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Programmes of Measures Under the Water Framework Directive – A Comparative case study

Lasse Baaner

Abstract

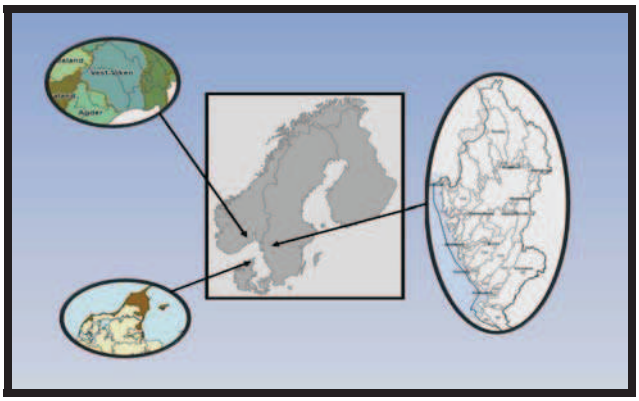
The water framework directive requires programmes of measures composed by the Member States, in order to achieve its environmental objectives. This article examines three programmes of measures for river basins in Denmark, Sweden and Norway, with a focus on the differences in how the programmes direct the authorities' activities with regard to water management. It concludes that there are major differences in the precision of the measures, the range of legal instruments used, and in the focus on active and direct management of the aquatic environment. The Danish programme seems to facilitate the establishment of an adaptive management, whereas the Swedish and Norwegian programmes seem to take a more integrative approach.

Introduction

The water framework directive is one of the most recent of the major environmental directives in the European Union legislation. Since its enactment in 2000, all the European Member States have been obliged to implement the directive in their national legislations, as well as in their actual water management.[169] The directive establishes a common framework for river basin management planning, with common environmental objectives and a common framework for programmes of measures for achieving the objectives. The first planning cycle of the directive has been carried out in most Member States, and environmental objectives for bodies of water and programmes of measures are now available for most river basins within the European Union.

This article presents a comparative case study of such programmes. The river basins chosen for the case study are *Vest-Viken* river basin, located in the south of Norway, *Västerhavets* river basin, located in western Sweden, and the river basin of *Nordlige Kattegat og Skagerak* in the north of Denmark.

Map of the river basins



The programmes of measures for the different national river basins follow the same structure in both Sweden and Denmark, while there are structural differences between the programmes for the different river basin districts in Norway. The three basins discussed in this

[169] In this context, the Member States include both the Member States of the European Union and the European Economical Area (EEA). The non EU Members of the EEA – at present Iceland, Liechtenstein, and Norway – have agreed to enact legislation in a number of policy areas covered by the European Union, environment being one of them.

study have been chosen for several reasons. First, they drain into the same sea, and their water management involves similar environmental problems. Secondly, environmental regulation in these Scandinavian countries exists within the same legal and administrative tradition, facilitating the comparison.[170] Thirdly, a recent comparative study of environmental objectives in Denmark, Sweden, Norway, and Finland (by Lena Gipperth and Martina Ekelund-Entson),[171] provides, in conjunction with the present case study, a deeper understanding of the contemporary multi-level and multi-instrumental water governance in the Scandinavian countries. References will also be made to other comparative studies of the implementation of the water framework directive that include Norway, Denmark, and Sweden.[172]

The water framework directive allows the Member States a certain freedom to choose how they will attain the environmental objectives. This article explores some of the legal and non-legal instruments[173] used for this purpose. It focuses on the technique of regulation for attaining environmental objectives, and techniques for directing authorities' activities. The aim is to enable and inspire planning lawyers' and practitioners' reflections on their own practices, as well as to provide knowledge of the implementation of the water framework directive at a European level. A comparative analysis such as this may provide insight into ways of designing legal regulation. Such insights are valuable for the legal community.[174]

[170] The commons in Scandinavian legal tradition called Scandinavian, or Nordic, legal realism, is described by several authors. Comprehensive thematic analyses in English are given in Jaakko Husa, Kimmo Nuotio, and Heikki Pihlajamäki, *Nordic law: between tradition and dynamism,* Ius Commune Europaeum, 66 (Antwerp - Oxford: Intersentia, 2007). An English introduction to the Scandinavian legal tradition, with perspectives on environmental law is given by Ellen Margrethe Basse and Jørgen Dalberg-Larsen, 'The Danish legal System,' in *Legal systems and wind energy: a comparative perspective*, ed. Helle Tegner Anker, Birgitte Egelund Olsen, and Anita Rønne. (Copenhagen: DJØF Publishing, 2008). An introduction with an emphasis on administrative law is provided by John Bell, 'Mechanisms for Cross-fertilisation of Administrative Law in Europe,' in *New directions in European public law*, ed. Jack Beatson and Takis Tridimas. (Oxford: Hart Publishing, 1998).

[171] Lena Gipperth and Martina Ekelund-Entson, *Mot samma mål? - implementeringen av EU:s ram-direktiv för vatten i Skandinavien* (Göteborg: Handelshögskolan vid Göteborgs universitet, 2010), Juridiska institutionens skriftserie:6.

[172] These are: Sigrid Hedin et al. The Water Framework Directive in the Baltic Sea Region Countries - vertical implementation, horizontal integration and transnational cooperation (Stockholm: Nordregio, 2007), Nordregio Report:2007:2. Eleftheria Kampa and Wenke Hansen, Heavily Modified Water Bodies - Synthesis of 34 Case Studies in Europe, ed. R Andreas Kraemer and Sascha Müller-Kraenner. International and European Environmental Policy Series (Springer, 2004). Y. Uitenboogaart et al., Dealing with complexity and policy discretion. Cross country comparison of the implementation process of the EU-Water Framework Directive in five river basins, ed. Y. Uitenboogaart et al. (Den Haag: Sdu Uitgevers, 2009). Andrea M. Keessen et al., 'European River Basin Districts: Are They Swimming in the Same Implementation Pool?', 22:2, J Environmental Law (2010), pp. 197-221.

[173] 'Legal instruments' is here used as a term to describe a set of processes, obligations, or rights that can be formally executed and legally called upon or enforced. In this context, 'regulatory instruments' is a term used to describe legal instruments enabling authorities to control the activities of the citizens or legal entities.

[174] Peter Blume, 'Den almene teoris dimensioner', *Tidsskrift for rettsvitenskap* 108, no. 5 (1995): p. 814. Ole Lando, *Kort indføring i komparativ ret*, 3 ed. (København: Jurist- og Økonomforbundet, 2009), p. 220. With particular regard to comparative environmental law: Jan Darpö and Annika Nilsson, 'On the Comparison of Environmental Law,' in *Miljøretlige emner: Festskrift til Ellen Margrethe Basse*, ed. Helle Tegner Anker and Birgitte Egelund Olsen. (København: Jurist- og Økonomforbundets Forlag, 2008), p. 261 and 280.

The programmes of measures are elements of the multi-level governance of water in the European Union, situated between the directive and the national legislations implementing the directive, and the individual administrative decisions within water management. As legal instruments, they exist in an intermediate zone between the general norm and the individual ruling or decision. This makes a legal study of the programmes as such and the measures in the programmes appealing, as it may shed light on the question of how water management is directed – variously – towards the environmental objectives.

