an invention of the agricultural organisation, but is a pragmatic instrument to handle the problem that morphological changes cannot be removed completely, due to immense costs. According to the Ministry, there are good reasons to believe that this approach is a way of reaching good status with rather small negative effects on the surrounding uses, thus guaranteeing cost-efficient measures.

The agricultural organisations, especially the Landwirtschaftskammer, follow their own course in trying to gain legitimacy and cooperation among their agricultural members. In general, they do not seek cooperation with nature conservation organisations
(Interview), although there are exceptions. Regarding the possible deadlock situation, one of the interviewees made a comparison with a dog biting its tail. ‘Let’s stop the dog running around biting its tail and do something.’ The stepping-stone (Trittsteine) concept is seen as a possibility to ‘do something’ and start with actual measures to reach targets. From the perspective of agricultural representatives, to get commitment you have to ask farmers for their cooperation, and ask them almost individually for agricultural land use that can change its function and change the ecological conditions. Although it potentially is an integrating concept, the stepping-stone approach is not always implemented in close cooperation with nature conservation organisations, because ‘farmers are afraid of the nature conservation organisations’ (Interview). This attitude varies from region to region. There are several examples (MUNLV 2008) where agriculture and nature conservation organisations work together in a cooperative way on the restoration of rivers.

One of the possible options that is being considered is to try to connect the possibility of compensating nature and landscape for changes in land use (e.g. when agricultural land is changed into built-up areas, such as housing; see Section 3.2 regarding allgemeine Eingriffsregelung) to this concept of stepping stones. The obligatory compensation of damage to nature or landscape could then be provided by creating WFD stepping stones.

The agriculture organisation is willing to invest in advisors that go to farmers to make reservations for land use and to convince them of the necessity of the WFD cooperation (Interview), and to advise them on issues such as nutrient management. Recently, the Ministry confirmed this approach of voluntary cooperation and consultations for farmers (Uhlenberg 2008, p. 7; see Section 2.5 Resources).

**Spatial Planning and Water**

**Legal Establishment and practical implications**

Water management and spatial planning are, just as in the Netherlands, two very different policy fields, where spatial planning has a more detached, multi-disciplinary, coordinating approach and role and water management a more technical-specific, sector-based approach (Greiving, 2001, Moss, 2003). Water policy aspects have to be taken into account in all spatial plans. Before explaining how RBMPs may influence the general spatial planning, one has to take into account a few characteristics of the German spatial planning law system. The general (higher) spatial plans (Raumordnungspläne) are to a fairly high degree binding on the local spatial plans (Bauleitplanung). They may contain concrete designations (Ziele)\(^3\) for a certain area which have to be adopted by

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\(^3\) This is a confusing term. Ziel (goal) does suggest a general goal which can be reached by several different means. The Raumordnungsziele, however, may be much more concrete and are to a great extent comparable with the former concrete beleidsbeslissing in Dutch law. However, there is one difference. The lower plans have to be adjusted (actively) to new Ziele, whilst there was no such obligation in Dutch planning law with regard to the concrete beleidsbeslissingen.
lower plans, especially by the local plans. At the local level, there are two kinds of plans. The Flächenutzungspläne\textsuperscript{54} (local land-use plans) provide a framework for differentiation in spatial functions for the whole territory of a municipality. The only plan which is directly binding on citizens is the Bebauungsplan (building plan)\textsuperscript{55}. Bebauungspläne only cover the built-up area of a municipality, not the open areas. For the open areas of a municipality, the statutory law itself provides for the legal regime for buildings. § 35 Baugesetzbuch (BauGB) generally forbids the construction or renovation of buildings and determines certain ‘privileged uses’ for which exemptions may be provided. This provision explicitly contains a legal link to the RBMPs, which will be elaborated hereafter.

There is no provision that directly binds the higher spatial planning (Raumordnungsplanung) and obliges higher spatial plans to be used so as to realise the RBMPs. That is quite logical. It is the task of higher spatial planning to weigh all interests, including the task and interest of realising water plans. However, water quantity and quality are explicitly mentioned amongst other basic principles of higher spatial planning (Grundsätze der Raumordnung) in § 2 II No. 3 and No. 8 Raumordnungsgesetz. As said before, this can result in the determination of a certain area that primarily serves water interests. If such a Ziel der Raumordnung is determined in a higher spatial plan, then this is strictly binding on all public authorities whatever decision they take (§ 4 I Raumordnungsgesetz). More specifically, the higher plans may determine a so-called ‘preference area’ (Vorranggebiet, § 7 IV nr. 1 Raumordnungsgesetz). This is an area or location which primarily serves a certain purpose or some purposes, in this case water management goals, possibly in combination with other preferred goals. Local spatial plans bind citizens and have to be adjusted so as to meet such determinations (§ 1 IV BauGB). However, it has to be noted that the determination of a Ziel der Raumordnung in a higher spatial plan in order to realise an RBMP will be quite exceptional. Usually, an RBMP will not require the determination of a certain location primarily or exclusively for the purposes of water management.

Of much more practical importance is the question whether RBMPs have effects as far as local planning decisions are concerned. As far as the local plans (local land use plans and building plans) are concerned, § 1 VI sub. 6 g BauGB requires the municipalities to take an RBMP explicitly into account. As the task of the spatial planning is to weigh all the interests against each other, making the spatial planning more strictly tied up with the aims or requirements of an RBMP would not fit within the legal system. A stricter tie is only possible if the interests of water management have been weighed against other interests on a higher planning level and have led to the determination of a Ziel der Raumordnung.

\textsuperscript{54} § 1 Baugesetzbuch (BauGB) uses the term vorbereitender Bauleitplan, too.
\textsuperscript{55} § 1 BauGB also uses the term verbindlicher Bauleitplan.
Furthermore, the already mentioned § 35 BauGB is of practical importance for the integration of RBMPs in the planning law. Most requirements of RBMPs will not concern the built-up areas of cities and villages, but the open spaces. § 35 BauGB governs all building activities and functional renovations. § 35 differentiates between privileged and non-privileged uses. Privileged uses may be realised if ‘public interests’ are not opposed. Non-privileged uses may be realised in exceptional cases only and if public interests are not negatively influenced. § 35 III sub. 2 BauGB explicitly mentions that public interests are negatively influenced if projects conflict with water management plans. This provision especially refers to RBMPs (Ernst, Zinkahn, Bielenberg & Krautzberger, §35). Thus, the planning law contains a legal link to the RBMPs. As a consequence, non-privileged uses are forbidden if they conflict with an RBMP. As far as privileged uses are concerned, an RMBP may not be opposed.

7.9 Conclusions

The Competent Authority of the Meuse River Basin District in Germany is the Ministry for Environment, Nature protection, Agriculture and Consumer Protection of North Rhine-Westphalia (MUNLV). The overall definition of the goals is set at this (central) level. The Obere Wasserbehörde at the level of the Bezirkregierung (districts) is a key policy actor in the implementation of the WFD; every sub-river basin has a specific administrative agency or ‘bureau’ (Geschäftstellen) at this level, although it is not tied to the administrative borders of Bezirke, but to the sub-river basin itself. At this level the content of RBMPs (Bewirtschaftungsplan) is discussed, and goals are proposed for the sub-river basin. The goals and draft measures for specific areas (sub-sub-river basins) are discussed in so-called Runde Tische (round tables). Municipalities, Wasserverbände and NGOs can attend these round-table meetings. The responsibility for the actual implementation lies with the districts and with the municipalities and Kreise, which can contract the Wasserverbände to implement measures.

The process of designing and deciding upon programmes of measures depicts an ambiguous picture in NRW. On the one hand, it seems that the Ministry takes the lead, on the other hand, the options for ecological targets and programmes of measures are also intensively discussed at the district offices of the Bezirksregierung and in the round-table discussions.

There is a great deal of discussion in NRW on the way in which to deal with some of the concepts and prescriptions of the WFD. It was not always clear what was meant by a good ecological potential and there was a lack of information at the round tables to seriously discuss packages of measures, e.g. concerning the costs of certain measures, who should pay for the measures and in what time period. As was stated earlier, this reveals a more general problem with the goal-setting process in the WFD. To be able to

56 In the Netherlands, no such administrative layer exists.
decide on ecological (and chemical) conditions, ecological targets, the probability and feasibility of all sorts of measures and the social and economic costs of these measures, the stakeholders involved must be provided with all the information that is available and must be able to balance very different interests. This requires a high level of rationality by all those involved when, in fact, they suffer from bounded rationality because of a lack of information, scientific uncertainties, and their own interests which they are expected to defend.

Agriculture is a strong interest in NRW. The authorities are looking for feasible measures which mean not having too negative an impact on agriculture, although stringent regulations have already been adopted for agricultural pollution. While in some countries, like Denmark, the focus is explicitly on the impact by diffuse pollution from agriculture, this is also very relevant in NRW, but the approach is different. In NRW there is a strong focus on collaboration with agriculture, through voluntary agreements, consultation and measures that can be ‘fitted into’ existing agricultural activities. The agricultural representatives are very enthusiastic about the stepping-stones (Trittsteine) approach, while the environmental and nature conservation organizations are very reluctant and even sceptical about this option for the WFD. However, there are other nature conservation organizations which are less sceptical and see this approach as a first step to get things going (Interview).

One of the striking results of this case study is the change in designation in NRW; the first and preliminary designation was very different from the second. NRW was first predominantly ‘coloured green’ (natural water bodies) and is now predominantly ‘coloured red’ (heavily modified water bodies), so to speak. Needless to say, nature conservation and environmental groups prefer the old situation of the designation of natural water bodies, because natural conditions take the lead and the whole process is then more ambitious. It looks as if NRW started off with a scientific and problem-based analysis. There is much detail in all kinds of scientific studies on characterization and hydro-morphology etc. But the implementation process is now entering the phase of decision making and a more pragmatic approach is chosen where efficiency and legitimacy take over. Moreover, in the designation process, NRW has adjusted to the (border areas of) the Netherlands and Lower Saxony. In many ways NRW and the Netherlands resemble each other.

We must remind ourselves that the Rur area is not the most problematic area in NRW. In some catchment areas, such as the (strongly modified and problematic) Emscher or the Wupper, the implementation of the WFD is much more prominent and strongly backed by participatory measures and pilot or research projects. The leadership and responsibility of large and influential water boards strongly support this process in these catchment areas (Kastens and Becker 2008). The Rur is, though, an area with both non-
problematic areas and natural water bodies and some very problematic issues, such as brown coal mining, which makes it a good case for the NRW as a whole.

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**Interviewees**

Klaus Gütling, Referent Abteilung IV, Abfallwirtschaft, Bodenschutz und Wasserwirtschaft, Ministerium für Umwelt und Naturschutz, Landwirtschaft und Verbraucherschutz des Landes Nordrhein-Westfalen (Oberste Wasserbehörde), 25 August 2008, Düsseldorf
Thomas Menzel, Referent Abteilung IV, Abfallwirtschaft, Bodenschutz und Wasserwirtschaft, Ministerium für Umwelt und Naturschutz, Landwirtschaft und Verbraucherschutz des Landes Nordrhein-Westfalen (Oberste Wasserbehörde), 25 August 2008, Düsseldorf

Rudolf Wergen, Coordination of WFD implementation, Geschäftsstelle Rur und südliche sonstige Maaszüllüsse, Bezirksregierung Nordrhein-Westfalen, Außenstelle Aachen, (Obere Wasserbehörde), 14 August 2008, Aachen

Frank Jörrens, WFD & water quality monitoring, Wasserverband Eifel-Rur, 14 August 2008, Düren

Arno Hoppmann, River basin management leader, WFD implementation process supervision, Wasserverband Eifel-Rur, 14 August 2008, Düren

Christoph Aschemeier, Wassernetz NRW, 4 November 2008, Düsseldorf

Bruno Schöler, Landwirtschaftskammer Nordrhein-Westfalen, Ressourcenschutz, Wasser und Boden, 14 November 2008, Bonn
CHAPTER 8  A COMPARISON OF FIVE CASES IN IMPLEMENTING THE EU WATER FRAMEWORK DIRECTIVE


8.1  Introduction

In this chapter, the results of each case study will be compared according to the two selected policy themes: the process of goal setting by the WFD and policy integration. First of all, under the heading of the goal-setting process, the results of the five case studies will be reviewed and compared on a number of topics: the designation of water bodies, the goal-setting process in steps, the use of exemptions, the programme of measures, the no-deterioration principle and resources. Subsequently, policy integration styles of the implementation processes will be compared and analysed.

We have looked at four cases similar to our reference case, which is the Dommel basin in the Meuse River Basin District (RBD), in the Netherlands. Not all the countries studied divided their RBD in the same way. For example, in the Netherlands, the Dommel basin is further divided into 4 sub-sub-basins, which could be similar to the scale of the case basin we have chosen for England and Wales (the River Wensum).

<table>
<thead>
<tr>
<th></th>
<th>RBD</th>
<th>Sub-Basin in Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Netherlands</td>
<td>Meuse (8,000 km²)</td>
<td>Dommel (1,000 km²)</td>
</tr>
<tr>
<td>Germany/NRW</td>
<td>Meuse (3,700 km²)</td>
<td>Rur (2,340 km²)</td>
</tr>
<tr>
<td>France</td>
<td>Loire-Brittany (155,000 km²)</td>
<td>Baie de St Brieuc (1,100 km²)</td>
</tr>
<tr>
<td>Denmark</td>
<td>Jutland and Funen</td>
<td>Odense (1,046 km²)</td>
</tr>
<tr>
<td>England &amp; Wales</td>
<td>Anglia (27,000 km²)</td>
<td>Wensum (571 km²)</td>
</tr>
</tbody>
</table>

Table 4: River Basin Districts and the sub-basins in the various countries

It has not always been possible to compare the state of affairs at the sub-basin levels. This is mainly because some aspects of WFD implementation are predominantly placed under the responsibility of the national government in one case, while they are dealt with at the local level in another. A second reason is that at the stage of the implementation process during the case studies, not all information was publicly available and/or information was still under discussion.

