Transboundary Governance and the Problem of Scale for the Implementation of the European Water Framework Directive at the Dutch-German Border

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Abstract

River Basin Management (RBM) requires cooperation within a catchment area of all relevant stakeholders. When such a catchment crosses national boundaries, the complexity of this cooperation process increases dramatically. This originates from cultural, political and institutional differences. These processes are analysed for the implementation of the European Water Framework Directive(WFD) along the Dutch-German boundary, particularly the river basin district Delta Rhine, in which the Netherlands is collaborating with the German States North-Rhine Westphalia and Lower Saxony. From the perspective of governance it is shown that the difficulty lies in its multi-level, multi-actor and multi-sectoral dimensions. Each level has its own specific problems and therefore needs its own specific approach and, at the same time, an overall view is needed to arrive at integrated results. Detailed descriptions are given of observed differences and similarities between the countries. It is concluded that *transboundary governance* is not an easy task, but that it is a real possibility for making joint agreements on a catchment scale.

1 Introduction

The European Water Framework Directive (European Commission, 2000) has the *catchment approach* as a starting point, which means that land and water are viewed as one interconnected management area. Through this strong connection of land and water a variety of questions comes up, where the questions of water management are no longer central, but where they are a part of a much larger package of questions. In this case water policy is strongly connected to other policy fields that also make an appeal to the spatial area: physical planning, environment, agriculture, nature, recreation, economic development, etc. Especially when space is scarce, which is the case in the Netherlands, integration of these policy fields is not an easy task.

Catchment areas, or watersheds, being the areas for which the river receives the water, are widely accepted as the hydrological units, which are the best choice for integrated river basin management. In these areas the processes are occurring, which ultimately have their effect on the quantitative and qualitative properties of the flowing rivers. The belief that catchment areas, or watersheds, make a sound basis for water resources planning and management is not new, as evidenced by waves of scientific, policy and public interests going back to the 1930s (NRC, 1999). However, after many years of high expectations, the real implementation of river basin management plans remains a real struggle.

It may be stated that real implementation of river basin management plans is the great challenge of modern integrated water management (Van Leussen, 1996). Notwithstanding good ideas, many policy plans fail in the phase of implementation, where such ideas should be transferred into real action. One of the reasons is that the implementation should be realized amidst a number of stakeholders with generally a diversity of ideas and interests. This results in complex processes of negotiation and bargaining. Through its connection with other policy fields, the complexity of the decision-making process increases dramatically. Central in the difficulty of policy implementation is ¨the difficulty of joint action¨. It illustrates river basin management is not only a typical technological question, but public policy and management science are as much as important, integrating the technological with the environmental, economic and social aspects in the river basin.

The complexity increases much more when the catchments cross national boundaries and transboundary cooperation is a prerequisite to arrive at joint river basin management plans. Such a situation occurs at the boundary between The Netherlands and Germany. Experiences will be presented of such a transboundary cooperation for the implementation of the WFD in the subbasin Delta Rhine.

On the basis of the transboundary cooperation between Germany and the Netherlands a joint Characterisation Report for the subbasin Rhinedelta has been delivered in December 2004 and a joint Monitoring Programme for this area in December 2006. Now a joint River Basin Management Plan is being prepared for this area. The analysis in this paper will be directed to all activities for the preparation of the Characterisation Report.

2 Institutional structure in the Netherlands and in Germany

2.1 The Netherlands

The institutional structure for water management in The Netherlands has a long history. Already in the 11th and 12th century local communities started to organise themselves to manage water systems, especially to defend themselves against flooding from the sea and the rivers. In the 13th century, the first democratic district water boards were established. The rulers of the Netherlands soon recognised them as competent water authorities. They were democratic stakeholder organisations consisting of elected representatives from local farming communities (Kuks, 2004). The need for a central coordination leads in 1798 to the establishment of a national water authority "Rijkswaterstaat". These developments correspond with radical political changes at that time in the Netherlands: the formation of the Batavian Republic (1795-1806) and the Napoleonic era (1806-1814) with a much more centralized governing system (Bosch and Van der Ham, 1998).