This study uses a functional comparative method,[175] and examines the legal direction of water management with regard to achieving environmental objectives. This is in keeping with Scandinavian legal realism, and the functional instrumentalist view of legal science as the science of 'social engineering'.[176] First will be a brief introduction to the different national frameworks for the programmes discussed, but the analyses will take an analytical approach, as a comparative 'länderbericht' is well-addressed by Lena Gipperth and Martina Ekelund-Entson in their study. [177] [178] [179]

[175] Ralf Michaels, 'The Functional Method of Comparative Law,' in *The Oxford handbook of comparative law*, (Oxford: Oxford University Press, 2006), pp. 339-382. Also, for a more critical assessment, see Michele Graziadei, 'The functionalist heritage,' in *Comparative legal studies: Traditions and transitions*, ed. Pierre Legrand and Roderick Munday. (Cambridge: Cambridge University Press, 2003), pp. 100-130.

[176] See e.g. David Kennedy, 'The methods and the politics,' in *Comparative legal studies: Traditions and transitions*, ed. Pierre Legrand and Roderick Munday. (Cambridge: Cambridge University Press, 2003), pp. 391.

[177] English-language literature giving an overview of the legal and administrative implementation of the water framework directive in Denmark: Alexandre Dubois, 'Denmark,' in *The Water Framework Directive in the Baltic Sea Region Countries - vertical implementation, horizontal integration and transnational cooperation, Nordregio Report* (Stockholm: Nordregio, 2007), pp. 59-66. Kurt Nielsen, 'Water Framework Directive - WFD Implementation in a European Perspektive. Report from a workshop at the Royal Swedish Academy of Agriculture and Forestry 29 November, 2005. Denmark', *Kungl.Skogs.och Landbruk-akademiens Tidskrift* 145, no. 8 (2005): pp. 24-28. Y. Uitenboogaart and J. J. van Kempen, 'The Implementation of the WFD in Denmark: The Sub-basin Odense Fjord Basin,' in *Y.* Uitenboogaart et al n. 172, pp. 85-112. Literature in Scandinavian languages: Helle Tegner Anker, 'Ny lovgivning til gennemførelse af EU's vandrammedirektiv og EU's habitatdirektiv', *Tidsskrift for landbrugsret* 2005, no. 2 (2005): pp. 53-68. Helle Tegner Anker, 'Beskyttelse og udnyttelse af vandressourcer,' in *Miljøretten 3: Affald, jord, vand og råstoffer*, ed. Ellen Margrethe Basse. 2 ed. (København: Jurist- og Økonomforbundets Forlag, 2006), pp. 453-465. Lena Gipperth and Martina Ekelund-Entson, *ibid* n. 171, pp. 67-80.

[178] English-language literature giving an overview on the legal and administrative implementation of the water framework directive in Sweden: Beatrice Hedelin, 'Potential Implications of the EU Water Framework Directive in Sweden: A Comparison of the Swedish municipalities' Current Water Planning Regime with the Requirements of the EU's New Water Framework Directive', *European Journal of Spatial Development* 14, (2005). Lennart J. Lundqvist, 'Integrating Swedish water resource management: a multi-level governance trilemma', *Local Environment: The International Journal of Justice and Sustainability.* 9, no. 5 (2004): pp. 413-424. Björn Sjöberg, 'Water Framework Directive - WFD Implementation in a European Perspektive. Report from a workshop at the Royal Swedish Academy of Agriculture and Forestry 29 November, 2005. Sweden', *Kungl.Skogs-och Lantbrukakademiens Tidskrift* 145, no. 8 (2005), pp. 14-18. Literature in Scandinavian languages: Lena Gipperth, 'Miljøkvalitet och förutsebarhet,' in *Miljörätten i förändring - en antologi*, ed. Gabriel Michanek and Ulla Björkman. *Rättsfondens Skriftserie* (Uppsala: Iustus, 2003), pp. 205-242. Lena Gipperth and Martina Ekelund-Entson, *ibid* n. 171, pp. 29-49. Naturvårdsverket, *En bok om svensk vattenförvaltning* (Stockholm: Naturvårdsverket, 2005), Rapport:5489.

[179] English-language literature giving an overview of the legal and administrative implementation of the water framework directive in Norway has not been found, but literature in the Scandinavian languages includes: Lena

The authorities responsible for the programmes

The Swedish programmes are composed and enacted by regional water authorities. The Norwegian programmes are composed and enacted by regional water authorities, and approved by the government. The Danish programmes are drafted by an agency under the Ministry of Environment, and enacted by the Minister. As will be shown in the analysis, these differences seem to affect the designs of the programmes, as well as the individual measures within the programmes. All three programmes include measures addressing national, regional, and local authorities.

Form and format of the programmes

The Swedish programme of measures is published as an individual document,[180] and summarized in the river basin management plan,[181] as prescribed by the directive. Along with the river basin management plan and the programme of measures is a document describing environmental objectives,[182] wherein the statuses of the individual bodies of water are identified, as are the environmental objectives applied by the water authority.[183] For each sub-basin of the river basin, an explanatory document is published, in which the different measures are organized according to the environmental problem addressed, and are linked to specific bodies of water.[184]

The Norwegian programme[185] is published as an appendix to the river basin management plan,[186] and summarized in the river basin management plan as well. The river basin management plan includes the environmental objectives, although the formulations of the objectives do not follow the structure set out by Article 4 of the directive.

The Danish programme of measures is an integrated part of the river basin management plan.[187] The river basin management plan is designed with a legally binding section and an explanatory section, in accordance with the

Gipperth and Martina Ekelund-Entson, *ibid* n. 171, pp. 81-99. Sissel Hovik and Knut Bjørn Stokke, 'EUs rammedirektiv for vann en utfordring for norsk vassdrags- planlegging og -forvaltning', *Plan* 2004, no. 6 (2004): pp. 37-41. Jens Fr. Nystad, 'EU krever bedre vannkvalitet', *Plan* 2008, no. 3 (2008): pp. 38-41.

180 Vattenmyndigheten Västerhavets Vattendistrikt, *Åtgärdsprogram Västerhavets vattendistrikt* (Vattenmyndigheten Västerhavets Vattendistrikt ved Länsstyrelsen Västre Götlands Län, 2009).

181 Vattenmyndigheten Västerhavets Vattendistrikt, *Forvaltningsplan Västerhavets vattendistrikt* (Vattenmyndigheten Västerhavets Vattendistrikt ved Länsstyrelsen Västre Götlands Län, 2009).

182 Vattenmyndigheten Västerhavets Vattendistrikt, *Miljökvalitetsnormer Västerhavets vattendistrikt* (Vattenmyndigheten Västerhavets Vattendistrikt ved Länsstyrelsen Västre Götlands Län, 2009).

183 Vattenmyndigheten Västerhavets Vattendistrikt, Länsstyrelsen Västra Götalands läns (Vattenmyndigheten Västerhavet) föreskrifter om kvalitetskrav för vattenförekomster i distriktet; (Vattenmyndigheten Västerhavets Vattendistrikt ved Länsstyrelsen Västre Götlands Län, 2009).

184 E.g. see Vattenmyndigheten Västerhavets Vattendistrikt, *Underlagsmaterial Åtgärdsprogram Afrinningsområde 108 Göta älv huvudfåra* (Vattenmyndigheten Västerhavets Vattendistrikt ved Länsstyrelsen Västre Götlands Län, 2009).

185 Vannregionmyndigheten i Vest-Viken, Tiltaksprogram for vannregion Vest-Viken. Vedlegg 1 til forvaltningsplanen for vannregion Vest-Viken for planperioden 2010-2015 (Fylkesmann i Buskerud, Vannregionmyndigheten i Vest-Viken, 2009).

186 Vannregionmyndigheten i Vest-Viken, Tiltaksprogram for vannregion Vest-Viken. Vedlegg 1 til forvaltningsplanen for vannregion Vest-Viken for planperioden 2010-2015 (Fylkesmann i Buskerud, Vannregionmyndigheten i Vest-Viken, 2009).