8.2  Goal-setting process

188
Designation of water bodies

What does the WFD state about designation?
The designation of artificial and heavily modified waters must be mentioned in the river basin management plans (Article 4.3 WFD) (See Chapter 1 for the conditions for designating water bodies as heavily modified or artificial).

How do the Member States legally establish the designation of water bodies?
In the Netherlands artificial and heavily modified waters can be designated by both the Ministers responsible for the national water plan, and the provinces and the water boards for regional waters. When the new Waterwet comes into force (probably in the summer of 2009), the water boards will no longer have the competence to designate water bodies as artificial or heavily modified. In Danish environmental law it is not explicitly stated who designates the water bodies, but because the designation takes place in the river basin management plans, this will be done by the Ministry of Environment or by its Environment Centres.

The designation of water bodies in France should take place in the RBMPs, which are adopted by the river basin committee and approved by the river basin coordinator (préfet coordonnateur de basin). Consequently, these authorities formally designate water bodies. In England & Wales it is the Environment Agency that can designate water bodies as artificial or heavily modified. In Germany the oberste Wasserbehörde determines the RBMP and is therefore also responsible for the designation of artificial and heavily modified waters.

How does designation take place in practice?
The status of the designation of water bodies in the countries/regions studied is depicted in the table below. Since the WFD leaves room for Member States to identify and designate water bodies, water bodies are designated differently throughout the Member States. Therefore, physically similar water bodies could be designated differently. This is especially so when deciding whether or not a surface water body is a heavily modified water body (HMWB), since an artificial water body (AWB) can be identified with relatively less discrepancy. We will focus on the discussion surrounding the designation of water bodies as HMWBs, since it is also the main concern of the relevant actors. It is important to note that the information compared here is based mainly on the

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Note that it was not possible to acquire information on the designation on a similar scale. While we can compare the information at the RBD level for the Netherlands, England and Wales, and France, for Denmark the information was only available for the national level, and for North Rhine-Westphalia (NRW) only for the Länder level.
preliminary designation exercise, and that the definite designation that will appear in RBMPs might turn out to be different.

As can be seen from the table, in comparison to other countries or RBDs, the RBD Meuse and the Netherlands provisionally designated a considerably higher number of water bodies as HMWBs. The Dommel catchment, which we looked at as our case basin, has no natural waters. Other studied countries, RBDs or sub-basins provisionally designated a lower or much lower percentage of water bodies as HMWBs in comparison to the Netherlands and its RBD Meuse. The RBD Anglia and North Rhine-Westphalia (NRW) come closest to that of the RBD Meuse in the Netherlands, and designated about half of their water bodies as HMWBs. The RBD Loire-Brittany and Denmark designated a much lower number of their water bodies as HMWBs.

<table>
<thead>
<tr>
<th>Case RBD/Country</th>
<th>HMWB</th>
<th>AWB</th>
<th>Rest (Natural)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBD Meuse (NL in total)</td>
<td>92% (42%)</td>
<td>7% (53%)</td>
<td>1% (4%)</td>
</tr>
<tr>
<td>RBD Anglia</td>
<td>54%</td>
<td>15%</td>
<td>29%</td>
</tr>
<tr>
<td>North Rhine-Westphalia</td>
<td>&gt; 60% together with AWBs</td>
<td>&lt; 40%</td>
<td></td>
</tr>
<tr>
<td>RBD Loire-Brittany</td>
<td>10%</td>
<td>1.5%</td>
<td>88.5%</td>
</tr>
<tr>
<td>Denmark</td>
<td>10% together with AWBs</td>
<td>90%</td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Designation of water bodies in the RBD Meuse, RBD Anglia, NRW, RBD Loire-Brittany and Denmark

The designation results have important consequences for setting ecological objectives. Once a surface water body is designated as a HMWB or AWB, the water body is exempt from the environmental objectives to attain good ecological status (GES). HMWBs and AWBs are to achieve good ecological potential (GEP) instead. GEP does not require HMWB/AWB to make all the necessary changes to its modified hydromorphological characteristics which would be necessary for achieving GES. While for normal (often called natural) water bodies, goals are set in order to work towards a good ecological status with the help of ‘natural’ reference conditions, goals for the HMWBs and AWBs are set based on the feasibility and desirability of measures to reach a good ecological potential. Therefore, at first glance, not designating a water body as HMWB (and hence setting the goal as GES) could mean that the water authority is striving for a higher level of water status when compared to designating the same water body as HMWB (and hence striving for GEP).

Having said that, and recalling the significant difference in the designation results so far in the table above, we believe that Member States or the responsible water authority could opt for strategic decisions on the designation of water bodies based on

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[38] Not all water bodies have been preliminarily designated. Some water bodies are still to be designated.
characteristics other than the physical characteristics of the water bodies. We will look at those approaches in the following section.

What are the different approaches and strategies employed in designating water bodies? What are the arguments used for the choices made? Before addressing these questions, it is useful to know which actors are responsible for the designation exercise. Except for the Netherlands, the designation exercises are conducted by the governmental agencies as shown in the table below.

<table>
<thead>
<tr>
<th>Designation by:</th>
<th>NL (regional waters)</th>
<th>NRW</th>
<th>E&amp;W</th>
<th>FR</th>
<th>DK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provinces, based on the information provided by water boards</td>
<td>Ministry of the Environment</td>
<td>Environment Agency</td>
<td>Préfet</td>
<td>Environment Centres</td>
<td></td>
</tr>
</tbody>
</table>

Table 6: Responsible authorities for the designation of water bodies

On the one hand, the Netherlands is recognised as an exceptional case, because of its high degree of modifications made to water bodies and the great amount of artificial water bodies created historically in the country. On the other hand, it was also confirmed in the interviews that some of the water bodies designated as HMWBs could be aiming for GES, and so perhaps should not have been designated as HMWBs. Some reasons underlying this discussion could be that the Netherlands is known to take a pragmatic approach towards the implementation of the WFD, and this could be one reason for the government opting for the designation of more water bodies as HMWBs. Interviewees pointed out that there is a political fear that once a water body is called a natural water body, that the aim will be to reach an undisturbed condition, which is not the case.

The reason behind this high designation of water bodies as HMWBs could also be found in the institutional arrangement. The practical designation exercise is conducted at a decentralised level (by water boards) instead of the national or provincial level, while water boards do not have the competence beyond water issues (such as spatial planning and agricultural activities) which has major consequences when attempting to reach GES. It then seems awkward to assign the task to the water boards, which cannot foresee exactly what the ‘significant adverse effects’ or ‘disproportionate costs’ related to required hydromorphological changes will be. While provinces and the national government need to assess and adopt the designations suggested by the water boards, in

59 High ecological status means that there are no, or only very minor, anthropogenic alterations to the values of the physico-chemical and hydromorphological quality elements for the surface water body type from those normally associated with that type under undisturbed conditions. Good status means, however, that the values of the biological quality elements for the surface water body type show low levels of distortion resulting from human activity, but deviate only slightly from those normally associated with the surface water body type under undisturbed conditions (Annex V WFD). Therefore GES does not mean an undisturbed condition.
the case of the Dommel catchment, the province has accepted all designation proposals of the water boards.

In the RBD Anglia, the majority of water bodies were also designated as HMWBs or AWBs, leaving only about 30% of water bodies that will aim for GES (still considerably more than in the RBD Meuse). Unlike other countries and basins, the designation of water bodies at the Anglian river basin scale did not incite political or strategic discussions. At the river Wensum, however, there was also concern about the designation. This was because designation could imply a threat to attaining nature conservation goals once the river was designated as HMWB under the WFD, since it had already been appointed as a Site of Special Scientific Interest.

NRW previously identified a very small number of HMWBs. Recently, however, the designation of water bodies in NRW was reviewed, and a much higher number of water bodies were designated as HMWBs. The first reason for this review was technical, following the argument that the original method for designation was ‘incorrect’ and a new method was therefore adopted. A second reason was that NRW adjusted its designation process to the methods used in other neighbouring Länder and adjusted its designation, referring to the situation in the Netherlands, especially the bordering basins. According to the interviewees, there were also political motivations for the new designation results. Designating water bodies as HMWBs, and therefore setting the goals in a pragmatic way, was thought to create more flexibility and policy discretion and was therefore preferred.

In RBD Loire-Brittany, as well as in Denmark, the majority of water bodies (about 90%) were not designated as HMWBs or AWBS, and so they will be aiming to reach GES. Denmark took quite a different approach in comparison to that of the Netherlands. In Denmark, the WFD was rather clearly interpreted so that water bodies that were currently greatly modified, but could potentially be brought to natural conditions, were considered as natural waters. They therefore would strive to meet GES and not GEP, even if this might require an extension of the deadline or a complete postponement of the implementation of any measures for these water bodies until the next planning cycle (read more on exemptions). In Denmark, we must add to this point that there is still room for a political adjustment of the designation exercises.

Concluding remarks
Since the physical characteristics of the water bodies in each country and region differed, it is not possible to draw a clear conclusion as to the levels of ambition based on how the studied countries/regions designated their water bodies. However, the designation of water bodies was of crucial importance for each country when it came to setting their ecological goals. For many countries (especially the Netherlands and North Rhine-Westphalia), designating the majority of their surface water bodies as HMWBs allowed
them to gain policy discretion and flexibility in setting ecological goals. However, it is not that simple, because each country had its own strategies regarding the care with which it designated water bodies as HMWBs or not. As we have seen, Denmark took a rather different approach, appearing to set higher ambitions than those of the Netherlands, by not designating water bodies with considerable modification as HMWBs. However, we have also learned that in Denmark, designating water bodies as natural did not mean that those water bodies would meet GES by 2015, but that any actions to improve the status could even be postponed until the next planning cycle. Conversely, in the Netherlands, water boards (which guide the designation process) were perhaps not the correct authorities to conduct the designation exercises, having no competence over some of the crucial pressures on water quality. In general, however, the ambition to reach good ecological status and the intention to make the necessary changes to hydromorphological characteristics could eventually be considered as setting a higher ambition.

8.3 Setting objectives and planning

What does the WFD state about setting environmental objectives for surface waters?

Article 4.1 (a) for surface waters
(ii) Member States shall protect, enhance and restore all bodies of surface water, subject to the application of subparagraph (iii) for artificial and heavily modified bodies of water, with the aim of achieving good surface water status at the latest fifteen years after the date of entry into force of this Directive....
(iii) Member States shall protect and enhance all artificial and heavily modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status at the latest fifteen years from the date of entry into force of this Directive.....
(…) (c) for protected areas
Member States shall achieve compliance with any standards and objectives at the latest fifteen years after the date of entry of this Directive.

How do the Member States transpose the general environmental goals and legally establish these goals as standards and norms?

Not all countries in our research have transposed the general environmental goal of reaching good status by 2015 into their national laws. Denmark (in the MML) and France (in the CE and further elaborated in a circulaire) clearly do so. Germany has transposed the general environmental goal at the federal level (in the WHG) and at the level of the
Länder (for North Rhine-Westphalia in the LWG). The deadline of 2015 is only transposed at the level of the Länder and not at the federal level. The GewBEÜV transposes annexes II, III and V of the WFD and contains the reference conditions. The Netherlands will transpose the general environmental goal into its formal legislation in the Waterwet in more general wordings. It will also transpose the goal and the deadline into an Order in Council (the AMvB Kwaliteitseisen en monitoring water) in 2009. In England & Wales, the general environmental goal is not transposed at all.

None of the investigated countries has yet defined the specific ecological environmental goals, although the environmental standards for substances that are part of the good ecological status are laid down in older water directives and national legislation. The daughter directive with quality standards for surface waters will contain part of the substances that are relevant for the good ecological status. However, most countries will soon produce legally binding documents to set these goals at the national level. In Denmark, a statutory order will set the standards for good ecological status. In the Netherlands, the specific environmental standards will be laid down in the AMvB Kwaliteitseisen en monitoring water. In the UK, the specific standards have been formulated by a technical working group. It is still under consideration how these standards will be implemented (either in a regulation or in a direction). In Germany, the WHG, LWG and GewBEÜV do not contain the specific quality standards. They will probably be determined in the RBMPs themselves.

It is often difficult to determine how the general goal (the ‘good status’) and specific environmental goals (environmental quality standards) are legally qualified. In the European legal context, environmental quality standards are obligations of result without any discussion. As far as the general goal of good status is concerned, it can be argued that this goal determines the boundaries of the policy discretion of the Member States. However, a legal qualification of these several obligations can have a different meaning in each of the legal systems that were researched. More can be said about this.

