Twynstra Gudde

Management Consultants

ROYAL HASKONING

Towards Integrated Water Legislation in The Netherlands

Lessons from other countries

Appendix: Case study reports

Document title	:	Towards Integrated Water Legislation in The Netherlands
		Lessons from other countries
		Appendix: Case study reports
Project name	:	Quick-scan of integrated water laws in different countries
Status	:	Final Report
Date	:	28 November 2004

Author(s)	:	Jaap de Heer, Stefan Nijwening, Sander De Vuyst
		Marleen van Rijswick, Tom Smit and Jaap Groenendijk
Client	:	Ministry of Transport, Public Works and Water Management / RIZA

CONTENTS

1 INTRODUCTION

This appendix is part of a study in which (integrated) water acts in different countries are explored to identify lessons to be learned for the further development of the Integrated Water Act in The Netherlands. This appendix gives an overview of the results of the first and second part of the study, respectively the results of the quick-scan of water legislation in 22 countries and a more in-depth analysis of 15 selected countries for which case studies were prepared.

In chapter 2 the results of the quick scan will be presented. First, it will be made clear on what grounds a list of 22 countries is made for the quick scan. Then, a brief and comprehensive overview will be given of the results of the quick scan of water legislation. Chapter 3 continues with the results of the next phase of the study, preparing the case studies for 15 countries. First, the methodology used for the case studies will be described. Then all case studies are given in a separate chapter (5-19). These case study reports start with an overview of the current water legislation in the Netherlands in chapter 4, in order to give the reader a backdrop on the Dutch starting point from which an Integrated Water Act should be developed.

2 FIRST PART OF THE STUDY: QUICK SCAN

2.1 Introduction

The following countries have been studied during the quick-scan:

Australia	France	Romania
Austria	Germany	Scotland
Belgium	Indonesia	South Africa
California	Italy	Spain
Czech Republic	New Zealand	Sweden
Denmark	Northern Ireland	Switzerland
England & Wales	Norway	Zimbabwe
Finland		

A number of criteria have been applied in determining, first, this list of 22 countries and, later on, select the 15 countries to be analysed in the second part of the study. The criteria determine to what extent their experience is relevant for the further development of the Integrated Water Act in the Netherlands. In determining that list, we have, in particular, paid attention to countries that:

- have enacted an integrated water act;
- share rivers and / or coastal waters with the Netherlands;
- share rivers and / or countries with neighbouring countries;
- are implementing the EU Water Framework Directive and / or EU principles of integrated coastal zone management.

Furthermore, we have taken into account:

- main water issues (i.e. comparable to the Netherlands);
- drivers for (recent) change, especially the WFD but also sector reform and / or other efforts to decentralise water management or to introduce river basin management;
- constitutional arrangement (e.g. federal vs unitary states) and degree of (de)centralisation of water management;
- degree and modes of participation in water management and preparing water legislation;
- other interesting elements, such as a cooperation agreement with the Dutch Ministry of Transport, Public Works and Water Management and a long history of river basin planning.

2.2 Results

For each country a brief fact sheet was prepared giving the degree to which the country meets the abovementioned criteria, a general overview of the organisation of water management, an overview of the most important water acts including a short description and a list of the points of interest regarding the goal of the study.

These results are summarised in the table on the next pages. It gives a full overview of all countries studied and the extent to which they meet the selection criteria. In the column ‘recommendation’ the most import reasons for (not) selecting the country for the case study phase are given.

	Country	*Integrated Water Legislation*	*Transboun-dary waters*	*EU / Committed to WFD*	*River Basin Management*	*Relevant water issues*	*High degree of decentralisation*	*Recent changes*	*Recommendation*	*In 2nd phase*
Countries which share rivers and / or coastal waters with The Netherlands										
1	Belgium (Flanders)	Yes	Yes	Yes	Yes		Yes	Yes. The WFD proved to be a major driver for the integrated water decree (2003) and for the reform of the water sector.	* Flanders implemented a basin approach resulting in water sector reform, including the setting up of new organisations in designated river basins. * Flanders has an integrated water decree and has embraced the concept of integrated water resources management	YES
2	England & Wales	Yes	No	Yes	Yes		Yes; in the process of decentralisation	Yes. The Water Act is of 2003.	* England and Wales have an integrated water act, comprehending basin management and water services	YES
3	France	No	Yes	Yes	Yes. Long history of river basin management		No	In 2002 the WFD was transposed into legislation.	* France has already, before the WFD, a long history of and experience with river basin management. This is interesting for the Dutch case.	YES

	Country	*Integrated Water Legislation*	*Transboun-dary waters*	*EU / Committed to WFD*	*River Basin Management*	*Relevant water issues*	*High degree of decentralisation*	*Recent changes*	*Recommendation*	*In 2nd phase*
4	Germany	No	Yes	Yes	Yes		Yes. Federalised country with a history of decentralised water management; the Lander have a large degree of autonomy	WFD implemented in existing Federal Water Management Act	* Federal country with a history of decentralised water management	YES
5	Switzerland	No	Yes	Yes	No		Yes. Cantons have considerable autonomy in water management.	No	* Highly decentralised country and water management (including flood protection)	YES
Other countries in which the Water Framework Directive applies										
6	Austria	No	Yes	Yes	Yes		Yes. Federalised country with decentralised water management	Yes. Major revisions of the Water Act in 2003	* Transposed the WFD recently through major revisions of the existing water act	YES
7	Czech Republic	Yes	Yes	Yes	Yes	Flood problems		Yes; a new integrated water act was passed in 2001	* The Czech Republic has a new integrated water act, which incorporates the WFD	YES

	Country	*Integrated Water Legislation*	*Transboun-dary waters*	*EU / Committed to WFD*	*River Basin Management*	*Relevant water issues*	*High degree of decentralisation*	*Recent changes*	*Recommendation*	*In 2nd phase*
8	Denmark	No	Yes	Yes	Yes	Integrated Coastal zone management, including flood defense	Yes	Yes. The WFD was implemented into legislation in 2003	* Denmark has adopted the principles of ICZM, which are brought into practice through a system of existing acts and regulations. Also much attention for flood defense in the coastal zone * WFD is transposed into legislation and river basin management is incorporated into an existing (planning) approach.	YES
9	Finland	No	Yes	Yes	No		Yes	No	* A new Water Act based on the WFD is underway, but not yet approved by Parliament. * Data availability is low	NO
10	Italy	?	Mainly seas	Yes	Yes		Yes	No	* The natural Italian circum-stances with its many, separated basins, differ largely from the Dutch situation where water management issues are more overlapping and coinciding. * Data availability is low	NO

	Country	*Integrated Water Legislation*	*Transboun-dary waters*	*EU / Committed to WFD*	*River Basin Management*	*Relevant water issues*	*High degree of decentralisation*	*Recent changes*	*Recommendation*	*In 2nd phase*
11	Northern Ireland	No	Yes	Yes	Yes		No	The WFD was recently implemented	* Northern Ireland is facing a major water sector reform, but this is about a different business and financing model of the water services. Therefore, this case is less interesting.	NO
12	Norway	No	Yes	Yes	No	Integrated Coastal zone management		No	* It seems that spatial planning is closely interrelated with water management / policy and coastal zone management * Norway has adopted the principles of ICZM	YES
13	Scotland	Yes	Yes	Yes	Yes. River basin management is being introduced			Yes. The WFD was recently transposed.	* Scotland has an integrated water act which transposes the WFD.	YES
14	Spain	No	Yes	Yes	Yes			No	* Spain's water issues differ largely from Dutch issues (water distribution, desertification). * Low English Data availability	NO

	Country	*Integrated Water Legislation*	*Transboun-dary waters*	*EU / Committed to WFD*	*River Basin Management*	*Relevant water issues*	*High degree of decentralisation*	*Recent changes*	*Recommendation*	*In 2nd phase*
15	Sweden	Yes, In Environm ental Code	Yes	Yes	Yes			Yes	* The implementation of the Environmental Code in Sweden is described as "revolutionary". Water issues are fully integrated in this Code. Also incorporated is the WFD. Therefore the Swedish approach it is a very interesting case to examine.	YES
Other countries with integrated water legislation										
16	Australia	Yes	Oceans and sea	No	Yes			No	* All Australian States and Territories and the Australian federal government have agreed on a Water Reform Framework which can be counted as integrated water legislation * The case of the Murray Darling Basin Iniative is the largest integrated catchment management program in the world and is a well knowm example of river basin management.	YES

	Country	*Integrated Water Legislation*	*Transboun-dary waters*	*EU / Committed to WFD*	*River Basin Management*	*Relevant water issues*	*High degree of decentralisation*	*Recent changes*	*Recommendation*	*In 2nd phase*
17	Indonesia	Yes	No	No	Yes		Yes		* There is a cooperation agreement between the Dutch MinVenW and the Indonesian Public Works. * Focus on decentralisation and river basin management	YES
18	New Zealand	Yes	Yes, sea and ocean	No	No		Yes	No	* The New Zealand Natural Resources Act comprehends the management of all natural resources; for the Dutch case, this is too much.	NO
19	South-Africa	Yes	Yes	No	Yes		Yes	No	* The South African Water Act counts as a well known example of an integrated water act	YES
20	Zimbabwe	Yes	Yes	No	Yes			No	The Zimbabwean Water Act is formed along the lines of the South African Water Act. Including both wouldn't contribute much.. South Africa is to be preferred over Zimbabwe, because of a greater data availability.	NO

Other countries										
	Country	***Integrated Water Legislation***	***Transboun-dary waters***	***EU / Committed to WFD***	***River Basin Management***	***Relevant water issues***	***High degree of decentralisation***	***Recent changes***	***Recommendation***	***In 2nd phase***
21	California	All water legisla-tion is compre-hended in the Water Code	?	No					* The California Water Code is a very comprehensive piece of legislation but seems no more than the umbrella of several water acts, acts and regulations. The code doesn't seem to have an integrating part in it and is thus less interesting for the Dutch case. * Main water issues (scarcity) differ very much from Dutch situation	NO
22	Romania	Yes (also integra-ted ICZM act)	Yes	Yes	Yes	Floods and coasts			* Ongoing cooperation between RIKZ and Apele Romane * Integrated coastal zone management act	YES*

* Romania was supposed to be included in the case study reports. However, after studying the case, it appeared that the Romanian water act and its practice wouldn't prove to be interesting for the further development of the Dutch integrated water act. Therefore, the case Romania is not included in the further case study analysis. Instead, the case of North Rhine-Westphalia was included to provide more insight in the relation between the federal level in Germany and the *Länder* (state) level.