187 Miljøcenter Aalborg, Udkast til vandplan Hovedvandopland 1.1 Nordlige Kattegat og Skagerrak [FORHØRING] (Miljøministeriet, By- og Landskabsstyrelsen, 2010).

tradition of Danish spatial planning. The legally binding section includes the environmental objectives for the individual bodies of water, the programme of measures, and a set of instructions directed at the authorities involved. The Danish documents are still in the form of unpublished drafts, as the composition and publication of the river basin management plans have been considerably delayed for political reasons.[188]

The legal status of the programmes

The Swedish and Danish programmes are, in principle, legally binding for the authorities they address.[189] The Norwegian programme, as a part of the river basin management plan, guides the authorities addressed in programme.[190] At least, this is the assumption. The legal obligation to implement the measures included in the programme, has, however, been subject to various legal debates.

In Denmark, the discussion concerning the legal status of the programme of measures has been limited. The Act on environmental objectives states that the river basin management plan is binding upon governmental authorities, regions, and municipalities in their exercise of power under the legislation, and that they must ensure the implementation of the programme of measures. Questions have been raised, concerning the range of municipal activities falling within the term 'exercise of power under the legislation', and a brief analysis of how the different municipal activities are bound by the river basin management plan has been carried out.[191] However, a broader debate in the academic community has been absent.

The legal discussion in Sweden has been more elaborate. Questions have been raised concerning constitutional issues, and the legal implications of addressing the authorities with measures that provide specific instructions for the authorities' administrative rulings in individual cases.[192] It is generally questioned whether the programmes, in the form in which they are implemented in the Swedish legislation, are in fact legally binding, or more in the nature of strategic documents.[193] Furthermore, the fact that the programme of measures itself cannot act as a legal basis for administrative rulings has been criticized, as it reduces the possibility of taking the measures necessary for achieving the environmental objectives.[194]

The legal discussion in Norway has also revolved around legislative and administrative issues. The guiding character of river basin management planning has been criticized from an administrative perspective for risking compromising the achievement of the

[188] As of 3 June 2010, The Commission sent an initial warning letter to twelve Member States, including Denmark, concerning the absence of river basin management plans required by the directive.

[189] Cf. § 3 in the Danish act on environmental objectives (milømålsloven) and chapter 5, § 3 and § 8 in the Swedish environmental act (miljøbalken).

[190] Cf. § 29 in the Norwegian Water management statute (vannforeskriften).

[191] Lasse Baaner, *Retlige rammer for kommunal vand-forvaltning - Planer* (Royal Veterinary and Agricultural University, 2006), Social Science Series:18.

[192] A comprehensive overview with references is provided in the review by Ulla Björkman: Ulla Björkman, *Uppdragsrapportering: "Åtgärdsprograms styrande effekt med hänsyn till regeringsformen"*. (Naturvårdsverket, 2009).

[193] Lena Gipperth and Martina Ekelund-Entson, *ibid* n. 171, p. 49.

[194] Lena Gipperth and Martina Ekelund-Entson, *ibid* n. 171, p. 49. Länsstyrelsen Västernorrland, *Rapport angående rättsverkan och tillämpning av miljökvalitetsnormer för vatten - genomförande av ett uppdrag från Naturvårdsverket [UTKAST]* (Naturvårdsverket, 2010), p. 9.

objectives.[195] The legal issues in question have been whether the programme of measures is in fact a part of the river basin management plan, and therefore approved by the governmental approval of the plan, and – if that is not the case – whether or not there are legal grounds for its function as legal guidance for the authorities.[196]

Looking at all three countries together, the question seems not only to be the degree of which the programmes as such are binding for the authorities, in a way, that non-compliance with its measures can be legally reviewed and sanctioned. It seems just as relevant to consider what kinds of activities or decisions that can be bound by or guided within the established national legal frameworks. Conclusions in in this respect however require thorough legal analysis of the national legal systems.[197]

The programmes in Sweden, Denmark, and Norway all take the form of legal instruments with the primary purpose of directing the activities of a number of authorities. Yet, it is important to note that the directive does not require the programmes as such to take a particular legal form, or to be binding where national authorities are concerned.[198] With reference to EU case-law, it is however required that the programmes constitute 'organized and coherent systems',[199] which all three programmes here analysed do. When it comes to the content, the programmes must also fulfil some minimum requirements. These are specified in Articles 11(3) and 11(4) of the directive, and will be addressed in the subsequent section.

The programme of measures – some conceptual distinctions

The water framework directive requires the achievement of certain environmental objectives, and provides some procedural instruments for this purpose. The main procedural instruments are the river basin management plan and the programme of measures. The management plan provides an overview of river basin management planning as a whole, and the programme of measures provides an overview of the specific measures already taken, or to be taken, in order to contribute to the achievement of the environmental objectives.[200] Article 11 of the directive, which addresses the programme of measures, has several functions in this respect. It requires the establishment of certain regulatory instruments as mandatory measures; in the directive, these are entitled 'basic measures'. These may be established as parts of the management of the specific river basin, or as parts of the general national environmental regulations. In the directive, both types of measures are regarded equally as parts of the process of achieving the environmental

[195] Sissel Hovik and Knut Bjørn Stokke, *ibid* n. 179, pp. 37-41.

[196] Lena Gipperth and Martina Ekelund-Entson, *ibid* n. 171, p. 99. See also Kongelig resolusjon – Forvaltningsplan for vannregion Vest-Viken, p. 8.

[197] See also the conclusions drawn in Y. Uitenboogaart *et al.*, *ibid* n. 172, p. 215.

[198] See also Herwig Unnerstall and Wolfgang Köck, 'The Implementation of the EU Water Framework Directive into Federal and Regional Law in Germany', *Journal for European Environmental & Planning Law* 1, (2004): pp. 207-217. Lena Gipperth, *Åtgärdsprogrm för miljökvalitetsnormer. Betänkande av Utredningen om åtgärdsprogram* (Stockholm: Fritzes Offentliga Publicationer, 2005), SOU:113.

[199] E.g. see case C-306/01, paragraph 60, concerning implementation of provisions for action programmes in the nitrate directive, and case C 266/99, paragraphs 29, 31, and 40, regarding implementation of the provisions for a 'plan' in the drinking water directive.

[200] Cf. also CIS Working Group 2.2, Guidance Document No. 11, Planning Processes, (Office for Official Publications of the European Communities, 2003), p. 24.

objectives. It does not matter whether they have been in place and operational for years, or are designed as parts of the river basin management planning, and intended to first become operational by 2012.[201]

Article 11 not only requires that certain regulatory instruments be established as basic measures; in some situations, Article 11 also qualifies how the instruments are to be used, for example, controls established for the abstraction of surface water shall be periodically reviewed,[202] and when authorizing the injection of substances into groundwater for scientific purposes, the quantities of substances must be limited to the amount strictly necessary.[203]

Article 11 does not restrict how the instruments considered to be basic measures are used. A supplementary or new use of the existing legal instruments referred to in Article 11(3), planned through the river basin management planning or at the national level, is fully in accordance with the directive's understanding of a basic measure.