However, up to present, the governing system of water management in the Netherlands can be defined as a multi-level governance system, with a relatively high degree of decentralisation. This corresponds with the Netherlands as "a decentralized Unitary State" (Andeweg and Irwin, 2005). Ministries operate at the national level, Provinces (12) and Water boards

(27) at the regional level and Municipalities (443) at the local level. From a historical perspective, provinces, water boards and municipalities have a rather autonomous jurisdiction. However, since World War II their autonomy has been more and more framed by a model of close cooperation with the central government, in which the central government takes the initiative in policy making, and decentral authorities cooperate by additional policy making and implementation within the national policy frames. Provinces and municipalities even depend on subsidies from the national budget. Water boards on the other hand cannot rely on such subsidies, and have to fully recover their activities by own taxations. Generally, the Netherlands can be described as a highly consensus-based community with a planning tradition for a wide range of aspects of society (Kuks, 2004). Another typical Dutch feature is the long tradition of government in consultation of various groups in society. This working with many consultation bodies is also known as the so-called Dutch "polder model".

At the *international level* cooperation exists already during many years in the international river basin commissions, as for example the IRC (international Rhine Commission) and the IMC (International Meuse Commission). Agreements have been made in River Action Plans. Ministers Conferences, which meet on an ad-hoc basis and function as the highest authority, play an important role, because they can take (politically) binding decisions. EU Directives are of increasing importance, of which the Water Framework Directive (EU, 2000) and the European Floods Directive (EU, 2006) are recent examples.

At the *national level,* a number of Ministries play an essential role in water management. The primary responsibility is at the Ministry of Transport, Public Works and Water Management. Their responsibility is the general water legislation and policy, and the planning and management of the State waters. It supervises also the 200 years old 'Rijkswaterstaat', the water engineering department taking care of all state waters and the state water infrastructure. The Ministry of Housing, Physical Planning and Environment is inter alia responsible for general environmental policy, legislation concerning air, soil, waste, noise, substances, radiation, Environmental Impact Assessment, drinking water, sewerage and physical planning (land use). The Ministry of Agriculture, Nature and Food Safety is responsible for Agriculture and Nature, trying to arrive at plans that serve both, often contradicting, policy fields. An example is the realisation of the so-called national ecological zones.

At the *regional level* Provinces and Water Boards are the main actors in water management. The provinces make strategic water management plans for the management of the regional waters, taking into account the national policies. Often such plans are part of a much wider environmental and land use plan for the respective region. They are also the managing authorities for the groundwater (quantity and quality) and for the management of surface water quality. More and more this last-mentioned task is delegated to the water boards. The water boards make water management plans for the regional and local surface waters. They are the managing authorities for the regional and local waters. The Provinces are the supervising authorities over the water boards. In the 1950s yet more than 2000 water boards existed. Due to their increasing tasks (for example additional to the water quantity also the water quality) and also the increasing complexity of their tasks, it was decided by government to enlarge their working areas. Therefore their size increased to be better equipped for all these functions. The number of water boards decreased to 27 now.

At the *local level* the municipalities, in consultation with the water boards, have the responsibility for the water management as part of their local land use plans. Such plans are directly binding for the citizens. The municipalities have a special responsibility for the sewerage systems.

2.2 Germany

The organisational structure for river basin management in Germany clearly reflects its federal structure. In Germany there was no federal water law until 1957. Since medieval times jurisdiction over waterways had rested with the territorial states and this was unformed by the introductory law to the German civil Code *(Bürgerliches Gesetzbuch*). At the close of the nineteenth and the beginning of the twentieth century, several German states enacted water statutes: these showed a tendency to subject flowing waters to administrative control (Teclaff, 1967). In 1957 Western Germany passed a federal water law: the Water Management Act *(Wasserhaushaltsgesetz),* which was revised on 23 September 1986 and since then amended several times. It functions as framework legislation and is designed to work in conjunction with the water laws of the *Länder* (the states). This means that the responsibility for water resources management is primarily located in the *Länder*.