3 SECOND PART OF THE STUDY: CASE STUDY ANALYSIS

3.1 Introduction: Methodology used for the case studies

The case studies of the 15 selected countries provide a description of the water legislation in foreign countries. Some of these countries have integrated water acts or claim to have one; other countries have more fragmented water legislation. However, water legislation for all these countries are described in a similar manner following one framework. This ensures that a good comparison can be made between the selected countries. The case studies are however not exhaustive in their description and do not fit scientific standards for making a case study. Nevertheless, they are based on a thorough data collection and analysis (see further) and provide a good and relatively complete view of the water legislation in the 15 countries. The case studies are used as an information source for drawing lessons from foreign water legislation for the further development of the Integrated Water Act in the Netherlands.

3.1.1 Framework of analysis

The case studies of the 15 selected countries are prepared following the analytical framework in figure I. Based on the characteristics of each country's water legislation and the information available, variations occur in the degree to which (aspects of) legislation can be described in more detail.

Figure I: Analytical framework for the 15 case studies

PART 1: CONTEXT OF WATER LEGISLATION
1. Water issues and drivers for and process of change
2. Governance

PART 2: CONTENTS OF WATER LEGISLATION
3. Organic elements
4. Framework vs operational legislation
5. Scope / degree of integration
6. Horizontal coordination & cooperation (including international)
7. Planning
8. Instruments
9. Other elements (emergency response, funding mechanisms, risk & liability, etc.)

PART 3: TABLE OF CONTENTS WATER LEGISLATION

Part 1: Context of water legislation
In the first part of the case studies, an overview of the context of water legislation is given. The main issues in water management, drivers for and processes of changing water legislation (for instance the implementation of the Water Framework Directive) and a general view on governance are described for each country. These contextual elements should provide some background information on the contents of water legislation. Moreover, context and contents of

legislation actually cannot be viewed separately from each other. The context helps to study and explain the contents of legislation and/or the way in which it has evolved, since legislation is influenced by its context. In addition, a view on the context of water legislation and water management in a country is useful with a view to identifying lessons for the Netherlands. Since context and contents of legislation cannot be separated, differences between the Dutch context and the context in a specific country also represent the difficulties in drawing lessons and transferring aspects of law to an Integrated Water Act in the Netherlands.

Part 2: Contents of water legislation
The second part of the case study provides a description of the contents of the (integrated) water act(s) in a particular country. This is done following the seven elements in figure I. These elements should cover the most important and interesting elements of the foreign water acts.

- Organic elements

The organisation of water management and water policy has a legal basis. When this is included in the provisions of the studied acts or when it was possible to pinpoint these aspects of the water sector to a certain act or a reform process of legislation, it is described under this heading. In some cases there was information on the organisation of the water sector, but not related to the legal basis of this organisation. In these cases, the organisation of water management and water policy is described under 'governance' in part 1. It is then related to the general description of government and governance of the country.

- Framework versus operational legislation

This element gives an impression of the extent to which the most important water act holds detailed provisions on specific aspects or whether it holds more global provisions. Acts are considered framework acts when they mainly hold general provisions on water management and water policy and/or when they describe a framework within which authorities in the field of water management should operate. Operational acts are acts which hold more detailed provisions on specific aspects of water management. This division in framework legislation versus operational legislation is described in qualitative terms, rather than according to concrete testing criteria.

- Scope / degree of integration

Different aspects in water management and different angles can be chosen to be included or excluded in water legislation. Whether or not a water act can be considered as integrated, is not easy to determine. That's why the degree of integration is described in qualitative terms under this heading. The aspects the act covers are described, using four dichotomies:

- *water quality management – water quantity management (including flood control and water works);*
- *surface water – groundwater;*
- *basin management – water services;*
- *fresh water versus marine water.*

With the description of the aspects which the acts cover and also the way in which these aspects related to each other, a qualification can be made on the degree of integration of the water act.

- Horizontal coordination & cooperation

After describing the integration of water aspects, attention is also given to external integration of water management and water policy with other policy fields, such as spatial planning, environment and nature. Coordination and/or cooperation provisions, standards, procedures, instruments, etc. are described.

- Planning

Special attention is given to planning as an instrument in water management and water-related policy fields. In addition to the coordination aspects between water management and mainly spatial planning is described. Also the incorporation of river basin planning conform the WFD into the existing planning system is described if sufficient information was available.

- Instruments

The most prominent instruments in water legislation in several countries are described concerning their contents and meaning for water management. Instruments that were encountered frequently are:

- Permits and licenses:
  All countries have a system of permits and licenses for certain uses of water (for example the abstraction / discharge of water). The terms 'permit' and 'license' are used interchangeably in the case studies[1].
- Economic instruments:
  These instruments comprehend charges, fees, levies and penalties (including non-economic penal measures) and other economic (related) instruments such as expropriation.
- Information and communication:
  Instruments involving information and communication are for example data collection on water resources, communication processes between stakeholders, participation of stakeholders in water management and the preparation of water policy / acts, etc.
- Monitoring and enforcement:
  These instruments are in place to give effect to policy and acts formulated at a central level to the lower levels of administration and other stakeholders.
- Standards:
  Standards can be set in the water field, for example for ensuring a good water quality.

Besides the abovementioned instruments, certain countries have specific, interesting instruments in the field of water management. These are described separately.

- Other elements: finance; emergency response, …

Under this heading, elements which are considered interesting or remarkable are described. This also includes financing of water management, which also could have been a separate aspect for analysis. However, it turned out to be difficult to access relevant information.

After the description in part 2 an overview of the used sources is given. (There is also a full list of references and used literature per country included at the end of this report.)

[1] In the cases, we followed the English translation of the act; sometimes the term permit was used, and sometimes the term license. We have found however no difference between these terms, except for the case of Germany and North Rhine-Westphalia where an explicit distinction is made between permits and licenses. This difference is described in these case studies.

Part 3
For each country, the table of contents of the most important water acts is given. This should give an idea of the structure of the studied foreign water acts, as well as the elements and aspects which are included in this legislation. It should be noted however that the table of contents can also give a distorted view on the respective act, because it doesn't clarify the degree of detail of a certain article, paragraph or chapter. Also, it depends on the division of the table of contents in parts, chapters, paragraphs, sub-paragraphs, etc. how much the table of contents clarifies on the aspects in the act. Therefore, for a good understanding of the legislation, reading part 1 and 2 is required.

When possible, the English translation of the table of contents is given. However, for certain countries these were not found. This has led to including table of contents in Dutch and German and for not including the table of contents in the case study of Norway.

3.1.2 Data collection and analysis

The case studies are the result of a desktop study. This means that the data came from written sources only. Naturally the texts of water acts were an important source of information, as were other country case study reports, books, papers, policy documents and internet sites, for example digital libraries for legislation and of the authorities which are responsible for water management in the selected countries. These data were found using search engines on the internet. A lot of data was required this way and it covers for each country most of the aspects of the abovementioned framework. Though, there are some gaps in the available data, so not all aspects of the framework can be described in detail for each country. Where information was lacking, this is mentioned in the text.

The data which was found and is used for the case studies was mainly in English, but also in German, French and Dutch. Translation of terms out of these texts is done carefully and the original words are placed between brackets and in italics after the translation. In footnotes, the used sources for particular pieces of text are given. When the source itself is somewhat unclear, the internet address at which the source was found is mentioned as well. At the end of the second part of each case study, a list of the used sources is given.

3.2 Results

Chapters 5-18 provide the full 15 case studies. The countries which are described and analysed are:

Australia (Murray-Darling)	England & Wales	Norway
Austria	France	Scotland
Belgium (Flanders)	Germany	South Africa
Czech Republic	North Rhine-Westphalia	Sweden
Denmark	Indonesia	Switzerland

However, chapter 4 first gives an overview of current Dutch water legislation in order to give the reader an overview of the Dutch case and the consideration regarding the Integrated Water Act.

