

The Water Framework Directive in the Baltic Sea Region Countries
- vertical implementation, horizontal integration and transnational cooperation

The Water Framework Directive in the Baltic Sea Region Countries – vertical implementation, horizontal integration and transnational cooperation

**Sigrid Hedin, Alexandre Dubois, Riikka Ikonen, Patrick
Lindblom, Susanna Nilsson, Veli-Pekka Tynkkynen,
Michael Viehhauser, Ülle Leisk & Kristina Veidemane**

Nordregio Report 2007:2
ISSN 1403-2503
ISBN 978-91-89332-63-8

© Nordregio 2007

Nordregio
P.O. Box 1658
SE-111 86 Stockholm, Sweden
nordregio@nordregio.se
www.nordregio.se
www.norden.org

Analyses & text: Sigrid Hedin, Alexandre Dubois, Riikka Ikonen, Patrick Lindblom, Susanna Nilsson, Veli-Pekka Tynkkynen, Michael Viehhauser, Ülle Leisk & Kristina Veidemane
Dtp: Hanna Pitkänen
Linguistic editing: Chris Smith
Repro and print: Allduplo, Stockholm, Sweden
Omslagsbild: Bengt af Geijerstam/Bildhuset/Scanpix.

The European Commission does not have responsibility for the content of the report.

Nordic co-operation

takes place among the countries of Denmark, Finland, Iceland, Norway and Sweden, as well as the autonomous territories of the Faroe Islands, Greenland and Åland.

The Nordic Council

is a forum for co-operation between the Nordic parliaments and governments. The Council consists of 87 parliamentarians from the Nordic countries. The Nordic Council takes policy initiatives and monitors Nordic co-operation. Founded in 1952.

The Nordic Council of Ministers

is a forum of co-operation between the Nordic governments. The Nordic Council of Ministers implements Nordic co-operation. The prime ministers have the overall responsibility. Its activities are co-ordinated by the Nordic ministers for co-operation, the Nordic Committee for co-operation and portfolio ministers. Founded in 1971.

Nordregio – Nordic Centre for Spatial Development

works in the field of spatial development, which includes physical planning and regional policies, in particular with a Nordic and European comparative perspective. Nordregio is active in research, education and knowledge dissemination and provides policy-relevant data. Nordregio was established in 1997 by the Nordic Council of Ministers. The centre is owned by the five Nordic countries and builds upon more than 30 years of Nordic cooperation in its field.

Stockholm, Sweden 2007

Contents

Preface	9
Executive Summary	11
Part I: Introduction	15
The WFD - a tool for achieving good water quality	17
Aim and analytical approach of the study	20
Methodology	21
WFD background	22
The integrative approach of the WFD	23
The planning process of the WFD	25
Cross analysis	26
Introduction of the key WDF principles	27
Process of vertical implementation	28
Process of horizontal integration	36
Discussion and perspectives	39
Vertical implementation	39
Horizontal integration	40
Transnational cooperation	43
Concluding remarks	44
References	44
Part II: Country Reports	47
Belarus	49
Introduction	49
Coherence with the WFD	53
Conclusions	57
References	58
Denmark	59
Introduction	59
Implementation of the WFD	61
Conclusions	65
References	65
Estonia	67
Introduction	67
Implementation of the WFD	68
Conclusions	74

References	74
Finland	77
Introduction	77
Implementation of the WFD	79
Conclusions	85
References	85
Germany	87
Introduction	87
Implementation of the WFD	89
Impacts and effects on planning systems: the case of the State of Brandenburg	93
Conclusions	95
References	96.
Latvia	97
Introduction	97
Implementation of the WFD	98
Conclusions	102
References	102
Lithuania	105
Introduction	105
Implementaion of the WFD	106
Conclusions	111
References	111
Norway	113
Introduction	113
Implementation of the WFD	116
Conclusions	119
References	119
Poland	121
Introduction	121
Implementation of the WFD	122
Conclusions	129
References	129
Russia	131
Introduction	131
Application of the WFD	133
Conclusions	136
References	137
Sweden	139
Introduction	139
Implementation of the WFD	140
Conclusions	147
References	147
Part III: Case studies	151
Water management issues in spatial plans – examples from Latvia, Lithuania and Russia	153

The Narva basin - water cooperation in the Estonian-Russian transboundary commission	156
Odra Commission as an example for successful international collaboration in water issues	161
Appendix	169
Guidelines country reports	169
Main findings Workshop I, 13-14 February 2006	171
Participant list Workshop I	171
Main findings Workshop II, 20-21 November, 2006	172
Participant list Workshop II	173

Preface

TRABANT (Transnational River Basin Districts on the Eastern Side of the Baltic Sea Network) is an Interreg IIIB Baltic Sea Region (BSR) project led by the Finnish Environment Institute (SYKE). The INTERREG III B programme's specific feature is to promote joint solutions to joint problems through transnational co-operation and by funding projects that include an analysis of the economic, social, spatial and environmental potential of the BSR. The TRABANT project was launched in July 2005 and has 13 partners in total.

- Finnish Environment Institute (Lead Partner)
- South East Finland Regional Environment Centre, Finland
- Regional Council of South-Karelia, Finland
- Peipsi Center for Transboundary Cooperation, Estonia
- Tallinn University of Technology, Estonia
- Jõgevamaa County Environmental Department, Estonia
- Nordregio
- Royal Institute of Technology (KTH), Sweden
- Jekabpils District Council, Latvia
- Baltic Environmental Forum, Latvia
- Central Research Institute for Complex Use of Water Resources, Belarus
- Baltic Environmental Forum, Lithuania
- Center for Transboundary Cooperation-St.Petersburg, Russian Federation

The overall objective of the TRABANT project is to contribute to enhancing the 'good water status' of the Baltic Sea and its surroundings, while also supporting the wise management of waters in transnational river basin districts within this area. The project also aims to strengthen the links between the EU Water Framework Directive (WFD) and spatial planning. More specifically, the project has as its objectives, to:

1. Review the current development of management arrangements in respect of international river basins.
2. Review and evaluate up-to-date methods and tools, and make proposals for their development and harmonised use (including water status and impact assessment, as well as planning procedures, communication strategies and public participation).
3. Review the consequences of the implementation of the WFD on spatial planning systems in countries

across the Baltic Sea Region (BSR).

4. Establish an institutional partnership network, initiate and carry out a number of activities for the transfer of knowledge supporting the development of joint River Basin Management Plans (RBMP).
5. Produce guidelines and recommendations usable in River Basin Management (RBM) in transnational River Basins.

TRABANT concentrates on co-operation between EU and non-EU countries in the international river basins of Vuoksi, Narva, Daugava and Nemunas, all discharging into the Baltic Sea. The number and area of international river basins that will potentially be managed jointly under the WFD are significant; thus this is a crucial issue in the implementation of the WFD, and in respect of water issues, in international river basins more generally.

The project was divided into four work packages (WP). This study belongs to work package 2: "Interface between spatial planning and river basin management planning". The main output of WP 2 is this research report including an overview and analysis of the adaptations of national spatial planning systems in respect of the WFD in the countries of the BSR.

The work carried out within the context of work package 2 has been led by *Nordregio* who, in cooperation with KTH, have been responsible for the work. In addition, work has also been performed by the Finnish Environment Institute, the South East Finland Regional Environment Centre, the Regional Council of South-Karelia, Baltic Environmental Forum (Latvia) and Tallinn University of Technology. The project team would like to thank all participants in Workshop I and II (see Appendix) for their contribution to the findings of the report.

Outline of the report

The report is divided into three parts. Part I includes an introduction to the study and the WFD. This section is followed by a section which includes a cross analysis of the country reports. In the cross analysis and the concluding section of Part I focus is placed on the broad patterns concerning WFD application/implementation in the investigated countries, if the reader is interested in the details we advise them to have a look at the country reports found in Part II. Part I concludes with the main findings of the study while also highlighting the further research needed in the field. In Part II the country reports for the eleven investigated countries can be found. Part III includes the three case studies.

Executive Summary

The European Union Water Framework Directive (WFD) was adopted in 2000. The WFD takes an integrated approach to water management and the overall objective is to achieve “good water status” for all waters in Europe by 2015. In the following report we investigate how the WFD has been implemented in 11 countries in the Baltic Sea Region (BSR). The aim here is to investigate the influence of the WFD implementation on the national spatial planning systems and to take a closer look at the relationship between spatial planning and water management. The investigated countries are Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, and Sweden. In addition, we have investigated whether, and how, WFD ideas are applied in three non EU Member States in the BSR; Belarus, Norway and the Russian Federation.

The analysis is based on three analytical approaches; *vertical implementation*, *horizontal integration* and *transnational cooperation*. The approaches are related to the demand for an integrated approach to managing river basin districts (RBD), the setting up river basin management plans (RBMP) and, ultimately, to meeting the objectives of the WFD. By vertical implementation we are referring to the integration between organizations directly involved with water management. Horizontal integration stands for the integration between water management and other sectors, such as spatial planning. We refer to the integration of international river basins in the context of transnational cooperation.

The study is based on 11 country reports and three case studies performed in 2006. The country reports describe the various national spatial planning systems and water management systems and, in particular, their adaptation to the demands put forward in the WFD. In addition, the connection between the WFD implementation and spatial planning systems, including legislative and institutional aspects is analysed. Additionally, the trans-national dimension to the national implementation of the WFD and the national spatial planning system has been connected. The national reports describe the water management and spatial planning systems *before* and *after* the implementation of the WFD. By *before* we are referring to the system in use before the adoption of the WFD in 2000, *after* in consequence means, after 2000. Where changes have emerged it is however possible that *causes other* than the WFD implementation process were responsible.

The assessment of the introduction of eight *WFD key principles* (see below) shows that many were new for the BSR countries. This implies that changes had to be made

in order to adapt to the Directive. It is also evident that significant efforts have indeed been made to adapt to the Directive. Among the non-EU-countries, Norway is implementing the Directive. In Belarus and Russia some of the WFD principles are now applied.

A WFD principle already partly rooted in some BSR countries was the “river basin as a planning and management unit”. Here the adoption of the WFD has led to an enforcement of the principle. The same development can be seen for the principles “assignment of international River Basin Districts and cross border / transnational cooperation”, and “public participation”.

The principle of “river basin authorities” was not well applied in the investigated countries before the WFD and this principle has still not yet been applied to any great extent.

The principle of having a “river basin management plan” was not used in the investigated countries before the adoption of the WFD, but has now been applied after adoption. The same development can be seen for the principles “economic analysis of water use”, “water quality objectives in legislation” and “combined approach for point and diffuse sources”.

In respect of *vertical implementation*, WFD implementation has been adapted to the hydrological and the prevailing institutional settings in water management. Thus far all EU-countries in the BSR seem to have adopted a minimalist approach to WFD implementation in this respect, implying that changes have been carried out without making any radical modifications. The minimalist approach can, in part, be regarded as the consequence of the tight time schedule for implementing the Directive.

Two models covering the implementation of river basin management can be identified in accordance with the intentions of the Directive. The first model has the competent river basin authority located at the national level; the second has the main authorities located at the regional level. The local level is often assigned the operative tasks in water management e.g. distribution of drinking water and sewage collection and treatment.

Coordination bodies have been established in all investigated EU-countries. Their function is mainly consultative and monitoring-based and they will support the work of water management units as well as of authorities from other sectors. Moreover, the coordination bodies work as a participatory platform where national, regional and local public actors as well as private stakeholders and NGOs have the opportunity to participate in the elaboration of the RBMP.

When it comes to *horizontal integration* it can be concluded that two systems, one for water management and one for spatial planning, have been, and will continue to be, used in all investigated countries. In most countries the implementation of the WFD has not had any greater influence on the integration between water management and spatial planning thus far. The introduction of the WFD in the national legislation does however imply that the linkage between spatial planning and water management will be reinforced in some countries. The established coordination bodies provide for instance a potential means to integrate spatial planning and water management. This role is not however stressed in many countries. The relationship between the RBMPs and spatial plans will be of great importance for integrating spatial planning and water management. What this relationship will look like will become clearer when the drafting of the RBMPs is completed.

The mismatch between the geographical boundaries of the spatial planning units and the RBDs, the difference in timing between the RBMP and spatial plans and a general lack of resources, i.e. time and money, may all hamper the synergy between water management and spatial planning. In some countries moreover a number of legislation-related elements are also lacking to facilitate integration. However, a number of joint instruments for improved and meaningful water infrastructure; support of and collaboration with third sector actors; and models, tools and assessments for common purposes are at hand. An evident link

between spatial planning and water management is for instance protection zones. In addition, the Environmental Impact Assessment is a tool where water management and spatial planning can move towards further integration. Another potential cooperation field is that of public participation; where established procedures in spatial planning processes could serve as a model. The integration between spatial planning and water management can be further developed in all investigated countries and this is needed in order to achieve a “good” water status by 2015.

Transnational cooperation is of great importance in the BSR. All EU Member States in the BSR share at least one RBD with a neighbouring country. Due to the shape of the Baltic Sea Region most of the transnational RBDs include only two countries. Many of the EU Member States in the BSR, i.e. Estonia, Finland, Latvia, Lithuania, Poland and Sweden, share international river basins with non EU-member countries (Belarus, Norway and The Russian Federation). In general, WFD implementation appears to have initiated, intensified, or improved cooperation on water resources shared by EU Member States. This observation is based on the notion that international RBDs have been appointed, agreements have been signed and commissions or working groups have been set up to deal with WFD issues. The ongoing benefits of transnational cooperation and the challenges such cooperation poses are displayed in the two case studies of the Narva River Basin and the Odra River Basin.

Part I

Introduction

Part I - Introduction

Sigrid Hedin, Patrick Lindblom, Susanna Nilsson and Michael Viehhauser

The WFD – a tool for achieving good water quality

Clean water is a crucial resource. In the Baltic Sea Region (BSR) the water quality in the Baltic Sea continues to be of great importance in respect of maintaining access to clean water. An important political means for achieving a good water status in the region and the EU as a whole is the European Union Water Framework Directive (WFD). The WFD was adopted in 2000 (European Parliament and the Council of the European Union, 2000) and is seen as taking an integrated approach to water management (Chave, 2001; Fairley, et al. 2002; Griffiths, 2002; Holzwarth, 2002). The overall objective of the Directive is to achieve “good water status” for all waters in Europe by 2015. In an attempt to achieve this ambitious objective, the WFD introduces, among other things, management according to river basins. In the WFD a river basin is defined as:

“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” (European Parliament and the Council of the European Union, 2000).

Article 3 of the WFD deals with the administrative arrangements for river basin management. According to this article, Member States should, by December 2003, have identified individual river basins and assigned them to River Basin Districts (RBDs). The definition of a ‘river basin district’ is as follows,

“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” (European Parliament and the Council of the European Union, 2000).

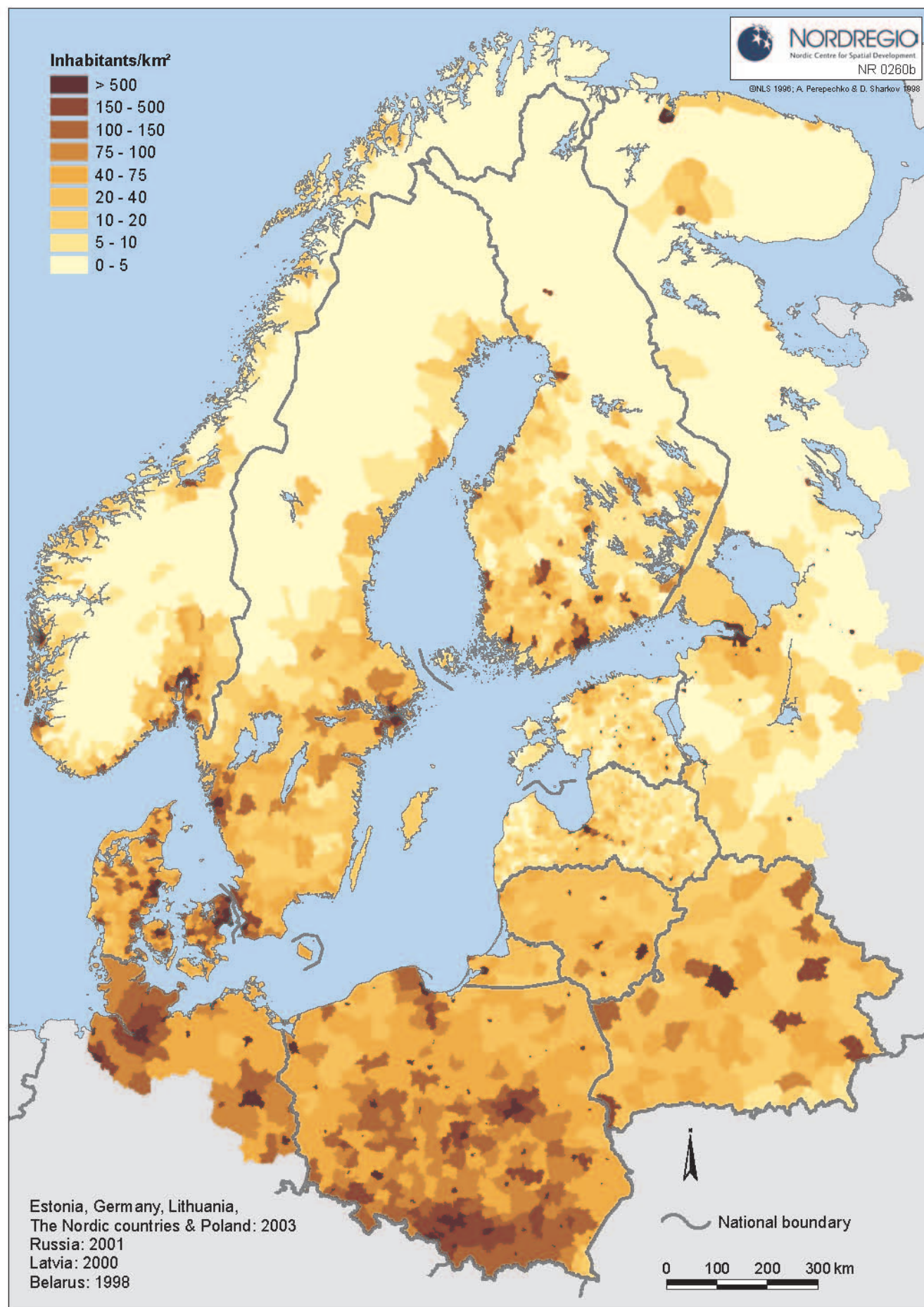
Based on the RBD as a spatial management unit, a characterisation in terms of pressures, impacts and the economics of water usage should be carried out (Article 5), and a *programme of measures* for achieving environmental quality standards drawn up (Article 11). This will finally

lead to the production and publication of a *river basin management plan* (RBMP) for each district, the first version of which is to be ready by 2009 (Article 13). The WFD also addresses the role of public participation. The Member States are asked to actively encourage the participation of stakeholders in the development, monitoring and updating of the river basin management plans for the river basins (Article 14).

For each RBD, the Member States should ensure that appropriate administrative arrangements are made, including the appointment of a *competent authority*. The Directive is not so specific on the designation of competent authorities. However, the report on Best Practices in River Basin Management Planning (European Communities, 2002), developed under the WFD Common Implementation Strategy (CIS), provides a little more detail. The report states that Member States may identify one or several competent authorities per RBD, and if several authorities are appointed, coordination arrangements should be established.

If a river basin extends across international boundaries, the WFD specifically requires it to be assigned to an international RBD, with appropriate administrative arrangements in accordance with Article 3. This demand is based on the fact that water bodies span national borders. In the WFD the Member States are thus asked to coordinate “all programmes of measures” for the whole RBD “where use of water may have transboundary effects”. This means that the Member States are encouraged to collaborate with neighbouring States whose territory falls within the same international river basin. Water resource management challenges can thus be assessed and addressed on the basis of a common strategy. In addition, a list shall be created, containing the information on the legal status, competences and international cooperation of the Competent Authorities.

Figure 1.1. Population density in the Baltic Sea Region – local level 2003



The Baltic Sea Region

The Baltic Sea Region (BSR) stretches over a large geographical area. Approximately 110 million people live in the area today. In respect of the distribution of population the region is rather heterogenic (Figure 1.1). The southern parts are densely populated while the peripheral northern part is characterised by sparsely populated areas. The economic development of the region is also rather heterogenic. The economic divide splitting the region into east and west is one of the sharpest in Europe. The Baltic Sea area is expected to be a strong global growth region in the coming decade. During the period 1995-2004 almost all BSR economies, excluding the BSR parts of Germany and the Russian Federation, experienced faster economic growth than the EU average. Growth was especially high for Estonia, Latvia and Lithuania as well as Poland. During the last 15 years the transition economies have undergone a restructuring process, characterised by a loss of agricultural jobs in the rural regions and by traditional manufacturing jobs. These job losses have to some extent replaced by new jobs in the service sector in metropolitan areas and in the larger cities (Hanell & Neubauer, 2005).

The Baltic Sea covers an area of 415,266 km². The catchment area is about four times as large as the sea itself. In Germany, Denmark and Poland as much as 60-70% of the Baltic's catchment area consists of farmland. Forests, wetlands and lakes make up between 65% and 90% of the catchment area in Finland, Russia, Sweden and Estonia. The brackish water of the Baltic Sea is a mixture of sea water from the North Sea and fresh water from rivers and rainfall. The Baltic Sea is connected to the world's oceans by the narrow and shallow waters of the Sound and the Belt Sea. This limits the exchange of water and implies that the same water remains in the Baltic for up to 30 years. Due to the special geographical, climatological, and oceanographic characteristics, the Baltic Sea is highly sensitive to the environmental impacts of human activities in its catchment area. (Helsinki Commission, http://www.helcom.fi/environment2/nature/en_GB/nature/) The pollution comes from industries, agricultural production and forestry and is transported by the rivers to the Baltic Sea. Around 80 percent of the pollution originates from activities performed on land. Due to the limited exchange of water the pollution remains in the Sea for a long time. The World Wide Fund for Nature (WWF) claims that main reasons for the deterioration of the environment in the Baltic Sea Region are; a weak Environmental policy and legislation, insufficient nature protection, a lack of environmental awareness and education, poor living conditions and the high consumption in the western parts of the regions. (WWF, <http://www.wwf.se/show.php?id=1004008>)

Table 1.1. Timetable for the implementation process of the WFD (Source: European Commission, <http://ec.europa.eu/environment/water/water-framework/timetable.html>)

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

Aim and analytical approach of the study

The overall aim of this study is to investigate WFD implementation with regard to its institutional arrangements, including the transnational dimension, and steps for integration within water management and between water management and spatial planning in countries belonging to the Baltic Sea Region (BSR). The introduction of the WFD may entail a confrontation with the existing administrative system. The WFD includes new aims and instruments, as well as a new administrative division of territories. As such then the question arises as to how the existing water management and spatial planning systems relate to and integrate the demands put forward in the WFD, and how the new geography suggested by the WFD suits the existing divisions of spatial planning entities within local, regional, national and trans-national contexts. One hypothesis here is that WFD implementation is largely framed and steered by the national systems, both in terms of policies, and their institutional setting.

Approaches applied and research questions

The study is based on three analytical approaches; *vertical implementation*, *horizontal integration* and *transnational cooperation*. The approaches are related to the demand for *integrated management* in managing the RBDs, setting up river basin management plans and ultimately meeting the objectives of the WFD. The WFD CIS Guidance Document No. 11 on Planning Processes (European Communities, 2003) points to the need for integration:

1. Between organizations directly involved with water management, such as water storage and supply, and wastewater treatment. This dimension we refer to as *vertical implementation*.
2. Between water management and other sectors, such as spatial planning, agriculture and forestry. This dimension we refer to as *horizontal integration*.
3. For international river basins, between countries sharing the basins. This dimension we refer to as *transnational cooperation*.

The questions that we will try to answer relate to the concepts mentioned above in the following way:

- Vertical implementation: Has WFD implementation implied the integration of different water organizations/actors and different territorial levels for water management purposes? Has the division of responsibilities between the different territorial levels been changed?
- Horizontal integration: Has WFD implementation implied an increased level of integration between water management and spatial planning?
- Transnational cooperation: Has WFD implementation implied improved transnational and cross-border

cooperation in the BSR?

As seen in table 1.1 the implementation of the WFD is an ongoing process. Consequently, we have been forced to investigate a moving target. The description and analysis of the national contexts mainly correspond to the situation during the first half of 2006.

Land use / spatial planning

In order to address the questions raised we need to define spatial planning and water management. In the study we will encounter 11 different national spatial planning systems and they will probably adapt to WFD implementation in different ways. In this study the concept of spatial planning is used and referred to in a broad sense. Firstly, we have looked at the definition used for *land use planning* by the European Environmental Agency (EEA). According to the EEA land use planning can be seen as:

The systematic assessment of land and water potential, alternative patterns of land use and other physical, social and economic conditions, for the purpose of selecting and adopting land-use options which are most beneficial to land users without degrading the resources or the environment, together with the selection of measures most likely to encourage such land uses. Land-use planning may be at international, national, district regional (project, catchment) or local (village) levels (municipalities, cities). It includes participation by land users, planners and decision-makers and covers educational, legal, fiscal and financial measures.

EEA, http://glossary.eea.europa.eu/EEAGlossary/L/land-use_planning, 14/12/06

The definition of the term *spatial planning* found in the EU Compendium of Spatial Planning Systems and Policies does not differ substantially from the definition of land-use planning given above. However, this definition includes a more explicit reference to economic development. The definition of “spatial planning” is:

Spatial planning refers to the methods used largely by the public sector to influence the future distribution of activities in space. It is undertaken with the aims of creating a more rational territorial organisation of land uses and the linkages between them, to balance demands for development with the need to protect the environment, and to achieve social and economic objectives. Spatial planning embraces measures to co-ordinate the spatial impacts of other sectoral policies, to achieve a more even distribution of economic development between regions than would otherwise be created by market forces, and to regulate the conversion of land and property uses. (European Communities, 1997)

When in the context of this study we use the term *spatial planning* we are then referring to land use and physical planning at the national, regional and local levels.

Integrated water management

The definition of water management takes its point of departure from the concept of integrated water management. Integrated water management is introduced into the WFD and implies a new approach for many of the BSR countries (see Part II). For a sustainable use of fresh water resources, integrated management, often referred to as “integrated water management”, “integrated water resources management” or “integrated river basin management”, has long been advocated as the solution. The US Tennessee Valley Authority (TVA) is often described as a pioneer in terms of integrated water management. The TVA was established in 1933, and was involved in basin-wide integrated development, including controlling floods, generating and distributing electricity, improving navigation, stimulating industrialisation and employment, extending education and welfare, countering soil erosion, reducing malaria, and improving agricultural output (Downs et al. 1991; Barrow, 1998; Gustafsson, 1999). Later on, the concept(s) has been addressed at a more strategic level in several official documents and events, such as the UN report on Integrated River Basin Development, the Dublin principles agreed at the International Conference on Water and the Environment (ICWE 1992), and the *Agenda 21* chapter 18 on freshwater resources adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro 1992 (UNCED 1992).

According to Mitchell (1990), integrated water management may be perceived in at least three ways. All are addressed in one way or another by the WFD. First, it may be restricted to encompass various dimensions of water,

such as surface water and groundwater, and water quantity and quality. The main idea in this thinking is that water is an ecological system consisting of a number of interdependent components, which need to be managed with regard to their interrelationships. Within the context of this perspective the integration of issues connected to water supply, wastewater treatment and disposal, and water quality may be of concern. Second, integrated water management can mean that, while water is one system, it is at the same time a component which interacts with other systems and here we have a clear connection with spatial planning. Within the context of this view, interactions between water, land and the environment in the context of river basins need to be addressed, recognizing that changes in any of the systems may have consequences for the others. Management issues of concern at this level potentially include floodplain management, erosion control, the reduction of diffuse pollution and the preservation of wetlands and fish habitats. This connection is the one that relates most explicitly to this study. The third and broadest interpretation of integrated water management refers to the interrelationships between water and social and economic development. At this level, the extent to which water is both an opportunity for, and a barrier to, economic development is of concern. Another issue here concerns the need to ensure that water is managed and used in such a manner that development may be sustained over the longer term. Interest at this level may be related to the role of water as drinking water, in producing hydroelectricity, in facilitating the transportation of goods and in serving as an input to industrial production.

Methodology

The implementation of the WFD and its connection with the national spatial planning systems around the Baltic Sea has been investigated by means of a comparative study including a qualitative approach.

Country reports

The first task was to perform country reports that aim to describe the various national spatial planning systems and water management systems and in particular, their adaptation to the demands put forward by the WFD. In addition, the connection between WFD implementation and spatial planning systems, including legislative and institutional aspects, is analysed.

- What was the connection between the water management system and spatial planning *before* the WFD was adopted?
- What level of discussion exists in the various countries in respect of adapting the spatial planning system to the WFD implementation?

- What is the connection between the water management system and spatial planning *after* the WFD was adopted?

An attempt is also made here to investigate how the additional trans-national dimension was connected to the national implementation process in respect of the WFD and to the national spatial planning system.

As stated above the description of the water management system and spatial planning system aims to describe the situation *before* and *after* the implementation of the WFD. By *before* we are referring to the system before the adoption of the WFD in 2000. *After*, in consequence, means after the adoption of the WFD. Where changes have occurred however the possibility exists that *causes other* than WFD implementation were involved.

In order to attain a better picture of WFD implementation and the relationship between national spatial planning and water management we have investigated the situ-

ation in the countries of the Baltic Sea Region. The investigated countries include Belarus, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Norway, the north western area of the Russian Federation and Sweden. The situation in each country is presented in the individual country chapters collected in Part II of the report.

The study has used existing descriptions and analyses of the spatial planning systems and water management system pertaining in the investigated countries before and after the adoption of the WFD as its point of departure. The material has been updated and complemented according to the focus of the current study. In addition relevant legislation and other documents have been used as sources. Interviews with persons representing the key authorities and organisations responsible for spatial planning and/or WFD implementation in the various countries of the BSR have been undertaken to scrutinize the ongoing implementation of the Directive. The country reports include both descriptive and analytical elements.

Guidelines (see Appendix) for the comparative country reports were developed in order to address the same kind of issues in the different national reports and the drafting of comparable national studies. This allows us to identify the main similarities and differences when it comes to WFD implementation and its connection with the spatial planning system. Since the type, and extent, of implementation seems to depend on contextual characteristics the guidelines focussed on the small number of key issues that we were interested in.

Despite the effort undertaken to address the same kinds of questions and issues the content of the national reports differs to some extent. This can mainly be explained with reference to the availability of data and other materials, i.e. laws, documents, persons to interview, in some countries,

while significant problems of an altogether different magnitude were encountered in other countries. Nevertheless, the description in each national report is satisfactory enough that they can be used to make comparisons and perform a cross analysis.

Case studies

In addition to the country reports three case studies have also been performed. These show the prevailing situations in respect of the Narva, Daugava, Nemunas and Oder river basins. The case studies of the Daugava and Nemunas river basins were carried out by KTH with the assistance of the Baltic Environmental Forum Latvia. The objective here has been to identify and further investigate the obstacles to, and acknowledged practices in respect of linking spatial planning with the implementation of the WFD in Latvia, Lithuania and Russia. *Nordregio* was responsible for carrying out a case study on the international cooperation undertaken in respect of the Odra River Basin highlighting the transnational aspects of river basin management. This aspect has also been covered in the case study of Narva River Basin performed by the Tallinn University of Technology.

Workshops

Two workshops were also organised in connection with the development of this research report. The first workshop (Workshop I) was organised in February 2006 and mainly focused on presenting the existing spatial planning systems and on WFD implementation in the investigated countries. The second workshop (Workshop II), held in November 2006, included a more analytical approach. During this workshop the preliminary results of the country reports and case studies were discussed and further developed.

WFD background

There have been a number of European-level water policies before the adoption of the Water Framework Directive in 2000. In the 1970s several EC Directives came into force, which dealt with various issues in water protection, such as hazardous substances. For instance, in 1975, a Surface Water Directive was introduced in order to improve water quality in Europe. This was followed by a Drinking Water Directive in 1980 (amended in 1998). In 1991, the Urban Waste Water Treatment Directive and Nitrates Directive were approved. The Directive for Integrated Pollution and Prevention Control (IPPC), addressing pollution from large industrial installations was

adopted in 1996. In 1988, the European Council decided to develop a more comprehensive European Water Policy. The development of the new European Water Policy was undertaken by having an open consultation process involving interested parties, such as local and regional authorities, water users and non-governmental organisations (NGOs). The Commission published its first proposal in February 1997 and the Water Framework Directive was finally adopted by the European Parliament and the European Council in October in 2000. (European Commission, <http://ec.europa.eu/environment/water/water-framework/overview.html>)

France – a blueprint for river basin management?

In practice, for implementing institutional arrangements for river basin management in line with the WFD, the French water management system could be used as a template. The French model can be characterized as an “actor-oriented water management model” (Gustafsson, 1999). In this model, the regional level is the most important; serving as the operational level for a water management organization, as well as a bargaining arena for discussions and conflict resolution between different actors from various levels, and representing various water interests. There are six regional water management regions based on river basins in France. In each region, there is a water parliament (*Comité de Bassin*) and a water management agency (*Agence de l'Eau*). The parliament is composed of representatives of water users; regional and local politicians; and the state administration, and its main function is to make decisions about the five-year water management programmes, and the environmental fees for water abstractions and discharges of pollutants. The practical work is performed at the water management agencies, which have around 100-150 employees, and whose activities are financed through the environmental fees. Thus, thanks to the environmental fees each water management agency has economic autonomy within their water management region. In-between the regional and local level, there are a number of river basin entities, which support the implementation of measures stipulated in the water management programme, and monitor local water management activities on a sub-basin level (Gustafsson, 1989; Gustafsson, 1999).

The integrative approach of the WFD

The WFD sets out a coherent framework for the sustainable management of the water environment within the framework of larger environmental systems. In order to achieve an effective water management, it is essential that activities that have an impact on the water environment and sectors dependent on water resources are coordinated. This means that water management falls within the competences of other sectors, to be coordinated with the objectives of water management and protection. One of the reasons for adopting a river basin approach was that the existing water management legislation lacked this holistic approach. (European Communities, 2003).

Integration is a central principle in the WFD. An important idea behind the creation of the Directive was that impacts on water bodies due to human activities and the exploitation of water would be handled through a single piece of legislation. As stated above, a number of Directives addressing water management have been or will be overruled by the WFD. The WFD aims to integrate a large number of principles and sectors which are either directly or indirectly related to the achievement of its goals.

The main reason behind the need for greater coordination between water management and other sectors relates to the physical and spatial characteristics of waters. Firstly, water resources have a territorial function, since they are the basis for other activities for instance shipping and agriculture. Moreover, water resources have a utility function since they are materially used in processes, for example in industries, sanitation, drinking water supply, etc. Thus, water management aims at “preserving water from deterioration, in order to guarantee the precondition for those

functions”. According to the Common Implementation Strategy for the Water Framework Directive, integration in river basin management implies:

1. Integration of environmental objectives, combining quality, ecological and quantity objectives for protecting highly valuable aquatic ecosystems and ensuring a general good status of other waters;
2. Integration of all water resources, combining fresh surface water and groundwater bodies, wetlands, coastal water resources at the river basin scale;
3. Integration of all water uses, functions and values into a common policy framework, i.e. investigating water for the environment, water for health and human consumption, water for economic sectors, transport, leisure, water as a social good;
4. Integration of disciplines, analyses and expertise, combining hydrology, hydraulics, ecology, chemistry, soil sciences, technology engineering and economics to assess current pressures and impacts on water resources and identify measures for achieving the environmental objectives of the Directive in the most cost-effective manner;
5. Integration of water legislation into a common and coherent framework. The requirements of some older pieces of water legislation (e.g. the Fishwater Directive) have been reformulated in the Water Framework Directive to match modern ecological thinking. After a transitional period, these old Directives will be repealed. Other pieces of legislation (e.g. the Nitrates Directive and the Urban Wastewater Treatment Di-

rective) must be co-ordinated in river basin management plans where they form the basis of the programmes of measures;

6. Integration of all significant management and ecological aspects relevant to sustainable river basin planning including those which are beyond the scope of the Water Framework Directive such as flood protection and prevention;
7. Integration of a wide range of measures, including pricing and economic and financial instruments, in a common management approach for achieving the environmental objectives of the Directive. Programmes of measures are defined in River Basin Management Plans developed for each river basin district;
8. Integration of stakeholders and 'civil society' in decision making, by promoting transparency and information to the public, and by offering a unique opportunity to involve stakeholders in the development of river basin management plans;
9. Integration of the different decision-making levels that influence water resources and water status, be they local, regional or national, promoting the effective management of all waters;
10. Integration of water management from different Member States, for river basins shared by several countries, existing and/or future Member States of the European Union.

Although the WFD does not explicitly demand the integration of water management and spatial planning, the arrangements for its implementation may need to ensure that bodies responsible for land use planning take into account the objectives stipulated in the future water management plans for river basin districts. All ten approaches to integration mentioned above connect, more or less, river basin management planning to activities embedded within spatial planning. In this study however emphasis will be placed on the last three points.

Mutual dependency among planners in different sectors implies that overall co-ordination across sectors is a pre-requisite for implementing the WFD effectively. This co-ordination needs more integration at the operational level, particularly:

- Among bodies involved directly with water management; in order to integrate management of surface, ground, "inland" and coastal waters.
- Between water managers and other sectors, such as land use-planning, agriculture, forestry, flood management, industry and tourism/recreation. (European Communities, 2003)

Integrative approach and spatial planning

The potential for integration between spatial planning and water management is also explicitly proposed in the context of the spatial development horizon. In the EU non-

binding document the *European Spatial Development Perspective* (ESDP) from 1999 it is claimed that: "Policies for surface water and ground water must be linked with spatial development policy". In addition, is stated that

"Corresponding spatial and land use planning can make a decisive contribution towards the improvement of water quality. That is the reason why the impact of large water exploitation related projects should be examined through territorial and environmental impact assessments."

ESDP - European Spatial Development Perspective

After a drafting process lasting from 1993 to 1999, the ESDP was adopted at the European Council meeting in May 1999. The ESDP is the first EU level policy document on spatial planning. The philosophy and the objectives of the ESDP relate to the wider objectives of the European Union such as sustainability and competitiveness. The ESDP is a non-binding document, implying that the Members States are not obliged to apply it. The ESDP mirrors a number of prevailing aims and principles from both national and European-level planning discourse of the 1990s. The three main ESDP policy guidelines for the spatial orientation of policies are:

- 1 Development of a balanced and polycentric urban system and a new urban-rural relationship
- 2 Securing parity of access to infrastructure and knowledge
- 3 Sustainable development, prudent management, and the protection of our natural and cultural heritage

A novel approach fostered by the ESDP is that of cooperation between all levels (vertical integration) and all sectors (horizontal integration) that have spatial impacts.

In the ESDP the transnational dimension is also stressed in the sense that "cross-border and transnational development strategies are a basis for a better water resource management". In the document the increased demand for water is highlighted. Households, agriculture and tourism stand for the increased consumption. Here the role of spatial planning and public participation are explicitly mentioned as important means to manage water:

"Concerning activities with a high demand for water, spatial planning can already make an important contribution by identifying uses that require less water within the planning process. These problems require a broadly-based public debate, since only a broad awareness of the issue among the population can ensure the sustainable use of water resources." (European Communities, 1999, § 145 and 147)

The planning process of the WFD

The river basin planning process is considered to be the central tool for the co-ordination of policies between sectors. The WFD is built upon a planning approach that includes three main stages: current and foreseen scenarios assessment, target setting and the development of alternative programmes of measures including action taking (Table 1.2). In total the planning process includes ten identified main components.

The stages are part of a cyclical and iterative process, which also includes “linking stages” (Figure 1.2). The linking stages work in parallel with the three main stages and include the elements; public participation, evaluation of

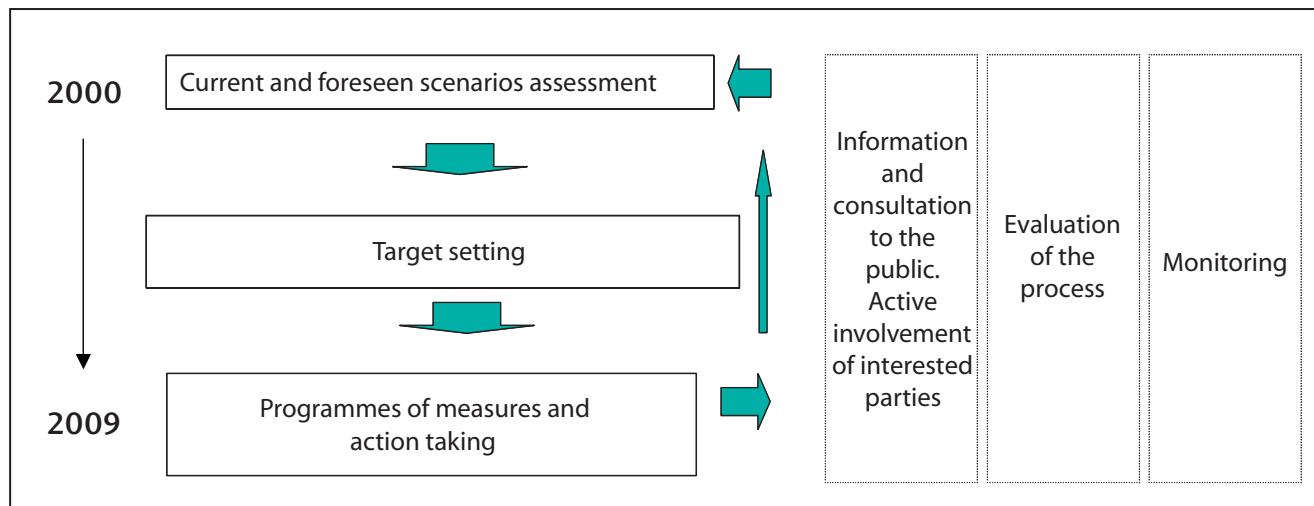
the process and monitoring. Monitoring and evaluation make the planning process cyclical as these activities provide the foundations for the continuation of the work based on experiences obtained during the planning period.

In 2006 the implementation of the WFD was still proceeding through its first stage (Current and foreseen scenarios assessment) and to some extent in the second stage (Target setting). In consequence, in the context of this study we will, in the main, analyse the activities performed within this first stage, which includes three main activities; the identification of the River Basin Districts, the establishment of the appropriate administrative arrangement for coordination

Table 1.2. Main stages and main components in water management according to the WFD (Source: European Communities, 2003)

<i>Current and foreseen scenarios assessment</i> • Setting the scene • Assessment of the current status and analysis of preliminary gaps <i>Target setting</i> • Gap analysis • Setting up of the environmental objectives <i>Alternative programmes of measures and actions taking</i> • Setting up of the programme of measures • Development of river basin management plans • Implementation of the programme of measures and preparation of the interim report <i>Linking stages</i> • Establishment of monitoring programmes • Evaluation of the first and second period • Information and consultation of the public, active involvement of interested parties

Figure 1.2. Cyclical approach for planning in the WFD (Source: European Communities, 2003)



of activities, and the designation of the competent authorities.

This study attempts also to shed lights on the preconditions for future activities that will demand cooperation and coordination between water management and spatial planning. Thus preconditions for carrying out coordinated activities corresponding to the stage of “*alternative programmes of measures and actions taking*” and especially the

“*linking stage*” will be explored in the coming sections. The establishment of targets, a programme of measures and the production of river basin management plans demand an open dialogue not only between sectors but also with the general public. As such then the provisions established by the WFD on public participation receive special attention in the study.

Cross analysis

In the cross analysis we take a closer look at how some key WFD principles have been and are introduced in the BSR countries. In addition, we look at the issue of vertical implementation including the spatial and institutional fit between the RBDs established under the WFD, and the administrative structures set up for managing these spatial units in the Baltic Sea Region countries. Finally, we analyse the institutional interplay between water management institutions responsible for river basin management according to the intentions of the WFD, and spatial planning in the Baltic Sea Region countries. However, before we compare the situation in the different countries we take a closer look at the concepts’ “fit”, linked to vertical implementation, and “interplay”, linked to horizontal integration.

Spatial and institutional fit

According to Moss (2004) there are two pertinent boundary issues, which need to be considered in the light of river basin management, as anticipated by the WFD (Figure 1.3). The first issue is “spatial fit”. In short, spatial fit refers to the overlap between the territorial borders of political and management institutions, and the bio-geophysical resource to be managed (e.g. Cano, 1985; Folke et al., 1998; Young, 2002). The idea is that creating a better ‘fit’ between responsible institutions and the resource to be managed reduces spatial externalities, which otherwise may benefit free riders while harming others beyond the spatial extent of the management institution. River basin management is an example of a response to problems of spatial fit. Reorganising management according to natural, hydrological boundaries appears then to be the logical way to tackle this, e.g. upstream and downstream problems, and water and land related issues. The problem with this approach however is that new types of boundary problems may arise.

As stated above the WFD is based on the idea that the management activities are carried out within the limits of geographical areas, the so called River Basin Districts (RBD). This means that the WFD constitutes a legal obligation for the competent authorities to organize the management of water within RBD. Here there is a risk for conflict and it is stated that “it is likely that spatial conflicts will occur with other policy sectors that have a significant

impact on water, but are structured along administrative and political boundaries” and in the “new” spatial unit River Basin District (European Communities, 2003).

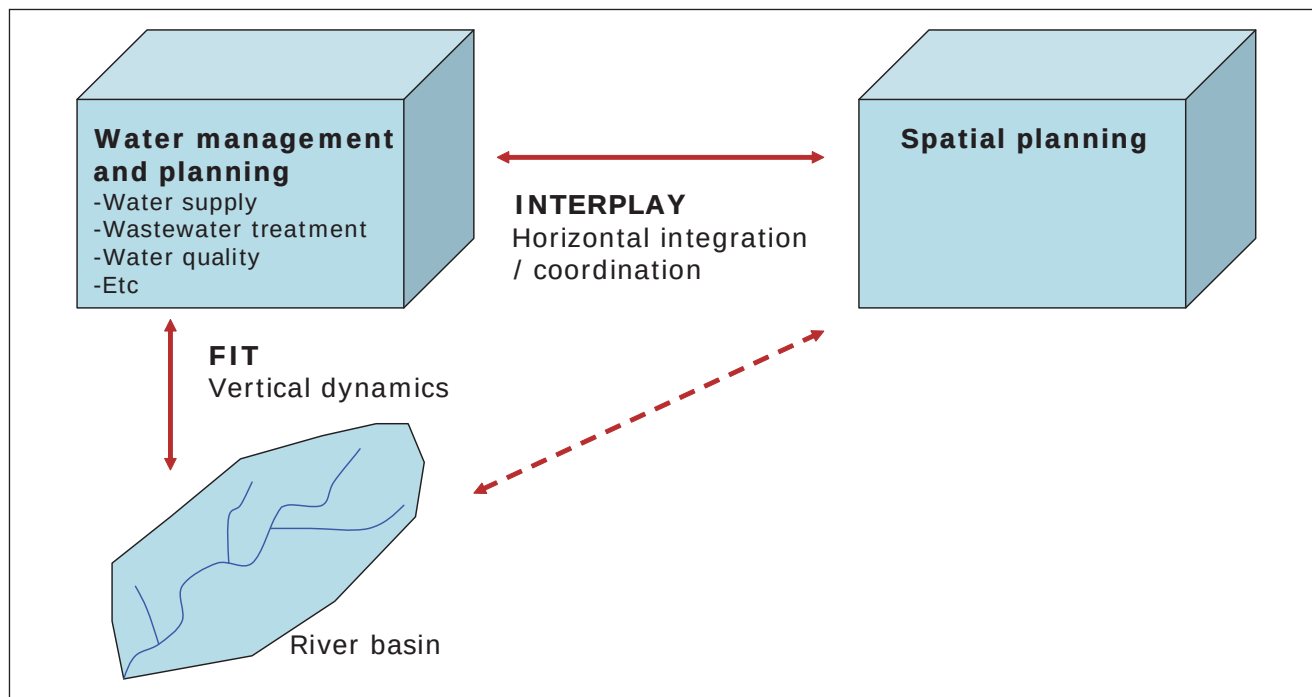
Institutional interplay

The second issue of concern for river basin management is that of “institutional interplay”. The basic assumption behind institutional interplay, or horizontal integration, refers to the idea that the success or effectiveness of institutions is dependent not only on their own performance, but also to a large degree on their interactions with other institutions (for a more thorough description of fit and interplay see, e.g., Young, 2002). In the case of the WFD it is in the end the goal of “good water status” that shall be reached by 2015. To achieve this goal there is a need for greater integration between water management institutions and other sectors (e. g. spatial planning) (European Communities, 2003). The WFD however implies no explicit provisions in relation to land-use planning. It is however stated that “water resources must be planned and managed in an integrated and holistic way”. Consequently, the approach of the WFD demands that different sectors co-ordinate their activities. In addition, it “is likely to involve the co-ordination of river basin planning with the planning processes of other relevant sectors in order to ensure that the objectives of the Directive are met”. The implementation procedure will “ensure that bodies responsible for land use planning take account of the objectives which it creates. Therefore, it will be advisable to ensure that the land use and water planning processes support each other as far as possible” (European Communities, 2003).

Institutional “misfit”

The intentions and ambitions of river basin management according to the WFD are well correlated with the basic premises of spatial fit and institutional interplay. The WFD requires that water resources should be managed according to river basins. Furthermore, although coordination and cooperation between water management and other sectors is not explicitly required by the Directive, it is still regarded as crucial in, e.g., achieving environmental objectives (e.g. European Communities, 2003). Few European countries however (with some exceptions such as France,

Figure 1.3. Illustration of “fit” and “interplay” (Source: Modified according to Moss 2004)



and England and Wales) have experience of organising river basin management in such a manner. Instead, water management has traditionally been arranged according to political or administrative units, and often with a strong sectoral division between different types of water management institutions, as well as between water management and other management systems, such as spatial planning and agriculture. Implementing an *integrated* river basin management model based on hydrological boundaries may therefore entail substantial

changes being made to countries' administrative systems for water management. It may thus be questioned whether countries will actually be able and willing to adapt and fully implement the “requirements” of the WFD. A potential problem connected to both vertical implementation and horizontal integration is that the “policy gap” between different levels and sectors may be difficult to bridge, and the appropriate processes, mechanisms and platforms for interactions may be hard to establish (Moss, 2004).

Introduction of the key WFD principles

In the country reports the introduction of eight key WFD principles implying a novel approach in water management have been assessed in order to investigate the development of the river basin (management) approach to water management *before* and *after* the adoption of the WFD. The first three principles are found in Article 3 and can be related to the division of responsibilities for river basin management both nationally and internationally.

- The establishment of a river basin as a planning and management unit (Article 3)
- The assignation of international RBD and cross-border / transnational cooperation (Article 3)
- The identification of competent (river basin) authorities (Article 3).
- The introduction of water quality objectives aiming at achieving “good ecological and chemical status” (Article 4)

cle 4) in the national legislation.

- The performance of an economic analysis in respect of water use (Article 5) as well as introducing the ‘recovery of cost’ for water services principle (Article 9).
- The introduction of a “combined approach for point and diffuse sources” (Article 10) in the national legislation.
- The establishment of River Basin Management Plans (RBMP) for RBD (Article 13): Since the RBMP will be ready in 2009 we are looking at how this aspect has been integrated into national legislation and what the process of developing the RBMPs looks like.
- Concerning Public Participation (Article 14) we have looked at how the different stakeholders will be integrated into the development of the river basin management plans.

¹ By using a combined approach for point and diffuse sources the focus is to both control discharges and emissions into surface waters.

Many of the key principles introduced in the WFD are new to the BSR countries. This implies that legislative changes will have to be made in order to adapt to the Directive. The country reports/studies also clearly show that efforts have been made by the BSR countries to apply the WFD principles. Consequently, the BSR countries are on their way to successful implementation of the Directive and the suggested timetable is more or less being followed. This development may be considered as natural since they have to fulfil specified tasks according to a defined timetable.

An idea that already was partly rooted in some BSR countries and now is extensively applied was that of the “River basin principle as a planning and management unit”. The same development can be seen for the principle, “Assignment of international River Basin Districts and cross border / transnational cooperation”. In addition the principle “Public participation” was already present in many BSR countries before adoption of the WFD with application being enforced after adoption.

The principle of establishing “River basin authorities” was not that well represented in the investigated countries before WFD adoption. In addition, this principle has only been partly applied after 2000. A tentative explanation for this is that most countries have pursued a minimalist approach to implementing the Directive.

The principle of a “River basin management plan” was not well rooted in the investigated countries before WFD adoption, but this principle has been well applied after the adoption. The same development can be seen for the principles, “Water quality objectives in legislation” and “Combined approach for point and diffuse sources”. In addition, the adoption of the principle “Economic analysis of water use” was generally a newly applied principle.

Belarus and the Russian Federation, which do not implement the Directive, differ concerning the applied principles. In the Belarusian case the application of the investigated key principles is rather weak. In Russia, some of the key principles are applied even though the country is not implementing the Directive *per se*.

Process of vertical implementation

Institutional adaptation

Most central stipulations in the WFD on the administrative arrangements of river basin management to be adopted are provided in Article 3. According to this article, EU Member States should, by December 2003, have identified individual river basins and assigned them to River Basin Districts (RBDs). An RBD may be made up of either one single river basin or a combination of several small river basins, together with associated groundwater and coastal waters. For each district, Member States should ensure that appropriate administrative arrangements are set up, including the appointment of one (or several) competent authority (river basin authority). If several authorities are appointed, coordination arrangements should be established. In cases where a river basin extends across international boundaries, the WFD specifically requires it to be assigned to an international RBD, with appropriate administrative arrangements.

The impact of the WFD on the institutional frameworks for water management systems in countries in the Baltic Sea Region (BSR) differs significantly. The WFD has been adapted to not only hydrological circumstances in these countries but also to the prevailing institutional settings and traditions in both sectors of water management and spatial planning. So far all EU-Member States in the BSR seem to have adopted a minimalist approach² to

implementation, implying that institutional changes in water management have been carried out without making any radical modification of the structures already existing prior to implementation. Thus, from an institutional point of view changes made due to the implementation of the WFD in all EU-Member States in the BSR have been made in favour of the already existing structures.

Whereas the EU-level is providing the normative blueprint for water management through the WFD, its implementation in the Member States in the BSR has thus far implied that governments have adopted at least a supervisory role in River Basin Management (RBM). On the other hand, river basin authorities can be concentrated at the national and/or regional level while local water management authorities have often been given the operative tasks in water management e.g. on the distribution of drinking water and sewage collection and treatment. However, as explained in the following sections each country is unique in terms of changes made on its institutional settings for water management planning.

Preconditions for River Basin Management planning (RBM)

In order to highlight ways in which the implementation of the WFD has affected the different institutional frameworks for water management in the investigated countries, some basic elements of RBM, extracted from the Directive, have been used as cornerstones for the following anal-

² As raised by a participant in Workshop II, this ‘minimalist approach’ is more the consequence of the tight implementation schedule than a lack of willingness to undertake profound reforms. Moreover, there is also the question of resources. The implementation of such a

Directive demands a large of human and financial resources. Not every country can afford such a commitment.

ysis. The criteria used for categorizing the different water management systems imply that river basins shall be the administrative units for water management while the competent authorities for RBD shall be assigned and the appropriate administrative arrangement for RBM shall be set up in accordance with Article 3. Additionally, coordination between all water authorities may exist both nationally and internationally. Coordination may also involve procedures for guaranteeing public participation in accordance with Article 14. The last criterion adopted the categorisation that for each river basin district a river basin management plan (RBMP) shall be produced in accordance with Article 13. Thus, by using this criterion three basic assumptions have been created for categorizing the investigated institutional settings for water management:

- Institutions and competent authorities having coordinating responsibilities
- Institutional settings for public participation
- The level where the RBMP is produced and approved

Since the process of implementing the WFD looks different in each of the studied countries, the classification undertaken in the following section is very general aiming only to illustrate common characteristics in these systems while giving enough space for the reader to look at the country studies and obtain a more detailed picture of the system in question. In addition, the following analysis is based on the assumption that no precise key exists in relation to what the best model shall look like.

As further explained in the following section neither the Russian Federation nor Belarus has obligations towards the WFD. While the Russian Federation has a water management system built upon the river basin management approach, in Belarus this approach is not applied, as such this country falls outside of the classification.

Two models for RBM

Two main varieties of RBMs have been identified in this study, one in which the main RBD authority is located at the national level and the other with the main authority at the regional level. (Table 1.3)

Strong national actors

In *Denmark, Latvia, Lithuania* and *Poland* institutional adaptation towards the WFD has been made in favour of the national level. In Poland, Latvia and Lithuania (Figure 1.4) overall responsibility for the elaboration and the approval of RBMP for all river basin districts have been assigned to one central water management authority that in turn has appointed subordinate coordination bodies at the regional level, one for each river basin district, or sub-basin district as in the case of Poland. Note however that before beginning their activities at the RBM level, the central RBM authorities in Latvia and Lithuania are seeking to build up their capacities and knowledge with a view to be-

Table 1.3. Allocation of main RBM authorities in countries in the BSR

National	Regional
Denmark* Latvia Lithuania Poland Russian Federation*	Estonia* Finland Germany* Norway Sweden
* Country differing considerably within the group due to differences in its institutional structure and/or functions.	

coming strong actors on water management.

Various other functions related to the WFD implementation have been assigned to different authorities, implying that responsibility for WFD-related tasks is, to a large degree, coordinated among existing/old authorities. The function of the coordination bodies at the regional level in Poland, Latvia and Lithuania is mainly to be a consultative and monitoring unit supporting the work not only of the subordinate water management authorities but also of those authorities from other involved sectors. Moreover, these coordination bodies function as a participatory platform in which not only national, regional and local public actors but also private stakeholders and NGOs have the opportunity to take part in the elaboration of the RBMPs.

Another RBM system with the main authority at the national level is that of Denmark. However, overall responsibility for the implementation of the WFD in Denmark is shared by the Ministry of the Environment on the national level and the municipalities at the local level. Under the Ministry of the Environment seven local environmental offices will produce the RBMPs for each of the four river basin districts that in turn will be approved by the Ministry. Municipalities on the other hand are responsible for ensuring that the objectives set by the Ministry of the Environment become operational through, among other things, local action plans.

Strong regional actors

WFD implementation in *Estonia, Finland, Germany*³, *Norway* and *Sweden* has strengthened the role of regional water management authorities in particular. In these countries regional authorities have become responsible for coordinating and producing the RBMPs under national supervision. Additionally, the competent authorities are part of the water management administration that previously existed. In Estonia, Finland, Norway, and Sweden these authorities have traditionally been the State representatives at the regional level.

³ In the context of this section the regional level in the case of Germany is referring to the Federal States (Länder) level.

Figure 1.4. National RBM model (LV, LT, PL). A central RBM authority elaborates and approves plans for river basin districts. The central national RBM authority has in turn several subordinated coordinating bodies.

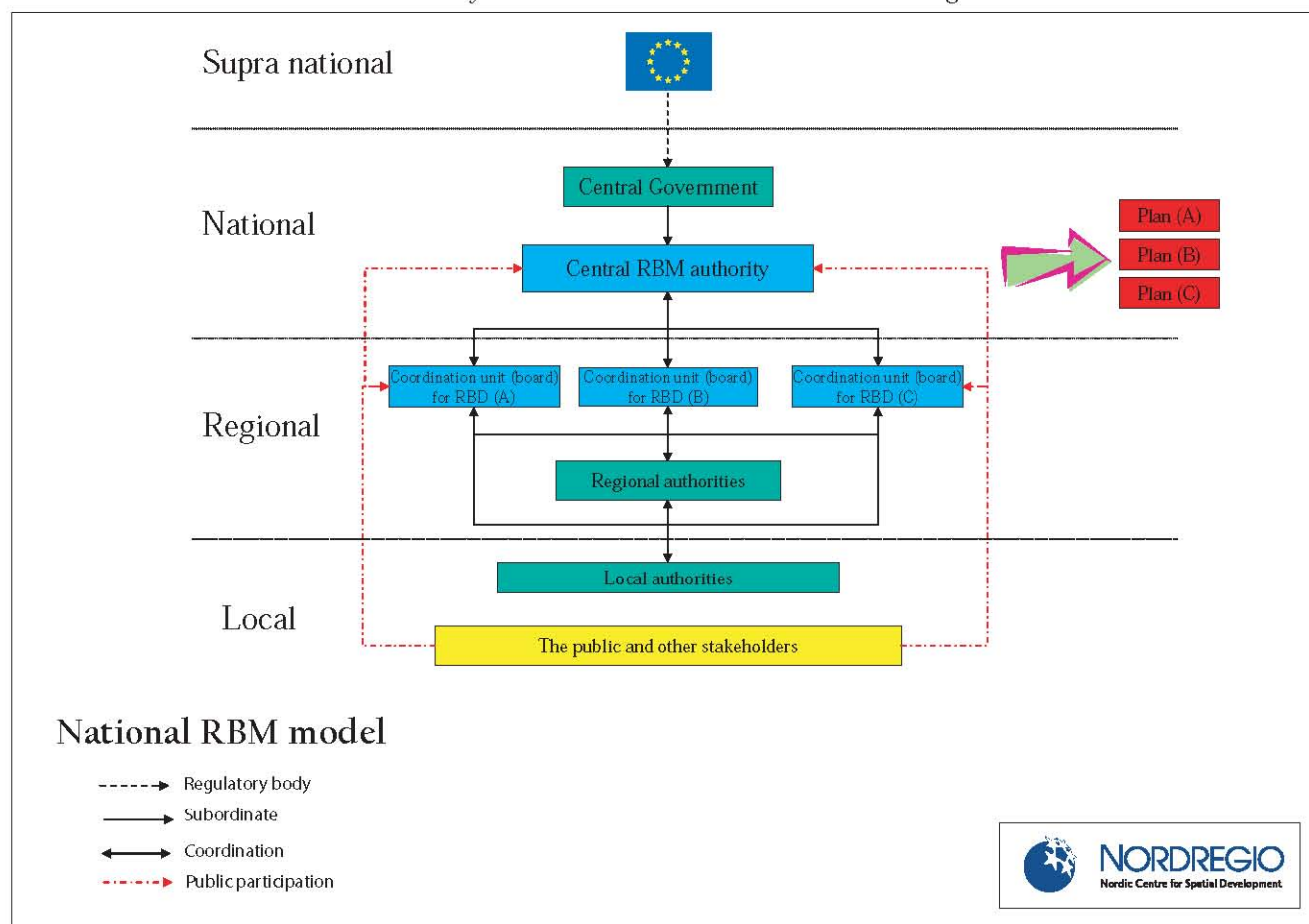
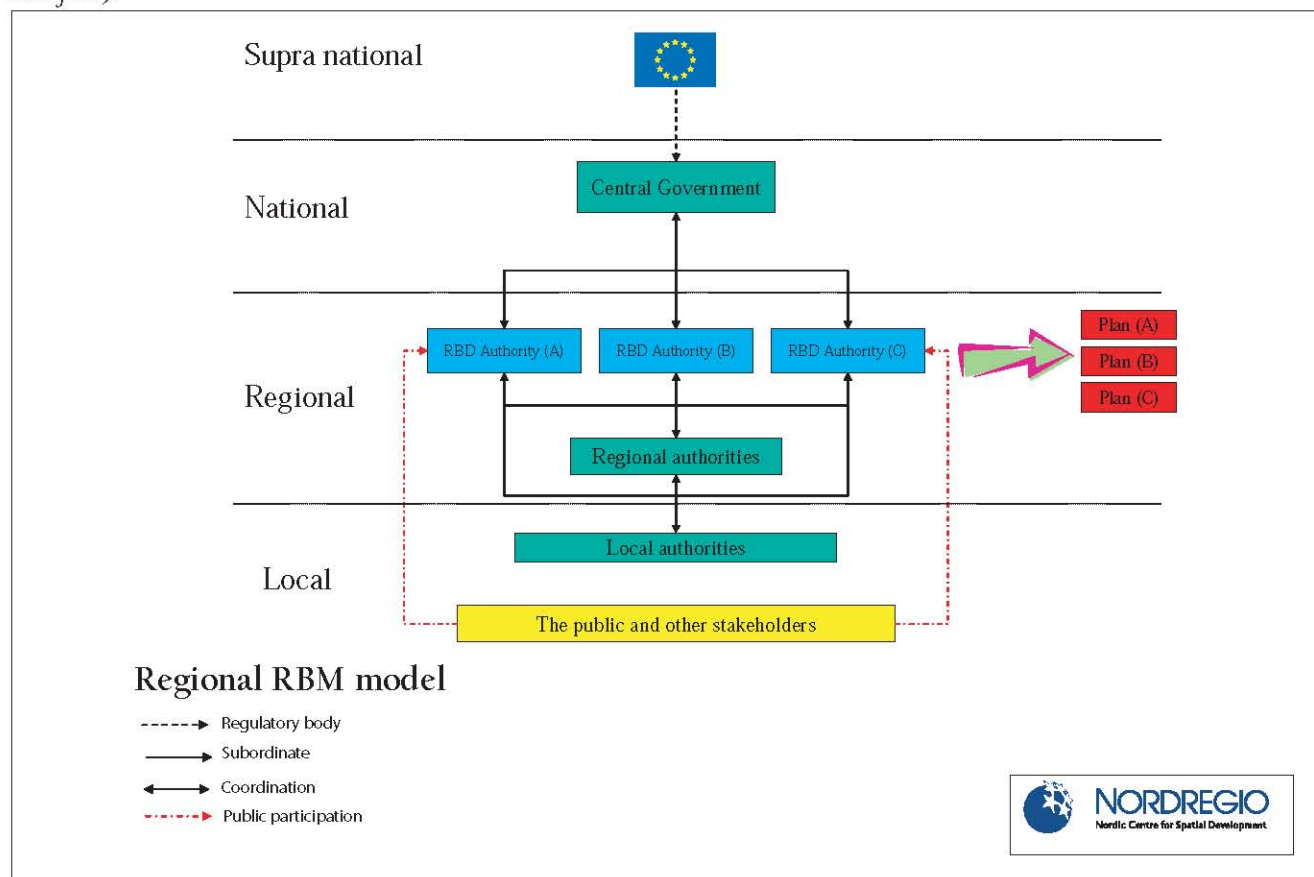


Figure 1.5. Regional RBM model (FI, NO, SWE). The main RBM responsibilities exist at the regional level (indicated in the blue field).