In Germany, the wording of the law, the opinion of the interviewees and the legal literature all indicate that the general environmental goal is an obligation of result. In France, the wording of the law and the opinion of a legal expert indicate an obligation of result as well. In Denmark, it is unclear whether or not the general environmental goal is considered to be an obligation of result. In England & Wales, no national general environmental goal has been laid down in legislation. According to a legal expert, however, it is likely that the UK will take the view that Article 4 of the WFD contains obligations of result. In the Netherlands, the general environmental goal is seen as an obligation of best efforts. The components of this goal (the good status of surface water and the good status of ground water) are explicitly mentioned as target values instead of intervention values in the latest draft version of the AMvB Kwaliteitseisen en monitoring.
water. In all other countries, these are considered to be intervention values.\textsuperscript{60} It should be remarked, however, that in Germany, the legal status of some goals for ecological status is still unclear.

<table>
<thead>
<tr>
<th></th>
<th>Transposition of general environmental goal</th>
<th>Legal qualification of general environmental goal</th>
<th>Legal qualification of specific goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL</td>
<td>Order in Council (in 2009)</td>
<td>Obligation of best effort</td>
<td>Target values</td>
</tr>
<tr>
<td>DE</td>
<td>On the federal (without deadline) and Länder level</td>
<td>Obligation of result</td>
<td>Intervention values (ecology still unclear)</td>
</tr>
<tr>
<td>FR</td>
<td>Law</td>
<td>Obligation of result</td>
<td>Probably intervention values</td>
</tr>
<tr>
<td>E&amp;W</td>
<td>No transposition</td>
<td>Art. 4 WFD is probably perceived as an obligation of result</td>
<td>Intervention values</td>
</tr>
<tr>
<td>DK</td>
<td>Law</td>
<td>?</td>
<td>Intervention values</td>
</tr>
</tbody>
</table>

Table 7: Transposition of general goal

**How is the goal-setting/planning process organised in practice?**

Setting goals is not only about laying down legally binding standards and norms which reflect the environmental objectives of the WFD, good ecological Status and good chemical status. In practice, goal setting is also a step-by-step planning process: it is about investigating to what extent the water body (or river basin) can improve its ecological and chemical status, in what time period this is possible and deciding upon the desirable and feasible end-situation of water bodies. For GEP, standards and norms are usually not formalised in legal documents as described in the previous section, but are derived on a case-by-case basis, often through the so-called Prague method, and laid down in the RBMPs.

In general, the setting of specific goals (both GES and GEP) per RBD or sub-basin and the determination of policies and programmes to reach those goals was done in a rather complex planning process. In all countries, authorities at different levels of government were involved. On different levels, various stakeholders can also be of importance. In this complex process of goal setting and planning, various organisational frameworks and approaches are used and there are different underlying rationales for these approaches. In the following section we want to shed more light on this complex planning process.

\textsuperscript{60} Although an expert indicated that the current texts leave some uncertainty regarding the effective implementation in France.
Who takes the lead in the planning process?

First of all, it is interesting to compare the actors who are of crucial importance when it comes to setting specific goals.

<table>
<thead>
<tr>
<th>Country</th>
<th>Leading Actor</th>
<th>Responsible basin scale</th>
</tr>
</thead>
</table>
| France         | Water Agency  
River Basin Committee                                                   | RBD                     |
| NL (regional   | Water board                                                                  | Sub-basin               |
| waters)        | Bezirkregierung  
Ministry for Environment, Nature Protection, Agriculture and Consumer Protection | Several sub-basins       |
| NRW            | Environment Centre                                                           | Several sub-basins       |
| Denmark        | Environment Agency (EA)                                                      | RBD                     |

Table 8: Leading actors in goal-setting process and their responsible basin scale

In France, there are semi-independent, functional water authorities called River Basin Committees. Together with the Water Agency (a functional ministerial authority) and its regional committees, the two bodies organised around a RBD are the main actors for goal setting and planning tasks.

In the Netherlands, water boards (relatively independent functional water authorities) play a major role in the goal-setting and planning process for regional waters, each looking after its own sub-basin. In the Dommel area this is done by so-called integrated regional planning processes (gebiedsprincipes). For every specific sub-sub-river basin, goals and measures are formulated and a cost/benefit analysis is conducted. Following the ‘up and down the staircase’ method (trapje op/trapje af), the goals and plans proposed by the water boards must be accessed and agreed upon by their provinces and the national government, which will lay down the goals and measures in their water plans. National waterways are cared for by the Rijkswaterstaat (RWS) and its regional offices.

In NRW, Denmark, and England and Wales, no independent, functional river basin authority exists as in the case of the Netherlands and France. In NRW, goal setting is carried out by the decentralised regional government (Bezirkregierung). These decentralised regional governments have dedicated offices for each sub-basin called geschäftsstellen, including one for the Rur basin, that carry out the goal-setting tasks at the sub-basin level. The Ministry, which is ultimately responsible for the RBMPs, coordinates and supervises this process. The central governments directly steer WFD implementation in both Denmark, and England and Wales, and planning and goal-setting activities are carried out at a more decentralised level as well. In England and Wales, the offices of the Environment Agency at the RBD scale are responsible for the
work. In Denmark, the Environment Centres, which belong to the Ministry of the Environment, carry out the task. It should be pointed out, however, that the employees of the Environment Centres – which are now responsible for water issues – were previously working at the county’s administration: the employees therefore stem from decentralised government.

**Stakeholder involvement**

Stakeholders are most formally involved in France, through the River Basin Committees, where civil society and the market represent 40% of the committee members. In other countries, the influence of organised stakeholder involvement in the implementation process is less clear. For the RBD Meuse, a Klankbordgroep (a stakeholder sounding board group) has been set up in which all the major stakeholders in the basin are directly or indirectly represented. This group is also organised per sub-basin in the RBD Meuse. In NRW, at the regional government level and per sub-sub-river basin, a so-called Round Table (Runde Tische) has been established to discuss goals, and this involves stakeholders. In England and Wales, the EA also organises a Liaison Panel per RBD, involving stakeholders in the discussions of the WFD.

**What are the different approaches and strategies employed in the goal-setting and planning process?**

As described earlier, good ecological status (for NWB) and good ecological potential (for HMWB and AWB) are laid down in different ways. Moreover, there are also different methods which are possible for defining good ecological potential. There is a ‘royal method’ (resembling the method used for good ecological status, working with references derived from conditions of comparable natural water bodies and by defining the maximum ecological potential), and the Prague method, which starts from an estimation of all the possible measures that can be taken to improve the condition of water bodies (maximum ecological potential).

We can interpret these methods as back-casting (the royal method – taking the future reference as a starting point and looking back at what has to be done) and forecasting (the Prague method – taking the existing situation as a starting point and looking forward). Both paths should theoretically end at the same finish line, reaching the same target of good ecological potential. In a way, defining GEP is more complex in comparison to GES, which is defined at the national level. In order to define GEP, it is necessary to assess the possible potential of modified and artificial waters. How to define GEP and how to deal with it are questions for many actors in the field, both researchers and policymakers.

In some of the cases studied, the majority of water bodies were designated as HMWBs. This was the case in the RBD Meuse in the Netherlands, the RBD Anglia in England and
Wales, and NRW (which is also the RBD Meuse) in Germany. Therefore, for them, the main concern was to set and meet GEP.

Both in England and Wales, and the Netherlands, assessing what measures were feasible and/or economically feasible for implementation in the (sub-)basin became the key factor in planning, and therefore the Prague method was followed in setting GEP. In the Netherlands, water boards led the process of defining GEP and setting the specific goals for their regional waters as well as proposing the measures to be implemented. During this process, the discussion was mainly about the programme of measures to be taken in the coming years, and not about the goal itself. In England and Wales, the EA office at the RBD level first had to agree on the default objectives. Based on the objectives, the ministry (at the national level) drew up all possible measures to meet the objectives. At the RBD level, these measures were assessed and scenarios were drawn up using the measures. Again, the national level has the responsibility for assessing these scenarios in terms of cost effectiveness and proportionality. Finally the RBD can decide what objectives or alternative objectives should be aimed for in the basin and what measures are to be utilised.

In NRW, while the regional government (Bezirksregierung) set the goals for the catchment level, it did not ultimately decide on the programme of measures and did not have an overview of the economic consequences. Although NRW was said to set goals following the Prague method for their HMWBs, the exact status of the economic costs of measures remained unclear. The economic analysis of measures was conducted at NRW’s ministerial level and it seemed that they decided which measures should be implemented. This could mean that the decisions at the ministerial level could bring a substantial change to the GEP set by the regional governments.

For RBD Loire-Brittany and Denmark, setting GEP goals was not seen as the central issue since they had a rather limited number of water bodies designated as HMWBs and AWBs. For most of their water bodies, GES standards were already (or are still to be) set at the national level. It is still interesting, though, to find out at which stage and to what extent the designing of the actual programme of measures (PoMs), and therefore the concern for the costs and political feasibility, is incorporated into their planning process.

In RBD Loire-Brittany, the goal-setting process was carried out in a parallel process, at the (larger-scale) basin level and the regional level. At the basin level, the Water Agency and the River Basin Committee set objectives in the overall planning document, the SDAGE (or the RBMP). At the regional level, the Brittany Committee, the office of the Water Agency in the Brittany region, was asked to investigate the measures and to speculate on the costs and the use of extension possibilities. Although at the beginning the Water Agency did not set a limit for the budget in complying with the WFD objectives, at a later stage, after the Water Agency had reviewed the plan of the Brittany Committee, the Committee was compelled to cut down its planned measures and
consequently reduce the ambition level by making use of more exemptions because the costs were too high and the Water Agency feared that the Basin Committee would not accept these costs and related higher taxes.

In Denmark, there was also a parallel process. At the sub-basin level, the Environment Centres set the goals and the programmes of measures (PoMs). They did so by identifying the most cost-effective measures without adjusting the objectives. Therefore the ambition was considered to be quite high (although considerable changes were expected after a review of the plan by the central government). The cost involved in the WFD implementation was the main concern of the central level. At this level, originally a more technical and scientific approach to goal setting prevailed, but the process shifted to a more political one. Seeing the high cost involved in the WFD implementation process, the government closed the process to stakeholder involvement and the leadership was handed over from the Ministry of the Environment to the Ministry of Finance. It is important to note here that the Godtfredsen Committee, which was established to think of the most cost-effective measures for WFD implementation, focused on economic efficiency and not on political feasibility.

**Concluding remarks**

When we look at the way the goal-setting and planning process was organised in the countries we compared, we find a few remarkable differences and similarities. In all countries, different levels of government were involved. In the Netherlands (water board) and in France (Water Agency and River Basin Committee) the functional river basin authorities took the lead in the goal-setting process. But what is different is that in France the river basin authorities set goals and made plans, but did not actually implement the measures themselves, while the Dutch water boards were highly involved in the actual implementation of measures. In France, this was the responsibility of the municipalities, which rather autonomously decided on how they would respond to the ambitions set (read more in the next section).

Other countries studied had no functional river basin authorities. Both in Denmark, and England and Wales, the goal-setting and planning process was rather centralised. In Denmark, both Environment Centres of the Ministry of Environment, and the Ministry of Finance were actively involved, and central government steered the process by way of the economic efficiency of measures. In England and Wales, where the Environment Agency took the lead, the approach was predominately centralised. Germany was somewhere in between a central authority and decentralised, where the district-regional level was important, but the Ministry at the Länder level decided on essential matters such as the costs of the measures.

Having most of their water bodies identified as HMWBs or AWBs, in the Netherlands, NRW, and England and Wales, the goal-setting process was done in a more pragmatic
way, focusing on the feasibility of the measures rather than the goals that were to be attained in the coming years. Meanwhile, having a small number of water bodies identified as HMWBs and AWBs, in Denmark and France the planning process was more about thinking of the most cost-effective way to achieve the goals that had already been set and the use of exemptions.

8.4 Programmes of Measures

What does the WFD state about the Programmes of Measures?

Article 11.1. Each Member State shall ensure the establishment for each river basin district, or for the part of an international river basin district within its territory, of a programme of measures, taking account of the results of the analysis required under Article 5, in order to achieve the objectives established under Article 4. Each programme of measures shall include the ‘basic’ measures specified and, where necessary, ‘supplementary’ measures. ‘Basic measures’ are the minimum requirements to be complied with. ‘Supplementary’ measures are those measures designed and implemented in addition to the basic measures’, with the aim to achieve the objectives established pursuant to Article 4.

Article 11.7 The programmes of measures shall be established at the latest nine years after the date of entry into force of this Directive and all the measures shall be made operational at the latest twelve years after that date.

Article 11.8. The programmes of measures shall be reviewed, and if necessary updated at the latest fifteen years after the date of entry into force of this Directive and every six years thereafter.

How do Member States legally establish the programmes of measures?

In the Netherlands the Programme of Measures can be found in all existing water plans (strategic plans as well as management plans) of the central government, the provinces and the water boards. In Denmark the municipalities are responsible for the implementation of the programme of measures, just as in France. In Germany, the programme of measures is determined by the Ministry for Environment. In England & Wales, the programme of measures is prepared by the Environment Agency and formally approved by the Secretary of State for Defra (for England) and the Welsh Assembly Government (for Wales).
How are the programmes of measures established in practice?

In this section, first of all, the main actors that are responsible for designing the programmes of measures (PoMs) are described. We will also look at the discussion on the distinction between the ‘basic’ measures and the ‘supplementary’ measures that are exclusively associated with the WFD objectives. Finally, the contents of the PoMs for some countries/basins are also discussed.