4 TOWARDS INTEGRATED WATER LEGISLATION IN THE NETHERLANDS

4.1 Introduction

By letter of 6 July 2004, the Vice-Minister of Transport, Public Works and Water Management informed the Dutch Parliament of her intention to integrate the currently heavily fragmented and sectoral water management legislation.[2] To this end, what is known as the Outline Note concerning the Integration of Water Legislation was drafted. A number of reasons lie behind this wish to integrate the legislation on water management. In the first place, it should be pointed out that the Cabinet's Outline Coalition Agreement entitled 'Join in, more work, fewer rules' opted to reduce the burden of regulation. In this context, the developments concerning the review of the finance structures for regional water management must also be taken into consideration.
Intentions to review the relationship between the citizen and the authorities, as well as the relationship between the different authorities that are in charge of water management provides another reason for a review of water management legislation. The intention is to clarify and modernise the responsibilities between the citizen and the authorities and between the different authorities (among other things as regards, duties of care, responsibilities and supervisory relationships).
An important substantive reason for a review of the legislation is the policy-inspired change from the sectoral, object-focused management of water control works to a more integrated, function-based management of water systems. This change has occurred over the last thirty years and it has to be noted that the legislation is no longer equipped for these policy and management developments. This is all the more pressing, based on European legislation, especially the Water Framework Directive. It has therefore been decided to introduce integrated management of water systems and river basins, in which both the quality and quantity aspects play a role. In this context, attention also needs to be paid to initiatives at European level concerning flood risk management.[3] Achieving the objectives of the Directive will require more legislation than the Water Framework Directive Transposition Act[4] and it is expected that an Integrated Water Act will be better able to achieve this.
The Outline Note concerning the Integration of Water Legislation offers the basis for it[5], as it proposes the drafting of an Integrated Water Act, which is directed at water system management in the broadest sense and will also regulate the infrastructure embedding the water system. All this implies that the integration of water legislation is going to be a comprehensive project, and one which, nevertheless, will have to be completed within a very short period of time.
The Integrated Water Act aims to integrate a multitude of statutory regulations in the field of (primarily) 'wet' water management law. To this end, connections are being sought with the concept of water system management and below is a list of the legislation that is to be part of the integration process.

[2] Parliament proceedings II, 2003-2004, 29 694, No. 1.
[3] Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, COM (2004) @@@@.
[4] TK 2002-2003, 28 808, Nos. 1-3; EK 2003-2004, 28 808 A.
[5] See inter alia the references to literature and opinions of the Council for Public Administration and the Advisory Committee on Water Management Legislation.

4.2 What is to be integrated?

The Integrated Water Act aims to combine and integrate the following Acts:

- Water Management Act
- Pollution of Surface Waters Act
- Marine Pollution Act
- Groundwater Act
- Act of 14 July 1904 containing provisions on reclamation and construction of dykes
- Flood Defences Act

The following legislation will be either amended or repealed:

- Public Works (Management) Act (Wet beheer rijkswaterstaatswerken)
- Public Works Act 1900 (Waterstaatswet 1900)

It needs to be further examined to what extent parts of the Soil Protection Act (Wet bodembescherming) (aquatic soils) and the Aggregates Extraction Act (Ontgrondingenwet) may be included in the Integrated Water Act, insofar as they concern water system management.

The purpose and thus the scope of the Act will be, in particular, the protection, improvement and management of water systems, as regards:

- Safety (in relation to flooding)
- Quality (in particular, the good status of all waters)
- Quantity (water transport, water level management, emergency overflow and water storage)
- Effective and safe use of water systems

Not only will this make the scope of the Act wider than that of the Water Framework Directive, but it will also be more in line with developments within water management in the Netherlands (Water Management for the 21st Century, abbreviated WB 21). In this way, new European developments in the field of safety and quantity management may also be anticipated.

Probable division into chapters of the Integrated Water Act

I. Definitions
II. Objectives
III. Water system management
IV. Coordination and administrative supervision
V. Plans and programmes
VI. Water agreements
VII. Discharges and abstractions
VIII. Other acts (prohibitions, obligations to report and register)
IX. Research, maintenance and execution of engineering works
X. Exceptional circumstances (contingencies)
XI. Financial provisions (recovery of costs)
XII. Legal protection (objection and appeal)
XIII. Further and final provisions

4.3 Other relevant triggers for a revision of the water legislation

Simultaneously with the project of the transposition of the WFD various important developments took place. In practice, for example, the consequences of European law for water management are having an effect. At the same time, as a result of problems to do with flooding, a different form of water (quantity) management has been chosen. As the Dutch transposition of the Water Framework Directive at this moment takes place in existing legislation, a proper understanding requires an overview of the existing statutory regulations which are relevant for water management.

4.3.1 Re-evaluation of water management

Just like many other countries in Europe the Netherlands has to deal with a number of developments which determine the evolution of its water policy and the consequences for its water management.
In the Netherlands, the concept of the water system approach since 1985 has clarified the connection between the different aspects of water management. This concerns both the connection between the different components of water management and the connection between water management and flood defence. Integrated water management based on the water system approach also requires harmonisation with other policy areas, such as environmental policy, spatial planning, nature conservation, agricultural policy and traffic and transport policy.

However, there are also a number of developments which necessitate a re-evaluation of water management. Over the past century, worldwide water levels have risen by 10 to 25 centimetres, which is ascribed to an increase in the average temperature on earth. This increase in temperature will also be responsible for an increase in the levels of precipitation and evaporation. At the same time, a considerable subsidence of the soil surface is taking place in the Netherlands. This is partly a natural phenomenon and partly caused by human activities such as peat extraction, water drainage and the exploitation of natural gas and salt. In future, all these impacts will result in the need to cope with more water in the Netherlands. The combination of rising sea levels and increased precipitation may result in difficulties of drainage into the major rivers at times of high water. The developments mentioned above go hand in hand with Netherlands' tradition to drain water as quickly as possible with a view to utilising the soil for agriculture, building and infrastructure to the extent possible. However, the consequence is that the damage resulting from possible flooding will increase, while at the same time flooding is not considered as unacceptable as it used to be. Over the past twenty to thirty years, this intensified use of water combined with deeper and more intensive dewatering has led to less space for water, reduced storage capacity and increased drainage of excess water from higher-lying areas.

In addition to the problems resulting from an excess of water, the Netherlands is grappling with the problems caused by a water deficit. This results in groundwater depletion in natural areas and a lack of (surface) water for agricultural purposes during dry, warm spells. This causes intensive irrigation (using both groundwater and surface water) with the result that water levels will decrease even further.
Intensive quantity and emergency overflow policies are also considered necessary for preserving safe dykes and foundations in the old town centres. In the summer of 2003, the Netherlands – in

the village of Wilnis in the province of Utrecht – witnessed its first dyke breach, which was caused by a lack of water, rather than an excess of water.
Finally, despite all attention and efforts devoted to this since the 1970s, water quality is not yet at the desired level either.

It is becoming increasingly clear that safety, nature, agriculture, physical (spatial) planning and cultural history are closely connected with the management of water quantity and water quality.

4.3.2 Recent developments within European and Dutch water management

From the mid-1990s, an array of recent developments has been taking place in the field of water management in which one could easily lose one's way. These developments are occurring in both European and Dutch national law. They concern both quantity and quality management, and the field of safety and protection against flooding. Attention is also being paid to entirely new areas of water management, such as urban water management. The Water Framework Directive is certainly not the only development in the field of water law.

In 2000, the Government Note 'Anders omgaan met water' [Handling water differently] – abbreviated WB 21[6] – was published , as well as the government plan for the Vijfde Nota Ruimtelijke ordening [Fifth Note on Spatial Planning]. The Committee for water management in the 21st century examines the possibilities for maximum water storage.[7]
In February 2001, in response to WB 21, the centralised authorities, the Interprovincial Consultations, the Association of Water Boards and the Association of Netherlands Municipalities concluded the 'Startovereenkomst Waterbeleid 21-e eeuw' [Preliminary agreement concerning water policy in the 21st century], which was a first step towards a joint modern approach to the current water problems. The 'Beleidslijn Ruimte voor de Rivier' [Policy Line Space for Rivers] has by now entered the stage in which it is moving towards a key planning decision (a statutory requirement). On 2 July 2003 the 'Nationaal Bestuursakkoord Water' [National Administrative Agreement on Water] was concluded by the parties which were also involved in the preliminary agreement mentioned above.
The objective of the National Administrative Agreement on Water is 'to get the water system in order and to keep it in order' by 2015, whereby changing conditions, such as the expected climate change, rising sea levels, subsidence of the soil surface and an increase in paved surfaces are anticipated. To get matters in order agreements have been concluded 'concerning safety, flooding, water deficits, groundwater depletion, salt intrusion, the quality of water and aquatic sediments, the clean-up of aquatic sediments and ecology'.
The approach and the implementation take place in stages and with the aid of an integrated working method. It is envisaged that the implementation could well be combined with plans in other policy areas – such as the reconstruction of rural areas, the establishment of the main

[6] Directorate General for Public Works and Water Management, The Hague, December 2000. WB 21 stands for 'Water policy for the 21st century. The government position was published after the recommendations of the Committee for Water Management for the 21st century entitled, *Waterbeleid voor de 21e eeuw; Geef water de ruimte die het verdient* [Water policy for the 21st century; Give water the space it deserves], of 31 August 2000.
[7] Committee for Emergency Overflow Areas, The Hague, 2002. The Committee restricts itself to the main water system (major rivers by which transnational water is drained) and makes recommendations for emergency overflow areas where water can be stored in case of disaster situations.

ecological structure, the mining of aggregate minerals, rural development and other area-specific projects, cultural history, residential building and the building of industrial parks and infrastructure, for all of which account is taken of the 'birds and habitats directives'. Tasks have been divided between the central authorities, the provinces, the water boards and municipalities. Ultimately, the agreements establishing duties for the bodies involved must be laid down in the river basin management plans by 2009 at the latest. This ensures conformity with the requirements of the Water Framework Directive.