In *Norway* and *Sweden* the adaptation of the institutional framework for water management to the demands of the WFD have resulted in similar solutions (Figure 1.5). In both countries state representatives at the regional level have become RBM authorities having the main task of co-operating and coordinating activities with other county authorities within the RBD. Specifically in Sweden, the municipalities traditionally had the main responsibility for water planning but after WFD implementation five County Administrative Boards became the competent authorities responsible for the elaboration of the RBMP. In Norway the implementation process is in an earlier stage compared to that of Sweden and thus far it is planned that one County Governor within each river basin district will assume the role of RBM authority.

Thirteen Regional Environment Centres are the State representatives responsible for preparing the RBMP in *Finland*. However, the main coordinating role for the work on RBM has been assigned to five Regional Environmental Centres each having the lead of one steering group correspondent to each of the RBDs in the country. The steering groups include representatives from the Economic Development Centres and representatives from Regional Environmental Centres. Additionally, collaboration among different stakeholders is established through joint working groups organised by each Regional Environmental Centre. These joint working groups include national and local authorities, NGOs, landowners and business interests groups.

In *Estonia* eight County Environment Departments are the State representatives responsible for the elaboration of the management plans for river basin sub-districts while the Ministry of the Environment is the main responsible authority for the elaboration of the RBMPs. Theoretically this institutional framework appears to be similar to the national RBM-model but on the other hand, the effect and influence the County Environmental Departments have in the process of producing RBMPs makes the regional level the most central. This is because the assigned County Administrative Departments are strong in RBM within their territory. Additionally, the plans for river basin sub-districts that they produce determine the information and measures to be stated in the RBMP. Thus, despite the Ministry of the Environment being responsible for approving the RBMPs, it is the County Environmental Departments who determine the basis on which these plans are created.

The implementation of the WFD in a federal system like in *Germany* has resulted in the emergence of a very different system compared to those found in other countries in this group. The model for RBM adopted in Germany has been previously studied by Mostert (1998) who defined it as an “*administrative model*”, meaning that river basin management is part of environmental management traditionally conducted by states, counties and municipalities. In respect of the German federal system, the adoption of

the administrative model implied that no central river basin authority has been designated for each of the RBDs. Instead, the Federal States (*Länder*) have been assigned as competent authorities for the elaboration and approval of plans for river sub-basins that together will result in the RBMPs.

In Germany, coordination between the Federal States is carried out through coordinating bodies under the lead of one of the Federal States. These units do not have executive powers but instead are built on loose agreements between several neighbouring Federal States sharing the same RBD. Since these groups are built upon different premises, they are different from each other in terms of their functions and structures. In consequence, in the context of this system public participation is also organized independently by the Federal States and therefore there is no single model applied in this respect by all of the Federal States.

Water management in Belarus and the Russian Federation

The *Russian Federation* and *Belarus* differ markedly in their institutional settings for water management from the systems adopted by the EU-Member States. In terms of institutional structures in both countries the main water management authority resides at the central Government level which maintains a strong grip on subordinated regional and local administrative bodies.

In the *Russian Federation* the current water management system is also based on the RBM-model and the water management legislation has undergone important changes with a view to shifting responsibilities from the central Government to regional administrative bodies. This new institutional framework for river basin districts introduced by the Russian Water Code is not yet however entirely operative.

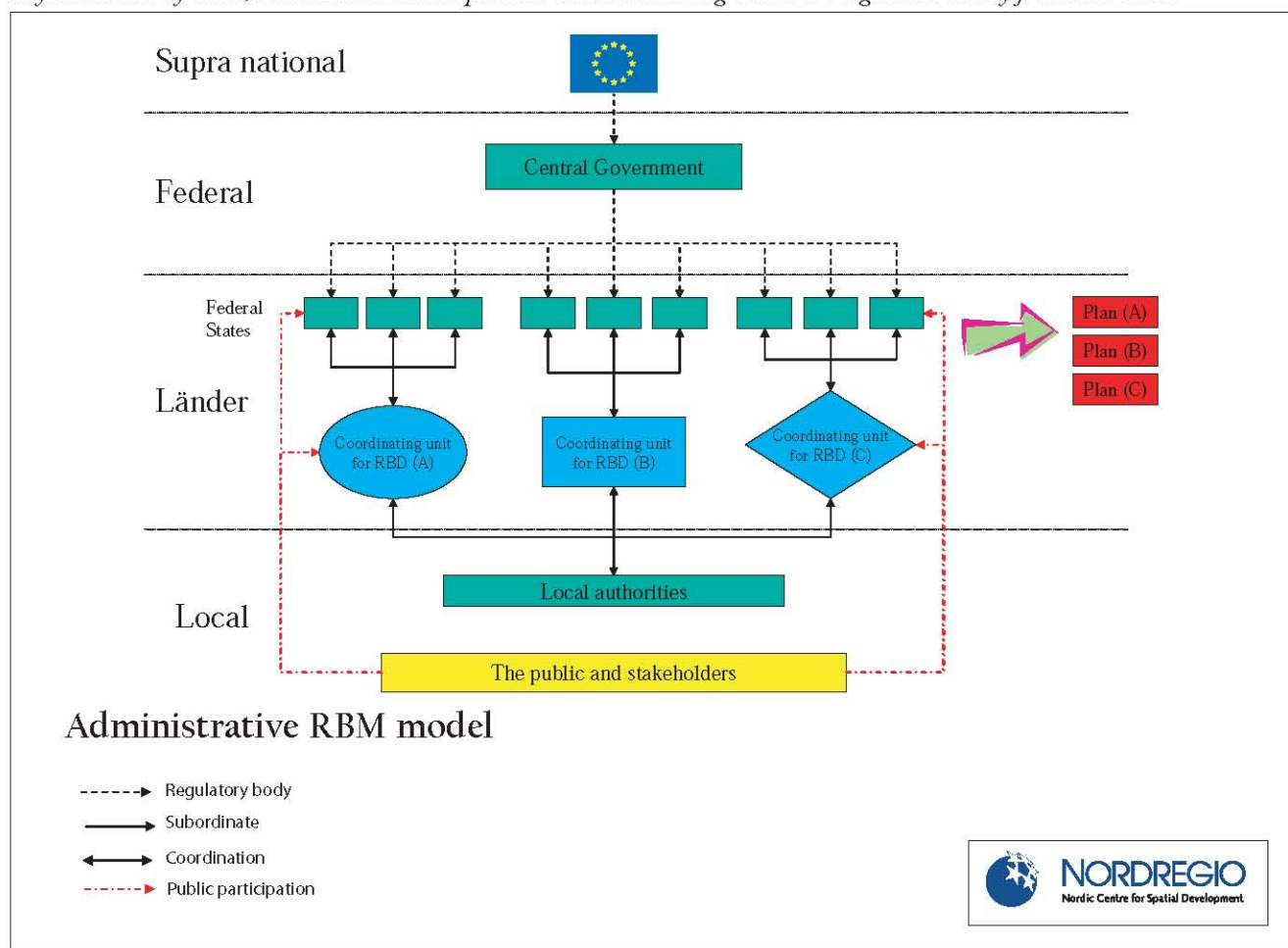
In *Belarus* on the other hand the RBM-model has not been adopted and water management is still a competence of agencies belonging to the central Government, primarily the President of the Republic of Belarus, the Council of Ministers and the Ministry of Natural Resources and Environmental Protection. Under the national level the administrative units for water management number eight *Oblasts* and the city of Minsk and other subordinated organs to the above-mentioned agencies mainly the Regional Committees and Minsk City on Natural Resources and Environmental Protection.

The WFD as part of an ongoing reformation process

Many of these recent changes in the water management systems in the BSR countries after WFD implementation should not be seen as direct consequences of implementation itself. This is at least the case in Denmark, Estonia, Germany and Poland, where implementation has been carried out alongside other ongoing institutional reforms.

In *Denmark*, for instance, water management compe-

Figure 1.6. Administrative RBM model (DE). The model includes RBM as part of the environmental management traditionally conducted by states, counties and municipalities. The coordinating bodies are organized loosely from each other.



tencies have been redistributed from the regional level to national and local actors. This process is not entirely attributable to the WFD but must instead be seen as part of an ongoing restructuring process in relation to the Danish public administration system that will culminate in 2007. The case of *Germany* is different again because the WFD has directly induced changes. However, regarding the future development of the water management sector, ongoing discussions on the establishment of a more precise federal legislation for water management is mainly viewed as an adaptation process towards the country's need to harmonize the water management system rather than being directly motivated by WFD implementation.

Both *Estonia* and *Poland* are countries where responsibilities in many sectors, including that responsible for water management, were decentralized from the national level to the regional and local levels in the early 1990's. In this respect the WFD emerged as an element that was coterminous with these pre-existing decentralizing and democratising reforms thus supporting further institutional changes. However, in Poland despite the changes made in terms of environmental policy the general process has not been viewed as one of decentralizing decisional powers on the elaboration and approval of RBMPs which, on the contrary, have been assigned in the main, after WFD implementa-

tion, to one single supreme institution namely the National Water Management Board.

Public participation

At first glance, public participation seems to provide a very significant contribution to the WFD in most of the investigated countries, becoming as such a new and central element for the proper exercise of water management planning. In the EU-Member States in the BSR the WFD constitutes an ongoing and adaptive process. In general provisions on public participation in the water legislation in these countries seem to be more or less in line with what is stated in the Directive. However, prior to WFD implementation, in many countries water management was based on command and control, a planning approach that may progressively be substituted by consensus-based planning after implementation.

Traditions in respect of public participation are specific for every country and some countries are more experienced than others in this regard. For example the Nordic countries and Germany are traditionally more experienced in respect of public participation while in the new member states and the neighbours' traditions in respect of public participation are still relatively weak meaning that the establishment of the WFD has promoted significant improvements.

In all EU-Member States in the BSR public participation is arranged around planning platforms often organized by the RBM authorities. Whereas most powers on water management planning have been allocated at national and/or regional levels, public participation is apparently thought to compensate this top-down hierarchy in RBM. Additionally, these institutional arrangements are prepared to bring up and receive the involvement of local authorities, private stakeholders and NGO's at the regional and/or national levels. Thus, public participation may become a central tool for all these actors in influencing the elaboration and the approval of RBMP's.

The results of this study confirm the fact that public participation constitutes an element that has been adapted to specific conditions in each country, and consequently it is also what may distinguish them from one another. Due to various factors, not only planning traditions and institutional structures, but also historical and cultural backgrounds, environmental problems, stakeholders' and local economies' dependency on natural resources and availability to these resources, may play a vital role in how public participation would be arranged and performed in the different countries.

At the present time it is difficult for the competent RBM authorities in many countries to fully anticipate how to cope with public participation since the process of producing RBMP is in most cases still at a very early stage. However, positive experiences from public participation have been obtained in Estonia, particularly in relation to the increase in awareness of the importance of water resources among both public and private stakeholders. On the other hand, wider experience of public participation has also shown that there is a risk that the language used in the RBMPs could in some cases be too technical to be fully understood by those public and private stakeholders not already well versed in the vocabulary of water management.

A final remark on the spatial implications of the WFD in respect of public participation relates to the discrepancy between the size of river basin districts and the scope of the issues traditionally addressed through public participation. Specifically, public participation in many of the investigated countries has traditionally been carried out at the local level, and mainly by the spatial planning sector. Thus, experience of the procedures of public participation would need to be transposed from the local level to the regional or national level depending of where the competent authorities and coordination bodies are located. Additionally, new procedures for public participation in all BSR countries imply the involvement of a larger number of public actors from all levels including water users and NGO's.

Spatial fit

Perfect spatial fit occurs when the borders of the River Basin Competent Authority are the same as those of the River

Basin itself. The Directive does not explicitly state however that the borders of the Competent Authority shall be the same as those of the River Basin, noting only that the appropriate administrative arrangements, including authority for the application of the WFD within each river basin district, shall be identified. Thus, the degree of spatial fit achieved in each country in the context of the WFD is dependent on two factors, namely the geographical designation of the river basin districts and the arrangement of the competent authorities for each river basin district.

In the investigated context, perfect spatial fit may not be considered as an "ideal", but more as an indicator of how the implementation process has been carried out in terms of the geographical designation of river basin districts and the assignment of competent authorities for the management of these territories.

In all BSR countries, except Belarus, RBDs have been established in accordance with hydrological (river basin) boundaries. On the other hand, among EU-Member States in the BSR no "perfect spatial fit" exists between the established RBDs and the authorities appointed as responsible for the management and planning of the districts.

In *Estonia, Norway, Poland and Sweden* the borders of the RBM authorities partly coincide with those of the RBDs. There is however no coincidence in *Denmark, Finland, Germany, Latvia and Lithuania* (Table 1.4). In general, problems of spatial fit may not be significant in the majority of the countries in the BSR. Most of the cases of spatial misfit show that the minimalist approach to WFD implementation was an important contributory factor to this condition. Specifically, a main or several river basin authorities have been assigned while keeping most of the competencies on water management at the already existing administrative institutions which have their administrative systems based on political borders. Additionally, in many countries water management has not traditionally been an exclusive competence of the water management authorities, but instead has been partly shared with other sectors. This system has for instance been preserved in Germany and Poland.

In *Germany*, the Federal States are assigned as the competent RBM authorities, whose territories are not coincident with river basin district. This institutional arrangement has two main implications on the practical execution

Table 1.4. *Spatial fit between RBM authorities and areas of river basin districts*

Border of RBM authority partly coincident with RBD	Border of RBM authority not same as RBD
Estonia Norway Poland Sweden	Denmark Finland Germany Latvia Lithuania

of water management. Firstly, up to ten Federal States can exist in a single river basin district. Secondly, many Federal States are fragmented by several river basin districts. In the practical execution of the WFD, problems of fit between the river basin districts and the territories of the Federal States increase the complexity of finding consensus among competent authorities in the process of producing the RBMP. Additionally many of the Federal States must simultaneously cope with more than one RBMP.

In *Poland* substantial spatial fit between the RBDs and the RBM authorities exists. On the contrary, spatial misfit in water management occurs because this is still a competence substantially shared between RBM-authorities, and authorities at the *Voivodship* and *Powiat level* whose territories do not correspond to river basins. Additionally, in specific cases *Voivodships* are also fragmented by the Vistula and Odra RBDs, and therefore there are concerns that the elaboration and operation of the RBMPs could increase the degree of complexity in water management.

Due to problems of fit in both Poland and Germany, there is a potential risk that these problems could affect future coordination and collaboration between water management authorities with authorities from other sectors such as spatial planning. Similar problems could also appear in other EU-Member States in the BSR when the RBMPs are approved and become operational.

Transnational cooperation

According to the WFD, river basins that extend across international borders should be assigned to international River Basin Districts (RBDs). The WFD specifies that Member States should ensure cooperation on international RBDs lying within the territories of the EU, e.g., by producing joint RBMPs. However, the Directive simultaneously indicates that if these are not produced, plans must be set up for the part of the district falling within each country's own territory. If the basin extends beyond the territories of the EU, the WFD encourages Member States to establish cooperation with non-Member States and thus manage the water resource on a basin level.

The portion of international RBDs in the BSR is substantial since all EU-Member States in the region share at least one RBD with a neighbouring country (Figure 1.7.). Moreover, in seven out of nine EU-member countries in the BSR more than half of the RBDs are international. Due to the shape of the BSR there is a difference, in terms

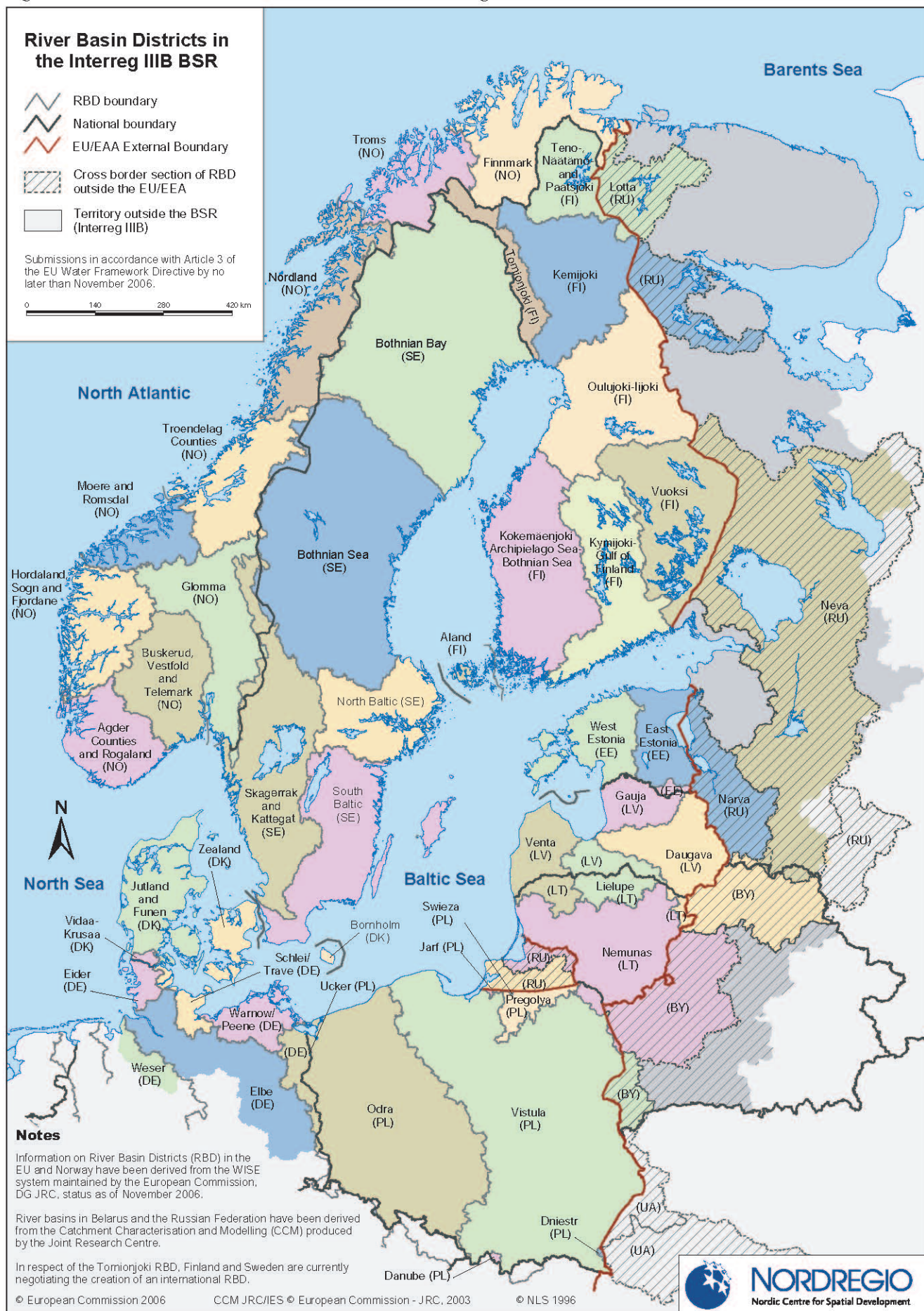
number of countries sharing common river basin districts, between the southern and northern parts of the region. In the south, river basins are generally large involving many countries such as in the Danube river basin, while in north the number of countries sharing transboundary RBDs numbers only two countries. EU-Member States in the eastern part of the BSR are characterized by the sharing of international river basins with non EU-member States.

In general, WFD implementation appears to have initiated transboundary cooperation on international river basins shared by EU-Member States, but also intensified already existing transboundary agreements since many of these have gone through a re-adaptation process in respect of the demands laid down by the Directive. This observation is based on the notion that international RBDs have been appointed, agreements between countries have been signed and commissions or working groups set up to deal with transboundary issues. However, the implementation of the WFD in the Member States is still at an early stage implying that, in general, this is a process of national concern at least for the moment.

In respect of the likely impact of the WFD on transboundary cooperation on international river basin management with non EU-Member States, namely, the Russian Federation and Belarus, it should be noted that the process is still embryonic in nature. Transboundary cooperation with these States has in the main historically consisted of the exchange of monitoring information on water quality. The experience of cooperation with these countries has however been shown to be very complex in particular in respect of finding consensus and harmonizing different criteria for international river basin management.

Implementation of the WFD has reignited and intensified a dialogue between Belarus and Russia on the one hand and their EU neighbours on the other. In the Russian Federation in particular the authorities are aware of the importance of the principles supported by the WFD. The Directive has also triggered a series of meetings between the EU Member States and the Russian Federation in respect of the WFD's implementation and objectives. In Belarus the WFD has moderately intensified the dialogue on transboundary cooperation on the management of international river basins, one example of this being the attempt to initiate a Joint Commission for trans-boundary water management in the Western Bug River Basin.

Figure 1.7. River basin / river basins districts in the Baltic Sea Region.



Process of horizontal integration

This section of the cross analysis deals with the issue of horizontal integration between water management and spatial development. The basic assumption here is that the degree of success or effectiveness of the WFD depends on the interaction with other institutions. In the case of the WFD it is in the end the goal of “good water status” that shall be reached by 2015. To achieve this goal there is a need for greater integration between water management and other sectors as spatial planning. This integration is also stated from the spatial development perspective in the European Spatial Development Perspective (ESDP) document from 1999. In this study we have chosen to look at how this integration was and is carried out in the investigated countries *before* and *after* WFD implementation. Where changes have occurred however they have not necessarily done so *because of* WFD implementation. The assessment is qualitative and based on the descriptions and the analyses found in the country reports. The issues addressed in this section are as follows:

- Integration of spatial planning and water management *before* and *after* the WFD
- Coordination body for water management
- Relationship between the river basin management plans and spatial plans

Integration of spatial planning and water planning before WFD implementation

Under this heading we investigate if and how water issues were integrated into spatial planning, i.e. through legislation, instruments and planning practice, *before* the implementation of the WFD. In addition, we look at the linkages between water management and spatial planning *before* WFD implementation. In respect of those countries that are not members of the EU, Norway is assessed as an ‘EU-member’ since it is more or less implementing the WFD though in accordance with a modified timetable. Since the Russian Federation and Belarus are not implementing the Directive, even if a certain level of influence can be seen in Russia, we only concern ourselves with the question of whether they are *applying* WFD principles in their existing system. Therefore we only include these two countries in the section “Integration of spatial planning and water planning *after* the WFD implementation”.

Two systems, one for water management and one for spatial planning, have been used in all investigated countries. In addition, water issues were included in spatial planning before the implementation of the WFD began in 2001 and there were linkages between water management and spatial planning. The degree of integration does however vary. It is also obvious that even if water issues are included in spatial planning the integration of water man-

agement and spatial planning may still not be that strong.

The integration is considered to have been rather strong in *Norway*. Here the regional and municipal plans needed to take water issues into account and the Planning and Building Act, which was revised in 1998, took an integrative stand on planning issues. A similar situation can be seen in *Denmark*. In this country water issues are addressed in the Planning and Building Act. The strong interrelation between the spatial planning and water management systems was at the regional level. An overall objective of spatial planning is to prevent water pollution. The connection between spatial plans and water issues are in consequence based primarily on protecting the water from pollution. This connection is also evident in *Latvia*. Here water management issues were integrated into spatial planning before the adoption of the WFD while the pollution load and the chemical status of the water constituted a descriptive part of the local spatial plans.

In *Sweden* the Planning and Building Act (PBA) stipulates that cooperation between municipalities in river basins and coordination of land-use and water planning and the recording of conflicts in water use and in respect of water quality are questions that municipalities are to take into account in their physical planning.

In *Estonia* and *Poland* flood protection and irrigation are two issues that have brought spatial planning and water management closer together. In *Estonia*, water management and land use planning interfered with among other things water protection areas, irrigation infrastructure and protection areas along riversides. In the county and detail plans water resources were addressed in connection with water supply and sewage networks. Water as a resource has also been a single element in the comprehensive and detail plans in the assessment of general preconditions for the use of river banks and seashores. In *Poland*, during the 1990s, water management and spatial planning institutions were already coordinating activities including planning, permits, economic instruments, irrigation, and flood control and protection. Coordination occurred mainly between sectors in flood protection and irrigation. Moreover, water issues were taken into account in several types of spatial plans.

In *Germany*, there was, at least “on paper”, a relationship between the regimes of spatial planning and water management prior to the adoption of the WFD. Water management had to respect spatial planning objectives and detailed procedures for formally consulting water authorities over spatial planning were set out in the federal and state legislation.

In *Finland* and *Lithuania* water issues have been included in spatial plans; however the linkage between the systems is regarded as rather weak. At the regional level in *Finland*, the land-use plan, the regional plan and the re-

gional development programme include water protection and the control of water resources in accordance with the Planning and Building Act. In *Lithuania* the municipal master plans address the protection of water and water issues, i.e. issues of water quality and quantity were addressed in different ways during the process of the development of the national master plan. Integration between systems has however remained rather limited.

Integration of spatial planning and water planning after WFD implementation

In this section we scrutinize whether and how water issues have been integrated into spatial planning, i.e. through legislation, instruments and planning practice, *after* the implementation of the WFD. In addition, we look at the linkages between water management and spatial planning *after* the implementation of the WFD. The assessment here is based on the situation as it pertained in the spring of 2006.

It is evident that all countries will continue to have one system for water management and one for spatial planning. Here, we would like to point out that the intention of the WFD has never been to have a completely common system for water management and spatial planning.

In most countries WFD implementation has not had any great influence on the integration between water management and spatial planning thus far. But the introduction of the WFD into national legislation implies that the linkage between spatial planning and water management may now be reinforced in many countries. This reinforcement is mentioned in *Denmark*, *Estonia*, *Germany*, *Norway* and *Poland*. In *Latvia* implementation of the WFD has led to the Latvian Environment, Geology & Meteorology Agency (LEGMA) developing requirements on how to integrate water issues into local and district spatial plans and guidelines. When a draft spatial plan is implemented, the planning authorities shall receive approval from the LEGMA about the integration of water issues in the plan.

In *Sweden* the municipalities continue to have a strong role to play in physical planning issues relating to land and water use within their territories. However, there is a risk that the linkage between spatial planning and the water management will grow weaker, since the new water management system is governed by the state representatives body at the regional level.

No major changes have taken place in *Finland* and *Lithuania* in connection with WFD implementation and there is no indication that the weak linkage between water management and spatial planning will grow stronger. However, in *Lithuania* awareness of the possible connections has increased in the last couple of years.

In *Russia*, sectoral water use plans should be taken into consideration in regional and local land use plans. In practice, the linkage

between the systems has been, and still is, rather weak. A more profound adoption of the river basin perspective and the establishment of river basin authorities could function as a linkage between land use and water management. In *Belarus* the regional plans and the protection zones are the most important connection between spatial planning and water management.

Role of the coordination body

Due to the fact that all countries will have two systems; it may be wise to ensure some kind of coordination between them. One challenge in many countries (e.g. *Estonia*, *Latvia*, and *Poland*) is that different ministries are responsible for water management and spatial planning. This requires cooperation between various institutions. In *Norway* intra ministerial groups are formed in cases where an issue covers the responsibilities of various ministries. In *Estonia* there is also a working group established at the ministerial level. In *Denmark*, the Ministry of the Environment is responsible for both spatial planning and water management.

All EU-member states in the BSR and Norway have established coordination bodies (Table 1.5) in order to coordinate water management between the vertical levels and sectors within the water management structure (see section "Process of vertical implementation"). Two types of coordination bodies may be distinguished. The coordination bodies belonging to the first type are more or less, in name, water institutions responsible for managing the district. In for instance *Estonia* the County Environmental Department has the responsibility to coordinate cooperation activities with other Regional Environmental Departments, Regional Health Bureaus, municipalities, county governments and other relevant institutions. Cooperation here is based on the need to exchange information in order to be able to develop the river basin management plans. In *Germany* the coordinating body, LAWA – *Länderarbeitsgemeinschaft Wasser*, is organized in different ways depending partly on the size and the number of *Länder* existing in the specific river basin district. The body is responsible for creating a guidance document for the development of sub-river basin plans. In *Sweden* a cooperation body exists integrating the different municipalities that belong to the river basin district.

Table 1.5. Overview of established coordination bodies

Coordination bodies
Denmark: Coordination Forum
Estonia: County Environmental Department
Finland: Steering group and Cooperation group in every 5 RBD:s
Germany: Coordination body
Latvia: Coordination Committee
Lithuania: Coordination Boards
Norway: National Steering Group + proposed Stakeholder group
Poland: National Water Management Board
Sweden: Cooperation body

The other type of coordination body is characterized by the requirement to fulfil public participation goals. The function to fulfil public participation and facilitate cooperation between various stakeholder groups is especially evident in *Latvia* and *Lithuania*. In both cases the power is mostly limited to an advisory role.

The established of cooperation groups provides a potentially important means to integrate spatial planning and water management. In a number of countries moreover the coordination body will have a role to play in coordinating water management with other sectors. Attempts to coordinate water management and spatial planning in some countries do however exist. In *Denmark*, *Finland* and *Norway* the coordination groups could be given the function of ensuring cross-sectoral coordination. In *Denmark*, relevant private and public stakeholders will be invited to participate in the Coordination Forum on water management. In *Finland* every water district is to construct a steering group with representatives of the Regional Environmental Centre and the Fisheries Unit of the Economic Development Centre. This group does not have any formal power. Cooperation groups are to be set up to prepare the river basin management plans. The group is to be built around a broad level of participation from industry, business, agriculture, wastewater treatment plants and municipalities. In *Norway* the institutionalization of a national steering group for the responsible authorities will provide a framework for the better integration and coordination of water management issues. The steering group will also serve as an adviser in relation to implementation at the regional level. A Stakeholder group for gathering sectoral, county and municipal representatives is also proposed at the regional level.

Coordination bodies in *Poland* are located both at the national and regional levels. At the national level the National Water Management Board coordinates and supervises the activities of the Regional Water Management Authorities' directors by harmonizing and approving their management plans and progress reports. At the regional level each Regional Water Management Authority coordinates the work on water management with other regional authorities. Additionally, they may establish a Regional Council of Water Management, composed of water users and representatives from other governmental units in the river sub-basin.

Relationship between the river basin management plans and spatial plans

When it comes to the integration between spatial planning and water management the future relationship between river basin management plans and spatial plans will be of great significance. What this relationship will look like is a question that has been difficult to investigate since most countries have not as yet even entered the drafting process in respect of their river basin management plans. The river basin management plans will be presented to the

public not later than December 2008 with the first plans being published in December 2009. The assessment in this section is consequently based on what the intention or ambition of the countries looked like in 2006. Since Belarus and the Russian Federation are not implementing the Directive we do not address these countries in the following section.

In *Estonia*, *Germany*, *Latvia*, *Norway* and *Poland* there seems to be a connection between the river basin management plans and existing spatial plans. In *Estonia* for instance the Environmental Department has the responsibility to guarantee that the river basin management plans are referred to in the county and detail plans. In *Latvia* there is potential for integration since the district and local spatial plans are to include aspects of river basin management. In addition, the Regulation on District spatial planning requires that the river basin management plans are taken into account. In *Norway* the country governor is responsible for developing river basin management plans in close cooperation with the municipalities and other stakeholders. The county governor also has an important role to play in spatial planning at the regional and local level. If water issues can be included in the already existing regional and municipal plans the river basin management plans may ensure a better level of coherence between these local plans. In the Planning and Building Act the public bodies have the duty of cooperating in respect of tasks concerning the use of resources. These public bodies shall assist the county in the planning work. In *Poland* measures included in the water district management plan as well as in the prevention of floods and droughts should be taken into account in the national plan for the development of the territory, *voivodship* development strategy and the *voivodship* spatial development plan.

Connections between, at the very least, the development of the plans can also be seen in *Denmark* and *Finland*. In *Denmark* the national water management plan for the whole country will be performed by the Ministry of the Environment. This Ministry also prepares the national spatial plan. The municipalities will be in charge of operationalising the plan at the local level by elaborating the local action plans. Since the municipality is responsible for land-use planning this may lead to better integration of issues related to both. In *Finland* the Regional Environment Centres will be responsible for developing the River Basin Management Plans. Here there is a potential for coordination and synergy since the Regional Environment Centres also are responsible for supervising the development of the regional plans and local plans concerning spatial development.

The connection between river basin management plans and spatial plans are not that evident in *Lithuania* and *Sweden*. In Lithuania, limited attention has been given thus far to the possible connections between spatial planning and river basin management planning. In *Sweden* the programmes of measures and the river basin management plans will be developed by the County Administrative

Board's special water authorities. Spatial planning is performed at the local level by the municipalities. Even if the municipalities are represented in the coordination work performed by the "preparatory secretariats" that

each County Administrative Board has established there is a potential gap here between the future river basin management plans and the spatial plans at the local level.

Discussion and perspectives

Implementation of the WFD is an ongoing process though conclusions can now be drawn about how the process is progressing. The institutional and organizational changes will probably however take some years to bed themselves in and it is only then that "real" implementation can be said to have taken place. Implementation takes time with patience being the key vir-

tue in achieving the sustainable and desired result, namely, "good water status" by 2015. A promising intermediate result however is the positive attitude towards the WFD in the investigated countries among the concerned authorities and the general public. It is evident that many key principles found in the WFD have already been applied.

Vertical implementation

Vertical implementation and integration will continue to be of importance for the implementation process as WFD implementation affects all levels. The EU-level provides the normative background for WFD implementation. However, the WFD is the result of inter-governmental cooperation and the nation states have been the major players in developing the Directive. "Real" implementation or operationalisation of the Directive is mainly however performed at the local and regional level in many of the investigated countries.

Concerning the question of whether implementation implies the integration of different water organizations/actors and different territorial levels for water management purposes, we can conclude that the practical implementation picture differs from the theoretical description. The WFD is a complex Directive and in most of the countries water issues, i.e. drinking water, groundwater etc, have been and still are managed separately.

WFD implementation has been adapted to the hydrological and the prevailing institutional settings in water management. Thus far all EU-countries in the BSR have adopted a minimalist approach to WFD implementation, implying that changes have been carried out without making any radical modifications concerning i.e. the division of responsibilities between the different territorial levels. The minimalist approach can, in part, be regarded as a consequence of the tight time schedule for implementing the Directive.

Two implementation models in terms of river basin management can be identified in accordance with the intentions of the Directive. The first model has the competent authority located at national level; the second model

has the main authorities at the regional level. The local level is often given the operative tasks in water management e.g. the distribution of drinking water and sewage collection and treatment.

Coordination bodies have been established in all investigated EU-countries. Their function is mainly one of consultation and monitoring while supporting the work of water management units as well as of the authorities from other sectors. Moreover, the coordination bodies function as a participatory platform where national, regional and local public actors, as well as private stakeholders and NGOs, have the opportunity to participate in the elaboration of the RBMP.

Public participation is a new legislative issue in respect of water management in most of the investigated countries. The general desire to facilitate increased public participation in the implementation and development of policies can be connected to the concept of *governance*. In this governance context the rather ironic expression "bottom-up-from-the top" is sometimes used. This is based on the assumption that there is a demand to "govern" from the top, i.e. the nation state, but in such a way that things develop from the bottom, i.e. through public participation. There is no doubt that the task of *governing* the drafting of the river basin management plans is a new challenge for the concerned authorities. The degree of public participation in water questions may be influenced by the importance of the issue in society, the awareness of general public and their ability to see the connection, namely, how each of us can influence water quality.

Obstacles exist that may hamper public participation in the water management process.

- *“Polite state”*: The expressions “polite state” refers to the risk that the public is invited to participate in the planning process, but the real influences they may have in the process are limited.
- *River basin districts that are too large may hamper public participation*: therefore public participation may be performed in the sub-basins, where it is easier for the stakeholders to feel ownership of the process.
- *The complex nature of the WFD and water issues is difficult to understand*: There is a risk that peoples’ other concerns, mainly relating to economic issues, may hamper the public involvement process. In addition, it may be complicated to explain the impact human activities have on the water quality, especially if the effects are not immediately seen. Furthermore, the aim of the WFD, to attain a ‘good water quality’ status remains a *long term* goal and this can be difficult to communicate to people. Increasing environmental awareness among the population is central to public policy in the 21st century and in this context NGOs have an important role to play.

Even if public participation is a new element in water management in most countries, the experience of public participation in e.g. spatial planning does exist and this could be used to ensure the effective and qualitative representation of the general publics’ interests. In most countries the newly established coordination boards/cooperation groups consti-

tute a platform where stakeholders can meet each other.

Further research issues concerning vertical implementation

A number of issues emerge from this study which would be interesting to view more closely. Firstly, the *relationship between the different levels* involved in water management could be investigated more thoroughly in each country. Secondly, it would be interesting to follow more closely the *role and function of the coordination bodies* when their actual work begins. Finally, further research is needed on the issue of *public participation*. Public participation is a rather new issue in water management. The following dimensions of public participation may be interesting to scrutinise further:

1. How do the different countries define “public”, do they mean the local population, NGOs, private actors, lobby groups etc?
2. At what stage(s) of the development of the RBMP do the different countries involve the public?
3. What is the degree of involvement of the public at the different stages; information only, advisory groups, concrete practice?

A framework for a future analysis could for instance be based on building a public participation ‘cube’ public-stage-degree.

Horizontal integration

The main question concerning the “horizontal integration” aspect was whether WFD implementation implied increased integration between water management and spatial planning. In the country reports it is evident that all BSR-countries will continue to have two parallel systems for water management and spatial planning. Water-related issues have been, and are, addressed in spatial planning in all the investigated countries, however, the degree varies. There are linkages between spatial planning and water management and the desire for coordination is evident in all countries. Due to the tight implementation timetable it is difficult to say what consequences the new provisions of the WFD (e.g. management plans) will have regarding the BSR countries’ spatial planning systems.

The relationship between spatial planning and water management as well as the roles of the river basin management plans and the newly established coordination bodies will become clearer in a couple of years. It is also important to note that other changes, i.e. general administrative restructuring processes, may influence the relationship between spatial planning and water management.

In the following section we highlight some examples of

potential synergies and gaps that may occur between spatial planning and water management based on the findings of the eleven country reports and the three case studies. We address the issues in a general sense and do not therefore highlight any country explicitly.

Potential gaps between water management and spatial planning

Since all countries apply separate systems for spatial planning and water management there are evidently some gaps to overcome. Despite the fact that spatial planning normally considers other sectors’ goals potential problems do nevertheless continue to arise.

Mismatch of boundaries

One main visible weakness concerning spatial planning and water management is the mismatch of boundaries in respect of the administrative units for spatial planning and the boundaries of the river basin districts. This gap is also mentioned in the Common Implementation Strategy. However, since the development of the river basin management plans has not yet begun we can only at

present speculate on the consequences of this gap.

Land use planning is not prominent in rural areas where water resources are affected by i.e. agriculture

Another gap is the varying “geographical focus” of spatial planning (especially land use planning) and water management. A major part of spatial planning activity is oriented towards urban and other developed areas (infrastructure, industry, etc.) while water management even addresses the “surroundings” of urban areas. This implies that spatial planning has difficulty in supporting the goals of the WFD in rural areas as competence here is in the hands of the rural development, agriculture and forestry etc., sectors.

Different timing

Another potential gap between spatial planning and water management is the different timing procedures applicable in the production of spatial plans and the river basin management plans. Most spatial plans are however updated regularly i.e. mutual adaptation is possible whenever a new plan is made.

Lack of legislative elements

In some BSR-countries the WFD implementation regulations have not successfully been applied. This has led to integration problems between sectors since responsibilities and procedures are not clearly defined.

Weak mutual consideration between spatial planning and water management

A further hindrance to the promotion of full integration between spatial planning and water management is, thus far, the lack of full mutual consideration between these two sectors. Effective cooperation between water management and spatial planning in respect of river basin management, which is a new approach for many spatial planners, might cause particular problems here as many bodies lack the necessary experience for successful cooperation.

Water management and spatial planning do not however exist in separate worlds. A clear distinction can however be seen in the fact that spatial planning has the task of balancing different kinds of needs, i.e. social, economic and ecological while traditional water management remains focused primarily on technical issues in respect of water using *command and control* approaches. Consequently, stakeholders in the spheres of spatial planning and water management retain different understandings of how to tackle problems and how to conduct their work.

Another challenge here is that in some BSR-countries water management and spatial planning take place at different levels. Cooperation is therefore necessary not only at ministry level but also at the regional and local levels.

Potential synergies and common themes for water management and spatial planning

Despite the gaps mentioned above synergies and common themes unifying water management and spatial planning do exist. On the one hand it can be claimed that each form of land use modifies soils, eco systems, landscapes etc., and thus water systems. On the other hand, many land use (i.e. spatial) activities depend on water (water supply, discharge possibilities, etc.). Land use also affects the physical determinants of water flow, it alters hydrochemical behaviour (e.g. by introducing pollutants along water pathways) and influences the natural water cycles. In consequence, water management is crucial for the support of proper or sustainable land use planning. Therefore a land use decision is nearly in all cases a “water decision” and *vice versa*.

The leading role of water and its interactions with other key environmental elements is well understood. Due to current sector fragmentation, this leading role for water seems to have become hidden, if not neglected. Today, both biological systems and the productivity of land and water systems are increasingly threatened by human pressure, influencing water availability, water-related land productivity, water quality and productivity of aquatic ecosystems. Even in the BSR an overshooting of its carrying capacity (especially the Baltic Sea itself) may be approaching, producing quite unfavourable conditions. As such then the need to work together across sector and national borders seems to be unavoidable.

A number of potential synergies between water management and spatial planning can be identified. Some general suggestions in respect of improved integration for both sectors could be:

Legislative and cost integration

- Land use i.e. *spatial planning regulations* are important for water management purposes such as water protection, water supply and sewage, water quantities and qualities. If not already undertaken the improvement of spatial planning regulations should be considered in all new legislative initiatives in the BSR-countries.
- All forms of *protection and restrictive zones* (ground water protection, flooding zones, natural protection zones, etc.) are evident links between water management and spatial planning. All of these zones help to reduce the risk of water resources being negatively influenced. This even applies to flooding zones as long as they are natural and not artificial storage basins.
- The WFD is pushing countries in the direction of *cost recovery* (where users pay for services). In many BSR countries agriculture remains the sector where the greatest investments will be needed, mainly because of the diffuse pollution it produces. Spatial planning together with other sectors could help to reduce pollution from agriculture through other land use forms

and less intensive farming procedures.

Joint instruments for improved and meaningful water infrastructure

- *Financing of wastewater treatment* (plants) is a key issue in the improvement of water quality. Financing of wastewater treatment and different ways of helping in respect of financing is necessary in countries around the Baltic Sea which still lack adequate facilities for efficient treatment. The link to spatial planning is to be found in joint financial and intelligent technical solutions as well as adequate settlement structures which make it possible to have an economically reasonable waste-water treatment.
- Much improvement has occurred both in small-scale and large-scale *waste-water solutions*, including recent interest in membrane technology. Increased attention today is given to the removal of pharmaceuticals, the effects of antibiotics on bacterial resistance and other problems related to human health and recipient ecosystems. Automation and control can increase treatment efficiency and at the same time reduce costs. Here municipalities and regions must follow up on the rapid developments in the water industry. Spatial planners dealing with municipal and regional development issues could provide an important linking element in this task.
- The location of infrastructure (e.g. sewage plants, water supply, etc.) to ensure water security is another field where spatial planning and water management has to cooperate. Particularly in the BSR with its often sparse settlement structures and in many areas its decreasing population there is a need for good planning to decide on appropriate structural and non-structural options related to the location of water infrastructure thus supporting the implementation of future river basin management plans.

Support of and collaboration with third sector actors

- Other users, like the *agricultural sector*, have a major impact on water and land use. Here integration with agricultural policies, i.e. support schemes, is necessary in order to manage water and land use.
- Even *recreational needs* are of vital concern for both water management and spatial planning.
- The increased interest in *biofuels* as a mechanism to address *energy security* demands some serious 'joined-up thinking' between the various planning sectors. The increase in the use of water for producing fuel could have a dramatic impact on water availability for other uses. As there will be an increase in the competition for water even in the BSR, this will add yet another driver to groundwater and river affection (water quantities). Bio-fuel production is a subject even for

spatial planning ensuring energy supply and environmental sustainability.

Models, tools and assessments for common purposes

- The concept of the "*Sustainable City*," which is a holistic and integrated approach where different sectors like urban planning, water and waste-water, energy, and transportation collaborate, introduces the necessary tools to further institutional arrangements and introduce policies where relevant stakeholders and the general public can plan the future together.
- Comprehensive and *joint modelling tools* within river basins could be a valuable decision support both for water management and spatial planning. Models that include hydrological, optimisation, forecasting, etc. would reflect the complex reality in river basins, but currently data availability and quality prevent this. Nonetheless modelling tools can assist decision makers in addressing risk and uncertainty thus leading to better joint decision-making.
- *The Environmental Impact Assessment* and the *Strategic Environmental Assessment* in connection with spatial development projects and plans connects economic development and environmental impact and thus water management and spatial planning. It is an important instrument for both sectors.
- An evident link between both sectors is the *flood risk assessment* (Flood Directive) as it has significant spatial consequences due to the existence of protection and flooding zones as well as flood protection measures (e.g. appropriate storage infrastructure) that affect the spatial structure along rivers and streams. Necessary duties in this field include the assessment of resources and hazards in order to provide reliable data and information as a basis for strategic planning – both in the spatial planning and water management sectors. This includes multi-dimensional and harmonised co-operation for the efficient management of water resources in respect of reducing impacts of floods and droughts. Moreover, there is great need for effective experience-sharing to carefully process information and provide links to stakeholders in an appropriate manner.
- *Groundwater*, though clearly a significant source of water in most of the BSR regions it remains a neglected issue. *Improved data* and *information systems* should reflect and analyse the connection between ground and surface water and also land use. Such systems should be part of joint water management and spatial development efforts in order to better understand and monitor the links between resource development and utilisation – this is perhaps even more important in the light of climate change.
- Another synergy between the two sectors is the possible contribution of spatial planning institutions in

respect of *public participation*. Spatial planning, especially on a local scale certainly has a lot of experience to share with water management.

Further research issues concerning horizontal integration

Sketched out below are some of the aspects, concerning the horizontal integration, that perhaps need to be further investigated. All sectors in society are affected if a 'good water status' is not achieved and each has a role to play. Some sectors are however more important than others, therefore it would be interesting to perform *a more profound investigation of these sectors of special interest*. The agricultural sector is important in this respect as it has a significant influence on water quality. In this sector major changes may be necessary in order to decrease the impact on the water system and achieve a good water status. The water status in metropolitan areas is also of particular con-

cern. Here the need to maintain access to clean water is a perennial question. In addition climate change may imply changes of access to water and an increased risk of floods in some areas.

When it comes to the integration between water management and spatial planning it will be especially interesting to follow the *drafting and development of the river basin management plans*. By following this process it will possible to have a look at all aspects of vertical implementation, horizontal integration and transnational cooperation, i.e. in form of sectors of special interest and public participation. An additional task here would be to develop an analysis of how an ideal relationship between water management and spatial planning would look.

As an example of cooperation the connection between *Environmental Impact Assessment/Strategic Environmental Assessment*, spatial plans, and the coming river basin management plans may be interesting to investigate further.

Transnational cooperation

All EU Member States in the BSR share at least one RBD with a neighbouring country. Due to the shape of the Baltic Sea Region most of the transnational RBDs only include two countries. Many of the EU Member States in the BSR share international river basins with non EU-member countries. In general, WFD implementation appears to have initiated, intensified or improved cooperation on water resources shared by EU Member States and non EU-members. This observation is based on the notion that international RBDs have been appointed, agreements have been signed and commissions or working groups have been set up to deal with WFD issues. Some of these institutions did however exist before WFD adoption. Cooperation here can be further developed. During Workshop II the following obstacles to the establishment of transnational cooperation were mentioned.

- *Additional expenditure*: Transnational cooperation mostly implies additional expenditures.
- *Usage of different methods*: The use of different methods, i.e. mapping systems, may hamper transnational cooperation.
- *Different understandings and different values*: In addition, cultural aspects are important, while understandings and values may differ between the national contexts, for instance concerning the view on water quality.
- *The existence of various national timetables* relating to WFD implementation is a major hindrance in respect of harmonizing the required transnational work in international river basins.

- *Different administrative systems* cause (as in all transnational cooperation) certain frictions that could impede the work with the WFD and international river basins.
- Even *language problems* can be seen a major constraint as a common understanding of terms, methods and joint efforts demands continuous translation.

Means that may be used to facilitate transnational cooperation include:

- *Commissions*: The creation of commissions, i.e. the *Oder commission*, in transnational river basins can function as a means to enhance transnational cooperation.
- *International regulations and bilateral agreements*: The work within commissions may be assisted by international regulation and bilateral agreements. Most countries already have such agreements with their neighbouring countries; the challenge here is to make sure that the agreements are adapted to the context of the WFD.
- *More funding*: Transnational cooperation demands additional financial means.
- *Increased awareness*: In addition, there is a need to increase the awareness of transnational cooperation in river basins. This awareness must be at all levels, national, regional and local.
- *Twinning or pilot projects*, as used by the *Odra Commission*, can facilitate the transnational work by tackling concrete problems on a smaller scale and thereby creating the basis for more comprehensive approaches later on.

Water management is a long-term task in need of significant transnational efforts. Water management work transcends generations. As such, policy and other decision makers must be encouraged to think along intergenerational lines, since planning is complicated due to the existence of long timeframes (for river recovery, groundwater rehabilitation, etc.). The sooner effective transnational cooperation in river basins is established the sooner it will bear fruit.

Further research issues in respect of transnational cooperation

More research is needed on transnational cooperation in

river basins. It is clear that WFD implementation requires a lot of preparation. Here the *exchange of experiences* between countries and the various spheres of water management (e.g. spatial planning) is both helpful and necessary. Transnational cooperation in river basins also addresses *public participation*. How can the countries concerned encourage and perform public participation across borders?

To gain a *benchmark* of the development for those countries belonging to the Baltic Sea Region it would be interesting to compare how WFD implementation is progressing in countries belonging to other macro regions, i.e. the Mediterranean area.

Concluding remarks

A cleaner Baltic Sea and the achievement of a 'good water status' in the region are of great importance for the region's social, economic and ecological development. The implementation of the WFD is a means to achieve this. The BSR countries belonging to the EU are on their way towards implementing the WFD. Transnational cooperation with and between EU Member States and non EU-member states is progressing. However, in order to reduce the pollution in the Baltic Sea it is important to remember that most of the pollution originates from activities performed on land, i.e. industries, agricultural production and forestry. Therefore it is crucial that there is stronger cooperation and integration between water management and spatial planning. This study shows that there are possibilities for such a development. Nevertheless more effort is needed to integrate the two sectors in order to achieve the desired goal of good water status by 2015.

References

Literature

Barrow, C. J. (1998): River Basin Development Planning and Management. A Reassessment, World Development, 26(1): 171-186.

Cano, G. J. (1985): Legal and administrative tools for river basin development. In: J. Lundqvist, Lohm, U. and Falkenmark, M (eds), Strategies for River Basin Management, D. Reidel, Dordrecht, 189-200.

Chave, P. (2001): The EU Water Framework Directive: An introduction, IWA Publishinh, London.

Downs, P. W. et al. (1991): How integrated is river basin management, Environmental Management, 15(3): 299-309.

European Communities (2003): Planning Processes. Common Implementation Strategy for the Water Framework Directive (2006/60/

EC). Guidance Document No 11.

European Communities (2002): Best Practices in River Basin Management Planning. Common Strategy on the Implementation of the Water Framework Directive Porject 2,9, European Commission, Brussels.

European Communities (1999): ESDP. European Spatial Development Perspective. Towards Balanced and Sustainable Development of the Territory of the European Union, Potsdam. European Communities (1997): The EU compendium of spatial planning systems and policies. Luxembourg: Office for Official Publications of the European Communities.

European Parliament and the Council of the European Union (2000): Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

Fairley, R. et al. (2002): Riding the new wave of European water law: How Member States are tackling the Water Framework Directive, European Environmental Law Review, 11 (8-9): 232-239.

Folke, C. et al. (1998): The Problem of Fit between Ecosystems and Institutions, IHDP Working Paper, No 2, International Human Dimensions Programme on Global Environmental Change.

Frederiksen, P. & Maenpaa, M. (2006): Analysing and synthesising European legislation in relation to water. A Watersketch Report under WP1, NERI Technical Report, No 603.

Griffiths, M. (2002): The European Water Framework Directive: An approach to integrated river basin management, European Water Management Online (2202/05): 1-14.

Gustafsson, J.-E. (1999): Vattenförvaltning i avrinningsområden: möjligheter och lösningar i olika länder, Vatten, (55), 251-257.

Gustafsson, J.-E. (1989): Vattenförvaltning i Frankrike. R21:1989, Statens råd för byggnadsforskning, Stockholm.

Hanell, T. & Neubauer, J. (2005): Cities of the Baltic Sea Region – Development Trends at the Turn of the Millennium, Nordregio Report no 1.

Holzwarth, F. (2002): The EU Water Framework Directive – A key to catchment-based governance. *Water Science & Technology*, 45 (8): 105-112.

Mitchell, M. (1990): Integrated water management. In: B. Mitchell (ed), *Integrated Water Management: International Experiences and Perspectives*, Belhaven Press, London, 1-21.

Moss, T. (2004): The governance of land use in river basins: prospects for overcoming problems of institutional interplay with the EU Water Framework Directive, *Land Use Policy*, 21(1):85-94.

Moster E. (1998): *River Basin Management and Planning*. 4th National Congress on Water Resources - Portuguese Water Resources Association. Lisbon

Young, O. R. (2002): The institutional dimensions on environmental

change: fit, interplay and scale, MIT Press, Cambridge, Massachusetts.

Internet

Helsinki Commission, http://www.helcom.fi/environment2/nature/en_GB/nature/, 23/02/2007

European Commission, <http://ec.europa.eu/environment/water/water-framework/overview.html>

European Environmental Agency, http://glossary.eea.europa.eu/EEA-Glossary/L/land-use_planning, 14/12/06

World Wide Fund for Nature (WWF), <http://www.wwf.se/show.php?id=1004008> 27/02/2007

Part II

Country reports

Belarus

Riikka Ikonen and Veli-Pekka Tynkkynen, Nordregio

Introduction

Spatial planning system

Legislation and actors

The territory of Belarus is divided into the capital area of the republic (the City of Minsk) and the oblast territories (6). The oblast territories are divided into districts or raions (118) and cities subordinate to their oblast (23). The territory of a raion is divided into rural councils (1456), urban settlements and cities subordinate to their raion. (<http://vasab.leontief.net/countries/belarus.htm>.)

Up until 1991 Belarus used the legislative and normative basis provided by the USSR. Thereafter a process of the creation of a national legislative basis began. In 1994 the Parliament of the Republic passed the law, "On Architectural and Town Planning Activity in the Republic of Belarus". The Law is of a general character and does not regulate procedural approaches in spatial and urban planning. The Law does however provide a definition of sustainable environment, while promoting spatial and urban planning activity in the context of architectural creativity in addition to providing a list of basic planning documents. The Law also sets out the basic components of spatial and urban planning activity.

The process of spatial planning is now governed by the newly enacted Law "On Architectural, Urban Planning and Building Activity in the Republic of Belarus" (2005). The law prescribes the terms of reference of different levels of governance in the sphere of spatial planning and development. Power has been centralised in this respect from the Council of Ministers and local authorities to the Belarusian President. Thus, approval of the main directions of state policy in the sphere of spatial planning, the National Plan for Spatial Development, regional plans, master plans for the City of Minsk and the 5 other regional centers are now directly in the purview of the President. The Council of Ministers is responsible for the approval of master plans for secondary cities, plans for territories of special state regulation (e.g. the Chernobyl contaminated territories, free economic zones, etc.), as well as schemes and projects for the development of social, industrial, transport and engineering infrastructures of national importance. Local authorities approve master plans for towns subordinated to *raions* and detailed plans.

New approaches to city planning and management have however been implemented in order to meet the requirements of a constantly evolving situation. They are based on the following principles:

- efficient use of cities' territorial resources on the basis of their economic assessment
- priority of housing construction and its encouragement in small cities;
- improvement in and development of social, industrial, transport and engineering infrastructures;
- improvement in the ecological condition of cities located in the affected territories after the Chernobyl disaster;
- protection and efficient use of natural resources, historical and cultural heritage.

These priorities were determined by the social, economic and ecological trends observed in Belarus.

Spatial planning activity is carried out on the basis of Building Acts approved by the Ministry of Architecture and Construction, and the Decision Acts of the Council of Ministers of Belarus. The development procedure of planning projects and their content is adjusted by the Building Act "The Order of Development, Co-ordination and Contents of Spatial and Urban Planning Documentation". The order of approval and state expertise of planning projects is established by the Decision Act of the Council of Ministers "Order of State Expert Supervision and Approval of Spatial Planning Projects". The procedure of building in cities is adjusted by the "Building Rules in Urban and Suburban areas". It is authorised by Oblast Executive Committees. (<http://vasab.leontief.net/countries/belarus.htm>.)

Spatial Planning at the national level

The Ministry of Architecture and Construction is responsible for planning at the state level. Its responsibilities include (Dupont 2000):

- formulating state policy in the field of architectural and urban planning activities;

- developing legal regulations and norms and exercising control over their implementation;
- managing the State Territorial Cadastre;
- developing the national Spatial Plan for urban planning;
- carrying out research (forecast, studies) and developing state level urban planning programmes;
- ensuring proper evaluation of planning documents;
- issuing licenses to persons responsible for planning.

Other planning related authorities on the national level include the Ministry of Economy, the Ministry of Natural Resources and Environmental Protection and the Committee on Property (<http://vasab.leontief.net/countries/belarus.htm>). In addition the Committee on Property is also concerned with spatial planning and development issues. The division of functions between these authorities is however not clear. Functional overlaps exist often resulting in the inefficient use of land resources unfocused action and weak management of spatial development issues (Dupont 2000.)

Spatial planning at the regional level

The oblast is a regional self-governing body and the regional body responsible for planning is the Oblast Committee for Territorial Development, Urban Planning and Architecture. In the City of Minsk region the body responsible for planning is the Minsk Committee of Territorial Development, Urban Planning, Architecture and Land Management. (<http://vasab.leontief.net/countries/belarus.htm>.) Committees on Architecture, Construction and Urban Planning in the Oblast operate regional planning functions and similar departments operate in City and Raion authorities. They have responsibility for carrying out urban planning and construction to achieve planned developments (Dupont 2000.)

Spatial planning at the local level (raion, cities subordinate to oblasts, rural councils)

According to the Act of the President of Belarus, the merging process of management bodies began in 1997, resulting in the subordination of this level to the raions. (<http://vasab.leontief.net/countries/belarus.htm>.)

Spatial plans of importance

The *National plan* defines state policy in the field of the settlement network and territorial organisation at the national and regional levels. In addition, the general political and socio-economic purposes of the state and the international, multi-branch and branch programmes of territorial development are coordinated. The document (referred to as the State Comprehensive Spatial Organisation Scheme) is designed to ensure that socio-economic development is integrated into the spatial structure of the country. The objectives are a safe, clean environment, the sustainable development of urban areas, conservation of natural re-

sources (including water) and the protection of the country's cultural heritage. (The Building Act and by-laws according ERM.)

The *Regional plan* is a strategy for socio-economic and territorial (general land use and infrastructure) development of an *oblast* or group of raions. In the context of the plan state, regional and local activities in respect of spatial and urban development are all coordinated. The conditions for the development of a high-quality living environment for the population in the region are outlined. In 1998 the Ministry of Architecture and Construction initiated production of regional plans for all *oblasts* (The Building Act and by-laws according to Dupont 2000.)

The *Master plan* is a strategy for the socio-economic and territorial development of settlement or other areas. The plan includes the development of an optimal planning structure and functional zoning and principle decisions for environmental protection, the development of a public service system, the transport and engineering infrastructure and the long-term planning of investments for the territory in question (The Building Act and by-laws according to Dupont 2000.)

The *Detail plan* regulates the building investments and building requirements in coordination with the general vision of spatial planning and the functional development of the settlement in question (The Building Act and by-laws according to Dupont 2000.)

The State Ecological Supervision Body

The State Ecological Supervision body at the Ministry of Natural Resources and Environmental Protection carries out the Environmental Impact Assessment of plans. The main legal act regulating the state's ecological expertise is the Law of the Republic of Belarus "On the state ecological" (2002). Environmental Impact Assessment is a necessary element in the planning process and in designing and deciding upon the socio-economic development of the Republic. In addition, it is the cornerstone of the effort to carry out economic and other activities in the territory of the Republic of Belarus. Customers of the state ecological expertise body are public authorities, local authorities, and other legal and physical entities. The environmental impact assessment can also be carried out as a public initiative. Projects liable for assessment in this way cannot continue, or be financed, without undergoing an environmental assessment. The legal basis for environmental impact assessment is the Law on environmental protection (2002) (Naturvårdsverket 2004.)

The objects that the state ecological expertise body assesses are (Naturvårdsverket 2004):

- concepts, programmes (including the investment programmes) and schemes of branch and territorial socio-economic development;
- schemes of integrated use and the protection of natural resources (including water);

- town-planning documents (master plans of cities and settlements, designs and schemes of detailed layout);
- providing grounds for investments in construction, design documents (architectural, construction designs etc.) for construction, reconstruction, expansion, technical re-equipment, modernization, changing the output structure, liquidation of facilities and complexes irrespective of the departmental subordination and property forms.

The expertise of design documents is performed for the purpose of (*Naturvårdsverket* 2004):

- determining the level of ecological hazard, which can arise in the process of the realization of economic and other activities at present or in future and directly or indirectly affecting the condition of the environment and the health of citizens;
- assessing how the planned and projected economic and other activities correspond with the requirements of environmental legislation;
- determining the adequacy and validity of measures on protection and the efficient use of natural resources (including water) provided by design documents.

The environmental impact assessment of design documents is accomplished by specialized expert units under the Ministry of Natural Resources and Environmental Protection with the involvement, if necessary, of other state control agencies in the sphere of the use and protection of water resources (*Naturvårdsverket* 2004.)

Water management planning system

Legislative base

There are three different types of legislative documents regulating water resource use and protection in Belarus (*Naturvårdsverket* 2004): constitutional norms; legislative acts adopted by the President and the Parliament and regulatory acts issued by the executive authorities (Council of Ministers, the Ministry of Natural Resources and Environmental Protection, and the Ministry of Finance etc.)

Water legislation in Belarus is based on the Constitution of the Republic of Belarus (adopted in 1996) and the law on Environmental Protection (adopted in 1992, and amended in 2002). The main legal document regulating water management relations in the republic is the Water Code (1998). In accordance with Article 13 of the Constitution water is exclusively state property. The right to a favourable environment is recognized in Belarus as a basic human right (Article 46 of the Constitution). In accordance with “The Conception of State Policy of the Republic of Belarus in the Field of Environmental Protection” (adopted by the Parliament in 1995) the implementation of this right provides the main vector of state policy.

In Belarus a number of different documents regulate, to a certain extent, activity in this sphere. Many articles of

the law contain references to other regulatory documents, which complicates the practical use of legislation and on occasion results in different interpretations emerging of the same document (*Naturvårdsverket* 2004.)

The State Water cadastre

The State Water cadastre, kept by the Ministry of Natural Resources and Environmental Protection and the Ministry of Health, comprises cadastres of surface water, underground water and the use of water resources. The cadastre of surface water contains information on rivers, canals, lakes, reservoirs and ponds. Moreover, it also includes the hydrographic and morphometric characteristics of water bodies and their catchment areas. It comprises annual data on water abstraction and discharge in terms of quantitative and qualitative indicators, on the operation regime of major water intakes and reservoirs, and information on irrigated and drained lands. The data is used for considering water factors in connection with industrial plant locations; compiling schemes of water resource use and protection; and designing water facilities and other structures related to water use (*Naturvårdsverket* 2004.)

Main management units

The state management of the use and protection of water is exercised by the President of the Republic of Belarus, the Council of Ministers, Local Councils of Deputies, executive committees, the Ministry of Natural Resources and Environmental Protection and other specially authorized bodies belonging to the state government. The principles of the state governance of water resources include sustainable development and the differentiation of the functions of protection and of the economic use of water (*Naturvårdsverket* 2004; ECSSD 2002.)

The tasks of the Ministry of Natural Resources and Environmental Protection are mainly limited to control functions. At present, the Ministry of Natural Resources and Environmental Protection and its bodies perform state supervision over the use and protection of waters as well as some functions related to water resources management. On instruction of the President of the Republic of Belarus, the Government is currently working on the issue of setting up a state authority (body) on water resources management. The Republic of Belarus currently uses the standards of the former Soviet Union in respect of water quality and for water facilities used for the following purposes: fisheries; drinking and community needs. (*Naturvårdsverket* 2004.)

Bodies of the Ministry of Health execute state supervision over the compliance of drinking water quality with the regulatory requirements. Bodies of the Ministry of Natural Resources and Environmental Protection perform state supervision over the observance, by water users, of the established conditions of sewage discharge into water facilities and the effect of sewage on the quality of water in water facilities at places of discharge (ECSSD 2002.)

Taking into account the importance of preserving the ground water quality, work is currently under way to elaborate a draft of a special Regulation on the Protection of Ground Water. This document will define the procedures for prospecting ground water resources, design and construct ground water intake facilities, monitor ground water and execute state supervision over their condition and use (*Naturvårdsverket* 2004.)

With a view to fulfilling the predictive indicators national and regional action plans on the efficient use of natural resources and environmental protection are developed and approved. The main indicators on water abstraction, use of water resources, discharge and waste water treatment are included in the annual and long-term plans of the socioeconomic development of the Republic and its administrative units. Indicators are established proceeding from requirements on ensuring the efficient use of water resources and fulfilment of the set tasks for preventing the pollution of water bodies. In 2002, the Government ap-

proved the National programme "Clean water". The main purpose of the programme was to implement a set of measures ensuring a regular supply of water and the maintenance of a good environmental safety environment (*Naturvårdsverket* 2004.)