Article 11 also makes possible the use of supplementary instruments, entitled, in the directive, 'supplementary measures'. These may be regulatory instruments not covered by the instruments required or enabled among the basic measures, but the supplementary measures are not only legal or regulatory instruments. For example, they may also be informational, educational, and social.[204] The use of supplementary measures is only optional to the extent that the environmental objectives are likely to be met by the basic measures. If the basic measures do not suffice to achieve the established objectives, supplementary measures must be included in the programmes.[205]

The practical uses of the programmes – instruments for new actions

It has been difficult for the planning authorities in all three countries to maintain the conceptual distinctions between river basin management plans and programmes of measures, and between basic and supplementary measures. The Swedish and Norwegian programmes devote large parts of the programmes to descriptions of the environmental problems the measures address, the reasoning behind the chosen measures, the evaluation of costs, and the expected outcomes of their implementation. This appears to be information intended for the river basin management plan.[206] This is avoided in the Danish programme, which is published as an integrated part of the river basin management plan.[207]

The differentiation between basic and supplementary measures is also ambiguous in all three programmes. The Swedish programme has a general section that refers broadly to segments of the national legislation implementing some requirements of Article 11. The Danish programme is also intended to be accompanied by such general descriptions of the measures of Article 11(3), but this seems to be absent from the Norwegian programme. Although some references are made to the two categories – basic and supplementary measures – in the three

[201] Uitenboogaart *et al*. appear to have a different view on that, cf. Y. Uitenboogaart *et al*., *ibid* n. 172, p. 205.
[202] Cf. Article 11(3)(e).
[203] Cf. Article 11(3)(j).
[204] Cf. Article 11(4) and Annex VI part B (xv) and (xvii).
[205] Cf. Article 11(2) and CIS Working Group 2.2, *ibid* n. 200, p. 38.
[206] Cf. Annex VII nos. 6 and 7.
[207] The river basin management plans are not evaluated in this study.

programmes, none clearly differentiates between them. In the Norwegian programme, the specific requirements concerning the programme's content as it is listed in Article 11 do not seem to receive any attention at all.[208]

Instead, the programmes are organized with a focus on differentiating between the existing regulations and initiatives concerning national water management, on the one hand, and, on the other hand, the need for new regulations and initiatives for achieving the environmental objectives for the bodies of water in the river basin. In fact, it is apparent that in all three countries, the programme of measures is seen more as a legal instrument for initiating new, future actions, and less as an overview of all relevant ongoing and planned measures of the water management of river basins.

Different legal backgrounds for the measures

This use of the programme as a sort of action plan affects the formulation or design of the measures in the programme, as well as the possibility of comparing the programmes across countries and river basins. When the programmes are primarily seen and used as instruments for initiating future actions, in order to achieve environmental objectives, the design of the measures in the programmes must also be seen in this light. They are framed by national, multi-level regulation and governance, and their focus is on filling the gap between what is achieved by existing practices, regulations, and management, and what needs to be done to attain the environmental objectives.

The choices of measures included in the programmes, and the choice of their design are therefore not only dependent on differences in the environmental conditions and problems in the relevant river basin districts, and the differences in policies concerning water and related sectors; they are also very much related to the different administrative and legal frameworks in the three countries:

1. The level of environmental protection in the existing legislation is one thing that influences the design of the measures. Where the legal protection of the aquatic environment is strong, there is not the same need for extensive programmes with strict measures as there is where the protection of the aquatic environment is weak.

2. The legal instruments available within the existing legislation are another factor determining the design of the measures. It may be easier to develop, expand, or rethink the use of existing regulations than to construct and enact new regulatory regimes.

3. The legal status of the environmental objectives in the national legislation is another issue that strongly determines for the need for measures, and the design of the different measures in the programmes. If the environmental objectives are implemented in such a way that, when applied to individual bodies of water, they serve as legal norms or guidelines for the authorities' actions and decisions, then there is less need in the programmes for explicit and detailed measures for achieving the objectives. If the managing authorities are generally obliged to actively achieve the applied objectives, the need for extensive and detailed measures in the

[208] The content of the programmes is based on the national legislation implementing the provisions of the directive. It remains an open question, whether the directive actually requires the programmes to be related to the specific provisions in Articles 11(3) and 11(4).

programme of measures is even smaller. If, on the other hand, the objectives are not strictly binding with regard to the authorities' decisions and activities, but are merely guidelines at a more strategic level, there is an increased need for explicit and binding measures addressing the bodies of water at risk of not achieving the environmental objectives.

The previously mentioned comparative study of implementation of environmental objectives concludes that the legal status of environmental objectives in general is considered more binding for the Danish and Swedish authorities, than those in Norway.[209] One might therefore expect more detailed measures in the Norwegian programme addressing individual bodies of water. However, this is not at all the case. Most of the Norwegian measures address an activity undertaken by an authority in very general terms.

3. Also, the legal status of the programme itself must be kept in mind, when analysing the programme's measures. If the programme itself is not binding in its details, with regard to the authorities addressed, the measures can be formulated rather strictly, without compromising the option of adapting and adjusting for individual cases. On the other hand, if the programme is binding in its details regarding the authorities and sectors addressed, the measures in the programme need to have a more guiding or conditional wording, to allow for adaptive management. As a closer examination of the measures will reveal, however, this relationship between legal status and the wording of the measures does not seem to be reflected in the three programmes.

[209] Lena Gipperth and Martina Ekelund-Entson, *ibid* n. 171, p. 114.

The general character of the measures

The Swedish programme contains forty[210] measures that take the form of instructions to local, regional, and national authorities. The instructions are set out in general terms, stating how and where the different public authorities are supposed to focus their contributions to the achievement of the environmental objectives.

Measure from the Swedish programme, providing general instructions to the authority addressed

> ***Measure:*** *The National Railways need to develop knowledge and take measures to eliminate or reduce the impact of barriers to fish, and reduce the impact of run-off on surface- and groundwater, especially in areas where bodies of water do not achieve, or may fail to achieve, good ecological status or good chemical status.*[211]
>
> *(Banverket behöver ta fram kunskapsunderlag och genomföra åtgärder för att undanröja eller motverka vandringshinder och dagvattens påverkan på yt- och grundvatten, särskilt i områden med vattenförekomster som inte uppnår, eller riskerar att inte uppnå, god ekologisk status eller god kemisk status.)* [212]

The Swedish programme addresses its measures in general terms to 'the bodies of water not achieving the environmental objectives, or at risk for not achieving the environmental objectives'. Maps showing bodies of water within the river basin or sub-river basin that are at risk of not achieving the environmental objectives are published along with the programme, and the measures are to some extent directed at the individual bodies of water, and to different environmental problems in the underlying explanatory documents. However, it is stated in the programme that this is not regarded as

[210] Thirty-eight of the measures are numbered 1-38; two are unnumbered.

[211] Translations in boxed text courtesy of author.

[212] Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 180, p. 10.

effective – from a technical, economic, or administrative perspective – for determining individual measures at the body-of-water level.[213] The programme also expresses itself as not being binding in its details concerning the practical implementation of the measures.[214] [215]

The Danish programme contains twenty-one[216] measures, each of which is applied to a number of specific bodies of water, referred to in detail within the programme and the corresponding web pages. As mentioned previously, the authorities addressed therein are legally bound to implement the measures.

Measure from the Danish programme, referring to 369 specific locations, and addressed to both municipal and national authorities

Measure: *Elimination of barriers to fauna at 369 locations.*

(Fjernelse af faunaspærringer. 369 stk.) [217]

The Danish programme of measures addresses the individual bodies of water in a very specific manner. Here, specific measures may be applied to units as small as a few hundred metres of a stream, the sewage outlet from a single home, or a lake.

The Norwegian programme is organized with a description of proposed and evaluated measures, with 115[218] explicit measures constructed as short guiding sentences addressed to different authorities.[219] There is no clear link established between the measures and specific bodies of water, and there is no differentiation between measures addressing bodies of water in general, and bodies of water not achieving – or at risk of not achieving – the environmental objectives, as is the case in the Swedish programme.