Paradoxically, the German system on water management is characterized by a continuous tension between the *Länder* (the states) and the *Bund* (federal government) and an intensive co-operation. The *Länder* passionately strive to maintain their competencies and regard Federal and European legislation as a threat to their autonomy. Foreign relations are the exclusive competence of the *Bund*, but since European legislation strongly affects domestic policy, the *Länder* were able to force the *Bund* to consult them on issues of European policy. Yet, the *Länder* also co-operate intensively by the Länderarbeitsgemeinschaft Wasser (LAWA), by setting up joint working groups and by signing interstate treaties (Mostert, 1999).

The first responsible authority at the *federal level* for river basin management is the Federal Ministry of the Environment. This ministry deals with basic questions of water resources management as part of environmental policy and with trans-boundary co-operation.

The implementation of the water resources regulations is exclusively a matter for the *Länder* (16) and the municipalities. All *Länder* except the City States of Berlin and Hamburg have authorities supported by technical agencies. The hierarchy is as follows:

- Supreme Water Authority.
  Usually the Ministry of Environment *(Umweltministerium)* , responsible for strategic decisions in water management and supervision of lower water authorities and agencies;
- Upper water Authority.
  Usually regional government *(Bezirksregierungen*) responsible for regional water management functions, and administrative procedures.
- Lower water Authority.
  Usually cities, city districts and rural districts are responsible for permitting, licensing (for small uses), monitoring, technical advice, and other enforcement functions.

The tasks of the *municipalities* is mainly in the field of water supply and sewage treatment. They also own smaller waters and are responsible for their water quality and ecological status. Many municipalities delegate part of their tasks i.e. sewage treatment to water boards (*Wasserverbände*).

Transboundary water resources management at the border between a Federal State and a Unitary State is not an easy task, particularly due to different institutional regimes. This will be exemplified in the following

sections for the joint implementation of the European Water Framework Directive.

3 Cooperation at the boundary of the Netherlands and Germany

The Rhine river basin is divided into nine international subbasins: Alpenrhein, Hochrhein, Neckar, Oberrhein, Main, Mittelrhein, Mosel/Saar, Niederrhein and Delta Rhine. Delta Rhine is the most downstream area (see Fig. 1), through which the river flows out into the North Sea. Delta Rhine is bordered by hydrologic boundaries and not by political or national boundaries. It is an international working area with the larger part in the Netherlands (87%) and smaller parts in Germany: North-Rhine Westphalia (10%) and Lower Saxony (3%). Due to its large area, the Dutch part of Delta Rhine has been split up into 4 regions: Rhine-Nord, Rhine-Centre, Rhine-East and Rhine-West. Table 1 gives an overview of all the subareas of Delta Rhine.

Area	**Sub-area**	**Surface (km^2)**	**Total surface (km^2)**
The Netherlands – The Rhine Delta	Rijn Noord	7,458	
	Rijn Midden	5,851	
	Rijn Oost	6,773	
	Rijn West	8,191	
	The Netherlands		28,273 (87%)
North Rhine-Westphalia	IJsselmeerzuflüsse (delivers to Rijn Oost)	3,263	
	Deltarheinzuflüsse (delivers to Rijn West)	97	
	de Wild (Deltarheinzuflüsse) (delivers to Rijn Oost)	41	
	North Rhine-Westphalia		3,401
Lower Saxony	Vechte (delivers to Rhine East); Lower Saxony	1,053	1,053
	Germany		4,454 (13%)

Table 1 Sub areas of the Working Area *Delta Rhine* of the Rhine River basin.