<table>
<thead>
<tr>
<th>Designing Programmes of Measures</th>
<th>Implementing the measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL (regional waters)</td>
<td>water boards</td>
</tr>
<tr>
<td>NRW</td>
<td>Obere Wasserbehörde and untere Wasserbehörde, also through Wasserverbände</td>
</tr>
<tr>
<td>E&amp;W</td>
<td>Environment Agency</td>
</tr>
<tr>
<td>FR</td>
<td>SAGE (municipalities)</td>
</tr>
<tr>
<td>DK</td>
<td>Environment Centres</td>
</tr>
</tbody>
</table>

Table 9: Designing and implementing Programmes of Measures

In the Netherlands, the independent, functional water authorities (water boards) set part of the ecological goals and designed part of the programme of measures for the regional waters and also implemented these measures, all occurring at the sub-basin level. In most of the countries studied, this was not the case. In England and Wales, the same actor set the goals, designed the measures and implemented these measures. However, this was done by the ministerial agency, the Environment Agency, at the RBD level.

In Denmark and NRW, tasks were divided between the ministerial and decentralised levels. In NRW, the district level (Bezirksregierung) and the central level (Ministry) prepared the PoM while the measures were implemented mainly by the decentralised governments and the specific implementation organisations called Wasserverbände. For example, the Rur basin, Dusseldorf and Cologne regions, as well as the Wasserverband Eifel-Rur, were the main actors in implementing the PoMs. In Denmark, the Environment Centres prepared the list of the most cost-effective programme of measures for each sub-basin, and most likely there was a little room for the municipalities to choose alternative measures. It is still uncertain what degree of flexibility was granted to the municipalities in designing their own action plans.

France took a different approach. The Brittany Regional Committee of the Water Agency Loire-Brittany investigated the measures to be implemented in the Brittany region. The exercise was, however, only to estimate the cost and the use of extensions. It was at the (lower) SAGE level, as in the case of the Baie de St Brieuc, that the PoMs were designed and implemented. The municipalities involved in the SAGE had the freedom to adopt any measures as long as the goals set in the SDAGE were met. However, it was not certain whether local authorities were not only able but also willing to implement all the
necessary measures to fulfil the requirements of the WFD and the goals set at the river basin district level.

New or old measures?
Another point to discuss concerns the distinction between the ‘basic’ measures and the ‘supplementary’ measures, which is made by the Directive (Article 11.2/3/4). For the Odense river basin, the distinction was made very clearly in the draft management plan. The Environment Centre Odense first made an inventory of already existing as well as already adopted – but not yet fully implemented – policies and measures (basic measures). The expected status of water bodies, taking into account the effects of these measures, will be the baseline for 2015. Based on this baseline, supplementary measures that are needed to ensure the achievement of the WFD objectives are derived. In the Netherlands, the distinction between the WFD-related and basic measures was not as clear as in the Odense case. The measures listed in the RWS/Regional package included all the measures that are to be carried out until 2027. Only some water boards are said to have made a clear distinction between existing and ‘new’ or ‘additional’ policies. For other countries/basins, similar information was not (yet) available.

What kind of measures?
It is also important to compare the content of the programmes. In Denmark, it was concluded at quite an early stage by the national level that in order to reduce nitrogen in surface water bodies, it was most cost-effective to address diffuse agricultural pollution. The Godtfredsen Committee’s analysis was the main source for this idea. At the sub-basin level, the Odense river basin management plans also concentrated their PoMs along the same lines by allocating almost 50% of financial efforts to this sector.

Conversely, in the Netherlands, the main activities were expected to concern measures to improve spatial arrangements, such as nature-friendly banks and the re-meandering of watercourses. Nutrients reduction was not expected to be achieved through extra WFD measures (see the section on Integration). For the regional water bodies, water boards did not have the competence to address sectors other than the water sector, while the national government, which was responsible for the sector, would not subject the agricultural sector to extra measures. Since diffuse agricultural pollution was the main challenge in the Netherlands, this certainly meant that WFD objectives could not be fully met.

Concluding remarks
As we have briefly seen in the previous section, the general impression is that in France and Denmark the goals were first set at a higher level or river basin level (the SDAGE in
France and the sub-basin management plans in Denmark) and subsequently, necessary measures were designed either by the municipalities (France) or by the Environment Centres (Denmark). In both cases, the municipalities which implemented the measures were obligated to reach the goals set in the management plans, and therefore they had to formulate their own planning and measures (SAGE in France and the Municipal Action Plans in Denmark). In Denmark, the Environment Centres were likely to define measures in a way that left municipalities little flexibility in defining their own measures, while in RBD Loire-Brittany, municipalities had the freedom to define measures themselves.

It is rather unique that in the Netherlands it was the decentralised and functional water authorities – water boards – which took the lead in setting the goals and measures for regional waters. In England and Wales, both the goal setting and implementation was carried out by the ministerial authority (Environment Agency). Water boards (which had limited competence concerning water quality) were the main agency in implementing WFD measures in the Netherlands, and diffuse pollution was not directly addressed through WFD implementation. This is a very different picture to that in Denmark, where the national level defined the most suitable measures. At this point it is also important to stress that the water boards were reluctant to set ambitious goals for their water bodies in their management plans, because they wanted to avoid being accused of not reaching the objectives they had set themselves. This means that in reality, higher quality objectives might have been reached than what could have been expected from their plans.

8.5 Financial Resources

Do Member States expect an increase in their budgets for water management to meet the demands of the WFD?

Unfortunately, it was not possible to present the information on costs in a comparative way (e.g. the annual costs in euros/inhabitants), so we will only provide an impression of the related budgets in different countries and regions. It was often unclear which measures were endorsed by the WFD, and which measures had already been planned before the WFD or would have been planned without it. This distinction is important in order to shed some light on the estimated costs of implementation.

As seen in the section on Programmes of Measures, in the Odense river basin (Denmark), the extra costs needed for WFD implementation were calculated based on ‘supplementary measures’. In its current plan, the annual economic cost of planned PoMs to fulfil the WFD obligations in the basin would be 13 million euros in five years (between 2010 and 2015). Some 17 million euros were planned to be spent on water
management before 2015, but this is unrelated to the WFD. This means that about 43% of the total water management costs in Odense (until 2015) are related to the WFD.

In the Netherlands, the distinction was not as clear, and the estimation of WFD-related costs was made, but at a different scale (at the national level). In total, about 7.1 billion euros would be invested in water management from 2007 to 2027, and one-third of this amount (2.9 billion euros) was considered to be related to ‘extra’ WFD measures. Some 65%-70% of these efforts were to be made in the period 2007-2015. Therefore, both in the case of the Odense river basin and in the case of the Netherlands, an increase in resources for water management was foreseen due to the implementation of the WFD.

For other countries, the estimation of the costs for WFD implementation was also made, but with less certainty. In RBD Loire-Brittany, the water-related budget was expected to increase. The Water Agency for the District of Loire-Brittany was expected to spend about 2.9 billion euros between 2010 and 2015 (on total water management) and the same amount was also expected to be spent on the second and third planning cycle. Although this amount indicated an increase in the budget for water management, it is unclear how much was associated with ‘extra’ WFD measures. In NRW, an increase in the budget was foreseen. The Ministry of Environment announced that it was planning to add 10 million euros to the water management budget in 2009, and in total 50 million euros for 2010 and thereafter on WFD implementation.

Defra estimated the cost for implementing the WFD for the whole of the UK. Two scenarios were investigated. The first scenario, which aimed to reach good status in 2015, was believed to cost 1.3 to 2.5 billion pounds (1.5 to 3 billion euros) per year. The second scenario, which was politically preferred, aimed to achieve the objectives in the later planning rounds in 2021 and 2027, and to reduce the cost to the range of 0.7 to 1.35 billion pounds (0.8 to 1.6 billion euros) per year. The outcome of these calculations significantly exceeded Defra’s earlier estimations. Again, it was unclear whether the costs associated with the scenarios included already existing measures. Although it was more than previously estimated, there was no indication of an overall increase in the budget for water management in RBD Anglia; it was considered to be ‘business as usual’.

**Concluding remarks**

It is very difficult to compare the financial resources related to the WFD. This is not only because it was difficult to distinguish the budget related to the WFD from the general water management budget, but also because the information used reflected various scales, and costs might also have differed due to different calculation or allocation methods. Therefore, comparisons between the countries can only be made with great caution. It should be noted, however, that when we discuss the extent of WFD-related measures, that the Netherlands fulfils the obligations of many other water-related EU
regulations (such as the Urban Wastewater Directive and to a large extent the Nitrate Directive). For some countries, efforts are still needed to meet the demands of other directives, and they list related measures as WFD measures, which is not the case in the Netherlands.

8.6 The Use of Exemptions

What does the WFD state about the use of exemptions?

Article 4.4.
The deadlines established under Paragraph 1 may be extended for the purpose of phased achievement of the objectives for bodies of water, provided that no further deterioration occurs in the status of the affected body of water when...

Article 4.5.
Member States may aim to achieve less stringent environmental objectives than those required under Paragraph 1 for specific bodies of water when they are so affected by human activity, as determined in accordance with Article 5(1), or their natural condition is such that the achievement of these objectives would be infeasible or disproportionately expensive, and all the following conditions are met....

Article 4.6
Temporary deterioration in the status of bodies of water shall not be in breach of the requirements of this Directive if this is the result of circumstances of natural cause or force majeure which are exceptional or could not reasonably have been foreseen, in particular extreme floods and prolonged droughts, or the result of circumstances due to accidents which could not reasonably have foreseen, when all of the following conditions have been met....

Article 4.7
Member States will not be in breach of this Directive when failure to achieve good groundwater status, good ecological status, or, where relevant, good ecological potential or to prevent deterioration in the status of a body of surface water or groundwater is the result of new modifications to the physical characteristics of a surface water body or alternations to the level of bodies of groundwater, or, failure to prevent deterioration from high status to good status of a body of surface water is the result of new sustainable human development activities.
How do Member States legally establish the use of exemptions?

Denmark, Germany and France have transposed the exemptions in their national laws in very similar wording as in the WFD.\(^1\) In the Netherlands, the exemptions are described in the AMvB Kwaliteitseisen en monitoring water, also in a similar wording as in the WFD. In England & Wales, the exemptions are not transposed into a legal document. A UKTAG technical guidance describes the use of exemptions. It does not describe the exemptions themselves, however.

How do Member States use the exemptions in practice and what are their rationales?

To make use of the exemptions, most of the discussion surrounded the use of the extension of the deadline and not the lowering of the objectives. Most countries looked into the second option only when extending the deadline did not help them to meet the WFD objectives. It is already obvious from the earlier sections that all basins/countries will apply a phased approach to at least some of their water bodies.

England/Wales and the Netherlands were the most pronounced in setting the goals of reaching the objectives in 2027 instead of 2015. In England and Wales, the DEFRA instructed the EA to make full use of the alternative objectives and extended deadlines. It was considered too expensive to try to reach good status by 2015. Making use of the three rounds of the RBMPs was understood to spread out the cost of WFD implementation. The ex-ante evaluation report of the Netherlands also stated that the measures for the WFD were to be implemented in a phased approach until 2027. The expected costs were used as the main argument. It was, however, recognised as uncertain whether these costs could be considered sufficiently disproportionate to legitimise the phased approach. Moreover, even with the phased approach, the GEP was not expected to be reached in more than 50% of the regional water bodies in the Netherlands.

For RBD Loire-Brittany and the Odense catchment, the deadline of 2015 was referred to as the deadline. This did not mean that they expected to reach the good status for all their water bodies by 2015. After some adjustment and decisions to make more use of extensions, 61% of water bodies in RBD Loire-Brittany were expected to meet good status by 2015, meaning that for 39% an extension of the objectives had to be employed. The central government had meanwhile decided that two-thirds of the water bodies should meet the good ecological status by 2015, limiting the use of an extension. However, it was not known what this would mean for the RBD Loire-Brittany. Germany as a whole made a strikingly low estimation of goal attainment by 2015, stating that only about 14% of surface water bodies would reach the environmental objectives. It was not clear what this meant for NRW, or for the Rur catchment. For wastewater management,

\(^1\) In Germany, this is done at the federal level only.
the targets were set at 2015. Most of the ecological goals were expected to be reached later than 2015 in the Rur catchment.

In Denmark, it was expected that the ministerial level might make certain decisions regarding where to use the exemptions when it came to diffuse agricultural pollution, while for other issues, Environment Centres would decide. It was considered to be cheaper to spread the cost in dealing with the agricultural problems over three phases. It should be noted, though, that the Odense pilot plan clearly stated the intention of meeting good status by 2015, with a limited use of exemptions. In this context, moreover, the Odense pilot plan did not make any reference to diffuse pollution as an argument for the use of exemptions. However, this could change after the review of the draft plan by the central government. Interestingly, the most use of an extension in the Odense basin was expected to be made by those water bodies that had a strongly modified character, but were not designated as HMWBs. Not only have the deadlines been postponed for these water bodies, but the decisions on environmental objectives and associated measures for achieving them have also all been postponed until the next planning period. Concerning watercourses, in this way an extension was to be applied to about 25% of them.

Concluding remarks
As in the cases for the Brittany region and the Odense fjord river basin, the regional process showed a relatively more ambitious position in terms of the degree of the use of extensions. However, for both cases the higher level (the national or the RBD) could influence the use of an extension if it so wished. Finally, it makes it very difficult to compare ambition levels among the countries by looking at the use of exemptions. While Denmark appeared at first sight to be very ambitious (in comparison to the Netherlands) in attempting to include so many water bodies as natural water bodies, it did not mean that these water bodies would have good ecological status in 2015, as shown in this section. At least their end goals were higher (not GEP but GES), as we saw in the section on the designation of water bodies.