Permits

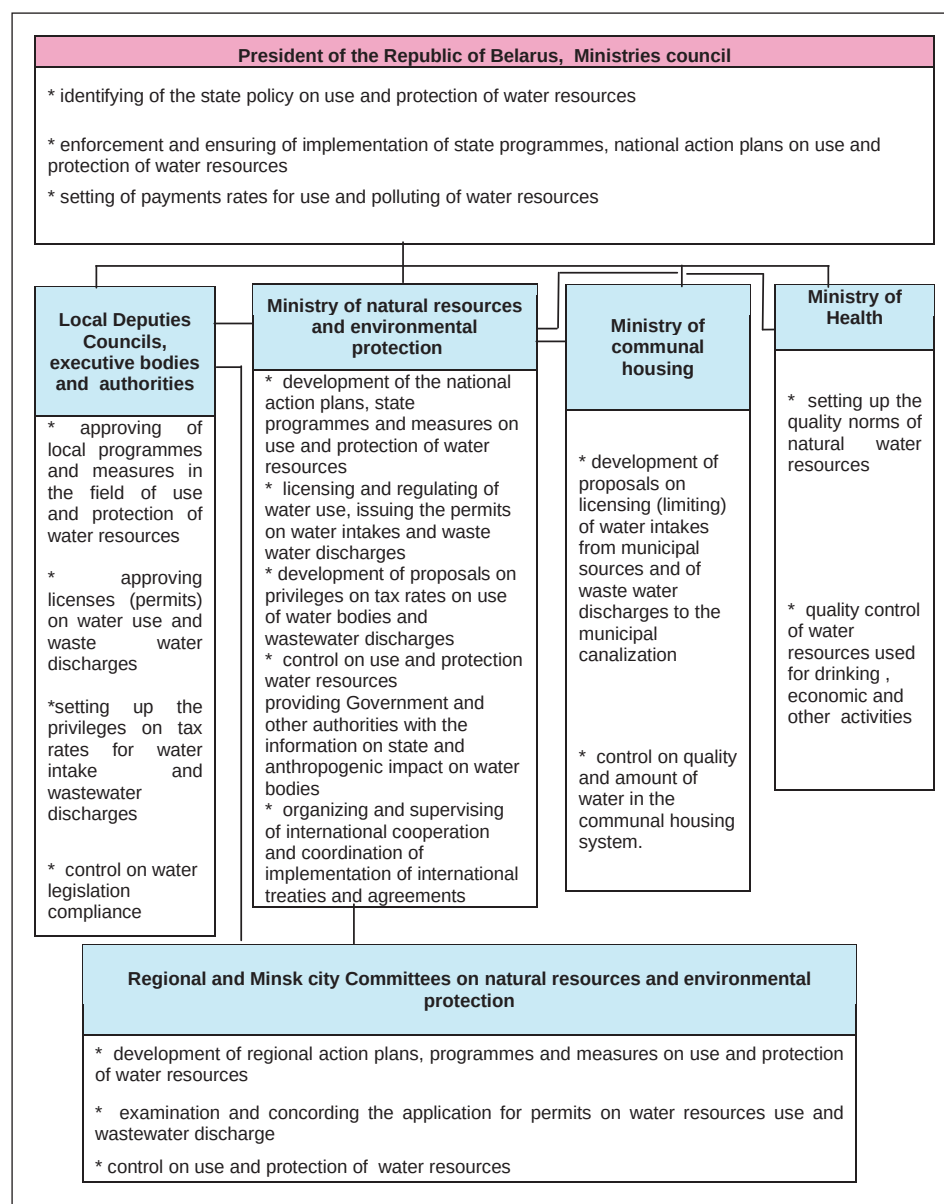
Permits for special water use provide the basis for the water management and regulate the volumes of fresh water withdrawal and wastewater discharge as well as pollutant concentrations in wastewater, discharged by industrial, communal and agricultural enterprises. The permits on special water use are issued, in accordance with the Water Code (1998), by the Ministry of Natural Resources and Environmental Protection or its regional committees. Permissible water abstraction volumes are determined by the availability of surface water resources in the region or approved underground water reserves. On the ground of permits issued for special water use, local authorities – regional and

city executive committees (regional executive committees and city executive committees) annually establish the water consumption and water discharge limits for water users. (*Naturvårdsverket* 2004.) When specified withdrawal and discharge limits as well as permissible pollutants' concentrations in wastewater are exceeded, the rates of environmental tax increase tenfold for the withdrawal exceeding the limit and 15-fold for wastewater discharge and exceeding permissible concentrations. A fine is imposed in cases where an emergency discharge has taken place. The revenues generated from charges and fines for violating the Water Legislation go into a targeted budgetary fund and are allocated to developing and implementing environmental measures in the National Budget. (<http://enrin.grida.no/htmls/belarus/water2003en/>.)

Water protection zones

Water protection zones and coastal belts along the banks of small, medium and large rivers as well as natural and artificial water bodies exist throughout Belarus. The water protection

Figure 2.1. Structure of the main management bodies of water resources in Belarus



zone is the territory adjoining the water areas of rivers, lakes and other superficial water objects. There are restrictions concerning economic and other activities in order to prevent pollution, contamination, muddying and the exhaustion of water objects. The zones contribute to the improvement of the hydrological regime, reduce the water and wind erosion of soils, coastal zone abrasion, and ensure the preservation of coastal and tree-and shrub vegetation which perform the water protection, wind protection and recreation functions. They also partly solve the problems of preserving fish spawning grounds, feeding, rest grounds and the habitats of land animals. (Kalinin; Penkovskaya; Samusenko 2003)

The protection zones are classified in the following way:

- protected water zones

- the coastal zones of rivers and reservoirs
- the zone of sanitary protection - sources and systems of the drinkable water supply
- the zone of the sanitary protection of the layers of therapeutic and mineral waters
- the separately protected natural territories. (Kalinin et al. 2003.)

This classification is however not complete since Belarus also has rules and regulations imposing very stringent nature-conservation requirements for all reservoirs. The majority of these rules adjust to the norms of the fishery reservoirs (PDKr), which are much stricter than the EU norms. Furthermore, in a number of stipulated cases sanitary norms (PDKs) are used for household drinking water and cultural-and-general service purposes. (Kalinin et al. 2003.)

Coherence with the WFD

Principles applied

River basin principle

Water management is geographically organised within the administrative units of the republic the 6 *oblasts* and the city of Minsk. Thus river basins are not used as management units for water and river basin management plans for each major river basin are not prepared (Halcrow/BCEOM Consortium 2002.) The legislation does not however, in principle, prevent the introduction of the basin principle, although specific organizational and institutional changes would be required for this.

In a whole series of international projects, financed by the TACIS programme (in the Western Dvina, the Western Bug, and the Neman river basins) proposals for the introduction of the river basin management principle in Belarus have been made, e.g. in the National Activity Plan on the economic utilization of natural resources and the protection of the environment (NPDOOS) in the countries of the Commonwealth of Independent States (CIS). According to a comparative study made on Belarusian legislation water managing committees for the five basins (Dnepr, Western Dvina, Pripyat, the Neman and the Western Bug) could be established. In addition the study recommends that the governmental control and regulative functions should remain in the hands of the Ministry of Natural Resources and Environmental Protection (but as separate questions for the Ministry of Public Health and Ministry of Emergency and Disaster Relief, Nuclear Power Control) (Kalinin et al. 2003.)

Appropriate legislation that enables river basin management, in the sense that it is laid down in the EU Water Framework Directive, would require changes among other things in the Water Code concerning the state organisation of water management and the property rights of water

resources. According to a study made on the legal aspects of water resources management in Belarus (Halcrow/BCEOM Consortium 2002) the legislation should identify the functions of the different state entities in water management and clearly assign responsibilities to and define the competences of each entity. The legislation should also clearly define the owners of these water bodies and thus identify the rightful users of these water resources. Another issue which should be regulated is that of the ownership of land adjoining these water bodies. This is necessary as water bodies should be freely accessible for management and protection.

Cross-border cooperation

Belarus has signed agreements on trans-boundary waters with the Russian Federation and the Ukraine. In addition, draft agreements on water use and protection in the basin of the Western Dvina (Russia, Belarus and Latvia), the Dnieper (Russia, Belarus and the Ukraine), the Neman (Belarus, Lithuania and Russia) and the Western Bug (the Ukraine, Belarus and Poland) have also been prepared. The Inter-State Committee for the Dnieper Water Management has also been formed (See more below). (<http://enrin.grida.no/htmls/belarus/water2003en/>.)

Water quality objectives

Neither the Water Code itself nor the Law on the protection of the environment use the term 'water quality objectives'. In some cases however similar ideas can be found. For example in the state programmes in the National Activity Plan on the economic utilization of natural resources and the protection of the environment (NPDOOS) for the period 2001-2005 and the state programme on water supply and water-removal (GPVV) "pure water". In prac-

tice these programmes are usually transformed into separate projects on the building or modernization of cleaning construction or improvement in water supply or water-removal. However, these purposes can hardly be compared with the ecological objectives, outlined in the WFD, as the ecological objectives are to be reached within the certain periods and they have concrete formulations. (Kalinin et al 2003.)

Economic analysis

To unify Belarusian legislation with the WFD approach changes would be needed in the economic regulation of water uses and protection. In order to be able to adequately finance measures to protect and restore water resources, the “user/polluter pays” and “water pays water” principles should be applied in the legislation. The legislation needs relevant articles that prohibit all discharges of contaminants into surface water without a specific licence. Discharge into the groundwater should be prohibited completely (Halcrow/BCEOM Consortium 2002.) Charges for water-use are currently described in a number of legislative acts and other documents, including the water code, the Belarusian environmental protection law and statutes in respect of ecological tax. As far as payment for the use of the available water resources are concerned, these go directly into local budgets while the polluter pays principle does not work, or at least, does not appear to do so. This is an important concern when considering the introduction of the *basin principle* control system in a real sense. The average *per-capita* consumption of water in Belarus exceeds twice the analogous index of Europe, which implies an over expenditure of water resources (Kalinin et al 2003.)

When taking into account the “polluter pays” principle a procedure should also be developed which would make it possible to divide payments for the production of effluent wastes between the industrial and utility enterprises. Industrial enterprises should pay for exceeding the levels of specific pollutants, and municipal cleaning construction - for the discharge of pollutants into the water objects, according to the basic indices, which characterize sewage wastes (Kalinin et al 2003.)

Combined approach for point and diffuse sources

Belarus seems to have built up quite an effective system for controlling point sources though no system exists for either diffuse sources or for a combined approach to these. The country has an adequate fixed system to control enterprises (the point sources of pollution) that drain effluent wastes into the environment. The system is based on giving permission for special water-use by the organs of the Ministry of Natural Resources and Environmental Protection for each subject. The limits are outlined on a yearly basis by the Council of Ministers, the executive committees and the district (urban) executing agencies. The basis for establishing the volumetric limits is the corresponding

category of quality in which the expendable effluents (normative- purified, normative- clean, contaminated) are included. The control system has some coherence with those of some EU member countries, though, inevitably, there are more differences than similarities. The central differences are those relating to the tariff system but are also focussed on the fact that the system concerns all enterprises and not only those which have undertaken discharges directly into different kinds of water. (Kalinin et al 2003.)

Legislatively it would be possible to introduce the combined approach to pollution in Belarus. It would however be necessary to find a reasonable compromise between the selection of the productions which should be checked on the basis of the technological parameters and establish standard values for them. The latter must be determined for each pond on the basis of purposeful indices moreover it is necessary to determine the time periods during which given indices can be reviewed taking into account changing conditions and accumulated impacts. (Kalinin et al 2003.)

Public participation

Stakeholder participation in Belarus does not occur to any greater extent. Public participation in water management should take place at two levels: Public control of the state of the environment and pollution sources and the implementation of alleviation measures; and participation in the decision making process (Halcrow/BCEOM Consortium 2002.) Even though Belarus has relatively well developed legal provisions and regulations to guarantee access to environmental information, the legislative framework for public participation in environmental decision-making is less elaborate. The amendment to the Law on Environmental Protection adopted in 2002 provides broader rights to environmental NGOs, there are however no detailed procedures ensuring public participation in ecological expertise and decision-making regarding environmental permits, standard-setting or the development of laws, regulations, strategies and policies affecting the environment (United Nations 2005.)

Trans-boundary cooperation

Belarus' international water cooperation mainly exists with Russia and the Ukraine. There is some cooperation with Lithuania concerning the water level regime in connection with the Neris River and the Neman River where the Kaunas hydropower plants are situated. A similar situation exists in respect of the Daugava / Western Dvina where cooperation exists at the local level – mainly between the Department of Hydrometeorology under the Ministry of Environment of Belarus and the Geological Hydro-meteorological Agency in Latvia. The network for trans-boundary cooperation in respect of the Neman and Daugava rivers is created with support from the Swedish Environmental Protection Agency. Since 1997 several projects in the sphere of trans-boundary water management have been conducted.

Table 2.1. Application of WFD principles

WFD principle		Consistency with the WFD principles
River basin as planning and management unit		 River basins are not used as management units for water
Assignment of international RBD and cross-border / transnational cooperation		 Belarus has entered into bilateral cooperation with its neighbours concerning water
River basin authorities		 There are no specific river basin authorities
Water quality objectives aiming at achieving "good ecological and chemical status"		 There are no water quality objectives in the legislation similar to the WFD
Economic analysis of water use		 The economic analysis of water use is not a common procedure in Belarus
Combined approach for point and diffuse sources		 No system for diffuse sources or a combined approach to point and diffuse sources has been introduced
Management plans for RBD		 Management plans for RBDs have not been prepared
Public participation		 The participation of stakeholders is not applied to any greater extent
	Applied	The information in the table provides a qualitative assessment of the degree to which the key principles of the WFD were applied before and after the adoption of the WFD in 2000. The information referring to principles for which deadlines have not yet been reached, indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based on the literature found and interviews carried out at the time the study was undertaken in 2006.
	Partly applied	
	Weakly applied	

The trans-boundary water management agreement in the Western Bug basin has a long history, indeed, the agreement between Poland and Soviet Union, signed in 1964, that regulates the system of monitoring the pre-border part of the Bug River is still applied today. The two countries concerned study water quality using common methods and criteria. There is however no exchange of information about sources of pollution and water quality in the basin. In May 1992 Poland and Belarus signed a cooperation agreement in the field of environmental protection. This agreement was signed by Belarus' State Committee on Ecology and Poland's Ministry of Environment Protection and Forestry.

A treaty between Belarus and the Ukraine on economic cooperation was concluded in 1998. An inter-state pro-

gramme of long-term economic cooperation between Belarus and the Ukraine also exists within the framework of the treaty. This programme envisages, in particular, a number of measures on cooperation to resolve some regional problems related to water: Point 3.3 – preparing a draft interstate agreement on joint use and protection of pre-border water objects; Point 3.5 – cooperation between the Brest and Volyn regions within the Bug Euro-region. Some changes occurred in the cooperation agreements in the basins shared with neighbouring EU countries (Poland, Lithuania, Latvia) after these countries began to implement the WFD. The EU countries are here trying to set up a joint commission for the international basin as e.g. in the Western Bug basin. (Pilot project 2001.)

Connections between water management planning and spatial planning

Regional plans create the most important connection between water management and spatial planning. The authorities use this data to approve activity in the catchments area. In 2005 the Law “On Architectural, Urban Planning and Building Activity in the Republic of Belarus” was passed and at the local level the special town planning projects concerning the development of complex schemes of nature resources, including some recreation zones (mostly connected to water), were developed.

According to the urban planning legislation the state environmental authorities have relatively wide authority to control local and regional land use plans. The master plans of cities, for example, have to be accepted by these governmental organs. The State Ecological Expertise body will then see that the enforcement of the plans will not cause environmental problems. The list of prohibited or sanctioned land use functions is long (*Ministerstva arhitektury ... 2003, 51*), which gives the state authorities a significant ability to interfere in local and regional plans, if they see such interference as appropriate. In principle, the State Ecological Expertise body should carry out an environmental impact assessment, taking into account these prohibitions and sanctions, of all master plans in the country.

The urban planning legislation of Belarus also adopts a strong stance on the protection of water ecosystems and fresh drinking water via land use regulation. Water quality control is practiced through both the setting of quantitative norms for water quality (maximum allowable level of pollutants) and relying on water protection zones (*Ministerstva arhitektury ... 2003, 50-51*). The existence of these zones of ‘restricted land use functions’ are a typical trait of former republics of the Soviet Union, since this normative

land use zoning was developed in the Soviet Union. As in Russia, the Belarus state authorities put a lot of weight on the possibility of these zones to control land use and water protection adequately. Longer rivers (> 200 km) have a 300 m restricted land use zone and shorter ones (< 50 km) a 100 m zone around them.

Questions of how these rigid zones fit into the geography of urbanised territories and whether the prohibitions induced by these zones are actually followed can naturally only be answered by looking more deeply into the politics and policy-making of individual geographical contexts. Outside Belarus however this information is almost totally lacking at present. By carefully reading the objectives of available planning documents however some indication about these problems can be uncovered.

The water protection zones discussed above are enforced through general city and municipality plans. Legally, land use control is based on both the above-mentioned urban planning legislation, and on specific decrees or statutes enacted by the Council of Ministers of the Republic of Belarus. Through these statutes the central government is actually extending its authority to local level land use planning and, thus, decision making. For example, in the statute checking and coordinating the content and goals of master plans of three Belarusian cities, namely, Baranovichi, Novopolotska and Polotska, water issues play an important role. The objectives to deliver higher quality tap water to the city-dwellers, but also to increase the coverage of canalisation and the treatment of household sewage, are explicitly underlined in the statute (*Natsional’nyj pravovoj ... 2004, 6.4.6.-6.4.8.*). This means that water quality management issues are incorporated into spatial planning documents.

This document also however shows that despite the ex-

Figure 2.2. River basins in Belarus (Source: <http://enrin.grida.no/htmls/belarus/water2003en/>)



istence of national norms concerning water quality and water protection zones their fulfilment has been inadequate. A worrying feature for state officials here is the violation of water (green) protection zone regimes around raw water intake locations. The intended measures in a general plan of the city of *Novopolotska* clearly show the existence of the same threat: a priority in land use planning is therefore to officially confirm the boundaries of water protection zones around raw water intakes and on the banks of the Western Dvina River (*Natsional'nyj pravovoj...* 2004). This strict and legally binding zoning process has also been named as one central planning project in the general plan. The document continues by naming other important tasks in relation to water management and land use. They include, for example, the revitalisation of vegetation and soil in water protection zones, extending the coverage of sewage canalisation especially into the newly build detached-house suburbs of the city, and to eradicate illegal garbage pits on water protection green belts.

Conflicts and synergies

In light of the comparative analysis of Belarusian legislation undertaken above it is clear that a certain amount of

inconvenience is caused by the fact that water management questions often come under the jurisdiction of many different departments. For example, questions of water supply and water-removal relate to the scope of the Ministry of Housing and Public Utilities, issues concerning the verification of drinking water and recess on the other hand are in the purview of the Ministry of Public Health, while questions relating to floods are dealt with by the Ministry of Emergency and Disaster Relief and so forth. Because of such a potentially confusing administrative picture it is not always easy to determine the degree of the responsibility held by each body. On the one hand such bodies directly come into contact with the resolution of all practical questions, while from the other, they do not have sufficient resources (professional, financial or institutional) to the organize and conduct work at the proper level (Kalinin et al 2003.) It seems that there is both a great variety of authorities responsible for their specific areas of water management and legislative documents regulating the sphere. This can often lead to a lack of clarity and administrative boundary disputes complicating the practical management of water resources.

Conclusions

Belarus is not a member of the EU and thus the WFD is not implemented there and has had only a minor impact in the country. The water management system is placed under the control of several different authorities and ministries and regulated by constitutional norms, legislative and regulatory acts. State management in the sphere of the use and protection of waters is exercised by the President of the Republic of Belarus, the Council of Ministers, the Local Councils of Deputies, executive committees, the Ministry of Natural Resources and Environmental Protection as well as other specially authorized bodies of state government in compliance with the legislation of the Republic of Belarus. Water legislation is based on the Constitution of the Republic of Belarus and on the law on Environmental protection. The main legislation concerning water management is the Water Code. In addition there are a number of documents which to a certain extent regulate activity in this sphere.

Belarus does not use the *water basin principle* in its water management nor are water management plans drafted. Special protection zones and coastal belts are however established along the banks of small, medium and large rivers, as well as natural and artificial water bodies. Urban planning legislation in Belarus also adopts a strong stance on the protection of water ecosystems and fresh drinking water via land use regulation in which water quality control is practiced through both the setting of quantitative

norms for water quality and reliance on water protection zones

A number of economic incentive schemes are already used in Belarus but in order to be able to adequately finance measures to protect and restore water resources it would be necessary to apply the “user/polluter pays” and “water pays water” principles in Belarusian legislation. Belarus seems to have a rather effective system for controlling point sources but there is as yet no system for control of diffuse sources or a combined approach to these. Public participation is not undertaken in anything like an adequate manner as far as the WFD is concerned.

The main difference between the water quality objectives contained in the WFD and those of the Belarusian approach are that in Belarus the reaching of a specific level of quality for all types of waters has not been formulated. Some similarities do however exist when it comes to state programmes and their objectives. Even though the objectives and norms are not similar to those of the WFD this does not always mean that they are necessarily likely to be any less effective. Some norms in Belarus, such as for example those concerning fisheries reservoirs, are even stricter than those in the EU.

Belarus undertakes cross-border cooperation with all of its neighbours in relation to water management questions. In this respect some water basin consideration has been undertaken and thus it is here that the impacts of the

WFD can most readily be seen.

The Belarusian water management system cannot be considered integrative. To be able to introduce the integrative approach in Belarus it would be necessary to solve the problem of the control of the available water resources within the framework of the river basins and other institutional questions connected to that issue. The current system is however characterised by the large variety of actors and acts complicating water management planning.

Few similarities exist between the WFD and the water management legislation regime in Belarus. According to some studies however the structure of the water code does not contradict that of the WFD and it would therefore be possible to supplement it with other normative documents if the Directive were in future to be implemented.

References

Literature

ECSSD – Environmentally and Socially Sustainable Development (2002): Building Blocks for a Sustainable Future. A Selected Review of Environment and Natural Resource Management in Belarus.

Dupont, C. (2000): Regional Development and Nature Conservation in the Niemen Euroregion. Enabling Legislation. ERM 2000.

Halcrow/BCEOM Consortium (2002): Legal Aspects of Water Resources management in the Republic of Belarus. Draft report. TeCopyright 2002 by Tacis services DGtA, European Commission.

Kalinin M.Y, Penkovskaya A.M., Samusenko A.M (2003): Belarussian legislation in sphere of water policy and EU WFD. Handbook for experts. Edited by Kalinin M, Minsk.

Ministerstva arhitektury i budaynistva Respubliki Belarus' (2003): Gradabudaynistva. Planiroyka i zabudova neselennyh punktay (Urban and Regional Planning. Detail planning and construction of settlements). Minsk.

Naturvårdsverket (2004): Use and Protection of Water Resources in the Russian Federation and the Republic of Belarus – management systems and practice of work.

Pilot Project on Monitoring & Assessment of Water Quality in the Bug River Basin 2001. Information needs report.

State of Water Resources of the Republic of Belarus (2003): <http://en-rin.grida.no/htmls/belarus/water2003en/FrontPage.htm>

United Nations (2005): Environmental Performance Reviews. Belarus. Second Review. Economic Commission for Europe. Committee on Environmental Policy. New York and Geneva.

VASAB: <http://vasab.leontief.net/countries/belarus.htm>

Legislation

The Building Normative Act and by-laws.

Natsional'nyj pravovoj Internet-portal respubliki Belarus' (2004): Postanovlenije Soveta Ministrov respubliki Belarus' 8.12.2004. No. 1557 Ob utverzhdenii general'nyh planov gorodov Baranovich, Novopolotska, Polotska (Statue of the Council of Ministers of the Republic of Belarus, 8th of Dec. 2004 No 1557 On approval of general plans of cities Baranovich, Novopolotska, Polotska). <http://www.pravo.by/webnpa/text_txt.asp?RN=C20401557>, 8.12.2006.

Denmark

Alexandre Dubois¹, Nordregio

Introduction

Spatial planning system

In Denmark spatial planning is an activity that is exercised at all three levels of government. The Danish spatial planning system is characterised by two main features. Firstly, there is a clear division of responsibilities between the three tiers of government (national, regional and municipal). Each level is tasked with regularly producing a plan, while, the planning process can be seen as being closely linked to the political one (Böhme, 2002). Moreover the principle of subsidiarity is a strong driver for spatial planning and regional policy, indeed, For Böhme, each of the planning tiers has a “certain degree of freedom regarding its vertical connections to other planning tiers” (Böhme, 2002).

The second main feature of the Danish system is the principle of framework control, which means that “the plans at the lower level must not contradict planning decisions at a higher level” (EC 1999). The emphasis on this principle has been renewed in the latest national planning report (2006) which states that “planning is conducted based on the same general principles in all of Denmark”.

At the national level, the main actor in the field of spatial planning is the Ministry of Environment and Energy. Its main task is to build the legal framework under which the other tiers of government develop their respective plans. The main piece of legislation dealing with spatial planning issues is the Planning Act. For the Ministry of the Environment, the main purpose of the Planning Act is to “ensure that the overall planning synthesizes the interests of society with respect to land use and contributes to protecting the country’s nature and environment” (Ministry of the Environment, 2002). In that sense, the plan intends to take into consideration broader social, economic and environmental concerns, thus aiming at providing guidelines for ensuring national interests for planning practices at the lower tier of government. Moreover the Act emphasises the importance of the strong involvement and influence of the general public in the planning process (Ministry of the Environment, 2002).

Several spatial planning related documents are produced at the national level:

- National planning report: mandatory document prepared by the Ministry of the Environment presenting Denmark’s general planning policy and providing an overview of the issues of national interest to be dealt with by municipal and regional planning (Böhme, 2002).
- Nature and Environmental policy report: attempt to provide a comprehensive action plan for Danish environmental planning, which has a significant influence on other sectors of activity (Böhme, 2002)
- National planning directive: optional document providing binding, for the regional and local levels, regulations on issues of national interest (Böhme, 2002).

Up to 2007, when a new administrative reform process was completed (see below for more detail), the regional level was constituted by 14 counties, each governed by county council. The main spatial planning tasks at the regional level “lie with the county authorities which are, for instance, responsible for regional planning, planning for the countryside and regional economic development” (Böhme, 2002). The regional level has a key role in maintaining the coherence of the plans made at the local and national level, and has the right to veto municipal or local plans if they are not in conformity with national or regional objectives. The main instrument at the disposal of the county council is the regional plan. These plans have been produced or updated every fourth year since 1979 (Böhme, 2002). Basically, the aim of such a plan is to clarify the “aspects of planning that affect more than one municipality” (Böhme, 2002). In that sense, Böhme identifies three main working directions for the regional plans:

- *regional plans reflect national goals and decisions*
- *regional plans determine goals and guidelines for the regional development in the respective county*
- *regional plans transfer national policy to the local level (Böhme, 2002).*

¹ The author would like to thank Kirsten Flemming Hansen and Mette Starch Truelsen from the Danish Forest and Nature Agency for their insightful comments on an earlier version of this country-study.

Until 2007 the municipal level was constituted by 273 municipalities. In Denmark, as in most of the Nordic countries the municipal authorities have traditionally enjoyed a large degree of responsibility. In respect of spatial planning, Böhme states that the “municipalities are important actors, as they are responsible for physical planning in urban areas and a wide range of environmental tasks” (Böhme, 2002). In reality the municipal level was viewed as the “cornerstone” of the Danish planning system (Böhme, 2002). The municipalities have two main types of plans at their disposal: the municipal plan and the local plan. According to the Ministry of the Environment, while the municipal plan provides a comprehensive overview for the whole municipality on such matters as the development of housing and workplaces, transport, services and recreational areas, local plans stipulate how a smaller area may be developed and used (Ministry of the Environment, 2002).

The municipal plan needs to consider:

- *the general structure with overall objectives for planning and land use in the municipality*
- *a framework for local planning (Ministry of the Environment, 2002)*

In addition to the municipal plan, the municipalities have the ability to draw up local plans that often focus on the development of areas of special interest. Local plans are considered to be the *foundation of Denmark's spatial planning system* (Ministry of the Environment, 2002).

The coming administrative reform

Denmark underwent an extensive administrative reform at the beginning of 2007. In order to improve the efficiency of public administration at the regional and local level, the number of administrative entities was significantly reduced as of the 1st of January 2007. The number of municipalities shrank from 275 to approximately 100, while the number of counties was reduced from 14 to 5. The merger of the municipality was undertaken on a voluntary basis, that is to say, that the municipalities could merge with any adjacent municipality; the only restriction being that the new municipality would have at least 20,000 inhabitants.

Concerning spatial planning, the main role of the national level is to provide guidelines for municipal plans in the form of a list-catalogue.

More importantly than the change in the number of administrative units the administrative reform will actually oversee a redistribution of roles between the levels of government. The regional level will become essentially responsible for health care and social services issues. Moreover the newly designed regional authorities will be responsible for preparing regional spatial development plans for the administrative region (National planning report, 2006). These plans aim to provide an integrated spatial

strategy, encompassing multiple types of areas (urban, rural etc.) and multiple sectoral interests (environment, business, tourism etc.). The process leading to the production of the plan will involve the municipal councils, the regional council, and the business sector as well as other actors (National planning report, 2006).

The national level will have a stronger role in providing general planning guidelines and visions. The main ‘winners’ here are the municipalities as they are given a “new level of autonomy” (National planning report 2006). The revision of the Planning Act will provide the municipalities with the responsibility for “preparing a comprehensive and coordinated plan for land use in towns and in the countryside”. In that sense municipalities are given the role of implementing an integrated multi-sectoral plan for their entire territory. This administrative reform is deemed to be positive as it will “strengthen the state’s potential to monitor local development and to understand local needs” (National planning report, 2006). In order to secure the continuity of the planning system the formerly approved regional plans will still be valid until future municipal plans are approved.

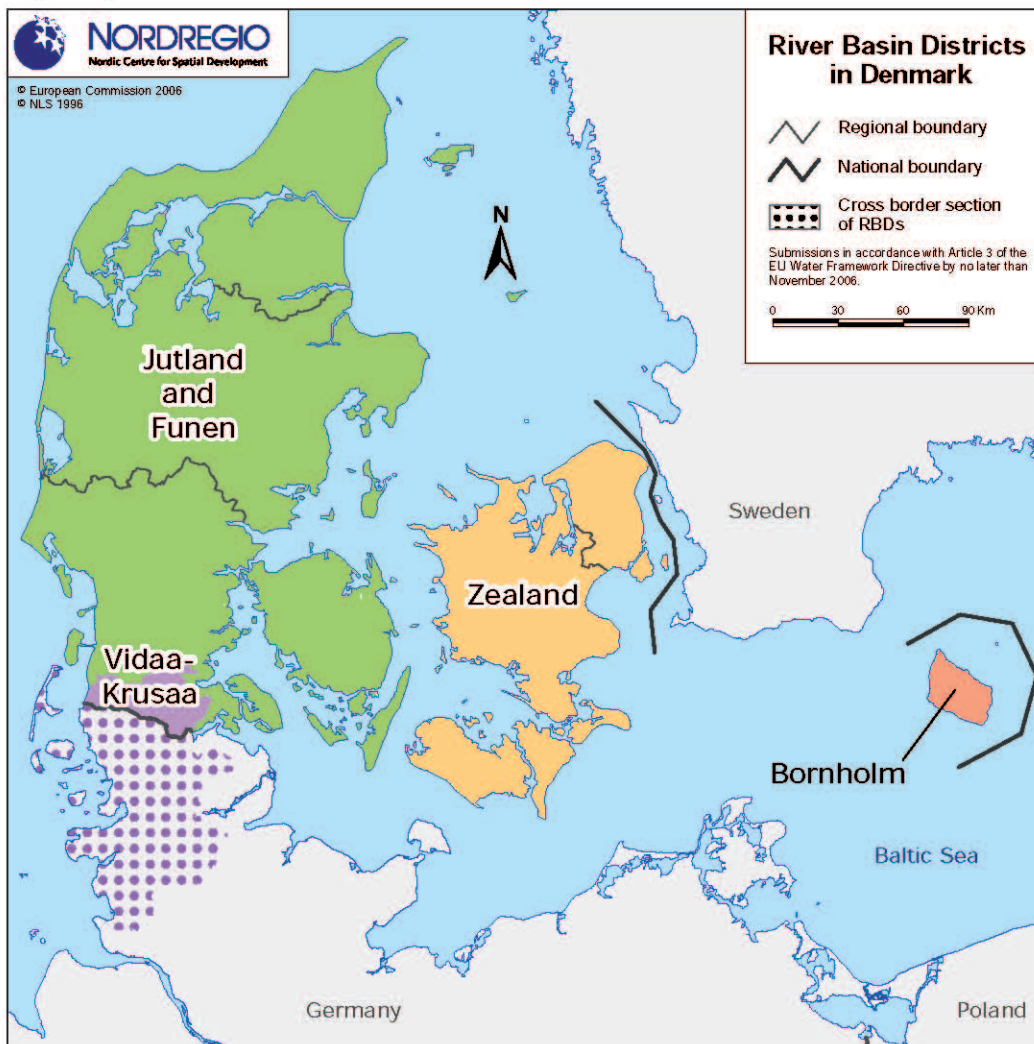
Water management planning system before the WFD

Responsibility for water resources management in Denmark is divided between the three tiers of government. Each level does however have a distinct role in the overall water management process.

At the national level, the role of the Ministry of Environment and Energy is to set up the overall framework of water management resources in Denmark, particularly in relation to EU directives and international conventions (Jorgensen & Brandt, 2004). Responsibility for surface water and ground water is split between two agencies related to the Ministry: the *Danish Environmental Protection Agency* for ground waters and coastal areas and the *Danish Forest and Nature Agency* for fresh water (Jorgensen & Brandt, 2004). The roles and responsibilities of the various public bodies in the provision of drinking water services are defined in the Water Supply Act (De Heer *et al.*, 2004).

The county level maintains responsibility for water resources management within its own jurisdiction. Water management issues are included in the regional plan produced every fourth year by the regional council. The water resources part of the plan plays a vital role in the assessment of environmental impacts on the regional territory (Jorgensen & Brandt, 2004). The municipalities also exercise significant responsibility in the water management system, particularly in respect of the distribution of drinking water as well as the treatment of wastewaters (Jorgensen & Brandt, 2004). Concerning the possible involvement of stakeholders in the process it is required that all water management plans elaborated by the counties have to go through a public hearing before approval (Jorgensen & Brandt, 2004). Moreover the forums that have to be set up

Figure 2.3. River basin districts in Denmark.



by both the counties and the municipalities provide NGOs and other stakeholders with the potential to become involved in the process (Jorgensen & Brandt, 2004).

In conclusion water resources management essentially

takes place at the regional and municipal level in Denmark. The national level does however provide a much-needed framework for elaborating water resources plans as well as efficient water protection.

Implementation of the WFD

Process of implementation

Overall responsibility for the implementation of the Water Framework Directive lies with the Ministry of the Environment. Implementation of the WFD has precipitated a revision of the laws regulating water management in Denmark. The Ministry of the Environment has coordinated this work with other ministries. The legislation on environmental objectives (linked to the WFD) was updated in 2005 following an administrative reform. The administrative reform process is intended to reduce the number of municipalities from 275 to 98, and the number of counties from 14 to 5. This revision of the regulation installed the Ministry of the Environment as the competent authority for the water districts displacing the counties.

In Denmark, the implementation of the WFD will be performed in parallel with the implementation of two other EU directives, namely the Bird and Habitat directives (Danish EPA website).

According to the Danish EPA, the environmental objectives will not lead to a potential sharpening of the requirements for the Danish water districts, but it will force the authorities to provide the relevant arrangements in order to fulfil these objectives. Consequently, the environmental objectives will be more concrete and explicit and thus better able to be monitored. The implementation of the WFD in Denmark will not have a significant influence on the spatial planning system as the spatial planning system itself is changing rapidly.

In accordance with Article 3 of the WFD river basin districts have been set up in Denmark. Initially, their number was to be 12, with 1 international district. This number has however been reduced to 4 (with 1 international) following the administrative reform. Figure 2.3. illustrates the delimitation of the Danish Water districts.

If the former Danish water management system was very close to the system implemented through the WFD there were nevertheless some main differences. First of all, in the former system it was not possible to set binding deadlines for achieving environmental objectives, whereas this issue has been addressed in the WFD. The second main difference is that beforehand, the counties only had the ability to regulate on point sources, and not diffuse sources. The implementation of the WFD however also makes it possible to also put constraints on, for instance, agricultural practices in order to meet the necessary objectives. Finally, the last major difference is that the WFD is more operational in its settings than the former system. Indeed, the former system took a more qualitative approach, i.e. not setting concrete goals for the achievement of a good status.

Transboundary cooperation

Denmark only shares one river basin with a neighbouring country, Germany. The main water issues are linked to pollution from agricultural activities. The counties on both sides of the border share a long tradition of co-operation on water issues, particularly between Danish counties and German *länder*. The WFD creates a formal framework for co-operation across the border, by for instance, operationalising a trans-boundary river basin.

Levels of implementation and key actors

The key actors for the implementation of the WFD in Denmark are the Ministry of the Environment on the national level and the municipalities at the local level. As we have seen however the institutional settings for the implementation of the WFD in Denmark have changed since the regulation was passed in 2003.

Indeed, the country was initially to be divided into 12 water basin districts, with the county as the competent authority for the making of water management plans. However, with the adoption of the new administrative reform in 2007 the 14 county set up was basically dismantled and replaced by 5 new regions, holding much less power. In fact, the environmental tasks that were to be in the purview of the counties have been redistributed between the national and the municipal levels where previously the counties had made the water district management plans.

With the new reform however the Ministry of the Environment will be responsible for the task of water planning. The Ministry will set up 7 local environmental offices that will be in charge of making river basin

management plans for each of the four Danish river basins. The 5 new regions can become involved in the process as coordinators, if required by the municipalities, though they will have no real authority for solving potential conflicts.

The Ministry will be responsible for elaborating a water plan for the whole country bringing together the various water issues. This plan will probably be quite detailed. The plan will be particularly targeted at fulfilling the objectives required by the WFD. The Danish government has until the end of 2008 to present its proposal for their water management plans which have to be finalised by the end of 2009. The municipalities will however have only half a year to elaborate their local plan for water management. This short period of time implies that it is unlikely that the municipalities will have time to make their own analysis, thus relying on analysis and concrete criteria elaborated at the national level.

The municipalities have now also been given much more responsibility in the implementation process than was originally the case. Indeed each municipality will now have to make a local action plan that aims at operationalising the objectives developed in the future water district management plans. Thus, the main responsibility for the municipality is to ensure that the objectives set at the state level are achieved. Basically, the aim of these municipal plans is to concretely express how the national water plan will affect each municipality, and what each municipality needs to do to implement the water plan. The municipalities will also however have the opportunity to influence the process of elaborating the national water plan. Indeed, the proposal for the water plan, due by the end of 2008, will be subject to a public hearing where the main stakeholders can comment on it.

It thus seems that, in Denmark, a double process of centralization and decentralization is currently occurring simultaneously though at different levels of the decision-making process. Indeed, the process of coordinating policies as well as conceiving them has become more centralized at the national level. Contrary to this however the implementation of policies related to the implementation of the WFD in Denmark has been devolved down to the municipal level.

Principles implemented

Denmark has applied the principle of river basin districts outlined in the WFD. Four such districts have been created, one of which is a transnational district, shared with Germany. No new authority has been created to elucidate these river management plans. This responsibility will be shared by the Ministry of the Environment (with the intermediary help of 7 local environmental centres) and the municipalities themselves. Each level will however have a distinct role in the process. The Environmental Aims Act (*Miljømålsloven*) takes into consideration the environmental objectives linked to the requirements of the WFD. The

analysis related to article 5 of the WFD is undertaken by the Danish EPA. The first part of the analysis was sent to the EU Commission in 2005 while the second part was delivered in the summer of 2006.

The former Danish water management system could only deal with point sources. The implementation of the WFD will however improve the capacity of the municipalities to take care of diffuse sources such as pollutants from agricultural activities. The stakeholders in the water management process will be consulted by the Ministry before the finalisation of the Water management plans in 2009. These stakeholders in the main however represent NGOs or private actors. The general public will in the main be informed, but not directly consulted, over the development of water management plans. Indeed it is generally understood that the NGOs are already representing the interests of the general public in this context. The Ministry of the Environment will delegate the elaboration of the river basin plans to its local environmental offices. However, because the 2 main continental river basins are very large, it is their intention to elaborate more detailed plans for approximately 25 sub-basins.

Impacts and effects on planning systems

It is difficult to chart the effects that the implementation of the WFD has had because of the major ongoing administrative reform that has changed the roles and duties of actors' at all three levels of authority. It is also worth remembering that the continuing process of WFD implementation taking place after the administrative reform (1st of January 2007) will now be rather different from that which has preceded it. In principle however the implementation of the WFD has not led to major changes in the way in which the spatial planning and the water management systems are interrelated. Indeed, the Danish system already functioned almost as required by the Directive, the main difference being that the unit of reference for water planning was the county rather than the river basin district. The 2007 administrative reform that has now been put in place however will however change the way in which spatial planning and water management interacts.

One potentially positive effect of the administrative reform is that decisions are now taken closer to both the parliament (water planning is now to be practiced at the national level) and the citizens (municipalities are responsible for drawing up the action plans to concretely implement the water plan). This might improve the accountability of the actors involved in the water management process.

The main benefit of the implementation of the WFD relates to the setting up of concrete quantitative environmental objectives linked to the achievement of a good water status. Denmark had traditionally used, in the main, qualitative objectives. The WFD will certainly enable it to meet these objectives by connecting them to quantitative criteria to be achieved within a certain period of time. The fact that municipalities will be practically in charge of both

land-use planning and water planning might, moreover, lead to the better integration of issues related to both.

Conflicts and synergies

The main challenge concerning the implementation of the water framework directive in Denmark is linked more to the ongoing administrative reform than to the particularities of the directive itself. Indeed, as stated previously, the directive is very much in line with the former water management system, with the counties being responsible for the elaboration of water management plans for each river basin. A clear challenge here however concerns the actual capacity level of the municipalities to better elaborate their local action plans. The municipalities will certainly need the support of the state in order to deploy the necessary competences (technicians, engineers...) to achieve this.

Another likely challenge here relates to the capacity of the municipalities to collaborate on water issues. Because water issues, by definition, go beyond 'artificial' administrative boundaries municipal co-operation across the same river basin will be required. In the three-tiered system (i.e. as was the case with Denmark before the onset of the current administrative reform), the regions had a clear coordination role and had responsibility to make water planning coherent at the regional level, i.e. across municipal borders. Now that the regional level has lost almost all of its prerogatives to either the national or the local level the municipalities will have to find consensus on their own. The municipalities might however, in cases of disagreement, seek the mediation of the Ministry of the Environment which retains ultimate responsibility for water planning in Denmark.

On the implementation side, the fact that most of the prerogatives for spatial and water management planning issues have been devolved to the county councils ensures that good coordination of both sectors is likely to occur. The fact that the county councils also have the responsibility to establish a coordination forum on water management issues, inviting relevant private and public stakeholders, also has a significant influence on the potential for coordination between common actors.

Implementation of the WFD itself in Denmark would not have changed this way of dealing with both spatial planning and water management issues. The impact of the new administrative reform process does however imply a 'new deal' for the coordination of both sectors. Indeed, the 'planning' (i.e. the making of the sectoral plans) duties will be devolved to the national level, and more particularly to the Ministry of the Environment. Already preparing the national spatial plan, the Ministry will also produce a water management plan for the whole country, although taking into consideration the division in river basin districts as required by the WFD. The coordination of the 'planning' side may then be enhanced by this evolution in the system.

In addition to the vertical (from national to municipal)

Table 2.2. Implementation of WFD principles

Principle	System before WFD	System after WFD
River basin as planning and management unit	 River basins were not considered as the unit of reference for water planning issues.	 Four Water districts have been created.
Assignment of international RBD and cross-border / transnational cooperation	 The fact that water issues were dealt with at the regional level prevented the formal setting of a joint transnational unit.	 One of the River basins is shared with Germany.
River basin authorities	 The 15 Regional authorities were in charge of water issues.	 No new authority has been created to take care of river management plans. This responsibility will now be shared by the Ministry of the Environment (with the intermediary of 7 local environmental centres) and the municipalities, although each has a distinct role in the process.
Water quality objectives aiming at achieving "good ecological and chemical status"	 Although water quality has been a strong focus of Danish water management, there was no measurable requirement for monitoring the process.	 The Environmental Aims Act (<i>Miljømålsloven</i>) takes into consideration environmental objectives linked to the requirements of the WFD.
Economic analysis of water use	 No mention of this notion exists in the previous regulation.	 The analysis related to article 5 of the WFD is being performed by the Danish EPA. The first part of the analysis was sent to the EU Commission in 2005, while the second part was delivered in the summer of 2006.
Combined approach for point and diffuse sources	 The former Danish water management system could only deal with point sources.	 The implementation of the WFD will improve the capacity of the municipalities to take care of diffuse sources, such as pollutants from agricultural activities.
River Basin Management Plans	 Water management plans were a part of the overall regional plans drafted by the regional authorities.	 The Ministry of the Environment will delegate the elaboration of the river basin plans to its local environmental offices. However, because the 2 main continental river basins are very large, it is intended to elaborate more detailed plans for approximately 25 sub-basins.
Public participation	 Denmark has a long tradition of involving the general public and other stakeholders in water management issues.	 The stakeholders of the water management process will be consulted by the Ministry before the finalization of the Water management plans in 2009. However, these stakeholders mainly represent NGOs or private actors.
	Applied	The information in the table provides a qualitative assessment of the degree to which the key principles of the WFD were applied before and after the adoption of the WFD in 2000. The information referring to principles for which deadlines have not yet been reached indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based on the literature found and interviews carried out at the time the study was performed in 2006. Note that this information does not necessary reflect the view of all parties involved in WFD implementation.
	Partly applied	
	Weakly/not applied	

coordination of both sectors, it is not clear, at least at this stage, how the horizontal (between municipalities) coordination will turn out. In fact, if the new counties attempt to act as facilitators in cases of conflict between the municipalities, their lack of decisive power will probably prevent

them from having a significant influence on the process. In cases of conflict, the better 'referee' might then turn out to be the Ministry of the Environment itself, the competent authority for both water management *and* spatial planning.

Conclusions

The spatial planning system in Denmark was traditionally characterised by a clear division of responsibility between the three tiers of government (national, regional and municipal). Each of these levels had the duty to regularly produce a cross-sectoral plan. The principle of subsidiarity can be also considered as a strong driver of spatial planning and regional policies.

The administrative reform put in place on the 1st January 2007 confirms the move from a three-tiered (State-Region-Municipality) to a two-tiered (State-Municipality) administrative system in Denmark. Most of the prerogatives formerly attributed to the regional level have now been devolved to either the national or local levels.

The Danish water management system, prior to WFD implementation, involved each of the three government levels. The Ministry of Environment and Energy was tasked with setting up the overall legislative framework for the management of water resources, essentially in accordance with EU and international treaties and agreements. In the context of this traditional schema the regional level was the competent authority for elaborating the water management plan while the municipalities were responsible for the supply of drinking water and the treatment of water wastes.

The new administrative reform, combined with the implementation of the WFD, will however have a significant impact on how water resources are managed in Denmark. Denmark commenced with WFD implementation after a new regulation was passed in 2003. At that time, the designated competent authority for the elaboration of water management plans was the county authority. This division of responsibilities suited the existing water management system as the counties already had the duty to elaborate water plans, although this was at the county scale rather than that of the river basin. Denmark is now to be divided into 4 river basin districts. These are however so large that they will, in practice, be further sub-divided into sub-basins and two additional smaller areas (encompassing the island of Bornholm and a trans-boundary basin shared with Germany).

The newly adopted administrative reform has however significantly impacted the way in which the WFD will be implemented in Denmark. This is particularly the case in respect of water management. The Ministry of the Envi-

ronment is responsible for elaborating the water management plans (to be finalised by the end of 2009), thus securing a holistic approach to water issues for the national territory in its entirety, while the municipalities will be in charge of concretely operationalising the plan at the local level by elaborating local 'action plans'. Moreover, the municipalities will have the opportunity to influence the elaboration of the national water management plan as it progresses through a hearing process before it has to be finally drafted.

Denmark has a long tradition of water planning though implementation of the WFD raises many new expectations. Indeed, the perspective taken previously was mainly qualitative, while the WFD will enable planners to use quantitative objectives in order to achieve a good water status in each of the Danish river basins.

The new water management system relies heavily on the capacity of the municipalities to further elaborate the local action plans which is a rather new prerogative for them. Moreover the municipalities will need to collaborate to secure the achievement of good ecological status in the river basin districts. In fact, the future challenges linked to the WFD mainly relate to the administrative reform rather than to the directive itself. There is already, moreover, a high level of awareness of this issue at every level in Denmark.

References

Literature

- Bach, H., Christensen, N. & Kristensen, P. (eds.) (2002): The State of the Environment in Denmark, 2001. National Environmental Research Institute. - NERI Technical Report 409.
- Böhme, K. (2002): Nordic echoes of European spatial planning Nordregio, R2002:8, Stockholm.
- De Heer, J., Nijwenning, S., De Vuyst, S., Van Rijswijk, M., Smit, T. & Groenendijk, J. (2004): Towards integrated water legislation in the Netherlands – Lessons from other countries Ministry of Transport, Public works and Water management, The Netherlands.
- EC (1999): The EU compendium of spatial planning systems and policies: Denmark Luxembourg: Office for Official Publications of

the European Communities.

Enemark, S. (2002): Spatial planning system in Denmark Publication No 2, April 2002, The Danish Association of Chartered Surveyors, Copenhagen.

Iversen, T. M. (2001): Implementation of the Water Framework Directive in Denmark Newsletter European Centre for River Restoration Vol. 5 –No. 2 July 2001.

Jorgensen, L. F. & Brandt, G. (2004): Description of the wider water resources management in Denmark in Test of Bayesian belief network and stakeholder involvement GEUS, Copenhagen, 2004 (<http://www.geus.dk/program-areas/water/denmark/rapporter/merit-dk-2004.pdf>).

Ministry of the Environment (2002): Spatial planning in Denmark Available on www.spatialplanningdepartment.dk.

Interviews

Harley B. Madsen, Head of Department, Fyn County

Mogens Kaasgaard , Engineer, Danish Environmental Protection Agency

Other sources

Danish Environmental Protection Agency, www.mst.dk

Environmental Aims Act (Miljømålsloven)

Ministry of the Environment, www.mim.dk

The Planning Act in Denmark (Consolidated Act No. 763 of 11 september 2002)

Estonia

Patrick Lindblom¹, Nordregio

Introduction

Spatial planning system

Most significant in the recent evolution of spatial planning in Estonia has been the decentralisation of planning powers from the central Government to local municipalities (www.vasab.leontief.net). According to the Territory of Estonia Administrative Division Act of 2002 Estonia is divided into 15 administrative counties and 241 local municipality units each endowed with specific powers.

At the *National level* the *Planning Department* of the *Ministry of the Internal Affairs* administers and supervises nationwide planning activities. The Ministry's tasks include planning and drafting of the planning legislation and the national spatial plan in co-operation with the county governments, preparation of guidelines on general and detailed planning, organising in-service training and representing Estonia in international planning co-operation (Ikonen, 2005).

At *regional (county) level* the interests of the State in the county are represented by *County Governors* who are responsible for the drafting of *county plans*. They also look after the balanced development of the county, exercising supervision over planning activities of local governments, while coordinating cooperation between the regional offices of ministries and local governments. Another important agency at the county level is the *Department of Planning and Development* which is responsible for the elaboration of *county physical planning* (Ikonen, 2005).

At the local level *local governments* prepare comprehensive and detailed plans. The Municipal council has the exclusive competence to initiate, approve and adopt comprehensive and detail plans and to secure the public participation in the process (Ikonen, 2005).

Water management planning system before the WFD

Estonia has relatively long tradition in water management (HM). During the Soviet era water management was di-

rectly related to and organized by river basins. After independence in 1991 the river basin water management approach was replaced by the administrative division of the territory, which followed county and municipality borders instead of those of river basins (United Nations, 2001.)

The institutional framework has been restructured and decentralized with a view to improving organisational responses to the ongoing changes in the legislation and the need for coordination between institutions. One outcome of these reforms was that a new institutional framework for water management was subsequently stipulated by the 1994 Water Act. Until 1995 Estonia's institutional framework for water management was made up of a three tier system composed by:

The Ministry of the Environment- responsible for, among other things, developing water legislation, formulating general water management policy and setting up water quality standards.

The Health Service- Under the Ministry of Social Affairs which was responsible for checking the quality of drinking-water.

The Regional Environmental Departments- At the County level, in charge of the implementation of the water resource management policy in close cooperation with local governments (municipalities and settlements). The Regional Environmental Departments, also issued permits for ground and surface water use (abstraction and discharge).

Local governments- Responsible for water-supply and sewerage. Notwithstanding local government responsibility for a substantial part of water management, these constituted no more than a few sentences in the statute books, especially in the Act on Local Governments adopted in 1990 (United Nations, 1996).

Before implementation of the WFD in Estonia water management impacted on spatial planning and land-use planning systems in relation to water protection areas and irrigation infrastructure and protection belts along riversides and drainage. Environmental impact assessments and land-use regulations (zoning), moreover, played an important role in addressing and managing both ground

¹ The author would like to thank Marina Hiiob, Ministry of the Environment and Marika Tamm, Läänemaa County Environmental Department for their insightful comments on an earlier version of this country-study.

and surface water problems (United Nations, 1996). This connection existed because spatial plans needed to be coherent with each other and with plans on, among other things, nature resource protection (United Nations, 2001).

Despite the connections between spatial planning and water management that existed prior to WFD implementation water issues were, nevertheless, poorly addressed in spatial planning. While the consideration of water resources was absent environmental issues in relation to the National Spatial Plan were one of the weakest themes in regional plans during the period 1998-2001. In 2001 the counties were given the task of preparing sectoral thematic

plans addressing environmental issues. In these plans water resources including river basins, lakes and coastal areas, were explicitly taken into consideration. The approach to water resources was however based on environmental protection zones for the conservation of natural habitats as stipulated in the Nature Protection Act (LJ). At the local level however neither comprehensive nor detail plans paid special attention to water issues. In practice, the inclusion of water resources in county and detail plans was almost exclusively in respect of water supply and sewage networks. One of the reasons for the absence of water resources in spatial planning was the fact that Estonia had never previously had significant problems in accessing clean waters (RR & LJ).

Implementation of the WFD

Process of implementation and principles implemented

The WFD was introduced through the 2001 amendment to the *1994 Water Act*. The implementation of the WFD implied a return to the river basin management approach through the reintroduction of river basins as planning units. Additional principles were also introduced, including provisions on River Basin Management Plans (RBMPs), programmes of measures and public participation.

Other principles for instance on water quality objectives to achieve good ecological and chemical status, and the need for a combined approach have not yet been fully institutionalized in the practical execution of water management (RR). Specifically, the objectives connected to the attainment of good ecological and chemical statuses are closely connected to the EU's inter-calibration process which has proved highly complex and has thus suffered numerous delays. In order to improve the practical execution of this principle the Estonian Ministry of the Environment opted to make a new regulation on, "*The status of water bodies, the quality elements for the estimation of the status and the rules of procedure for the estimation of the status*" which it plans to put in place by March, 2007 (HM).

In accordance with Article 3 of the WFD the first river basin district was established in 2001 comprising of the whole territory, sub-divided into eight surface water sub-basins and one specific sensitive groundwater area (RR). This division was made based on the fact that Estonian rivers and their catchment areas were too small to justify further territorial division (United Nations, 2001). This model of one single river basin district was however soon recognised to have become inefficient in terms of the demands set by the WFD. Specifically Estonia's geographical position and trans-boundary relations with its neighbouring countries demanded the division of the territory into

smaller river basin districts (RR).

On the 3rd of June 2004 the Estonian Government adopted a new regulation on the designation of river basins dividing the territory of Estonia into three river basins and eight basin sub-districts (www.envir.ee). This new division aimed at simplifying the work on river basin districts by preventing the spread of trans-boundary problems throughout the entire territory (RR). These three river basins and their corresponding basin sub-districts are (Figure 2.4. and Figure 2.5.) (www.riverdialogue.org):

- *The West-Estonia river basin (Lääne-Esti)* - comprising the sub-districts of the West Islands, Harju, Matsalu and Pärnu.
- *The East-Estonia river basin (Ida-Esti)* - comprising Peipsi, Viru and Võrtsjärve sub-districts.
- *The Koiva river basin* - establishing an international river basin including the Koiva River and its basin located in Latvia.

In addition to the recognition of river basins districts and sub-districts as the units for water management responsibility for common water resources could also be shared simultaneously by the authorities of several river basin districts. For example, responsibility for groundwater protection in the *Pandivere groundwater river basin sub-district* (Figure 2.5.) falls both within the West-Estonia the East-Estonia river basin districts (www.riverdialogue.org).

Estonia has already put the stipulations of the WFD into practice at the sub-district level. In conjunction with the implementation process of the WFD, by the end of 2006, four management plans for river basin sub-districts had been approved by the Ministry of the Environment, namely the management plan for the *Pärnu*, the *Lääne-saarte* (West Islands) and the *Viru* river basin sub-districts in addition to the *Pandivere* ground water basin sub-dis-

Figure 2.4. Estonia's territorial division in river basin districts

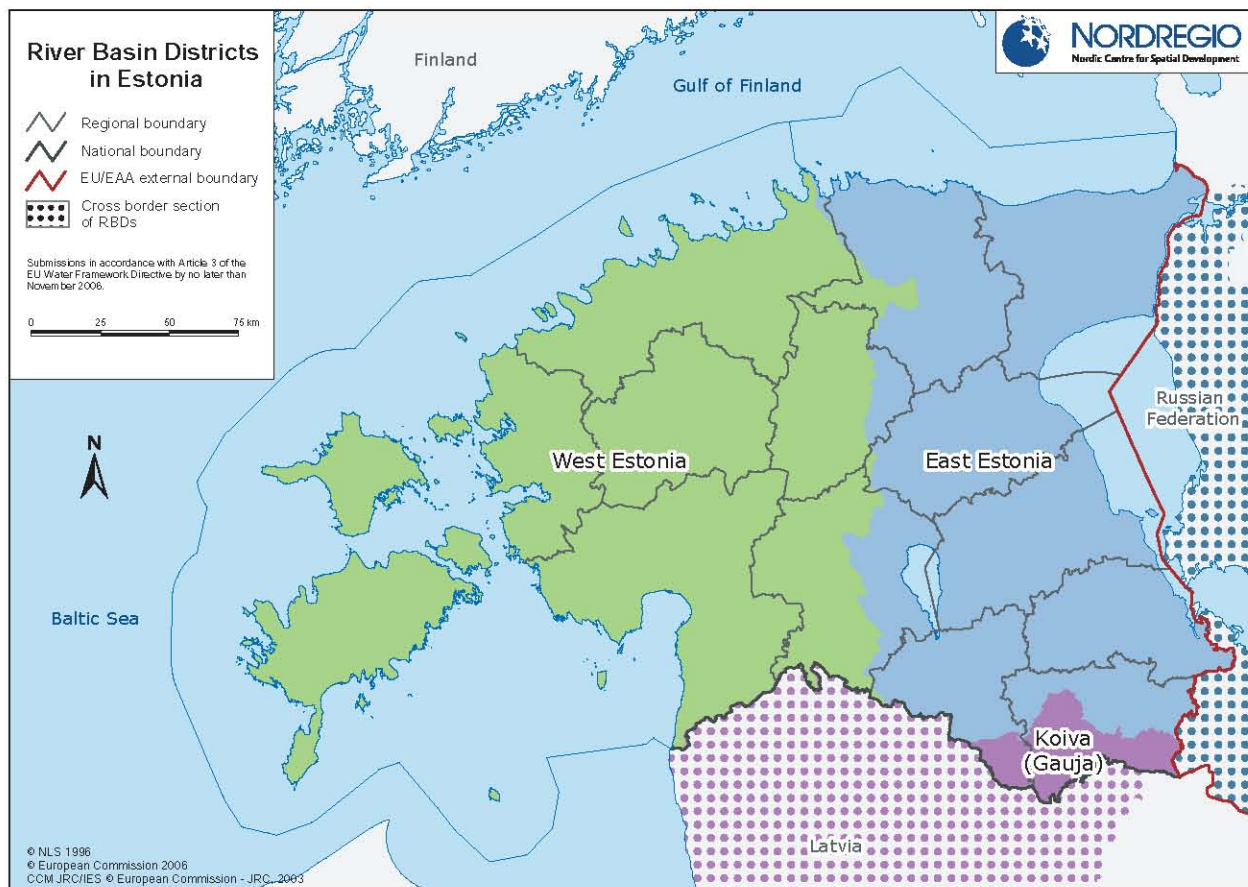
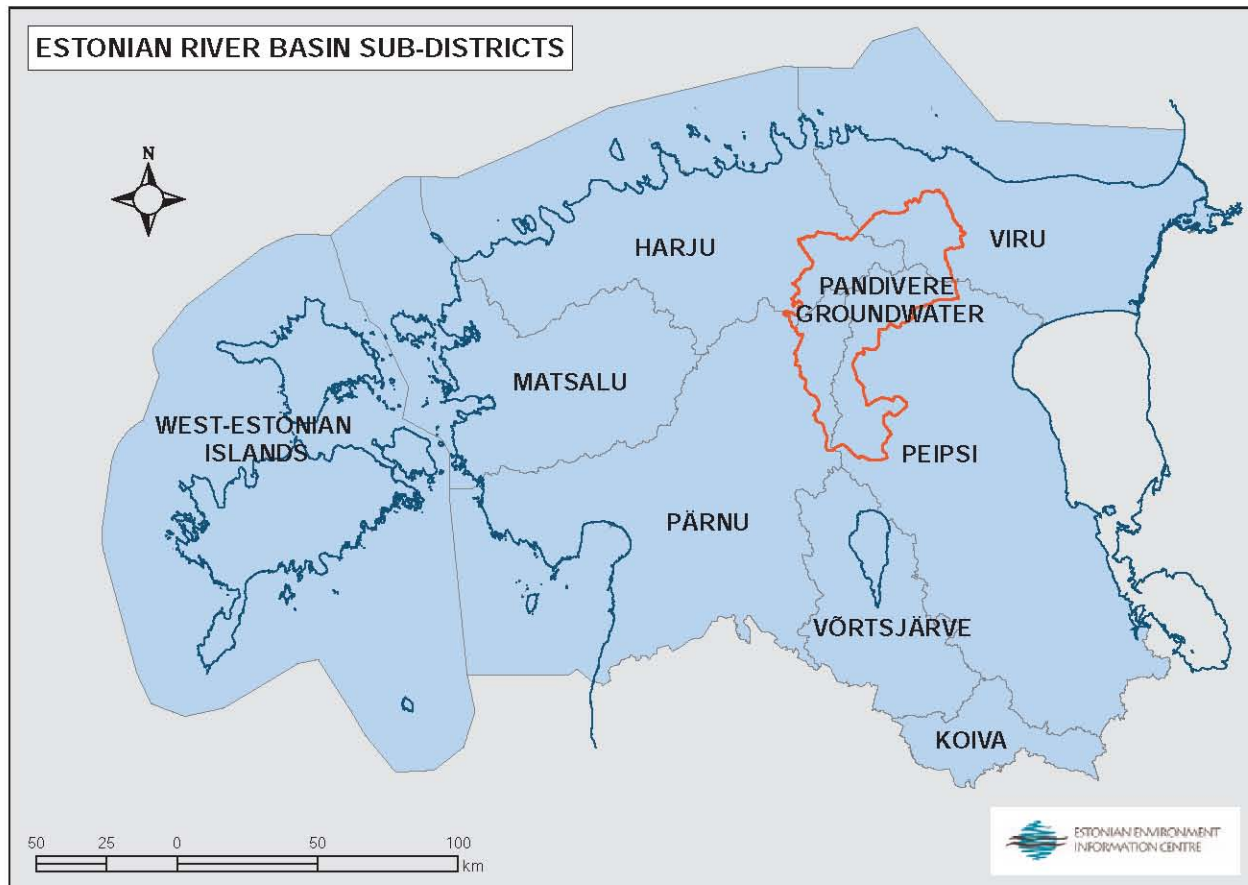


Figure 2.5. Estonia's territorial division in river basin sub-districts (Source: Estonian Environment Information Centre)



trict (See Figure 2.5.). Despite the fact that the management plans for these sub-districts are not fully in compliance with the demands of the WFD, partly because the Directive provides provision only for RBMPs, they do however constitute important accomplishments towards the establishment of the Directive (RR and HM).

It remains the belief in Tallinn that the management plans for river basin sub-districts are still too technical to be fully understood by officials from other sectors. This perhaps partly explains why no significant objection was made during the consultation and approval of, at least, the plans for the *Pärnu* and *Pandivere* river basin sub-districts (RR). In order to solve this problem however both plans were recently amended and published in 2006. These latest versions are thus better designed and more likely to be understood by the relevant target groups (HM).

With regard to the WFD's Article 5 provisions on the economic analysis of water use these are not as yet fully incorporated into the legislation though improvements have been made in the new Water Act, which will come into force in 2008 (AM). Additionally, the Ministry of the Environment succeeded, in 2005, in submitting the analysis of the River Basin Districts in compliance with Article 5 (www.europa.eu.int).

Despite the fact that WFD implementation saw a significant improvement in public participation through the amendment of the Water Act in 2001 the Estonian system continued to lack a comprehensive approach to the organ-

isation of increased public influence (United Nations, 2001). Further changes in respect of public participation were thus made to the Water Act which was again amended in 2004 specifically in relation to Article 38 which included among other things the opening of proceedings in the preparation of RBMPs. More specifically, the process involves public participation in two phases:

- On the initial outline of the RBMP through public meetings. Thereafter the plan is approved by the ministries involved in addition to the county and local governments located within the river basin district.
- On the final draft of the RBMP by means of public consultation. Based on results obtained from public meetings and the public consultation process the Ministry of the Environment shall make the necessary amendments to the RBMP. The relevant actors here are the county governments, local governments and residents of the territory. The Ministry of the Environment also has the responsibility to involve civil society groups including industry and agricultural communities and local authorities in the preparation and approval of the RBMP.