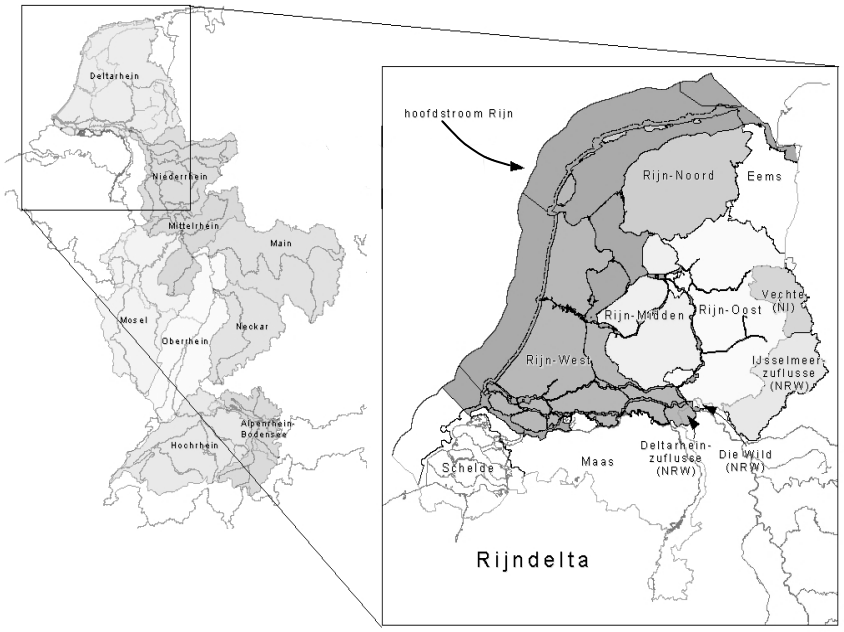

Figure 1 The Rhine River Basin and its 8 working areas, with special attention to the Working Area Delta Rhine

The collaboration to arrive at a joint characterization Report for Delta Rhine started not at the beginning of the implementation process. Each country tried to implement the WFD on its own manner. In both countries national guidelines were developed, respectively the handbook in the Netherlands and LAWA guidelines in Germany. Along the boundaries of both countries sound operational cooperation among water managers already exists for years. The same is the case for the international cooperation for the River Rhine (International Rhine Commission). However working together on the scale of river basins was completely new. In the second half of 2003 the first meetings were organised to exchange information on the implementation of the WFD and to look for possibilities to intensify the collaboration between both countries. Two inventarisation reports (CRM, 2004; CRM & MUNLV, 2004) has been made to compare the similarities and differences between the approach and results in both countries, and to obtain a clear view how all these activities

could be aggregated to one joint report. It will be shown how political, cultural and technological variations resulted in differences in the implementation process, but also how the aggregation of data was possible. Most important was the building of trust between all partners on the basis of an open and transparent approach. In this way a good start had been made for collaboration in the next steps to arrive at a joint Monitoring Programme and a joint River Basin Management Plan for this transboundary subbasin.

In the following an overview will be presented of observed differences and similarities during the implementation process of the WFD, which contribute to a better view of possibilities and problems for further cooperation on the scale of the river basin by respectively the Netherlands, North Rhine-Westphalia and Lower Saxony.

Significant differences between both countries are the *physical conditions*, the history of water management during the past centuries and therefore also a different view on the implementation of the WFD. In the Netherlands, the defence against floods and high water has the highest priority. However, integrated water management is now the common approach, giving attention to all functions of the water. The WFD is seen as an EU obligation with important socio-economic consequences. It was tried to integrate the implementation of the WFD in all levels of water management. The first step has been made to integrate these activities with those for the implementation of the WB21 (quantitative water management) policy (Commissie Waterbeheer 21^{e} Eeuw, 2000). In North Rhine-Westphalia and Lower Saxony the WFD has been used as an instrument to optimize water management.

Expert involvement in both countries was different. In the Netherlands experts translated the WFD and the European guidances into an operational handbook and new working documents. The *real implementation* occurred in the regional areas. The (national) experts remained to deliver input for this implementation, but generally speaking, the were at a distance from the operational implementation level. Through this decentralized approach there was a relatively high degree of diversity. In North Rhine-Westphalia and Lower Saxony it was organized more centrally with co-ordination from the Ministry of Environment.

In the Netherlands much time has been given to arrive at scientifically high qualified working documents with new techniques and procedures. Therefore the implementation started only at a relatively late time, and even during the entire implementation process many new working documents appeared. In North Rhine-Westphalia and Lower

Saxony the approach was more pragmatic, starting from existing knowledge and experience. Therefore the *planning* in both countries was not parallel, which hindered collaboration in an early point of time.