8.7 The Principle of No Deterioration

What does the WFD state about the principle of no deterioration?
Article 4.1(a)(i)
Member States shall implement the necessary measures to prevent deterioration of the status of all bodies of surface water, …
**How do Member States legally establish the principle?**

In all countries, except England & Wales, the principle has been transposed or was already present in national law. In Germany, it exists only at the federal level. In England & Wales, the principle is mentioned in a statutory guidance that DEFRA and the Welsh Assembly Government have issued to the Environment Agency. In England & Wales, France, Denmark and the Netherlands, deterioration is observed between status classes. In France and Denmark, this follows from the wording used in the law (the CE and the MML, respectively). In the Netherlands, the principle is not explained in the law, but in an explanatory note with the AMvB Kwaliteitsseisen en monitoring water. In England & Wales, it follows from the wording used in the guidance. In all four countries, this deterioration is observed per water body. In England & Wales, however, this is not clear from any legal document. It can be observed, however, in a technical guidance paper by UKTAG.

**The no deterioration principle in practice**

We distinguish between four parameters which give meaning to the principle:

- The spatial scale on which deterioration is observed (water body, RBD, etc.)
- The time scale in which deterioration is observed (the time between observations and the starting date)
- The scale of seriousness that determines if deterioration has taken place (an increase in the concentration of pollutants, a change of status class)
- The possibility of compensating for deterioration with improvements elsewhere

France, Denmark and the Netherlands indicated that deterioration was to be observed at the start of each planning period. Some interviewees in Denmark, however, also indicated 2012 as a starting date, claiming that the no deterioration principle was only applicable when the Municipal Action Plans (which functioned as programmes of measures) were operational. In England and Wales it was not indicated when deterioration was to be observed. France, Denmark, and England and Wales did not state an explicit starting date. Interviewees in England and Wales did indicate, however, that 2006 would be a reasonable date, because that was when the monitoring programme started. In the Netherlands this was considered to be 22 December 2009. In Germany, deterioration was observed per water body as well. However, a legal expert and the interviewees had different opinions regarding the scale of seriousness that determined whether deterioration had taken place. According to the interviewees, deterioration was observed between status classes. According to the legal expert, deterioration consisted of every negative impact and could therefore also occur *within* a status class. In Germany, the principle had applied since the WFD entered into force (2000). No time scale was mentioned.

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62 In the WHG.
According to a technical guidance paper by UKTAG, deterioration could not be compensated by an improvement in another water body in England and Wales. In the Odense pilot management plan it was stated that it could be acceptable to allow an increased pressure/pollution of a water body if this was the only way to prevent an enhanced and serious pollution of another water body. However, in general there was no possibility of offsetting – that is, allowing higher pressures on one water body by reducing the pressure on another. In the Netherlands, the AMvB kwaliteitseisen en monitoring water indicated that deterioration of a water body was allowed as long as the RBD as a whole experienced significant improvement in water quality, or if the improvement of one water body outweighed the deterioration of another.

<table>
<thead>
<tr>
<th>Seriousness of deterioration</th>
<th>Spatial scale</th>
<th>Starting date</th>
<th>Time scale</th>
<th>Compensation possible?</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL</td>
<td>Between status classes</td>
<td>Per water body</td>
<td>2009</td>
<td>six-year period</td>
</tr>
<tr>
<td>DE</td>
<td>Within status class?</td>
<td>Per water body</td>
<td>2000</td>
<td>?</td>
</tr>
<tr>
<td>FR</td>
<td>Between status classes</td>
<td>Per water body</td>
<td>2009</td>
<td>six-year period</td>
</tr>
<tr>
<td>E&amp;W</td>
<td>Between status classes</td>
<td>Per water body</td>
<td>2006?</td>
<td>?</td>
</tr>
<tr>
<td>DK</td>
<td>Between status classes</td>
<td>Per water body</td>
<td>2009/2012</td>
<td>six-year period</td>
</tr>
</tbody>
</table>

Table 10: Interpretation of the no deterioration principle

Concluding Remarks

Looking at the summary table, Germany seems to interpret the scale of seriousness most strictly (although the exact interpretation is a topic of discussion in Germany itself) and the Netherlands allows for more flexibility compared to other countries. The interpretation of the starting date is diverse. Again, Germany seems to interpret this most strictly, while in Denmark the date is considered to be twelve years later.

It is interesting to note that in all of the Member States we studied, the exact definition of the principle is not stated in legislation. It seems clear that, although Member States seem to have some idea of what the principle might entail, none of them seems to know for sure. Since the principle and its application are not very clear in the WFD itself, decisions of national courts or of the European Court of Justice are expected to further determine the exact interpretation of the principle. By not tying themselves down to one explicit definition in their national legislation but instead referring to the – vague – principle of the WFD, Member States avoid the problem of having to adjust their transposition legislation as a result of a possible conviction from the Court of Justice.
This way, failure to implement the principle correctly is restricted to an incorrect application of the principle by authorities in specific cases.

### 8.8 Integration in General

**What does the WFD state about integration?**

(16) Further integration of protection and sustainable management of water into other Community policy areas such as energy, transport, agriculture, fisheries, regional policy and tourism is necessary. This Directive should provide a basis for a continued dialogue and for the development of strategies towards a further integration of policy areas. This Directive can also make an important contribution to other areas of cooperation between Member States, inter alia, the European Spatial Development Perspective (ESDP).

The WFD doesn’t ask for integrated water legislation, but ask for integrated water management. Member States are free to choose how they will translate this concept in their national legislation. Nevertheless, the European Court of Justice is of the opinion that integrated water legislation can be a very helpful tool to comply with the WFD obligations. As far as environmental quality standards are concerned one can speak of a rights-based approach (see chapter one). They have to be implemented in national legislation and private parties must be able to rely on them in court. This leads to the conclusion that the EC is not particularly interested in who are taken specific decisions or measures as long as the environmental quality standards are met. This leads to the practical consequence that for the Member States integration is necessary because not all environmental quality standards nor the general environmental goal of the good status can be achieved without a proper integration.

**How do Member States legally ensure integration?**

The first conclusion of our research is that integration mostly takes place on the level of planning, more than on the concrete decision-making level, like the granting of licences et cetera. That is important to realise since in some countries, like in the Netherlands, plans are not legally binding. In Denmark, all state and local authorities are bound by the RBMPs and the PoMs when they make administrative decisions. The MML is considered to be legally superior not only to the Municipal Action Plans but also to the regional development plans and the municipal spatial plans which are then obliged to follow the requirements of the RBMPs. In Germany as well, the RBMPs are legally binding for all authorities. In England & Wales, each public body must take into consideration, in exercising its functions so far as it affects a river basin district, the approved RBMPs and any supplementary plan. In France, the spatial plans at all governmental levels and all administrative decisions concerning water should be compatible with the RBMPs but not with the PoMs. In the Netherlands, all new water

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63 ECJ Case C-32/05, Commission vs Luxembourg.
plans should take the water quality standards into account. When water authorities take more specific decisions (like granting a licence), they have to take their own water plans into account and no decisions or practical measures may be taken that will lead to non-conformity with the general goals of the Water Act. There is no formal legal obligation regarding competences in other policy fields or legislation to take the water quality standards into account. Since the national water plan (RBMP) is made by more Ministers (Minister of Transport, Water Management and Public Works, together with the Minister of Agriculture, Nature Conservation and Food Quality and the Minister of Housing, Physical Planning and Environment), all these Ministers have to take the decisions laid down in the national water plan (including the RBMP and the summary of the programme of measures) into account when decisions are taken at the national level. Through the *water-toets* – based on the Dutch Spatial Planning Act - water boards can advise authorities that make spatial planning decisions on the consequences of those decisions for water management. The authority taking the decision can derogate from the advice, but this should be justified.

The above is summed up in the following table:

<table>
<thead>
<tr>
<th>Authorities in general</th>
<th>Water authorities</th>
<th>Non-water authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NL</strong></td>
<td>No general integration</td>
<td>Water plans should take quality norms into account; when making specific decisions authorities should take their own plans into account</td>
</tr>
<tr>
<td><strong>DE</strong></td>
<td>RBMPs legally binding on all authorities</td>
<td>Lower authorities are bound by the instructions of higher authorities</td>
</tr>
<tr>
<td><strong>FR</strong></td>
<td>No general integration</td>
<td>All decisions should be compatible with RBMPs</td>
</tr>
<tr>
<td><strong>E&amp;W</strong></td>
<td>Consideration given to both RBMPs and supplementary plans</td>
<td>Covered by general integration</td>
</tr>
<tr>
<td><strong>DK</strong></td>
<td>Bound by both RBMPs and PoMs</td>
<td>Covered by general integration</td>
</tr>
</tbody>
</table>

*Table 11: General, internal and external integration*

It should be noted that it is difficult to say what ‘being bound by’, ‘have regard to’, ‘be compatible with’ and ‘take into account’ specifically mean. This greatly depends on the specific legal system of the country involved and also on how this is brought into
practice. Therefore, any comparison between the countries is difficult and it is also difficult to say whether integration is either ‘hard’ or ‘soft’ and whether or not authorities can derogate from the RBMPs and PoMs.

8.9 Integration: Water and Nature

How is the integration between the WFD and Nature legally established?
In Denmark and England & Wales, authorities in general are bound by or must consider the RBMPs. In Denmark the MML ensures integration. In other countries, integration with the nature sector is not explicitly ensured through their legislation, although in the Netherlands the fact that the Minister of Agriculture, Nature Conservation and Food Protection is also responsible for the national water plan and the RBMP should lead to a certain degree of integration, and - in Germany - nature conservation law and measures usually support the goals of a RBMP.

How does the integration between the WFD and Nature work in practice?
It is only in Denmark that the implementation of the WFD and the protection of Natura 2000 sites are legally coordinated under the MML. Through the Municipal Action Plans, municipalities must implement measures to meet the goals set by the Environment Centres for both the WFD and the Natura 2000 sites. Thanks to this legislation, the substantive integration of the two policy sectors is ensured in Denmark. In the Odense pilot plan, consideration of Natura 2000 sites is taken well into account by setting more stringent objectives than a good status for those areas. The water quality ensured under the WFD is considered to be the basis for complying with the Natura 2000 objectives related to water.

In NRW, the Bundesnaturschutzgesetz (the nature conservation act of the NRW) requires that once the area is designated under one of the manifold regimes of area protection, that all surface waters be protected as habitat for local flora and fauna species. This law contributes to the implementation of the WFD in NRW to some extent. To a limited degree, substantive integration is attempted in the Netherlands as well. The idea is that for the areas with high urgency according to Natura 2000 conservation guidelines, the water quality conditions should be ensured under the WFD before 2015. Water quality measures for Natura 2000 sites are now included in the water management plans and PoMs for the national waterways. However, for regional waters, the integration is less clear. In the Netherlands, integration between the WFD and Natura 2000 sites is still poor, although the necessity for this is recognised.

Organisational/institutional integration is more common for the integration of the WFD and Nature policies. In France, the River Basin Committees, which together with the
Water Agency establish the SDAGE, involve stakeholders that represent nature protection interests. In England and Wales, there is no explicit coordination and not much is being discussed in this field. However, some institutional/organisational integration can be expected. Natural England is responsible for the implementation of the Birds and Habitats Directives (in Wales the relevant body is Natural Wales) and is involved in the work of UKTAG. Natural England plays an important role in bringing nature conservation into strategic decision making on the WFD. Natural England is also involved in the Liaison Panel at the basin level to represent nature conservation. However, the influence of this Liaison Panel is uncertain. For Natural England, it is important to take protection zones (for example, from the perspective of the Birds and Habitats Directives) into account when designating water bodies. In the Wensum catchment, Natural England pursues the designation of the entire catchment as natural in order to sustain the high ecological goals (good ecological status instead of good ecological potential) for the area.

Institutional integration is also expected in the Netherlands. Since the national water plan (RBMP) has been signed by more than one Minister (Minister of Transport, Water Management and Public Works; Minister of Agriculture, Nature Conservation and Food Quality and Minister of Housing, Physical Planning and Environment), all these Ministers have to take the water quality standards into account when decisions are made at a national level. At the RBD level, there are Round Table meetings where stakeholders are involved in discussing the WFD implementation process, and at the water board level stakeholders are also involved in discussing the contents of the water programmes of the water boards and municipalities.

Concluding remarks
In most countries, integration between WFD implementation and nature management can be expected through institutional arrangements, where different actors are involved in the process of WFD implementation. Despite the fact that a great many of the objectives of the WFD overlap with those of the Birds and Habitat Directives, not many countries besides Denmark have structurally organised any integration between the two policy sectors.

8.10 Integration: Water and Agriculture

How is the integration between the WFD and agricultural policy legally established?
Again, in Denmark and England & Wales, authorities in general are bound by or must consider the RBMPs. In the Netherlands the fact that the Minister of Agriculture, Nature Conservation and Food Protection is also responsible for the national water plan and the RBMP should lead to a certain degree of integration.
An important legal factor for the Netherlands is that the decrease of nitrates in surface waters can hardly be influenced by the regional water boards, since they do not have the power to strengthen agricultural policy and legislation. More in general it can be stated that a great deal of attention is paid to the role and measures taken by water managers, while the largest problems, an overkill of nitrates and pesticides in surface waters, should be tackled at the central level. In NRW, to fulfil the WFD requirements, a regulation of the so-called gewasserrandstreifen or ‘bank-belts’ has been added to the LWG, requiring such belts to be adjacent to all surface waters, where the use of pesticides is forbidden. The use of manure is not necessarily forbidden, but can be forbidden by the untere Wasserbehörde if that is necessary to realise a RBMP.