Estonia has more or less succeeded in complying with both the deadlines of the WFD and its application responsibilities in respect of the European Commission though little progress has been made in terms of institutionalizing the

Directive. The principles introduced by the amendments of 2001 and 2004 to the 1994 Water Act moreover continue to remain too general in nature lacking implementing regulations, especially when defining and providing instructions to the various authorities concerned on how to proceed with the management of river basin districts. Despite attempts to solve this problem between 2001 and 2004 the lack of suitable new regulations has undoubtedly undermined the implementation process (RR).

According to Rene Reisner at the Estonian Ministry of the Environment, despite the fact that some of the early 1990s Estonian principles of water management resemble those of the WFD, the system was not, in general, in compliance with the aims and goals of the WFD. The adoption of the river basin approach was moreover considered by many to be a political decision by the Estonian Government of the time designed to highlight its then ambition to become an EU member. The river basin approach soon however turned out to be a central and indeed valuable element in both the

Example: The impact of the water management plan of the Pandivere ground water basin sub-district

Work on the water management plan for the *Pandivere* ground water basin sub-district began in 2000. It was first drafted in 2002 and later amended in 2003 and again in 2005. Many sectors and actors were involved in the elaboration of the plan, including the agriculture, environment and health sectors in collaboration with the Environmental Departments of the *Järvamaa* and the *West Viru* counties, the municipalities and various civil society actors from the sub-district (AM).

The plan was constructed around a consensus between interest groups connected with rural development and water management. Attention in respect of the plans contents varied among the various sectors with agricultural concerns being the most affected and thus the more concerned (AM). Priorities in the plan were made in favour of rural development goals and it was decided that agricultural activities should be preserved while ground waters must also be protected.

In terms of the benefits obtained from the process of elaborating the plan, the reinforcement of the role of the municipalities in water management has been most significant. Moreover, the plan has increased the level of cooperation between various sectors resulting in better awareness of the importance and sensitivity of this groundwater reservoir. (AM).

current and the future development of the water sector in Estonia (RR).

Trans-boundary cooperation

The use and protection of trans-boundary water bodies remains in the competence of the Government while being regulated through international treaties. In addition to the eighteen cooperation agreements signed by the Estonian Government pre-2001 a specific trans-boundary cooperation agreement that could be regarded as a direct consequence of the adoption of the WFD also existed. This was the cooperation agreement on the protection of the *Koiva River Basin* signed by the Estonian and Latvian Governments in 2004 (RR, Ministry of the Environment, 2005).

Current cooperation between the Republic of Estonia and the Russian Federation in the field of trans-boundary water in respect of the East-Estonian river basin district also exists, based on the agreements of the protection and sustainable use of common trans-boundary water bodies. No cooperation has however been carried out with the Russian Federation in respect of the identification of water bodies (Ministry of the Environment, 2005).

Levels of implementation

Distribution and the assignment of new responsibilities have been central tasks in the implementation of the WFD (RR). These processes are of two kinds; the first is the continuation of the transfer of decision-making on water management to the local level initiated by previous EU Directives. Secondly, responsibilities for the elaboration and approval of water management plans for river basin districts and sub-districts have been distributed among actors at the national and regional (county) levels.

The central institutions with overall responsibility for the work on water management in river basin districts in Estonia include the Ministry of the Environment and eight County Environmental Departments for their respective river basin sub-districts. According to the last amendment to the 1994 Water Act, made in 2004, the current institutional framework for water management consists of:

- *The Government of the Republic* - who has responsibilities in the administration of water use and in the protection of water at the state level. Moreover the Government is also responsible for the approval of RBMPs.
- *The Ministry of the Environment* - through the *Water Department* is the lead agency for water management with responsibility for supervising and approving both the RBMPs and the management plans of river basin sub-districts after consulting with the Ministry of Internal Affairs, the Ministry of Agriculture, the Ministry of Communication, the Ministry of Finance and the Ministry of Social Affairs (RR).
- *The Environment Information Centre* - works under the Ministry of the Environment it supports the process of elaborating both the RBMPs and management plans for river basin districts and sub-districts by collecting, processing, analysing and providing environmental information and data to all water management institutions as well as to other national and foreign organisations. The work is based on legislation concerning environmental information and is regulated by the Aarhus Convention, the Directive 2003/4/EC and the Framework Directive on Environmental Reporting 91/692/EEU (www.keskkonnainfo.ee).
- *The Health Protection Inspectorate* - under the Ministry of the Social Affairs, has preserved its role in supervising compliance with the requirements on drinking water quality and the requirements for water use and protection.
- *Eight of fifteen County Environmental Departments* - under the Ministry of the Environment, each is responsible for the elaboration and execution of the management plans for a specific river basin sub-district. They collect information and send it to the environmental information centre at the Ministry of the Environment. The Environmental Departments for each of Estonia's 15 counties also have the responsibility to guarantee that the management plans for both river basins and basin sub-districts are factored into county and detail plans (RR). The county Environmental Departments also co-operate with government ministries across various sectors, local authorities and private stakeholders. Permission for the usage of fresh water and for the release of waste water are given by County Environmental Departments (Hiiob, 2006).
- *The local governments (Municipalities)* - have the power to grant licences for construction, organise the administration of water bodies belonging to local governments, organise measures in respect of mitigating water accidents and sudden water pollution and establish temporary restrictions concerning public water bodies pursuant to sub-section 7(4) of the Water Act. Moreover, drinking water and waste-water treatment facilities are managed and planned by local authorities. By legislation, the local authority also has the responsibility to provide safe drinking water and to

Figure 2.6. Current Institutional framework for water management in Estonia. (Source: Hiiob, 2006)

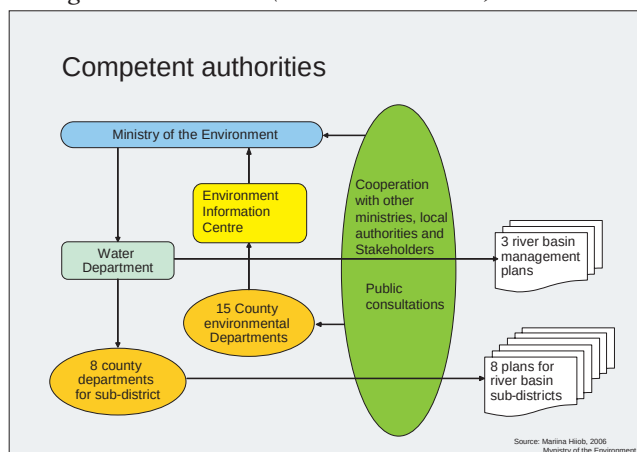


Table 2.3. Implementation of WFD principles

WFD principle		System before WFD	System after WFD
River basin as planning and management unit		 The 1994 Water Act did not define river basin districts as unit of water management.	 River Basins have been recognised as planning and management units for water management since 2001. In 2004 three river basins and eight river basin sub- districts were designated.
Assignment of international RBD and cross-border / transnational cooperation		 The 1994 Water Act did not contemplate international RBDs. However, between 1995 and 2001 Estonia signed eighteen bilateral environmental agreements with other European countries including Russia.	 Competent authorities at both the national and the regional levels cooperate with neighbouring countries in the management of trans-boundary river basins.
River basin authorities		 Since RBDs were not recognised as administrative units for water management no river basin authorities existed.	 The competent authority is the Ministry of the Environment. River basins are coordinated by the Ministry while river basin sub-districts are coordinated by the county environmental departments.
Water quality objectives aiming at achieving "good ecological and chemical status"		 The 1994 Water Act contemplated the principle of "achieving ecological balance in water bodies" but there was no practical execution of this principle. The relevant environmental legislation also displayed gaps especially with regard to environmental quality objectives for waters.	 The physical and chemical elements of waters are contemplated by the legislation. A more precise regulation containing the ecological and chemical status of the surface water is about to be approved.
Economic analysis of water use		 The elaboration of an economic analysis of water use was not a standard procedure in water management terms.	 The river basin districts' analyses have been produced and delivered in time. Further improvements to the legislation are ongoing.
Combined approach for point and diffuse sources		 The combined approach was not contemplated by the 1994 Water Act.	 Not fully incorporated into the legislation. The water management plans for river basin sub-districts produced thus far have covered both point and diffuse polluting sources.
River Basin Management Plans		 The elaboration of RBMPs was not contemplated by the legislation during the 1990's	 Provisions on RBMPs are stipulated by the legislation. Four water management plans for river basin sub-districts have been produced and four more are about to be approved.
Public participation		 Public participation in the environmental sector was limited mainly due to the lack of precise regulations on consultation and access to information.	 New provisions on public participation have been introduced in the legislation. Public hearings and consultations have been carried out in connection to the four existing management plans for river basin sub-districts.
	Applied	The information in the table provides a qualitative assessment of the degree to which the key principles of the WFD were applied before and implemented after the adoption of the WFD in 2000. The information referring to principles which deadlines have not yet been reached, indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based on the literature found and interviews carried out at the time the study was performed in 2006. Note that this information does not necessary reflect the views of all parties involved in WFD implementation.	
	Partly applied		
	Weakly/not applied		

manage the waste-water issues. The operation of these activities can either be directly carried out by municipalities or by contracted private companies.

The level of awareness among Estonian professionals on the content and goals of the WFD appears to be higher in national level institutions than in those at the local level (RR). The success of the coordination work done at the river sub-basin districts level is possible to illustrate by using the examples of the plans for the Pärnu and Pandivere river sub-basin districts. Within these sub-districts a coordinating working group responsible for the implementation and update of the water management plan exists. The working group consists of experts from different sectors and representatives from non-governmental organisations. The activities of the working group are organised by Järva County Environmental Department in the Pandivere ground water basin sub-district, and the Environmental Department of Pärnu County in the Pärnu river basin sub-district (www.riverdialogue.org).

The impact of the WFD on the planning system

The introduction of the WFD into Estonian water management legislation has reinforced the already existing interactions between the sectors for water management and spatial planning through the amendment to the 1994 Water Act of 2004. Specifically, water management plans for river basins and sub-river basins have to be taken in consideration in the compilation, review or revision of the public water supply and sewerage development plan, comprehensive plan and detailed plan of the local government.

Demands on the integration of water resources in county and comprehensive plans are also to be found in both the *1995 Planning and Building Act* and the *2002 Planning Act*. According to these Acts the objectives of country plans are to define the general provisions and conditions of use of water areas. Comprehensive plans shall also determine the general use of water areas but also, in respect of building provisions, for water areas. Comprehensive plans shall also define limited management zones and building exclusion zones on the shores and banks of protected water bodies. In detailed planning terms there are significant limitations in terms of building in areas under nature conservation restrictions, while the shores and banks of water bodies are protected in accordance with the Shore and Banks Protection Act.

Conflicts and synergies

The process of establishing the RBMPs is well financed and investments in respect of the public water supply are quite considerable. This has stimulated the enlargement of the water sector in terms of the number of personnel in particular leading also to the better coordination of activities between all involved actors. Despite the increasing number of civil servants working in the water sector the process of institutional-

izing river basin management in accordance with the WFD continues to progress only slowly (RR). The main problems in respect of the implementation of the WFD are (RR):

- The fact that few experts in Estonian water management have enough experience to understand the WFD concepts at the necessary level
- The absence of many elements of the WFD in the legislation particularly in respect of the implementation regulations
- Lack of experience in river basin water management²
- The Directive's technical complexity
- Inconsistent timing in the life cycles in respect of the various water management and spatial planning plans

The absence of implementation regulations in the legislation has been the major problem in the institutionalisation of both previous and current approaches to water management triggering a series of secondary problems outlined in this section. Consequently, efforts have been made to solve such problems e.g. through the amendment of the new Water Act.

The institutions of spatial planning and water management planning need more experience in river basin management planning to be able to effectively cooperate in this field. Support from external consultants is thus required as they are well familiarized with the tasks of the WFD. The process of defining terms of reference for the work of consultants is still however too time-consuming for the current personnel capacity of state agencies dealing with water management. Another constraint in implementing the WFD here relates to the reliance on carrying out institutional changes and modifying already existent routines. Moreover, in terms of the responsibilities stated by the WFD, the institutional framework for water management is still considered too weak (RR).

The technical complexity of the WFD is also considered to be a potential problem. Taking the water management plans for the *Pärnu* and *Pandivere river basin* sub-districts as an example, it is believed that these have not been adequately critiqued in part because of the technical language used in the plans. More specifically, officials from sectors other than those dealing directly with water issues, find it difficult to completely understand these plans taking away only the most general understanding of the complex piece of legislation notions rather than the clear understanding needed to successfully implement it. On the other hand, the implementation process of water management plans for river basin sub-districts is generally well understood and local stakeholders, particularly by private enterprises who had been able to debate these plans during

² Since the river basin approach was used during the Soviet era Estonia does have experience of RBM. The absence of experience in RBM at the present time is however partly due to this generation of specialists having been progressively replaced.

the public hearings (RR).

Another aspect to consider in relation to the interaction of water management and spatial planning concerns the inconsistency in the life cycles of comprehensive plans and river basin management plans, a problem already stressed by the municipalities. Since RBMPs have a six year cycle while comprehensive plans have a four year cycle respectively, there will be a period of two years within a cycle of twelve years when the plans do not coincide. This inconsistency could cause problems because it results in difficulties in respect of carrying out further changes on already approved plans (RR).

The EU accession process was undoubtedly a significant driving force in respect of WFD implementation. Implementation has however been quite constricted since attention has instead been placed on more urgent tasks (RR).

Despite the creation of new legal instruments the impact of the water management plans for the *Pärnu* and

Pandivere river basin sub-districts in spatial planning has been minimal at both the county and the municipal levels (LJ & AM). Contrary to this however the process of the elaboration of the water management plan for the *Pandivere* ground water basin sub-district has promoted collaboration between various sectors and encouraged public participation. It is also important to note here the fact that these plans have introduced a consensus-based procedure to water management (RR).

There is a clear connection between water management and spatial planning though a gap certainly remains between the approach used in respect of water issues in the county and detail plans and the one used in relation to the RBMPs. Moreover, the experience in respect of the coordination between the institutions of water management and those of spatial planning remains very limited and there is thus a need for the creation of better instruments to facilitate the process of bridging these two sectors together.

Conclusions

The WFD has clearly had an impact on both water management and spatial planning in Estonia though it is only one of many elements in the wider process of the restructuring of state administrative institutions. The implementation process however is now pointing in the right direction and the Directive has “technically” reinforced the already existing interactions between the sectors for water management and spatial planning. There is however a difference between the approaches used in planning with regard to the consideration of water resources in county, comprehensive and detail plans and those stipulated by the Directive itself.

The main problems with the implementation of the WFD are the absence of some of its elements in the legislation particularly relating to implementation regulations but also in respect of the lack of experience in river basin management, and the technical complexity of the Directive. These problems have certainly placed obstacles to the bridging of the existing gaps between the water management and spatial planning sectors in respect of the work on preparing, elaborating and approving the management plans of both river basin districts and sub-districts. Thus, the lack of implementation regulations in the legislation has, in particular, led to interplay problems between the water management and spatial planning sectors when it comes to the coordination of activities.

References

Literature

Ilkonen, R. (2005): National Overview Estonia, in ESPON project 2.3.1- Application and effects of the ESDP in the Member States, Luxemburg.

Ministry of the Environment (2005): Summary Report of River Basin districts, West-Estonian River Basin District, East-Estonian River Basin District, Koiva River Basin District, Tallinn.

United Nations UNECE (2001): Environmental Performance Reviews, Estonia Second Review, Geneva.

United Nations UNECE (1996): Environmental Performance Reviews, Estonia Second Review, Geneva.

Internet

Compendium of spatial planning in the Baltic Sea area. <http://vasab.leontief.net> (05/07/2006).

Estonian Environment Information Centre: <http://www.keskkonnainfo.ee/english/water> (26/07/2006).

Estonian Environment Information Centre: http://nfp-ee.eionet.eu.int/SoE/w/index_en.htm (09/08/2006).

EUROPA – Gateway to the European Union: <http://www.europa.eu.int>: (07/08/2006).

Ministry of the Environment: <http://www.envir.ee> (08/08/2006).
OECD: <http://www.oecd.org> (08/08/2006).

River dialogue: <http://www.riverdialogue.org> (08/08/2006).

Statistical Office of Estonia: <http://www.stat.ee/statistics> (08/08/2006)

United Nations: <http://www.un.org/esa/agenda21/natlinfo/countr/estonia/freshwater.pdf#search=%22Pandivere%20water%20management%20plan%22> (30/08/2006).

Interviews

Aun, Milvi (AM), Chief water specialist, Järvamaa Water Management Department

Hiiob, Mariina (HM), Coordinator, Water Department, Ministry of the Environment

Lass, Jüri (LJ), Head of Department, Strategy and Planning Depart-

ment, Ministry of Internal Affairs

Reisner, Rene (RR), Head of Department, Water Department, Ministry of the Environment

Legislation

1995 Building and Planning Act, last amended 13.06.2001 entered into force 01.01.2002 - RT I 2001, 65, 377.

2002 Planning Act, last amended 06.04.2005 entered into force 08.05.2005 - RT I 2005, 22, 150.

1994 Water Act, last amended 14.04.2004 entered into force 01.05.2004 - RT I 2004, 28, 190.

Other sources

Hiiob, M. (2006): Presentation, WFD and spatial planning in Estonia, in TRABANT Workshop I, February 2006, Stockholm.

Finland

Riikka Ikonen¹, Nordregio

Introduction

Spatial planning system

Finnish planning has its roots in the discipline of architecture and has traditionally as such been separated from environmental and regional development policy. There is a clear distinction between planning and development with planning being understood as land-use planning. Traditionally the state and the municipalities have both been responsible for planning while the regional level has had little real power in this area. (Böhme 2002.) There is no national spatial plan in Finland. The involvement of the national administrative level in spatial planning is carried out via the formulation of national policies and national land use guidelines. The main elements of the legal structure concerning spatial planning consists of the Land Use and Building Act (132/1999) and the Regional Development Act (602/2002).

The Ministry of the Environment is responsible for issues concerning environmental policy and land-use planning. The Finnish environmental administration is constructed such that the Ministry of the Environment has overall responsibility encompassing the Finnish Environment Institute (SYKE), Finland's 13 Regional Environment Centres, 3 environmental permit authorities, and the Housing Fund of Finland (ARA). The Ministry also supervises the nature conservation work of the National Board of Forestry (Metsähallitus), Natural Heritage Services and the Finnish Forestry Research Institute (METLA).

National responsibility for regional development policy and for the allocation of EU Structural Funds, as well as urban policy issues, lies with the Ministry of the Interior. (Böhme 2002.) The Association of Finnish Local Authorities is a lobby- or pressure-group projecting municipal interests at the national level. The most important function of the association is that of mediator between the Ministry of the Interior and the Ministry of the Environment. (Böhme 2002.)

At the regional level there are 19 regional councils plus

the autonomous region of Åland. The regional councils are statutory joint-municipal authorities operating according to the principles of local self-government. The regional Councils draw up a regional plan and a regional strategic programme for the further development of a region. The regional plan defines the objectives for the long-term development of the region. The regional strategic programme shall include development objectives and an outline of the essential measures needed to achieve the objectives and finance the planned programme. The aims of national regional policy and the measures taken to implement them are confirmed in the regional policy objective programme accepted by the Government. In addition to regional development duties Regional Councils also have the right to prepare their own land use plans. The regional land use plan is supervised by a Regional Environment Centre and given confirmation by the Ministry of the Environment. The basic objective is that the regional plan implements national land use guidelines. The legal impact of the regional plan itself is that it must be taken into account when planning, preparing or amending local plans (www.reg.fi/english/engindex.html).

The 13 Regional Environment Centres are part of the state (Ministry of the Environment) regional organisation. They are public units responsible for environmental protection, nature conservation, environmental permits of regional significance, grant subsidies, land use, building, protection of the built environment, and the use and management of water resources. Flood protection is also included in their tasks.

The Ministry of Trade and Industry, the Ministry of Agriculture and Forestry, and the Ministry of Labour have jointly combined their regional forces in the Employment and Economic Development Centres (T&E Centre). Their wide range of activities comprise, among others things, of overseeing the implementation of regional labour policies and influencing and participating in regional development in general.

At the local level, Finland is currently divided into 431 municipalities, of which 114 are towns or cities. The local government level has the exclusive right to initiate carry

¹ The author would like to thank Heikki Mäkinen, the Finnish Environment Institute, for insightful comments on an earlier version of this country-study.

out and adopt local master plans and local detailed plans. Municipalities may also decide on joint master plans, regulate road planning, and the location of retail trade, workplaces, and residential areas. In principle the land use planning system is hierarchic: higher level planning steers plans at lower levels. When a plan has legal power, it is binding for all actors. The local master plan is used to resolve questions concerning the functionality and economics of the community structure, the accessibility of services, the preservation of natural and cultural values, the quality of the living environment and the reduction of environmental hazards. When the plan is being drawn up, consultations have to be held with the Regional Environment Centre, which ensures that national goals are taken into account in local plans. The municipalities are also responsible for environmental and housing issues at the local level. (www.ymparisto.fi.)

Water management planning before the WFD

Water management planning has a long tradition in Finland. Since the 1960s it has been managed by the Water Law (1961). Latterly it has been regulated by the Environmental Protection Act (2000) and the Water Supply Act (2001). The Land Use and Building Act (1999) mainly deals with the issue of building in shore areas. In addition water protection is based on strict permitting procedures and environmental and water permits are required even for small projects and production facilities. Permit procedures involve thorough assessments of the environmental impacts of specific operations and the consequent setting of tailored controls. (www.ymparisto.fi.)

The period from the beginning of the 1970s to the mid-1980s, when overall plans for water use were prepared, is described as a 'golden period' for Finnish water planning. In the overall plans the largest water systems were handled as entities or were divided into several parts. Small water systems were amalgamated into the same planning entities in accordance with administrative borders. This model has certain similarities to the WFD as it was based on river basins. Later, based on the overall plans, general plans for water use were also prepared in some parts of the country. (Mäkinen 2005.)

In parallel with overall planning water protection target programmes and long-term strategies also began to be prepared. The first of the three national water protection programmes identifying targets, measures and instruments was prepared in 1974 and the latest programme, the water protection targets for the year 2005, in 1998, setting out the relevant guidelines for planners, policy-makers and those monitoring water protection schemes up to 2005 (www.ymparisto.fi.) During the 1980s the focus of the target programme was changed and it became more sector specific. At the same time the regional perspective disappeared from the target programmes. The river basin perspective, however, remained in the general plans for water use and water protection, prepared in some parts of the

country during the 1980s and 1990s. The limnologist and hydrological research and research on the follow-ups to natural phenomena have consistently followed a river basin based perspective. (Mäkinen 2005.)

In general however water management planning has traditionally been rather "sector specific" and separated from land-use planning even though links remain between land use legislation and environmental protection. The Land Use and Building Act is one of the laws that regulates environmental issues in addition to the Environmental Protection Act and the Water Act. The Land Use and Building Act defines more general objectives for land use than the special acts. Land use planning is considered to be a comprehensive action that incorporates different interests and that recognises functional needs adjusting them to environmental requirements.

According to the national land use guidelines regional planning needs to take into account areas that are special in respect of the protection of water and shore areas or water areas important for recreation. Regional planning shall also take into account the need to protect and use surface and ground water. In addition it is specifically noted that regional planning shall guarantee water-borne traffic connections from Saimaa to the Gulf of Finland. Concerning those areas of specific natural or cultural importance the objectives note that regional planning shall contribute to the conservation of water areas in Saaris-tomeri, Maankohoamisrannikko and Vuoksi. According to the Land use and Building Act, national land use guidelines must be taken into account in such a way as to promote their implementation in regional and other land use planning.

According to the Land Use and Building Act regional planning shall concern among other things the sustainable use of water and extractable land resources and the protection of landscape, natural values, and the cultural heritage. The law specifies that when the plan is drafted opportunities to organise water supply, drainage, and energy and waste management in an appropriate manner which is sustainable in terms of the environment, natural resources and the economy, must be taken into account. In addition, the reduction of environmental hazards and the protection of the built environment, plus landscape and natural values must also be taken into account.

When the local master plan is drafted the regional plan must be taken into account. According to the Land Use and Building Act the local plan shall be drawn up such as to create the preconditions for a healthy, safe and pleasant living environment. The built and the natural environment must be preserved while their special values should not be destroyed.

In addition the law states that building may not be constructed in zones in the shore areas of the sea or of a water body without a local detail plan or a legally binding master plan which contains special provisions concerning the use of the local master plan, or a part thereof, as basis

for the granting of a building permit. When a local master plan or a local detailed plan (detailed shore plan) is drafted for the principle purpose of arranging for holiday homes in a shore area, care must be taken to ensure that in addition to what is otherwise provided concerning local master plans and local detailed plans:

- the planned building and other land use conforms

with the shore landscape and the rest of the environment;

- nature conservation, landscape values, recreational needs, water protection, the provision of water supply, and the characteristics of the body of water, the terrain and nature are also otherwise taken into account;
- and a sufficient amount of undeveloped and unbroken shore-area remains.

Implementation of the WFD

Process of implementation

In Finland implementation of the WFD entailed a number of changes to existing environmental and the water legislation as well as the drawing up of many new regulations. In Finland the Act on Water Resources Management (1299/2004) and the related Decree on River Basin Districts (1303/2004) came into force in the beginning of 2005, implementing the EU Water Framework Directive at the national level. The Environmental Protection Act and the Water Act have both been amended as necessary while further related legislation is currently being drafted (www.ymparisto.fi).

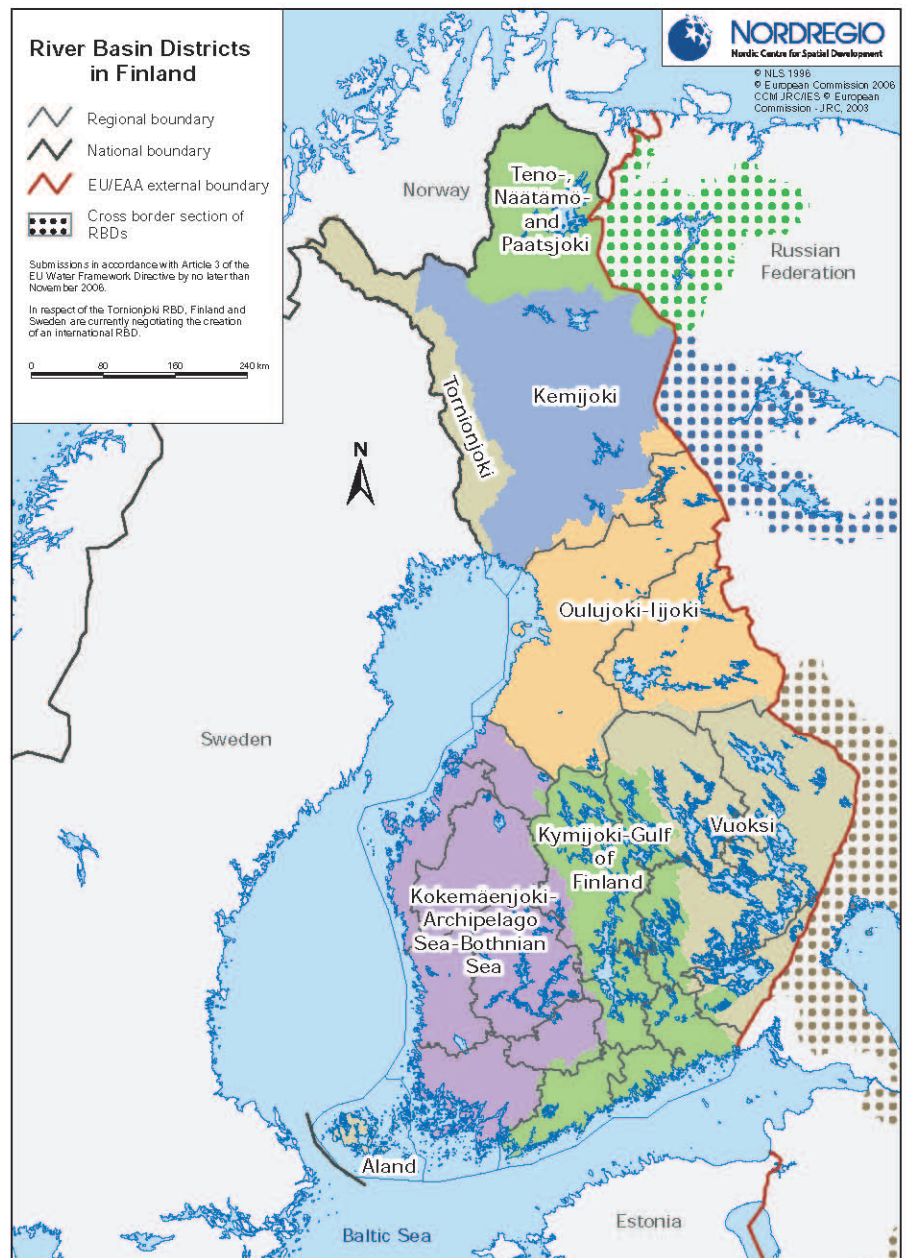
Five river basin districts have been delineated in mainland Finland, while two international river basin districts have also been designated covering parts of Finland, one of which is shared with Norway, and the other with Sweden. The Government of Åland is responsible for the river basin district that covers the autonomous Åland Islands province (www.ymparisto.fi). The national water districts are bound to the largest river basins: Vuoksi, Kymijoki, Kokemäenjoki, Oulujoki and Kemijoki and to these have been linked the adjacent main water systems (Mäkinen 2005.)

Trans-boundary cooperation

Finland had entered into cooperation in respect of water questions with Sweden, Norway and Russia before the WFD. Finland has signed several international conventions

related to the protection of the marine environment and watercourses. Many river basins are shared by Finland and its neighbours, Sweden, Norway or Russia. The most sig-

Figure 2.7. River basin districts in Finland



nificant river basins where international co-operation is needed are those of the rivers Tornio, Teno, Näätämö, Paatsjoki and Vuoksi. Decisions on issues related to these river basins have been handled by trans-boundary river basin commissions set up through bilateral government agreements. The protection of the Baltic Sea is one of the priorities of Finnish environmental cooperation. This work began with an agreement with the Soviet Union in 1964 (subsequently continued with the Russian Federation since 1992), followed by agreements with Sweden in 1971 and Norway in 1980 (www.ymparisto.fi.) The Finnish-Swedish frontier river commission has been different in the sense that it had the right to grant licences concerning fishing waters in the Tornio river area. Cooperation with Russia has concerned, among other things, the drainage of the Vuoksi river. (Interview 2) In addition this cooperation has included shore planning and the monitoring of flood levels and flooding areas (Interview 3).

The legislation for implementing the Directive in Finland will set up two international districts covering the Tornio river basin, shared with Sweden, and the Teno-Paatsjoki basin which is shared with Norway. All of the river basins in eastern Finland shared by Russia will continue to be covered by the bilateral agreement on trans-boundary river basin management, with co-operation overseen by the joint Finnish-Russian commission on the utilisation of transboundary river basins. EU legislation does not bind Russia though Finland will promote the implementation of measures set out in the Water Framework Directive in transboundary river basins shared with Russia (www.ymparisto.fi.)

The agreements with Norway and Russia are unlikely to be changed as quickly as that with Sweden. A new Finnish-Swedish frontier-river commission is to be set up in Torniojoki in place of the current body which emerged at the beginning of 1970s (Mäkinen 2005). After implementation of the Directive cooperation will be deeper with a greater number of common regulations and objectives being put in place. The WFD has not yet however had much influence on international cooperation.

Levels of implementation and key actors

National level

The main responsibility for implementation of the WFD at the national level is with the Ministry of the Environment, the Ministry of Agriculture and Forestry and the Finnish Environmental Institute in addition to the working groups and commissions set up for the express purpose of WFD implementation. According to Mäkinen (2005) WFD implementation at the national level can be divided into four main points:

- Technical implementation of the Directive into Finnish legislation,
- Increasing the natural scientific knowledge needed for implementation,

- Preparation of the guidelines and recommendations for implementation at the regional and local levels,
- Searching for national interpretations of the WFD

The Act on Water Resources Management drawn up for the purpose of implementing the WFD and the additional regulations based on that provided define the tasks of the authorities in this matter. According to the act follow-up and control of the implementation are the tasks of the Ministry of the Environment and the Ministry of Forestry and Agriculture in its operation area. The Ministry of the Environment is also responsible for reporting to the EU Commission. The Finnish Environment Institute is responsible for tasks delegated by the ministries such as those expertise tasks needed in defining the characteristics of surface water and the follow-up to the regional coherence of the classification of surface water as well as tasks related to defining the reference conditions (*vertailuolosuhde*) for surface water.

The Finnish Environment Institute acts in cooperation with the Regional Environment Centres and other authorities. The Finnish Game and Fisheries Research Institute acts in an expert capacity in respect of tasks related to fisheries in accordance with the instructions provided by the Ministry of Forestry and Agriculture. According to the act all national and municipal authorities have a general responsibility to participate in organising water management. This also concerns national organisations and regional councils. This implies a general cooperation responsibility without any new tasks that they would not already follow due to other legislation. (The Act on Water Resources Management (1299/2004).)

Regional level

At the regional level the 13 Regional Environment Centres are responsible for preparing the River Basin Management Plans and for the practical implementation of the WFD. One Regional Environment Centre in every water district has the special task of coordinating work in the respective water district and the centres have received additional resources for this (1 person working year). The Regional Environmental Centres are responsible in their own areas, formed by municipal borders, not according to water districts. At the water district level the Regional Environment Centres search common action lines to advance the procedures required for WFD implementation and to achieve its targets. The Regional Councils are also important in the context of the implementation of the common set procedures. The Fisheries Units of the Regional Employment and Economic Development Centres are tasked with gathering information on fish and fishing in respect of WFD implementation (The Act on Water Resources Management (1299/2004).)

The Ministry of the Environment and the Ministry of Agriculture and Forestry nominated the coordinating authorities so that the authority

- in Vuoksi district is the *South Savo Regional Environment Centre*,
- in Kymijoki Kymijoki-Suomenlahti district the *Uusimaan Regional Environment Centre*,
- in Kokemäenjoki-Saaristomeri-Selkämeri district the *West Finland Regional Environment Centre*,
- in Oulujoki-Iijoki-Perämeri district the *North Ostrobothnia Regional Environment Centre* and
- the *Lapland Regional Environment Centre* is responsible for coordination in Kemijoki, Torniojoki and Tensojoki-Paatsjoki water district.

These decisions were also contained in the regulation (the Decree on River Basin Districts) of the cabinet, based on the Act on Water Resources Management (1299/2004).

In every water district the tasks of the Regional Environment Centre include (The Act on Water Resources Management (1299/2004)) :

- drawing up an account of the characteristics of the waters;
- drawing up accounts of the effects of human activity on the waters;
- compiling economic analyses of water use;
- collecting information on areas to be protected under Community legislation prescribed by Government decree;
- collecting the necessary information on areas designated for household water abstraction;
- preparing a classification of water status;
- organizing water monitoring and the drawing up of a water monitoring programme;
- preparing a water resources management plan and a programme of measures;
- managing other duties designated by the Ministry of the Environment and the Ministry of Agriculture and Forestry for water resources management purposes.

Regional cooperation networks are important since the WFD extends to many administrative areas. The Regional Environment Centres cooperate with other regional administrative actors, such as the regional councils, in different arenas. In addition to the Fisheries Units of the Regional Employment and Economic Development Centres the Rural Advisory Centres are also important cooperation partners in this respect. In addition, the regional cooperation group (*MYR maakuntien yhteistyöryhmä*) which tasks are related to regional development and administration of EU structural programmes remains important regional arena. (Mäkinen 2005.)

In accordance with the law a steering group should be put in place with representatives from a Fisheries Unit of the Economic Development Centres and the Regional Environment Centres. Steering groups do not have authority status but every Regional Environment Centre is competent in the region it operates and one chosen Regional En-

vironmental Centre is nominated to coordinate the steering groups (The Act on Water Resources Management (1299/2004). This legislation came into force in 2004 though steering groups themselves were already appointed in 2003.

The Regional Environment Centres are also tasked with organising cooperation with different authorities and actors at different stages of the preparation of water management plans in their operation area. River basin management planning procedures have been designed to promote transparency, participation and dialogue. Planning processes are led by the regional environment centres and organised through joint working groups whose members also include invited representatives from a wide range of actors. The groups include the main national and local authorities, NGOs, landowners and business interests groups (www.ymparisto.fi.) According to interviewees undertaken this kind of cooperation did not exist before the implementation of the WFD and it is thus viewed as a new information forum for different actors as well as for the municipalities.

The Regional Environment Centres have to ensure that everyone is acquainted with the preparation documents and the background documents while also ensuring that stakeholders have the chance to present their opinions by letter or e-mail. The Regional Environment Centres have to publish announcements about the display of documents for public inspection on the municipalities' notice board in their region. Documents have to be on view in the municipalities (where appropriate) and on the internet. The Regional Environment Centres should also ask for public comments. Proposals for the management plans are also to be published in the newspapers and information meetings organized where needed (The Act on Water Resources Management (1299/2004) 15§.)

An important regional link concerning spatial planning exists between the Regional Environment Centres and the Regional Councils. The Regional Councils, of which the area's municipalities must be members, are charged with the drawing up of regional plans. National land use guidelines are taken into account in regional planning by adapting them to regional and local land use plans. These objectives may also include goals related to water protection and the control of water resources. One of the potential objectives here could be e.g. ensuring the good state of all the surface and ground water. In addition, based on the Rio Agreement 1992 and a national programme for promoting sustainable development in Finland, the Regional Environment Centres have also prepared so called "environmental programmes" in which water management issues have an important role. At least in some regions the objectives of the environmental programme are already pursued and are included in the regional plans (Mäkinen 2005.)

Regional and municipal planning are supervised by the Regional Environment Centres within their respective re-

gions thus creating an institutional relationship between water management plans and land use planning. Regional planning is a complex process in which it is important to ensure that the needs and goals of economic life and environmental protection identified at the national, regional and local levels, as well as the goals of the administrative sectors are compatible (Mäkinen 2005.)

Local level

The WFD is described as a strategic planning tool. Nevertheless the legislative changes undertaken in respect of the WFD will increase the municipalities' tools in relation to water protection as the Environmental Protection Act's 19th section concerning municipalities environmental protection regulation has been changed in respect of the preparation of management plans. A section has been added according to which a municipality can make environmental regulations to improve the state of water if a need for them has been identified in a management plan (Mäkinen 2005.) The link between land use planning and water planning comes through the joint working groups where municipal authorities are also represented.

From 2001 onwards the Ministry of the Environment and the Regional Environment Centres have organised information days in different parts of the country in which municipalities, regional administration authorities and NGOs, as well as local people have been informed about the ongoing WFD implementation process (Mäkinen 2005.)

The WFD is well known by the relevant authorities at the national and regional level. Among the non-environmental authorities it still remains however relatively unknown at every level. The Ministry of the Environment and the Ministry of Forestry and Agriculture have been the most important actors at national level in addition to the Finnish Environment Institute. The legislation and the more general policies needed for implementation of the WFD have all been developed at the national level. At the regional level the Regional Environment Centres have played an important role in bringing the legislation into action. At the local level the municipalities have their own environmental authorities. However, according to Leena Gunnar, resources are rather limited in the municipalities and environmental authorities work mostly with "traditional and central environmental protection issues". In addition to the environment authorities the municipalities usually engage business enterprises which are responsible for water supply and sewerage.

In many cases specific environmental issues will be taken into consideration through the Regional Environment Centres when they are involved e.g. in the planning process. According to the new Land Use and Building Act the Regional Environment Centres are not only to ratify municipal plans but are also to participate in the planning process from an early phase.

The municipalities are represented in the WFD cooperation groups led by Regional Environment Centres but no special task has been allocated to local institutions or organisations. It is early to say what the impacts will be at the local level.

Principles implemented

River basins as planning and management units

In Finland river basins have not been used as water planning or management units before the WFD even though the authorities responsible for water questions had some river basin based experience before the WFD. The Regional Environment Centres have generally been established in accordance with municipal and regional council borders so that there is one Regional Environment Centre in every region. Eight new water districts have been set up in Finland after the implementation of the WFD and management plans for river basin districts are now in preparation.

Cross-border cooperation

No formal international river basin districts were established before the WFD although a long tradition of bilateral cooperation with neighbouring countries does exist. In the future international river basin districts are to be drawn up with Sweden and Norway and also with Russia.

River basin authorities

New water district authorities will not be set up after WFD implementation though the existing authorities and interest groups are expected to act together with the most important facet of cooperation being to make a programmes of measures and a river basin management plan for every district. The Regional Environment Centres have the main responsible for WFD implementation Finland.

Water quality objectives

Before the WFD no water quality objectives were stated in Finnish water legislation. This situation has now been amended after implementation of the WFD. The need for 'a good ecological status' is a completely new aspect of Finnish legislative practice implemented only after the emergence of the WFD. Lakes, rivers, groundwater bodies and the Baltic Sea have been carefully monitored in Finland for decades. Surface waters have thus far been classified using a system that assesses their suitability for human use, but these categories are henceforth to be adapted to give more emphasis to ecological considerations such as the habitat requirements of aquatic plants and animals (www.ymparisto.fi.) The issue of 'good chemical status' was however already assessed before implementation of the Directive. The more specific definition of the content of the objects, undertaken by the Finnish Environment Institute, is still however ongoing. The legislation already exists but in practice it is still to be utilised (Interview 3.) According to the legislation ground and surface water is classified according to the volume of change caused by hu-

Table 2.4. Implementation of WFD principles

WFD principle	System before WFD		System after WFD
River basin as planning and management unit	 Authorities responsible for water questions used river basins before WFD implementation though they were not used as management units		 Eight river basin districts have been designated as management units for water
Assignment of international RBD and cross-border / transnational cooperation	 Formal international river basin districts were not established before WFD implementation although long traditions of bilateral cooperation with neighbouring countries exist		 International river basin districts are being established
River basin authorities	 No specific river basin authorities existed before WFD implementation		 New authorities for water districts have not been introduced after WFD implementation though existing authorities and interest groups are now expected to work together
Water quality objectives aiming at achieving “good ecological and chemical status”	 Water quality objectives were not stated in pre-WFD Finnish legislation		 The implementation of the water quality objectives has begun
Economic analysis of water use	 Economic analyses were not prepared		 Economic analyses are now being prepared
Combined approach for point and diffuse sources	 The combined approach was not utilised before WFD implementation		 The combined approach is now a new element in Finnish water management legislation
Management plans for RBD	 Management plans were not drafted before WFD implementation		 Management plans are now being drafted
Public participation	 Public participation has historically been a part of some project concerning water areas		 Public participation is now enacted in water legislation and is now a central part of the river basin planning process
	Applied	The information in the table provides a qualitative assessment of the degree to which the key principles of the WFD were applied before and after the adoption of the WFD in 2000. The information referring to principles for which deadlines have not yet been reached, indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based on the literature found and interviews carried out at the time the study was undertaken in 2006. Note that this information does not necessary reflect the view of all of the parties involved in WFD implementation.	
	Partly applied		
	Weakly/not applied		

man action. The classification of surface water is based on ecological and chemical status depending on which is worse. The ecological status of surface water can be excellent, good, fair or poor. The chemical status is good if it fulfils environmental quality norms for harmful substances prescribed in specific regulations in the Community Law. Ground waters are classified according to chemical and quantitative characteristics having a good or poor status (The Act on Water Resources Management (1299/2004).)

Economic analysis

The economic analysis of water usage was not practiced before WFD implementation. The Ministry of Agriculture and Forestry is now responsible for compiling the economic analysis (Interview 3, Interview 2.)

Combined approach for point and diffuse sources

Utilisation of the combined approach for point and diffuse sources is a new principle implemented after WFD implementation. Previously point sources were stressed more than diffuse sources (Interview 2, Interview 1).

Public participation

In land-use planning public participation was already a common procedure before WFD implementation and has also been used in some projects relating to water areas. It has not however been a common procedure in water planning/management before WFD implementation. It has been used and prescribed only in the land-use planning legislation. River basin management planning procedures have now been designed to promote transparency, participation and dialogue (see more below) (www.ymparisto.fi).

Impacts and effects on planning systems

The WFD has precipitated numerous institutional changes in Finland as it is currently being implemented via four new laws. The Act on Water Resources Management (1299/2004) and the related Decree on River Basin Districts (1303/2004) came into force in Finland at the beginning of 2005 implementing the EU Water Framework Directive at national level. The Environmental Protection Act and the Water Act have both been amended as necessary while further related legislation is currently being drafted (www.ymparisto.fi.) The new water districts can also be considered as an institu-

tional change caused by the WFD.

The land-use planning and water planning spheres have traditionally been treated separately although planners have also considered water related issues. Water planning in accordance with the WFD will now however be considered in the context of general planning at the regional level. This is a new aspect that also impacts land use planning. In Finland, environmental objectives referred to in the Nature Conservation Act should be used as guidelines in the drawing up of regional plans, and as the 13 Regional Environment Centres control municipal planning within their respective regions, an institutional relationship between the RBMP and spatial planning can now be said to exist (Watersketch 2006). According to the interviews undertaken in the context of this project the WFD should also impact on land-use planning while a link can also now be made to the Land-Use and Building Act. In conclusion, while it is still too early to digest the accumulated changes in planning policy, the changes in water management planning are however much clearer.

With regard to planning practices, planning has become more cooperative, however, in the context of land use planning legislation, this was prescribed already before implementation of the WFD. Public participation has also now become integral to water planning. Most of the expected changes to planning practices are, however, still to be seen (Interview 4.)

Conflicts and synergies

Implementation of the WFD has not caused any significant conflicts with the existing planning system. According to Jukka Matinvesi from the Ministry of the Environment such conflicts are not possible as water planning, in accordance with the WFD, occurs at the general planning level while land use planning occurs mainly at the local level. Mäkinen (2006) does however highlight some possible conflicts. These can occur e.g. between the river basin approach and case specific deliberation. Conflicts can also be faced when different areal bases for management and monitoring (river basins/municipalities) are introduced. There is also a lack of a participatory planning tradition in Finland. The emergence of conflicts around these issues are not however considered very probable. Possible future conflicts could however also occur when the flood Directive is implemented. This entails planning for invasions and reserving special areas for invasion water (Interview 1.)

Conclusions

In Finland water planning and land-use planning have traditionally been managed by two different systems. They are controlled by different legislative tools and different authorities have been responsible for water and land use planning questions. Land use planning has traditionally been controlled by the Land Use and Building Act while water planning was mainly supervised by the Environmental Protection Act, the Water Act and the Water Supply Act. The Land Use and Building Act concerns only some water related issues such as the control of building in shore areas. The Environmental administration system encompasses the Ministry of the Environment, the Finnish Environment Institute and Finland's 13 Regional Environment Centres. These institutions are also mainly responsible for water management and for the implementation of the WFD. The municipalities are responsible for environmental and housing issues at the local level, however, without any special reference to the Directive.

The Finnish system is considered to be easily adaptable to implementation of the WFD. The WFD does not differ markedly from the already existing Finnish water protection policy and no comprehensive changes in the water management are envisaged. WFD implementation has caused some changes to be made in Finnish environmental legislation with the Directive being amended in four different laws. In addition eight new water districts have been established to oversee WFD implementation. There has however not been a need to establish new administrative structures or authorities for the implementation of the WFD.

The newly established water districts and the emergence of ecological and biological water monitoring are considered to be the most significant changes caused by the WFD. The need to ensure a "good ecological status" in addition to the "good chemical status" of water also came about as a direct result of the Directive. The so-called 'combined approach' for point and diffuse sources has also been strengthened after WFD implementation. Public participation was already utilised in land use planning before WFD implementation, however, it is new in respect of water management questions and newly implemented in the legislation concerning water questions. Moreover, cooperation groups, established in relation to implementation are seen as useful forums for different actors at different administrative levels.

In Finland RBM planning can be seen as "general planning" at the regional level that the Regional Environment Centres manage as being responsible for the water management plans and the programmes of measures. Since the connections between the two systems of water and land-use planning have thus far been regarded as non-existent

or, at best, minimal no real conflicts or synergies between the systems have as yet been identified.

Water managers have traditionally had little contact with land use planners and planning has not dealt with water related issues to any great extent. The Regional Environment Centres have however been involved in land use planning through acting as supervisors and by being consulted about plans. This division seems to have remained even after the implementation of the WFD even though many of the impacts have yet to emerge particularly in respect of the possible impacts on land use planning. In terms of the programme of measures, the links between RBM planning and land use planning may in future become clearer, while WFD implementation will undoubtedly have an effect on spatial planning policies and practices.

References

Literature

Böhme, K. (2002): Nordic Echoes of European Spatial Planning, Nordregio, Report, no 8.

Finnish Environment Institute (SYKE), Regional Environment Centres (2005): Water quality of lakes, rivers and sea areas in Finland in 2000–2003 –brochure. Helsinki

Mäkinen, H. (2005): Vesienhoidon hallinta Suomessa. Vesipolitiikan puitesäätödirektiivin toimeenpano vuorovaikutteisen suunnittelun näkökulmasta. Helsingin yliopiston maantieteen laitoksen julkaisu B 51.

Watersketch (2006): Spatial integration of resource management in relation to the Water Framework Directive (Draft report).

Internet

Finnish Environment Institute, www.ymparisto.fi

Finnish Regional Councils, www.reg.fi/english/engindex.html

Ministry of the Interior: www.intermin.fi

Interviews

Heikki Mäkinen, the Finnish Environment Institute (Interview 1).

Jukka Matinvesi, the Ministry of the Environment (Interview 2).

Leena Gunnar, Southeast Finland Regional Environment Centre (Interview 3).

Arto Hämäläinen, Regional Council of South Karelia (Interview 4).

Other sources

Mäkinen, H. (2006): Presentation, WFD and Spatial Planning – Finn-

ish case, TRABANT Workshop I, February 2006, Stockholm.

Policy documents and legislation

Act on Water Resources Management (1299/2004)

Decree on River Basin Districts (1303/2004)

Finland's national Land Use Guidelines. Issued by the Council of State

on November 30, 2000. Environment Guide 93. Ministry of the Environment. Land Use Department. Edita Prima Ltd. Helsinki 2002. Land Use and Building Act (133/1999)

Ministry of the Environment 1998. Water Protection Targets for 2005. Helsinki.

Regional Development Act (602/2002).

Water Act (19.5.1961/264)

Germany (Brandenburg)

Patrick Lindblom and Michael Viehhauser¹, Nordregio

The following study describes in general terms the implementation process of the WFD in the Federal Republic of Germany and its impact on the spatial planning system. Due to differences in WFD implementation among the German Federal States, the scope of this

study specifically covers the impact of the Directive on the planning system in the Federal State of Brandenburg, situated in the northeast of Germany sharing borders with Poland, which are the longest in the country formed by the Odra River.

Introduction

Spatial planning systems

Spatial planning in Germany relies on federal and specialist cooperation instead of hierarchical and centralised decision-making. The system consists of four planning levels:

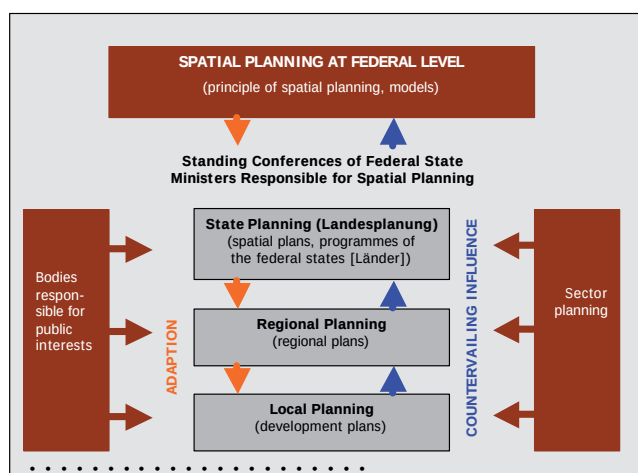
- *The Federal Government* - has the task of setting and defining the general framework of spatial planning as a basis for its plans and measures for the Federal territory (FOBRP, 2001).
- *The Federal States (Länder)* - are constitutionally responsible for the implementation of spatial planning, usually carried out by the State Ministry for Spatial Planning. The Regional Planning Act obliges the Federal States to set up an overall plan or programme for the whole State defining the principles, objectives and requirements of regional planning for the respective territory (Ache et al, 2006).
- *Regions or districts* - in Germany comprise several counties. Regional plans not only contain guiding goals and principles of spatial planning but also concretize statements from the Federal State plan. Other plans produced at this level are landscape plans (FOBRP, 2001 and Ache et al, 2006).
- *At the municipal level* - planning documents follow the principles formulated in the State and Federal planning acts. The two main spatial planning instruments at the municipal level are the preparatory land use plan (*Flächennutzungsplan*) and the binding land use plan (*Bebauungsplan*) (Ache et al, 2006).

Legal competence for spatial planning lies in the Federal States and the municipalities. The system is bound together by the “counter current” principle (*Gegenstromprinzip*, see Figure 2.8.), implying that co-ordination between the different levels of governance take place in short feedback cycles whereas framework decisions with concrete planning are taken at lower levels (Ache et al, 2006).

Water management before the WFD implementation

Federalism and the application of the subsidiarity² principle are the most prominent features of water management institutions in Germany (GRDC & BFG, 2002). Consequently, the institutional framework for water manage-

Figure 2.8. Counter Current Principle: co-ordination in spatial planning (Source: BBR, 2000)



¹ The authors would like to thank Dr. Jürgen Neumüller, INFRAS-TRUKTUR & UMWELT, Potsdam, for insightful comments on an earlier version of this country-study.

² Subsidiarity is the principle which states that matters ought to be handled by the lowest competent authority possible (http://europa.eu.scadplus/glossary/index_en.htm#s).

ment follows the constitutional structure of the Federal Republic. The overall framework for water resource protection, planning and management is traditionally organised around political-administrative units, namely three primary levels of competence in addition to the European Union: the Federal Government, the Federal States and the municipalities (Table 2.5.). These levels do not form a strict hierarchy but are each endowed with specific responsibilities (Pielen et al, 2004).

- *The Federal Government* - has the role of defining and passing the framework legislation for nature conservation, landscape protection, and water management at the federal level.
- *The Federal States* - have the primary competence for water management in Germany including policy-making, planning, and regulation. The Federal States, in co-operation with the Upper and Lower Water Authorities are responsible for water management planning as well as for authorisation, permitting and licensing procedures according to the Federal Water Act.
- *The Länder Water Working Group (LAWA) (Länderarbeitsgemeinschaft Wasser - LAWA)* - was created in 1956 with the task of harmonizing and co-ordinating the various approaches in policy and legislation concerning water management under the water acts. This co-operation has brought about a convergence of water resource protection and management while also disseminating procedures and guidelines across the Federal States.
- *Municipalities* - have the right to self-government within the confines of the law. Municipalities have re-

sponsibility for the local environment and the provision of vital services on their territory for instance water supply services, including water purification and network maintenance, and sewage services. Municipalities are entitled, within the framework of the Federal States in which they are located, to choose freely from a variety of institutional and organisational arrangements depending on their needs and circumstances. Municipalities thus have the right to establish or join single-purpose inter-municipal associations for water services (*Zweckverbände*) or water management associations (*Wasserverbände*). They can also establish or invest in joint-stock companies operating within or outside their territory (Pielen et al, 2004).

Previous to the adoption of the WFD in Germany the spatial planning and water management planning regimes were interrelated through Federal and State legislation. It is however widely recognized that despite the existence of the institutional structures enabling collaboration between these two sectors they were not used extensively. Coordination comprised mainly of formal consultation procedures during the planning process. These limitations were, among others, the consequence of the differing nature of the planning approaches used in these two sectors. Specifically, water management planning relied more on command and control strategies, having also strong legal authority for water management in general, while German spatial planning – at least at the higher levels - relied more on persuasion and negotiation, or the balancing of different interests. (MT)

Table 2.5. Allocation of water management competencies in Germany (Source: Kampa et al, 2003, Adapted from Kraemer and Jäger, 1998)

Institution	Role in water management
Federal Republic	Represents Germany on the international level (international commissions, etc.) transposition of EC Law and administration of federal waterways
Co-operation of Bund and Länder	Marine protection, monitoring programmes
Länder Co-operation (LAWA)	Harmonising legislation and implementation
Länder Institutions	Water management (also river basin management after 2000), flood prevention and water protection zones
Länder Parliaments and Governments	Transposition of European Laws and Länder water legislation
Länder Water authorities and agencies	Implementation of federal and Länder Legislation Collecting of effluent and abstraction charges Monitoring and information
Municipalities or Water associations	Cover, e.g. water supply, sewerage and water resources management, flood control
Inter-municipal associations	Water supply and sewerage

Implementation of the WFD

Process of implementation and principles implemented

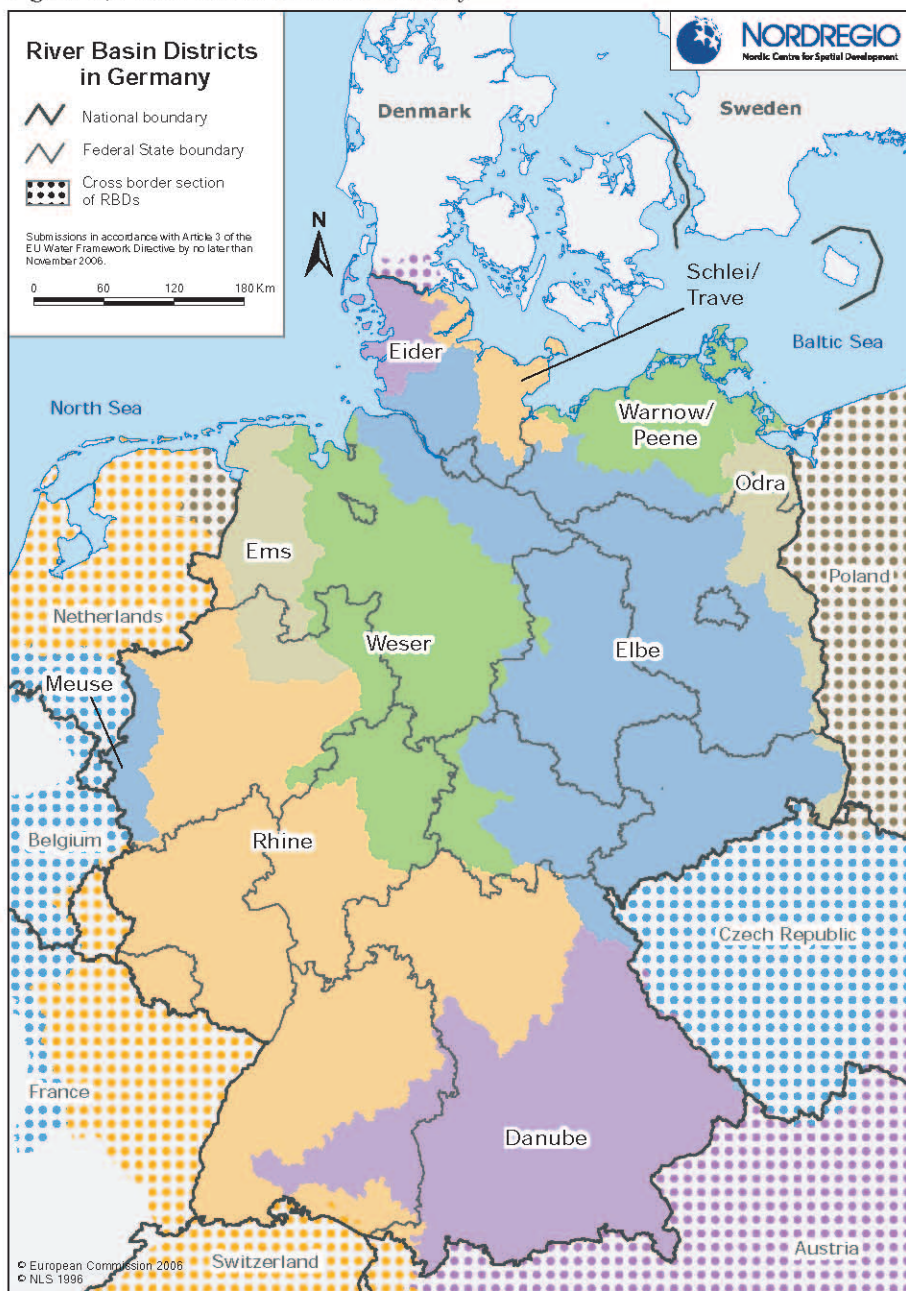
The need to reform both the Federal and the States' water acts have been one of the main issues impacting on WFD implementation, which was introduced into German legislation through the 7th amendment to the Federal Water Act in 2002 (Moss, 2004). The novel elements introduced were mainly, the river basin approach within the management of water bodies, the assignation of river basin authorities, provisions on economic analysis of water use and provisions on river basin management plans (RBMPs) for achieving the Directive's objectives.

In the years before WFD enforcement, German water management legislation has progressively adopted a more integrative approach, aiming at the production of a common and coherent legal framework for water management. Additionally, some of the elements in the German water management legislation were part of the foundations that shaped the WFD, among others, provisions regarding emission controls of both point and diffuse sources and the application of the best-available technique principle (Moss, 2003). Additionally, the biological, chemical and hydro-morphological criteria stated in the WFD were, to some extent, elements of the German legislation that already were applied before the implementation of the Directive (Pielen et al, 2004).

Currently ten river basin districts are recognised by the Federal Water Act of 2002; the *Danube*, *Rhine*, *Maas*, *Ems*, *Weser*, *Odra*, *Elb*, *Eider*, *Warnow/Peene* and *Schlei/Trave* (See Figure 2.9.). General provisions on River Basin Management Plans (RBMPs) are stipulated by the Federal Water Act in Article 36b. This article obligates the Federal States to incorporate provisions on the elaboration of RBMPs into their own legislation. However, no authorities with executive powers have been assigned for the overall management of each of the ten river basin districts.

The Federal States have been assigned as the main river

Figure 2.9. River basin districts in Germany



basin authorities having decisional control in their territory. The Federal States are responsible for the elaboration of water management plans for sub-river districts for their own territory. In turn, the management plans of river sub-basins in a specific river basin district may be the baseline for the production of the river basin management plan (RBMP) (Frederiksen and Maenpaa, 2006).

The implementation of the WFD, in respect of provisions related to the territorial division in river basin districts, has been difficult due to the nature of the German federal structure. Whereas the WFD suggests, to some degree, a more centralized system; the Federal States have a high degree of autonomy in respect of water management. The water legislation of the Federal States is however to be

harmonized with the framework *suggested* by provisions contained in the Federal Water Act. The Federal States thus have to adopt all those provisions required to implement the WFD which cannot, for constitutional reasons, be incorporated in the Federal Water Management Act. This concerns both the procedural requirements e.g. arrangements to set up the programmes of measures and the RBMPs (or sub-plans, sub-programmes at the State level), and the execution of a comprehensive public consultation process with multi-stage hearings and the establishment of standards for monitoring the status of waters (GRDC & BFG, 2002).

The WFD has thus far been adapted to different water management approaches, and the level of its implementation differs considerably among the Federal States. This situation puts something of a constraint on the achievement of some of the tasks stipulated by the WFD, especially in respect of the elaboration of common monitoring strategies and work on the preparation of the RBMPs (HN and MT). In some Federal States significant progress has been made in terms of implementation; while in others this process has been more difficult. For instance, in Eastern Germany, where considerable reforms in the water management system were made after reunification, some Federal States have been more open to adopting new approaches. On the contrary in Western Germany, where the water management system has remained unchanged for many decades, the implementation process has often been more difficult (HN).

The process of modifying the water management legislation is ongoing and discussions on further modifications are leaning towards more detailed federal legislation aiming at the harmonization of systems across the Federal States. The need for more detailed framework legislation has not occurred solely in the context of compliance with the requirements of the WFD however this is in reality a

response to the overall need to harmonize the German water management system (NJ).

Trans-boundary cooperation

Currently, of the ten river basin districts designated in Germany eight are international; the *Danube, Rhine, Maas, Ems, Odra, Elb, Eider*, and *Schlei/Trave* (See Figure 2.9.) (BMU, 2005). River commissions for the protection of international river basins have existed in Germany since before WFD implementation. Important international river commissions include (Kampa E et al, 2003):

- *The International Commission for the Protection of the Elbe* (ICPE), which was first established in October 1990 through an agreement between the European Community, Germany and the former Czech and Slovak Federal Republic (the legal successor is the Czech Republic). It deals with different themes, among others the development of an action programme, water quality, ecology, accidental water pollution and hydrology.
- *The International Commission for the Protection of the Rhine* (ICPR) founded in 1950 being the first of its kind. It was founded through an agreement between Luxembourg, France, the Netherlands, Germany and Switzerland.
- *The International Commission for Protection of the Odra River Against Pollution* (ICPO) was founded in 1996. The ICPO is a coordinating platform for the whole basin of the *Odra River*. In 2002 the ICPO received the mandate to coordinate the implementation of the WFD within the international *Odra river basin*. Three countries were involved, namely, Germany, Poland and the Czech Republic, and together have developed international reports on WFD implementation.

Example: Coordination in the Elbe River Basin

An example of how the Federal States coordinate their activities can be found in the Elbe River Basin (ERB). The River Community Elbe (*Flussgebietsgemeinschaft Elbe, FGG Elb*) was created in 2004 in order to facilitate the process of consensus building on common approaches and methodologies on river basin management. The FGG Elbe consists of three levels:

- *The Elbe Ministerial conference* - gathers the contracting partners' ministers and senators responsible for water management.
- *The Elbe Council* - consists of the heads of ministries' or senate's water management departments.
- *The Coordinating Council* - coordinates the work of the five German coordination areas.