In the near future the Water Framework Directive Transposition Act should come into effect, although it should have been implemented in December 2003,[8] as well as the River Basin Districts (Boundaries) Decree - an order in council based on the future Section 2a of the Water Management Act -, a new EC Groundwater Directive and a new EC Bathing Water Directive. There are also plans for a separate EC directive for the establishment of action plans for flood defence.

4.4 Dutch water legislation

4.4.1 Duties and powers within water management[9]

The Constitution
The Dutch Constitution contains instructions to the public authorities about water.
Art. 21 of the Constitution formulates as overall instruction:
"The public concern concentrates on the inhabitability of the country and the protection and improvement of the environment"
This instruction does not only point on flood defence and water management but also asks to balance the inhabitability with the interests concerning environment, nature, landscape, history and land use.

The governmental structure of the Netherlands
The Netherlands is a decentralised unitary state with three hierarchical levels: the national, the provincial and local level. At each level there are bodies with legislative and executive power. The Netherlands is a constitutional monarchy with a parliamentary system. The central government, the executive, consists of the monarch and the ministers and is called the Crown. The Council of ministers, the Cabinet, decides on general government policies.

Legislative power
Legislative power is with the Government and Parliament together. An act may transfer the authority to issue decrees and regulations to other governing bodies, as the Crown, ministers, provincial authorities, water boards and municipalities. The regulations given by the Crown (in practice the responsible minister), called General Administrative Orders, are also common in the policy fields of water and environment. General Administrative Orders prevail over provincial

[8] Parliament proceedings II 2002-2003, 28808, nos. 1–3 (Transposition Act concerning the EC Water Framework Directive).
[9] See also H. Havekes, F. Koemans, R. Lazaroms, D. Poos en R. Uijterlinde, Water governance: the Dutch water board model, Dutch Association of Water Boards and Nederlandse Waterschapsbank N.V., Den Haag 2004; P. Huisman, Water legislation in the Netherlands, Delft University Press, 2004.

by-laws and regulations. Provincial regulations prevail over by-laws and regulations of water boards and municipalities.

Ministries concerned with water management
Three ministries have important tasks in the field of water management. The Ministry of Transport, Public Works and Water management is responsible for flood defence and water management.
The *Water administration act 1900* defines the task of the Rijkswaterstaat (Directorate-General for Public Works and Water Management), the advisory committee on water legislation, the competence of water authorities to have access to dwellings, provisions to protect, to maintain and to improve the flood defence and water management at national, provincial and water board level. It also defines the extra-ordinary competence of Rijkswaterstaat, province or water board in case of a (threatening) flood disaster.
The Directorate-General for Water (DGW) of the ministry is responsible for the preparation of the national policy on flood defence and water management. DGW supervises the implementation of the water policy by provinces and water boards. As an executive body, the Rijkswaterstaat has the responsibility for the management of the state waters and flood defences.
The Ministry of Housing, Spatial Planning and Environment is responsible for the national environmental policy: setting water quality objectives and discharge and emission standards, environmental impact assessment, drinking water, sewerage systems and land use (physical or spatial planning).
The Ministry of Agriculture, Nature Management and Food Safety is responsible for the national policy on agriculture, nature management, food safety, and rural areas. The ministry formulates the legislation concerning nature conservation with regard to protected species and areas.

Provinces
The *Province Act* defines the organisation and tasks of the 12 provinces.
The provinces define and supervise the responsibilities and activities related to the regional and local flood defence and water management.
The province co-ordinates the policies of the different sectors as water management, environment, nature conservation, housing, physical planning, transport etc. The province can formulate policies of their own but have to respect the directives from the central government. It has to ensure the implementation of national and provincial polices by water boards and municipalities.

Municipalities
The *Municipality Act* defines the organisation and tasks of the municipalities. The water management task at municipal level is the collection of waste water in municipal sewerage systems.

Water boards
The *Water board act* defines the creation, termination and the composition of the general assembly of the water boards by the provinces. The act gives competence to issue by-laws including those for financing the tasks carried out by the water boards. The responsibilities and competencies of the water boards are directed towards the tasks given them by the provinces. The water boards are the competent authorities for regional water issues. These issues concern flood defence and water management including waste water treatment. The water boards have to meet

the legally defined safety standards and the water quality standards. The election system is based on the profit principle interest-taxation-representation. The water boards are specific administrative units for local and regional water management. In the second half of the last century the water boards also became responsible for the water quality in local and regional surface waters including waste water treatment. According to the reflection of the profit principle the "polluter pays principle" representatives of households, industry and landowners participate in the administrative and executive bodies of the water boards (those who have an interest are represented and pay for regional water management).

4.4.2 Water management legislation

The Dutch legislation concerning the *management* of water was mainly enacted during the second half of the last century and – as was usual at the time – follows a sectoral design with a strong focus on the objects to be regulated. This means that separate rules have been established for every individual water management task. The tasks within water management vary to a great extent and include the management of flood defences and water. Water management in turn includes the responsibility for both surface waters and groundwater and addresses both quantitative and qualitative requirements. Quantity management includes the management of emergency overflow and storage. Quality management of surface water includes the abatement of water pollution and the treatment of waste water. Groundwater management is divided into qualitative and quantitative management, with the latter mainly focusing on the distribution of scarce groundwater resources. Qualitative groundwater management is divided into the protection of the soil and cleaning up of (aquatic) soils.

These duties have been attributed to different authorities which, until around the 1990s, carried them out more or less autonomously and with the aid of regulations which they established themselves. Below, a (brief) overview will be given of the division of duties and powers in the field of water management among the different statutory regulations and the assignment of powers to the different governmental bodies.

For a proper understanding of this system it is useful to know that a distinction is made in the Netherlands between the management of main waters and that of regional waters.
The primary responsibility for the main waters lies with the central government, which in practice assigns the pertinent duties to the different regional directorates of the Rijkswaterstaat (Directorate-General for Public Works and Water Management). The management system for the main waters is used for the major (international) transboundary rivers, Lake IJssel , the Amsterdam-Rhine Canal, the Wadden Sea, the Ems-Dollard estuary and the Delta waters. The water boards are the competent authorities for the regional waters.

The *General Administrative Act* provides the procedures to be followed for the issue, the modification and withdrawal of permits under the Groundwater Act, the Pollution of Surface Waters Act en the Environmental Management Act. At this moment some specific water acts still have their own system of administrative procedures.

4.5 The different water acts

4.5.1 Groundwater

Groundwater management is a *provincial competence*, although it is possible – and in some case, practice – to delegate this competence to the water boards. This often mainly concerns the management of shallow groundwater as this is strongly affected by the quantity management of surface waters.

The *Groundwater Act's* main goal is to regulate the distribution of scarce groundwater resources and only sets quality requirements with respect to the infiltration of water into groundwater (which actually takes place in the "*Infiltratiebesluit bodembescherming"* that is a governmental decision on infiltration based on the Soil Protection Act). The act especially focuses on abstractions by means of pumping installations and the recharge of aquifers. The planning system has been incorporated in the integrated planning system of the Water Management Act.
The Act contains the following instruments:

- Registration of abstractions, which give the competent authority (the province) insight in how may abstractions and infiltrations take place. For smaller abstractions the registration duty can be waved. All recharges must be registered (the registration is based on the *"Meet – en Registratiebesluit*" that is a decision on monitoring and registration).
- Abstraction and recharge permission. The permit for abstractions and recharges offers the competent authority the possibility to require specific arrangements for abstraction and recharge. For smaller abstractions there is the possibility to wave permit requirements.
- Obligations to tolerate abstraction and infiltration, and compensation of damage. This is a rather important instrument, because it gives the opportunity to grant a permit for the abstraction of groundwater (for example for drinking water supply) although serious damage may be caused by the abstraction. The holder of the permit must pay compensation for damage caused. The obligation to tolerate can also be used for research activities et cetera.
- Levy. A levy must be paid to finance the costs that are related to groundwater management. This provincial tax is based on the amount of abstracted groundwater.
- Monitoring

Further protection of groundwater quality must be implemented on the basis of instruments provided under the *Soil Protection Act*. This act contains a general duty to prevent, and if necessary, to clean up soil and ground water pollution. The act provides the structural basis and the administrative instruments to implement the soil and groundwater protection policy. The act distinguishes two levels of protection: a general and a specific level. Both levels differ from each other as to the acceptable risk for soil pollution caused by certain activities. The general protection level is based on regulatory measures set by the central government including soil quality standards.
The cleaning-up of aquatic soils is also regulated under the Soil Protection Act.