Measure from the Norwegian programme, giving general instructions to the municipalities

Measure: *Municipalities: Use the planning and building act to prevent new barriers, and re-establish continuity of watercourses.*

(Kommunerne: Bruke plan- og bygningsloven for å hindre nye bekkelukkinger og reetablere åpne vannveier.) [220]

So, the first conclusion, when comparing the measures in a general manner, is that the Danish measures are very specific and address individual bodies of water, and give specific instructions regarding what action is to be taken by the competent authority, while the Norwegian and, especially, the Swedish measures allow the authorities much freedom to choose how the problems under their authority are to be handled. In the Swedish programme it is explicitly stated that the authorities have the freedom to choose among measures,[221] while in the Norwegian

213 Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 180, p. 112.
214 Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 180, p. 1.
215 As mentioned previously, the directive does not require that the programme of measures or the measures described in the programme take a legally binding form. However, the basic measures setting substantive requirements for the member states' water management must be implemented in a legally binding form, in the national legislation. See also Herwig Unnerstall and Wolfgang Köck, *ibid* n. 198, pp. 207-217.
216 The Danish measures are not numbered, but a total of twenty-one different measures have been extracted from the tables in the programme.
217 Miljøcenter Aalborg, *ibid* n. 187, p. 30.
218 The measures are not numbered, but the guiding instructions presented as measures or instruments are numbered up to 115.
219 Vannregionmyndigheten i Vest-Viken, *ibid* n. 185, pp. 43-49.
220 Vannregionmyndigheten i Vest-Viken, *ibid* n. 185, p. 48.
221 Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 180, p. 136.

programme this lies within the guiding legal character of the programme, as well as the general and non-specific design of the measures.

The primary instruments used in the programmes

These findings – regarding the differences in precision of the measures – are reflected in the legal instruments that are used in the programmes, and the activities that are addressed. The Norwegian and Swedish programmes address a number of activities, and suggest the use of a whole range of instruments, whereas the Danish programme concentrates on a few instruments.

Providing an illustrative overview of the many measures in the three programmes is not easy, as sorting out the many different suggested activities, actions, and initiatives in a common framework may be accomplished in many ways. owever, when exploring the measures in a qualitative examination, some categories of legal – or quasi-legal – instruments seem to emerge. The table below presents a categorization that reflects the different focuses of the programmes.

The primary activities of the authorities addressed by measures in the programme

The measures in the **Norwegian** programme *primarily* address the following activities of the authorities:	The measures in the **Swedish** programme *primarily* address the following activities of the authorities:	The measures in the **Danish** programme *primarily* address the following activities of the authorities:
Development of new, national legislation, regulation, guidelines, and policies.	Development of new, national legislation, regulation, guidelines, and strategies.	Development of new, specific, national legislation.
Monitoring and mapping of the environment.	Monitoring and mapping of the environment.	Carrying out specific habitat restoration and water management projects.
Building knowledge of general water-related issues.	Building knowledge of general environmental issues.	Building knowledge of bodies of water.
Incorporating water-related concerns into planning practices.	Incorporating water-related concerns into planning practices.	Revising habitat management practices in specific ways.
Controlling and enforcing legislation and conditions in permits.	Controlling and enforcing legislation and conditions in permits.	
Granting and revising environmental permits.	Granting and revising environmental permits.	
Taking unspecified actions to reduce human impact on bodies of water.	Taking unspecified actions to reduce human impact on water.	
Use of regulatory authority to minimize negative impact on the environment.		
Allocation of financial resources.		

The table reveals how the Danish programme focuses its measures on the use of a few instruments, and operates at a more specific and project-based level, when compared to the

Norwegian and Swedish programmes. The table also identifies some differences in the measures, concerning how the programme addresses the development of new legislation, the building of knowledge, and the use of regulatory authority in order to minimize environmental impact. The table contains only what may be considered major instruments in the programmes.[222] The range of instruments used in the programmes for the Norwegian and the Swedish river basins is generally broader than those used in the Danish programme. Nearly all the Danish measures are realized through the use of regulatory and legislative power, whereas the Norwegian and Swedish programmes also include the use of non-regulatory instruments, such as the development of hydrological models, and providing public access to environmental data. These issues will be addressed in the following sections of the article.

As the table shows, the Norwegian programme includes several measures that address the allocation of financial resources among the different authorities. Such measures are not present in either the Danish or the Swedish programmes. The Norwegian programme's focus on directing financial resources is also present in measures intended to prioritize governmental subsidies to those areas where they contribute to the achievement of the environmental objectives.

Example of measure in the Norwegian programme, focusing on the direction of subsidies

Measure: *The County: Use subsidies for organic farming, as well as other subsidies, to actively promote agricultural measures that reduce the pollution of watercourses.* *(Fylkesmannen: Bruke Ø og andre tilskuddsordninger aktivt for å stimulere tiltak i jordbruket for å redusere forurensing av vassdragene.)* [223]

Coping with the need for new legislation and regulation at the national level

In Sweden, as well as in Denmark and Norway, planning at river-basin level led to the conclusion that new legislation and regulation at the national level was needed.[224] The table above indicates that development or amendment of legislation is included in the programmes for all three river basins.

In Sweden and Norway, where the planning authorities operate at the regional level, this situation was handled by letting a number of measures in the programmes, addressed to the national authorities, requiring new legislative initiatives. Eight of the forty measures in the Swedish programme include some sort of indefinite requirements for national authorities to develop new legal regimes concerning their water management or related sectors.

[222] It must be stressed that this presents the results of a qualitative analysis of a large number of measures. Several measures, particularly in the Norwegian and Swedish programmes, do not fit into those categories.

[223] Vannregionmyndigheten i Vest-Viken *ibid* n. 185, p. 47.

[224] This is also reported as being the case in the Netherlands, cf. Y. Uitenboogaart *et al.*, *ibid* n. 172, p. 68.

Example from the Swedish programme, requiring adoption of new legislation and/or regulation at national level

Measure: *Following consultation with the Environmental Protection Agency and National Board of Fisheries, the State Board of Agriculture needs to acquire knowledge and develop regulations and/or other instruments, in order to reduce the impact of agriculture on water quality, especially in areas where bodies of water may fail to achieve good ecological status or good chemical status.*

(Statens Jordbruksverk behöver, efter samråd med Naturvårdsverket och Fiskeriverket, ta fram underlag för, och utveckla föreskrifter och/eller andra styrmedel med syfte att minska jordbrukets inverkan på vattenkvaliteten, särskilt i områden med vattenförekomster som riskerar att inte uppnå god ekologisk status eller god kemisk status.) [225]

This also seems to be the case in Norway. Eight of the sixty-five measures in the Norwegian programme that address the government or governmental agencies include, to some extent, the adoption of new legislation or regulations. [226] As the example shows, one of the tasks assigned to the national authorities in Norway is also that of initiating new regulations concerning the agricultural use of fertilizer.

Example from the Norwegian programme, requiring new legislation concerning agriculture

Measure: *The Norwegian Agricultural Authority: Enact a regulation with norms for fertilizing land, to ensure that areas with high phosphorus levels are not fertilized.*

(Statens landbruksforvaltning: Fastsette forskrift med norm for gjødsling for å sikre at det ikke gjødsles på arealer med høyt fosforinnhold.) [227]

In Denmark, the necessity for new legislation at the national level led to a halt in the water planning process, while political negotiations were undertaken between the government and the parliamentary parties. The negotiations concluded with the political agreement, *Grøn Vækst* ('Green Growth').[228] Following this agreement on new legislation, the work of composing the programme of measures was resumed. The agreed-upon legislation was incorporated in the form of new measures in the programme of measures, and the effects on the environment, following from the anticipated legislation, were taken into account when estimating the need for supplementary measures addressing agricultural pollution.