Cultural differences were also specific points of attention. In the Netherlands the technical implementation iterated with political discussion. In the design of the implementation process much care was given to a sound connection between the technical work and political forums, both in the national and regional hierarchy. In North Rhine-Westphalia and Lower Saxony the implementation process started with the technical work. A sound basis of water management content was considered important for political discussion. Therefore the broad political discussion just started in 2004, although stakeholders were already involved earlier.

The *institutional context* is different. In the Netherlands implementation is decentralised and new co-ordinating mechanisms (such as working areas and a river basin coordinator for the major rivers) were formed. Although the national level had the final responsibility, the provinces and the water boards at the regional level were active in coordination, each with their own power and competences. In North Rhine-Westphalia and Lower Saxony the implementation is also decentralized, but the content development and the political discussions were centrally coordinated by the Ministry of Environment. Also here water boards (*Wasserverbände*) exist. They contribute to the WFD-work, but don't participate in the political discussions. In North Rhine-Westphalia and Lower Saxony the *implementation organisation* was established within the existing organisational structure. The implementation work is decentralised to Geschäftsstellen of sub-working areas with co-ordination from the Ministry of Environment.

In the Netherlands the implementation is decentralized, making a distinction between a national and regional hierarchy, each with their political and professional levels. An essential governance problem for the co-ordination of Dutch and German counterparts is called the *zipper problem,* coping with differences in *responsible political levels*. In the Netherlands the national government has the primary responsibility for the water policy. In Germany this is the responsibility of the States (*Länder*). This means that competent authorities on the Dutch part do not have counterparts at the same hierarchical level on the German side (and vice versa). Discussions on coordination , potential problems or future conflicts are extremely complex, simply because the right negotiation partner cannot easily be found.

Initially, the previous points were basic to differences in *ambition levels.* From a political point of view it can be said that in the Netherlands

and Lower Saxony the ambitions are tempered through the concern about socio-economic consequences. In North Rhine-Westphalia the ambitions were high, expecting the WFD to be used for improvements of the ecological status of the water systems. However, after political changes on the basis of the elections in 2006, their ambitions became comparable with those in Lower Saxony and the Netherlands. From a scientific point of view the ambitions are high in the Netherlands, trying to base the implementation of the WFD on newly developed dedicated techniques and procedures. In North Rhine-Westphalia and Lower Saxony the scientific approach is more pragmatic, using existing methods and starting the development of new techniques after 2004.

Technical and methodological choices were different. In the Netherlands all surface waters, including small ditches, moorland pools and springs, were involved in the identification of *surface water bodies*. Comparable small waters were clustered into one "virtual" water body, indicated as "virtual plane" (Ministerie van Verkeer en Waterstaat, 2005). Larger waters were indicated separately. In North Rhine-Westphalia and Lower Saxony only rivers > 10 km^2 catchment area and lakes > 0.5 km^2 surface area were taken into account and subject to typology. Therefore an important difference appeared between the maps with water bodies between the Netherlands and Germany. In Lower Saxony the water bodies were combined to water body groups (WBGs), which were the basis for the assessment and planning of measures. A comparison of the number of water bodies and its density is given in Table 2. It shows that the density of water bodies in Germany was much higher than in the Netherlands. In 2005 the so-called virtual planes have been cancelled, and an approach has been chosen, which is more or less comparable to that in North Rhine-Westphalia. This made working together for a joint River Basin Management Plan much easier.

In the Netherlands the choice has been made to define large *groundwater bodies*. In the future a subdivision is possible. In North Rhine-Westphalia much smaller groundwater bodies are defined with a surface area of 50-300 km^2. To adjust the groundwater bodies in the Netherlands to those in North Rhine-Westphalia, in the Netherlands smaller groundwater bodies were defined along the national boundary. In Lower Saxony the sub-working areas of surface waters were summarized to units of groundwater. For the moment the catchment area of the River Vecht was defined as one groundwater body.