How does integration between the WFD and agriculture work in practice?

The biggest challenge in implementing the WFD faced by all the Member States studied in this report is diffuse pollution from the agricultural sector. Among these countries, the Netherlands is known to have the highest level of over-fertilisation with nitrogen and phosphate in the EU.

In Denmark, when the WFD is discussed, a great deal of attention is given to the agricultural sector and its diffuse nitrate pollution. This is because it is generally understood that the cost-effectiveness of measures to reduce nitrogen in the water will be greatest when addressing the diffuse pollution from the agricultural sector. First of all, Danish PoMs will contain many measures directed at this sector. At the national level, the Godtfredsen Committee, which was tasked with investigating the most cost-effective measures, eventually decided to recommend a list of purely agriculture-related measures aimed at tackling the diffuse N and P pollution. When looking at the Odense plan, the majority of the implementation costs are allocated to measures for the agricultural sector. In Denmark, therefore, the agricultural sector is seen as the most important sector in WFD implementation.

In addition, the third Action Plan for the Aquatic Environment (APAE) has been set up for the period 2005-2015, harmonising itself with the planning cycle of the WFD and focusing on the agricultural sector. The Plan is expected to contribute substantially to meeting WFD objectives. However, some important measures are based on voluntary action, and it is widely feared that they will not be effective. Finally, the Danish farmers’ organisation is eager to be involved and even to start its own initiative. This organisation knows that attention is very much focused on the sector and that it will be impossible to be unaffected by WFD implementation. The AGWAPLAN was established, seeking alternative ways to implement the WFD and focusing on voluntary actions and cost-effective methods that are less harmful to the sector.
In England and Wales, there is less focus on the agricultural sector, but the government has its own initiative to tackle diffuse pollution from the sector. The EA, working with DEFRA and Natural England, has set up the Catchment Sensitive Farming programme to encourage early voluntary action by farmers to tackle diffuse water pollution. The programme is designed to help achieve, in particular, the 2010 target for Sites of Special Scientific Interest (SSSI) and, from 2009 onwards, the PoMs required under the WFD. The Capital Grant Scheme (subsidies for farmers) is available for the first WFD cycle within the priority catchments which were identified by the Environment Agency and Natural England. Next to the Catchment Sensitive Farming programme, the Regional Rural Development Frameworks also integrate policies on water and rural development. The frameworks seek to bring together regional organisations to agree upon priorities covering environmental, economic and social issues. These regional chapters are to be brought into the England Rural Development Plan (in Wales, into the Rural Development Plan for Wales) and into the RBMPs.

In NRW, the Ministry follows a cooperative mode of integration by signing a voluntary agreement with agricultural representative organisations. To avoid imposing measures upon an unwilling sector, a so-called stepping-stone (Trittsteine) approach will be applied. In this approach, the agricultural organisations search for specific areas of agricultural land that can be reserved for adjustment so as to fit in with WFD-related measures. The Ministry believes that this approach is the most cost-efficient way to reach good status, where a certain number of sections with good hydromorphological conditions is achieved and as such is considered sufficient.

Institutional/organisational integration is common in all of the studied Member States. Traditionally, in France, the River Basin Committee represents stakeholders including the agricultural sector and the Committee produces the SDAGEs. In Denmark, the sector has been actively involved in the implementation process from the beginning. The Stakeholder Group, which existed at an early stage of the WFD implementation in Denmark, was set up by the Ministry of Environment together with the Ministry of Agriculture. Other countries have also prepared some arrangements to allow for stakeholder participation, but the impact of such gatherings is uncertain. In England and Wales, the agricultural sector itself is represented in the Liaison Panel at the basin level, and the EA has appointed Catchment Sensitive Farming officers in each RBD who are involved in the Liaison Panel. In the Netherlands, not only integration is expected by the fact that the Minister of Agriculture, Nature Conservation and Food Protection has signed the national water plan and the RBMP, but there are also Round Table meetings at the RBD level and at the water board level where the contents of the water programmes are discussed with stakeholders.

In addition, Denmark demonstrates a unique situation in which integration is promoted. The fact that the municipalities in Denmark are now obliged to achieve the objectives for the WFD as well as for the Natura 2000 sites set by the Environment Centres by 2015 has
had an important impact on the agricultural sector. There have been many cases where municipalities refused to issue environmental permits for livestock expansion, knowing that it might be costly for them to later buy the permits back in order to meet the environmental objectives. This has happened in spite of the fact that the national legislation on environmental permits for livestock expansion did not intend to restrict new permits. In France, as mentioned earlier, the decisions to issue permits for animal husbandry have to take the SDAGE and SAGE into account since the introduction of the new Water Act in 2006. However, the implementation of this provision at the local level is said to be uncertain.

Concluding remarks
Although diffuse pollution from the agricultural sector is considered to be one of the main obstacles in meeting WFD objectives, in most countries the integration has turned out to be difficult. From the analysis conducted, Denmark seems to be most prepared to address this issue. The government is proactive in including measures directed at the agricultural sector in their PoMs and the third Action Plan for the Aquatic Environment is now being harmonised with the WFD, focusing on the agricultural sector. Moreover, the municipalities, being granted the responsibility to fulfil the objectives set by the Environment Centres, are becoming more cautious in granting livestock permits. In contrast, in the Netherlands the integration of water management and agricultural activities is not expected to be endorsed due to the introduction of the WFD. Formulating the necessary source-oriented measures for the agricultural sector is not the task of the water boards, but of the national government through its general manure policy, therefore measures to reduce nitrogen and phosphorus are expected to be only derived from the Nitrate Directive. However, it is widely understood that the efforts to fulfil the requirements of the Nitrate Directive will not be enough to achieve the requirements of the WFD.

8.11 Integration: Water and Spatial Planning

How is the integration between the WFD and spatial planning policy legally established?
Again, in Denmark and England & Wales, authorities in general are bound by or must consider RBMPs. In France it is explicitly stated that spatial plans should be compatible with RBMPs. In the NL integration will be established by the fact that strategic water plans at the national and provincial level will at the same time be strategic plans (structuurosies) based on the Spatial Planning Act. It should however be noted that these strategic plans are not legally binding. The aforementioned wateroets existed before the WFD implementation and the wateroets encourages integration between water and spatial planning. In Germany, there is no provision that directly binds spatial planning
and obliges the use of spatial plans to realise the RBMPs. Although water quantity and quality are explicitly mentioned amongst other basic principles of higher spatial planning and higher spatial plans could determine areas that primarily serve water goals in order to realise a RBMP, such an appointment to realise a RBMP is unlikely to occur. As far as the local plans are concerned, municipalities are explicitly required to take a RBMP into account. Moreover, non-privileged use of buitengebieden (open areas) is forbidden if it conflicts with a RBMP. As far as privileged usage is concerned, a RMBP may not be opposed.

**How does the integration of the WFD with spatial planning work in practice?**

In France, Denmark, and England and Wales, the integration between the WFD and spatial planning is encouraged through legislation. In France, the integration in effect occurs in substantive form at the local level, through municipalities making sure that urban and spatial planning documents are compatible with their SAGEs. In Denmark, spatial planning, like water, is subject to the responsibility of the municipalities, and spatial planning must respect the Municipal Action Plans which aim to fulfil the obligations of the WFD and Natura 2000. Again, the Municipal Action Plans and RBMPs are considered to be legally superior to the spatial plans. Although any authorities must consider the RBMPs in England and Wales, integration between water and spatial planning appears to be difficult. The influence of the EA on spatial planning affairs remains rather limited. Spatial planning is under the responsibility of local governments, and it is not the responsibility of the Defra. At the same time, local governments have almost no tasks concerning water. The EA is, however, working to encourage spatial planners to consider WFD objectives in spatial development plans through publishing some advisory guidance documents.

In the Netherlands, there is no explicit integration with spatial planning in the WFD implementation process. The quality standards set in the AMvB will only have a very limited effect on decision making in the spatial planning process, for example if one of the water plans (either the national or regional) demands that measures to be taken that involve spatial changes to achieve the quality standards. Moreover, these measures must also be transformed into the general Spatial Planning Law. Prior to introduction of the WFD, water management had already been integrated, especially in quantity terms, with spatial planning through the obligatory waterloots. This instrument also includes quality aspects.
CHAPTER 9  GENERAL CONCLUSIONS

M.A. Wiering, H.F.M.W. van Rijswick, Y.J. Uitenboogaart

9.1  Introduction

The primary goal of this study of the implementation of the WFD in a comparative perspective was to gain insight into the implementation processes and practices in other EU Member States. A comparison informs us ‘how the Netherlands is doing’ in implementing the WFD, how other countries deal with comparable policy problems and how other countries are setting their levels of ambition. A second goal was to learn from the choices made and the possible solutions found in other countries. What are the interesting policy practices in different countries?

We made a comparison of the formal and practical implementation of the WFD on the basis of four foreign cases (Denmark, England and Wales, France and the German federal Land of North Rhine-Westphalia). The Netherlands provided the ‘reference case’ (the Dommel sub-river basin). To some extent, the selected cases had comparable problems, e.g. diffuse pollution sources from agriculture and hydromorphological changes. We did not investigate all aspects of the implementation of the directive. The goals for the chemical status of water bodies are predominantly laid down in standards prescribed by the European authorities and are to be implemented by all Member States, usually by the national governments, or the governments of federal states. This part of the WFD produces a lesser degree of freedom for the Member States, and we have not elaborated this further. We have also not further investigated the goal-setting process for ground water (i.e. goals for chemical status and quantitative status).

We focused on the ecological goal-setting process for surface waters (rivers, lakes, transitional waters, coastal waters) in the regional settings of a specific case study. This part of the WFD leaves considerable room for policy discretion for countries and regions. Furthermore, we have confined ourselves to the different steps and elements of the implementation process that have been important until now and that are crucial for future implementation. These steps are: formal transposition, designation of water bodies, goal-setting process in steps, the use of exemptions, setting up programmes of measures, the no-deterioration principle and financial resources. Subsequently, we have looked at methods of policy integration, with a focus on external integration with nature conservation, agriculture and spatial planning.

Comparing implementation processes instigated by the WFD was not an easy task. Not only is the WFD a rather complex directive, but water management is also organised differently in the Member States, and above all, the challenges that the WFD puts on the agenda (reducing chemical pollution, improving the ecological status of water bodies,
etc.) can be addressed through different paths. In this concluding chapter we will first summarise the findings of our comparison (see also the previous chapter). Second, we will try to answer the main questions regarding the ambition level, and third, reflect on the rationales behind the implementation processes in the different case studies. We will end the chapter with a selection of interesting practices and a general reflection.

9.2 Findings

In Chapter 8 we systematically described and compared the way the implementation steps were determined in the case studies. In this section, we will summarise the most important findings:

- It is not surprising to see that the legal implementation in national legislation differs from country to country. EC law leaves the Member States with room to implement directives through their own legal system. Nevertheless, when it comes to the interpretation of obligations, some remarkable differences can be seen. There are differences with regard to the stringency of obligations (in most countries we find obligations of result; in the Netherlands we find obligations of best effort), the legal establishment of environmental quality standards (most countries have chosen for limit values, the Netherlands for target values) and the way they play a role in decision making (in most countries they have to be taken into account when decisions are taken in all kinds of policy fields except for the Netherlands). Furthermore, some countries transpose the exemptions in formal legislation while some do not; finally, the legal establishment of integration differs per country.

- Regarding the principle of no deterioration, Germany seems to interpret it most strictly (although there is an internal discussion on how deterioration is measured - within a class or only between classes), and the Netherlands seems to allow for more flexibility in comparison to other countries. The interpretation of the starting date also varies. Again, Germany interprets this most strictly, while in Denmark the starting date is considered by some to be twelve years later. Since the principle and its application are not very clear in the WFD itself, decisions of national courts or of the European Court of Justice are expected to further determine the exact interpretation of the principle. In Denmark, several complaints have been made to both the Environmental Board of Appeal and the Nature Protection Board of Appeal related to the no-deterioration principle, but, to date, no decisions have been taken.

- The Netherlands provisionally designated a considerably higher number of water bodies as heavily modified water bodies (HMWB) and artificial water bodies (AWB) in comparison to other countries. The definition of AWBs is relatively clear (see the Introduction of this book) and there is little room for discussion. For HMWBs it means
that there are differences in designation, also in the context of comparable problems for water management. When we look at the Odense case in Denmark, we find a very different approach to that of the Netherlands, since Denmark did not designate water bodies as HMWBs as often as was done in the Netherlands, even though both regions had to deal with problems such as diffuse pollution from agriculture and hydromorphological changes.

- National government, regional and local authorities somehow all play a role in the implementation process. Both in the Netherlands (water boards) and in France (Water Agencies and River Basin Committees) there are specific water-related functional authorities (river basin management authorities) that take the lead in the implementation process. However, in France, these river basin authorities set goals and make plans, but do not actually implement the measures themselves, while the Dutch water boards, although not being the only parties, are themselves highly involved in the actual implementation of measures. In France, this is a responsibility of the municipalities, who decide rather autonomously on how they will respond to the ambitions set by river basin authorities.