The FGG Elbe also works closely with the International Commission on the Protection of the Elbe River Basin (ICPE). The ERB is divided into ten co-ordination areas, five of which are on German territory. Each coordination area entails several Federal States but only one is responsible for coordinating the work. In the case of the Havel coordination area the *Land of Brandenburg and Berlin* coordinates the work of three other Federal States. Regular working meetings of the responsible Federal State coordinators do however provide the basis for exchange between the Federal States in the ERB and the Havel coordination area. (Herbke N et al, 2006)

Table 2.6. Implementation of WFD principles

Principle	System before WFD	System after WFD
River basin as planning and management unit	 River basins were recognized as administrative units for water management in the water management legislation.	 Ten river basin districts have been designated as management units for water management.
Assignment of international RBD and cross-border / transnational cooperation	 International river commissions already existed for the rivers Rhine, Elbe, Danube and Odra.	 Competent authorities at both national and regional level cooperate with neighbouring countries in the management of trans-boundary river basins.
River basin authorities	 The only inter-state co-operation that existed around river basins was institutionalized in the form of working groups. These bodies did not have executive powers.	 The overall planning and management of river basin districts still resides in loose cooperation agreements between Federal States.
Water quality objectives aiming at achieving "good ecological and chemical status"	 Quality of surface water bodies was assessed according to biological, chemical and hydro-morphological criteria. However, water management was mainly aimed at pollution prevention rather than the restoration of water bodies.	 This principle is stated several times in the Federal Water Act of 2002 and is also the baseline for water management objectives.
Economic analysis of water use	 The elaboration of economic analyses was not a standard procedure in water management.	 Germany has elaborated and reported on the economic analysis of river basin districts.
Combined approach for point and diffuse sources	 Germany was one of the main contributors to the introduction of the combined approach for point and diffused sources including the best-available-technique principle into the WFD.	 The combined approach principle was not a new element in the water management legislation.
River Basin Management Plans	 The 4th amendment to the Federal Water Act of 1976 contemplated the creation of plans for water resources management to be drawn up for both river basins and economic regions. E.g. two types of plans existed, the management framework plans and plans for short reaches of heavily polluted watercourses.	 Provisions for RBMPs are stipulated by the Federal Water Act, Article 36b. The Act also obligates the Federal States to incorporate provisions on the elaboration of RBMP's into their own legislation.
Public participation	 Some few procedures already existed before the WFD both in the Federal Water Act and the Water Acts of Federal States. However, public participation was not practiced in water management planning in many of the States.	 The legislative structures of some Federal States are not completely coherent with the requirements of public participation. However, since its entry into force, the WFD has served as an incentive to initiate new involvement processes at all levels of the river basins.
	Applied	The information in the table provides a qualitative assessment of the degree key principles of the WFD were applied before and implemented after the adoption of the WFD in 2000. The information referring to principles for which deadlines have not yet not been reached, indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based on the literature found and interviews carried out at the time the study was undertaken in 2006. Note that this information does not necessary reflect the view of all parties involved in WFD implementation.
	Partly applied	
	Weakly/not applied	

These commissions represented voluntary, contractual forms of cooperation between national or sub-national authorities. They are concerned primarily with the river itself, rather than with the whole river basin in the context of action programmes, focused on improving water quality and flood protection, river commissions influence water management within their territory (Moss, 2003).

Levels of implementation and key actors

The competent authority for the implementation of the WFD at the national level is the Federal Ministry of the Environment, Nature Conservation, and Nuclear Safety (*Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit* – BMU) which exercises control over the Federal water management legislation.

The Federal States have become the key responsible actors in the implementation of the WFD. The adaptation of political territories of water management towards river basin districts has thus been resolved in favour of existing structures. Thus far it has been decided that Federal State water authorities will retain their legislative and executive powers over water management in accordance with the federal structure of governance in Germany (Moss, 2004).

In order to harmonize the work done on river basin districts in accordance with the WFD the LAWA has drafted a blueprint regulation (*Musterverordnung*). This regulation included the most important aspects expected to also bring into-line the structures of the Federal States (Kampa et al, 2003). The content of this document has however shown itself to be too general and its impact has differed considerably among the Federal States (HN).

Cooperation between the Federal States located in single River Basin Districts is organised loosely in the form of cooperation agreements between water authorities, rather than planning associations with independent executive powers. *Coordinating bodies* have been created with the task of finding agreement on the content of the RBMPs and the programmes of measures. These bodies are organized in different ways having differing structures depending partly on the size and the number of Federal States existing in specific river basin districts while partly also reflecting the different levels of openness towards the WFD among the Federal States involved (HN & MT).

At the local level WFD implementation has seen little significant change oc-

cur in terms of water management. Local actors have in most cases not been involved in a systematic way in the WFD implementation process. In some Federal States however the authorities are establishing and maintaining negotiations with local authorities in order to increase their involvement during the implementation process (MT).

Impacts and effects on planning systems

The WFD is expected to contribute to increasing collaboration and coordination between the water management and spatial planning sectors since it requires water planners to adopt other forms of collaboration that do not rely on command and control. This change in water management planning is expected to be more evident during the elaboration of the RBMPs and programmes of measures in particular (MT).

Some instruments of spatial planning, in particular those introduced recently, for instance plans relating to the protection of natural areas and floodplains, address water issues to a considerable extent. In some Federal States these instruments have been introduced more enthusiastically than in others. Additionally, negotiations have occurred on how elements of the RBMPs are to be transposed into spatial plans and how the linkages between these two sectors are to be reinforced (MT).

Conflicts and synergies at the national level

Since the introduction of the WFD into German legislation a number of examples of good co-operation between the different governance levels have occurred, e.g. between the *Bund* and the Federal States and at the inter-State level, on general water management issues (Kampa et al 2003, HN). A good level of acceptance has also been received

Table 2.7. Federal States in the river basins (Source: UBA, 2005)

River Basin	Federal State
DANUBE	Baden-Württemberg, Bavaria
EIDER	Schleswig-Holstein
ELBE	Bavaria, Berlin, Brandenburg, Hamburg, Mecklenburg-West Pomerania, Lower Saxony, Saxony, Saxony-Anhalt, Schleswig-Holstein, Thuringen
EMS	Lower Saxony, North Rhine-Westphalia
MAAS	North Rhine-Westphalia
ODRA	Brandenburg, Mecklenburg-West Pomerania, Saxony
RHINE	Baden-Württemberg, Bavaria, Hessen, Lower Saxony, North Rhine-Westphalia, Rheinland-Pfalz, Saarland, Thuringen
SCHLEI/ TRAVE	Mecklenburg-West Pomerania, Schleswig-Holstein
WARNOW/ PEENE	Mecklenburg-West Pomerania
WESER	Bavaria, Bremen, Hessen, Lower Saxony, North Rhine-Westphalia, Saxony-Anhalt, Thuringen

from the water management sector in respect of institutionalising the water management system as stated in the WFD. There is however some scepticism towards its institutional framework and procedures particularly in the execution of the RBMPs. As a result it has been difficult to define responsibilities for the future elaboration and execution of these plans (HN).

In terms of 'institutional fit' the geographical display of water management authorities, namely the Federal States, is not coherent with the borders of river basin districts. This has two main implications. Firstly, the fact that up to ten Federal States can be present within a single river basin district, e.g. in the Elbe River Basin District (Figure 2.9. and Table 2.7.), thus increasing the complexity of the authorities' work when finding common solutions for water management planning among the Federal States involved. Secondly, the territory of several Federal States such as Brandenburg, Bavaria and Mecklenburg-West Pomerania belong to more than one river basin district. In other words these Federal States have to cope simultaneously with sev-

eral RBMPs and their coordinating bodies.

Trans-boundary coordination between the German Federal States and neighbouring countries in international river basin districts also represents an important challenge for the Federal States and the coordinating bodies. International agreements on river basins comprise complex tasks that are not easy to manage for the German Federal States, mostly because coordinating activities involve a much larger number of actors and interests (HN). Significant differences also exist in the water management systems between the countries sharing border with Germany. Taking the example of Germany and France in the Rhine River Basin, different approaches to the construction of water management and institutional structures in these countries - one federal and the other centralized - ensure that a number of obstacles exist to finding common solutions. To this must also be added the fact that the legal systems of these countries still confine responsibilities and rights on water resources *within* national borders (HN).

Impacts and effects on planning systems: the case of the State of Brandenburg

Legal framework for water management

The Water Act of the Federal State of Brandenburg defines the goals and principles to be implemented in water management. It aims at achieving the sustainable use and management of water bodies and their surroundings. The goals stated in the Act include to guarantee the quality of water supply and water sewage systems, rational use of waters, the prevention of negative flood effects and to secure natural self-regeneration of water bodies through appropriate land use (BbgWG, 2004).

In accordance with the demands put forward by the WFD the Act includes provisions on international cooperation in river basin districts and stipulates when and how RBMPs are to be established (2009), when programme of measures shall be implemented (2012) and that an evaluation of both the programme of measures and the RBMPs must be carried out by 2015. The Act also defines water protection areas (e.g. groundwater, flood protection) and stipulates collaboration between water management and other sectors such as spatial planning in respect of questions of water and land use (BbgWG, 2004).

The Water Act of the State of Brandenburg is supplemented by a row of decrees regulating the work of ministries and subordinated authorities. The implementation of the WFD is mainly regulated by a decree of 2004 which clearly outlines the steps to be taken and the allocation of responsibilities necessary for the improvement of water quality.

Impact of the WFD in spatial planning

Collaboration and coordination between water management and spatial planning in Brandenburg is undertaken with no conflicts currently being in evidence. According to the WFD demands in respect of coordination are expected to be more pronounced for spatial planners by the end of the monitoring phase in 2007. Only then will the RBMPs indicate which tasks will require the support of spatial planning (HR).

Spatial planning at the State and/or regional level has the task of defining land use zones and seeking solutions to land use conflicts. In respect of interest conflicts related to nature protection, water management and agricultural land use issues, spatial planning institutions must rely on the ability of the nature protection, water management and agricultural authorities to handle conflicts that arise. Spatial planning authorities cannot prescribe to other authorities how to handle such conflicts, but can instead make suggestions where appropriate. Spatially relevant measures, stated for instance by water management authorities, are taken into consideration in spatial plans through formal procedures that include the establishment of dialogues between authorities and the confirmation of alternatives (HR).

Municipalities in the State of Brandenburg also have an important role to play in the integration of water issues into spatial planning as they produce the comprehensive

and detailed planning where water related issues must be considered on a very concrete level.

Despite the fact that the WFD has no direct impact on spatial planning there are some spatial planning instruments (including their development principles) which indirectly support the goals of the Directive. This is first and foremost the regional plans and landscape plans in Brandenburg but also the Joint State Development Plan of Berlin-Brandenburg that address water issues (HR).

The Development Plan (The Joint State Development Plan of Berlin-Brandenburg)

Water issues were already contemplated in the first Joint State Development Plan of Berlin-Brandenburg of 1996 in which water resource management and protection was defined as one of the major goals. There was one common principle related to the WFD and spatial development namely the principle of “natural resource management and protection” (HR). Some resemblance exists between goals stipulated by the WFD and the content of the current Joint State Development Plan of Berlin-Brandenburg of 2004. Among other things, the Plan supports the goal of achieving good ecological status for waters, the use economic instruments and the application of the best available technique principle for sewage and drinking water supply.

The necessity to work in trans-boundary collaboration at all levels and sectors is also stressed by the Joint State Development Plan of 2004. Among other things, it mentions that German-Polish cooperation in water management needs special attention regarding joint open space concepts, the coordination of spatial interests as regards the *Odra River Basin* and the collaboration in flood control and prevention (LEP, 2003).

Regional plans

It is first and foremost in the regional plans in Brandenburg that connections between water management and spatial planning exist, particularly in flood protection and natural resource use. Moreover, rivers and lakes are contemplated in regional plans as elements that link the natural environment with other sectors. This interrelation makes it necessary for spatial planners to take into consideration the conditions of water resources and the impact of human activities on them in order to be able to define meaningful goals (HR).

Landscape planning

Another important connection between spatial planning and water management is in landscape planning (or open space planning). Landscape planning is used as a basis for the development, protection and management of the landscape, open space and nature, including water resources. Thus, it provides fundamental information needed to define spatial development goals putting nature and land-

scaping measures into effect at different planning levels, both in populated and unpopulated areas (HR).

Landscape plans are considered as a potential tool that could assist the WFD requirements. In fact, one third of Brandenburg is under protection (FFH, *Natura 2000*, natural protection areas, landscape parks) and these areas are important for ground and surface water regeneration and flood prevention (HR).

Changes in planning policies and procedures

In order to integrate water management and spatial planning two types of measures are planned in Brandenburg. The first is a set of measures aiming at establishing formal procedures for promoting coordination between actors in spatial planning and water management expected to be defined by 2010. The second set of measures is more “strategic” aiming at integrating elements of water management into spatial planning through a new Joint Development Programme for the *Land of Berlin-Brandenburg* which is expected to be operational in September 2008. The Programme is however not related to the goals of the WFD. Instead it will be very general in its scope as it provides guidance on the directions different planning sectors, so-called “*Fachrecht*” may take (HR).

Since 2005 a standing civil servant working group for the WFD implementation has also existed. It is composed of experts from the responsible department of the Ministry for Rural Development, Environment and Consumer Protection of the Land of Brandenburg (*Ministerium für Ländliche Entwicklung, Umwelt und Verbraucherschutz des Landes Brandenburg, Abt. 6 - Wasser- und Bodenschutz, RL 62 Wasserwirtschaft und Gewässerschutz*), the Joint State Planning of Berlin-Brandenburg and other authorities. The work of this group is still in its initial phase however though it is expected that the group will have the capacity to help spatial planners respond to the forthcoming requirements of the WFD during the implementation process during 2007 (HR).

Conflicts and synergies

Some of the preconditions for the implementation of the WFD already exist having the potential to facilitate the process of its implementation. Adequate levels of competence and awareness among spatial planners on the demands put forward by the WFD exist, particularly among planners at the State and regional levels working with water and sustainable development issues (HR).

The limited impact of the WFD in spatial planning practices in the Federal State of Brandenburg is partly due to the fact that it is not yet fully operational. Therefore connections between water management and spatial planning occur almost exclusively through the above-mentioned plans. Coordination and cooperation between the sectors of water management and spatial planning is however still limited since both sectors work independently of each other (HR).

There is also a certain risk that water management at the State level, which attracts only a low level of resources, would be further hampered by WFD implementation. There are several reasons that support this prediction (WO):

- Brandenburg is a large State with so many waters requiring extensive surveillance and monitoring that in turn demands a large number of related staff. In contrast public administration offices are currently being down-sized while at the same time becoming overloaded with new/extended tasks that are thus increasingly difficult to fulfil.
- The large number of water-related problems, mainly those originating from diffuse pollution sources, cause subsequent costs that cannot be financed by the Fed-

eral State of Brandenburg.

- In addition there is the belief that the standard of the existing monitoring system could be lowered since the WFD requirements are in some areas actually *less* demanding than those established in the current system.

The elaboration of RBMPs also constitutes a new element in water management. Therefore it is difficult to determine whether in fact conflicts or synergies between water management and spatial planning exist. Major concern will certainly be on the reduction of diffuse and point polluting sources affecting the water quality in areas where spatial planning can contribute with protection zones, zoning ordinances, land use restrictions and restoration programmes (WO).

Conclusions

Federalism and the application of the subsidiarity principle in the German water management system have resulted into better adaptation to local conditions and to the needs of the water sector. Whereas many of the principles of the WFD related to water quality were broadly applied before WFD implementation, the federal system dividing the German territory into Federal States implies that a common approach in water management does not exist among the States. This has been one of the reasons WFD implementation in Germany has been rather complex, especially in the coordination of activities within river basin districts, and among other things in the elaboration of monitoring programmes and the preparation of the work on RBMPs. Trans-boundary coordination between the Central Government, the Federal States and neighbouring countries in international river basin districts also represents an important challenge because differences in institutional structures, approaches and legislations in water management are also significant across all of the involved neighbouring countries.

In general a good level of acceptance exists in respect of institutionalising the river basin management approach in accordance with the WFD, and considerable advances in defining and addressing responsibilities have been made. Water management and spatial planning were however interrelated through provisions in both the Federal and State legislations before the WFD was introduced. However, the nature of their planning approaches in these sectors has historically been rather different while coordination between them has been limited.

With regard to the implementation of the WFD in the Federal State of Brandenburg, uncertainties remain as to how the Directive will actually be put into practice. This is also one of the reasons why the impact of the WFD on spatial planning practices is currently rather low. Despite this, connections between water management and spatial planning occur indirectly through several spatial planning instruments. Water issues are addressed, first and foremost, through the regional plans and landscape planning in Brandenburg but also in the context of the Joint State Development Plan of Berlin-Brandenburg. The statements concerning water management in Joint Development Programme and Plans clearly define measures that are in-line with the WFD's requirements. On the other hand it is the regional plans that connect water issues and spatial planning particularly in respect of flood protection and the use of natural resources.

Difficulties in the implementation of the WFD in the Federal State of Brandenburg are often put down to administrative limitations in coping with an already large number of water-related problems. In fact more than 90% of all waters in one way or another do not fulfil the demanded standards of the WFD. This institutional structure includes a complex framework composed of several actors, 26 water associations in Brandenburg, 14 districts and 4 cities, requiring extensive communication and deliberative action in order to fulfil the Directive's goals. Another important problem in respect of the establishment of the WFD is the lack of experience in the elaboration of RBMPs. This again is put down to the fact that these are new elements in the system.

References

Literature

Ache, P., Peters, S., and Höweler, M. (2006): *National Overview Germany*, in ESPON project 2.3.1- Application and effects of the ESDP in the Member States, Luxembourg.

BBR (Bundesamt für Bauwesen und Raumordnung) (Ed.) (2000): *Raumordnungsbericht 2000*. Berichte Vol. 7. Bonn.

BMU (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety) (2001): *Environmental Policy: Water resources management in Germany*. Part I. Bonn.

BMU (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety) (2005): *Environmental Policy- Water Framework Directive- Summary of River Basin District Analysis 2004 in Germany*. Public Relation Division, Berlin.

FOBRP (Federal Office for Building and Regional Planning) (2001): *Spatial Development and Spatial Planning in Germany*. Bonn, Germany.

Frederiksen, P. and Maenpaa, M. (2006): *Analysing and synthesising European Legislation in relation to water - A Watersketch Report under WP1*. National Environmental Research Institute, Ministry of the Environment, Denmark. Report No. 603.

GRDC & BFG (Global Runoff Data Centre and Federal Institute of Hydrology) (2002): *Water Resources Management- Country Profile Germany*. Koblenz, Germany. Report No. 27.

Herbke, N., Pielen, B., Ward, J. and Kraemer, R.A. (2006): *Urban Water Management Case Studies: Berlin and Emscher Region*, in: University of Bocconi – IEFÉ *Analisi economica del sistema di depurazione milanese dopo l'intervento straordinario: profili di sostenibilità, modelli gestionali e sfide aperte per il futuro - Economic Analysis of the Milan wastewater system after the Commissioner intervention: sustainability issues, management models and challenges for the future*.

Kampa, E., Kranz, N. and Hansen, W. (2003): *Public Participation in River Basin Management in Germany - From borders to natural boundaries*. Ecologic, Institute for international and European Environmental Policy, Berlin.

Kraemer, R. A. and Jäger, F. (1995): *Institutional Mechanisms for Water Management in the Context of European Environment Policies*. Eurowater, Ecologic under contract for LAWA.

Land Berlin and Land Brandenburg (2003): *Gemeinsames Landesentwicklungsprogramm der Länder Berlin und Brandenburg (LEP, 2003)* in der Fassung vom 1. November 2003, Berlin.

Moss, T. (2003): *Solving Problems of 'Fit' at the Expense of Problems of 'Interplay'? The Spatial Reorganisation of Water Management following the EU Water Framework Directive*. In: Breit, H. Engels, A., Moss, T., Troja, M. (Eds.) *How Institutions Change. Perspectives on Social Learning in Global and Local Environmental Contexts*. Leske + Budrich, Opladen, pp.85-121.

Moss, T. (2004): *The Governance of Land Use in River Basins. Prospects for Overcoming Problems of Institutional Interplay with the EU Water Framework Directive*. In: *Land Use Policy*, Vol 21/1, pp. 85-94.

Pielen, B., Herbke, N., and Interwies, E. (2004): *Analysis of the Legislation and Emerging Regulation at the EU Country level. Country Report Germany*. Ecologic, Berlin.

(UBA) Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2005): *Water Framework Directive- Summary of River Basin District Analysis 2004 in Germany*. Berlin.

Internet

Europa Glossary: http://europa.eu/scadplus/glossary/index_en.htm#s

Interviews

Herbke, Nadine (HN): Ecologic - Institute for International and European Environmental Policy, Berlin

Hoff, Renate (HR): Department of resource management, Gemeinsame Landesplanung (GL) Berlin-Brandenburg

Moss, Timothy (MT): Dr. Institute for Regional Development and Structural Planning (IRS)

Neumüller, Jürgen (NJ): Dr. INFRASTRUKTUR & UMWELT, Potsdam

Wiemann, Oliver (WO): Landesumweltamt Brandenburg

Legislation

BbgWG - Brandenburgisches Wassergesetz Fassung vom 8. Dezember 2004

Promulgation of the Amended Version of the Federal Water Act of 19 August 2002

Other sources

Moss, T. (2006): Presentation, *Spatial planning and the Water Framework Directive: The case of Germany*. TRABANT Workshop I, February 2006, Stockholm.

Latvia

Susanna Nilsson, Department of Land and Water Resources Engineering, Royal Institute of Technology and Kristina Veidemane, Baltic Environmental Forum - Latvia

Introduction

Spatial planning system

The first legislative document related to planning issued after re-emergence of an independent Latvia was the Regulations on Physical Planning, adopted by the Cabinet of Ministers in 1994. In 1998, the Law on Spatial Development Planning was adopted by the Parliament (Saeima). The law aimed to coordinate development and physical planning issues in a more integrated system of spatial development planning, while also clarifying the competencies and roles of the national, regional and local authorities. In the same year the Regulations on Physical Planning were renewed (VASAB 2000; Upmace 2001). A new Spatial Planning Law was adopted in 2002 and amended in 2003 and again in 2005. The development of the new law was driven by the accession process to the EU while also trying to satisfy demands related to the financial acquisition of available funds in the future (DU). In addition to the Spatial Planning Law, three other legal acts directly regulate planning, namely, the Regulations regarding the National Spatial Plan (2002), the Regulations regarding Local Government Spatial Planning (2004) and the Regulations on District Spatial Planning (2005). Currently, the government of Latvia is elaborating a new law on a System for Development Planning. This law should increase the level of coordination in respect of various planning and policy documents while defining clear linkages between different types and levels of planning documents (Draft statement on the policy planning development 2006).

There are four levels of planning in Latvia, the national, regional, district and local levels (Table 2.8.), for which spatial plans should be developed. In the development of the plans, a number of planning principles should be taken into consideration. For instance, plans should consider the principle of sustainable development such that they should ensure a good environment, balanced economic development, sound use of natural resources, and the preservation of natural and cultural heritage (Spatial Planning Law 2002).

The Ministry of Regional Development and Local

Table 2.8. Planning levels in Latvia

Planning level
National
Regions (5)
Districts (26)
Local governments: cities (7), towns (53), parishes (444), and counties (26)

Government is responsible for developing the national spatial plan, as well as for supervising and coordinating the overall development of other spatial plans in the country. At the regional level, the Planning Region Development Council develops and implements regional spatial plans. The district local governments are responsible for managing, supervising and ensuring the development and implementation of district spatial plans, and local governments have the same responsibility for local spatial plans. In addition to local spatial plans, detailed plans, specifying in greater detail the planned (permitted) utilisation and development of certain land units, can be set up for part of the territory (Regulations regarding Local Government Spatial Planning 2004). At the beginning of 2006, there were 556 local governments in Latvia; however, this number is currently being reduced. The Law on the Reform of Administrative Territories (1998, amended 2005) has endorsed the process of merging smaller parishes into larger units, namely, counties. The intention here is that this process should be finalised before the local government elections in 2009.

In May 2006 the National Spatial Plan was still under development (DU). On the regional level, only Riga region has developed its plan, while the other four plans were still under development. Further, 14 district and 194 local spatial plans have been prepared, while the rest remained, at this time, under development (Ministry of the Regional Development and Local Governments 2006).

Water management planning system before the WFD

From 1996-1998 the use of water resources was regulated by the Regulations on Water Use Permits. This Regulation constituted the main planning (permitting abstraction and discharges) and management (setting technical conditions and measures for water users) tool in respect of water resources. In 1998, these regulations were amended quite substantially. For instance, a definition of good ecological water quality, and a classification of waters according to the living conditions of certain fish species were introduced.

Many organisations have traditionally been involved in the management and protection of water resources in Latvia (FAO 1997). The Department of Environmental Protection under the Ministry of Environmental Protection and Regional Development (today entitled the Ministry of Environment) originally had responsibility to collect information on water quantity and quality, and prevent water pollution. In practice, the actual work was performed by the eight Regional Environmental Boards, subordinated to the ministry. These boards were the main permitting and controlling authorities in respect of water management before the implementation of the WFD. The Regional Environmental Boards were (are) based on ad-

ministrative districts, with one board serving several districts. Apart from these organisations, the Latvian Hydrometeorological Agency, the *Melioprojects Company*, and universities and research institutes also had responsibilities with regard to water management and protection.

Water management issues were integrated into Latvian spatial planning before the adoption of the WFD. This was done through the Regulations on Physical Planning, adopted in 1998. According to these regulations, district and local spatial plans should define “the main surface water catchment areas, locations of public streams and lakes, compliance with surface water quality with the objectives defined in Regulation Nr. 155 on Water Use Permits, water abstraction and discharge sites, water treatment infrastructure, location of important bathing waters, and groundwater protection zones”. In practice these elements were included in the descriptive parts of district and local spatial plans, providing information on the pollution load and water chemical status, based on existing national water monitoring systems. Plans often highlighted the need for the construction of a wastewater treatment infrastructure as significant amounts of wastewater were discharged directly into surface waters.

Implementation of the WFD

Process of implementation

The WFD was transposed into Latvian legislation through the Law on Water Management, adopted by the Parliament (Saeima) in September 2002. More specific requirements have been transposed through a number of additional regulations.

According to Article 8 of the Law on Water management, four RBDs, namely, Daugava, Lielupe, Gauja and Venta, have been established in Latvia (Figure 2.10.), and the Latvian Environment, Geology and Meteorology Agency (LEGMA) has been appointed as the competent, or river basin, authority for all districts. LEGMA is formally responsible for, e.g., the elaboration of river basin management plans, programmes of measures and reporting to the European Commission. According to the Law on Water Management, it is envisaged that LEGMA should have regional structures, the so-called river basin boards. The Ministry of Environment and LEGMA recently agreed however that no regional structure will be established, at least not in the near future (IT). The eight Regional Environmental Boards are however still involved in water management, mainly focusing on permitting and controlling pollution.

To coordinate different interests, as well as to ensure better public participation processes, the Law on Water Management requires establishment of a Coordination

Committee for each RBD. Each Coordination Committee consists of representatives from different state institutions (Ministries of Economy; Health; Regional Development and Local Governments; Agriculture; and Environment), planning regions and non-governmental organisations. The administrative structure of WFD implementation is described in Figure 2.11.

The implementation of the WFD has also implied some amendments in other laws, such as the Law of Protective Belts and the Latvian Breaches Code. With regard to spatial planning, the regulations regarding district and local spatial plans (adopted in 2004 and 2005) integrate some aspects of river basin management. For instance, the Regulations on District Spatial Planning requires that river basin management plans are taken into account, and when developing a local spatial plan consideration should be given to, e.g., the location of water bodies, water abstraction sites and wastewater discharges. During 2006 the district and local governments all received from LEGMA a more exact list of conditions relating to those requirements (Veidemane 2006).

Trans-boundary cooperation

Latvia shares river basins and aquifers with Belarus, Estonia, Lithuania and Russia. The Daugava river basin, shared mainly by Latvia, Belarus and Russia has a total area of

Figure 2.10. River basin districts in Latvia

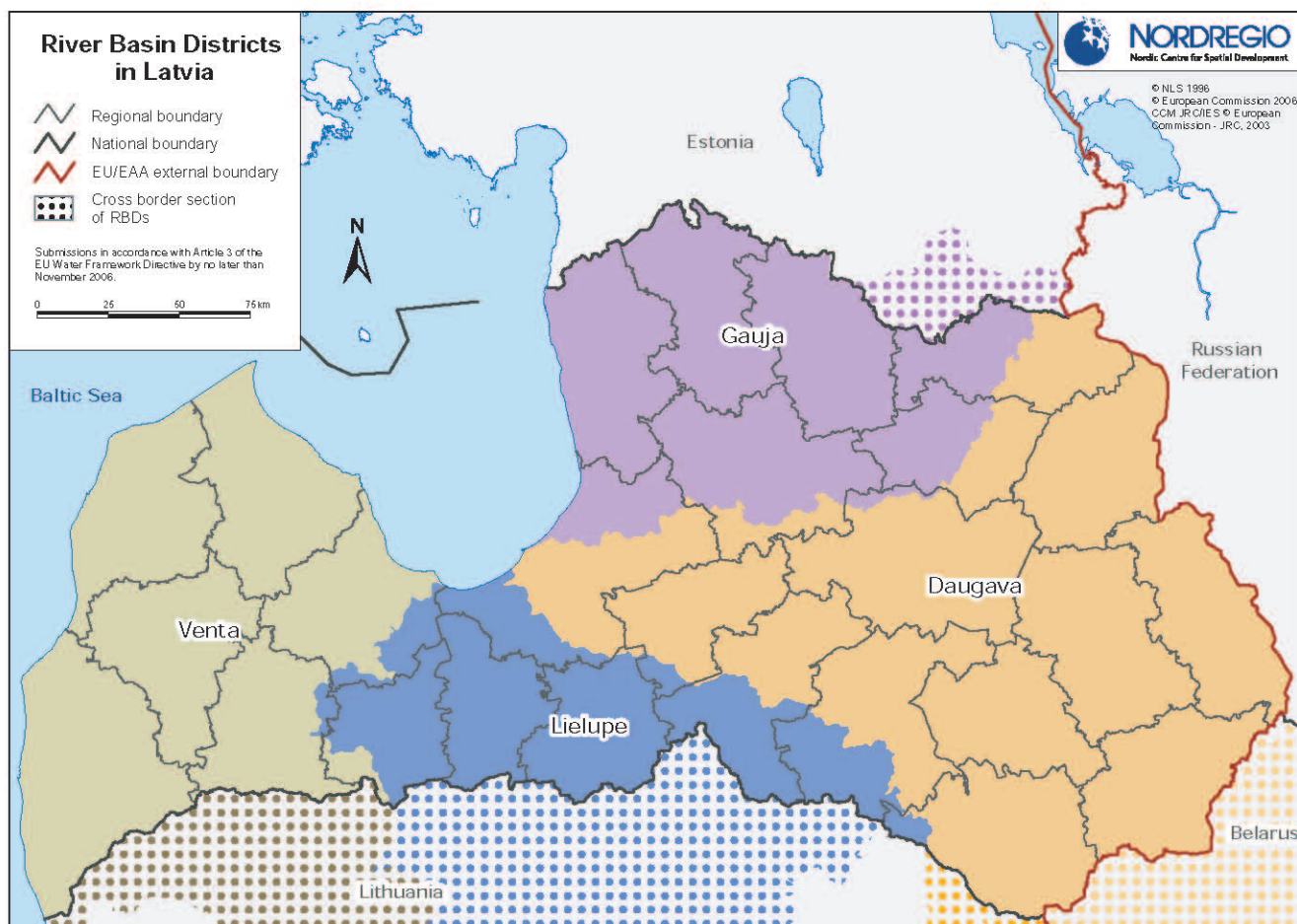
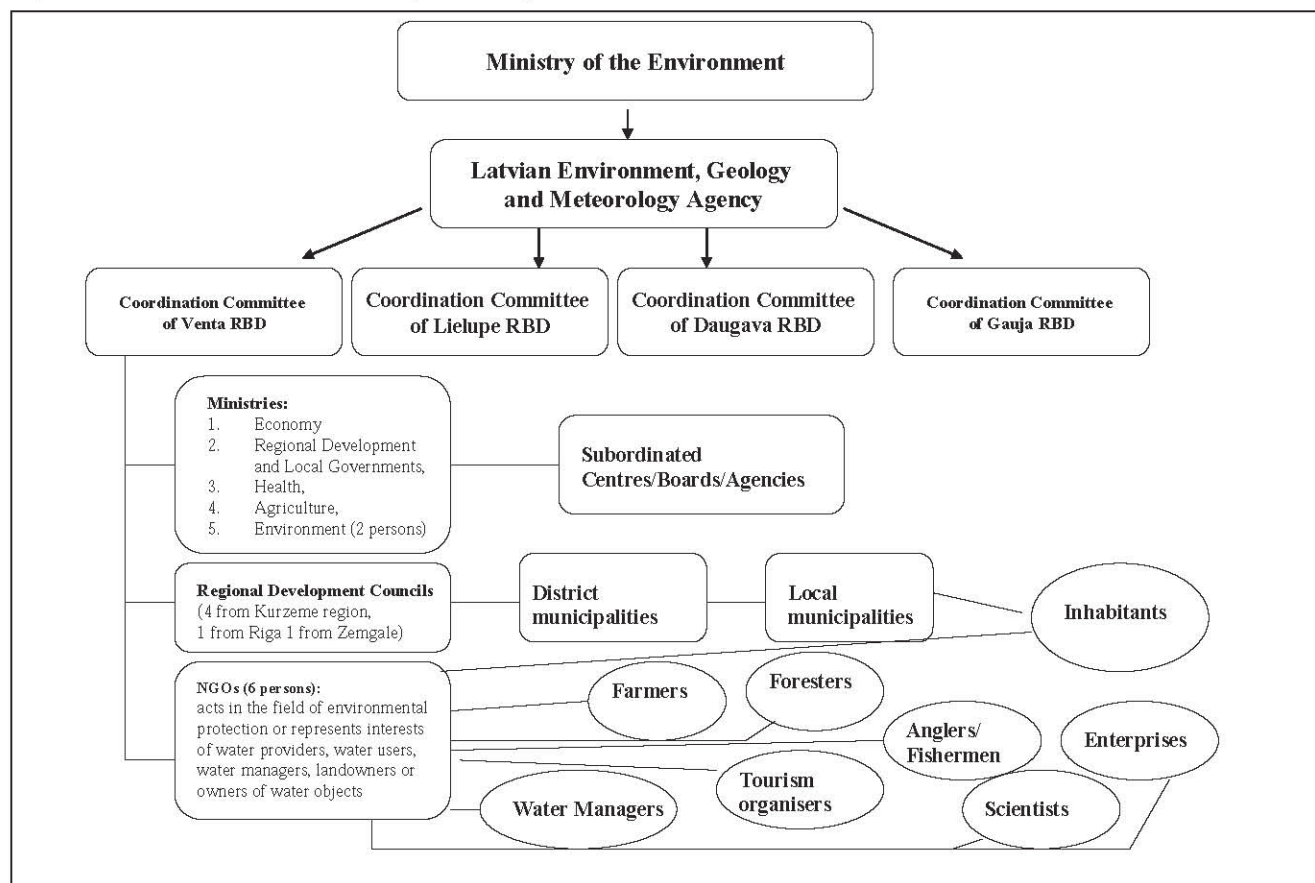


Figure 2.11. Administrative structure of WFD implementation



around 87 900 km², of which 28% lies in Latvia (Swedish EPA 2003). Cooperation in the basin has legally been based on the following two international agreements: the agreement between Latvia and Belarus on cooperation in respect of nature protection from 1994, and the agreement between Russia and Belarus on cooperation in respect of nature protection from 1994 (Oregon State University 2002). The Swedish EPA has, since 1997, supported the negotiation of a tri-lateral intergovernmental agreement. A draft agreement was elaborated as early as 1999 and updated in 2001 and again in 2002. The partners have not however succeeded in finally accepting the agreement and it remains unsigned (Swedish EPA 2003).

Before the implementation of the WFD no specific bilateral cooperation had taken place between Latvia and Lithuania or Latvia and Estonia on issues relating to international water resources. The only cooperative effort between these countries were based on the trilateral agreement between Estonia, Latvia, and Lithuania on cooperation in the field of environmental protection signed in Tallinn in 1995, where sustainable use of natural resources, protection of the sea and the reduction of trans-boundary pollution were listed among the sectors addressed by that cooperative effort.

Latvia's four RBDs are all international. Article 10 of the Law on Water Management deals with international cooperation. In this article it is said that when a river basin is shared with another EU Member State or Candidate Country, the Ministry of Environment should cooperate with the competent authorities of the relevant countries to establish and manage an international RBD. Furthermore, when a river basin is shared with a country outside the EU, the law says that the Ministry of Environment should cooperate with the competent authorities of the relevant country with the aim of achieving the objectives of the law for the whole river basin.

In October 2003, a technical protocol was signed between Latvia and Lithuania on the implementation of river basin management in Venta, Lielupe and Daugava RBDs. It should be noted however that only 2% of the Daugava river basin lies in Lithuania, and the Lithuanian involvement in the Daugava river basin is, thus, restricted to cooperation on sub-basins shared between Latvia and Lithuania. A similar agreement was also signed with Estonia for cooperation in relation to the Gauja RBD.

The implementation of the WFD appears not to have facilitated the signing of the multilateral agreement between Belarus, Latvia and Russia on cooperation on the Daugava. On the contrary, Latvia's EU accession may have complicated matters further as the European Commission is now showing an interest in being a signatory to the treaty as well. If this is however to be the case the agreement will have to be substantially redrafted and negotiations continued.

Levels of implementation and key actors

The main organisations with responsibilities connected to WFD implementation work at the national level. Being the only competent authority in Latvia, the LEGMA is the institution with the main responsibility for WFD implementation. The Ministry of Environment is also a key actor in the implementation process. In addition other actors exist with more specific roles. For example, wastewater treatment enterprises have responsibility for the proper management of wastewater, the environmental inspectorate is tasked with supervising industrial enterprises with regard to pollution limits, and rural support services have been asked to consult farmers on good agriculture practice. The Coordination Committees also gather together many of the key actors in the implementation process.

WFD principles implemented

Table 2.9. provides an overview of the implementation of a number of important principles connected to the WFD. The table reflects the Latvian system both before, and after, the start of the transposition and implementation of the WFD in 2000. As can be seen in the table, the Latvian system for water management and planning was generally not in accordance with the WFD before implementation. According to this assessment the listed principles have though been implemented in a quite satisfactory manner, at least on a general level (e.g. principles incorporated in the legislation).

Impacts and effects on planning systems

The Latvian Law on Water Management, adopted in 2002, along with a number of other regulations, set the framework for the country's "new" water management and planning systems in accordance with the WFD. Management of water resources should now be arranged according to the four RBDs established in 2003. Although these RBDs have been established, the main responsibility for water management is located at the national level, with the LEGMA as the competent authority for all RBDs. The forming of regional structures, river basin boards, envisaged by the Law on Water Management, will not be undertaken, at least not in the near future. Apart from LEGMA, a number of other organisations also have specific roles with regard to river basin management. The only completely new organisations established in response to WFD implementation are the Coordination Committees. One committee, with representatives from state institutions, planning regions and non-governmental organisations, is currently (during 2006) being established for each RBD. The power of these committees is not however strong; committee decisions remain only advisory, while the main purpose of the boards is to create a forum for stakeholders to express their opinions.

With regard to spatial planning, the implementation

Table 2.9. Implementation of WFD principles

WFD principle		System before WFD	System after WFD
River basin as planning and management unit		 Water management was formally arranged according to administrative units. However, when, e.g., granting permits or evaluating pollution loads, Regional Environmental Boards had to consider the capacity and quality of the whole water resource.	 Four RBDs have been designated as management units for water resources.
Assignment of international RBD and cross-border / transnational cooperation		 Cooperation in the Daugava river basin was (is) based on two treaties, one between Latvia and Belarus, and one between Russia and Belarus. No specific – formal basis – for cooperation between either Latvia and Lithuania or Latvia and Estonia on international water resources existed.	 All four RBDs have been officially appointed as international districts. In October 2003, a technical protocol was signed between Latvia and Lithuania on the implementation of river basin management in Venta, Lielupe and Daugava RBDs. A similar agreement was also signed with Estonia in respect of cooperation in the Gauja RBD.
River basin authorities		 Organisations responsible for water planning and management worked on either the national or the regional level.	 The Latvian Environment, Geology and Meteorology Agency (LEGMA), at the national level, has been appointed as the river basin authority for all four RBDs.
Water quality objectives aiming at achieving “good ecological and chemical status”		 Water quality has traditionally been assessed based on chemical criteria. An initial attempt was made to evaluate the ecological quality of small rivers in the mid- 1990s.	 Water quality objectives are stated in Article 11, Law on Water Management. These, though, need to be further specified.
Economic analysis of water use		 Economic analyses, as anticipated by the WFD, were not performed. However, several investment projects required feasibility studies, which included some elements of economic analysis.	 An initial economic analysis of water use was performed (Ministry of Environment 2005). Articles 15-17, Law on Water Management, deal with the economic analysis of water use.
Combined approach for point and diffuse sources		 According to legislation, both emission limit values and water quality standards should be taken into consideration when granting emission permits. However, this rule was only applied for point sources of pollution and not for diffuse sources of pollution.	 Combined measures to reach water quality objectives are dealt with in the Law on Water management. Additionally, specific requirements will be set up for certain industries.
Management plans for RBD		 No tradition or experience of setting up extensive river basin management plans as stipulated by the WFD previously existed.	 The production of river basin management plans is dealt with in the Law on Water Management.
Public participation		 Traditionally, the public has not been involved in water management. However, public participation is a requirement and an integral part of various spatial planning processes.	 Public participation is dealt with in the Law on Water management.
	Applied	The information in the table provides a qualitative assessment of the application of key WFD principles before and after the adoption of the WFD in 2000. The information referring to principles for which deadlines have yet not been reached, indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based upon the literature found and interviews carried out at the time the study was carried out in 2006. Note that this information does not necessary reflect the view of all parties involved in WFD implementation.	
	Partly applied		
	Weakly/not applied		

of the WFD has necessitated some changes in relation to the development of district and local spatial plans. As explained above, the regulations regarding district spatial plans require that river basin management plans are considered when developing a district spatial plan. When developing local spatial plans, consideration should be given to the runoff basins of the first-level tributaries in respect of surface waters, the locations of water bodies, the locations of water abstraction sites and wastewater discharge, water treatment structures and organised places of bathing, territories of underground water protection and flood risk territories. District and local governments received more exact instructions in respect of these issues from LEGMA during 2006. In practice, LEGMA has already developed some of the requirements and has submitted them to the municipalities currently developing spatial plans (SŠ). However, it has to be admitted that the spatial planning specialists feel uncertain about the requirements, and would like to receive more specific instructions, which could define the type of development that would be allowed considering the assessment of the existing water quality in their municipality. Thus, for the moment, it is rather difficult for spatial planners to contribute to water management as the specific conditions are lacking (DU). On the other hand, the LEGMA faces difficulty in providing more specific requirements, as work on the water management measures remains in process and should be developed in conformity with river basin management plans by 2009 as scheduled (SŠ).

Conflicts and synergies

As the new requirements in the regulations regarding dis-

trict and local spatial plans are so new no real experience exists as to whether this will cause problems for spatial planning and/or river basin management planning. The issue has however been given some attention. In the chapter on "Uncertainties and Data gaps" in the so-called "Article 5 report" (Ministry of Environment 2005), the fact that the development of various plans that influence water status is not harmonised and consistent in time is mentioned as a potential problem. The LEGMA operates only with national and regional information on, e.g., anthropogenic loads, economic activities and ecological status, and there is thus a need to involve and link the information of the river basin authority with information from district and local planning. As the planning processes are not harmonised however it may be difficult to link the two systems. District and local plans have already been or are currently being developed, while the river basin management plans will not be ready until the end of 2008. The various plans are being developed for different timeframes; spatial plans for twelve years (Law on Spatial Planning, 2002), and river basin management plans for six (Law on Water Management, 2002).

The mismatch of boundaries between, on the one hand, the RBDs, and on the other the districts and municipalities is also a potential conflict. There are also potential synergies in respect of a possible closer coordination between spatial planning and river basin management. For instance, the river basin authority may receive information from the local level, it may be possible to use restrictions listed in spatial plans to achieve water quality targets and water management may learn from spatial planning's experience of public participation (Veidemane 2006).

Conclusions

The requirements of the WFD have been transposed in various legislative acts related to water management. Furthermore, Latvian legislation on spatial planning has defined a clear link between spatial planning and water management issues by setting up relevant requirements in the Governmental Regulations on Local Spatial Plans and District Spatial Plans adopted in 2004 and 2005, respectively.

The developers of spatial plans should now be receiving the exact requirements/conditions from LEGMA on what issues should be considered with regard to river basin management. In practice, the LEGMA faces difficulty in providing specific requirements and statements, as work on water management measures is still in the process of being developed. It should however be in conformity with river basin management plans, on schedule, by 2009. To overcome these difficulties LEGMA has already developed more general type of requirements on how to integrate water issues in spatial plans, which have already been submit-

ted to the municipalities currently developing spatial plans. Spatial planners however continue to feel uncertain about their potential to propose measures for improving water quality, ultimately contributing to the achievement of the basic objectives of the WFD.

As the requirements introduced in the regulations regarding district and local spatial plans are so new no real experience of whether this will cause problems for spatial planning and/or river basin management planning is as yet available. The issue as a whole would undoubtedly benefit from further attention.

References

Literature

FAO (1997): Aquastat (electronic version). <http://www.fao.org/ag/agl/aglw/aquastat/main/index.stm>.

Ministry of Environment (2005): Characteristics of the Latvian river

basin districts, A review of the impact of human activity and the status of surface waters and groundwater, Economic analysis of water use, Latvian Environment, geology and meteorology agency, Riga.

Oregon State University (2002): International Freshwater Treaties Database. <http://www.transboundarywaters.orst.edu/>.

Swedish EPA (2003): The Transboundary Waters Programme of the Swedish Environmental Protection Agency 1997-2002, Swedish Environmental Protection Agency, Stockholm.

Upmace, D. (2001): Latvia and European Spatial Development Perspectives. In: M. Hansen and K. Böhme (eds.), Spatial Planning in the Baltic Sea Region, Nordregio, Stockholm, 24-30.

VASAB (2000): Compendium of Spatial Planning Systems in the Baltic Sea Region. <http://www.vasab.leontief.net>.

Interviews

SS: Sigita Šulca, head of strategy unit, Water Basin Management division, Latvian Environment, Geology and Meteorology Agency, 16 May, 2006.

IT: Iveta Teibe, project coordinator, Water Resources division, Environmental Protection Department, Ministry of the Environment, 4 May, 2006.

DU: Dzintra Upmace, senior official, National and Regional Planning division, Spatial Planning Department, Ministry of Regional Development and Local Government, 25 May, 2006.

Other sources

Ministry of Regional Development and Local Government (2006): Accessed 7 February, 2006. <http://www.rapl.gov.lv/>

Veidemane, K. (2006): Presentation, Spatial Planning and WFD in Latvian legislation. TRABANT Workshop I, February 2006, Stockholm.

Policy documents and legislation

Draft statement on the policy planning development 2006.

Law on Water Management 2002.

Regulations on District Spatial Planning 2005.

Regulations on Physical Planning 1998.

Regulations regarding the National Spatial Plan 2002.

Regulations regarding Local Government Spatial Planning 2004.

Spatial Planning Law 2002.

Lithuania

Susanna Nilsson, Department of Land and Water Resources Engineering, Royal Institute of Technology

Introduction

Spatial planning system

Lithuania has a three-level administrative system (Table 2.10). The activities of the higher administrative units, the counties, are assigned and supervised by the state government. The lower level administrative units, the municipalities, have self-government and may be either rural or urban. Additionally, there are over 500 neighbourhoods; however, they do not have the status of administrative territorial units (Valeviciene and Sukeviciute 2006)

In 1993 the Temporary Rules of Territorial Planning were adopted and in 1994 the preparation of the Law on Territorial Planning began. This law was adopted by the Parliament (Seimas) at the end of 1995 (VASAB 2000). Some years after the adoption of the law it became evident that there was a need for further and substantial change. Among other things, more clearly stratified planning levels, the facilitation of investment, and the incorporation of the requirements of the EU Directive on Strategic Environmental Assessment, were all needed. Hence, a new version of the Law on Territorial Planning was developed and approved in 2004 (AG). Apart from the Law on Territorial Planning, spatial planning is also regulated in the Law on Construction (1996), the Law on Environmental Impact Assessment (1996) and the Law on Regional Development (2002).

According to the Law on Territorial Planning there are three types of territorial plans: general, special, and de-

tailed, and four levels of planning: the national, regional, municipal, and natural or legal-entity level. General planning applies to the territory of the country, the territory of the county and the territory of the municipality. At each level, a comprehensive planning document, a masterplan, has to be prepared. At the municipal level, master plans may be set up only for parts of the territory. These master plans should comprise a description of the intended land use, related priorities, management of economic activities, use and protection of natural and cultural assets, water and other natural resources. Master plans are prepared for a period of 20 years; however, they may be changed or supplemented earlier if needed. The master plans serve as the basis for the special and detailed territorial planning. The current master plan for the whole country was elaborated in 2002. Most of the master plans for counties and municipalities are still in preparation and are expected to be ready in 2006 or 2007 (AG). The local level has traditionally been the strongest and most important spatial planning level in Lithuania (Defris 2005). However, this is gradually changing with the development of the national master plan and the establishment of a regional planning level (AG).

Water management planning system before the WFD

The Law on Water, adopted in 1997, is the main legal act regulating water issues. The main institution for responsibility with regard to water management planning in Lithuania before the implementation of the WFD was the Water Division within the Ministry of Environmental Protection (FAO 1997). This division was responsible for, e.g., water planning, water research, sewerage and sanitation. In

Table 2.10. Administrative system in Lithuania (Source: Adopted from Valeviciene and Sukeviciute, 2006)

Administrative division	Description
Government	State
Counties (10)	Higher administrative units (subordinate to state administration)
Local municipalities of administrative districts (48), Urban local municipalities (12)	Self-government administrative units
Neighbourhoods (>500)	Territorial units (subordinate to municipal self-government)

addition a number of other institutions also work(ed) with these issues. There were eight Regional Environmental Protection Departments responsible for, e.g., the issuing of permits for pollution and controlling whether standards were met. The Marine Research Centre was responsible for marine waters, as well as for parts of the Helsinki Commission international monitoring programme of the Baltic Sea. The Lithuanian Geological Survey and Lithuanian Hydrometeorology Survey also hold responsibility with regard to groundwater and water quantity, respectively. In addition to this, the Joint Research Centre was responsible for surface water quality monitoring. In 2003, the Joint Research Centre was merged with a former water management institution, the Water Resource Department, forming the Lithuanian Environmental Protection Agency (EPA) (AM, MG).

With regard to spatial planning, water issues were addressed in different ways during the process of the development of the national master plan for Lithuania. In the evaluation of the existing situation, both water quality and water quantity were assessed. Rivers were, for instance, classified according to their level of pollution. In the solutions to the national master plan, the concept of “water management investment plans” according to river basins

was introduced. Taking Nemunas as an example, the river basin was divided into three parts; the upper, middle and lower level, and water management investment plans have been or currently are being prepared for each part (AG). The Nemunas lowland river basin master plan (2004), encompassing ten municipalities of which Klaipeda is the largest, describes and assesses solutions for wastewater collection and treatment facilities, water supply and surface water drainage systems.

Based on the above it is quite clear that management and planning systems concerning water resources in Lithuania were already moving in the general direction of the principles of the WFD before the adoption of the Directive. A concrete example of this is the decision regarding the development of water management investment plans based on river basins. It should however be pointed out that although the water management investment plans are prepared on a river basin level, there is no organisation working solely on the river basin level. Instead, the decision to have a river basin perspective was taken and enforced at the national level (Territorial Planning Department under the Ministry of Environment), while the actual work is a joint coordination effort of the municipalities within a river basin.

Implementation of the WFD

Process of implementation

The WFD was transposed into Lithuanian legislation through the Law on Water adopted in 2003. More specific requirements were transposed through a number of orders and resolutions. Lithuania has been divided into four RBDs, Nemunas, Venta, Lielupe and Daugava (Figure 2.12.) with the Lithuanian EPA being appointed as the competent authority for all districts. Thus, the EPA is formally responsible for the elaboration of river basin management plans, programmes of measures and reporting to the European Commission. As the EPA does not however have either the resources or competences to perform all of the tasks related to the implementation of the WFD various functions have been subordinated to the following other institutions (Lithuanian EPA 2004):

- Ministry of Environment - organizes the economic analysis and is responsible for international cooperation;
- Lithuanian Geological Survey - responsible for groundwater;
- Marine Research Centre – responsible for transitional and coastal waters;
- State Service of Protected Areas – responsible for protected areas;

- Lithuanian Hydrometeorological Survey – responsible for quantitative monitoring and quantitative environmental objectives;
- Regional Environmental Protection Departments – responsible for abstractions, emission controls, implementation of programme of measures etc.

At the beginning of 2005, four coordination boards (one per RBD) were established (Gudas 2006). These boards were designed to function as advisory mechanisms for the involvement of all - not only governmental - institutions and organizations concerned with the preparation and implementation of river basin management plans. The main tasks of the coordination boards are to comment on and make proposals for programme of measures and river basin management plans, to coordinate and facilitate cooperation between various stakeholder groups, and to ensure that the interests of various stakeholder groups are well represented in river basin management plans. The core composition of the boards consists of associations of municipalities, counties, governmental institutions, NGOs and other interest groups, and, in addition to this, guest experts may also be invited to participate. As per May 2006, the boards had not yet convened; however, the first meetings were planned for the end of 2006 (MG). The

Figure 2.12. River basin districts in Lithuania

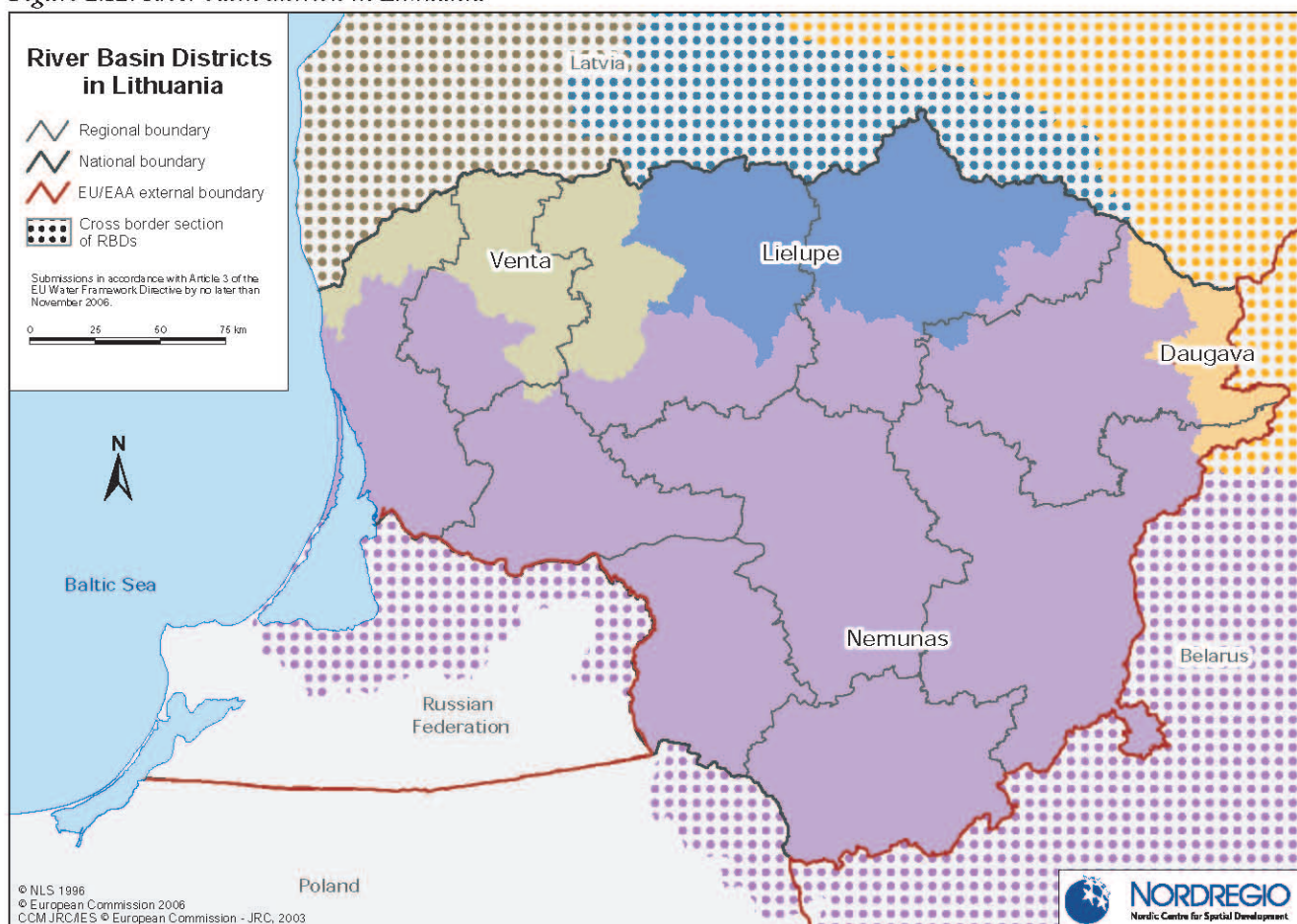
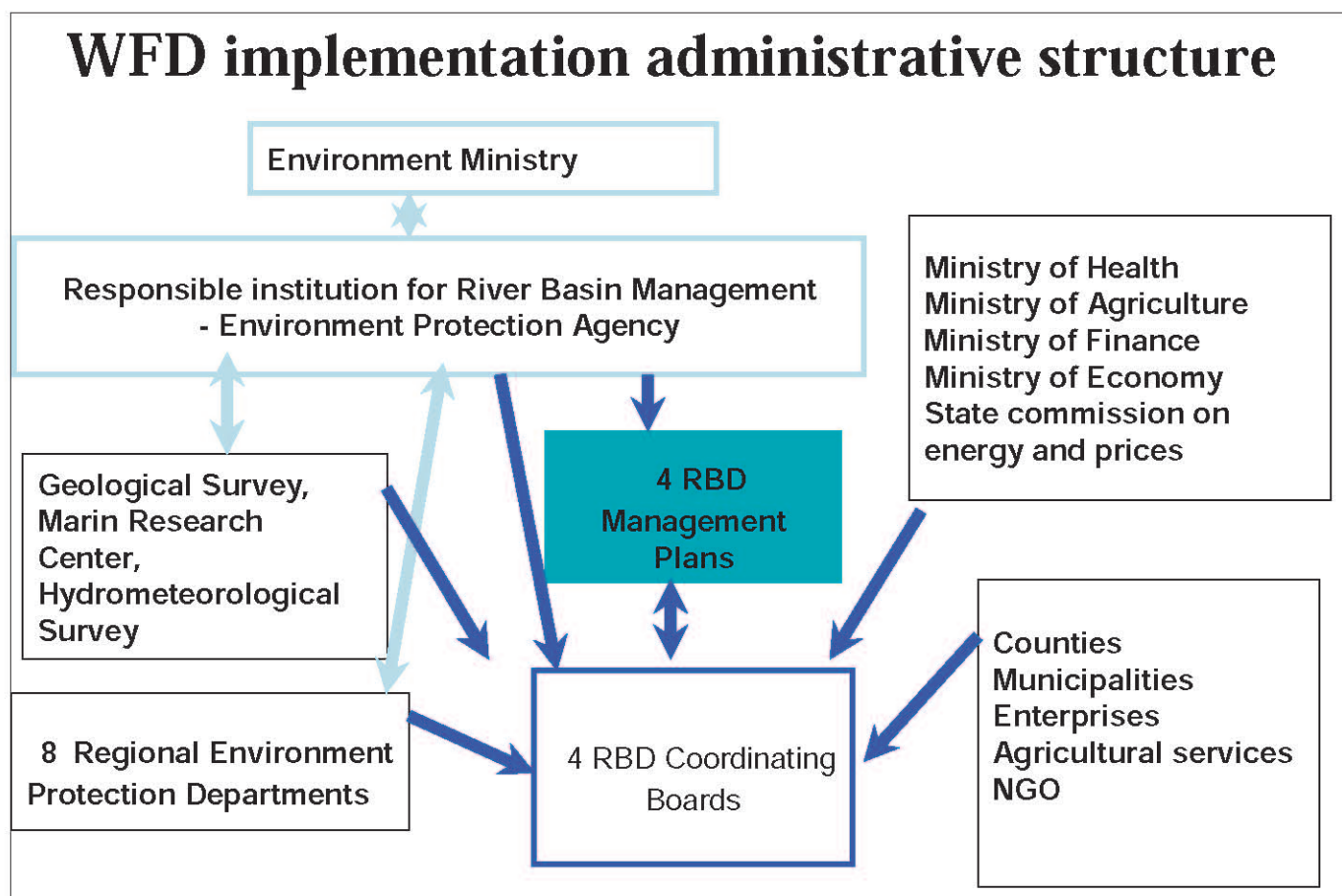


Figure 2.13. Administrative structure of WFD implementation (Source: Gudus, 2006)



administrative structure of WFD implementation is described in Figure 2.13.

Transboundary cooperation

Lithuania shares river basins and aquifers with Latvia, Belarus, Russia and Poland. The Nemunas river basin, shared between Lithuania, Belarus, Russia (Kaliningrad region) and Poland, has a total area of around 98 200 km², of which approximately 50% lies in Lithuania. Cooperation in the Nemunas river basin has legally been based on a number of bilateral agreements. In 2001, the Swedish EPA initiated support for multilateral cooperation in the basin. A trilateral agreement between the governments of Belarus, Lithuania and Russia has been prepared; however, the partners have not succeeded in finally accepting the agreement and it is still not signed (Swedish EPA 2003). Before the implementation of the WFD no formal cooperation between Latvia and Lithuania specifically on international water resources existed. The only cooperation between the countries was based on the trilateral agreement between Estonia, Latvia, Lithuania on cooperation in the field of environmental protection signed in Tallinn in 1995, where sustainable use of natural resources, protection of the sea and reduction of transboundary pollution were listed among the sectors of cooperation.

Lithuania's four RBDs are all international. In October 2003, a technical protocol between the Ministry of Environment of the Republic of Latvia and the Ministry of Environment of the Republic of Lithuania on cooperation to establish and manage international RBDs was signed (Lithuanian EPA 2004). Based on the protocol, technical working groups with representatives from national authorities involved in WFD implementation have been established for cooperation in the Venta, Lielupe and Daugava RBDs. It should however be noted that only 2% of the Daugava river basin lies in Lithuania, and the Lithuanian involvement in the Daugava river basin is, thus, restricted to cooperation on sub-basins shared between Latvia and Lithuania. For the shared waters between Lithuania and Poland, i.e. sub-basins of Nemunas river basin, a bilateral agreement, the Agreement between the Government of the Republic of Lithuania and the Government of the Republic of Poland on Cooperation in the use and protection of transboundary water resources, has been signed. The implementation of the WFD appears not to have facilitated the signing of the multilateral agreement between Belarus, Lithuania and Russia on cooperation on the Nemunas. On the contrary, Lithuania's EU accession may have complicated matters further as the European Commission is now interested in being a signatory to the treaty. Thus far this has not been accepted by Russia (MG).

Levels of implementation and key actors

All organisations with responsibilities related to WFD implementation, except for the eight Regional Environmen-

tal Protection Departments, work at the national level. Being the only competent authority in Lithuania, the EPA is the organisation with the main responsibility for WFD implementation. The Ministry of Environment is also a key actor in the implementation process. Additionally, the organisations subordinated to the Ministry of Environment, i.e., the Geological Survey, the Marine Research Centre, the Hydrometeorological Survey, the State Service of Protected Areas, and the eight Regional Environmental Protection Departments are also important actors in this context.

In addition to these environmental institutions, whose roles and responsibilities have been specified in the *Order of the Minister of the Environment on the Execution of Functions of the Structural Departments of the Ministry of Environment and its Subordinate Institutions with respect to the Implementation of River Basin based Water Protection and Management*, a number of other actors could potentially also play an important role here. These include counties, municipalities, water companies, farmer's organisations and other private enterprises (AM, MG). The municipalities in particular were mentioned as being potentially important actors in, e.g., implementing the programmes of measures; however, their exact involvement and tasks remain to be specified (MG).

WFD principles implemented

Table 2.11. provides an overview of the implementation of a number of important principles of the WFD. The table reflects the Lithuanian system both before, and after, the start of the transposition and implementation of the WFD in 2000. As can be seen in the table, the Lithuanian system for water management and planning was generally not in accordance with the WFD before its implementation, although it was moving in the direction of the WFD. According to this assessment the listed principles have however been implemented in a rather satisfactory manner, at least on a general level (e.g. principles incorporated in legislation).

Impacts and effects on planning systems

The Lithuanian Law on Water adopted in 2003, along with a number of other orders and resolutions, set the framework for the "new" water management and planning systems ensuring that they were in accordance with the WFD. The management of water resources should now be arranged according to the four RBDs, established in 2003. Although these RBDs have been established, the main responsibility for water management remains with national institutions, such as the Lithuanian EPA (competent authority), the Geological Survey, the Hydrometeorological Survey, the Marine Research Centre, and the State Service of Protected Areas, subordinated to the Ministry of Environment. The organisational structure and tasks of the eight Regional Environmental Departments do not appear to have been dramatically changed in response to the

Table 2.II. Implementation of WFD principles.