	The Netherlands	Germany	
	Area Rhine East	North Rhine-Westphalia	Lower Saxony
catchment area (km^2)	6773	3263	1053
Number of surface water bodies	100	135	42
Number of surface water bodies per 100 km^2	1.5	4.2	3.98

Table 2. Number of water bodies in the Netherlands (Rhine East) and Germany (North Rhine-Westphalia and Lower Saxony) (data from Ministerie van Verkeer en Waterstaat, 2005).

Concerning the *impact of human pressure,* the methods of description of actual chemical pressure are similar in both countries. Also the hydromorphological pressures show no major differences, although in Germany more detailed information is available (Gewässerstruktur-gütekarte).

All these differences, caused by political, cultural and institutional differences, made the *governance of the transboundary river basin management* not easy. Experience from the jointly executed Dinkel project already learned that this would give no serious problems for the 2005 Report, although, of course, differences at the boundaries between each of the areas should be explained. In this way it proved to be possible to produce a coherent and transparent characterisation of Delta Rhine.

4 Discussion

The process from water management to river basin management, as well as the process of the implementation of the European Water Framework directive is characterized by a variety of *downscaling and upscaling processes*, both in time and space. Examples are the new European deadlines, the choices of the water bodies within the subbasins, and the governance structures at the national, regional and local level. These showed a lot of differences at both sides of the border. However, in both

countries similar increases were observed in the number of groups of relevant actors and their common or competing interests with all their consequences. This "grappling with increasing complexity and interdependencies" is central in present-day river basin management. No longer are the political boundaries representative for the area to be governed, but hydrological boundaries. Together with the connection of land and water, through which a number of other policy fields are included in the decision-making process, this makes *governance* the most challenging task for responsible authorities and other stakeholders: making things happen in real situations.

The *European dimension* adds an extra level to this process of governance. Now we distinguish four levels: the international (European), national, regional and local level. This has severe consequences. In fact it means that water management must be done according *new playing rules*. The role of the national States will change, because some tasks and responsibilities (for example concerning legislation and compliance) move to the European level. At the same time their relation to the regional and local level is under discussion. At the same time a rethinking occurs about the required public participation processes. Of course, cultural and political differences have important impacts on the outcome and the course of this process. For example, due to its specific location, in the Netherlands the defence against floods has a long history and needs the highest priority, whereas the WFD seemed to set the ecological status, on the basis of its obligating character, at the top of priorities. So the question arose how to match these European and national priorities within the mix of national and European obligations. It is more than a rational choice, because the way of water management has long historical roots, which are impossible to be changed completely in a very short period of time at all these levels of governance.

From a governance point of view, the differences came already clear in the *preparation phase of the (European) legislation*, i.c. the Water Framework Directive. For the Netherlands this European process differs significantly from what is experienced in the Netherlands. In the consensus approach in the Netherlands one is familiar with the process to arrive at agreements, in which all the groups of stakeholders can find themselves as much as possible. In any case in such a way that the decisions have a sufficient base within society. The decision-making at the EU level is the result of a complex lobby process at the European level with intense deliberations between the European Parliament and the Council of Ministers (Kaïka and

Page, 2002). On the basis of the outcome of this process legally binding agreements are made with strict deadlines and corresponding obligations. It results in a 'policy space", which is felt to give less freedom for negotiations at the regional and local level than usually experienced.

More and more it came clear that sufficient *policy space* within European legislation can only be obtained in the political debate (at the European level) during the formulation of the concerned Directive (cf. Van Nuffel, 2000). Trying to modify the agreed legislation afterwards has almost no sense, because it is principally conflicting with the political decision-making process. It is remarkable how often such an impossible approach is proposed at the regional and local level when international legislation is felt to be not dedicated for the specific local circumstances. The experiences of consequences during the implementation process resulted in an increase of the national and regional interest in the policymaking process at the European level.