4.5.2 Surface water

The *Pollution of Surface Waters Act* was established for the protection of surface water quality and designates the Ministry of Transport, Public Works and Water Management and the executive boards of the water boards as the competent authorities. The Act contains instruments for the reduction of discharges and the improvement of water quality. These instruments enable the so-called "combined approach".
Main instruments are:

- Permissions regarding discharges. The permit for discharges of polluting substances is in accordance with the requirements of the European Directive 76/464/EEC. Several types of permits are possible including those granted for a limited period of time). Specific requirements can be part of the license. The permit sees on all discharges of polluting substances into surface water. The definition of surface water is very broad, as is the definition of discharge. A permit must be in accordance with the water management plan, made by the competent authority (Ministry of Transport, Public Works and Water Management or the water boards).In turn these plans should respect the national water management plan or the provincial water management plan. Besides this, the permit must contain discharge standards that take account of the environmental quality standards. Also several provisions of the Environmental Management Act must be taken into account. Conditions attached to permits for discharges can relate only to the protection of water quality and/ or measures to safeguard the efficient functioning of sewage treatment plants.
- General rules. Pursuant to the Pollution of Surface water Act the legal requirement for authorisations may be replaced by general rules. This is in fact what happened on a large scale.
  General rules currently existing are related to the prevention of pollution from: greenhouse horticulture, materials to be used for contraction work in surface waters, soil remediation and the associated removal of contaminated groundwater, domestic sewage, cleaning and conservation of bridges, sluices, landing stages et cetera, and field crops and livestock farming.
- Discharge standards. Discharge standards can be based on Orders in Council and Ministerial Decrees (the last when they are a transposition of European obligations). At this moment here are 17 Ministerial decrees on discharge standards.
- Water quality objectives. At national level water quality standards are established pursuant to the Environmental Protection Act, the Pollution of Surface Waters Act and the Water Management Act. The quality standards established pursuant to the Environmental Protection Act may be found in Orders in Council and in the provincial environmental ordinance. The standards have to be observed in decision making. Because they are legally binding, they will be referred to in this investigation as water quality requirements. Water quality standards are also included in non-binding plans pursuant to the Water Management Act and in other policy memoranda. These quality standards are not strictly legally binding on private persons and are referred to as water quality objectives. A number of European water quality standards, such as the water quality standards for List II ("grey list") substances pursuant to Art. 7 of Council Directive 76/464/EEC, has until recently not been laid down in binding legislation. The European Court of Justice has decided that European obligations have not been transposed correctly into Dutch law. It is necessary to transpose European water quality standards into binding legislation whereby it is provided for that quality standards must be observed. Legislation to this end is therefore currently under preparation.

- Levy. The levy is an important instrument of the Pollution of Surface Waters Act, because of its strong regulating effect. The Pollution of Surface Waters Act provides for that all discharges into surface waters and into the sewerage system (households as well as industries) are liable to pay a pollution levy. Waste water charges are levied by central government authorities for discharges into state waters and by regional water boards for discharges into regional, or non-state waters, and into sewers. Purpose of the levy is to raise revenues to finance measures necessary for the abatement and prevention of water pollution. In general terms, charges for direct and indirect discharges into waters are calculated by multiplying the pollution load expressed in pollution units by the unit tariff. They relate to discharges of oxygen-consuming substances and heavy metals. It is also possible to adjust the pollution levy to take account of chloride, sulphate, phosphorous and silver.
- The planning system is no longer part of the Pollution of Surface Waters Act but is part of the integrated planning system based on the Water Management Act.

4.5.3 Marine waters

The *Marine Pollution Act* regulates the protection of the quality of marine waters. This act designates the Minister of Transport, Public Works and Water Management as the competent authority. It is prohibited to discharge polluting substances into the sea. Discharge includes the incineration of these substances on ships and dumping from ships and aircraft. By Order of Council discharge of certain hazardous substances is strictly prohibited (art. 3). For other substances a permit is may be granted (art. 4). In case of an accident the discharge should be reported to the Minister. The import of hazardous waste into the Netherlands, or transportation over its territory, with a view to its dumping or incineration at sea, is prohibited unless a permit is granted by the Minister of Environment (art. 6b).
Further instruments in the Marine Pollution Act are:

- General rules
- Permit/license ("*ontheffing*")
- Reporting and notification.

4.5.4 Flood defence

Part of flood defences (where primary water retaining structures are concerned) have been regulated in the *Flood Defence Act* and the *Delta Act*, while the remaining part is regulated on the basis of autonomous competences of the *water boards* (by means of water board bye-laws based on the Water Boards Act), which are also the competent authorities.

4.5.5 Flood Defence Act

This act aims to maintain the flood defence standards achieved by the Delta-plan and the reinforcement of the dykes and dunes. Instruments of the Act are the following:

- A mechanism to keep a briefing watch, by which each flood defence authority has to report on the maintenance conditions of its defences every five years. The reports are summarised by the provincial and central Government in a stepwise approach and sent to Parliament.
- a procedure for integral and fast decision making on the subject of physical improvement of dykess,

- procedures to prepare for emergency situations,
- procedures to combat structural coastal erosion,
- safety standards which are laid down in an Annex to the Act itself. Further regulation of safety standards is possible by Order in Council. Further regulation concerning the need for strengthening dykes can be laid down in ministerial decrees.

The provinces are the competent authority to supervise the water boards, the water boards themselves are responsible for the management of flood defence works. Central government is responsible for the so-called primary water defence works and the general defence policy for the coastal zone.

Preparations for an amendment to the Flood Defence Act are currently in their final stages. The amendment relates to periodic evaluation of safety level targets, funding and strengthening of primary flood defences, dykes in Limburg and the procedure applicable to the project for the improvement of primary flood defences. The amendment will also provide for the repeal of the Delta Plan for the Major Rivers Act, the Delta Act, the Delta Project (Compensation) Act and the Oyster Farmers' Compensation Act, thereby tidying up the legislation on this subject considerably.

Delta Act
This act formulates the principles to protect the Netherlands against storm surges by closing estuaries and reinforcement of dykes and dunes.

Public works
The management of public water control works (including rivers and the North Sea and the Wadden Sea) is regulated in the *State Public Works Act* (management of Engineering Structures) and is the responsibility of central government. All activities, which are not in line with the normal use of state managed infrastructure is subject to licensing: e.g. cables, wires and pipes in navigation canals, rivers and dykes. In this act the previous River Act 1908 has been incorporated. Main goal of the Act is to provide for efficient and safe use of public (state) water works.

4.6 Water management in general

In the *Water Management Act*, the means have been laid down for quantitative surface water management. This is the task and therefore also the competence of the Ministry of Transport, Public Works and Water Management and the water boards. The Act gives rules for quantitative water management of surface waters and provides several instruments:

- Registration of abstractions and discharges of surface water, which gives the competent authority (the water boards) insight in how may abstractions and discharges take place. For small abstractions the obligation to register can be waved. All recharges must be registered.
- Permissions for large abstractions of, and discharges into surface water. The Water Management Act itself does not bring an obligation into force to apply for a permit; it just creates the possibility for the competent authorities to arrange for this obligation. Because of the need for regional differentiation such regulations come into effect by Order in Council, provincial by-laws or water board regulations.
- General rules. It is also possible to make general rules for certain categories of discharges or abstractions instead of granting permits for each individual case.

- Water agreements are covenants between water management authorities mainly concerning water quantity issues. However, they also offer the possibility to agree on water quality issues.
- (Water) level decisions. Especially in the lower parts of the Netherlands (below sea-level) one of the main tasks of the water boards is the regulation of water levels to guarantee the necessary use of land. To provide citizens and land users an idea of what they can expect from the water boards, water levels are laid down in formal decisions. Due to a significant influence of natural conditions (lots of rain et cetera) a certain water level can never be absolutely guaranteed.
- Charges. The Water Management Act offers the possibility to charge for abstractions of, and discharges into surface water.

The Water Management Act also provides (limited) means for achieving integrated water management. It does so by means of an integrated planning system, which will be further discussed below.

4.6.1 Integrated planning system, the Water Management Act

It is important to note that the Water Management Act – apart from regulating quantitative surface water management – is also the start of an 'Integrated Water Act'. The preamble to the Water Management Act indicates that it is 'desirable to lay down rules in the interests of the coherence and efficiency of policy and administration in respect of water management as a whole and to lay down further rules for the quantitative control of surface waters'. Section 1 broadly defines the concept of *water management* as 'government action in respect of unconfined surface waters and groundwater, having regard to the interests involved'.

The Act therefore has a twofold objective.
In the first place, it intends to contribute to a more coherent and effective policy and management with respect to surface water and groundwater in the Netherlands. By means of the Water Management Act the concept of 'integrated water management' is implemented within the water systems.
A *water system* is sometimes described as the coherent entity of surface water, groundwater, aquatic soils, banks and technical infrastructure, including the biocenoses present in it and all accompanying physical, chemical and biological characteristics and processes.[10] Integrated water management thus concerns coherent policy and management as conducted by the different government bodies with strategic duties and management functions in the field of water management from a perspective of the water system approach.[11]
In the second place, the Water Management Act provides rules for water quantity management, by which a gap in the legislation (Acts of Parliament), which had existed until that moment, was filled.

The most important objective of the Water Management Act is, however, to contribute to coherent and effective water policy and management. The Act provides the legal instruments for 'integrated water management', which aims to do justice to both internal and external

[10] *Omgaan met water*, Ministry of Transport, Public Works and Water Management, The Hague, 1985, p. 33.
[11] *Derde Nota Waterhuishouding*, Ministry of Transport, Public Works and Water Management, The Hague, 1989, p. 12.

interlinkages. It is intended to better express the 'internal' links within the policy area of water management, i.e. links between surface water and groundwater in both the quantitative and the qualitative sense. The Act also aims to do justice to 'external' links between the policy areas of water management and other areas of government action, especially the field of physical and spatial planning, environmental management and nature conservation.