- In England and Wales, and in Denmark, ministerial authorities play a main role in the WFD implementation process: the Environmental Agency in England and Wales (non-departmental public body of DEFRA), and the Environment Centres in Denmark (belonging to the Ministry of Environment). Therefore, we can conclude that these countries take a less decentralised approach. Although, in Denmark the municipalities play an important role, they are more bound by the programmes of measures that the Environment Centres produce. In both Denmark and France, the practical implementation takes place at the most decentralised (local) level, but for France we expect that the local autonomy of municipalities creates uncertainty as to whether the goals are actually implemented.

- In France and Denmark, goals are first set at a higher (river basin) level (the SDAGE in France and the sub-basin management plans in Denmark). Subsequently, necessary measures are designed either by the municipalities (France) or by the Environment Centres (in Denmark). This reflects an approach in which goals are first set at a higher level and ‘dropped’ to lower levels, while in other countries, including the Netherlands, defining what measures should and could be affordable and acceptable by the region comes first, or at least becomes the main issue in their planning process.

- All countries make use of exemptions, mostly by postponing the time period in which measures will be taken or goals can be reached until 2021 or 2027. In some countries, like England and Wales, the goals are straightforwardly referred to as 2027. The lowering of goals is a last resort and is used only in really exceptional situations.
- Integration of policy areas is not a strict obligation under the WFD itself. Legal instruments to protect water from pollution by nitrates are mostly the result of obligations stemming from the Nitrates Directive that had to be implemented in the legislation of the Member States some years ago.

- In the Netherlands, authorities in other policy areas will not have to take environmental quality standards into account when taking decisions. Only Ministers who cooperatively signed the RBMP (in the fields of water management, nature, agriculture, the environment and spatial planning) have to take into account decisions laid down in the RBMP with regard to their own competences. Decentralised governments are not formally bound by RBMPs or environmental quality standards. In all other countries, all authorities have to take goals and measures following from the RBMPs into account. The reason for this reluctant attitude in the Netherlands is probably the easy access to justice and the consequences this had, for example for the implementation of the air quality directives, in which case a direct link between quality standards and decision making in all kinds of policy fields was chosen.

- In all countries, the WFD leads to more attention being given to the integration of policy areas, although more so in some countries than in others. Most remarkable is the integration of water management and nature legislation in Denmark. In the Netherlands the attention to the integration of water and spatial planning is increasing, but this is not only because of the WFD, but also because of the fact that there is increasing attention being given to flood prevention. In Germany mechanisms exist which protect water interests in the decision making in spatial planning, often combined with nature protection.

Finally, we come to the conclusion that it is very difficult to compare the financial resources related to the WFD. Firstly, it is difficult to distinguish between the budget relating to the WFD and the general water management budget, and the information used reflects various scales (national, river basin, regional). Secondly, the costs may also differ due to different calculation or allocation methods. Therefore, we did not further elaborate a comparison on the past and future investments in the WFD. It should be noted that not every country studied here lists the same measures as WFD-related measures. Many measures are in fact implemented following the requirements of other directives, and some countries consider those measures to be also WFD measures. For example, Belgium and France still need to fulfil the obligations of the Urban Wastewater Directive (RWS Waterdienst 2008). The Netherlands does not report those measures as WFD measures. Taking this point into consideration and looking at the overall picture of the resources on water management, it seems that the Netherlands is prepared to spend quite a large amount of resources on WFD implementation.
9.3 **On ambitions**

There are many possible variables when we want to compare the ambitions of countries in the implementation process of the WFD. After we have given an overview of our research and findings, we can think of four central ‘assumptions’ or ‘indicators’ which could point towards levels of ambitions. Which countries appear more ambitious, considering the different aspects we have looked at?

First, the country that strives for good ecological status of all waters and designates water bodies as natural water bodies (or, in fact, does not specify water bodies as heavily modified), even when there are important challenges for water management to meet, can be considered more ambitious. Second, when we look at the way the goals and related standards are formalised – as an important part of the institutionalisation of the WFD – we see that environmental standards can be set as limit values (values that must always be respected; sometimes called ‘intervention values’; grenswaarde) as has been done in Germany, or target values (values that tolerate exceptions; richtwaarde) as has been done in the Netherlands. This is a crucial legal distinction. As a third indicator of ambition, we could state that the more ambitious Member State is the one that will strive to reach the targets for GES or GEP as soon as possible, therefore in 2015, and limit the use of exemptions. Fourth, the more ambitious Member State would design river basin management plans in an integrated way, ensuring cooperation with all necessary policy fields such as spatial planning, agriculture and nature conservation.

**Ambitions at first glance**

1) Considering the outcomes of the designation process (preliminary and otherwise), the Odense case in Denmark absolutely reveals an ambition, and so does the French case. The Netherlands appears to be the more pragmatic country, and coming close are England and Wales, and North Rhine-Westphalia.

2) On the stringency of the legal standards (or their formulation), the Netherlands also does not reflect strong ambitions, because the Dutch use target values, while other countries choose limit values. The Netherlands is also the only country which defines general environmental objectives as obligations of best effort and not as obligations of result.

3) On exemptions, we found that all countries use exemptions, although England/Wales and the Netherlands refer most straightforwardly to the goals of the WFD to be reached in 2027. Whereas in other cases, such as the Odense river basin as well as the RBD Loire-Brittany, countries are primarily considering and looking at the deadline of 2015.

4) On integration, all cases have their own specific features that are important for legal and policy integration. What is remarkable is that Denmark has transposed the WFD
together with the Birds and Habitats Directives, and makes it obligatory at the local level of implementation to integrate these two strongly related policy fields. In the cases of Denmark, Germany and England/Wales, the authorities in general are bound by the RBMPs. In France, spatial plans must be compatible with the RBMPs, and there are also spatial provisions (‘bank belts’) in North Rhine-Westphalia that are important to anticipate WFD requirements. In the Netherlands, authorities outside the water sector are not bound by the RBMPs.

When we look at these four indicators of ambition, the Netherlands is not doing so well. It does not show too much ambition when it comes to designation, the stringency of legal standards and special integrative measures. When it comes to exemptions, there are not many differences between cases. This is the picture at first glance; there are other considerations that can explain and clarify some of the positions taken.

**Ambitions at a second glance**

Although at first glance Denmark is very ambitious when it comes to designating water bodies, in reality in the Odense pilot river basin plan, the actions and measures for considerably modified water bodies (but not designated as heavily modified) have been postponed until the next implementation phase. It should furthermore be noted that the Danish ambitions mentioned in this report are largely the result of a technical process of goal setting. The political process is still underway, and less ambitious goals are possible – and even expected – by interviewees. The image of Denmark as an ambitious country can therefore change in the future.

The pragmatism that is reflected in the designation of water bodies in the Netherlands can for a great part be related to physical circumstances, but this is not the whole story. In the Netherlands, the water boards play an important role in the designation process, although they do not have the final decision. It is important to point out that the water boards are assigned the task of proposing the designation of water bodies, without being able to foresee exactly what the ‘significant adverse effects’ or ‘disproportionate costs’ related to the required hydromorphological changes for sectors other than water will be. But, in general, the Dutch designation can be considered as a sign of accepting the ‘modified status’ of water in the Netherlands.

North Rhine-Westphalia, a federal Land that is densely populated, highly urbanised and with intensive agriculture and horticulture, had originally designated fewer heavily modified waters than the Dutch, but also fewer than other Länder, especially Lower Saxony. This difference was one of the arguments used in the next round of designation in North Rhine-Westphalia, where many more water bodies were designated as heavily modified (by which the end-goal is good ecological potential instead of good ecological status). This leads us to conclude that North Rhine-Westphalia had started off very
ambitiously, but by adjusting to other Länder as well as to the Netherlands, gained more room for pragmatism and policy discretion at a later stage.

Looking at the second ‘indicator’ of ambition, the legal establishment of goals and standards, it is again important to make some remarks. We found that the Netherlands is reluctant in creating formal obligations and stringent standards. The reason for this can at least partly be found in the relatively easy access to justice in the Netherlands, which implies that formalising obligations can have immediate practical consequences. Next to this, the Netherlands has an administrative culture and tradition of cooperation between different levels of government, without debating the division of competencies between them. This is not to say that these consequences are not necessary at times, in the light of the environmental objectives of the WFD, but that other countries are creating rules in a different legal culture and system (see also VROM-raad 2008). The high level of ambition that is reflected at this point in the German legislation is compatible with the German legal culture, but in Germany there is a lower degree of access to justice. In France a high level of ambition was chosen because of earlier condemnations by the Court of Justice. We will come back to these arguments in the section on ‘rationales’.

Another interesting issue in the comparison is the organisational framework that is set up for the WFD and the way national, regional and local authorities are involved. In the table below we describe the leading actors in the practical implementation of the WFD in the cases we studied on regional waters, considering different steps in the process (Table 12).

<table>
<thead>
<tr>
<th>Member States</th>
<th>Major role in designation of Water Bodies</th>
<th>Major role in setting goals</th>
<th>Major role in making the Programme of Measures</th>
<th>Major role in Implementing the Programme of Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>Water boards (before Waterwet)</td>
<td>Water boards</td>
<td>Water boards</td>
<td>Water boards</td>
</tr>
<tr>
<td>(regional surface waters)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>France</td>
<td>Prefect</td>
<td>Water Agency</td>
<td>Municipalities (SAGE)</td>
<td>Municipalities (SAGE)</td>
</tr>
<tr>
<td>NRW</td>
<td>Ministry</td>
<td>Obere Wasserverh&quot;nde</td>
<td>Ministry</td>
<td>Obere and untere Wasserverh&quot;nde, Wasserversand</td>
</tr>
<tr>
<td>Denmark</td>
<td>Environment Centres</td>
<td>Environment Centres</td>
<td>Environment Centres + Godtfredsen Committee</td>
<td>Municipalities (Municipal Action Plans)</td>
</tr>
</tbody>
</table>
Table 12: Leading authorities responsible for aspects of the WFD implementation process in the regional settings. Colours indicate – The lightest colour (Yellow): decentralised government, the darkest colour (Blue): ministerial institution, and the semi dark colour (Green): (semi-)independent functional water authorities. Note: in the Netherlands, water boards initiate the processes of WFD implementation, but this does not mean that they have the sole responsibility for the entire process. The provinces and the national government must assess their proposals and formally approve the proposed measures.

Overall, we have concluded that both the Netherlands and England/Wales prefer a pragmatic approach in designation, in legal establishment and in other respects. We also found that Denmark and France were ambitious in designation and in other aspects too. There is no direct relationship between ‘being pragmatic’ and a specific level of government, because the Dutch water boards operate at a regional (or district) level, and the British Environment Agency is part of the Ministry and operates at a national level. There is also no direct link between the ambition level and functional or specialised river basin authority, as the latter can be found in France and in the Netherlands, and can be both pragmatic and less pragmatic.

However, a relationship can be found in the extent to which organisations deal with different policy tasks or, in other words, activities in the different phases of a so-called policy cycle. The Dutch water boards and the British Environment Agency are highly involved in both policy preparation and formulation (designation, goal setting, programming) and in the actual implementation of many of these measures. Our suggestion would be that the more encompassing the policy actor is and the more it is itself responsible for ‘doing the work’, the more realistic it will be in setting goals and standards, and the more policy discretion it will seek. In the Netherlands, water boards propose goals and measures, and once they are accepted by the national level, they also implement those measures. Water boards are reluctant to set goals which are too ambitious for their water bodies in order to avoid being accused of not reaching the objectives which they themselves have set. This even means that in reality, higher quality objectives might be reached than what can be expected from their formal plans for the WFD.

The other side of this coin is that when policy formulation and policy implementation are separated, as in France – and to a certain extent also in Denmark – planning authorities are ambitious, but in circumstances in which they are not themselves immediately responsible and accountable for taking the measures. Differently stated, they possibly are ambitious because they are not directly responsible. This is also why we emphasised the difference between France and Denmark in this respect. While in France it is still uncertain if goals are really converted into the actual implementation of measures, in Denmark there is a stronger relationship between the RBMP and the municipal action plans that contain large parts of the actual measures taken in Denmark. In any case, when we look at ambitions in issues of implementation, we must take the complete policy cycle, including actual implementation, into account.
On the use of exemptions, France is relatively ambitious at first glance. This is confirmed by the fact that the national government has announced that it will limit the use of the extension clause in the WFD by obliging the authorities to reach a good status for two-thirds of water bodies by 2015. It is not certain, however, that this will be followed by the French municipalities who must implement the corresponding measures.

In terms of policy integration, there are some aspects to be stressed at second glance. In the Netherlands, although there is no formal legal obligation for authorities in other policy fields to take the water quality standards into account, a certain level of political commitment to integrate water management with nature, agriculture and spatial planning is expected, since the national water plans (RBMPs) are to be signed not only by the Minister of Transport, Water Management and Public Works, but also by the Minister of Agriculture, Nature Conservation and Food Quality and the Minister of Housing, Physical Planning and Environment.

As we opted for regions with agriculturally caused environmental pressure, it seems self-evident that the integration between water management and the agricultural domain is a prominent concern. However, the countries studied take very different approaches to this issue. In Denmark, the agricultural sector is addressed straightforwardly in the WFD implementation process. The sector receives attention from the national government as the most cost-efficient area to reduce the pollution of water bodies. The sector itself also wishes to determine the least sector-harming way to contribute to WFD implementation. On the other hand, in the Netherlands, the integration is limited. Water boards, being the main agency in implementing the WFD measures, have limited competence concerning diffuse pollution. Meanwhile, the national level (the Ministry of Agriculture, Nature Conservation and Food Quality), which is co-responsible, has not yet announced extra measures for agriculture to meet the demands of the WFD.