WFD principle		System before WFD	System after WFD
River basin as planning and management unit		 Water management has traditionally been arranged according to administrative units. However, in connection with the development of the national master plan for Lithuania, the Ministry of Environment decided to use river basins as the basis for water management investment planning.	 Four RBDs have been designated as management units for water resources.
Assignment of international RBD and cross-border / transnational cooperation		 Cooperation in the Nemunas river basin is based on a number of bilateral agreements. No specific – formal base – for cooperation between Lithuania and Latvia on international water resources existed previous to WFD implementation.	 All four RBDs have been officially appointed as international districts. In October 2003, a technical protocol was signed between Lithuania and Latvia on the implementation of river basin management in Venta, Lielupe and Daugava RBDs. A similar agreement was also signed with Poland in respect of cooperation on the sub-basins of the Nemunas RBD.
River basin authorities		 Organisations responsible for water planning and management were working either on the national, regional or local level, based on administrative or political borders.	 The Lithuanian EPA, active at the national level, has been appointed as competent authority for all four RBDs.
Water quality objectives aiming at achieving “good ecological and chemical status”		 Water quality assessments based on chemical standards were carried out regularly, and were required by legislation. In addition, a few biological classification systems existed; however, there were no real legal obligations to enforce them.	 Water quality objectives are stated in Article 22 in the Law on Water.
Economic analysis of water use		 The water management investment plans discuss and evaluate the possibilities for the cost-recovery of water services; for instance, the supply and demand of water is forecasted, and costs for investments and water services are estimated.	 An initial economic analysis of water use has been undertaken (Lithuanian EPA 2005).
Combined approach for point and diffuse sources		 The tradition in Lithuania has been to control emissions rather than to apply water quality standards. Requirements with regard to water quality standards did exist. They were not however given a high priority.	 Combined measures to reach water quality objectives are dealt with in Article 24 in the Law on Water.
Management plans for RBD		 There is no tradition or experience of setting up as extensive river basin management plans as those stipulated by the WFD. The only previous experience of river basin management plans are the development of water management investment plans, dealing predominantly with the infrastructure for wastewater collection and treatment facilities, water supply and surface water drainage systems.	 The production of river basin management plans is dealt with in Article 25 in the Law on Water.
Public participation		 Traditionally, the public has not been involved in water management. However, public participation is a requirement and an integral part of various spatial planning processes.	 The provision of information to the public is dealt with in Articles 25 and 29 of the Law on Water.
	Applied	The information in the table provides a qualitative assessment of the application of key WFD principles before and after the adoption of the WFD in 2000. The information referring to principles for which deadlines have not yet been reached, indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based upon the available literature and on interviews carried out in 2006. Note that this information does not necessarily reflect the view of all parties involved in WFD implementation.	
	Partly applied		
	Weakly/not applied		

implementation of the WFD. The only completely new organisation established after WFD implementation were the Coordination Boards. One Board, with representatives from the municipalities, counties, governmental institutions, NGOs and other interest groups, has been established per RBD. The power of these boards is not however strong; while the decisions of the boards remain only advisory, and the main purpose of the boards is to create a forum for stakeholders to express their opinions (MG). At the local level, the municipalities are seen as potentially important actors, e.g., for implementing programme of measures; however, thus far, no legal order or resolution specifying their roles exists while the municipalities' level of interest in participating in the process remains unknown to water management institutions at the national level (MG).

With regard to spatial planning the implementation of the WFD has not implied any changes in laws or regulations. However, with the national master plan adopted in 2002, the concept of river basin management was introduced in Lithuania, requiring water management investment plans to be set up based on river basins. Thus, although not explicitly performed under the WFD, spatial planning has been subject to changes in the direction of river basin management (AG).

Conflicts and synergies

In Lithuania, limited attention has been given to the possible connections between spatial planning and river basin management planning in relation to the WFD. In fact, from a spatial planning perspective, the risk of conflicts emerging between spatial planning on the one hand and river basin management planning on the other is regarded as being minimal. This is explained by the fact that whenever a plan is prepared it must go through the initial planning conditions, taking into consideration planning solutions and ensuring that these solutions are not undermined. Thus, different plans are not allowed to be in conflict with each other, as in such cases, the proposed plan will not be approved (AG).

The Lithuanian EPA has quite recently become aware of possible connections, and there has been some discussion over how to possibly better integrate spatial planning and river basin management planning. However, given the tight time schedule for WFD implementation, in combination with rather scarce level of economic resources available, the result is overloading of water managers with work, resulting in very limited levels of resources being available to actively push the issue forward (MG). From a water management perspective, the following have been highlighted as potential problems related to spatial planning

and river basin management planning (Gudas 2006):

- Administrative planning units do not coincide with RBD and river basin boundaries;
- Time schedules and solution duration periods for RBMPs and spatial plans differ;
- The EPA is not involved in the issuance of conditions for spatial planning and the EPA cannot initiate changes in spatial plans, as this is the responsibility of the spatial planning authorities;
- Effective planning solutions are applicable only for state or municipal land, thus, the potential to affect private land is limited.

The lack of criteria for, e.g., "good water status", subsequently leading to difficulties for the assessment of the status of water resources is stressed as a potential problem, both from a spatial planning and a water management perspective (AG, Gudas 2006). In general, science is regarded as having an important role to play in finding, for instance, "objective" definitions for water status, and the "best" solutions for abating problems (AG). From a water management perspective, the following have been highlighted as positive issues or potential synergies between spatial planning and river basin management planning (Gudas 2006):

- One of the priorities of spatial planning is to seek protection for and the rational use of natural resources, balancing environmental and other needs. More specifically, spatial plans include the establishment of buffer strips, afforestation zones and protected areas; and the setting up of land use and environmental restrictions and requirements, which may help in achieving the WFD objectives as well;
- Environmental Impact Assessment (EIA) of planned spatial activities are mandatory;
- Spatial planning could be used as an input for the identification of water-related environmental problems and economic analyses of water use (including the analysis of the socioeconomic situation and development directions);
- Spatial planning solutions coinciding with WFD objectives could be included in the programme of measures;
- The possibility exists to review and change spatial plans before the solution duration expiration date if necessary;
- Spatial planning has experience of public participation from which river basin management planning may learn.

Conclusions

Water management in Lithuania has not traditionally been based on river basins; thus, the implementation of the WFD has implied changes with regard to, e.g., the spatial management units for water resources. Four RBDs have been established, and it is consequently these new units that will serve as geographical borders for the future river basin management plans. Actual changes in the administrative structure as a direct result of the WFD have, however, been minimal. The Lithuanian EPA has been appointed as the competent authority for all RBDs taking on overall responsibility for the elaboration of river basin management plans, programmes of measures and for reporting to the European Commission. More specific tasks remain the responsibility of various national and regional institutions. The only organisations working solely on the RBD level are the newly established Coordination Boards. These boards have an advisory role and their main function is to create a formal platform for the participation of the stakeholders in river basin management planning. How the institutional set up for implementing the WFD will work in practice it is as yet too early to say.

Approval of the national master plan for Lithuania in 2002 saw the concept of water management according to river basins introduced into spatial planning. A national level decision was taken to prepare water management investment plans based on river basins. In practice this means that municipalities need to cooperate and coordinate their activities to fulfil the conditions set up in the plan. These water management investment plans have been or are currently being developed. The plans focus predominately on the infrastructure for wastewater collection and treatment facilities, water supply and surface water drainage systems, and are thus not as “extensive” as the river basin management plans anticipated by the WFD.

Few connections between spatial planning and river basin management planning, as introduced by the WFD, have thus far been recognised in Lithuania. The interplay between - or co-existence of - various spatial plans and river basin management plans is not seen as a problem as such, since the preparation of plans always needs to follow a regular set of procedures regarding planning conditions and planning solutions. The absence of clear definitions of “good water status” and the lack of accepted or standardised methodologies and tools for assessment are however viewed as a potential problem, both by the water management authorities (Lithuanian EPA) and in spatial planning circles (Territorial Planning Department at the Ministry of Environment). Furthermore, the potential role of the municipalities in relation to, for instance, the programmes of measures also remains unclear. The interactions between the two sectors appear, at least thus far, to be limited. For instance, although some of the water management investment plans are ready, the information con-

tained therein has not been used for the characterisation of the RBDs, the review of the environmental impact of human activity or the economic analysis of water use, performed according to article 5 of the WFD and reported in March 2005.

Thus far then the implementation of the WFD in Lithuania has neither generated conflicts nor synergies between river basin management and spatial planning. Whether connections between the two systems will subsequently develop is however difficult to say, as this is probably dependent upon both the choice of strategies for the development of river basin management plans and the implementation of the programmes of measures as well as on the willingness to participate and the level of interest shown by spatial planning.

References

Literature

Defris (2005): Sustainable Regional Spatial Planning and Working Methods. Development of first division regions, BSR Interreg IIIB project.

FAO (1997): Irrigation in the countries of the former Soviet Union in figures (electronic version). http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/W6240E/W6240E00.htm.

Lithuanian EPA (2004): Report on competent authorities, administrative arrangements and the general information on river basin districts of the Republic of Lithuania, Lithuanian Environmental Protection Agency, Vilnius.

Lithuanian EPA (2005): Report on Articles 5 and 6 of the Directive 2000/60/EC of the European Parliament and the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, Lithuanian Environmental Protection Agency, Vilnius.

Swedish EPA (2003): The Transboundary Waters Programme of the Swedish Environmental Protection Agency 1997-2002, Swedish Environmental Protection Agency.

Valeviciene, N. and Sukeviciute, R. (2006): National Overview Lithuania, in ESPON project 2.3.1 - Application and effects of the ESDP in the Member States, Luxembourg.

VASAB (2000): Compendium of Spatial Planning Systems in the Baltic Sea Region. <http://www.vasab.leontief.net>.

Interviews

AG: Aleksandras Gordevicius, head of Spatial Planning and Regional Development Division, Ministry of Environment, 30 May 2006.

MG: Mindaugas Gudas, head of River Basin Management Division, Lithuanian Environmental Protection Agency, 3 May 2006.

AM: Aldona Margeriene, director of Basin Management and Protec-

tion Department, Lithuanian Environmental Protection Agency, 9 June 2006 (reply to a questionnaire).

Other sources

Gudas, M. (2006): Presentation, WFD and Spatial Planning – the Lithuanian case, TRABANT Workshop I, February 2006, Stockholm.

Policy documents and legislation

Law on Territorial Planning 2004.

Law on Water 2003.

Nemunas lowland water management investment plan 2004

Norway

Alexandre Dubois¹, Nordregio

Introduction

Spatial planning system

The Norwegian administrative structure follows a three-tiered pattern: national (central government), regional (county) and local (municipalities). If in practice, most of the planning responsibilities are concentrated on the local level, there is traditionally a close interplay between the three levels (Hansen, 2005). This is also due to the fact that planning in Norway is no longer simply understood as land-use planning, but now also encompasses economic development issues (Böhme, 2002). The spatial planning system can however still be considered to be highly sectoral (Hansen, 2005).

At the national level the main prerogatives of the central government are to set up and maintain the general national goals and frameworks within the planning system functions. The Ministry of the Environment and the Ministry for Local Government and Regional Development are the main national actors in respect of the elaboration of national guidelines and policies. The instruments available at the central level are essentially legislative (mainly sectoral laws) though policy documents such as the National Policy Guidelines and the National Policy Provisions are also available (Böhme, 2002). As the ESPON 2.3.1 study notes however, the “*most important legislative instrument*” is the Norwegian Planning and Building Act (PBA), which is “*a comprehensive planning law with requirements for spatial planning at all levels of government*” (Hansen, 2005).

The state of the current debate on reform of the regional level in Norway makes it difficult to judge at present either what the likely planning prerogatives will be at this level of administration or indeed how many regions there will be. The regional level has traditionally however had only a weak role in the overall process. Two main actors are involved in spatial planning issues at the regional level: the county municipalities (*Fylkeskommune*), with an elected chamber, and the county governor (*Fylkesman*), appointed

by the central government. If the county municipalities have some responsibilities in terms of regional development and regional policy, the county plans are not however legally binding and second have had little impact on the planning process as a whole (Falleth & Johnsen, 1996). The county governor has a significant influence on decisions relating to land-use planning and the environment. At the regional level, two main planning documents are produced. Firstly, the county plan (*Fylkesplan*), which is a policy document for the development of the county, the main aim being the coordination of the physical, economic, social and cultural activities, emanating from the governmental level, on the territory (Böhme, 2002). It is thus essentially a coordinative plan. The second main document is the Regional Development Programme (*Regional Utvecklingsprogram*), which were introduced in 1995 with the goal of improving county planning as an instrument of regional development (Böhme, 2002).

Traditionally the municipal level has the major responsibility as regards spatial planning issues. The municipalities are responsible for the coherence of the implementation of sectoral policies on their territory, and, as the ESPON 2.3.1 country-study notes: “*In planning their own territory, they (municipalities) are to carry out cross-sectoral societal and land-use planning*”. Moreover, each municipality has to follow the general guidelines defined at the national level, fostering a coherence of the implementation of policies throughout the country. Each municipality has the duty to prepare a Municipal Masterplan that consists of two main components: a long-term and a short-term plan. While the long-term plan sets the main goals and objectives for the development of the municipality, the short-term component consists of an “integrated programme of action for sector activities” in the near future (Böhme, 2002).

In brief, Norway has a three-tiered administrative structure, that can be qualified as differentiated. The national level essentially promulgates laws and sets up the legal frameworks of the planning system. The regional level draws regional plans that are essentially non-binding but that aim at improving the coherence of planning issues

¹ The author would like to thank Knut B. Stokke, researcher at the Norwegian Institute for Urban and Regional Research (NIBR), and Ola Skauge, adviser at the Norwegian Directorate for Nature Management, for their insightful comments on an earlier version of this country-study.

at the regional level. Finally, the municipalities make local plans in line with national frameworks and policies, with regional state authorities being able to raise objections to these if the municipalities do not follow these frameworks. The plans have, ultimately, to be adjudicated by the Ministry of Environment if the parties themselves cannot come to an agreement.

Norway is currently undergoing a significant process of reform in both its administrative and planning systems which essentially aims at making the division of prerogatives between the three levels clearer. Böhme has analysed the main aspects of this revision of planning responsibilities. The main trend here is towards a greater concentration of responsibilities at the local level particularly for issues relating to the welfare state (Böhme, 2002). This reform however essentially targets the regional level. The process occurs in two phases: first, the delimitation of the future prerogatives of the regions, including tasks such as physical planning or regional development; and second, identifying the number and geographical extent of the regions, the proposed number varying from a handful of regions to 17 (Norwegian Government, 2006). These two aspects of the proposed administrative reform are very much linked to one another. For the regions, despite the fact that it remains unclear how many there will be, the county municipalities should become the most important actors in the field of regional development (Böhme, 2002). Finally, at the national level, the role of the state will move from detailed control to a framework-providing role. Moreover, one of the essential prerogatives of the regions, namely, health care has been transferred to the national level.

Water management planning system before the WFD

In their articles on the implementation of the WFD in Norway, Stokke and Hovik have analysed the main characteristics of the current water management system. The Norwegian water management system is considered to be strongly centralised and sectoral with the Ministry of Oil and Energy and the Norwegian directorate for Water and Energy being the main decision-makers (Stokke & Hovik, 2004). In consequence responsibility for the water management system remains highly centralised at the national level.

In addition different sectoral actors remain in charge of the various 'branches' or sectors of water management. This strong sectorialisation of the water management system is further complicated by the involvement of many national authorities in the process. The list of national-level prerogatives, and their associated competent authority, includes (Stokke & Hovik, 2004):

- Water quality: Ministry of the Environment

- Water quantity: Ministry of Petroleum and Energy
- Pollution and nature conservation: Norwegian Pollution Control Agency and Directorate of Nature Management
- Pollution from agriculture: Ministry of Agriculture
- Drinking water: Ministry of Health
- Coastal water: Ministry of Fisheries and Coastal Authority

All in all, the water management system can be qualified as fragmented both because it is strongly divided into (sectoral) water branches, but also because it is divided between national actors.

The most important pieces of legislation relating to water resource management and development are the following: Water Resources Act (2001), Pollution Control Act (1981), and the Municipal Health Service Act (1982) (United Nations, 2004). These regulations are complementary: the Pollution Control Act essentially deals with the quantitative aspects of environmental pressures; the Water Resources Act focuses primarily on quantitative issues. Concerning the legislation in place, there is no unified piece of legislation dealing with water management issues. Indeed each of the responsible authorities is in charge of elaborating the piece of legislation referring to their 'branch'.

Moreover, in addition to the horizontal division of tasks across branches, both the municipalities and the county municipalities have, according to the Norwegian PBA, responsibility for the coordination of these branches on their territory, complicating further the 'vertical' integration of water issues. Indeed, the county and municipal plans may include water issues that have a direct impact on their territory. The local authorities have the main responsibility for providing water and sewage services to both commercial and private users (United Nations, 2004). In addition most of the national agencies and directorates have regional offices.

River basins have been used as planning units on a voluntary basis by the counties in several "watercourse plans" or "water use plans". These plans are county plans that cover an area beyond the county boundaries. Such county plans however are not legally binding and their implementation is undertaken on a voluntary basis by the local actors. At this point then very little coordination exists in respect of the specific water issues at the regional or local levels.

During the 1990s discussion has ebbed and flowed on the issue of the relationship between the PBA and the legislation of water management issues, as both pieces of legislation were upgraded during this period. The proposal, aiming at the fostering of more integrated planning practices, came up against significant opposition from the Energy sector, who argued that it should not be delegated to the municipalities. (Stokke & Hovik, 2004)

Figure 2.14. Actors involved in water management

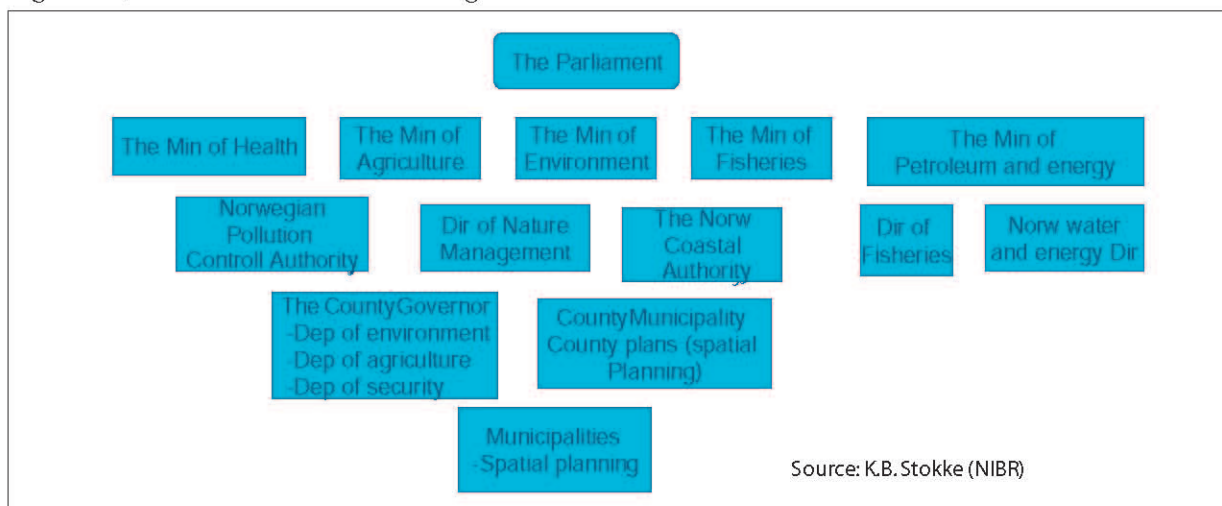
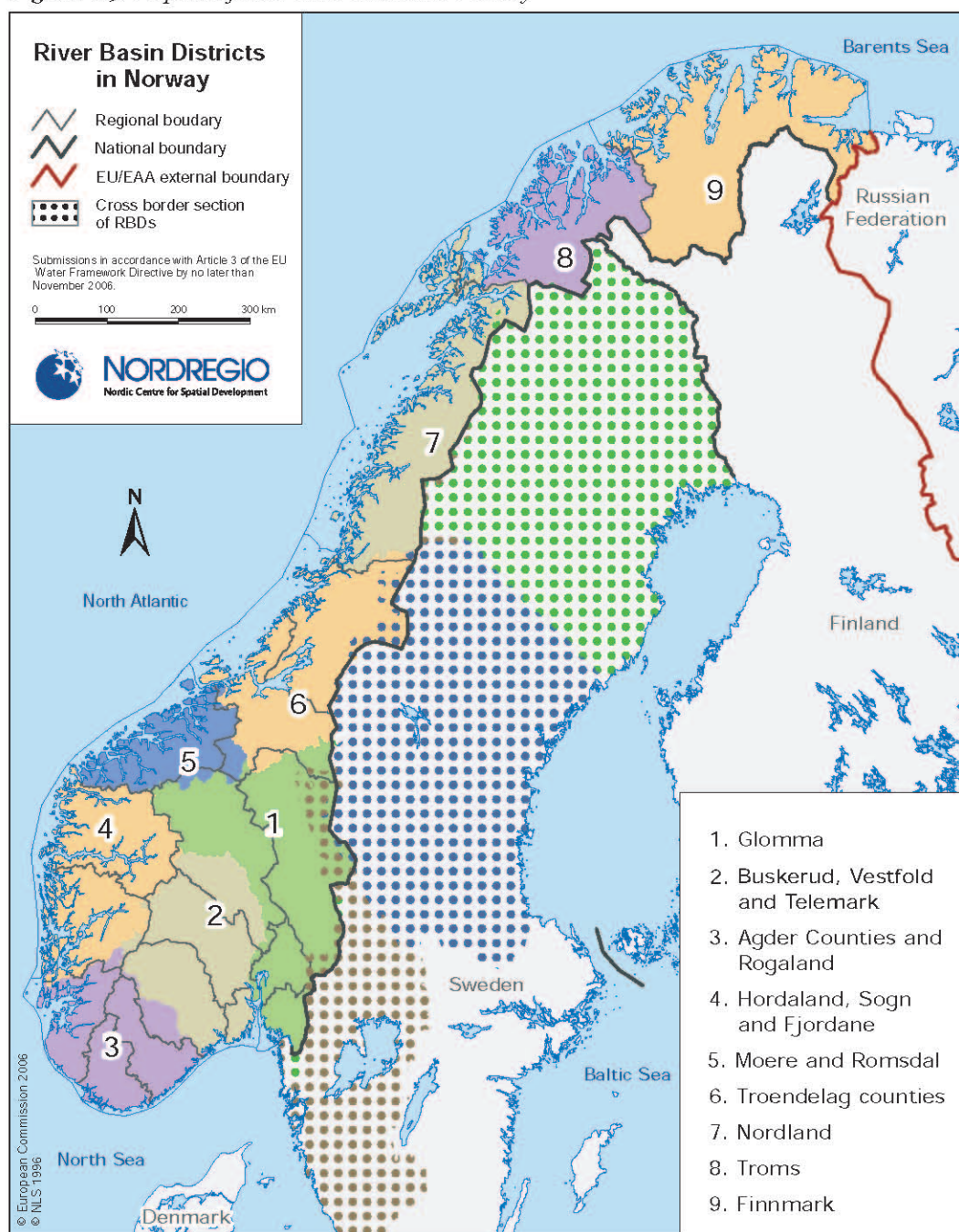


Figure 2.15. Proposal of river basin districts in Norway



Implementation of the WFD

Process of implementation

Norway is not an EU member-state, but, in the framework of the EEA agreement, the country has adopted the principle of implementing the directive on its territory.

It is necessary to begin by noting however that WFD implementation itself has not yet begun in Norway. Indeed the regulation has yet to be passed. A first draft of the law was sent for comment to approximately 150 stakeholders throughout the country. In May 2006, a new proposal was made and sent to the Ministry of Environment for approval, taking into account these comments. As such, work on the WFD in Norway has primarily been undertaken at the national level, though once the operationalisation phase of the directive begins, regional and local actors will actually be in charge of the implementation process.

Two pilot studies have however been undertaken. For Stokke (2006), the main purpose for these case studies is, first, to “gain experiences with the existing management and planning system in relation to the WFD” and, second, to “suggest management systems and processes that secure an ecosystem based management, and secure local and regional participation”. In that sense, if the experiences gained seem to be very local, it does provide interesting insights into the potential future impacts of the implementation of the WFD in Norway. Moreover the aim of the pilot studies was essentially to develop methodologies for the future characterisation of the river basins that could be extended and implemented to the rest of the Norwegian territory.

In the following sections, we will discuss the latest proposal. In its latest publication, the Norwegian steering group has proposed an agenda on the timing and the extent of the implementation of the WFD up to 2015. From 2005 to 2009, the group proposes to begin implementation by drawing up river basins plans for a selected number of river basins, corresponding to at least 20% of all basins. During this period the process of characterisation will be continued for all river basins. From 2010 to 2015, the river basin plans will be put together for the remaining river basins, representing approximately 80% of the total, while an update on the characterization made during the previous period will be given. This process will be continued from 2016 to 2021.

Transboundary cooperation

The implementation of the WFD might improve cross-border co-operation on water issues as it provides a general framework for co-operation. One has however to bear in mind the fact that Norway shares few catchment areas with its neighbouring countries and that these areas already have a good water status and are not heavily pollut-

ed. Moreover, the transnational catchment areas that do exist are essentially shared with Sweden, and have already been subject to a long tradition of co-operation, essentially between municipalities.

Levels of implementation and key actors

The debate over who was to be the competent authority for the implementation of the WFD in Norway was settled in 2005, with the appointment of the Ministry of the Environment as the competent authority at the national level. In order to support the work of the ministry, a group has been set up, gathering together various ministries and directorates, thus regrouping the different sectoral interests related to water issues. Formally, the sectoral division of responsibilities between national ministries and agencies will not be affected by the implementation of the WFD, as each authority will keep its prerogatives and instruments. The institutionalisation of a national steering group regrouping these authorities will however provide a framework for the better integration and coordination of water management issues. The steering group will also serve as an adviser in terms of implementation at the regional level.

At the regional level, the latest proposal sent to the Ministry of the Environment suggests that the county governors, appointed by the central government in each county, should be in charge of the implementation of the directive for each of the river basins. In order to support him/her, a stakeholder group will be created, gathering together sectoral representative, as well as representatives from the county municipalities and municipalities of the river basin. Other public or private stakeholders will also be closely associated with this process.

The current proposal for the new WFD regulation in Norway suggests the division of the country into 9 river basins districts. A prerequisite for the implementation of river basins in Norway is that it shall not create a new institutional level. Consequently, river basins are mainly drawn up along actual county boundaries, in some cases regrouping two or more counties. Boundary adjustments can however be made in order to adapt the county boundaries to the actual water catchment areas. In that sense, river basins are not a new territorial unit for water planning, but a coordination of water management across regional borders, especially between the relevant regional authorities, such as the county governors and county municipalities. Consequently the regional level will be the key-level for the implementation of the WFD in Norway both because it will have to coordinate it vertically (national agencies, county municipalities, municipalities) and horizontally (between sectors). The county governors will be responsi-

Table 2.12. Application of WFD principles

Principle	System before WFD	System after WFD
River basin as planning and management unit	 Water planning units were the counties.	 Nine water districts are to be introduced thanks to the forthcoming regulation.
Assignment of international RBD and cross-border / transnational cooperation	 There was no formal RBD shared with neighbouring countries (Sweden and Russia). Norway does however have a long tradition of co-operation on water issues at the regional and local level across the border.	 It is still not clear the extent to which these river basins will be of a cross-border nature. The proposed division of the Norwegian territory into river basins does not seem to take this dimension into account.
River basin authorities	 The counties were responsible for water –related issues in their administrative territory.	As noted previously the river basins do not correspond to a new institutional layer. The draft regulation will however appoint one regional authoritative body (competent authority) from among the County Governors within the river basin district. 
Water quality objectives aiming at achieving “good ecological and chemical status”	 No specific measurable quality objectives were stipulated, although qualitative objectives were included.	 The last proposal of the regulation that was sent to the Ministry of the Environment in May 2006 includes quality objectives for both surface and ground waters
Economic analysis of water use	 No reference to economic analysis of water use was previously made.	 Paragraph 25 of the draft regulation for the implementation of the WFD in Norway deals with cost effective measures while Annex III deals with cost recovery of water services.
Combined approach for point and diffuse sources	 No mention was previously made of this issue.	 No clear mention of this point was made in the draft regulation.
River Basin Management Plans	 Water issues are included in regional plans, drafted by regional authorities.	 Management plans will be prepared for each of the river basins before 2015.
Public participation	 Some stakeholder groups are partly involved in the water management process.	 Public participation will take place in the context of the implementation of the WFD. At this point, however it is not clear how this participation will take place nor is it clear the degree to which the public will have influence either.
	Applied	The information in the table provides a qualitative assessment of the degree to which the key principles of the WFD were applied before and after the adoption of the WFD in 2000. The information referring to principles for which deadlines have not yet been reached, indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based on the literature found and interviews carried out at the time the study was undertaken in 2006. Note that this information does not necessary reflect the view of all parties involved in WFD implementation.
	Partly applied	
	Weakly/not applied	

ble for the drawing up of river basin plans including the issues of characterisation and monitoring.

If the implementation of the WFD is essentially demanding on the regional level, with the creation of the river basin authorities, it will also require the more sustained involvement of the local level on water issues. In that sense, new competences and capacities for action should also be developed at that level.

Principles implemented

In Norway nine water districts are to be introduced thanks to the forthcoming regulation. These river basins will be the territorial unit of reference for the implementation of WFD principles. It is still not clear however to what extent the river basins will be, where relevant, of a cross-border nature. The proposed division of the Norwegian territory into river basins does not seem to take this dimension into account.

As noted previously the new river basin areas do not correspond to the new institutional arrangements. The draft regulation will however appoint one regional authoritative body (competent authority) among the County Governors within the river basin district. The governor has other duties at the regional level. A joint river basin steering group will however be set up in order to support the work of the governor, including county representatives and representatives of the municipalities and national agencies. On adoption the new regime for water management will be consistent with Art.3 in the WFD regulation.

The latest proposal for the regulation to be sent to the Ministry of Environment in May 2006 clearly includes quality objectives for both surface and ground waters. Paragraph 25 of the draft regulation for the implementation of the WFD in Norway deals with cost effective measures while Annex III deals with cost recovery of water services.

It is clear that public participation will have its place in the process of implementing the WFD in Norway. At this point however it is not yet clear exactly how such participation will take place, nor is the degree of influence that the public will have. Thus far, as debate has raged mainly at the national level, local civil society actors have not really been involved. Finally, the river basin plans will be made in accordance with the PBA, which is in line with the WFD when it comes to public participation and the involvement of stakeholders. Management plans will also be prepared for each of the river basins by 2015.

Impacts and effects on planning systems

It is expected that implementation of the WFD will not have a direct impact on the planning system. There is no conflict, from a legal point of view, between the requirements of the WFD and those of the PBA. Ratification of the directive will entail minor changes to the Planning and Building Act which is the main piece of legislation regarding spatial planning. Moreover, the directive will not bring further legal restrictions for building and land-use, as the

actual legislation is already very restrictive. It is currently impossible to build within 100 m of the shoreline. The identification of water courses under stress might however make it more difficult in practice to construct in the vicinity of these water bodies.

As noted previously, implementation of the WFD will not entail any institutional changes at any level in Norway. The river basins are not a new institutional level but rather the aggregation of already existing levels (counties) while the competent authorities are the county governors appointed by the central government. The WFD will also have limited effects on the planning policies. Indeed, the existing regional and municipal plans, defined in the PBA, already need to take water issues into account.

The WFD will not change fundamentally the way in which the water management system is set up in Norway though it will probably make it more integrated and efficient. The division of water issues across different sectors, handled by different national authorities, will remain in place. Each authority will keep its prerogatives and its instruments. The institutionalisation of the steering group regrouping the national stakeholders can be seen as an improvement in terms of the better coordination of policies and actions from a cross-sectoral perspective. This is inline with the need, stated in the WFD, to have a more holistic perspective on water issues.

If the impacts on the water management system as such will not be substantial the implementation of the WFD will have more of an impact on the practices used in the field. One of the most important improvements over the past system is the inclusion of precise biological objectives in the regulation. Specific water objectives have to be set up for each type of water body, enabling a differentiated, tailored monitoring of the river basins.

In practice it seems that there will be two parallel systems in place concerning the implementation of WFD at the regional level. Indeed, if the county governor are to be in charge of making the river basin plan, the national ministries and directorates responsible at the national level also have regional offices (for example the Directorate for Water and Energy has 5 regional offices) which will act as an intermediary between the national and the regional/local levels. Nevertheless it remains as yet unclear how the co-operation between these two systems will take place in practice.

Conflicts and synergies

The proposed legislation implementing the WFD in Norway does not provide a detailed account of how the various water sectors could be further inter-related. It is however noted that the future water management plan will be drawn up as a regional partial plan in the framework of the PBA. This means that water resources issues are likely to be more firmly connected to general spatial planning concerns.

When the regulation on the implementation of the WFD in Norway is adopted the horizontal and vertical co-

ordination of water issues will be strengthened. Indeed, the committee put in place in order to monitor implementation at the national level, which groups together several national agencies and ministries, is a step in the right direction in terms of the better integration of the various water issues in a cross-sectoral manner. In practice, the coordination of water planning issues will occur at the county level, which is

designated as the competent authority for river basins, particularly by the implementation of committee with representatives from the sectoral authorities, county councils, county governors and the municipalities. This will ensure strong vertical coordination. The county plan will serve as the basis for a coordinated programme of actions between water management planning and spatial planning.

Conclusions

The process of implementing the WFD in Norway has just begun. The process of building the general framework at the national level is about to end with the adoption of the regulation this year.

Norway currently has a water management system that can be defined as centralised and fragmented. Water management is highly centralised to the national level, though it is also fragmented with different authorities (ministries or directorates) being in charge of specific sectors. On the other hand, the spatial planning system is rather decentralized, though the various state actors still have an important role to play.

The introduction of the WFD in Norway, with its strong focus on the holistic nature of water issues, may have a positive impact on the efficiency of the Norwegian water management system, even if it will not affect it drastically. Indeed, the introduction of a national steering group, gathering together the national stakeholders, might lead to the better coordination of action and the increased integration of sectoral objectives.

The designation of the river basins will improve co-operation between the counties and the municipalities. If water issues can be included in the already existing regional and municipal plans, the river basin plans might ensure a better coherence of these more local plans, especially in the case of upstream and downstream municipalities. The inclusion of “good water status” objectives in the regulation will be also an improvement as it will provide the framework for the differentiated monitoring of the river basins.

The implementation of the WFD will reinforce the link between the spatial planning and the water planning systems. This is especially the case at the regional level as the county governor will be in charge of making the river management plans in close cooperation with the municipalities and other actors, who at the same time have an important role to play in spatial planning at the regional and local levels. This could potentially strengthen the link between the river basin plans and spatial plans, and the link between water management and land use management more generally. In practice, it presupposes an improvement in the competences and capabilities of local level actors on water issues, which will remain the main level for land-use planning in Norway.

While there may be no conflict from a legal point of view (between the PBA and the WFD), some conflicts of interest may nevertheless occur. This may be the case at the national level, where the debate over the decision over who is to be the ‘competent authority’ took several years. In this sense then potential conflicts of interest between the environmental and energy sectors could continue to hamper the implementation of the directive (Stokke & Hovik, 2004).

References

Literature

- Böhme, K. (2002): Nordic echoes of European spatial planning Nordregio, R2002:8, Stockholm
- Hansen, M. (2005): National Overview Norway, in ESPON project 2.3.1- Application and effects of the ESDP in the Member States, Luxembourg.
- Falleth, E. I. & Johnsen, V. (1996): Samordning eller retorikk? Evaluering av fylkesplanen 1996-1999 NIBR-rapport 1996:20
- Ministry of Petroleum and Energy (2006): Facts on Energy and Water Resources in Norway, (<http://odin.dep.no/oed/english/doc/reports/026021-120011/dok-bn.html>)
- Norwegian Government (2006): Regionale fortrinn, regional framtid White paper no. 12 (2006-2007) Dec 8th 2006
- Statistics Norway (2006): Natural resources and the Environment 2005 – Norway Statistical analyses series, Oslo
- Stokke, K.B. & Hovik, S. (2004): EUs rammedirektiv for vann – en utfordring for norsk vassdragsplanlegging og –forvaltning in PLAN nr. 6/2004 pages 26-41 Universitetsforlaget
- United Nations (2004): Fresh Water Country profile Norway (<http://www.un.org/esa/agenda21/natlinfo/countr/norway/waterNorway04f.pdf>)

Interviews

- Stig Borgvåg, Norwegian Institute for Water Research (NIVA)
- Jon Lasse Bratli, Norwegian Pollution Control Authority (SFT)

Other sources

Forskrift om Rammer for Vannforvaltningen

Planning and Building Act (2005)

Water Resources Act (2001)

Stokke, K.B. (2006): Presentation, The WFD and the Norwegian Spatial Planning System, TRABANT Workshop I, February 2006, Stockholm.

Poland

Patrick Lindblom¹, Nordregio

Introduction

Spatial planning system

The planning system in Poland has undergone something of a transformation over the last 16 years following the political and socio-economic changes that took place in 1989–90 (Korcelli and Komornicki, 2006). The subsequent administrative reform of 1999 and the growing role of regional self-government authorities also constitute a major impulse for the re-emergence of spatial perspectives in Poland. The EU accession negotiations, moreover, provided a solid basis for the recognition of the importance of spatial policy at all territorial levels, in particular within the spectrum of national socio-economic policy (Korcelli and Komornicki, 2006).

Since 1999 the administrative system in Poland has been divided into 16 voivodships (regions), 374 poviats (districts, county) and 2489 gminas (municipalities, commune) (Nylund and Strhzelecki, 2006).

At the national level the Ministry of Infrastructure is responsible for questions of building, economy and housing, and looks after the compatibility of the Voivodship Plans with the National Spatial Development Policy Concept. The Ministry of Infrastructure also oversees and coordinates programmes of trans-boundary collaboration and prepares periodical reports on spatial development trends at the national level (Korcelli and Komornicki, 2006).

At the regional level Poland is divided into 16 Voivodships largely based on the country's historic regions. The governmental administration is represented in each voivodship by a Voivode, responsible for the implementation of governmental policies. The self-governed voivodships on the other hand are local self-government units legally established by the voivodship's citizens. They are responsible for public administration, performing several regionally relevant tasks such as land management, environmental protection, water management and transport. Pursuant to the Spatial Planning Act of 2003, on the

voivodship level several planning documents are adopted by the voivodship assembly namely the voivodship development strategy, the voivodship spatial development plan, the multi-annual voivodship programmes and the voivodship's international relations priorities (Nylund and Strhzelecki, 2006).

Poviats are the county, district or prefecture equivalents in Poland. The spatial planning competencies of the Poviats are limited to performing public tasks of supra-communal significance as well as architectural and development administration, public education, culture and monument preservation, environmental protection, water management, agriculture and transport. Poviats do not have planning documents and are restricted to the preparation of analytical studies on the potentials for and the barriers to spatial development (Nylund and Strhzelecki, 2006 and Krok, 2006).

At the local level the gmina is the principal unit (lowest level) of the territorial division in Poland. A gmina is equipped with major competences in the spatial policy domain. It is responsible for all public matters of local relevance in particular land management, real property management, spatial planning, protection of the environment and natural resources, water management, health care, local roads, social welfare assistance, public education and culture issues. In addition, the gminas may perform the tasks of a poviat or a voivodship, as well as of the governmental administration, but this is subject to agreements with those entities. Two basic documents are elaborated at the local level namely the spatial development study of gmina and the local physical development plan (Nylund and Strhzelecki, 2006).

Water management planning system before the WFD

The institutional framework for water management in Poland has not been spared from the reforms undertaken throughout the public administration system during the 1990's. From 1945 until the late 1980's Polish water management was based on central governance planning and control. At this point it became evident that Polish water

¹ The author would like to thank Dr Eng. Barbara Kozłowska, Faculty of Process and Environmental Engineering, Technical University of Lodz, for insightful comments on an earlier version of this country-study.

management policy was about to change direction. The process of “rethinking” governmental structures of the water management system were the result of a democratization process in which the central government progressively granted powers to regional and local authorities (Blomquist et al, 2005).

Within the Ministry of the Environment, the Department of Water Resources (DWR), works with developing the Minister’s policy direction in water management and with this policy’s realization. The tasks of the DWR are many, including policy making, protection of surface waters, development and coordination of flooding protection measures, piloting monitoring activities and measures taken by other agencies and those in cooperation with foreign actors involved in cross border agreements (Ministry of the Environment, 2006a).

Another important organ at the national level was the Water Management Office established in February 2000 headed by the Ministry of the Environment. This body was tasked with harmonizing the activities of the RWMAs and supporting it through the organization of actions on the utilization, maintenance and protection of water resources (Ministry of the Environment, 2006a).

The seven Regional Water Management Administrations (RWMA) cover entire counties and correspond pri-

marily, though not exactly, with Poland’s principal river basins (Blomquist et al 2005). On behalf of the central government, the RWMAs perform water management planning and coordinating functions within river basins and maintain specified water works and state-owned reservoirs and other facilities. Other tasks of the RWMAs include the monitoring, collecting and spreading information, and the collection of charges and feeds (Blomquist et al 2005).

According to the previous section, the Voivodships and Poviats shared also responsibilities on water resource management with the above mentioned authorities before the introduction of the WFD into Polish legislation in 2002, which saw most of these functions preserved.

Water management elements were additionally included in different types of plans. Among other things for example there was a short chapter on water economy in the National Spatial Development Policy Concept approved in 2001. With regard to voivodships’ development strategies and land use plans, all of these documents also addressed environmental resource problems including waters, their protection and management. The specific treatment of water issues could not however be regarded as a standard procedure in the elaboration of these plans (KP*).

Implementation of the WFD

Process of implementation and principles implemented

The WFD was introduced into Polish water management through the 2001 Water Act which came into force on 1 January 2002. Since the early 1990’s Polish water management has increasingly been moving in the same direction as the WFD and most of its basic principles were already contemplated in the legislation before its implementation. On the other hand, despite the pressure placed on Poland to comply after becoming an EU member changes and improvements in its water management system have rather been seen in the context of an adaptation process in line with the country’s own conditions and needs. In order to comply with these needs the French model for water management was adopted during the 1990’s (PK and MM).

The 2001 Water Act became the main legal basis for water management reinforcing many of the WFD principles. Most significant points here were the introduction of the goal of achieving a good ecological status for surface waters and the River Basin Management Plans (RBMP), the principle of public participation in water management and provisions for an economic analysis to be undertaken aiming at making water use more economical and efficient (KP, MM & KB, and Blomquist et al, 2005).

An administrative division based on river basin districts has existed in Poland since 1991 when the Polish government established a system of seven Regional Water Management boards (RWMBs), conforming, essentially, to pre-existing river sub-basin boundaries (Blomquist et al 2005). The RWMBs subsequently underwent a period of further reform in 1999 eventually to become today’s seven Regional Water Management Administrations (RWMAs) each corresponding geographically to a specific river sub-basin (Blomquist et al, 2005).

In compliance with the WFD, ten river basin districts (RBD) have been designated; two major river basins districts of the Vistula and Odra Rivers covering 95% of the territory and eight smaller international river basin districts in cross-border areas; the Dniester, Danube, Jarft, Elbe, Nemunas, Pregola, Świeża, Ucker; constituting approximately 5% of the territory (Ministry of the Environment, 2006b).

The provision for RBMPs are new elements in Polish water management legislation since the RWMB’s had no legal responsibility for developing programmes for water use during the 1990’s (OECD, 1995; KP and MM). The only examples of RBMPs previous to the enforcement of the 2001 Water Act were action plans for the Odra River

Figure 2.16. River Basin Districts in Poland according to the 2001 Water Act (Source: Ministry of the Environment, 2006b)

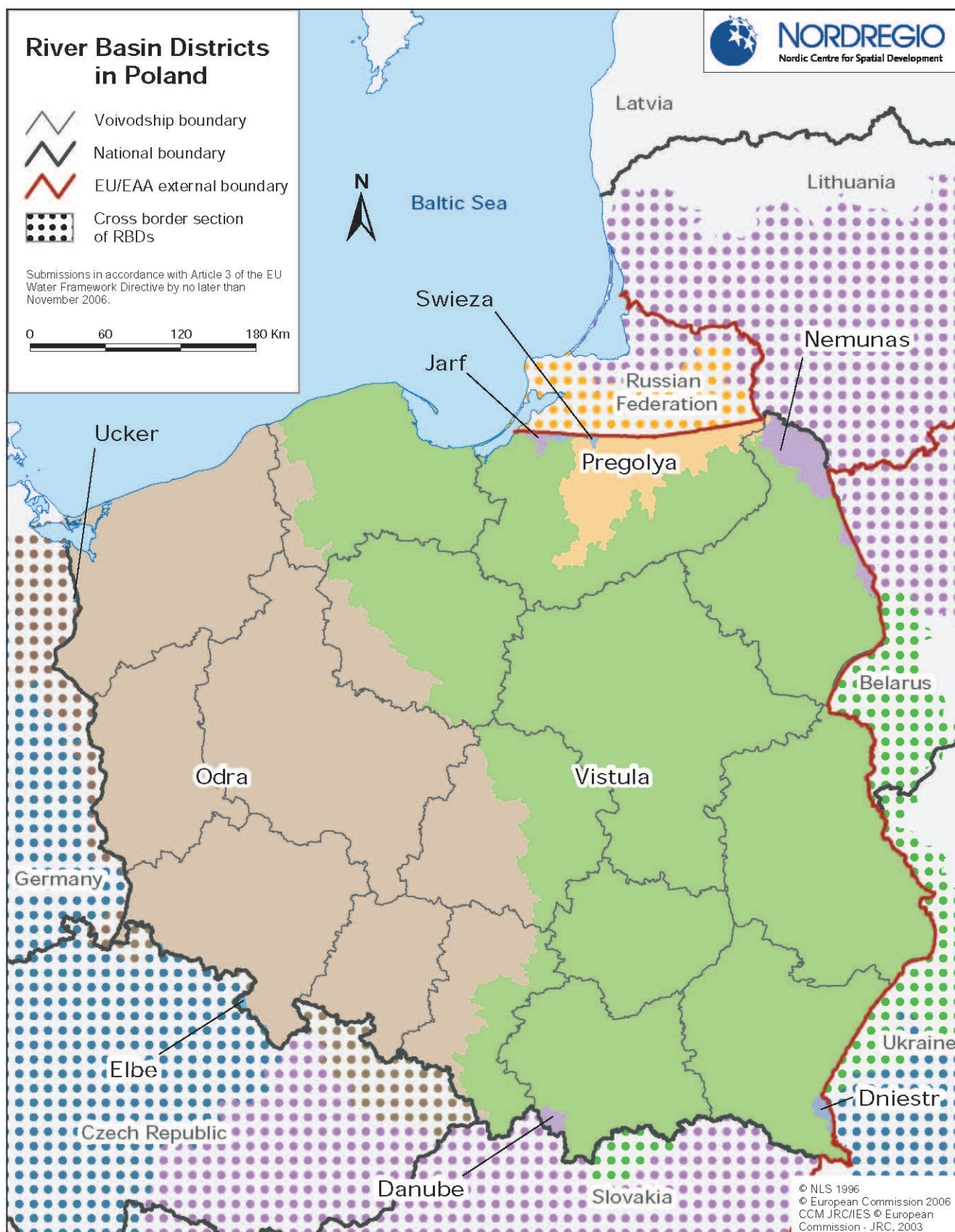


Table 2.13. Implementation of WFD principles

Principle	System before WFD		System after WFD
River basin as planning and management unit	 Seven river sub-basin districts have been recognized as administrative units for water management since 1991.		 Two major, and eight smaller, river basin districts have been designated as planning units for water management.
Assignment of international RBD and cross-border / transnational cooperation	 Poland has long been a party to conventions and international agreements on international river basin management with all of its neighbouring countries.		 Competent authorities at both national and regional level cooperate with neighbouring countries in the management of trans-boundary river basins. WFD implementation has intensified trans-boundary cooperation.
River basin authorities	 RWMBs conform essentially to the territories of river sub-basin districts. They have existed since 1991.		 The NWMA will be responsible for the elaboration of the RBMPs for the Odra and the Vistula RBD's while the seven RWMBAs will be responsible for water management within their assigned sub-basin.
Water quality objectives aiming at achieving "good ecological and chemical status"	 Provisions on qualitative and quantitative standards were stated in the 1974 Statute on Water. However, Water quality objectives aiming at the achievement of a "good ecological status" were not recognized by the water management legislation.		 The 2001 Water Act is built upon the basis of ensuring a "good ecological and chemical status" and the polluter-pays-principle.
Economic analysis of water use	 The economic analysis of water use was carried out. However, this was not a standard procedure in water management.		 Economic analysis is recognized by the legislation as one of the main documents for the production of the RBMPs. Poland has reported the economic analysis of river basin districts on time.
Combined approach for point and diffuse sources	N/I		 The combined approach for point and diffuse sources and the 'best available technique' principle are contemplated by the 2001 Water Act.
River Basin Management Plans	 RWMBs had no legal responsibility in developing programmes for water use or RBMPs.		 Provisions on the elaboration and operation of the RBMPs have been included in the 2001 Water Act.
Public participation	 Public participation was low in respect of water management. Some advances were introduced in the water management legislation in 1991.		 The WFD has contributed to promoting public participation in decisions regarding the development and use of water resources through a consultative structure for river basin stakeholders. The programme for public participation has also been prepared.
	Applied	The information in the table provides a qualitative assessment of the degree to which the key principles of the WFD were applied before and after the adoption of the WFD in 2000. The information referring to principles for which deadlines have not yet been reached, indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based on the literature found and interviews carried out at the time the study was undertaken in 2006. Note that this information does not necessary reflect the view of all of the parties involved in WFD implementation.	
	Partly applied		
	Weakly/not applied		

basin. However, these plans were not as comprehensive as those required by the WFD (PK and MM).

After WFD implementation Polish river basin management planning now includes several documents most of which were recognised by the 2001 Water Law in article 113 (Krok, 2006):

- National water-environmental programmes- with partitions for river basins
- River Basin Management Plans
- National flood protection and drought effects prevention plan with partitions for river basins
- Flood protection plan for water districts
- Principles for water resource usage in water districts

Two RBMPs are to be elaborated; one for the Odra River basin and the other for the Vistula River basin. Since the river basin districts of the Odra and Vistula rivers are divided into seven sub-basins, four in the Odra RBD and three in the Vistula RBD, the RBMPs will determine the water management criteria for not only these enclosed river sub-basins but also for the eight adjacent international river basin districts (PK and MM).

The WFD has been an important contributor to the introduction of provisions promoting public involvement and participation in decisions regarding the development and use of water resources through consultative structures for river basin stakeholders. The overall process of public participation follows a 'bottom up' approach starting from the local level and moving upwards to the national level (PK and MM).

The Ministry of the Environment has prepared the Programme for Public Participation in the Implementation of the Water Framework Directive in Poland, which is considered consistent with the recommendations stated in the WFD (Ministry of the Environment, 2005). It is

planned to carry out public participation at both the national and regional levels. At the national level the Ministry of the Environment created a special group for public participation, which is responsible for coordinating the public participation process and for preparing and publishing relevant information. A National Water Forum will be organized twice a year with the task of promoting a dialogue between public and private stakeholders with a strategic impact on water management issues (Bernet Catch, 2006). At the regional level each RWMA may establish a Regional Council of Water Management (RCWM) composed of water users and representatives from other governmental units in the river basin (Blomquist et al, 2005). The councils, as advisory and opinion-making bodies, express these stakeholders' opinions in water management issues, and especially in scope of projects, plans, programmes, concrete investment, and actions aiming at meliorating ecosystems from early exploitation of water resources (Ministry of the Environment, 2006a).

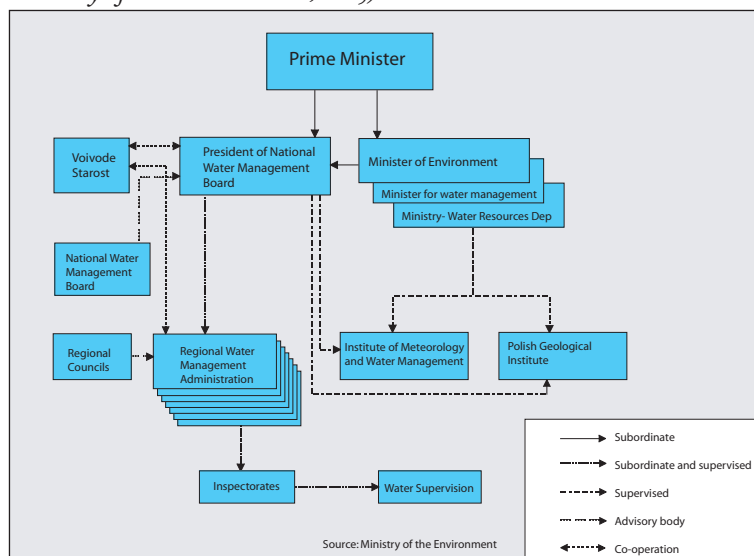
Trans-boundary cooperation

Poland had already entered into management agreements with its neighbours in respect of international river basin districts previous to the WFD. A good example here is the International Commission for Odra River protection against pollution (ICOPaP). This commission was based on the Agreement on 'Odra River protection against pollution' between the Governments of Poland, the Czech Republic, Germany and the European Community, signed on the 11th of April 1996 in Wroclaw (Ministry of the Environment, 2006).

Other examples of conventions and agreements between Poland and its neighbours include those with (Ministry of the Environment, 2006b);

- Germany, since 1992 on economic, scientific and technical cooperation.
- The Czech Republic, since 1958 on cooperation regarding flood protection, navigational operations, pollution prevention and nature conservation.
- The Slovak Republic, since 1997 in areas of flood protection, water regulations, melioration, water intake, waste water discharge and protection against pollution.
- The Ukraine, since 1996 in carrying out qualitative and quantitative tests of waters, hydro-meteorological tests, preparation of water-economic balances, water intakes, flood protection, etc.
- Belarus, since 1964 through a convention between Poland and the Soviet Union on water management in trans-boundary waters.
- The Russian Federation, through the agreement of the 17th of July 1974 on management in trans-boundary waters, and the agreement

Figure 2.17. Institutional framework for water management after the introduction of the National Water Management Board (Source: Ministry of the Environment, 2005)



of the 22nd of May 1992 on cooperation of north-eastern Voivodships of the Republic of Poland and the Kaliningrad Oblast of the Russian Federation.

The implementation of the WFD has also been a contributing factor in the furthering of efforts to coordinate international river basin districts (Ministry of the Environment, 2006b). In the Odra River basin case actions will mainly be coordinated by the ICOPaP, and also to some limited extent, within the Polish-German and Polish-Czech Commission for trans-boundary waters. Similarly, the coordination of WFD implementation will be negotiated with the Slovak Republic (Ministry of the Environment, 2005).

On the eastern border, cooperation in water management will require the introduction of proper legal solutions in order to facilitate cooperation on an international river basin scale. In this regard several international pilot projects are planned to be carried out though not, currently, in the Kaliningrad Oblast border area with the Russian Federation (Ministry of the Environment, 2005).

Levels of implementation

The reform of the water management sector that began in the late 1980's has resulted in a more decentralized system of Polish water management though it is still considered by its developers to be centralized. This because the RW-MAs are fundamentally dependent on the decisions made and policies adopted by the central Government (PK and MM).

At the national level the main institutional change in Polish water management in light of WFD implementation was the establishment of the National Water Management Board (NWMB) (Ministry of the Environment, 2005). In July 2006 the NWMB, headed by the president replaced the Water Management Office which assumed responsibility for the elaboration of the RBMPs in the Odra and Vistula River basin districts and for the coordination and supervision of the work of the seven RW-MAs (KP and MM). The NWMB also has responsibility for guaranteeing the correct management of waters within river basin districts with a view to (KP and MM; Ministry of the Environment, 2005):

- Improving the functioning of the Ministry of the Environment, as a supreme unit that shapes and supervises the implementation of national environment policy. The intention here is to make water management more efficient by separating water management from the Ministry of the Environment, without losing its supreme role;
- Eliminating the need for setting up separate organisational structures to manage water resources within individual river basins, thus preserving a central institution with responsibility for coordinating all work in the elaboration of the RBMP.

The Board's members will include the RWMA directors, who will no longer relate directly to the Ministry of Environment but instead to the NWMB. The NWMB will also assume responsibilities in respect of (Blomquist et al, 2005):

- Supervising the activities of the RWMA directors, harmonizing their activities, approving their management plans and progress reports, and recommending occasional inspections concerning water management in regions;
- Elaborating RBMPs for the territory of the state;
- Drafting flood protection and drought mitigation plans on the territory of the state;
- Keeping a water cadastre for the nation, taking into consideration the division into the river basin districts;
- Approving projects concerning water use in river basin districts;
- Supervising the operation of hydro-meteorological and hydro-geological surveys;
- Representing the State Treasury with respect to property related to water management and in particular, overseeing the performance of tasks related to maintenance of waters or water works; and
- Adjusting, with respect to matters related to water management, draft lists of priority projects of the National Fund for Environmental Protection and Water Management.²

Pursuant to the 2001 Water Act, the NWMB's activities include providing advice on matters of flood and drought control (Blomquist et al, 2005).

At the regional level the impact of the WFD Directive has been moderate from a structural point of view since the previous regional institutional framework for water management has essentially been preserved. The most significant change at this level is the granting of limited powers, from the water management unit at the Voivodship self-governments to the RW-MAs, specifically on the elaboration of the RBMP and on overseeing voivodships', local governments' and private users' compliance with these plans (KB and Blomquist et al, 2005).

Both the RW-MAs and voivodships share common responsibilities and collaborate when drafting and carrying out the RBMPs and programmes of measures for river basin districts within their jurisdiction (KP and MM). Decision making on water management investments on the other hand has been assigned to voivodship-self governments, poviats and municipalities. Moreover, the voivodship self-governments are allowed to steer the work on water management planning through the Voivodship En-

² Since 1989 Funds for Environmental Protection and Water Management have been the institutions responsible for the collection and distribution of revenues from fees and penalties. The Funds are represented at national, voivodship, poviat and municipal levels with their own personal.

vironmental Programme in which water issues often constitute an extensive element (KB).

The impact of the WFD has been lowest at the *local level* the main reason for this being the disproportion, in terms of size, between urban areas and river basins. At the local level municipalities (*Gminas*) are responsible for water quality enforcement for public water supplies and wastewater services, investing in environmental improvements and water projects, and the monitoring and enforcement of water management policies and legislation (Blomquist et al, 2005 and KB).

Awareness of the demands of the WFD is highest at the national and regional levels since water management is primarily the concern of these two levels. Some specific initiatives have been taken by NGOs in order to increase the level of awareness on water related issues though the impact of these actions remains limited (PK&MM and KB).

Impacts and effects on planning systems

The impact of the introduction of the WFD through the 2001 Water Act constitutes an increase in the demand for coordination between both the institutions of spatial planning and water management (KP and MM). Provisions in the Act make considerations of RBMPs in the elaboration of other plans, at all levels of governance, obligatory. According to the provision in the 2001 Water Act, Article 118, measures stated in the RBMPs shall be taken into account in the:

- National development plan of the territory
- *Voivodship* development strategy
- *Voivodship* spatial development plan
- Land-use plans of *voivodships* (KP and MM)

In turn all of these plans are to be taken in consideration in the overall work on river basin management (Ministry of the Environment, 2006a).

Flood control and protection, and irrigation are areas where water management and spatial planning are also directly interrelated (KP and MM). Planning instruments used in flood control and protection include (Krok, 2006):

- The national flood protection and drought effects prevention plan
- The flood protection plan for water districts

The national flood protection and drought effects prevention plan includes information on the enlargement of water resources and flood retention capacity, improvements in flood retention management, river valley shaping and usage of rivers' natural retention, construction and reconstruction of hydro-engineering structures, and a proposal for the elaboration of land-use plans (Krok, 2006).

The flood protection plan of river basin districts is based on provisions from the national flood protection

and drought effects prevention plan and on studies of flood protection. Flood protection plans for water districts are to be taken into account in the voivodship development strategy, the study of local conditions affecting local planning and perspectives for spatial development, and local land-use plans (Krok, 2006).

From the early 1990's until the present a number of areas have been identified in which water management institutions should coordinate activities namely planning, permits, economic instruments, irrigation, and flood control and protection (Tonderski and Blomquist, 2003). In planning, the water unit in the voivodship self-governments normally worked in close cooperation with the planning unit in the elaboration of the environmental programme of the voivodship which may be transposed to the spatial development study of the *gmina* and the local physical plans (KB).

Another central element connecting the water management and spatial planning sectors are the Funds for Environmental Protection and Water Management which support water management investments at different levels of governance. In fact, revenues from water fees and penalties are collected and administrated by the Fund's administration at the national, voivodship, poviats and municipal levels. Voivodships, poviats and *gminas* have the power to allocate economic resources for water management investment and infrastructure, whereas the RWMA's only provide advice on water management priorities within their respective sub-basins (Blomquist et al, 2005). Water management at the local level is particularly shaped by the funding system but also by the availability of economic resources from the EU. On the other hand, voivodships have the power to approve the water management investments of *gminas*, including EU financed projects (KB).

Permits for water use and wastewater discharge are issued by counties (Poviat of Starost) or voivodship authorities, depending on the discharge volume for the permit requested and the scope of its potential impacts. However, the permit body is requested to consult, thorough environmental impact assessments, with the relevant RWMA before deciding to grant, conditionally grant, or deny a permit. Moreover, the Directors of the RWMA have the right to approve land use plans, and to draft decisions on the conditions for land development and use (KB and Blomquist et al, 2005).

Flood protection and control is also a major responsibility of the poviats and *gminas*, under the supervision of a voivodship's department of emergency management. The RWMA's function is, in this case, to serve as a coordinating and consulting organ. With regard to irrigation and drainage systems, in particular for rural areas, these are regulated by the voivodship administration (Blomquist et al, 2005).

Conflicts and synergies

The strength of the Polish water management system in respect of WFD implementation is undoubtedly that both

Table 2.14. Functions of water management authorities according to the 2001 Water Act
(Source: Blomquist et al, 2005 and KB)

The Minister for Water Management Shapes the national water management policy Consultation on the river basin management plans Supervision of the NWMB's activities The president of NWMB Implementation of the national water management policy Preparation of draft national plans and river basins plans RWMA IWRM planning Promoting compatibility voivodships policies with basins and national plans and policies Voivodship Permitting Funding environmental improvement projects Monitoring and enforcement Management of irrigation facilities Poviat Issuing water use and water discharge permits Monitoring and enforcement Flood protection activities Fisheries protection Funding environmental improvement projects Gmina Water quality enforcement for providers of public water supplies and wastewater service Funding environmental improvements Monitoring and enforcement	
---	--

of problem here relates to the limited experience of cooperating and coordinating tasks in the elaboration of RBMPs and the integration of these in national, regional and local plans. The RWMAs are often not completely prepared, in terms of staffing, to properly carry out tasks corresponding to other sectors, such as spatial planning and regional development policy (KP and MM). A third problem is the dispersal of the competences of the RWMAs and other authorities on water management. It is for this reason that concerns exist over the new water management system which implies overlapping functions between actors aggravated the current lack of resources and personal at the state agencies responsible for water management (OECD 2005).

Conflicts of interest between the water management and spatial planning sectors are also expected to occur as each is viewed as competing. The perception of

systems are consistent with one another in terms of basic principles and instruments. Moreover, the systems of water management and spatial planning seem to have become increasingly well integrated, particularly after the reforms made during the 1990's.

A number of problems do however remain in particular in respect of taking further measures for the coordination of the water management and spatial planning sectors (KP and MM). Perhaps the most significant problem in the context of WFD implementation is the low level of economic resources that have been allocated to the process. This constrains not only the process of making the NWMB's operational but also the attempt to carrying out changes at all levels of governance (KP and MM). The Voivodships and municipalities are also overloaded with responsibilities and thus find it difficult to allocate more time and resources in additional tasks (KB). A second type

local governments in respect of their taking measures in favour of the WFD differs extensively among them while the allocation of water management investments has proved to have been dependent on whether water issues were part of the local political agenda (KP and MM and KB).

Problems in respect of institutional fit are significant in Poland since the Voivodships and Poviat remain important actors in water management terms. The political borders of these administrative units do not correspond to those of the RWMAs' sub-basins or river basin districts. For example the Pomeranian, Kuyavian, Silesian and Łódź Voivodships are divided by the borders of the Vistula and the Odra River Basin Districts. This implies that the water management unit of these regional authorities have simultaneously to cope with two different RBMPs increasing the level of complexity for Voivodships' authorities when dealing with water issues (KB).

Conclusions

It is now possible to agree that most of the principles of the WFD have been transposed into both Polish water management and spatial planning legislation. By reviewing the changes made in both legislative frameworks it is that they are both coherent and well integrated. Despite the two sectors coordinated activities in water management previous to the introduction of the WFD however work remains to be done in the coming years in order to further integrate these two sectors. Additionally it is expected that the Directive will have an ever-increasing impact on the practical execution of spatial planning procedures when the RBMPs are approved.

Institutional changes in water management in Poland have proven to be difficult to achieve due to the existence of certain economic limitations but also due to the complexity of the process when fitting political-administrative territories with territories divided by biophysical boundaries such as river basins. Obstacles are expected to be encountered in the coordination between the institutions of water management and spatial planning, but also between the NWMB and the RWMAs. These problems mainly entail conflicts of interests between sectors, overlapping responsibilities and limited experience in the elaboration and integration of RBMP in national, regional and local plans.

References

Literature

Bernet Catch (2006): *Bernet Catch Report: Public Participation and Water Management in the Baltic Sea Region. Regional Implementation of the EU Water Framework Directive in the Baltic Sea Catchments*. West Finland Regional Environmental Centre, Vaasa.

Blomquist, W., Tonderski, A. and Dinar, A. (2005): *Institutional and policy analysis of river basin management: the Warta River Basin, Poland*. World Bank Policy Research Working Paper 3528.

Ministry of the Environment (2006a): *Concerning about water: Water*

management in Poland. Warsaw.

Ministry of the Environment (2006b): *International cooperation in water management: Implementation of the EU Water Framework Directive in Poland*. Warsaw.

Ministry of the Environment (2005): *Water Management Strategy: Determinants of the water management of the country in the context of EU water policy*. Warsaw.

Nylund, S. and Strzelecki, Z. (2006): *Regional planning systems and strategies in the Mazovian and Stockholm regions*. Mazovian Office for Spatial and Regional Development and Office of Regional Planning and Urban Transportation, Stockholm Country Council.

Korcelli, P. and Komornicki, P. (2006): *National Overview Poland*, in ESPON project 2.3.1 - Application and effects of the ESDP in the Member States, Luxembourg.

OECD (2003): *Environmental Performance Reviews: Poland*, Paris.