4.6.2 Planning system

For the purpose of integrated water management, an integrated planning system has been included in the Act. An integrated planning system implies a type of plan for the various government levels which provide plans directed at the quality and quantity of both groundwater and surface water. At the central and the provincial level plans exist which are of a strategic nature, namely a Water Management Note and a provincial water management plan. In addition, the Water Management Act provides for management plans at central, provincial and water board level. The management plans are of an operational nature. There is a management plan for waters managed by central government and a management plan for regional waters. The water boards establish the latter. The management plans concern surface waters. As mentioned before, the provinces are the competent authority for the policy and management of groundwater quantity and quality. The operational groundwater management plan is included in he (strategic) provincial water management plan. All plans, both strategic and operational, are reviewed every four years. After the entry into force of the Bill for the transposition of the Water Framework Directive reviews will take place ever six years.

The plans aim to determine the framework for the competent authority within which they implement their policy. For third parties, the plans provide insight of the way in which the competent authority sees fit to exercise its competence. The plans are therefore of an indicative nature. The competent authority has to take into account its own plans and the plans of higher authorities. Third parties cannot directly derive rights from the plans. If the competent authority deviates from its policy plan, it has to reason its decision clearly.

4.7 External integration: harmonisation and coordination with other policy areas

At a policy level, the plans for water management are strongly linked with plans in other areas of the physical living environment, such as:

- spatial planning (spatial planning notes and key planning decisions,
- structure plans, regional plans, structure maps, zoning plans, spatial opinions, often based on the Spatial Planning Act),
- environmental plans (national, provincial and municipal environmental policy plans, sewerage plans, waste disposal plans, often based on the Environmental Management Act),
- nature conservation (nature policy plans based on the Nature Conservation Act), and
- traffic and transport (traffic and transport plans based on the Traffic and Transport Planning Act).

In these policy areas, too, a distinction may be made between statutory and non-statutory plans. Given that all these plans are often directed at the same physical environment, it is necessary that they be mutually harmonised. In the case of non-statutory plans, harmonisation will take place in many different ways, depending on the needs and efforts of the different competent authorities.

However, there are also two statutory mechanisms for harmonisation.

- Harmonisation with plans in other policy areas, such as the environment, spatial planning and traffic and transport is provided through a mechanism called the 'leapfrog construction'. This mechanism is laid down in the Spatial Planning Act, the Environmental Management Act, the Water Management Act and the Traffic and Transport Planning Act and prescribes that the latest established plan is directional, especially where neighbouring policy areas are concerned. This in itself, however, does not solve the problem of interlinkages. The differences in drafting procedures and legal impact of the contents of the plans turn the leapfrog construction into a less than failsafe mechanism for harmonisation.
- The Environmental Management Act prescribes the (compulsory) direct effect of statutory quality requirements and the environmental policy plans on decisions under a number of Acts (which are listed in an Annex to the Environmental Management Act).

Environmental Management Act

It should also be noted that the *Environmental Management Act*, although it is not directed at the protection of surface water quality, is also of great significance for water management. There are four reasons for this, concerning the permit for discharges into sewers, rules for coordination between the environmental permit and the discharge authorisation, the sections of the Environmental Management Act which have been declared applicable to the granting of authorisations under the Pollution of Surface Waters Act and the regulations concerning water quality requirements.

1) Mainly all discharges into sewers are regulated under the Environmental Management Act, either through a permit granted by the municipality, or subject to general rules by statutory order. Industrial activities that discharge certain hazardous substances into sewer, or that concern significant discharges of waste water either by volume or quantity of oxygen-consuming material that may affect waste water treatment operations, are licensed by the water boards under the Pollution of Surface Waters Act.
2) The Environmental Management Act has largely achieved the integration of environmental legislation in the Netherlands. Many environmental acts have been subsumed by the Environmental Management Act, with the exception of the Pollution of Surface Waters Act (and the Marine Pollution Act, the Groundwater Act and the Water management Act). Discharges of harmful substances, pollutants and waste substances into surface waters are subject to a separate authorisation based on (among others) the Pollution of Surface Waters Act. In order to be able to guarantee an integrated approach the Environmental Management Act and the Pollution of Surface Waters Act contain an arrangement which provides for the coordination of the authorisations by means of recommendations and consultations between the different competent authorities (the provinces or municipalities for environmental matters and central government or the water boards for matters concerning water).
3) The Pollution of Surface Waters Act also declares applicable many provisions from the Environmental Management Act concerning the granting of permits. This not only concerns procedures and legal protection, but also a large part of the framework for assessment (e.g., among other things, the Alara principle also covering the application of best available techniques), the different kinds of authorisations and requirements, and the aspects which must be taken into consideration in granting authorisation.

4) Finally, the current rules concerning the water quality objectives are mainly provided by the Environmental Management Act. In Dutch water quality management, there are statutory quality objectives: quality requirements which are established on the basis of Chapter 5 (headed 'quality requirements') of the Environmental Management Act. This is where the quality objectives for waters with a specific function (as made compulsory by European law) are laid down, i.e. bathing water, surface water intended for the production of drinking water, fish waters and shellfish waters. In addition, many – legally non-binding – quality objectives have been laid down in plans based on the Water Management Act (e.g. the *Derde Nota waterhuishouding* [Third Note on Water Management]), but also in extra-statutory plans (e.g. the Note *Omgaan met water* [Handling Water]. European law requires that Member States implement and establish water quality objectives, not just the ones following from the directives containing water quality objectives, but also those based on Article 7 of Council Directive 76/464/EEC. These quality objectives have to be implemented in legally binding provisions which citizens can rely upon before the national courts. Establishing quality objectives in legally non-binding plans – as is partly the case in the Netherlands – is not sufficient.

5 AUSTRALIA (MURRAY-DARLING INITIATIVE)

5.1 Context of water legislation

5.1.1 Water issues, drivers for and process of change

Australia is the driest inhabited continent in the world, with annual rainfall averaging only 455 mm. High evapotranspiration rates result in runoff of just 11% and groundwater recharge of 1% of average rainfall. Although Australia represents about 5% of the world's land area, it has only 1% of the global river runoff. Three factors are central to any discussion of Australian water resources: (1) the population is concentrated where rainfall and runoff are generally plentiful, along the south-east coastline; (2) overall population density is very low, so water resources per person are quite sufficient; and (3) rainfall is extremely variable in time and place - so averages are poor indicators.
It is the last factor that makes water resource management difficult. Typically, dams to provide reliable yields have to be double the equivalent for world average climatic conditions, and six times the capacity of European dams. Some of the country's best water resources are in the far north and on the west coast of Tasmania - both far from centres of population and agriculture.[12]
Besides the water scarcity and distribution issues, water quality seems a main issue for Australian water management. In 1992 a National Water Quality Management Strategy (NWQMS) was adopted. This Strategy holds policies, a process for water quality management, and a set of national guidelines that cover issues across the whole of the water cycle. In addition, in 2000 a National Action Plan for Salinity and Water Quality was adopted by the Commonwealth and the States/Territories. This is a commitment of applying regional solutions to salinity and water quality problems.[13]

Case Murray-Darling Initiative
The Murray-Darling Basin covers 1,061,469 km2, 14% of Australia's total area, and is situated in the south-east of Australia. Widespread degradation of the Basin's natural resources was apparent in the 1980s, with over 50% of the original vegetation cleared. About 80% of land lies in arid and semi-arid regions and most of it had become degraded (widespread soil erosion, river siltation, accelerated recharge of groundwater aquifers and subsequent discharge of saline groundwaters to rivers, dryland salinity, loss of flora and fauna habitat, and invasion of pest plants and animals).
Problems in the basin included:
- increasing competition for scare water resources;
- resistance to further land clearing controls by State Governments;
- increasing conflict over who should pay for remediation of degraded common resources;
- how to best mobilise and target the use of available resources for on-ground action;
- how to address poorly specified institutional arrangements for common property resource management.

These problems highlighted the need for Basin-wide policies and programmes under a complex institutional environment which had grown up historically under each State's jurisdiction regarding land and water management and a complex array of acts and policies which were not

[12] Website of the Australian Water Association; http://www.awa.asn.au/
[13] Website of the Australian Government, Department of the Environment and Heritage; http://www.deh.gov.au/water/quality/

coordinated across State borders. Increasing knowledge of the threats to river and catchment health gained through audits of water use and salinity in the Basin. It also highlighted the need to set targets for resource condition and implement environment mitigation practices and programmes.[14]

5.1.2 Governance

Australia has a democratic, federal-state system recognising the British monarch as sovereign. The Federal level is called the Commonwealth. Australia is comprised of 6 states and 2 territories, which are New South Wales, Queensland, South Australia, Tasmania, Victoria, Western Australia, the Australian Capital Territory and the Northern Territory. The National government has authority on issues regarding trade and commerce and the income tax is levied federally. Other issues are governed by the States or Territories. In practice however, the two levels of government cooperate in many areas where States and Territories are formally responsible, such as education, transport, health and law enforcement. The Council of Australian Governments (COAG) is the peak intergovernmental forum. The role of COAG is to initiate, develop and monitor the implementation of policy reforms that are of national significance and which require cooperative action by Australian governments, e.g. water reform.
Besides the COAG, intergovernmental bodies exist for more specific policy fields. For instance, several Ministerial Councils existed for natural resource management, such as for the field of agriculture, environment, conservation and forestry, fisheries, aquaculture. However, there was a desire on the part of the Australian/State/Territory governments to discuss matters generally and during 1999-2000, when the debate on the impact of natural resource degradation in Australia began earnest, it was decided that a Natural Resources Management Ministerial Council (NRMMC) was to be established. As a result, all natural resource management issues previously dealt with the existing Councils, were transferred to this new Council. This includes water management issues.[15]