Example from the Danish programme, incorporating the new national legislative initiatives concerning agriculture

Measure: *Rim zones of 10 metres along rivers and lakes. Catch crops instead of 'winter crops'. Ban on ploughing of fields of grass for fodder. No agricultural ploughing or field cultivation in the autumn. Total reduction of influx to surface water: Nitrogen – 324 ton/year. Phosphorous – 17.3 ton/year.*

(Randzoner – 10 m. langs vandløb og søer. Efterafgrøder i stedet for 'vintergrønne' marker. Forbud mod pløjning i fodergræsmarker. Ingen jordbrugsmæssig jordbearbejdning i efteråret.) [229]

This illustrates some advantages and disadvantages of assigning river basin management planning to regional authorities without legislative power, and with only limited regulatory power. In the Swedish and Norwegian cases, exactly how the new legislation and/or regulation will affect the levels of pollution from agriculture remains open to question, as does the probability of it ever being enacted. In the Danish case, the process of designing the measures

[225] Vattenmyndigheten Västerhavets Vattendistrikt *ibid* n. 180, p. 11.
[226] Vannregionmyndigheten i Vest-Viken *ibid* n. 185, pp. 43-46.
[227] Vannregionmyndigheten i Vest-Viken *ibid* n. 185, p. 44.
[228] Regeringen, *Grøn Vækst* (Regeringen, 2009).
[229] Miljøcenter Aalborg, *ibid* n. 187, p. 30.

became subject to intense political negotiations at the national level, which considerably delayed the drafting of the river basin management plans, but concluded with an agreement about new legislation.

Active versus reactive water management

One of the distinctions to have influenced the Danish legal debate is the distinction between active and reactive management and use of regulatory power.[230] Essentially, an authority may be regarded as using its regulatory authority reactively if it reacts to an initiative from a citizen or company, such as an application, a request, or a submission. Conversely, an authority may be seen as using its regulatory authority actively, if it acts on its own initiative, as in cases where it initiates a project through the use of its regulatory power.[231] Although in practice the boundary between active and reactive exercise of regulatory power is blurred, the distinction is so rooted in the legal tradition that it seems to have been decisive for the presentation and organization of the Danish programme of measures.

The three legally binding sections of the Danish river basin management plan are the environmental objectives for the individual bodies of water, the programme of measures, and a set of instructions entitled 'guidelines' for the authorities. Of these three parts, the programme of measures includes general measures that require the authorities to be active, whereas the instructions generally address situations in which the authorities are reactive.

Example from the Danish programme of measures and instructions (above) addressing the same issue

> ***Measure:*** *Waste-water from individual rural residences: Improvement of wastewater treatment affecting watercourses – about 350 houses. Total reduction of influx to surface water: Nitrogen – 0.78 ton/year. Phosphorous – 0.35 ton/year.*
>
> ***Measure:*** *Waste-water from individual rural residences: Improvement of wastewater treatment affecting lakes – about 10 houses. Total reduction of influx to surface water: Nitrogen – 0.02 ton/year. Phosphorous – 0.01 ton/year.*
>
> *(Spredt bebyggelse – Forbedret spildevandsrensning ved vandløb, ca. 350 ejendomme.)*
>
> *(Forbedret spildevandsrensning ved søer, ca. 10 ejendomme.)* [232]

'Instructions' addressing the same issue as the previous measure

> ***Instruction****: Wastewater from individual rural residences in designated areas, which is discharged directly or indirectly into lakes, moors, watercourses, or coves must be approved according to the treatment class of the area, as indicated on Web-GIS.*
>
> *(Spildevand fra enkeltliggende ejendomme i udpegede oplande, som udleder direkte eller indirekte til søer, moser, vandløb eller nor, skal opsamles, afskæres, nedsives eller som minimum gennemgå rensning svarende til renseklasser som angivet på Web-GIS.)* [233]

The measure requires an improvement to existing wastewater treatment through municipalities' active use of regulatory power, where the instructions address situations in which the municipality receives an application for a new wastewater permit.

[230] Helle Tegner Anker, *ibid* n. 177, p. 56. Ellen Margrethe Basse and Helle Tegner Anker, *ibid* n. 177, p. 37.

[231] Another approach may be taken in the regulated environment, regarding active management as that which involves carrying out improvements in the existing environment, and reactive management as that which only seeks to preserve the existing conditions, in order to prevent deterioration.

[232] Miljøcenter Aalborg, *ibid* n. 187, p. 30.

[233] Miljøcenter Aalborg, *ibid* n. 187, p. 53.

This separation of active and reactive management enhances the focus on active management in the Danish programme of measures, and promotes specific, local measures, including wetlands restoration and water management projects, such as the flooding of river valleys, establishment of wetlands, removal of barriers to aquatic fauna, and restoration of spawn habitats in watercourses.

The Swedish and Norwegian programmes generally address both active and reactive water management within the programme, and often also include instructions for the active and reactive use of regulatory power in implementing the same measure. However, with regard to wastewater from individual rural residences, the Norwegian programme seems to focus primarily on active management, whereas the Swedish programme seems to focus on reactive management.

Example from the Norwegian programme, actively addressing wastewater from individual homes

> ***Measure:*** *Municipalities: Adopt local regulations to eliminate insufficient treatment of wastewater from individual homes, and to improve control of such.*
>
> *(Kommunene: Innføre lokale forskrifter for å rydde opp i utilfredsstillende renseanlegg for spredt bebyggelse, tilsyn og kontroll.)* [234]

Example from the Swedish programme, reactively addressing wastewater treatment

> ***Measure:*** *The municipalities need to require a high level of protection against pollution from individual rural residences, which contributes to a body of water failing to achieve or being at risk of failing to achieve good ecological status.*
>
> *(Kommunerna behöver ställa krav på hög skyddsnivå för enskilda avlopp som bidrar till att en vattenförekomst inte uppnår, eller riskerar att inte uppnå, god ekologisk status.)* [235]

The directive requires a programme of measures, in order to achieve the environmental objectives applied to the individual bodies of water. The distinction between active and reactive water management is not clearly reflected in the directive. Most of the basic measures concern the establishment of legal instruments as regulations and legal controls suitable for reactive water management, while some of the supplementary measures, such as construction and habitat restoration projects, usually require the active use of regulatory power. There seems to be no reason to not include the Danish 'instructions' in the Danish programme of measures.

Addressing the need for more knowledge

The Swedish programme is characterized by an emphasis on measures requiring national authorities to develop further knowledge and information related to water management; [236] twenty of the programme's forty measures are directed at national authorities, and concerned with aspects of these topics of river basin management.[237]

[234] Vannregionmyndigheten i Vest-Viken, *ibid* n. 185.

[235] Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 180.

[236] In the comparative study undertaken by Uitenboogaart *et al.*, this is also described as the case in the Drommel catchment in the Netherlands cf. Y. Uitenboogaart *et al.*, *ibid* n. 172, p. 69.

[237] Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 180, pp. 9-12.

Example from the Swedish programme, requiring development of further knowledge

> ***Measure:*** *The Swedish Meteorological and Hydrological Institute needs to develop hydrological information at the body-of-water level, relevant to the needs of water management.*
>
> *(Sveriges Meteorologiska och Hydrologiska Institut behöver ta fram hydrologisk information på vattenförekomstnivå med relevans för vattenförvaltningens behov.)* [238]

The Norwegian programme also includes measures directed towards mapping, monitoring, and development of knowledge. Here, 22 of the programme's 115 measures require such activities to be carried out. Development of knowledge by mapping, monitoring, exchange of information, and so on, are present in four of the twenty-one measures in the Danish programme as well, but in a form in which the development of knowledge is specific, as are the measures directed at the individual bodies of water.