The *environmental strategic approach* of the WFD is not only directed to the European decision-making process, but, of course, affects also the working processes at the regional and local levels. A number of interested stakeholders, such as the regional environmental organisations, are preparing themselves for the correct implementation of the WFD. Legal procedures are expected to be a powerful instrument to control whether the national, regional and local decisions are in accordance with the European Directive. These are so powerful, because the European legislation has proved to posses effective sanctions to force the European countries to carry out the European decisions. An example is the study of the Dutch NGO Reinwater (Stichting Reinwater, 2004), executed with subsidy of the Dutch Ministry of Housing, Physical Planning and Environment, in which the possibilities are indicated for giving an impulse for the improvement of the aquatic environment. It may be concluded that the environmental strategic approach is an example of well-considered *multi-level* and *multi-actor governance*.

It can be questioned whether such a result from a lobbying process at the highest level has sufficient basis at the other levels. For example, the *basic philosophy* is an integrated approach, where individuals and institutes take responsibility for the economic, environmental and social consequences of their actions, both at present and for future generations. This is only possible through integrated management, where a number of disciplines (economy, ecology, sociology, psychology, etc.) act together, partnerships

are formed of the various stakeholders, and sufficient attention is given to public outreach. Through this holistic approach the environmental targets are fully integrated with social and economic goals, and political aspects are included through communication with the political representatives and the general public. For the longer term, an one-sided environmental approach will prove to be political unsustainable. It seems the European WFD in its present form is not completely in balance.

Delli Prescoli (1993) indicates this problem as a confrontation between developments in *Democracy and Ecology*. Developments in modern democracy ask for personal freedom, public participation and innovation, whereas developments in ecology ask for a concerned ecological awareness and care for our natural resources. Working along both lines is required to arrive at healthy ecosystems and sustainable economies. Such a collaboration should ensure that all key factors – social, economic, and ecological – are considered.

Also it is questionable whether the WFD creates a right mix of governing instruments. The ultimate goal of the WFD is changing behaviour and knowledge of stakeholders in order to get a good ecological status. The question is whether the emphasis on regulation and economic aspects is enough to generate the desired changes of behaviour. Does the WFD leave enough space in terms of time and room for interpretation to enable *effective social learning processes* on the local and regional catchment scales?

This brings us to the question of governance at the various political levels: international, national, regional and local. It means a *nested approach*, in which the governance approach at a certain level fits into that at higher levels. Generally it means an overarching policy at the highest level, being a framework for a more detailed water policy at lower levels, where the real implementation will happen. Tuning of the various levels, with all their various groups of stakeholders, need conscientious attention. It means the implementation of the WFD is dedicated to a particular location, for example a sub-catchment or water body. For this reason the high attention to *public participation* can be seen as an essential element to implement the WFD in accordance with regional and local considerations.

This multi-level approach may require changes in the way the responsible governmental agencies fulfil their governance task. Intensive collaboration with all relevant stakeholders at the different levels is becoming more and

more essential. In such networks hierarchical governance will no longer flourish, and more attention must be given to forms of co-governance, where horizontal structures dominate the network and joint decisions have to be taken as the result of a bargaining process. From the point of public participation and the support of the 'community of place' (Kemmis, 1990) a next step could be made and striving after systems of self-governance at the regional and/or local level. There people are feeling connected to their surroundings and responsible for the quality of their place of living. Such connections between the local people and the water are of increasing importance for successful implementation. The challenge is to couple the local plans to much larger river basin plans, where building mutual trust is most essential. Research shows that multi level involvement of stakeholders in explicit learning processes connecting experiences in the field with policy making leads to constructive and effective implementation processes (SLIM, 2004). The (national) authority has a primary role of facilitator. These developments correspond to a more *collaborative approach* with recognizing the complexity of the contemporary decision-making process, the highly interdependent society and the many levels with relevant stakeholders.

Although the final text of the WFD is the outcome of an intensive political bargaining process, the result reads like a scientific text. Therefore the first activities, making the Characterisation Report, started in a scientific way. The so-called pilot projects are good examples of this approach. However more and more the socio-economic consequences came visible. Examples are the Letter of the Danish Ministry of Environment (DME-DEPA, 2003), indicating "the interaction and possible conflicts between the WFD objectives and the human activities in the modern society, whether it will be related to agriculture, industry, hydropower or other activities". Another example is the study AQUAREIN (Alterra, 2003), showing from scenarios that application of the WFD could result in a reduction of agriculture in the Netherlands by 67% or more. This *gap between the scientific and political approach* of the implementation of the WFD needs more attention in the coming years.