We can close this section on the ‘ambitions’ of Member States by summarising the arguments of and the background to the Dutch approach. Is the Netherlands ‘the best pupil in class’? At first glance, no. The WFD is an ambitious directive and has far-reaching consequences in a ‘highly modified’ country. The Dutch have chosen a pragmatic approach because of a fear of creating self-imposed obligations in a legal-cultural setting of easy access to justice and because of the combination of policy formulation and policy implementation, which means that obligations have to be taken up by the authorities that play a major role in setting them. A ‘fear’ of EU charges can lead to situations in which planned measures are set at an even lower pace than if the EU shadow was non-existent. On the other hand, if the EU level was non-existent, the triggering WFD would not exist either, and for France the fear of EU charges has led to more ambitions and higher goal setting. The pragmatism of the Dutch is also relative, because water management is already an important policy domain in the Netherlands to which large financial means are allocated.
9.4 Rationales in formal and practical implementation

Environmental science – rationales
The rationale of the WFD itself is to guarantee a high level of protection for all aspects of water bodies, because water is part of our common heritage. In the process of implementation the Directive strongly relies on expertise in environmental science-based knowledge of water-related issues. All Member States agreed on the environmental goals of the WFD, also because of the need for a level playing field. This aspect, however, is often forgotten in the discussions about implementing the WFD in the national legislations of the Member States. Denmark seems to act most in accordance with the general objective of the WFD, although even in Denmark other rationales start playing a stronger role as well. At the same time, the WFD does leave room to take economic aspects into account.

Legal rationales
The process of goal setting and choosing the adequate measures is very important within the legal context of the directive, and leads to the conclusion that the WFD is indeed part of the new generation of environmental directives. Nevertheless, one should realise that the system of EC environmental law still takes a strong legal approach. Granted rights and protected interests (stakes) can be defended before the courts. That makes the decision on how the legal implementation will be established in the Member States very important. One could say that the more access to justice that a state offers, the more reluctant it will be to set high goals and standards in formal legislation (VROM-raad 2008). In the Netherlands, for example, there is a strong fear of setting ambitions too high in formal legislation, because of problems that occurred in the past concerning the implementation of the air quality directives.

Also, condemnations by the Court of Justice can play an important role, or can be a legal rationale. In the French case, a higher level of ambition was chosen primarily because of earlier decisions by the Court of Justice (e.g. ECJ Case C-147/07, OJ 29 March 2008, C79/8). France is trying to avoid any new condemnations by the Court of Justice. The high level of ambition as laid down in the German legislation fits in with the German legal culture and is not threatened by a high degree of access to justice, because of the ‘Schutznorm’ in German law that leads to a lower level of access. The pragmatic way of implementation in England and Wales also fits in with the English legal culture, where relatively little formal legislation is enacted anyway.
The economic rationale

The economic rationale is important in all countries we investigated. In England and Wales, the assessment of the cost of the measures played a major role in setting the objectives from the very beginning. We can state that the economic rationale is dominant here. Also in Denmark the costs involved are a main concern. At the central level, initially a more technical and scientific approach to goal setting prevailed, but the process shifted towards a more political and economic rationale. The government closed the implementation process to stakeholder involvement and transferred the leadership from the Ministry of the Environment to the Ministry of Finance. What is interesting to note here is that in Denmark, the measures that are considered most cost-effective predominantly focus on reducing diffuse pollution from the agricultural sector. In the Netherlands the economic rationale became very important after the publication of the Aquarein report. In contrast to the case of Denmark, discussions in the Dutch Parliament led to the choice that no extra costs for agriculture would be allowed resulting from the implementation of the WFD. This is quite remarkable, especially considering the duty to recover costs in Article 9 of the WFD and the ‘polluter pays’ principle in Dutch environmental policies.

Political rationales

In all countries the role of agriculture is significant in more ways than one. Pollution from agriculture (nitrates and pesticides) is often diffuse pollution and is widely acknowledged as one of the largest problems to be solved within the requirements of the WFD. It should be noted that this is nothing new. The implementation of the Nitrates Directive is a problem in many Member States. In France, for example, the requirements of the Drinking Water Directive have not been met because of high concentrations of nitrates in surface water. In all countries, agricultural policy is a responsibility of the central government and the EC. Generally, there is a great fear of strengthening agricultural policy because of the costs and for political reasons. At this point we can conclude that integration of water management with the agricultural sector is not sufficiently established, either at the European level or at the national level. This has severe consequences for water pollution caused by agriculture. It is not, however, something that can be solved at the decentralised level, or by water management alone.

Therefore, at the regional level much is expected from voluntary agreements, the buying of land and the development of good agricultural practices. The reason for this is the fact that local or decentralised governments hardly have any instruments to regulate pollution from agriculture. This dependency on the central government is a concern for the Dutch water boards, for example.

9.5 Interesting practices
A second goal of this study of the WFD implementation was to learn from the choices made and the possible solutions found in other countries (what are the interesting policy practices in different countries?). We have summarised the most important differences and similarities in Section 9.2, and we have given explanations of the ambitions and rationales in Sections 9.3 and 9.4. In this section we restrict ourselves to highlighting some of the interesting practices we found:

- The designation process in Denmark demonstrates that even in a country that is relatively densely populated and has to meet problems which are comparable to those of the Netherlands, ambitions to reach good ecological status of water bodies do not have to be watered down. Nevertheless, the actual status of the Danish water bodies are better than the status of most Dutch water bodies, which means that in the Netherlands, more measures need to be taken to achieve good ecological status or good ecological potential.
- The national government of Denmark looks at the efficiency of WFD measures, regardless of the target groups or the addressees of those measures. In this way the central government has concluded that taking measures dealing with agriculture and diffuse pollution are also the most cost-effective measures.
- In North Rhine-Westphalia, the Ministry seeks cooperation with agricultural activities to meet the obligations and objectives of the WFD. This is done on the national level through voluntary agreements and supplementary subsidies through the so-called stepping-stones approach. With this approach, good hydromorphological condition is achieved for only a certain number of sections of rivers. The Ministry believes that this approach is the most cost-efficient way to reach good status without implementing radical measures which would impact farmers.
- In France, the national government sets a limit for the use of extensions.
- In Denmark, municipalities are obliged to meet the objectives set by the Environment Centres. That the WFD already has consequences is evidenced by the fact that some of the municipalities have become reluctant to issue permits for livestock expansion.

9.6 Reflection

In this research project we had the opportunity to look at the implementation process from the perspective of formal implementation and legal establishment as well as the perspective of policy organisation and practical implementation. While comparing the legal transposition into national legislation with the implementation in practice, we sometimes found remarkable results. Regardless of the legal implementation by national or central government, all decentralised governments are very much involved in the
implementation process. Regardless of the amount of heavily modified or artificially
designated water bodies, there is no country which expects to reach the goals by 2015.
During the implementation process, some changes in policy have taken place; these
changes are due to the unexpected impact of the costs of the Water Framework
Directive, the choices made abroad, a lack of knowledge or political reasons.

The implementation of the WFD requires a great effort concerning the ecology of water
bodies, chemical substances, hydromorphological restructuring and especially
concerning diffuse pollution from agriculture. We doubt whether the pollution caused
by agriculture will be solved within the time limits of the WFD, even if all possibilities
for extensions are used.

This analysis leads us to conclude that the implementation of the Water Framework
Directive is ‘learning by doing’, solving problems during the process. The process takes
place with consultations with a variety of parties, with other governments in the same
river basin, with governments EC-wide, with scientists, with stakeholders and with the
European Commission. This new governance approach, which includes “steering
through processes and procedures”, still is a major search operation, an ambitious
expedition in search of a better quality of all of Europe’s water bodies, with an important
role for ecology - and partly depending on the autonomy of member states to set
ambitions and goals themselves. We found that all countries were seriously trying to
fulfil the obligations of the WFD and to protect and improve the water status in the EC,
but reaching these targets takes time, especially when we are presently getting used to
this new governance approach while confronted with high ambitions in “wicked”
problems as the impact of the agricultural sector and need for new working methods in
agriculture.

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internationale stroomgebieden, Brussel en de rest van Europa, achtergronddocument bij
Ex Ante evaluatie KRW.
ANNEX I: THE STEERING COMMITTEE

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Willemijn Dicke (Delft University of Technology),
Sjoerd van Dijk (Ministry of Transport, Public Works and Water management)
Wim van Leussen (University of Twente)
Willem Ligtvoet (Netherlands Environmental Assessment Agency)
Melchert Reudink (Netherlands Environmental Assessment Agency)
ANNEX II: EXPERTS AND INTERVIEWEES

Belgium:
Questionnaire Flanders: A response to written questions by P. De Smedt and I. Larmuseau, Centre for Environmental Law, Ghent University

The Netherlands:
Interviewees:
- Willem Mak, Coördinatiebureau Stroomgebieden Nederland, Ministerie van Verkeer & Waterstaat, 6 June 2008, Utrecht
- Jaap Verhulst, River Basin Districts coördinator, Ministerie van Verkeer & Waterstaat, 18 June 2008, Den Haag
- Gerda van Roode, Waterschap de Dommel, 20 June 2008, Boxtel
- Ineke Barten, Waterschap de Dommel, 20 June 2008, Boxtel
- Ron Franken, Dutch Environmental Assessment Agency (PBL), 5 November 2008, Bilthoven
- Melchert Reudink, Dutch Environmental Assessment Agency (PBL), 5 November 2008, Bilthoven

Denmark:
Questionnaire Denmark: A response to written questions by Peter Pagh, professor of Environmental Law at the University of Copenhagen.
Interviewees:
- Jens Thygesen, Danish Society for Angling, 8 September 2008, Vejle
- Hans Roust Thysen, Danish Agricultural Advisory Service, 9 September 2008, Århus
- Harley Bundgaard Madsen, Environment Centre Odense, 10 September 2008, Odense
- Stig Eggert Pedersen, Environment Centre Odense, 10 September 2008, Odense
- Thorben E. Jørgensen, Odense Municipality, 10 September 2008, Odense
- Henning Karup, Agency for Spatial and Environmental Planning, Ministry of Environment, 11 September 2008, Copenhagen
- Steen Pedersen, Agency for Spatial and Environmental Planning, Ministry of Environment, 11 September 2008, Copenhagen

France:
Questionnaire France: A response to written questions by Bernard Drobenko, Professor at the Université du Littoral Côte d’Opale, Law Department at Boulogne-sur-mer, and Thi Thuy Van Dinh, PhD Candidate at CRIDEAU, University of Limoges

Interviewees:
• Philippe Séguin, coordinator for the Water Agency Loire, regional committee for Brittany (Agence de l’eau Loire-Bretagne, délégation Bretagne), August 2008, Ploufragan, Brittany
• Wilfrid Messiez, coordinator SAGE Baie de St Brieuc, July 2008, Lamballe, Brittany
• Charles Touffet, coordinator for the ministry of ecology (regional delegation-Diren Brittany). July 2008, Rennes
• Gilles Huet, Eau et rivières de Bretagne (Environmental NGO in Brittany), August 2008, Guingamp, Brittany
• Etienne Ariaux, Chambre d’agriculture de Bretagne (Board for agricultural representatives in Brittany), July 2008, Rennes

England, Scotland and Wales:
Questionnaire: A response to written questions by Dr Sarah Hendry, Lecturer in Law at the UNESCO Centre for Water Law, Policy and Science, University of Dundee, Scotland

Interviewees:
• David Whiles, Environment Agency, 14 July 2008, Peterborough
• David Freeman, Environment Agency, 14 July 2008, Peterborough
• Peter Grimble, Natural England, 26 August 2008, Norwich
• Richard Leishman, Natural England, 26 August 2008, Norwich
• Paul Hammett, National Farmers’ Union, 1 September 2008, Newmarket
• Clive Harward, Anglian Water, 2 September 2008, Huntingdon
• Robert Hitchin, Environment Agency, 3 September 2008, Bristol
Germany:
Interviewees:

- Klaus Güting, Referent Abteilung IV, Abfallwirtschaft, Bodenschutz und Wasserwirtschaft, Ministerium für Umwelt und Naturschutz, Landwirtschaft und Verbraucherschutz des Landes Nordrhein-Westfalen (Oberste Wasserbehörde), 25 August 2008, Düsseldorf
- Thomas Menzel, Referent Abteilung IV, Abfallwirtschaft, Bodenschutz und Wasserwirtschaft, Ministerium für Umwelt und Naturschutz, Landwirtschaft und Verbraucherschutz des Landes Nordrhein-Westfalen (Oberste Wasserbehörde), 25 August 2008, Düsseldorf
- Rudolf Wergen, Coordination of WFD implementation, Geschäftsstelle Rur und südliche sonstige Maaszuflüsse, Bezirksregierung Nordrhein-Westfalen, Außenstelle Aachen, (Obere Wasserbehörde), 14 August 2008, Aachen
- Frank Jörrens, WFD & water quality monitoring, Wasserverband Eifel-Rur, 14 August 2008, Düren
- Arno Hoppmann, River basin management leader, WFD implementation process supervision, Wasserverband Eifel-Rur, 14 August 2008, Düren
- Christoph Aschemeier, Wassernetz NRW, 4 November 2008, Düsseldorf
- Bruno Schöler, Landwirtschaftskammer Nordrhein-Westfalen, Ressourcenschutz, Wasser und Boden, 14 November 2008, Bonn
ABOUT THE AUTHORS