Example from the Danish programme, requiring knowledge concerning bodies of groundwater

> ***Measure:*** *Bodies of groundwater DK 1.1.1.1, DK 1.1.1.2,[...] and DK 1.1.2.7: Provide knowledge concerning the groundwater's chemical impact on watercourses, lakes, coastal waters, and terrestrial habitats.*
>
> *(DK1.1.1.1, 1.1.1.2,[...] and DK 1.1.2.7: Tilvejebringe viden om grundvandets kemiske påvirkning af vandløb, søer kystvande og terrestriske naturtyper.)* [239]

Characterizing and monitoring the bodies of water is an obligation of the Member States, based on Article 5 of the directive. The programmes of measures seem to be used as instruments to assure the fulfilment of these obligations. Mapping, monitoring, and development of knowledge are actually not among the measures mentioned in the directive as basic or supplementary measures. The list of supplementary measures in the directive is not exhaustive, so it does not exclude such measures from the programme. However, it might be more appropriate, and better fit the planning cycle of the river basin management plan, were the activities concerning monitoring and development of knowledge embedded primarily in the characterization processes, according to Article 5.

Use of non-legal/non-regulatory measures

There is a significant difference in the use of use of non-legal and non-regulatory measures in the programmes.[240] The development of knowledge, provision of information, research, and monitoring, as described above, are such measures. Apart from the measures mentioned above, this also includes those that address the authority as an owner, operator, and provider of public services such wastewater treatment and drinking water supply. The Norwegian programme, in particular, includes non-regulatory measures.

[238] Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 180, p. 12.
[239] Miljøcenter Aalborg, *ibid* n. 187, p. 40.

[240] In this context, non-legal and non-regulatory measures are those that establish or call for the establishment of activities that do not require the use of legislative or regulatory power.

Measure from the Norwegian programme, addressing the National Roads as operator

> ***Measure:*** *National Roads: Take action within areas of responsibility to reduce the negative impact of road construction on aquatic organisms, for example, repair culverts and fills, reduce salt use, clean surface water of pollutants.*
>
> *(Statens vegvesen: Gjennomføre tiltak innenfor eget ansvarsområde for å redusere veianleggenes negative konsekvenser for vannlevende organismer, feks utbedre kulverter og fyllinger, redusere saltbruk, rense overvann for miljøgifter etc.)* [241]

The Swedish programme includes a similar measure addressing their National Roads.

Measure from the Swedish programme, addressing the Road Agency as operator

> ***Measure:*** *The Swedish Road Agency needs to develop a knowledge base, and implement measures to eliminate or reduce the impact of barriers and the impact of run-off from roads on surface and groundwater, especially in areas with bodies of water that do not achieve, or may fail to achieve, good ecological status or good chemical status.*
>
> *(Vägverket behöver ta fram kunskapsunderlag och genomföra åtgärder för att undanröja eller motverka vandringshinder och vägdagvattens påverkan på yt- och grundvatten, särskilt i områden med vattenförekomster som inte uppnår, eller riskerar att inte uppnå, god ekologisk status eller god kemisk status.)*[242]

The Danish programme appears to make very little use of such instruments, apart from the few measures that include the provision of new knowledge regarding individual bodies of water, but this is actually not a true and fair view. The Danish programme is binding for the National Road Agency, as well as for the municipalities – also when they acts as operators of the roads. The road agency is obliged to take action with respect to the barriers to fish, which are identified in the programme, and occur because of the culverts under national roads. The same holds for the identified locations with an unacceptable hydrological impact on water-courses, owing to storm-water run-off.

Measures from the Danish programme, with relevance to the National Roads as operator

> ***Measure:*** *Elimination of barriers to fauna at 369 locations.*
> ***Measure:*** *Construction of retarding basins for run-off at about ten locations.*
>
> *(Fjernelse af faunaspærringer. 369 stk.)*
> *(Etablering af forsinkelsesbassin. Ca. 10 udløb)* [243]

However, in the Danish case, only barriers to fauna and the hydrological impact of run-off from roads are addressed by measures in the programme, not the use of salt to prevent ice on the roads during winter, or the discharge of other traffic pollutants. This may refer back to the very area-specific nature of the Danish measures. It leaves less room for addressing general concerns and practices that influence the environment.

Among the non-regulatory, supplementary measures suggested in the directives, Annex VI comprises codes of good practices, as known from the nitrates directive Article 4(1)(a). None of the programmes in this study explicitly includes development or adjustments of such practices in their measures, although the Norwegian and Swedish programmes, owing to the open formulation of their measures, leave room for it. Both the Swedish and Norwegian programmes do, however, address the consultant or advisory activity carried out by the authorities.

[241] Vannregionmyndigheten i Vest-Viken, *ibid* n. 185, p. 45.
[242] Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 185, p. 12.
[243] Miljøcenter Aalborg, ibid n. 187, p. 30.

Measure from the Swedish programme, addressing advisory activities

> ***Measure:*** *The State Board of Agriculture and the county boards must prioritize their environmental advisory activities from a river basin perspective, and address farms in areas with bodies of water that do not achieve, or may fail to achieve, good ecological status or good chemical status.*
>
> *(Statens Jordbruksverk och länsstyrelserna behöver prioritera sin rådgivning inom miljöområdet i ett avrinningsområdes-perspektiv till jordbruksföretag inom områden med vatten-förekomster som inte uppnår, eller riskerar att inte uppnå, god ekologisk status eller god kemisk status.)* [244]

No parallel to this is found in the Danish and Norwegian programmes. The Danish programme, in particular, is centred on regulatory actions, and does not apply the broader integrated and instrumental view, as reflected in the Swedish and Norwegian programmes.

Approaches to directing management towards the environmental objectives

The study of the programmes and of the measures in the programmes reveals a general difference among the countries, with regard to how their water management is directed towards the environmental objectives. Put very briefly, the differences may be described in this manner:

The Danish approach:	Direction by project and outcome
The Norwegian approach:	Direction by authority and activity
The Swedish approach:	Direction by authority and focus

The Danish approach to water management, as reflected by the measures of the programme, focuses on individual projects and their estimated outcomes. The measures in the programme identify the individual projects, and their demanded or expected environmental outcome.

A typical Danish measure, defining project and outcome

> ***Measure:*** *Freshwater fish farming: Acquisition or pollution control concerning two fish farms. Total reduction of nitrogen efflux: 4.19 tons/year. Total reduction of phosphorus efflux: 0.43 tons/year.*
>
> *(Ferskvandsdambrug – opkøb eller forureningsbegrænsning, 2 stk. Kvælstofreduktion: 4,19 tons N/år. Fosforreduktion: 0,43 tons P/år.)* [245]

The Norwegian approach is different. The majority of the measures may be characterized as directing water management by specifying which activities the various authorities are to undertake. The programme does not operate at project level, but prioritizes or strengthens the authorities' existing activities, as well as initiating new ones.

A typical Norwegian measure, focusing on the activities of an authority

> ***Measure:*** *The County: Update conditions in waterway concessions under the County's authority, and prepare systematic environmental audits to ensure adequate follow-up on the conditions.*
>
> *Fylkesmannen: Følge opp vilkår i vassdragskonsesjoner innenfor sitt myndighetsområde, og utarbeide systematisk miljøtilsyn for å sikre tilstrekkelig oppfølging.)* [246]

The Swedish approach differs from both the Danish and the Norwegian ones. The Swedish measures may be characterized as directing the general focus of an authority. Water management, as reflected in the measures, is

[244] Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 180, p. 10.