Case Murray-Darling Basin Initiative
The Murray-Darling Basin Agreement is a cooperation agreement between the governments of the Commonwealth, four States and one Territory, namely New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory. There are thus six formal partner governments in the Agreement, with many departments and agencies involved. The Agreement is in effect an inter-jurisdictional compact between the Commonwealth and States that provides a means for dealing with matters of common interest.
The purpose of the Agreement (Clause 1) is “to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin”.
The cooperation agreement is shaped through the establishment of three bodies (see figure II):
- the Murray-Darling Basin Ministerial Council, which is the decision-making forum;
- the Murray-Darling Basin Commission, the executive arm of the Ministerial Council which advises the Council and carries out its decisions. The Commission is given a range of specific powers relating to the purpose of the agreement, and they include: to carry out

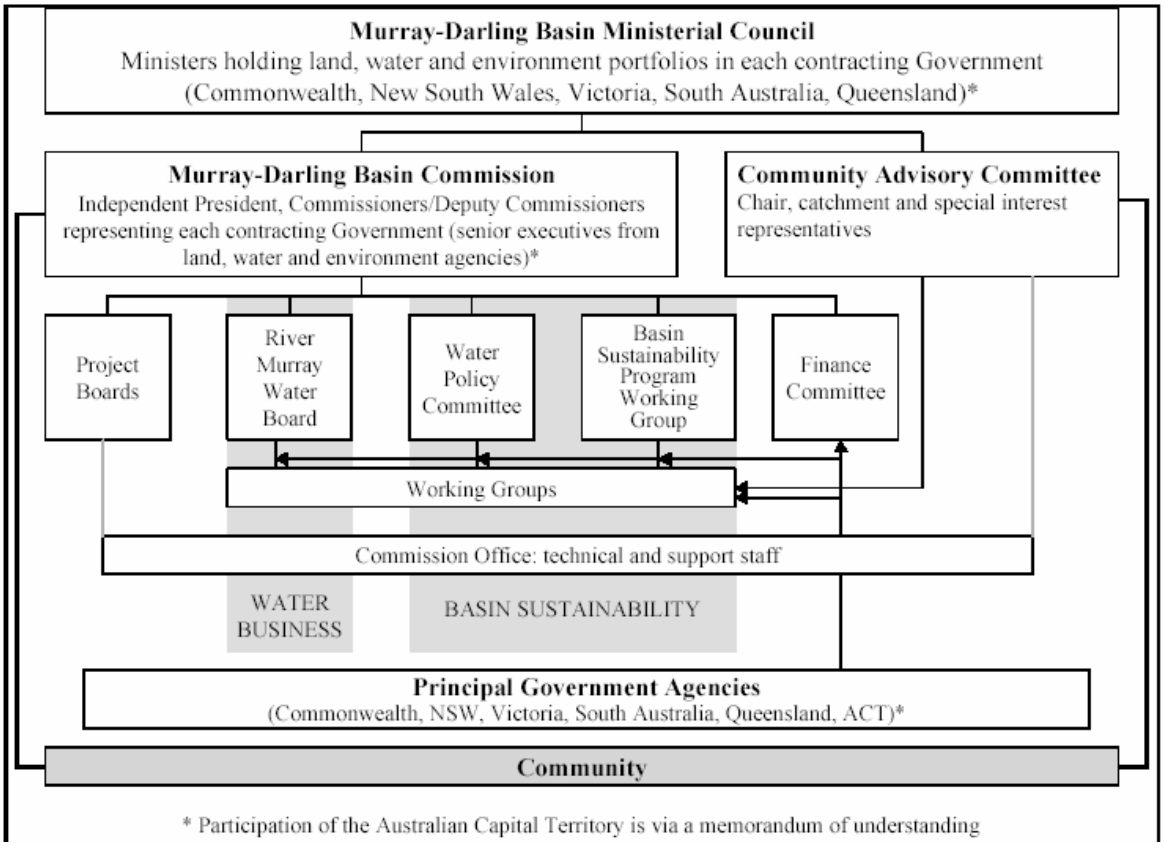
[14] Hooper, B (unknown) *The Murray-Darling Basin Commission, Australia, Case #25*, case study for the Australia Water Partnership; found at: http://gwpforum.netmasters05.netmasters.nl/
[15] Website of the NRM & PI Ministerial Councils; http://www.mincos.gov.au/

studies for the desirability and practicality of works and measures; to authorise the construction, improvement and replacement of works; to establish adequate and effective monitoring arrangements for quality, extent, diversity of water, land and other environmental resources; to contribute to costs of preventative and remedial works, including the acquisition by a contracting government of any interest in land related to the carrying out of works, or for the provision of flood relief.

- the Community Advisory Committee, which provides the Ministerial Council with advice and provides a two-way communication channel between the Council and the community.

The Ministerial Council and the Commission contain representatives from each of the partner governments. The Community Advisory Committee represents the Basin's wider community, and its chairperson attends meetings of both the Ministerial Council and the Commission. The Commission is also advised by a number of high-level Project Boards and Committees and is supported by the Office of the Commission.

Figure II: Governance of the Murray-Darling Basin Initiative (source: website Murray-Darling Basin Initiative)



The strategic and philosophical framework for achieving the purpose of the Agreement is the Natural Resources Management Strategy approved by the Ministerial Council in 1990. The Strategy provides the broad charter for a community-government partnership to develop plans for

the integrated management of the Basin's water, land and other environmental resources on a catchment basis.[16]

5.2 Contents of water legislation

The Federal level does not have legislative competences for water (resources) management; these reside with the State/Territory governments. However, in recognition of the national significance of sustainable water resource management, the Council of Australian Governments initiated the National Water Reform Framework in 1994; a strategic framework that seeks to establish integrated and consistent approaches to water resource management throughout Australia. Especially recognition of the needs of the environment in water use decisions was a main goal. Still however, the COAG noted that there are some challenges left to achieve an environmentally sustainable resource management. In particular there is a need to clarify water property rights, especially to deal with the tension between establishing certainty for water users and the need for adaptive management to address environmental needs. As a result, the COAG prepared a proposal to develop a National Water Initiative in 2003 and recently, 25th of June 2004, agreed to the Initiative.[17]
For the Murray-Darling case, the agreement of 1992 between the Commonwealth and the six States/Territories is of most importance. This agreement is followed by a Murray-Darling Basin Act which gave full legal status to the agreement and which was passed by all the contracting governments in 1993.[18] However, it seems that the act isn't a full translation of the clauses of the Agreement of 1992. Only basic provisions on organisation, functions and duties in the Basin are regulated, especially for the Basin Commission. The Agreement holds more specific and more operational agreements for topics such as the distribution of waters and the construction, operation and maintenance of works. Therefore, the hereunder described legislation not only focuses on the Murray-Darling Basin Act, but on the Agreement as well.

5.2.1 Organic elements

As for the Murray-Darling Basin case, the agreement of 1992 holds the organisational elements of the Murray-Darling Basin Initiative (see above; figure II). In the Murray-Darling Basin Act of 1993, especially the position, functions and duties of the Commission and the appointment of Commissioners is regulated[19]. The Murray-Darling Agreement states that the contracting governments agree to submit legislation needed to give effect to the Agreement or any Amendment to the Agreement to their respective Parliaments[20].

[16] Website Murray-Darling Basin Commission; http://www.mdbc.gov.au;
Scanlon, J. (2003) *Applied Integrated Water Resources Management – The Murray Darling Basin Initiative – Australia*, University of Neuchâtel
[17] Website of the Council of Australian Governments; http://www.coag.gov.au/
[18] Website Murray-Darling Basin Commission; http://www.mdbc.gov.au
[19] Parts 2 and 3, Murray-Darling Basin Act
[20] Clause 6, Murray-Darling Basin Agreement

5.2.2 Framework versus operational legislation

The Murray-Darling Basin Act only holds very basic provisions on the organisation in the Murray-Darling Basin which are consistent with the provisions of the Agreement.
The Murray-Darling Agreement is more elaborate and contains (more elaborately) the organisational elements, as well as specific operational regulations on topics such as water distribution and the construction, operation and maintenance of works. Still, the agreement seems to have a framework character, because it mainly describes which functions are to be carried out by which party, the Commission or the Ministerial Council. For instance, it is said that the Commission may authorise works in the Basin which cost no more than 2.000.000 dollars and that this authorisation competency shifts to the Ministerial Council when works are estimated to cost more than 2.000.000 Australian dollars[21].

5.2.3 Scope / degree of integration

The Murray-Darling Agreement is an agreement for a specific river basin with specific problems (see above). However, the solution for these problems is sought in an integrated form of planning and management of the use of water, land and other environmental resources of the Murray-Darling Basin[22]. As for 'the use of water', the Murray-Darling Basin Initiative is about surface water as well as groundwater; water quality as well as water quantity, including droughts and floods. Naturally, in the Murray-Darling Basin, the river basin approach is used. In fact, the Murray-Darling case counts as one of *the* examples of the river basin approach. In addition, the basin is the largest integrated catchment management programme in the world.[23]

5.2.4 Horizontal coordination

As mentioned above, in the Murray-Darling Basin is sought for an integrated solution for its problems. Water, land and environmental resources are brought together in formulating problem definitions and solutions. In the Integrated Catchment Management Policy which was approved by the Ministerial Council in 2001, this was further underlined, by stating that 'integration' is one of the principles for action in the Basin. 'Integration' means that catchments are to be managed holistically, that is: "decisions on the use of land, water and other environmental resources are made by considering the effect of that use on all those resources and on all people within the catchment".[24] In the above, we described what is meant by the 'use of water'. 'Use of land' comprehends also agriculture, and the 'use of environmental resources' includes flora and fauna, including fishery. For most of these policy fields, there are also additional and more specific strategies developed.