Experiences in cooperation between the Netherlands and Germany to implement the WFD for the river basin district Delta Rhine showed that both scientific and political approaches are different in both countries. It means the aforementioned 'gap" is still larger in the case of *transboundary governance*. Differences in the scientific approach are caused by the fact that from the beginning the implementation of the WFD, and particularly

the development of the national guiding documents, occurred independently of each other. This resulted in significant differences in the characterisation report, such as the identification of the surface water bodies and of the groundwater bodies, the economic analysis and the risk assessment. Being transparent about these different approaches, it did not give serious problems for the 2004 Report (Ministeire van Verkeer en Waterstaat, 2005). For the next steps in the implementation process (monitoring programmes, defining measures and making the River Basin Management Plan), the first steps (scientific description such as the status of the water bodies) were tuned more to each other. Notwithstanding political differences and different historical roots of water management in the respective countries, intensive discussions about the status of the water bodies and the ambition levels resulted in a more homogenised approach for Rhine Delta. This process of 'social learning' is experienced as an important benefit of the joint implementation.

5 Conclusions

The implementation of the Water Framework Directive in modern society with a number of governmental levels (international, national, regional and local), a great variety of stakeholders and inclusion of several other policy fields, places *multi-level, multi-actor and multi-sectoral governance* central in present-day water management. The challenge of governance is to make ideas and visions, in our case healthy water bodies, reality amidst many institutions and stakeholders.

Making joint river basin management plans for catchments which cross national boundaries ask for *transboundary governance*, which gives yet an extra dimension to the governance question. It means, amidst the specific differences between two or more countries and all related stakeholders, to work on agreements of joint objectives for the whole transboundary catchment area and to see that the corresponding measures will be realized in good time. In the specific case of the WFD, sometimes it also means working with principally different opinions about the implementation of this Directive into national water policy.

Therefore, transboundary governance for joint river basin management is not an easy task. Experiences from making a joint Characterisation Report (WFD Art. 5) for the river basin district Delta Rhine learned that this has its origin in *cultural, political, and institutional differences:*

cultural
Whereas in the Netherlands the consensus approach has a long tradition, in Germany the decision-making process is more hierarchical. For example in the Netherlands decisions are taken in joint meetings of governmental representatives of the national, regional and local level, whereas in Germany the political discussions were centrally coordinated at the Ministry of Environment. The long history in the Netherlands of struggling with (extreme) floods during many centuries gives them a special focus on water resources management.

political
Whereas in the Netherlands the technical work mixed already in an early point of time with political discussions, in Germany the political discussions started only after completing the technical work. This made the cooperation more difficult, because the progress in both countries was often in a different stage. Also differences in political ambitions in relation to water resources management contributed to different views on the implementation process.

institutional
In the Netherlands the national government has the primary responsibility for the water policy. In Germany this is the responsibility of the States (Länder). This means that competent authorities on the Dutch part do not have counterparts at the same hierarchical level on the German side (and vice versa). Discussions on coordination, potential problems or future conflicts will become complex, simply because the right negotiation partner cannot easily be found.

All these differences did not give serious problems for the 2004 WFD Characterisation Report. Of course, different starting points could be detected in the final maps of the transboundary catchment. However, differences at the national (political) boundaries could be explained by clear argumentation. In this way it proved to be possible to produce a coherent and transparent characterisation of Delta Rhine, which is experienced to be a good starting point for the next phases in the implementation of the WFD.

Generally it must be concluded that, notwithstanding its complexity, resulting from political, cultural and institutional differences, *transboundary catchment or river basin management* has proved to have a

significant surplus value, applying an *adaptive approach* and having the willingness of *learning from each other*. In such a situation *building trust* is a prerequisite for developing a working transboundary governance structure.

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