[245] Miljøcenter Aalborg, *ibid* n. 187, p. 33.

[246] Vannregionmyndigheten i Vest-Viken, *ibid* n. 185, p. 47.

primarily handled by guiding instructions concerning the focus of the administrative bodies involved.

A typical Swedish measure, addressing the focus of the authorities

> ***Measure:*** *Following consultation with the National Chemicals Inspectorate and the Environmental Protection Agency, the Swedish Board of Agriculture needs to prioritize its efforts to minimize the risks and the use of pesticides in areas where bodies of water do not achieve, or are at risk of not achieving good chemical status or good ecological status.*
>
> *(Statens Jordbruksverk och länsstyrelserna behöver, efter samråd med Naturvårdsverket och Kemikalieinspektionen, prioritera sina insatser för att minska riskerna med och användningen av växtskyddsmedel i områden med vattenförekomster som inte uppnår, eller riskerar att inte uppnå, god ekologisk status eller god kemisk status.)* [247]

This description of general differences in the direction of water management with regard to environmental objectives concludes the analysis and comparison of the three programmes.

Summary of the findings

To summarize the conclusions drawn in the previous sections:

- The conceptual distinctions between the content of the river basin management plans and the programmes of measures are not clearly maintained by any of the programmes.
- In all three countries, the programmes are primarily used as legal instruments for initiating new actions and new projects, and establishing new focuses. They are not primarily regarded as informative instruments for providing an overview of all the measures contributing to the achievement of the environmental objectives in the river basin district.
- The legal status of the programmes varies slightly among the Scandinavian countries, which affects the extent to which the measures are binding for the authorities addressed. Non-binding environmental objectives do not correspond to binding programmes of measures, as might have been the case, were the environmental objectives to be reached by legal means.
- The Danish measures are specific, and address projects and individual bodies of water, while the Swedish and Norwegian programmes are general, address the relevant authorities, and allow them more freedom to decide on how problems under their authority are to be handled.
- The Norwegian and Swedish programmes make use of a range of instruments, whereas the Danish programme only makes use of a few.
- Both active and reactive uses of regulatory power are prescribed for all three river basins in order to achieve the environmental objectives, but in Denmark, reactive use is not addressed within the programme of measures.
- The need for new national legislation has been identified for all three river basins, but in Denmark, development of this legislation has been accomplished at an earlier stage of the planning process than it has in Sweden and Norway, considerably delaying Danish river basin management planning.
- All three programmes include measures for building up knowledge, but whereas the Swedish and Norwegian programmes operate

[247] Vattenmyndigheten Västerhavets Vattendistrikt, *ibid* n. 180, p. 9.

at a general level, the Danish programme addresses the individual bodies of water for which more knowledge is needed.

- Apart from measures for providing more knowledge, only the Swedish and Norwegian programmes make extensive use of non-legal or non-regulatory measures.

Discussion and conclusion

It must first be acknowledged that comparative legal research, where the researcher looks only at the text and not the context, often leads to very doubtful conclusions. In this study however, the common legal tradition, the common EU legal framework, and the similarities in the national implementation, facilitate an instrumental comparison of such legal texts as the programmes of measures. Yet I am aware that some of my findings, based as they are on texts, and not contexts, may not reflect the exact legal or practical situation. National decision-making procedures and administrative structures are not directly comparable and the river basin authorities and sector authorities are organised differently. However, looking at the fundamental differences identified in the ways the measures direct the management towards achieving the environmental objectives offers an insight into how things may be accomplished differently – regardless of whether or not this is actually the case in the countries discussed here.

- Direction by project and outcome.
- Direction by authority and activity.
- Direction by authority and focus.

The findings may be framed by environmental legal theory concerning environmental planning and management of natural resources. Environmental legal philosophy has had a normative point of departure in environmental sustainability.[248] The sustainability criterion is expressed in environmental objectives, and made operational through environmental quality standards and adaptive management. The programmes of measures are essential legal instruments in this respect.[249]

The findings of this study reveal three different modes of direction with regard to the environmental objectives. The different modes of direction further different planning strategies. The Danish approach, focusing on projects and, above all, project outcomes, seems to fit the adaptive management targeted at environmental objectives very well. Use of such an approach in Sweden would have countered some of the criticism directed at the Swedish programmes.[250] Directing the focus of the authorities, as most of the Swedish measures do, does not seem to establish the same strong tie between objectives, management, and outcomes, as needed for an adaptive and goal-orientated management.

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[248] With works such as those of Jonas Christensen, *Rätt och kretslopp: studier om förutsättningar för rättslig kontroll av naturresursflöden, tillämpade på fosfor,* Skrifter fron Juridiska Fakulteten i Uppsala, 79 (Uppsala: Iustus, 2000). Lena Gipperth, *Miljökvalitetsnormer. En Rättsvetenskaplig studie i regelteknik för operationalisering av miljömål,* (Upsala: Uppsala Universitet, 1999). Staffan Westerlund, *En hållbar rättsordning: rättsvetenskapliga paradigm och tankevändor,* (Uppsala: Iustus Förlag, 1997). More recently, Staffan Westerlund, 'Miljön och avvägningarna,' in Gabriel Michanek and Ulla Björkman, *ibid* n. 178, pp. 243-284. Inga Carlman, 'The Rule of Sustainability and Planning Adaptivity', *AMBIO: A Journal of the Human Environment* 34, no. 2 (2005): pp. 163-168.

[249] As stated in the Swedish environmental act (Miljöbalken), chapter 5, paragraph 4. See also Lena Gipperth, *ibid* n. 198, p. 54. Gabriel Michanek and Charlotta Zetterberg, *Den svenska miljörätten,* vol. 2, (Uppsala: Iustus, 2008), pp. 181-184. Staffan Westerlund, *Rätt och miljö,* (Stockholm: Carlsson, 1988), pp. 119-122.

[250] E.g. Lena Gipperth, *ibid* n. 198, p. 133.

On the other hand, the directive also aims to establish integrated water management and integrated programmes of measures.[251] The Swedish approach to directing the authorities, by establishing a general focus on water-related issues in a wider range of their activities, seems to forward just such an integrated form of management. This also holds true for the Norwegian programme, which to some extent is more explicit in the integration of the use of regulatory power in relation to the aquatic environment. Concerning the establishment of integrated water management, the Danish programme appears to reveal some shortcomings.

Environmental law has close ties to administrative law and environmental governance. However, analysis of how the administrative authorities actually are – or can be – directed in their environmental management, are rarely undertaken.

This study reveals different modes of conducting environmental management activities: one forwarding adaptive management, the two others, a more integrated approach.

Comparative analysis gives insight into other countries' approaches to designing their legal regulation. For the legal community, such insights may be valuable in themselves.[252] Yet, environmental planners might also benefit from this insight into differences in possible approaches, just as it might enhance and fertilize the discussion among those involved in the river basin management planning in Scandinavia and the rest of Europe.

[251] Cf. Preamble para. 26. See also Sigrid Hedin *et al*, *ibid* n. 172.

[252] Comparative analyses such as this provide the basis for legal cross-fertilization. However, one fully acknowledges the point that, alone, it does not provide for legal developments, as recently expressed by Staffan Westerlund in this journal, cf. Staffan Westerlund, 'Rätt och riktig rättsvetenskap', *Nordisk Miljörättslig Tidskrift / Nordic Environmental Law Journal* 2010, no. 1 (2010): p. 9.