OECD (1995): *Environmental Performance Reviews: Poland*, Paris.

Tonderski, A. and Blomquist, W. (2003): *Warta Basin Case Study Background Paper*.

Interviews

Korcelli, Piotr (KP*) Prof. Director, Institute of Geography and Spatial Organization, Polish Academy of Sciences, Warszawa

Kozłowska, Barbara (KP), Dr Eng., Faculty of Process and Environmental Engineering, Technical University of Lodz, Lodz

Krok, Piotr (KP) Department of Water Resources, Ministry of the Environment of Poland, Warszawa

Mordarska, Monica (MM) Department of Water Resources, Ministry of the Environment of Poland, Warszawa

Other sources

Krok, P. (2006): *Spatial planning system / water management planning under Water Framework Directive in Poland*, in TRABANT Workshop I, February 2006, Stockholm.

Russia

Veli-Pekka Tynkkynen¹, Nordregio

Introduction

Spatial planning system

The Russian spatial planning system is in principle composed of three levels, only two of which have relevance when considering *integrated* spatial planning. All levels have some influence on land use planning, but not in an integrated sense. The aim of the Russian planning system is to integrate special geographical conditions with urban and economic development. This is done through regional strategic development plans and urban planning.

Planning levels

Federal authorities formulate spatial planning guidelines, norms and legislation. Their role as an integrating spatial planning authority is very limited, since the Federal settlement plan (*Federal'naja shema rasselenii*) from 1995 has not been implemented or renewed. The federal level does however now have greater potential to influence regional and local level land use decision making than it did during the 1990's. New land use planning legislation from 2004 affords the federal authorities a strong position in land use in respect of the regional and local level authorities. The federal level in particular retains significant power to plan and fulfil plans of federal importance, e.g. federal highways, railways, ports etc. (*Gradostroitel'nyi kodeks ...* 2004; Tynkkynen, 2006).

On the federal level strategic regional development planning is carried out by the Ministry of Regional Development (MRD of Russia 2006). Responsibility for urban development activity on the federal level is granted to the Federal Agency of Construction and Communal Economy - *Gosstroy*. The role of other federal authorities in spatial development is also significant. These are the Ministry of Natural Resources, the Ministry of Health and Social Development, the Ministry of Economic Development and Trade, and the Ministry of Culture and Mass-media. These federal authorities act in compliance with the legal

acts regulating related activity, adopt normative acts relevant to their competencies, implement the territorial divisions of the federal authorities, approve urban development plans and design documentation.

The *regional level* (republics, *oblasts* etc.) is the highest level with significant powers when it comes to integrative land use planning. However, actual *regional* land use plans have only thus far been produced in a small number of regions. Regional authorities formulate strategic plans for socio-economic development, while at the same time strongly influencing local land use planning when making decisions about land use together with local authorities, often emphasising their (semi-)federal role in order to overrule local plans. The main planning document at this level is the regional comprehensive land use plan, which is basically defined in a similar manner to the Nordic province plans (FIN= *maakuntakaava*, SWE=*regionplan*) with areas indicated for different land use purposes. (Compendium... 2006; Tynkkynen, 2006).

The distribution and definition of competencies in terms of urban development activity between the federal and regional levels is not defined in the Russian Constitution. However, this division of authority is defined in the new Urban Development Code (2004). This Code has clarified the hierarchy of planning development on different levels: starting from general federal guidelines and then moving to more detailed regional and local plans.

The *local level* consists of local districts (*raions*), which are now called municipalities. Previous *raions* (part of state administration structure) have been transformed either into local self-government municipalities or split up to form several municipalities (Law "On the general principles of self-government organisation in the Russian Federation" from 2004). According to the most recent legislative development municipalities should have the greatest level of responsibility and power to decide over questions of local land use. The main land use regulation instruments at this level are master plans (*general'nyi plan*) and regional comprehensive land use plans, depending on the administrative status of the municipality (Compendium... 2006). The content of these plans (in the context of physical plan-

¹ The author would like to thank Natalia Alexeeva, General director, Center for Transboundary Cooperation (St. Petersburg); Natalia Gutman, Deputy director, "Urbanistika" Institute (St. Petersburg); and Ljubov Smirnova, Specialist on water management, "Lenvod-proekt" (St. Petersburg), for their insightful comments on an earlier version of this country-study.

ning) is somewhat similar to the master plans prevalent in the Nordic countries, though the planning process is very different. Thus far, general plans dating from the Soviet era have not been consistently renewed in the municipalities, as such then their impact on land use practises is in general quite weak. (Tynkkynen, 2006).

Many cities and regions are currently in the process of formulating new strategic and urban planning documents with many of these have being documented on the web-portal of the *Leontief Centre* (see RCSP, 2006).

Administrations or municipalities on different levels have traditionally established urban planning and architecture authorities, which have formulated urban development documentation and issued building permits, but also arranged environmental impact assessments (EIA) and public hearings. However, according to the new Urban Development Code even strong public protests or negative EIA conclusions do not compel the head of administration to act according to these wishes (see e.g. Ministry of Natural Resources ... 2006a; *Gradostroitel'nyi kodeks* ... 2004). Planning and architecture bodies have lost a great deal of their responsibilities in the planning sector – this may eventually lead to a decline in the volume of planning documentation.

Regional land use, resource use and industrial development plans, which during the Soviet era varied in importance from nominal to strictly binding, have been fragmented into development plans of different state departments, ministries, and branches of industry. In addition the plans of powerful state companies have also gained significantly in importance. This has led to even further de-integration in plan formulation than was even the case during Soviet times. Integrated land use planning is thus the privilege of poly-functional bigger towns and cities, while in sparsely populated peripheral municipalities the local authorities have had very little power to plan their own land use. There private and state-owned companies have the ability to promote projects reflecting their branch interests and to ignore local territorial interests. (Tynkkynen, 2006).

The introduction of one politically strong player (head of admin.) in planning is probably an attempt to check the unhealthy situation in the field of land use planning (sectors dominating), but this solution brings with it other problems, the most important of which is undoubtedly the fact that overemphasising the role of the head of administration diminishes administrative accountability in the eyes of the population.

The recent evolution of planning discourse in Russia

Spatial planning in the Russian federation has firm roots in the Soviet centralised planning system. The administrative structure and hierarchical planning system has, from a legal point of view, changed very little since Soviet times. Practise has, of course, changed dramatically, since one

“host” (the state) has been accompanied by and partly also lost its central position to several new actors (private firms, NGO's, international co-operation and aid institutions etc.) in the planning field. Rapid change in the socio-economic situation, combined with the introduction of administrative reforms, has however led to a precipitate decline in the general level of understanding of both general land use and planning questions and needs. In many administrative bodies planning the production of documents is not seen as a high priority thus they are simply not widely supported or developed. (Tynkkynen, 2006).

Spatial planners in the official sector in Russia can often find themselves in highly problematic situations when it comes to the governance of land use and regional development planning. Officially at least, regional and local level authorities and heads of the local governments have the greatest responsibility and power to decide over land use questions, but *de facto* power in land use planning has in reality been transferred into the hands of corporations / industrial clusters. Moreover front line planning ‘know-how’ is now located in private developer companies. Public planners officially promote public control, sustainability and a comprehensive approach, but these ideals tend to be watered down under the pressure of private and state capital. (Tynkkynen, 2006).

The development of the water management planning system

The Russian water management system has undergone a significant shake-up over the last ten years. The most significant change occurred in 2000 when the Environmental Committee of the Russian federation was abolished and the duties of both water management and environmental protection were handed to the newly established Ministry of Natural Resources (MNR). Water management on the federal level is thus currently governed by one of the departments of the MNR – in The Federal Water Resources Agency (*Federal'noe agentstvo* ... 2006; Ministry of Natural Resources ... 2006a). This means that the ecological and social objectives of water management are subordinate to economic objectives, which are more or less dictated by the natural resource use cluster (“the geologists” and “the miners”) (Tynkkynen, 2006).

Russian water management and water protection is regulated by the law on environmental protection, the federal water code and other related federal laws and norms (Ministry of Natural Resources ... 2005). These norms have survived from Soviet times and are quite rigid. Overall however water management legislation has undergone significant change in recent years. As the new Water Code is finally being adopted however a long period of uncertainty in this area will now hopefully be brought to a close. The most revolutionary changes put in place by this New Code will be as follows: 1) the possibility of private ownership over water bodies; 2) a new system of water use – so-called “agreements” which correlate with those found in

the Civil Code, thus moving water relations out of licences and permissions. Another tool related to water management is the federal target programme (FTP) and departmental (sector) target programmes. Water-related programmes focus on e.g.: “Meeting the water consumption needs of the population and the economy”, “Safety of water systems and hydro technical constructions”. All in all, the purpose of the state water policy is the attainment and maintenance of an economically optimal and environmentally sound water use level (Federal Water Resource Agency 2005a; 2005b; Ministry of Natural Resources ... 2006b).

Implementation of these programmes in the water sector is to be partly covered by the state, mainly financed through the collection of water taxes and payments. The amount of financing for each water basin is heavily dependent on the levied funds for each respective territory. On the water basins level is obligatory to formulate *Basin Schemes of Integrated Use and Protection of Water Resources* (SKIOVR in Russian). For example, in Northwest Russia, in 2003, the Neva-Ladoga WBA and the MNR of Russia began to develop the “Scheme of integrated use and protection of water resources of the Baltic Sea Basin”, work here however remains ongoing (Federal Water Resource Agency 2005a; 2005b).

In addition to the work done at the water basin level, it is also possible to formulate “water management schemes” for the Russian regions. In such cases the ‘basin approach’ is not emphasized, while regional administrations continue to highlight their own priorities. In the main they concern themselves with water treatment and supply measures, as well as regional water protection activities, but currently this level of water planning is not really being adequately carried out and/or implemented.

Due to the ongoing process of administrative reform and the soon to be enforced new Water Code the water management system has been in a state of almost constant upheaval in recent years. A number of general trends do however seem to be discernable, they include:

- the emergence of a poor decision-making structure (i.

e. water management responsibility is shifting from the federal centre down to regional level and back - municipalities and regions are not able to manage water resources on their own);

- perception of water as a source of budget income (i.e. considering potential benefits from water use rather than emphasising an ecosystems approach and conservation);
- inadequate enforcement of legislation;
- separation of different water management functions (i.e. water control and supervision over hydropower constructions is taken away from the WBA);
- inconsistent use of economic tools (i.e. higher water payments do not lead to higher expenditures on the water sector).

When it comes to concrete water protection measures, the main tools, thus far, have been water licensing and the creation of water protection zones (incl. costal protection belts). Protection zones have been formed to act as buffers around water bodies, and land use is regulated and restricted in this area. The objective of these protection zones is both to decrease the volume of pollutants flowing into water bodies and to preserve a waterfront ecosystem. The width of these water protection zones varies depending on the size and length of the water body. The restrictions posed on these areas have the objective of decreasing both point and diffuse pollution. For example, carrying out final timber felling, applying pesticides or fertilisers and placing parking areas is not allowed in protection zones. Moreover, building on these lands is also restricted, and requires special permission from federal or regional authorities of the MNR. (Alexeeva & Pakhomov, 2004).

In addition the effectiveness of water protection zones can be criticised: while being too absolute in prohibition, the law and the norms lose their ability to direct land use. The legal dilemma encapsulated in the notion that “when everything is prohibited, everything is actually possible” thus remains the central problem of Russian environmental management, including water management.

Application of the WFD

Transboundary cooperation

The Russian federation has practiced transboundary cooperation with its neighbours for many years. For example, Russia has been involved in a dialog with the Finnish spatial planning authorities for some considerable time. The forerunner to this cooperative venture was the Finnish-Russian Commission on Transboundary Waters. For four decades it has tried to debate and rule over questions of water use and protection. The role of this body has mainly

been to monitor the hydrological and limnological state of the shared water bodies in the border zone. Beyond this however it is simply not possible to talk of the common planning of shared river basins as cooperation has concentrated mainly on the exchange of information.

So, in practice, this principle is *partly applied*, since Russia has agreements on transboundary waters with EU neighbours (Estonia and Finland). Quite often however, such agreements concern only those water bodies located

on the border zone, not the whole basin.

After the introduction and implementation of the WFD on the Estonian and Finnish side of the border cross-border cooperation with Russia has taken a somewhat new direction. EU norms and legislation are of great interest for the Russian side. As the WFD objectives are being applied in the EU Russian authorities in the field of water management have also tried to internalise the EU perspective on water management and planning. For example, some discussion has taken place on how the key principles *could* be adopted for EU – Russia transboundary water basins.

WFD enforcement does not have any profound impacts on the establishment of new agreements with the Russian Federation in terms of international river basin management, since all major TW agreements (Estonia and Finland) were negotiated before WFD enforcement. Furthermore, some as yet still open issues (for example, the Daugava and Nemanus agreements) are not really linked to WFD implementation, but are rather influenced by political and economic concerns.

Levels of application and key actors

It is very hard to say what kind of effect the EU's WFD has had on the objectives, tools and scope of Russian water management and Russian legislation more generally in this area. In any case it is clear that everything that is done in the EU policy field is followed with a great interest in Russia. That is why it is reasonable to assume that the new Russian Water Code, which will be ratified soon, will have a somewhat similar point of departure to that of the EU's WFD Directive. Western Europe and the EU have, as such, for a long time acted as a major point of reference or a "reference society" for Russia (e.g. Tynkkynen, 2006).

Then again, it must also be again stated that the centralising tendencies that are evident in Russian territorial governance (e.g. Tynkkynen 2006) have had, and will also continue to have, an effect on water management. The state continues to tighten its grip around the regions, which can actually provide a greater role for the 15 Russian river basin administrations in relation to land use planning and water management, since river basin administrations are part of the structure of Russian MNR. However, according to some Russian views the new Water Code would actually give Russian regions more power to have an impact on water management and planning both on the regional and at the river basin level.

Consistency with the WFD principles

As the WFD is not mandatory for Russia, it is obvious that its objectives and provisions remain voluntary. In what follows we will compare the implementation of Russian water legislation with the objectives of the WFD, while trying to highlight certain similarities and differences.

The idea of considering a river basin as a discrete water management unit has very long roots in the Russian water management tradition. This WFD principle is thus imple-

mented in Russia, and in this regard the Russian Water Code is *consistent* with EU legislation. This is true, at least, when the principles and theory of water management are considered. The basis for this approach is grounded in the ideology of the rational use and protection of natural resources; harmonising the coexistence of socio-economic and ecological systems.

However, the main problem in this approach has been the distance between this theoretical management ideology and day-to-day political realities in the field of land and resource use. Thus far 15 administrative bodies have been established with the specific task of managing and planning river basins, so at least on paper this principle is *consistent* with European legislation. The Upper Volga and naturally The Neva-Ladoga River Basin Administrations are the ones referred to by the interviewees, which means that they are probably more active than others (see also *Verhne-Volzhscoe bassejnovoe ...* 2006).

The work of The Neva-Ladoga River Basin Administration has been very difficult in the context of Russian territorial administration. Land and water use are the core fields where the other state sectors and the regions of Russia express their power, and also where economic interests are strongest (e.g. Tynkkynen 2006). These are just few of the reasons why these intra-territorial administrative and cooperation bodies have remained weak in implementing water protection and related land use plans, despite the expressed will to work along this line. Due to these attributes the formulation and the effectiveness of Russian water management plans are only *partly consistent* with WFD objectives.

Water quality objectives are enshrined in legislation and thus are applied as some references exist to the objectives for each river basin. Information concerning how thoroughly these thresholds have been elaborated in respect of each water basin area however remains contradictory. Then again, on the federal level the water protection norms cover the questions of point source pollution in much more detail. Thus a combined approach for point and diffuse sources is *partly consistent* with the EU's WFD. For example, limit values or thresholds exist for maximum allowable concentrations (MAC) of pollutants in industrial and communal sewage water while similar MAC's exist for fresh water-bodies. Russia has thus adopted the so-called *polluter pays principle* in its water quality management policy (see also Ministry of Natural Resources 2005). However, the economic burden of actual fines for polluting industrial enterprises has thus far been so minor that this has not worked as a redirecting eco-policy tool.

Economic analysis of water use is *partly consistent* with the EU perspective, since this analysis is done, but not all the prices for water services are fully based on economic analysis. The promotion of public participation is *not consistent*, despite the fact that there are some provisions in laws about Water Councils and other participatory tools. The main defect is that the river basin authorities do not

Table 2.15. Application of WFD principles

Principle	Consistency with the WFD principles	
River basin as planning and management unit		This kind of thinking has a long tradition in Russia but in reality these units do not play a significant role in political decision making.
Assignment of international RBD and cross-border / transnational cooperation		Russia has entered into processes of cooperation with its neighbours, though this only concerns the management of border waters, not river basins.
River basin authorities		The establishment of 15 RB authorities and the defining of their role in the new Water Code. Their role has thus far been very vaguely defined while significant differences exist between RB authorities.
Water quality objectives aiming at achieving “good ecological and chemical status”		Water quality objectives have been on the statute books for a very long time. Their directive effects however remain meagre.
Economic analysis of water use		This sphere is only developing large differences between regions remain.
Combined approach for point and diffuse sources		An approach exists though the information gathered in respect of how thoroughly these thresholds have been elaborated for each water basin area remains contradictory.
River Basin Management Plans		Plans exists (not in all RB areas), but their political weight has thus far been minimal.
Public participation		This dimension is not considered important by the authorities and is thus not promoted.
	Applied	The information in this table provides a qualitative assessment of the degree to which the key principles of the WFD were applied before and after the adoption of the WFD in 2000. The information referring to principles to which deadlines have yet not been reached tells us whether progress has been made in its application e.g. through its inclusion in national legislation. This assessment is based on the literature consulted and interviews carried out at the time the study was prepared in 2006. Note that this information does not necessary reflect the view of all parties involved in WFD implementation.
	Partly applied	
	Weakly/not applied	

promote these procedures. The pressure then has to come from the grass-roots level.

In conclusion, integrated water resources management is used as a basis for the water management system in Russia. As such, the Russian water management system, in principle then, does not contradict the EU's WFD requirements. However, not all of the elements contained therein function equally or effectively enough. The most crucial question in this respect (concerning the whole natural resource and environmental sector) is the distance between

the written law and real life policy-making. Other defects include: the lack of coordination between water management, spatial planning and nature protection, the low level of stakeholder involvement and the lack of consistent programming (Alexeeva & Pakhomov, 2004).

Impacts and effects on planning systems

After the adoption of the new Water Code river basin administrations *are in a position now* to attain a larger role in affecting future land and water use, although the Code it-

self certainly does not advocate this. It is obvious that this will meet with some resistance from the regional and local levels. According to the Urban Planning Code and other relevant federal acts the broadest powers and responsibilities for local land use are currently in the hands of the local municipalities. In practice, and in general, this has not been the case as regional but also federal authorities and public-private regimes have retained a much larger influence over municipal land use.

One big question in this context is the place given to the 'bottom up' or participatory perspective. The aim to enhance local democracy is very important in the political context of the EU. These objectives, however, are not considered central in the Russian land and water use context (e.g. Tynkkynen 2006). However, there is a legislative basis (e.g. in the Urban Development Code 2004) to enhance these objectives, but the question here remains much more one of the reluctance of local and regional (and also federal) regimes to give away a part of their powers. In addition, most of the land (especially outside the urbanised areas)

and all water bodies are state property, which can be seen as an extra hindrance to the development of a participatory emphasis, since the official administrative body to contact is not located in the next village or town, but in Moscow.

Conflicts and synergies

The adoption, by Russia, of the objectives stated in the WFD has been partly successful. The emphasis given to the *river basin perspective* in particular is somewhat similar to that which we find in the EU Directive. However, several problems remain, and conflicts over the best way to implement these objectives in practice have emerged. One such problem is surely the low priority given to environmental objectives in general in the context of wider notions of Russian *realpolitik*. In this pragmatic policy field the unsolved question of who has the power to decide over local land use has been built on the eternal conflict between the central state and the regional and local authorities. This central conflict continues to have a profound effect on all water management issues in Russia.

Conclusions

In general the sectoral water use plans should be taken into consideration in regional and local land use plans. In principle, that is, seen from a legislative point of view, the systems of water management and spatial planning are closely interrelated. The new Urban Code states that all branch-specific schemes should be taken into account in land use planning. This, of course, is a necessity in rational planning, but easily taken for granted, especially in the context of today's Russia. Naturally, water management schemes should also take spatial planning into account. However, updated methodological recommendations on such schemes are not ready yet, which means that there are no legally binding documents outlining the needed arrangements and levels of integration.

Moreover, according to the interviewees the effect water use plans are having on land use is very weak. In principle, water management interacts with spatial planning in respect of several issues. For example, water protection zones, water supply and canalization systems and new demands for water supply are all strongly related to land use planning. This coordination is achieved through joint Commissions (usually under city or regional administrations) and Scientific Councils of WBA's. Basin Council's could also become such coordinating bodies – however, at present they are not well-enough developed. WBA's also consult with regional and local authorities regarding water supply, waste water treatment facilities, and water protection zones. Spatial planning usually takes into account the

specific characteristics of water resources in the planned area. During the formulation of spatial plans planning authorities should consult on these matters with the water authorities.

The wider responsibility and power given to governmental river basin authorities to coordinate land use and water management seems likely to be more plausible in its execution after the adoption of the new Water Code. However, this again raises a concern about the subordinate role of local initiatives and a 'bottom up' perspective, since these basin authorities represent the state. In addition, a number of other unsolved but related questions remain, for example, in respect of the economic analysis of water use, financial incentives for water protection, and the advisory and non-obligatory validity of water quality norms. However, a stronger emphasis in Russia should be given to ensuring that the currently available legislation is being adhered to rather than on any attempt to make the legislation even more comprehensive *on paper*.

In conclusion it can be said that the main principles of the EU's WFD are included in the Russian water management concept. Some Russian management objectives and actions are, in principle, quite consistent with the WFD (such as the basin approach, SKIOVRs and some economic instruments), but others remain, even in principle, still very far removed (such as water quality objectives and cost-recovery of water services) from emerging EU norms in respect of water management.

References

Literature

Alexeeva, N. & A. Pakhomov (2004): *Use and Protection of Water Resources in the Russian Federation and the republic of Belarus – management systems and practice of work*, Naturvårdsverket.

Compendium of Spatial Planning Systems in the Baltic Sea region (2006): <http://www.vasab.leontief.net/countries/russia.htm> [Last cited on 24 October 2006].

Federal'noe agenstvo vodnyh resursov (2006): Territorial'nye organy. <<http://voda.mnr.gov.ru/part/?pid=136>>, 13.II.2006.

Federal Water Resources Agency (2005): "About development of targeted water management programmes for 2006-2008 years". Materials of FWRA seminar, 7th July 2005.

Federal Water Resources Agency (2005): "Questions of developing targeted programmes and basin schemes of complex use and protection of water resources". 13 October 2005. Taken from official web-site: <http://voda.mnr.gov.ru/part/?pid=143> [Last cited on 2 October 2006].

Gradostroitelnyi kodeks Rossijskoi Federatsii (2004): (Urban Development Code of the Russian Federation). Ofitsialnyi tekst, deistvujushsaja redaktsija. Ekzamen, Moskva.

Ministry of Natural Resources of the Russian Federation (2006a): Official web-site (MNR of Russia). <http://www.mnr.gov.ru> [Last cited on 24 October 2006].

Ministry of Natural Resources of the Russian Federation (2006b): About implementation of the sub-programme 'Water resources and water bodies' of the federal targeted programme 'Environment and natural

resources of Russia (2002-2010 years)' and the effectiveness of used financial resources in 2005.

Ministry of Natural Resources of the Russian Federation (2005): State Report on the State of Environment and Environmental Protection in 2004.

Ministry of Regional Development of Russia (2006): Official web-site (MRD of Russia Russia). <http://www.minregion.ru> [Last cited on 4 October 2006].

Resource Center for Strategic Planning under Leontief Center (RCSP) (2006): Official web-site <http://www.citystrategy.leontief.ru/> [Last cited on 12 October 2006].

Tynkkynen, V.-P. (2006): *Aluesuunnittelu ja kestävä kehitys Luoteis-Venäjällä. Ympäristösuunnittelun mahdollisuus paikallisissa hallintatavoissa*. (Urban and Regional Planning and Sustainable Development in North-west Russia. A Possibility of Environmental Planning in the Context of Local Governmentalities.). *Helsingin yliopiston maantieteen laitoksen julkaisuja B* 53. Department of Geography, University of Helsinki.

Verhne-Volzhscoe bassejnovoe vodnoe upravlenie <<http://www.vvbvu.ru/>>, 13.II.2006.

Interviews

Filatov, Nikolai, Director, Northern Water Problems Institute, Petrozavodsk. E-mail enquiry / telephone discussion by Veli-Pekka Tynkkynen, (2.10.2006).

Gutman, Natalia, Deputy director, "Urbanistika" Institute, St.Petersburg. Interviewed/surveyed by Natalia Alexeeva, (20.9.2006).

Smirnova, Ljubov, "Lenvodproject" administration (former Deputy Head of Neva-Ladoga Water Basin Administration). Interviewed/surveyed by Natalia Alexeeva, (20.9.2006).

Sweden

Riikka Ikonen¹, Nordregio

Introduction

Spatial planning system

The Swedish planning system has historically functioned within the basic dualism of a strong central state level and a traditional emphasis on water and land use planning as a municipal task. The regional level has traditionally had very little power. (Böhme, 2002.) In 1987 a new Planning and Building Act (PBA) came into force. Aspects of national physical planning were integrated into the National Resource Act (NRA), which came into force simultaneously with the PBA. The NRA provided the basis for the use of land and water areas, while the PBA supplied the municipalities with the planning tools enabling them to draw up their future utilization plans and to promote their interpretations of the balancing of various interests in this context. The NRA was integrated into the Environmental Code in 1999. (Böhme, 2002.) Sweden discontinued its traditional approach to national physical planning in the 1980s and thereafter an overarching spatial development perspective as well as an instrument for sectoral integration have been lacking. The only level with a clear strategic spatial approach and planning responsibility is the local level. A number of new *spatial* aspects were adopted into the Swedish planning system with EU accession (Böhme, 2002.) Policy statements exist however at the national level which provide guidance and are legally binding in relation to areas of national significance. In Sweden the state maintains a presence at the regional level through the 21 County Administrative Boards. Their responsibility is to ensure that the decisions made by the government and Parliament are put into effect throughout the county. The main tools used by the Board are advice and information, supervision, regulatory duties, coordination of the county's resources, and financial support for various activities (www.lst.se.)

The Planning and Building Act (PBA) contains provision for non-binding regional planning carried out at a voluntary basis. In general, on the request of the municipi-

¹ The author would like to thank June Lindahl, the National Board of Housing, Building and Planning, Lennart Sorby, Water authority, för Norra Östersjön and Sindre Langaas, Preparatory secretariat of the WFD, County Administration of Stockholm, for their insightful comments on an earlier version of this country-study.

palities involved, the government can appoint a regional planning body, e. g. a regional association of local authorities, for a certain period of time. Thus, physical planning at the regional level is mainly developed in the form of sector planning, e.g. in the fields of road networks, traffic, location of schools, hospitals etc. Planning is carried out by the actor holding responsibility for the sector in question. At present regional planning in this manner has only been carried out in the region of Stockholm where the County Council (The Office of Regional Planning and Urban Transportation) has a special obligation to act as a regional planning body and has developed regional development plans, i.e. The Regional Development Plan 2001 (RUF 2001) for the Stockholm Region (www.rtk.sll.se.)

At the local level, Sweden is divided into 290 local authorities, 18 county councils, and 2 regions. Each county council/region contains several local authorities. Two of the major planning instruments in this context are the non-binding municipal comprehensive plans (*översiktplaner*) and the binding detailed plans (*detaljplaner*). The non-binding comprehensive plan is intended to guide decisions on land and water use. It can also be extended to focus on smaller geographical areas. Furthermore, the plan must reflect how the municipality takes national interests into consideration in accordance with national objectives, as expressed in the Environmental Code. Municipalities' so-called "local planning monopoly" is regulated by formal legislative procedures. Municipalities carry out planning in a process characterised by public participation and broad consultation.

The water management planning system before the WFD

The administration of water in Sweden has been spread over a number of different institutions at different levels. In principle, water legislation has been mainly prescribed in civil law but measurers 'having more than a marginal influence on water' have needed permits from the state. The central institutions have generally been responsible for permits, regional governmental institutions and municipalities manage the environmental supervision, while the

municipalities have been responsible for long-term land and water planning, through their master plans. Long-term water planning has been carried out at municipal level while natural hydrological boundaries have not been used as a basis for water management (Gustafsson, 1994 according to Hedelin, 2005.) The municipalities were given responsibility for water planning in addition to land-use planning when the new PBA came into force in 1987 (Interview 1) and they have traditionally been the most important actors in water planning. The environmental supervision authorities have worked on water issues from the end of the 1960s, with 'water' being their oldest responsibility area (Interview 2).

Municipalities and the County Administrative Boards have, to different extents, worked on water reviews (*vattenöversikter*), water plans (*vattenplaner*), water programmes (*vattenprogram*), STRAMs (*strategier för regional miljö*= strategies for regional environment) etc. In different sectors there is also much experience in the form of calculation plans, waste-water plans (*VA-planer*), and day-water plans (*dagsvattenplaner*) etc. (Naturvårdsverket, 2004b.) The Environmental tribunals, established at the same time as the Environmental Code, and based on river basins, can also be seen as a step in the same direction of full compliance with the EU's WFD (Interview 2).

Implementation of the WFD

Process of implementation

In 2001 the government initiated an investigation into the way in which Swedish water administration was conducted with a view, ultimately, to making suggestions on how to organise future water work. The implementation of the WFD is based on this report (SOU 2002:105) entitled, "*Ollenska utredningen*" and on the government's suggestions for the administration of the quality of the water environment (prop. 2003/04:2). (Lundqvist, 2005.) The Environmental Code Committee (*Miljöbalkskommittén*) was also given the task of investigating the necessary changes needed in the Environmental Code (Interview 1).

In Swedish legislation the WFD is stipulated in (Naturvårdsverket, 2004):

- The fifth chapter of the Environmental Code,
- Regulation on the administration of the water environment (*förordningen om förvaltning av kvaliteten på vattenmiljön*) (VFF). (SFS 2004:660) and the
- Regulation on the County Administrative Boards (*förordningen med länsstyrelseinstruktion*) (SFS 2002:864).

These regulations constitute the implementation of the WFD in Sweden. The WFD's implementation has caused the most significant legislative changes in the Environmental Code in which the new requirements; the new regional division in water planning, environmental quality norms, and a programme of measures and a management plan, are prescribed.

Sweden is divided into five water districts based on river basins' connection to the major sea basins: the Bothnian Bay, the Bothnian Sea, the Northern Baltic Sea, the Southern Baltic Sea and the North Sea. Every water district is based around natural river basins as prescribed in the WFD. In total Sweden has 119 main river basins. (SOU

2002.) Moreover, five new water authorities were established to address the demands laid out by the WFD. The County Administrative Boards of *Norrbottnen*, *Västernorrland*, *Västmanland*, *Kalmar* and *Västra Götaland* have been designated as water authorities responsible for the quality of the water environment in their own water districts (<http://www.vattenportalen.se/>.)

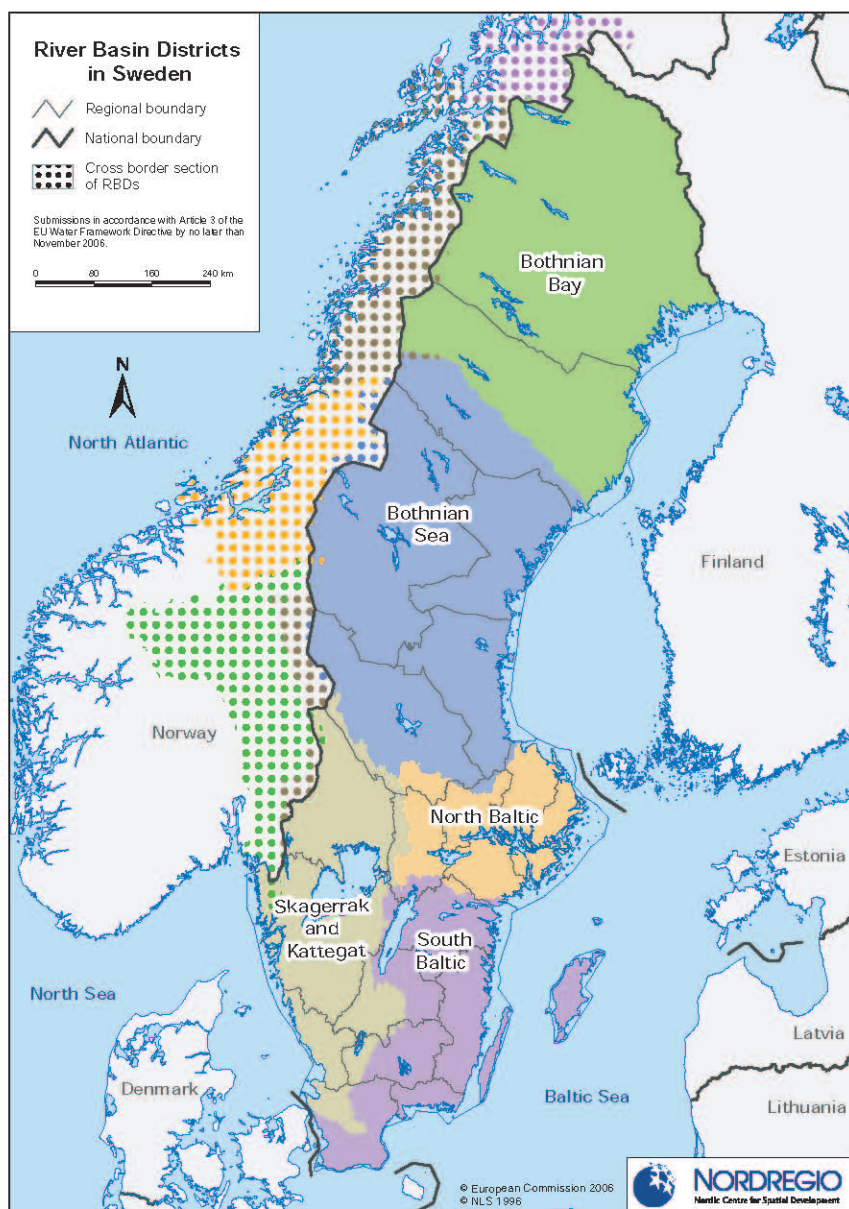
Transboundary cooperation

Sweden already cooperated with Norway and Finland over water questions before the entry of the WFD into Swedish law, indeed, a Swedish-Finnish Frontier River Agreement has existed for many years. Swedish-Norwegian cooperation on water questions also has a long history. Finland and Sweden share the Tornio river basin district and many water courses with Norway. The division of water planning according to water basins does entail however some changes in respect of coordination with Finland and Norway.

As the WFD is implemented, a representative of the corresponding authority from Finland will attend the water delegation's sessions in the *Bottenviken* water district while a representative of the corresponding authority from Norway will attend the sessions in the *Bottenviken*, *Bottenhavet* and *Västerhavet* water districts. (*Förordning* 2002:864.) The water authorities are entrusted with implementing such cooperative measures.

In the watercourses shared with Norway the requirements of the WFD can potentially be met within the respective country's regulations. Sweden and Norway have the same basic approach to these questions and therefore a process of detailed negotiation is not necessary. (Naturvårdsverket, 2004b.) In general, the WFD will probably deepen cross-border cooperation and as it becomes clearer who is to do what more common objectives will undoubtedly be found. Data gathering questions will probably be

Figure 2.18. River basin districts in Sweden.



central in respect of future cooperation.

Levels of implementation and key actors

National level

At the national level a number of legislative changes, introducing in particular the environmental quality standards and programmes of measures in the Environmental Code, have been undertaken. The state has an important role to play in formulating the quality requirements/levels for water creating the prerequisites for water use and management. The state also acts as in a monitoring role as regards the implementation of the WFD. The Swedish Environmental Protection Agency and the Geological Survey of Sweden (SGU) have the right to decide upon regulations within their responsibility area in order that Swedish work on the WFD is performed (<http://www.u.lst.se/>.)

The Swedish Environmental Protection Agency works on the different national natural science and technically-based documents relating to the implementation of the

WFD concerning surface water. It also represents the Swedish water authorities in international meetings as the regional water authorities do not as yet have an umbrella organisation to represent them (Interview 5). The Geological Survey of Sweden (SGU) has a corresponding responsibility to providing data and guidelines for water authorities in respect of groundwater issues. The National Board of Housing, Building and Planning is responsible for providing guidelines concerning physical planning and the WFD. (Naturvårdsverket, 2003.) For example, the Agency has the task of preparing a Guidebook for Water (*Handbok för vatten*) in which physical planning is also concerned (Interview 1).

The Swedish Environmental Protection Agency has produced guidelines for the water authorities concerning how to formulate background descriptions, define preliminary environmental objectives, classify which water occurrences should be observed as artificial or strongly adapted, implementation of special exemptions when environmental objectives are to be decided and in respect of undertaking economic analyses. This material is published in the form of a "Guidebook for Water" on the website, "Vattenportalen". This is planned to be a site where all the information concerning water questions should be found. (Naturvårdsverket, 2003.)

The Swedish Environmental Protection Agency also works on formulating criteria on environmental quality for the new requirements of the WFD and for a strategy on the processing of water environment data. The Geological Survey of Sweden (SGU) works on adapting criteria for ground water and ground water occurrence. In addition to this work it has also built a database of groundwater pools (*grundvattentäkter*) and groundwater occurrences. The Geological Survey of Sweden will also undertake further work on preparing criteria for groundwater areas, from the regional and national perspective, that need to be protected. (Naturvårdsverket, 2003.)

Regional level

In five County Administrative Boards special water authorities have been appointed. According to the Regulation on the administration of the water environment (*Förordning* (2004:660)) the water authorities are responsible for:

- characterizing water districts, mapping them out and making analyses (3 chap 1),
- registering protected areas (3 chap 2),
- defining quality requirements for surface and ground water and protected areas (4 chap 1),
- deciding on exceptions for the quality requirements (4 chap 9-13),
- deciding on a management plan (5 chap) and setting up and defining a programme of measures (6 chap),
- creating a programme for the monitoring of the water environment and conducting it (7 chap) and
- reporting on a management plan, a programme of measures and possibly other tasks, for the Swedish Environmental Protection Agency.

The regulations for the County Administrative Boards (*Länstyrelseinstruktionen Förordning 2002:864*) provide more detailed guidelines on the responsibilities of the water authorities and the counties. A water authority is to have a board, a water delegation (*vattendelegationen*) that is to decide on environmental objectives and environmental quality standards, a programme of measure and a management plan in a water district. The water delegations are to let the County Administrative Boards formulate proposals for environmental quality standards, programmes of measures, management plans (*förvaltningsplaner*) and environmental monitoring programmes (*miljöövervakningsprogram*). Moreover, they are to conduct programmes of measures and environmental monitoring (*miljöövervakning*), and take responsibility for coordination within sub-areas while also deciding upon questions concerning the administration of the water quality environment in

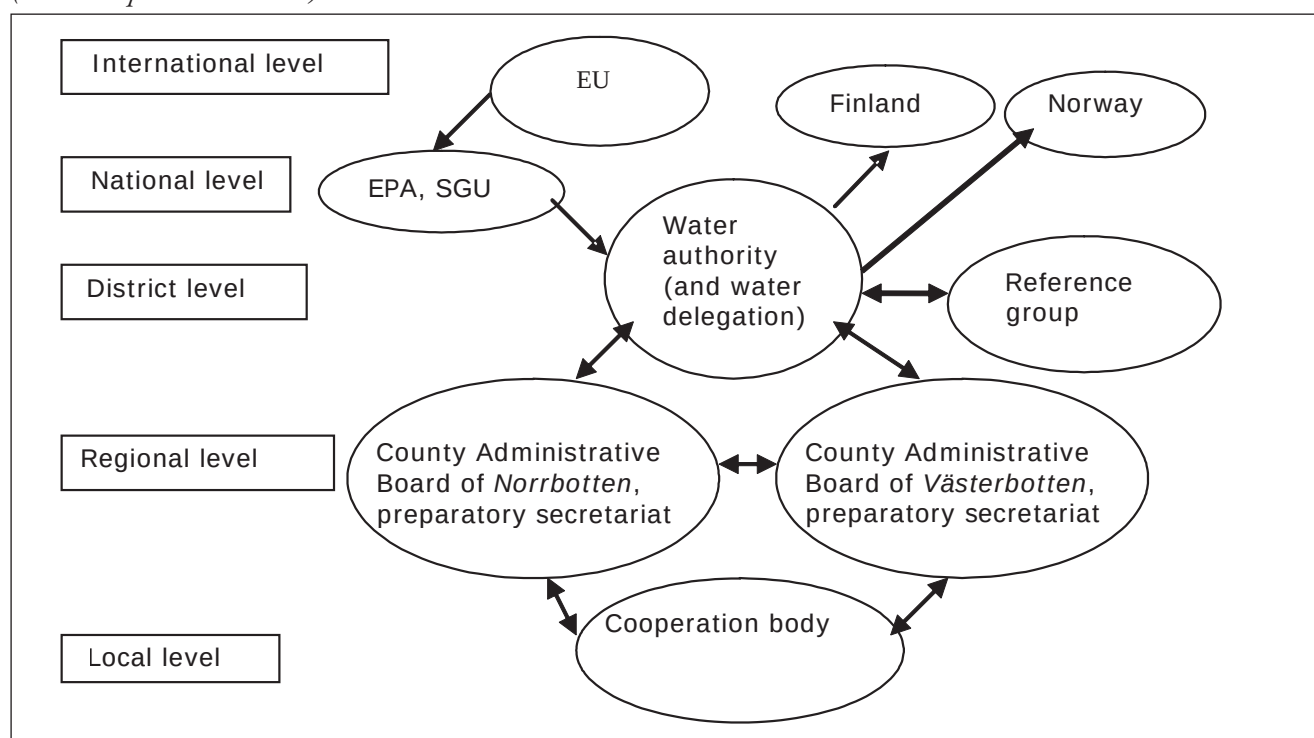
general as well as administrative questions and others not concerning the administration of the water environment.

Water authorities are to divide districts into sub-areas and to cooperate with the County Administrative Boards concerned. Every County Administrative Board is to have a *preparatory secretariat* to assist in coordination of the work on the administration of the water environment. A preparatory secretariat is responsible for running work tasks and is tasked to help the water authority with various questions. It produces documentation for environmental objectives, programmes of measures and the environmental monitoring programmes. (Förordning 2002:864.) If needed, water authorities can also decide on management plans for parts of a district, sector, question or water type that concerns special aspects in water administration (85 chap 2 VFF). However, this is not a formal requirement. (Naturvårdsverket, 2004a.)

If needed, Water Authorities and other County Administrative Boards are to build a reference group with different interests to foster cooperation. (Förordning 2002:864.) The reference group can play an important role by means of its broad representation in the municipalities, industry, the forestry companies and NGOs. Water authorities and the Administrative Boards attempt to create a good level of cooperation and dialogue with these actors and organisations. (<http://www.bd.lst.se/>)

With the programmes of measures, Water Authorities have the potential to identify the changes needed in existing plans, or plans being drafted, that are needed to be able to attain the necessary environmental quality standards. They can lead to measures that require detail planning prescribed in the PBA such that the measure can be imple-

Figure 2.19. Organisation of the water administration at different levels in Norrbotten water district
(Source: <http://www.bd.lst.se/>)



mented. Therefore, it is viewed as important that the Water Authorities understand the requirements of municipal planning. This kind of knowledge helps in estimating the required amount of time and resource needed to participate in a planning process. (Boverket, 2004.)

In respect of the organisation of water administration (SOU 2002:105) the notion that the County Administrative Boards would have the same role as the water authorities was forwarded but the government did not completely accept this suggestion implementing instead the Directive that every water district has one Water Authority. This system is expected to put one County Administrative Board in every district in a special position while creating significant expectations in respect of the relatively small Water Authorities' offices. An umbrella organisation for the Water Authorities is also missing. According to Sindre Langaas at the preparatory secretariat in Stockholm County Administrative Board it would be better if the Directive had been implemented such that County Administrative Boards would be expected to cooperate in these questions. In practice it is also often unclear how authority on this issue is defined with different definitions found in various documents. Officially, the preparatory secretariats have been established, but in practice they are part of the County Administrative Boards, water issues being only one of the tasks covered by this person (e.g. 20% WFD questions and 80 % something else). (Interview 5.)

Local level

The new approach to water administration transcends existing administrative borders and restricts the municipalities' "planning monopoly" in Sweden. Power, in water planning questions, has then to some extent been taken away from local level and granted to actors at the regional level.

Cooperation between municipal actors is also likely to increase in future. River basin courses do not follow municipal borders thus the issue of water protection areas is likely to feature in a number of regional and cooperative municipal planning questions. As such, intermunicipal planning is seen as being increasingly important in respect of water planning questions. On the other hand, also the cooperation between the authorities at local and regional levels is considered as important. Some of the larger municipalities, e.g. Eskilstuna and Örebro, have already produced a 'water plan' that is to say an integrative plan drawn up with the help of different actors (Interview 2). The real impacts of the implementation of the WFD are still to be seen, and e.g. according to the Swedish Association of Local Authorities and Regions the role of the municipalities in practice remains as yet unclear (Interview 1).

Principles implemented

River basins as planning and management units

Managing water questions from the perspective of river

basins is not completely new in Sweden. Even though water planning at the municipal level has not historically been based on river basin areas, environmental supervision, e.g. recipient control has been conducted based on these. (Interview 2.) Moreover, a planning system based on river basins was mentioned in the preparation of the PBA (SFS 1987:10). After the implementation of the WFD five water districts were introduced in Sweden. Moreover, the new Water Authorities have been introduced and management plans are being prepared.

Cross-border cooperation

Sweden has a long tradition of cross-border cooperation concerning water areas predating the WFD, however, river basins were not previously used in cross-border water planning. The Water Districts and the Water Authorities were introduced only after the introduction of the WFD. The preparation of the first water management plans is ongoing. The environmental quality standards and programmes of measures were also inserted into the legislation only after implementation of the Directive.

Economic analysis

Economic analysis of water use had not been conducted before the implementation of the WFD and this work is only now beginning. The Ministry of Sustainable Development is currently investigating the issue. In 2004, *Statistics Sweden* (SCB) was given the task of conducting a basic economic analysis of the five Swedish water districts by the *Swedish Environmental Protection Agency*. (Statistics Sweden, 2004.)

Water quality objectives

Sweden's environmental policy is based on sixteen environmental quality objectives in different areas, adopted by the Swedish Parliament in 1999. These objectives describe the quality and state of the environment that is considered sustainable in the long term. They form an important part of the process of achieving sustainable development, along with the social and economic dimensions involved. To monitor progress towards achieving these objectives, the Government has set up an Environmental Objectives Council. (<http://www.miljomal.nu/index.php>.) The changes in the Environmental Code, necessitated by the WFD, concern environmental quality standards in addition to programmes of measures, defined now in the fifth chapter of the act. The environmental quality objectives have been updated in their content in response to the changes made in the Environmental Code and to the implementation of the environmental quality standards. According to the interviews undertaken in connection with this project the biological sections (relating in particular to the notion of 'good ecological status') and environmental quality norms are seen as having undergone the biggest changes as compared to the old system.

Combined approach for point and diffuse sources

A combined approach for point and diffuse sources did not exist before the WFD (Interview 3). The environmental quality objectives, in addition, received new content input in light of the changes to the Environmental Code and the implementation of the new environmental quality standards. Implementation experience in physical planning concerns norms in respect of air quality and the limiting values that are not to be exceeded (nitrogen dioxide and particles). After the legislative change in December 2003, environmental quality norms can now – in addition to the pollution levels or disturbance levels that are not to be exceeded or fallen below (limiting values) – also determine levels that should not be exceeded or undercut (standard values) and levels that should be aimed at. (Boverket, 2004.) The comprehensive work on national environmental quality objectives has attained an increasing importance since the environmental quality standards of the WFD were put in place. The ‘objectives’ concerned here are generally formulated objectives each with about 60 part-objectives though they do not include instructions about what should be done to achieve them. There is no direct reference to these objectives in the Environmental Code and thus they lack legal status. (Naturvårdsverket, 2003.)

Public participation

Public participation in accordance with the PBA and the Environmental Code was commonly practiced before implementation of the WFD. However, the WFD has strengthened already existing legislation in this area. The public now has the ability to influence the programmes of measures and participate already at early stage. (Interview 3.) According to the Regulation on the administration of the water environment (SFS 2004:660) cooperation should occur in Water Districts. Water Authorities are to consult and cooperate with other authorities, municipalities, organizations and other actors that are influenced by the Authorities’ decisions in a district. Water Authorities must produce a working plan which will indicate how and when different cooperation is to occur and where, in general, the work to produce management plans (*förvaltningsplan*) and programmes of measures for the district can be followed. This cooperation can occur in different ways. Representatives from organizations outside the Water Authorities can participate in working groups, reference groups or steering groups. The existing cooperation forms (e.g. water quality associations) should however be used. Cooperation is to occur at all levels: national, regional and local. Water Authorities cooperate in the first instance with Regional Authorities, organizations and representatives.

Impact and effect on planning systems

The WFD will mean significant change in the Swedish water planning system. According to Gustafsson (1989) the French model providing the basis for the WFD is charac-

terised as being fundamentally opposed to the Swedish system. While the French model, accordingly to the WFD, uses both economic incentives and regulatory steering instruments, the Swedish strategy is based almost solely on regulatory instruments. Furthermore, Water Administrations in Sweden are spread over different institutions at different levels (Hedelin, 2005.) Many uncertainties will arise concerning the distribution of responsibilities among the many parties involved and the relationship between the different plans for water management (Emmelin & Lerman, 2004.)

However, according to the Swedish Environmental Protection Agency, Sweden has in the last few years already developed tools and ways of working that will be of good use in respect of future water management. The Environmental Code (1999) is in accordance with the WFD even though some changes are needed so that it is possible to implement the WFD in the correct manner. (Naturvårdsverket, 2003.) Indeed when the Environmental Code was put in place it was done so with a view to implementation of the coming EU-Directives (both water and air Directives) (Interview 1).

Moreover, Swedish national environmental quality objectives are structured along the same line as the overall goals of the WFD and the quality standards. In addition, the Swedish principles on environmental quality (for lakes and watercourses, coasts, and sea and groundwater), being updated and adapted, will be useful in the work on estimating whether different Swedish water occurrences fulfil the environmental quality requirements of the WFD. (Naturvårdsverket, 2003.)

According to an article from the *Journal of the National Board of Housing, Building and Planning*, in September 1980 the water planning commission (*Vattenplaneringsutredningen*) produced a report “Water planning” (*Vattenplanering*) (SOU 1980) for the respective councillor of state and the head of the Ministry of Agriculture suggesting a system with a water review (*vattenöversikt*), a water economy plan (*vattenhushållningsplan*) and a water division operation (*vattenfördelningsförrättning*) be put in place. However, the respective councillor of state (Hans Gustavsson) opted to organise water planning as far as possible in the PBA system. Parallel planning systems were thought simply to complicate matters. Following the discussion at that time, general plans were formulated such that they provided an essential picture for the use of land and water areas across entire municipal areas. (Lindahl, 2002.)

In the current context the difference is simply viewed as the different weight of the sectoral plan for water, as it is a European question governed by an EU Directive. The plan for water (programmes of measures) according to the Environmental Code regulation becomes a national commitment while the general plan, in accordance with the PBA, is a municipal responsibility. (Lindahl, 2002.)

Work on the regulations and on the creation of instru-

Table 2.16. Implementation of WFD principles

WFD principle	System before WFD		System after WFD
River basin as planning and management unit	 Water planning at municipal level has not been based on river basin areas though environmental supervision has been based on river basins		 Five river basin districts have been established
Assignment of international RBD and cross-border / transnational cooperation	 River basins were not used in cross-border cooperation though a strong tradition of bilateral cooperation concerning water already existed		 International river basin districts are being established
River basin authorities	 There were no river basin authorities before the WFD		 River basin authorities have been introduced
Water quality objectives aiming at achieving “good ecological and chemical status”	 The national environmental quality objectives were partly in line with the water quality objectives		 The principle is being implemented
Economic analysis of water use	 Economic analysis were not undertaken in water planning		 Economic analysis of river basin districts in accordance with article 5 of the WFD is still not being prepared
Combined approach for point and diffuse sources	 A combined approach was not used in water management planning before the WFD		 The combined approach is now used as a new approach in water management planning
Management plans for RBD	 Water management plans were not drafted before the WFD		 Water management plans are now being drafted
Public participation	 Public participation was commonly undertaken before the WFD		 Public participation continues to be a common procedure
	Applied	The information in the table provides a qualitative assessment of the degree to which the key principles of the WFD were applied before and after the adoption of the WFD in 2000. The information referring to principles for which deadlines have not yet been reached, indicates whether progress has been made in its application e.g. through its inclusion in the national legislation. This assessment is based on the literature found and interviews carried out at the time the study was undertaken in 2006. Note that this information does not necessarily reflect the view of all of the parties involved in WFD implementation.	
	Partly applied		
	Weakly/not applied		

ments designed to help implement the WFD is still ongoing. The Environmental Code is designed also to influence and direct other legislation, e.g. concerning the road administration and municipal planning (PBA) (Interview 2). According to Hedelin (2005) three important organisational changes can be identified. Firstly, the most obvious difference is the change in geographical planning unit from the municipal boundaries to boundaries of the Water Basin Districts - from administrative boundaries to more natural regional basis for water planning. Secondly, the 290 geographical units for water planning have been reduced to five – water planning is taken away from the very local level and relocated to a regional level based on large regions. Thirdly, instead of an integrated approach to the planning of land and water these issues are now to be handled separately.

According to the interviewees, it is still too early to say what kind of influence the WFD will have on planning policies or planning practice. Planning practices will probably need to be changed in light of the introduction of the new regional level. Water questions in general have attracted greater attention in planning circles over the past few years though this has not occurred only in response to the WFD as the general development in, and increase of, environmental awareness also played a fundamental role here.

Conflicts and synergies

The implementation of the WFD has provoked a significant discussion over the relationship between the Environmental Code, the PBA, and the role of the municipalities in water planning questions. In light of the WFD, Sweden is now creating two parallel planning systems that include the same land and water areas (Sweden). The current situation is seen as baring something of a resemblance to that at the beginning of the 1980s when there was much discussion about having a sectoral plan for water *in addition to physical planning*. (See above). (Lindahl, 2002.)

Each plan emerges however from a fundamentally different starting point. The water plans prescribed in the Environmental Code are produced from the point of view what is best for the water. The PBA on the other hand aims, within the context of the consideration of issues of personal freedom, to contribute to the development of a community with good social conditions and a good and sustainable living environment for people in today's society and for the generations to come. In the PBA the 'national interest' is represented by the County Administrative Boards. They scrutinise how the municipalities address the issue of environmental quality standards in planning. (Lindahl, 2002.) The new "sectoral" system is however

seen as potentially limiting the ability of the municipalities' to undertake independent decision-making. The decisions of the Water Administration can be in conflict with the municipalities' right to decide on land and water use planning as prescribed in the PBA. (<http://www.vattenportalen.se/>.) Although the municipalities have traditionally been the most important actors in water planning they are now hardly mentioned in the current Swedish legislation in this area (Interview 5).

The implementation of the WFD into Swedish environmental legislation has undoubtedly increased the complexity of the legislation, which may also prove to be a further obstacle to its efficient management (Emmelin & Lerman, 2004.) As the environmental quality standards in the Environmental Code are increasingly becoming principles in the general planning, it is also seen as possible that a system is being created where no one has responsibility for monitoring the overall development of future land- and water use. (Lindahl, 2002.)

The relationship between local municipal water and land-use planning and water planning at the higher regional level remains moreover unclear. It is not clear how the programmes of measures and environmental quality norms are to be related to physical planning. In addition, in the PBA there is no reference to the Environmental Code and thus there is no legal mechanism requiring the authorities and municipalities, implementing decisions not detailed in the Environmental Code, to be in accordance with those that are defined in the programmes of measures. According to the National Board of Housing, Building and Planning programmes of measures, in accordance with provisions of the Environmental Code, are unclear in relation to the question of status and range, and thus as control instruments are not optimal. (Boverket, 2004). There is also the risk that even though the programmes of measures is produced, it is not actually implemented as no implementing organisation exists (Interview 5). The government has recently begun an investigation into this question as the National Board of Housing, Building and Planning recently raised the matter as one of some importance (Interview 1).

Before the emergence of the WFD the Environmental Code (1999) had already integrated water legislation and the planning system. According to the PBA, water basin based coordination in land-use and water planning and conflict resolution in water use and water quality issues are questions that municipalities are expected to take into account in respect of their own physical planning. (SFS 1987: 10.) Indeed environmental supervision concerning water questions is partly based on water basin areas (Interview 2).

Conclusions

In Sweden, the implementation of the WFD has entailed significant changes in the water management system. The new WFD system includes a new regional division for water planning and the putting in place of new institutions (Water Authorities) for water administration. A solid basis for the implementation of the Directive has been put in place over the last few years through the outlining of the Environmental Code and the identification of the national environmental quality objectives. The Swedish system in general and the programmes concerning environmental management in particular have thus moved in the same direction as the WFD.

On the other hand the planning system has moved in the opposite direction. In some instances the WFD system is defined in such a way as to be fundamentally opposed to the old national water planning system. In the context of the current changes the situation is arising where two parallel planning systems for water management are now in existence, one at the municipal level steered by the PBA and one at the regional level steered by the Environmental Code. The WFD will strengthen the regional level but not from the PBA-perspective which is the main instrument in physical planning. Traditionally, municipalities have been the most important actors in relation to water questions, however in the current Regulations on the administration of the water environment, the municipalities have been given only a minor role. The municipalities still have an important role to play in planning issues relating to land and water use within their territories but the new water planning system will nevertheless limit their formal powers.

The WFD aims at sustainable water development through the adoption of an integrated approach. There is potential for increased integration due to the implementation of the Directive in Sweden, but this requires that forms of effective cooperation between the municipalities and the Water Authorities can be developed, in addition to similarly effective cooperative models for the involvement of the general public and other concerned interests. The new knowledge that the WFD will add in physical planning can also be seen as important while the general plans can be seen as an important information source for the programmes of measures that are now to be drafted by the water authorities at the regional level.

In general the implementation of the WFD has not gone far enough for us to be able to speak about real impacts. Until recently there have not been many conflicts between the old and the new water planning systems even though much discussion is ongoing concerning the relationship between the Environmental Code and the PBA as two important steering instruments in planning and the role of the new water plan.

References

Literature

Boverket (2004): Vattendirektivet och fysisk planering – Hur kommer den nya vattenplaneringen att påverka den fysiska planeringen enligt plan- och bygglagen? Boverkets del i uppdraget om vattenhandboken. Boverket. Karlskrona.

Böhme, K. (2002): Nordic Echoes of European Spatial Planning, Nordregio, Report, no 8.

Emmelin, L. & Lerman, P. (2004): Miljöregler – hinder för utveckling och god miljö? Research report 2004:09. Centre for Spatial Development and Planning/CTUP. Blekinge Institute of Technology.

Gustafsson, J.-E. (1989): A new perspective in river basin management, in H. Laikari (ED.), River basin management –V, Proceedings of an IAWPRC Conference held in Rovaniemi, Finland (Pergamon Press).

Hedelin, B. (2005): 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. <http://www.nordregio.se/EJSD/-ISSN>.

Lindahl, J. (2002): Vem ska värna vattnet? Artikel ur Boverkets tidskrift Planera Bygga Bo, 6:2002.

Lundqvist, L. J. (2005): Det nya "Vattensverige" och ramarna för lokal vattenförvaltning, in Lundqvist, L. J. (ed). Hållbar vattenförvaltning, Göteborg.

Naturvårdsverket (2004a): Åtgärdsprogram. Arbetsmaterial.

Naturvårdsverket (2004b): Förvaltningsplan: Förvaltningsplan för vattendistrikt. Arbetsmaterial.

Naturvårdsverket (2003): En basbok om Ramdirektivet för vatten. Rapport 5307.

SOU (2002): Klart som vatten – Utredningen svensk vattenadministrations betänkande angående införandet av EG: ramdirektiv för vatten i Sverige. SOU 2002:105.

Statistics Sweden (2004): Miljöekonomiska profiler och prognoser för vattendistriktet – Ekonomiska analyser enligt Ramdirektivet för vatten.

The Swedish Water & Wastewater Association (2000): Facts on Water Supply and Sanitation in Sweden. www.svenskvatten.se.

Internet

Norrbottnens län, <http://www.bd.lst.se/>

The Office of Regional Planning and Urban Transportation, www.rtk.sll.se

Sweden's county administrations, <http://www.lst.se>

Sveriges miljömål, <http://www.miljomal.nu/index.php>

Vattenportalen. <http://www.vattenportalen.se/>

Västmanlands län, <http://www.u.lst.se/>

Interviews

June Lindahl, the National Board of Housing, Building and Planning (Interview 1).

Lennart Sorby (Water authority), Lise-Lotte Norin (Director of environmental protection), Kerstin Kvarnström (Director of environmental protection), County Administration of Västmanland (Interview 2).

Olof Molin, the Ministry of Sustainable Development (Interview 3). Anne Andersson, the Swedish Environmental Protection Agency (Interview 4).

Sindre Langaas (Preparatory secretariat of the WFD), County Administration of Stockholm (Interview 5).

Legislation

Förordning (2004:660) om förvaltning av kvaliteten på vattenmiljön.

Förordning (2002:864) med länsstyrelseinstruktion.

Miljöbalken 1999.

Förvaltning av kvaliteten på vattenmiljön Prop. 2003/04:2

Plan- och bygglag (1987:10).

Part III

Case studies

Part III – Case studies

Water management issues in spatial plans – examples from Latvia, Lithuania and Russia

Susanna Nilsson, Department of Land and Water Resources Engineering, Royal Institute of Technology

The country studies and the cross-analysis - dealing specifically with horizontal relations and integration between water management planning and spatial planning - showed that linkages do exist between water management planning and spatial planning and that there is a wish to coordinate matters further. However, countries appear to be highly uncertain of the exact forms and extent of this coordination. One way to address this issue in greater depth may be to investigate spatial plans (at the regional, district and/or local level) and relate them to water (river basin) management planning as anticipated by the WFD. This may increase our awareness and knowledge of potential connections between and integration of spatial planning and water management planning. For instance, the following questions may be interesting to address:

- How are water issues currently treated in spatial plans, and
- To what extent is there an overlap between water management issues in spatial plans and the content of future river basin management plans, as anticipated by the WFD?

To examine water issues in spatial plans more thoroughly, three spatial plans – one from Latvia, one from Lithuania and one from Russia – were selected.

Latvia: Jekabpils district territorial plan (from 2003)

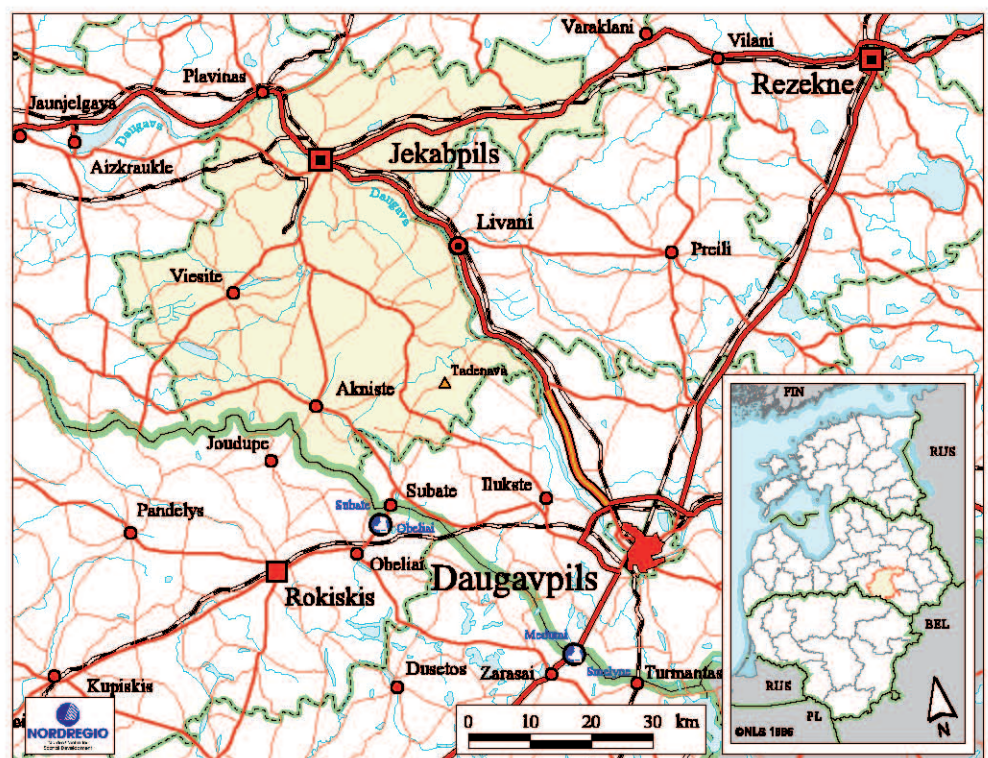
The Jekabpils district is part of the Daugava river

basin; however, a portion of the district also belongs to the Lielupe river basin. The district is 3000 km² in size and has 57 800 inhabitants. In total, there are 23 municipalities within the district. Jekabpils is the largest town with 29 960 inhabitants and is the administrative centre of the district.

Lithuania: Nemunas lowland water management investment plan (from 2004)

The Nemunas lowland river basin covers an area of 9800 km² and occupies the western part of Lithuania. The plan encompasses the ten municipalities within the basin with populations larger than 2000 people. The largest town is Klaipeda where approximately 35% of the river basin area population lives.

Figure 3.1. Jekabpils district (Source: Nordregio)



Russia: general plan of the 'Baltic spit' nature complex (from 2002)
The 'Baltic spit' is located in the Baltic Sea to the south of Baltic Bay. The total length of the spit is 55 km, of which 25 km is owned by Russia and the rest by Poland. As such, the spit has a trans-boundary character and is close to the mouth of the River Neman's (Nemunas). This territory is unique given its natural features, dominated by dune landscapes, high biodiversity and wide sandy beaches.

The spatial plans were analyzed and categorized according to a template (Table 3.1.) originally developed by Hedelin & Gustafsson (2003), and later refined by Holmbäck (2005). In short, this categorization system allows for a systematic comparison between the content of existing spatial plans and the content, as anticipated by the WFD, of future river basin management plans. When categorizing the spatial plans, the coverage of each category was also assessed. This was done by evaluating whether the content of each category was: 1) Not covered, 2) Briefly covered (e.g. mentioned in the plan), 3) Partly covered, or 4) Completely or almost completely covered.

Results

Firstly, this brief assessment shows that spatial plans – although restricted to only a few examples here – deal with water management issues (Table 3.2.). The Jekabpils district territorial plan (Latvia) provides a *general description* of the water resources in the district. For instance, the river basins that are part of the district are mentioned and the areas of surface waters within each municipality are listed.

Table 3.1. Categorization system of the content of future river basin management plans according to the WFD
(Source: Article 13 and Annex VII)

Category (acc to WFD, Article 13, Annex VII)	Source of prescribed content (WFD)
General description of characteristics of river basin	Article 5, annex II
Pressures and impacts of human activity	Article 5, annex II
Protected areas	Article 6, annex IV
Monitoring networks and monitoring results	Article 8, annex V
Environmental objectives	Article 4
Economic analysis of water use	Article 5, 9, annex III
Programme of measures	Article 11, annex VI
Public participation	Article 14

Groundwater is described in general terms. In respect of *pressures and impacts*, the plan deals with wastewater treatment, water consumption, hydroelectric power plants, artesian bores and point sources of pollution of groundwater. Nothing is however said about diffuse sources of pollution, such as agricultural leakage, and no real assess-

ment of the impacts of the pressures on the status of the water resources is undertaken. For *protected areas*, the WFD requires registers of areas, which need special protection because of their use value (e.g. water abstraction for human consumption) or because of their protection value (e.g. protection of habitats or species). There are listings in the plan of priority fish waters, where water protection and water quality improvement actions are needed, while the plan also notes that many lakes in the area are part of nature-protected areas. Practically no information and no listings for protected drinking water supply areas however exist. In relation to the *monitoring of networks*, the need for monitoring and results from monitoring are only briefly mentioned in the plan. In the plan, a large number of rather ambitious *environmental objectives* are stated. The plan does not contain any *economic analysis*; however, the plan does note that surface water is important for the economy of the district. Concerning the *programme of measures*, it is stated in the plan that the reconstruction of wastewater treatment plants should be carried out, and that the stricter issuing procedures for permits for small hydroelectric power plants should be established. The WFD though requires measures, e.g., for cost recovery of water services; to safeguard and ensure the protection of waters used for the abstraction of drinking water; and to control or prevent point and diffuse sources of pollution entering surface or groundwater. Nothing is explicitly mentioned in the plan in respect of *public participation*, except for the aim of providing ecological education to the public.

The Nemunas lowland water management investment plan (Lithuania) provides a very brief *general description* of the Nemunas lowland basin, providing information about the size of the basin, elevation and a map showing the catchment area and main towns.

In respect of *pressures and impacts*, the plan deals mainly with wastewater treatment and water supply. Nothing is said about diffuse sources of pollution such as agricultural leakage. No thorough assessment of the impacts of the pressures on the status of the water resources is undertaken; however, a short Environmental Impact Assessment (EIA) is included stating that improved wastewater treatment and collection will reduce the pollution of surface water and groundwater. No information is given about *protected areas*, *monitoring networks* or *environmental objectives*. The plan contains a detailed *economic analysis* including forecasts of future demand regarding water services, calculations of future costs for water services, and a cost-benefit analysis. Concerning the *programme of measures*, calculations on tariffs for achieving cost recovery for water services have been done; however, it is concluded that implementing these tariffs may cause serious problems for low income consumers. Nothing is mentioned in the plan in respect of *public participation*.

The general plan of the 'Baltic spit' nature complex (Russia) is very detailed in respect of water- and environ-

Table 3.2. Results of the analysis of spatial plans, relating the content of the plans to the content of future river basin management plans, as anticipated by the WFD

Category (acc to WFD, Article 13 and annex VII)	Jekabpils district territorial plan	Nemunas lowland water management investment plan	General plan of nature complex 'Baltic spit'
General description of river basin	Partly covered	Briefly covered	Briefly covered
Pressures and impacts	Partly covered	Partly covered	Partly covered
Protected areas	Partly covered	Not covered	Completely or almost completely covered
Monitoring networks	Briefly covered	Not covered	Briefly covered
Environmental objectives	Completely or almost completely covered	Not covered	Briefly covered
Economic analysis	Briefly covered	Completely or almost completely covered	Not covered
Programme of Measures	Briefly covered	Briefly covered	Partly covered
Public participation	Briefly covered	Not covered	Not covered

mental protection measures. There is, for instance, a special chapter on water protection; however, the plan lacks information on, e.g., economic analysis and public participation.

Main message

Although the assessment of these three plans contained herein can only serve as an example, some attempts to provide general conclusions will be made. The assessment showed that spatial plans – to a greater or lesser extent – deal with water management issues, which will need to be included in future river basin management plans. There could, thus, be benefit in trying to strengthen the connections between spatial planning and river basin management as introduced by the WFD. Assessments like this one may help spatial planners and water managers to more clearly see the relationship between water management issues in spatial plans and the content of future river basin management plans. This may be especially important in, e.g., Latvia where spatial planning will have specific tasks with regard to water management in the future. In other

countries, where the links between spatial planning and water management are less explicit, this assessment may serve to raise awareness of the possible connections between these two systems.

References

- Hedelin, B. and J.-E. Gustafsson (2003): Swedish Water Management - A Comparison of some Municipal Master Plans and the Requests of the Water Framework Directive. *Vatten*, 2(59): 75-80.
- Holmbäck, X. 2005. Den kommunala mark- och vattenplaneringen i Stockholms län: Är den vattendirektivsanpassad eller inte? Department of Physical Geography and Quaternary Geology. Stockholm, Stockholm University.
- Planning documents*
- General Plan of nature complex “Baltic spit”, RosNIPI Urbanistiki, 2002
- Jekabpils district territorial plan 2003
- Nemunas lowland water management investment plan 2004

The Narva river basin– water cooperation in the Estonian- Russian transboundary commission

Ülle Leisk, Tallinn University of Technology, Department of Environmental Engineering

Narva basin – the eastern border of the EU

The Narva River is a border-river, 77km long, between Estonia and the Russian Federation. The river connects Lake Peipsi with the Gulf of Finland in the Baltic Sea. The Narva river basin is one of the largest transboundary river basins on the eastern EU border and is shared between Estonia, Russia and Latvia. Lake Peipsi is the largest transboundary lake in Europe while also being the fourth largest lake in Europe. The majority of the river basin is located on the border between Estonia and Russia. The Lake Peipsi catchment area constitutes 85% of the Narva River catchment area (56,200 km²).

The proportion of forested land is highest (60-70%) in the north-western region of the basin, in the southern part forests cover only 30-40% of the catchment area. Mires and bogs make up 10% of the catchment area. Together with bogged forests and meadows they account for 15-20% of the excessively damp area. The proportion of arable land is high-

est (60-70%) in the western and southern area and lowest (20-30%) in the northern part of the catchment area.

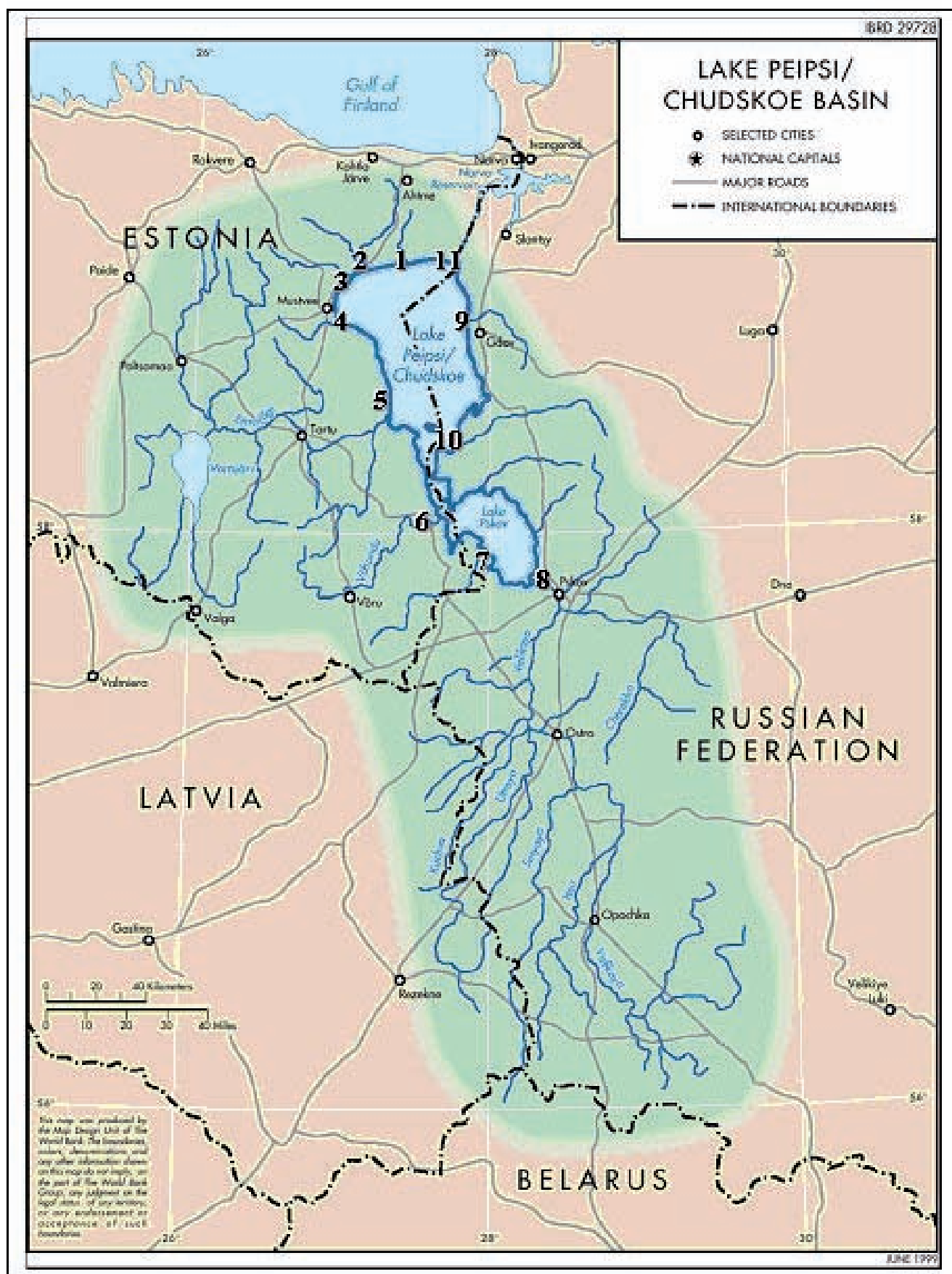
The biggest city in the basin is Pskov (201,400 inhabitants) situated 9.5 km from the mouth of the Velikaya River. The Velikaya catchment area is highly influenced by human activity such as agricultural production. The eastern coast of the lake is sparsely populated. This area is covered with forests and mires. Due to the existence of the border zone there are restrictions on certain activities on the Russian side. The Estonian area is populated uniformly, but the share of agricultural land is a little higher in the southern part of the area (see Figure 3.2.).

Lake Peipsi and its basin water bodies have important ecological value for the national, regional and local economies they serve as the waters are used for drinking, fishing, recreation and power production. An assessment of the environmental problems and ecological status of these water bodies is therefore essential.

Table 3.3. Facts and figures Narva river basin and Lake Peipsi basin

Narva river basin	
<i>Length</i>	77 km
<i>Catchment area</i>	56,200 km ² , 63.1% in Russian Federation, 30.6% in Estonia and 6.3% in Latvia
<i>Population</i>	940,000 inhabitants, 52.2% in Russian Federation, 42.6% in Estonia, 5.2% in Latvia
<i>Runoff</i>	Mean annual runoff 12.5 km ³
<i>Total fall</i>	30 m (the word Narva, in Vepsian (one of the Baltic-Finnish languages), means 'waterfall')
<i>Reservoir</i>	With a surface area ~ 200 km ² , on the upper course of the river
Lake Peipsi basin	
<i>Location</i>	From 59°13' to 56°08'N and from 25° 36'to 30°16'E
<i>Catchment area</i>	47,800 km ² , 16,323 km ² in Estonia (34.1%), 27,917 km ² in Russian Federation (58.4%), 3,560 km ² in Latvia (7.5%)
<i>Width</i>	160 km
<i>Length</i>	370 km
<i>Geology</i>	Gently undulating glaciolacustrine or till-covered plain, the altitude of 100-120 m in marginal areas lowers to 30-40 m towards the lake
<i>Landscape</i>	Belongs to the forest zone of the East Baltic Geo-botanical Sub-province
<i>Population</i>	825,000 (421,400 inhabitants in Russia, 330,000 inhabitants in Estonia), 77% live in towns. Estonia and Pskov region- 24 inh./km ² , eastern coast 11 inh./km ²

Figure 3.2. Lake Peipsi (Source: Peipsi Center for Transboundary Cooperation)



High level of pollution load in the area

The status of water quality and ecology in the Narva basin has improved throughout the last decade though it remains unsatisfying in both Russia and Estonia. Much pollutant material remains in the water basin system from activities that took place between the 1960s and 1990s. Complex of water protection measures are therefore needed to improve the water status.

Over the last two decades however the nutrient load has dropped considerably due to the declining human impact on the environment. Pollution load calculations indicate that the total nitrogen load has decreased by a factor of three though the total phosphorus load has remained at previous levels (Loigu et al., 1991, Loigu and Leisk. 1996, Blinova, et al., 1999, Nutrient..., 2001, Nõges et al., 2003).

The diffuse load from agriculture has also changed drastically. The number of livestock has declined over the last two decades and the use of both organic and mineral fertilizers has also decreased. Anthropogenic eutrophication nevertheless remains however an acute problem in the region causing significant deterioration. In recent years however several researchers have observed more intensive cyanobacteria blooms in the lake which can be caused by changes in nutrient inputs into the lake.

The annual surface water usage in Estonia is 1250 millions m³. Most of this is cooling water for power plants. Only about 60 million m³ of wastewater is discharged annually into the rivers, in Russia the number is 115 million m³. The amount of (treatment-needed) waste water is stable the pollution load from point sources has also been falling. The share of biological treatment with phosphorus removal is still moderate and mechanical treatment here predominates. In Estonia most of the towns situated in the basin have chemical phosphorus removal treatment of waste waters. The largest city in the area Pskov has a new waste water treatment plant but this only deals with biological treatment. The highest concentrations of phosphorus causing algae blooming in summer are in the southern part of the lake particularly at the mouth of the Velikaya River.

Oil-shale mining takes place on both sides of the Narva River though this undoubtedly occurs on a larger scale on the Estonian side. Mining and cooling waters form ca 90% of the wastewaters of the Peipsi river basin. A significant amount of wastewater from oil-shale mining waters directly depends on rainfall patterns. At the same time these waters do not significantly influence organic or nutrient pollution. Nevertheless, mining waters are polluted and can contain solid substances, phenols and even hydrocarbons. Mining waters are treated mechanically in sedimentation ponds thus contributing to the high content of sulphate and the hardness of waters.

Cooling water for the Estonian power plants is taken and discharged from the Narva water reservoir. This does not cause any chemical changes in the water while the

thermal changes have a low impact. On the other side of the water reservoir the Russians have constructed the Narva hydro-power plant facility. This needs to regulate the water flow. The Narva water reservoir has a significant level of economic importance for both Estonia and Russia thus necessitating that common management of the reservoir becomes a priority.

Significant changes in agricultural land-use can be observed over the last 10-15 years. Approximately 30% of agricultural land is now out of active use and lies uncultivated, the share of grasslands has grown significantly, consisting of 60-80% of the arable land. These changes have led to a decline in the agricultural load diffused. Notwithstanding the decreasing human impact in these small agricultural catchment areas, investigation of the semi-natural areas, not directly influenced by human activity, can provide - through common monitoring - important and reliable information about reference conditions characterising the other catchments in the area where such reference areas are missing.

The Narva River is a wild salmon river featuring on the *Natura 2000* list. Border facilities are needed in connection with the river while joint forces are needed from both the Russian and Estonian sides in order to avoid deterioration in the hydro-morphological conditions. The issue of permits for salmon fishing is particularly important here.

The only solution – cooperation through bilateral agreement

A long history of cooperation exists between scientists on both sides of Lake Peipsi constituting a “scientific” basin for administrative cooperation between Estonia and Russia. Cooperation began with the regulation of fish stocks. The *Intergovernmental Commission on Fisheries* was created to work out fishing rules. The treaty between the Government of the Republic of Estonia and the Government of the Russian Federation on the conservation and use of fishing stocks in Lake Peipsi was concluded in May 1994. In the framework of the treaty a *Joint Fisheries Commission* was also organised to deal with protection activities and the sustainable use of the fish resources of Lake Peipsi.

It was soon realised however that more environmental data would be needed to facilitate the management of the common water body. Thereafter an exchange of information in respect of official water management cooperation began. The agreement between the Government of the Republic of Estonia and the Government of the Russian Federation on Co-operation in the field of Protection and Sustainable Use of Transboundary Watercourses was concluded in August 1997.

In the framework of this treaty a Joint Estonian-Russian Transboundary Water Commission (1997) was organised. The Commission is the main actor in managing Lake Peipsi in an attempt to slow the pace of eutrophication. There are two expected outcomes:

- 1) A nutrient reduction strategy and
- 2) A water management plan.

It is very important to coordinate the work on the Russian and Estonian sides of the waterway and here the Joint Commission has a crucial role to play. One of the special tasks here is the development of a laboratory and of increased monitoring capacity.

Estonia and the Russian Federation have signed the following conventions

- on Protection and Use of Transboundary Water Courses and International Lakes (Helsinki, 1992)
- Protocol on Water and Health (London, 1999)
- on Protection of the Baltic Sea Marine Environment (Helsinki, 1992)
- on Environmental Impact Assessment in a Transboundary Context

The Commission's main task is to coordinate activity concerning the implementation of the agreement. The EU Water Framework Directive is not a basic document for the Estonian-Russian transboundary commission. The main aims of cooperation are however the same as the objectives stated in the WFD. The objectives in the field of Protection and Sustainable Use of Transboundary Watercourses are as follows:

- Achieve a 'good water status' in Lake Peipsi and water bodies in the lake catchment areas
- Harmonize the water management plans and the control of the implementation process
- Harmonize the water status criteria
- Achieve the comparability of the laboratories
- Continue the hydrological, hydro-chemical and hydro-biological work in the Narva River watershed, and also in Lake Peipsi, for the observation and evaluation of the status of water bodies and the determination of changes in hydrological, hydro-chemical and hydro-biological tendencies
- Specify the rules for the utilization of water resources in the Narva Reservoir

The work of the commission is conducted in working groups composed of experts from both countries. The results of working groups are confirmed in plenary sessions of the commission and submitted to the Ministries. The developed action plans are implemented by the working groups. There is no joint secretariat for the commission and all decisions are made by delegations in plenary sessions.

The Commission has working groups on the complex management of water resources and monitoring, assessment and research. The commission also has experience of cooperation with local authorities and public, international and national NGOs on both sides of the border.

Working groups and their objectives:

Working group of complex management of water resources

- Integrated water management, development and implementation of water management and protection plans and projects
- Analyses and assessment of status (involvement in working out regulations for use and protection of water resources, complex plans of water management and protection, programmes for the improvement of ecological status etc.)
- Inventory of point pollution sources
- Change of information on water management status and activities
- Organisation of involvement of local municipalities and the general public in the solution of water management problems

Working group of monitoring, assessment and research

- co-ordination of national monitoring programmes and the arrangement of common field works (samplings)
- working out coordinated positions on the assessment of pollution loads, water quality and status
- analysis and assessment of water status
- harmonization of monitoring programmes and methods for enterprises
- creation of a common coordinated database

Challenges in transboundary water-bodies context

By 2006 the commission had been in existence for nine years. The focus of the work has changed from the simple exchange of environmental data to the coordination of the water management plans of the basin. The main current problems include:

- Addressing the problem of insufficient water monitoring data emanating from the Russian side, especially in the field of point sources and rivers. This hampers the calculations and assessments of the pollution loads and the elaboration of the water management plan. The Russian side is sparsely populated and there is no monitoring data in this area. Such data is however needed for calculations to be accurate. In the framework of the HELCOM project "Pollution Load Compilation-5" a common calculation of the basin source apportionment will be carried out by the working group in 2007.
- There is an acute need for the harmonization of monitoring programmes and inter-calibration of chemical and biological methods. The problems experienced on the Russian side in the context of water management include the organization of water monitoring and the requirements for a quality assurance system

for monitoring. There are quite a range of different laboratories responsible for different tasks though often they perform the same tasks. The analytical equipment involved in the work is often very old and is in dire need of recalibration. Estonia, on the other hand, has to catch up with the biological monitoring requirements. The Joint Commission is involved in helping to move Russia closer towards the Estonian monitoring system. The inter-calibration exercises, which the Joint Commission organizes, should be undertaken in cooperation with a more complete quality assurance programme.

- The different approaches for water quality criteria and the absence of a common classification of a water quality system and assessment of pressures and impacts.
- The limited capacity for self-monitoring of the “polluter-pays” principle, requirement for additional legislation, regulations and finances.
- The different requirements for limit values of quality and loads of waste water discharging into recipients, different approach for permitted loads.
- The limited sources for control and environmental monitoring.

Working programme 2007-2009

In 2006 new guidelines and a working programme for the common water management of the basin for the period 2007-2009 were developed. The working programme includes:

- Elaboration and implementation of the water management plan for the Narva River basin (including the Lake Peipsi basin) with the main goal of achieving a good ecological status by 2015
- Investigation of the dynamics of the pollution load of the basin and controlling the implementation of water management measures for main polluting enterprises in the basin (see map)
- Elaboration of the management agreement and the use of the water resources of the River Narva and its water reservoir
- Coordinating the redrafting practice code for the use of the Narva water reservoir and fulfilling the requirements of the monitoring system
- Coordinating the monitoring of the ecological status in the transboundary water body and other trends in the hydrological, hydro-chemical and hydro-biological regimes.

Policy implementation for EU and non-EU member states

Despite these good plans and guidelines problems remain in the context of the implementation of common water management plans

- Different priorities in the River Narva basin, the share of the Estonian catchment area forms 1/3 of that country's territory, for Russia it is however only a regional problem
- Due to the differing level of priorities across the border inadequate financial resources have been allocated
- Different status assessment methods
- Unreliable and incomparable environmental data
- Continuous administrative changes and reforms in the environmental and water sectors in Russia

The sustainable use and protection of transboundary waters can be made possible only by the goal-oriented and coordinated actions of the countries sharing the watershed. Without rational *and* sustainable approaches to the use of water resources and without the mutual understanding of ensuing benefits and advantages for each of the parties, bilateral cooperation is likely to be superseded by one-sided actions, claims and disagreements.

The Estonian-Russian transboundary commission on the water management of the Narva river basin is however a rather different animal to that of the other international commissions because the EU has a common policy and understanding on water management issues in the WFD. Cooperation between EU and non-EU countries is however much more problematic. As such a common approach in respect of the assessment framework and the measuring systems used should be found as quickly as possible.

References

- Blinova, I., Iital, A. and Loigu, E., (1999): Peipsi järve reostuskoormus. In: Peipsi, pp 81-83.
- The Estonian-Russian Joint Commission on Transboundary Waters (1997): The Agreement between the Government of the Republic of Estonia and the Government of the Russian Federation on Cooperation in Protection and Sustainable Use of Transboundary Waters.
- Loigu, E. and Leisk, Ü., (1996): Water quality of rivers in the drainage basin of Lake Peipsi. *Hydrobiologia*, 338, pp. 25-35.
- Loigu, E., Pärnapuu, M., Hansen, V., (1991): Peipsi-Pihkva järve reostuskoormuse ja saasetainete bilanss. In: Peipsi järve seisund II, pp. 6-14.
- Nutrient loads to Lake Peipsi, (2001): Environmental monitoring of Lake Peipsi/chudskoe 1998-99. Jordforsk Report No. 4701.
- Nóges T. (ed) (2001): Lake Peipsi. Meteorology Hydrology Hydrochemistry.
- Nóges, P., Leisk, Ü., Loigu, E., Reihan, A., Skakalski, B., Nóges, T., (2003): Nutrient budget of Lake Peipsi in 1998. Proceedings of the Estonian Academy of Sciences. Biology. Ecology, Vol. 52, No.4, pp. 407-422.
- Velner, H.-A. (ed) (2005): Water protection of the Gulf of Finland and Estonian water bodies, TUT Press.

The Odra Commission as an example of successful international collaboration on water issues

Michael Viehhauser, Nordregio

Of the 31 major rivers in Europe more than half are trans-boundary. One such body of water is the Odra River which belongs to three countries (the Czech Republic, the Republic of Poland and the Federal Republic of Germany) constituting a significant stretch of the border between Germany and Poland.

As management of the shared waters becomes increasingly important and co-operation is needed to protect and restore the trans-boundary river basin, the three countries have agreed to commonly coordinate the implementation of the WFD within the framework of the International Commission for the Protection of the Odra River against Pollution (ICPO, 2004). The Commission's work and results thus far are described in the following pages.

The Odra River basin is of high ecological and economic importance

The Odra River accounts for the third largest catchment area in the Baltic Sea basin and is one of the most important sources of nutrients and heavy metals discharged into this sea due to a large number of cities and industries located within the river basin. At the same time the valley of the Odra River belongs to one of the key ecological corridors in Central Europe, ensuring the maintenance of biodiversity in this region. Over the last four centuries the naturally floodable areas in the river basin have been reduced from around 3,700 km² to 860 km² (23% of the prior natural flooding zones).

Across the Odra river basin we can see a falling gradient from south to north with regard to population density and land use. While there is relatively high population and settlement density in the medium altitude hilly districts the farther north one travels into the lowland area, with its extensive planes, population density declines markedly.

A recent analysis of the Odra River basin (ICPO, 2005) provides us with an overview of the water use and its effects on the water system:

- Public water services annually use 1,040 million m³ water whereas industry uses around 3,600 million m³ water per year (of which 80% is used for energy production)
- The public water supply rate is 92%
- More than 1,200 municipal sewage plants discharge 960 million m³ of sewage water into the Odra river system
- Only 61% of the river basin's total population is connected to the public sewage system

- A decreasing trend for both water demand, and subsequently the production of sewage water produced, will be witnessed over the next decade

The water status of the Odra River and its tributaries is currently not satisfactory and thus a significant effort needs to be made to improve the situation. Nitrogen and phosphorus loads in particular are still high despite considerable improvement in the situation since the 1980s. Compared to other European rivers, heavy metal loads in the Odra play only a minor role (Behrendt and Dannowski, 2005).

A long list of challenges for the waters of the Odra River basin

The major challenges concerning water management and spatial planning more generally within the Odra river basin are as follows (BMU 2005; IPCO 2005, LUA 2006; Ministry of the Environment 2006; Schernewski et.al. 2005):

- Improvement of water quality particularly lowering the inflow of nitrogen and phosphorus loads from diffuse sources
- Ensuring the water quantity of the water bodies
- Combining sustainable inland water shipping with other uses of the River
- Avoiding future major flooding incidents (especially with regard to the catastrophic flood event of 1997) and finding sustainable solutions for flood protection
- Ensuring the existence of natural landscapes in the Odra river basin
- Common settlement and infrastructure planning over borders (water supply, sewage, etc) with particular focus on safeguarding the functions of open spaces and old cultural landscapes
- Establishing joint principles for environmental impact analysis for projects with trans-boundary effects on waters
- Finding and establishing a combined concept for river basin and coastal zone management (particularly in respect of Odra lagoon)

International cooperation along the Odra River – the International Commission for the Protection of the Odra River

The WFD requires that Member States coordinate “all programmes of measures” for whole river basin districts “where use of water may have trans-boundary effects”.

(WFD, Art. 3). This means that the Member States must collaborate with neighbouring States whose territory falls within the same international river basin (BMU, 2005).

A preparatory step in this required collaboration is the establishment of the *International Commission for Protection of the Odra River Against Pollution* (ICPO) in 1996. The ICPO is a platform of coordination for the whole basin of the Odra River.

The objectives of the ICPO are to:

- Prevent the pollution of the Odra and the Baltic Sea by contaminants and to achieve a reduction in the pollution thereof;
- Achieve the most natural aquatic and littoral ecosystems possible with the corresponding species diversity;
- Permit utilisation of the Odra, in particular the production of drinking water from bank filtrate, and the use of its water and sediments in agriculture;
- Provide for precautions against the risk of flood damage and achieve a sustained reduction thereof; and
- Coordinate implementation of the Water Framework Directive in the Odra river basin (www.mkoo.pl).

The work of the ICPO is conducted in its working parties which are composed of the experts appointed by each national delegation. For the purpose of achieving specific objectives the working parties draw up action programmes which are submitted to the ministries involved in each of the three countries as proposals and recommendations. The Commission, its Chairman, the heads of delegation and the working parties are assisted in the performance of their tasks by the ICPO secretariat situated in Wrocław/Poland. A steering group for the implementation of the WFD consists of five working groups tasked with putting into action various WFD-related tasks such as monitoring, management plans and economic analysis. Figure 3.4. illustrates the relationships between the various parts.

Successful start for the international implementation of the WFD

In 2002, ICPO received the mandate to coordinate the implementation of the WFD within the international Odra river basin. Since then the three countries involved, Poland, the Czech Republic and Germany (Germany: the Federal Republic together with the States of Brandenburg, Mecklenburg-Vorpommern and Sachsen) have cooperatively developed international reports on WFD implementation.

The report “International River Basin Odra” (ICPO, 2005) covers the entire Odra River basin and describes its qualities and the impact on the environment of human action while making a comprehensive economic evaluation of the river basin as well as outlining the status of various national protection areas.

A huge amount of data, following the WFD agenda,

was gathered and this ultimately led to the following outputs:

- Definition of types of waters
- Identification of natural and artificial water bodies
- Assessment of punctual, diffuse, hydro-morphological and quantity of emissions concerning the water bodies??
- Identification of water bodies that risk failing the WFD’s goals before 2015
- Assessment of ground water bodies
- Analysis of punctual, diffuse and quantity of emissions affecting groundwater bodies
- Assessment of eco-systems dependent on groundwater
- Identification of groundwater bodies that risk failing the WFD’s goals before 2015
- Data and facts concerning an economic analysis of the river basin
- List of all protected areas (e.g. *Natura 2000* areas)

The most important results of this comprehensive international study were both of a technical and an economic nature. Technically, the wide variety of water types in the three countries was converted into one common type system. The economic analysis of this study is based on a baseline scenario of water use and the development of water use up to 2015. The costs of water services and the cost efficiency of possible measures to improve the services were also assessed. Already today the cost coverage concerning water services is 100% in many parts of the Odra River basin (ICPO, 2005).

The report also delivers a preliminary categorisation of the water bodies, a final categorisation can only be made when the monitoring systems are fully functional (perhaps two years from the current time of writing). Recent results do however provide an overview of the expected challenges in light of WFD implementation. A significant number of water bodies (631 water bodies or 25%) in the Odra River basin can be labelled as ‘artificial’ or ‘technically transformed’. The analysis of the 101 existing (larger) groundwater bodies shows that eleven have quantity problems, whereas 36 were declared as chemically endangered. The analysis also shows that – according to the recent assessment criteria – almost half of the water bodies (47% of 2,527 waters) probably would not reach the WFD’s quality goals target before 2015, 28% risk failing the goals and only 25% seem set to attain the goals by means of their already good status. Those 28% of all water bodies that risk failing the WFD’s goals must be studied further in order to build up an adequate monitoring system (ICPO, 2005).

The main reason for the insufficient status of a majority of water bodies is the bad chemical status of many waters due to the still large number of industrial and municipal point sources as well as innumerable diffuse agricultural sources. Due to the WFD and other relevant water-related European Directives however (96/61/EC, 91/271/EC and

Table 3.4. *The international River Basin District Odra in fact and figures. (Sources: www.mkoo.pl; IPCO, 2005; www.odra.org; BMU 2004)*

Parameter	Facts and figures
Source of Odra	Góry Odrzańskie / CZ at an altitude of 632 m
Length	855 km (6th largest river discharging into the Baltic Sea)
Basin	122.512 km ² of which 87.6% is in Poland, 5.9% in the Czech Republic and 6.5% in Germany 16.4 million inhabitants and 5.63 million working places 450 hydro-technical objects (flood-gates, weirs, water-power plants, polders, storage reservoirs) 48 storage reservoirs with a volume of 968 million m ³
Odra River itself	Mainly in its original river bed, partly canalised (186 km between Kanał Gliwicki and Brzeg Dolny Locks make shipping possible between approximately 30 harbours on 717 km of water ways Linked to other river systems via canals especially towards Berlin. Commercial fishery is concentrated in the lower river, but with a minor economic role (about 100 t/a catch)
Yearly discharge	Approximately 17,000 hm ³ (ŠQ 1921–1990, Hohen-saaten-Finow)
Discharge distribution (Slubice/PI)	Varying between highest discharge during November and December (500–550 m ³ /s) and lowest run-off in September and October (200–250 m ³ /s)
Most important western tributaries	Opawa, Nysa Kłodzka, Oława, Bystrzyca, Kaczawa, Bóbr and Nysa Łużycka
Most important eastern tributaries	Ostra-wica, Olza, Kłodnica, Mała Panew, Stobrawa, Widawa, Barycz and Warta
Delta	Szczecin Lagoon with its tributaries (3 622 km ²)

76/464/EC) it is expected that the status of many water bodies in the Odra River basin will improve considerably in the next few years (ICPO, 2005).

A lot of barriers remain on the way to full implementation of the WFD

The ICPO has the task of promoting and facilitating implementation of the WFD on the international level. This work is proceeding well all relevant authorities of the three involved countries are engaged while a rough timetable exists in respect of how the work should continue. Notwithstanding this however a number of obvious barriers must still be overcome.

A considerable obstacle to the ICPO's work remains the language problems faced and the continuous need for translation. All nationally used terms, methods, definitions and other relevant information must be understood by the international partners. This would be facilitated by the creation of stable international working groups in the framework of IPCO which however cannot be guaranteed due to changes in the national administrative systems.

Work on the report, 'International River Basin Odra' is itself proof of the functioning of international collaboration but it is of course important that the report's proposals of measures are implemented based on international agreements. It however still remains unclear exactly how the implementation of these 'international measures' can be put into effect. Solid actions and measures are still to be defined (priorities, responsibilities and financing issues). A rough arrangement already exist, however the interfaces of, and between, national and international implementation milestones are still to be found. A major point of criticism here concerns the uncertain nature of the funding of internationally agreed measures. Currently each of the three countries concerned holds quite different attitudes on this issue.

Thus far no dedicated working group tasked with working on the international measures programme has been set up within the ICPO. This is a clear weakness that must be overcome. The three countries involved did however propose that in 2007 the most essential international WFD related measures will be defined. This work will be very demanding and will require the harmonization of the national WFD implementation plans which at present are not congruent.

Another weakness in the current international work is that no internationally based participation possibilities for broader stakeholder groups have been established. Everything is based on nationally-based work and inputs from ministries and other authorities.

The links between the IPCO working groups and the realm of spatial planning are weak or even non-existent despite the fact that spatial planning has competences in all three countries that are needed to fulfil the WFD objectives. Spatial plans and programmes normally consider water issues in all three countries however just how the up-

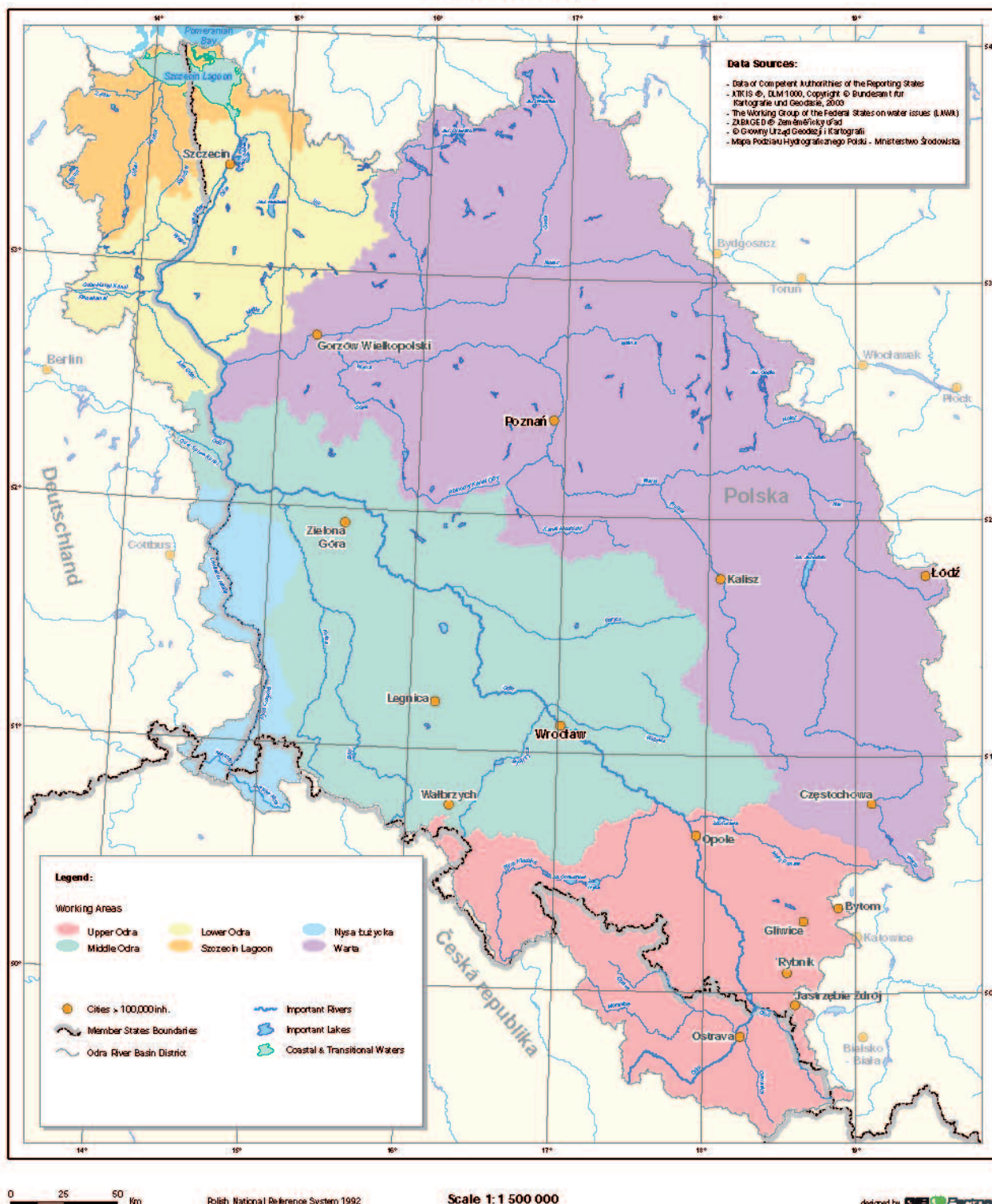
Figure 3.3. The Odra River basin Source: ICPO (Source: www.mkoo.pl)



ICPO 2005 WFD Report

Odra River Basin District Overview Map

Map A1



coming international measures are to be integrated into these plans and programmes is currently still impossible to say.

Work carried out in the ICPO working groups, which do the necessary basic preparatory work, is often slowed to a crawl for a number of reasons. One such factor is the

clash of different administrative systems or cultures experienced in the context of the project. This implies that the varying decision-making mandates of the participating civil servants have to be understood, while mismatching competence levels, strict orders to safeguard national in-

terests and insufficient feedback from the ministries in charge have also to be overcome. A further factor here is undoubtedly the lack of national resources provided for international work.

These general problems can perhaps best be illustrated by the problems faced by the German participants in the various IPCO working groups. In Germany the federal States (*Länder*) have the competence for WFD implementation but not always the means and rarely the mandate to negotiate on the international level. This generates a lot of bureaucratic work and often needs further time consuming consideration by the federal ministries and *Länder* authorities. Another problem here is the uncoordinated work of the German *Länder* themselves. For instance the work on the international Odra Report is based on the three basically isolated contributions of the three federal States concerned.

Challenges for the ICPO in the coming years

The ICPO is likely to face a number of challenges in the coming years:

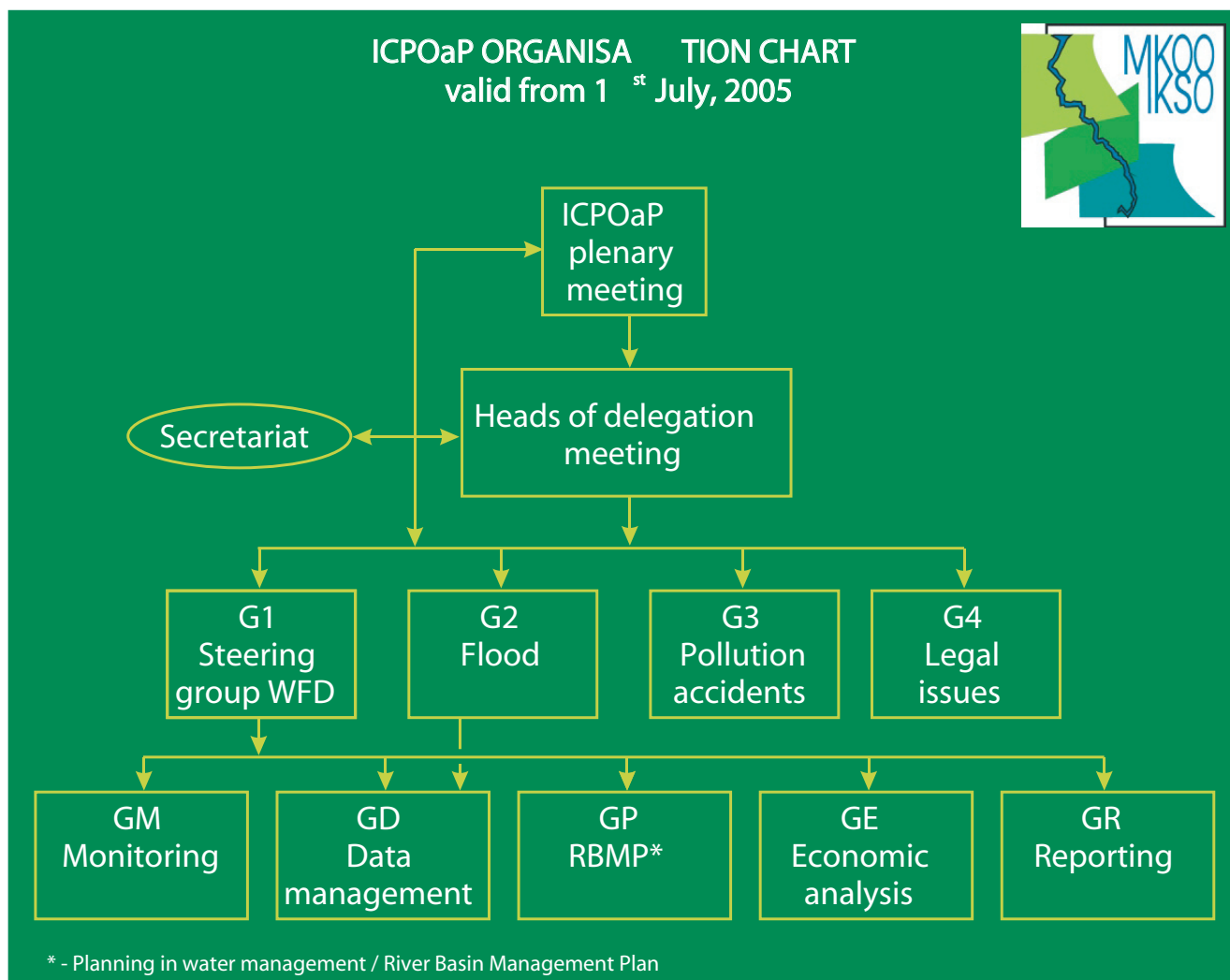
- Monitoring efforts in the Odra River basin must be finished in 2007 and reported to the EU Commission

- Integration of the new EU Directive for flood protection in the WFD-work
- Preparation of the international management plan for the Odra River (until 2009), which requires significant compromises to be made by all as it is difficult to directly include all national plans and measures into the international management plan – thus there are many “weak points”
- Twinning or pilot projects have proved to be a very successful way in which to establish contacts, collaboration and finally tangible actions – this is one way in which to prepare the international management plan and will be continued in the coming years
- Improvement of future stakeholder involvement i.e. the broader participation of all kinds of stakeholders

Some lessons learned for international WFD work

The WFD has accelerated cross-border cooperation in respect of the work on the international management plan for the Odra River basin given its clear implementation time schedules and because of its request for concrete plans and actions to be produced before a given deadline. Notwithstanding the creation of IPCO these WFD imple-

Figure 3.4. Organisation chart of ICPO. (Source: www.mkoo.pl)



mentation requirements have become a major driver for cooperation in the international Odra river basin.

Extensive river systems like the Odra, with a large population, a large number of authorities and organisations, and complex political and legal structures require high ranking political commitments, clear objectives and structures and an adequate body as a basis for cooperation and management. In this respect the ICPO provides a suitable body that will attempt to implement these tasks to the best of its ability. The ICPO is however a small organisation that cannot replace all other necessary dedicated national and regional efforts. ICPO's working groups do not have implementing power while the Commission cannot substitute for the indispensable nature of regional and local implementation efforts.

A major future challenge here is likely to be the reduction of diffuse emissions from agriculture. The retention or turnover of nitrogen within the agricultural sector demands the reduction of tile drained areas and the protection of nearby water bodies through the renaturation of wetlands (as suggested by the ICPO as a flood protection measure), buffer strips along streams and rivers, establishing and reconnecting river systems. Here many connections to land use exist as such spatial planning has an important role to play in suggesting and implementing these measures.

Twinning or pilot projects have proved to be a very successful way of establishing contact practicing collaboration and finally actually implementing planned actions. Focus should be placed on concrete problems and the preparation of comprehensive tasks that can be tested on a smaller scale by geographically limited pilot projects.

Continuing successful international work will always be difficult despite the many successful cooperation examples and approaches. Illustrative of this perhaps is the fact that WFD implementation is still seen as a national concern. The preparatory work of the international management plan as demanded by the WFD will probably be based on national approaches and their regional goals i.e. national objectives and agendas dominate. This means that the international Odra management plan risks becoming the result of three independent procedures. This suggests that trans-boundary water planning in accordance with the WDF needs to be overhauled in order to find improved means and methods supportive of a joint international approach.

The sooner "real" international collaboration over water issues aiming at tangible outcomes is established the earlier it will provide results. The Odra Commission's work, since 1996, proves that this type of complicated international collaboration needs time and permanent engagement. A final and important element here is the need

to ensure that the project has the commitment of people who take real responsibility and have the right mandate.

References

Adamski, A., R. Benz, et.al. (1999): Oder Atlas, Berlin/Wroclaw.

Behrendt, H. & R. Dannowski (eds.) (2005): Nutrients and heavy metals in the Odra river system. Emissions from Point and Diffuse Sources, their Loads, and Scenario Calculations on Possible Changes, Weißensee Verlag, Berlin.

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (2004): Report on the river basin Odra to the European Commission, German part, Berlin.

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) (2005): Water Framework Directive - Summary of River Basin District Analysis 2004 in Germany, Berlin/Kassel.

International Commission for the Protection of the Odra River (ICPO) (2005): Internationale Flussgebietseinheit Oder, Bericht an die Europäische Kommission gemäß Art. 15 der WRRL, Schwerin/Potsdam/Dresden/Prag und Warschau.

Landesumweltamt Brandenburg LUA, (2005): Umsetzung der Wasserrahmenrichtlinie, Bericht zur Bestandsaufnahme für das Land Brandenburg, Potsdam.

Ministry of the Environment (Poland) (2006): International cooperation in water management: Implementation of the EU Water Framework Directive in Poland, Warsaw.

Schernewski, G. et. al. (2005): River basin – Coast Interactions and Integrated Coastal Zone Management: The Oder (Odra) case study, International Summer School on Coastal and Marine Management, presentation in Rostock/Warnemünde.

Internet (access in the period May-December 2006)

www.mkoo.pl (International Commission for the Protection of the Odra) www.odra.org (Information on the Odra River)

Interviews (summer and autumn 2006)

Piotr Barański, Head of Secretariat of the International Commission for the Protection of the Odra River against Pollution

Birgit Fiszkal, Landesumweltamt Brandenburg

Renate Hoff, Gemeinsame Landesplanung Berlin-Brandenburg

Dr. Jürgen Neumüller, Infrastruktur und Umwelt, Potsdam

Agnetta Olschefska, scientific officer at the Secretariat of the International Commission for the Protection of the Odra River against Pollution

Dr. Dieter Schütte, Ministerium für Ländliche Entwicklung, Umwelt und Verbraucherschutz des Landes Brandenburg, Referat 62: Wasserwirtschaft und Gewässerschutz

Jürgen Stahl, Gemeinsame Landesplanung Berlin-Brandenburg

Appendix

Guidelines country reports

Part I. Introduction (2-3 pages)

Part I should give a description of the “old/traditional” land use and water management systems. Further, the “old/traditional” systems should be compared with the intentions of the WFD in order to assess deviations between the “old/traditional” systems and the “new” system, introduced by the WFD. It should though be stressed that it is possible that this division between “old” and “new” may not be applicable for new EU member states where large changes have occurred due to the break-up of the Soviet Union and the fall of the Iron Curtain.

The implementation of the WFD in the EU Member States is an ongoing process. In recognition of the dynamism of many systems you should use 1st January 2006 as the benchmark to describe the current system, but indicate clear what significant changes have occurred or are likely to occur, especially if such changes can be directly or indirectly linked to the implementation of the WFD.

1. Spatial planning system

Please, give a brief introduction of the planning environment in which the WFD is being applied. In describing the national system address such issues as:

- Briefly describe the levels of planning (describe the administrative structure by referring to local, regional and national levels as well as other levels of planning in the country). Specify at what level the main planning competency is located. Describe the key spatial planning instruments and tools.
- Recent evolution of planning, including a discussion of trends and significant issues affecting spatial planning and water management

2. Water management system

- Briefly describe the water management system before the implementation of the WFD started by describing the institutional and legislative framework.

3. Convergence/coherence with the WFD from the outset

Based on the descriptions under point 1 and 2, assess:

- To what extent were principles, objectives and goals set up of the national system, organisation and programme consistent with the WFD before the adoption of the WFD in 2000?

Base the comparison on the “WFD principles” below (try to assess each point according to: consistent, partly consistent or not consistent with the WFD + give an explanation to each judgement). Observe that with the term “consistent” refers only to principles, objectives and goals contemplated by the legislative framework and not to how laws or legislative procedures are textually formulated.

- River basin as planning and management unit for water (art 3)
- Assignment of international river basin districts and cross-border / transnational cooperation on water resources shared with neighbouring countries (art 3)
- Specific river basin authorities responsible for the overall water management (art 3)
- Water quality objectives stated in legislation (e.g. “good ecological and chemical status” for surface water and “good chemical and quantitative status” for groundwater.) (art 4)
- Economic analysis of water use and application of cost-effective measures to abate problems and cost-recovery of water services) (art 5, 9)
- Combined approach for point and diffuse sources (i.e. combination of emission limit values and water quality objectives, and emission controls based on best available techniques) (art 10)
- Management plans for river basin districts (or other type of administrative unit) (Art 13)
- Public participation (e.g. the public is informed and consulted in the development of water management plans) (art 14)
- According to the information given above, determine to what degree water management legislation is integrative. In other words try to determine the degree water management legislation demands coordination between water management, spatial planning, nature protection and land use.

- Recommendation: Try to answer the question by identifying what elements, contained in the list provided by the WFD CIS Guidance Document No. 11 page 6, are contemplated by the water management legislation before the implementation of the WFD. Observe that many of these elements are already included in the articles listed above.
- Were the objectives, goals and set up of the national system, organisation and programmes moving in the general direction of those of the WFD before the adoption of the WFD?

Part II. Implementation of the WFD (7-10 pages)

Part II should give a background description of the implementation of the WFD with regard to legislation/institutions and planning systems. It should also identify and analyse conflicts between the “new” system introduced by the WFD and “old/existing” planning systems. Additionally, it should assess how “well” the country has managed to implement some key principles of the directive. Recommendation: Put special attention to institutional changes addressed by questions in section 3 as this is the most central part of the study.

4. Levels and process of implementation

- How have the different administrative levels been affected by the implementation of the WFD in the country?
- Who are the key actors in the implementation of the WFD in the country?
- Assess the knowledge/awareness of the WFD among professionals at different levels (3=good knowledge about the WFD, 2=some knowledge, 1= little knowledge, 0=no knowledge).

5. Impacts and effects on planning systems

- What effects has the implementation of the WFD had so far? Describe the changes especially with regard to (describe also planned changes):
 - Institutional changes
 - Changes in planning policies
 - Changes in planning practices
 - Other important changes
- Please, give concrete example(s) of changes that have taken place or are planned to take place!

- Has the implementation of the WFD implied a conflict with the “old/existing” planning system? If yes, describe how.

6. WFD principles implemented

- How has the WFD been implemented so far? Describe the implementation with regard to changes in legislation/institutions and planning systems.
- Please, state how the principles of the WFD described below have been or are planned to be implemented! (Please, also connect this to whether there was coherence/convergence with the WFD already from the beginning! Compare Part I, point 3)

- River basin as planning and management unit for water (art 3)
- Assignment of international river basin districts and cross-border / transnational cooperation on water resources shared with neighbouring countries (art 3)
- Specific river basin authorities responsible for the overall water management (art 3)
- Water quality objectives stated in legislation (e.g. “good ecological and chemical status” for surface water and “good chemical and quantitative status” for groundwater.) (art 4)
- Economic analysis of water use (e.g. application of cost-effective measures to abate problems and cost-recovery of water services) (art 5, 9)
- Combined approach for point and diffuse sources (i.e. combination of emission limit values and water quality objectives) (art 10)
- Management plans for river basin districts (Art 13)
- Public participation (e.g. the public is informed and consulted in the development of water management plans) (art 14)

Part III. Conclusions (1-2 pages)

7. General observations

Please, taking into account the contents of Part I+II of the present document, write down general observations concerning the influence of the WFD implementation on the national spatial planning system.

8. Recommendations

Please, develop a short set of recommendations for improving the implementation of the WFD and its relation to the national spatial planning system!

Main findings Workshop I, 13-14 February 2006

On the 13-14th February 2006, *Nordregio*, KTH and the County Administrative Board of Stockholm arranged an international workshop on the theme, “Current spatial planning and river basin management planning according to the EU Water Framework Directive: Conflict or synergy? State-of-the-art around the Baltic Sea”. Invited experts from Belarus, Estonia, Finland, Germany, Latvia, Lithuania, Norway Poland, and Sweden outlined the existing spatial planning systems, WFD implementation with regard to river basin management planning, and interactions between these two planning systems in their country. The aim of the workshop was to provide a basis for a comparative study on spatial planning and river basin management planning in eleven countries in the Baltic Sea Region. Further, based on the workshop and the country studies a number of deeper case studies on specific topic of interest were also undertaken.

On the basis of the presentations at the workshop, the following observations were made:

- There is a significant variation in the spatial planning systems in the countries across the Baltic Sea Region;
- The implementation of the EU Water Framework Directive is handled in different ways and according to different principles in the countries of the Baltic Sea Region;
- No country has fully integrated spatial planning legislation with water management legislation;
- In some countries (e.g. Germany and Sweden) the connections between the two planning systems have been recognized, and conflicts and synergies between the two systems have been discussed at a high level;
- In some other countries (e.g. Finland and Lithuania) connections between the two systems have thus far

been regarded as non-existent or minimal, and hence, no real conflicts or synergies between the systems have been identified. The reasons for this appear to be connected to the fact that water managers have traditionally had little contact with spatial planners, and that, historically, spatial planning has not dealt with water-related issues to any great extent;

During the final discussions, the following points were mentioned as being important for the future:

- The comparative study of the interface of spatial planning systems and river basin management planning in the countries in the Baltic Sea Region will provide valuable knowledge, and draw attention to an issue which in some countries has not previously been highlighted. However, due to the existence of highly divergent systems in the different countries, general conclusions and recommendations may be difficult to develop;
- The TRABANT project should devote special emphasis to analysing and discussing the results from the country studies in relation to transboundary water management issues;
- There is a need to raise awareness of and increase the connections between spatial planning and river basin management planning. Spatial planners need to have some knowledge on, e.g. impacts of land use changes on water quality, and – likewise – water managers need to understand spatial planners’ balancing of different interests, of which water-related issues are but one among others;
- In relation to public participation, water management may learn from spatial planning systems, which have a tradition of more participatory planning processes.

Participant list Workshop I

Aliaksandr Pakhomau, Central Research Institute for Complex, Development of Water Resources (CRICU-WR), Belarus

Alexandre Dubois, *Nordregio*

Beatrice Hedelin, Karlstad University, Sweden

Anna Bratt, Linköping University, Sweden

Bo Sundström, Norrbotten County Administration Board, Sweden

Ederi Ojasoo, Peipsi Center for Transboundary Cooperation, Estonia

Heikki Mäkinen, Finnish Environment Institute, Finland

Jan-Erik Gustafsson, KTH -Department of Land and Wa-

ter Resources Engineering, Sweden

Julia Obrovac, Swedish Environmental Protection Agency, Sweden

Jürgen Neumüller, INFRASTRUKTUR & UMWELT, Germany

Knut Bjørn Stokke, Norwegian Institute for Urban and Regional Research, Norway

Kristina Veidemane, Baltic Environment Forum, Latvia

Lilian Olle, Jõgevamaa County Environmental Department, Estonia

Mariina Hiiob, Ministry of the Environment of Estonia, Estonia

Mindaugas Gudas, Environmental Protection Agency,

Lithuania

Nadine Herbke, Ecologic - Institute for International and European Environmental Policy, Germany

Ole Damsgaard, Nordregio

Patrick Lindblom, Nordregio

Piotr Krok, Polish Environmental Ministry, Poland

Riikka Ikonen, Nordregio

Riitta-Sisko Wirkkala, Finnish Environment Institute, Finland

Sindre Langaas, County Administrative Board of Stock-

holm, Sweden

Susanna Nilsson, KTH -Department of Land and Water Resources Engineering, Sweden

Teresa Kalisky, Regionplane- och trafikkontoret, Stockholm's läns landsting, Sweden

Timothy Moss, Institute for Regional Development and Structural Planning, Germany

Xiomara Holmbäck, County Administration Board of Stockholm, Sweden

Ülle Leisk, Tallinn University of Technology, Estonia

Main findings Workshop II, 20-21 November, 2006

During the TRABANT WP2 Workshop II 20-21st, November 2006, experts from eleven Baltic Sea Region countries had the opportunity to discuss, in parallel roundtable discussions, issues relating to the implementation of the WFD by looking at the dynamics occurring within and between the institutional frameworks for water management and spatial planning. A first set of preliminary results, obtained from the country studies performed within the TRABANT WP2 project, were presented and used as a starting point for the discussions under two main reference themes, namely, "Fit: Vertical relation and integration" and "Interplay: Interface between water management and spatial planning". The goal of the parallel roundtable discussion was also to identify similarities and differences between the "new" water management systems in the investigated countries, identify strengths and weaknesses in the implementation process of the WFD as well as the tools and strategies adopted in order to overcome problems of spatial fit and institutional interplay.

During the roundtable discussions several general observations on the implementation of the WFD and the integration of the water management and spatial planning sectors were made. Here it was noted that evidence exists highlighting a generally positive attitude towards the WFD. On the other hand, both the institutionalisation and practical execution of the WFD has clearly been very complex and challenging. Moreover, the implementation process is still at a very early stage and therefore it is perhaps too soon to draw conclusions on its overall practical execution.

The EU level provides the normative blueprint for water management through the WFD. Implementation has, at least until this stage, implied an increased role for central governments and regional authorities. However, a new hierarchy is emerging and each country is unique in terms of the changes made to the institutional setting for water management. It is also important to stress that the goal is not to achieve perfect spatial fit, which refers to the overlap between the territorial borders of river basin authorities

and the river basin districts. In the investigated context, the notion of 'fit' here shall not be considered as an "ideal", but more as an indicator of how the implementation process is progressing in this sense. There is then no precise key to what the best model should be.

Public participation is a new and central element in water management in most of the investigated countries. In general, awareness of environmental issues has risen in all countries but it is sometimes complicated for the competent authorities to cope with public participation. For instance, the public seldom associates the environmental impact of diverse activities to the water quality, especially if this is not seen in the short run. Moreover, due to the complexity of dealing with environmental information in terms of public participation, countries are forced to individually adopt the procedures that better suit their own conditions. It is also important to consider here the advantages of transferring 'experiences' of public participation from the spatial planning sector to the water management sector.

In the workshop it quickly became evident that water management and spatial planning do not inhabit two totally separate worlds, even if a clear distinction can be drawn between them. Water management and spatial planning have traditionally functioned around two different planning approaches; namely spatial planning is characterized by consensus and is given the task of balancing different kinds of needs, i.e. social, economic and ecological while water management has been more focused on command and control. However, despite the fact that these sectors occasionally have difficulty in understanding each other, institutional settings and instruments in many countries already provide support for coordination and collaboration.

To conclude, the WFD has clearly contributed to raising the awareness of the interdependency existing between water management and spatial planning while each country now seems to be finding its own specific route through the implementation process. Additionally, the discussions

raised during the workshop shed light on the fact that implementation will require not only a lot of preparation and the exchange of experience between actors in various spheres in the investigated countries, but also considerable efforts in respect of cooperation between nations. Particu-

larly in that sense, participants stressed the need to promote further international meetings and research projects that could help in creating a common platform for the further evaluation and continuation of WFD implementation.

Participant list Workshop II

Aliaksandr Pakhomau, Central Research Institute for Complex Use of Water Resources, Belarus

Alexandre Dubois, Nordregio

Anders Larsson, Municipality of Uppsala, Sweden

Ansa Pilke, Finnish Environment Institute, Finland

Barbara Kozłowska, Faculty of Process and Environmental Engineering Technical University, Poland

Ederi Ojasoo, Peipsi Center for Transboundary Cooperation, Estonia

Guna Krumina, Baltic Environment Forum, Latvia

Heikki Mäkinen, Finnish Environment Institute, Finland

Helene Ek, County Administrative Board of Östergötland, Sweden

Johanna Issakainen, Finnish Environment Institute, Finland

Jürgen Neumüller, INFRASTRUKTUR & UMWELT, Germany

Kirsten Flemming Hansen, Danish Forest and Nature Agency, Denmark

Knut B Stokke, Norwegian Institute for Urban and Regional Research, Norway

Lilian Olle, Jõgeva County Environmental Department, Estonia

Lubov Smirnova, Neva-Ladoga Basin Water Administration, Russian Federation

Margarita Smirnovienė, Baltic Environment Forum, Lithuania

Mariina Hiiob, Ministry of Environment, Estonia

Marika Tamm, Läänemaa County Environmental Department, Estonia

Mette Starch Truelsen, Skov- og Naturstyrelsen, Denmark

Michael Viehhauser, Nordregio

Mindaugas Gudas, Environmental Protection Agency, Lithuania

Morten Edvardsen, Norwegian University of Life Sciences (UMB), Norway

Natalia Alexeeva, Center for Transboundary Cooperation-St. Petersburg, Russian Federation

Nataliya Gutman, Urbanistika, Russian Federation

Ola Skauge, Directorate for Nature Management, Norway

Ole Damsgaard, Nordregio

Patrick Lindblom, Nordregio

Richard Langlais, Nordregio

Riikka Ikonen, Nordregio

Riitta-Sisko Wirkkala, South East Finland Regional Environmental Centre, Finland

Sigita Šulca, Latvian Environment, Geology and Meteorology Agency, Latvia

Sindre Langaas, County Administrative Board of Stockholm, Sweden

Susanna Nilsson, KTH, Department of Land and Water Resources Engineering, Sweden

Veli-Pekka Tynkkynen, Nordregio

Ülle Leisk, Tallinn University of Technology, Estonia

The Water Framework Directive in the Baltic Sea Region Countries - vertical implementation, horizontal integration and transnational cooperation

Nordregio Report 2007:2

The overall objective of the EU Water Framework Directive (WFD) is to achieve good water status for all waters in Europe by 2015. In this report WFD application in Belarus, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, the Russian Federation and Sweden is investigated.

The report includes 11 country studies. The point of departure is the demand for an integrated approach to managing river basin districts (RBD) and the setting up of river basin management plans (RBMP). The first aspect investigated is vertical integration between the organizations involved in water management.

The second relates to horizontal integration between water management and spatial planning. The importance of water management issues in spatial plans is highlighted in the Daugava and Nemunas river basins case study.

Transnational cooperation is important in the BSR as all countries share at least one RBD with a neighbour. Both the benefits of, and the challenges posed by, transnational cooperation are outlined in the case studies of the Narva and Odra river basins.

The study was performed in the context of the Interreg IIIB Baltic Sea Region project TRABANT - Transnational River Basin Districts on the Eastern Side of the Baltic Sea Network. Nordregio and the Royal Institute of Technology were responsible for the study. In addition, Tallinn University of Technology and the Baltic Environmental Forum (Latvia) contributed.



NORDREGIO
Nordic Centre for Spatial Development

Nordregio
P.O. Box 1658
SE-111 86 Stockholm, Sweden
nordregio@nordregio.se
www.nordregio.se
www.norden.org



norden

Nordic Council of Ministers



ROYAL INSTITUTE
OF TECHNOLOGY

ISSN 1403-2503

ISBN 978-91-89332-63-8



Project part-financed by the European Union
(European Regional Development Fund)
within the BSR INTERREG III B Programme