[21] Clause 50, Murray-Darling Basin Agreement
[22] Clause 1, Murray-Darling Basin Agreement
[23] Website Murray-Darling Basin Commission; http://www.mdbc.gov.au
[24] Murray-Darling Basin Ministerial Council (2001) *Integrated Catchment Management in the Murray-Darling Basin 2001-2010 – Delivering a sustainable future*

5.2.5 Planning

In Australia, planning competencies, whether in the field of water management, land use or the environment, reside with the States/Territories. As for the Murray-Darling case, an overall plan was drawn up in 1996 (and reviewed in 1999) to provide the framework for co-ordination of planning, monitoring, evaluation and reporting of natural resources management in the Basin. This Basin Sustainability Plan comprehends long-term Productivity and Resource Condition objectives for sustainable agriculture, water quality, nature conservation and cultural heritage. For each of these 'thematic' areas, specific objectives are formulated for irrigated and dryland regions of the Basin and to its riverine environments. Reporting against these objectives is designed to show short-term achievements, medium term achievements and the long term outcomes.
One of the key documents associated with the Basin Sustainability Plan is a salinity and drainage strategy. A key observation in the strategy is that salinity is too large a problem to be solved by one government; it requires coordinated interstate action and community cooperation. The central planks of the strategy are:

- salt interception schemes
- changed operating rules for several lakes with a view to reducing evaporation and, hence, salt concentration
- a suite of land management policies and programmes jointly funded by the States and the Commonwealth.[25]

5.2.6 Instruments

As the field of water management is actually an exclusive competency of the States/Territories each State/Territory has its own Water (Management) Act, including its own instruments. For the States/Territories which are situated in the Murray-Darling Basin, these acts all contain license regulations for abstracting surface water and groundwater. In some States, there are particular irrigation licenses. Furthermore, in most States there are linkages between water (licenses) and aspects of environmental protection. Moreover, each State has environmental legislation that has additional implications for water quality.[26]

Although instruments for water management are regulated by state legislation, the Murray-Darling Basin case holds an example of an interstate agreement on an instrument for water management, namely the Cap on water use.
Through the 1980's, the amount of water being diverted form the Basin began to increase significantly. The Ministerial Council of the Murray-Darling Basin was concerned about the effects that this had on the health of the Basin: water salinity was increasing, algal blooms were occurring more frequently and biodiversity appeared to be declining. Especially for the downstream state of South-Australia, the situation was thought to becoming serious. So, the Ministerial Council acknowledged that water usage could not continue to increase within the Basin. As a result, an overall Cap on water diversions has been introduced, limiting the volume of water to what would have been diverted under 1993-94 levels of development.

[25] Hatton MacDonald, D and M. Young (2001) *A case study of the Murray-Darling Basin*, Final Report for the International Water Management Institute
[26] ibid.

The Cap established a new framework for water sharing in the Basin. Individual government agencies are responsible for implementing the Cap in their State; this has involved changes to the way in which they allocate their water resources. The Murray-Darling Commission is responsible for auditing the compliance with the Cap. An Independent Audit Group (IAG) conducts an annual audit of the diversion in every designated Cap valley of the Basin comparing observed diversion against annual targets determined by valley Cap models. In the case of a breach of the Cap in any Cap valley, the provisions of the Murray-Darling Agreement require that the concerned State Government reports to every Council meeting subsequent to the declaration of the breach of Cap on (a) the reasons why the breach occurred (b) the actions taken, or proposed to be taken by the State to ensure that diversions are brought back into balance with the Cap and (c) the period within which diversion will be brought back into balance with the Cap.
Perhaps the most dramatic consequence of the Cap has been an increase in water trading and, also, the value of water.[27]

Sources of information

Legislation

- Murray-Darling Basin Act
- Murray-Darling Basin Agreement

Literature

- Hatton MacDonald, D and M. Young (2001) *A case study of the Murray-Darling Basin*, Final Report for the International Water Management Institute
- Hooper, B (unknown) *The Murray-Darling Basin Commission, Australia, Case #25*, case study for the Australia Water Partnership
- Murray-Darling Basin Ministerial Council (2001) *Integrated Catchment Management in the Murray-Darling Basin 2001-2010 – Delivering a sustainable future*
- Scanlon, J. (2003) *Applied Integrated Water Resources Management – The Murray Darling Basin Initiative – Australia*, University of Neuchâtel

Websites

- Website of the Department of the Environment and Heritage of the Australian Government; http://www.deh.gov.au/index.html
- Website of the Council of Australian Governments' (COAG); http://www.coag.gov.au/
- Website Murray-Darling Basin Commission; http://www.mdbc.gov.au/
- Website of the NRM & PI Ministerial Councils; http://www.mincos.gov.au/
- Website of the Australian Water Association; http://www.awa.asn.au/
- Website of the Australian Government on Natural Resource Management; http://www.nrm.gov.au/

[27] Hatton MacDonald, D and M. Young (2001) *A case study of the Murray-Darling Basin*, Final Report for the International Water Management Institute; Website of the Murray-Darling Initiative

5.3 Table of contents of the Murray-Darling Basin Act

MURRAY-DARLING BASIN ACT 1993
No. 38 of 1993

6 AUSTRIA

6.1 Context of water legislation

6.1.1 Water issues and drivers for change

Because of the geographic characteristics of Austria, there are certain water topics which pre-eminently play a role in water management and policy. For instance, hydropower and protection of groundwater and spring water quality (99% of drinking water is derived from these waters) are main issues in water management. Furthermore, the risk of flooding poses serious problems in Austria. Austrian flood control followed for several years the principle of 'water care'. Under this headline it pursued the harmonisation of flood control objectives and ecological concerns. The past few years however, new 'allies have been explored'. The principle remains the same – as is it is well in line with the WFD – but now it is thought to be essential that rivers are again given more space in order that they can fulfill all their functions and develop their own, characteristic dynamics. It is said that 'leaving nature's specific dynamics is better than planning everything to the last detail.'[28] Also, there seems to be a lot of attention for the potentialities of water trade and water export in the European context. Austria has abundant natural water resources and is sometimes seen as the 'Saudi Arabia of water'. The deputy chairman of the national energy company *Verbund* once said that in theory, Austria could supply all 370 million inhabitants in the European Union. *Verbund* also said that annual turnover form Austria's water is worth 530 million Euro's.[29]
In 2003 the main piece of Austrian water legislation, the Water Rights Act (*Wasserrechtsgesetz*) was amended to transpose the WFD into national legislation. Because of the amended legislation, a system of water management planning is currently being introduced.[30]

6.1.2 Governance

Austria is a federal state and is composed of nine Länder. For administrative purposes the Länder are also subdivided into administrative districts (*Bezirke*), consisting of several municipalities. Due to the federal structure of Austria, authorities in water management are dispersed, as well as the responsibilities, legislation and programmes. The competency of water management is delegated within the Länder, but the Minister of Agriculture, Forestry, Environment and Water Management is responsible for aspects which go beyond the interest of one Land, for instance in the case of water works and infrastructure having transboundary effects and international cooperation in the field of water management. Furthermore, the federal level provides a legal framework for water management, for example through the Water Rights Act, which is the most important Austrian water act.

[28] Website of the Federal Ministry of Agriculture, Forestry, Environment and Water Management
[29] Dimova, D. (2002) *Austrian Water*, Case Study out of the Trade Environment Database (TED), American University, The School of International Service, Washington D.C.
[30] Website of the Federal Ministry of Agriculture, Forestry, Environment and Water Management

6.2 Contents of water legislation

6.2.1 Organic elements

The Water Rights Act regulates the divisions of tasks and responsibilities in Austrian water management between the different authorities[31]. The authorities which are responsible for water and the management thereof are called the water right authorities (*Wasserrechtsbehörde*). These are the authorities of the districts (*Bezirke*), the governor of the Land (*Landeshauptmann*) and the federal minister of Agriculture, Forestry, Environment and Water Management. In most of the cases, the districts are responsible, but the Water Rights Act also gives some responsibilities to the Land and federal level, for example in the case of building large water works and infrastructure or other large-scale measures.[32] It is not clear what the practice of this division of tasks is.

6.2.2 Framework versus operational legislation

The Water Rights Act (*Wasserrechtsgesetz*) is the most important water act in Austria. The federal government isn't allowed to draw up specific water legislation; only on identified aspects, the federal level is competent to a certain extent (see above). For this reason, the Water Rights Act is to be considered as framework legislation. It describes the framework within which the Länder and their lower authorities may engage in water management. The act does hold a chapter on keeping water clean, on the conservation of water, on the utilisation of water and to a number of other topics. Also the general conservation of groundwater for the purpose of the production of drinking water is laid down, but on all these topics, mainly framework provisions are in place. The Water Rights Act sets for example quality objectives but no quality criteria. There are several other pieces of water related legislation (primary and secondary), on, inter alia, waste water discharges, threshold values for groundwater and water quality. These acts and regulations seem to be somewhat more specific and operational than the Water Rights Act.[33] Still, the details on water management are to be regulated at the level of the Länder.

6.2.3 Scope and degree of integration

The Water Rights Act covers surface water, as well as groundwater and spring water. In addition, the act deals with aspects of water quality and water quantity management. Water infrastructure aspects are mainly regulated through the *Wasserbauten-förderungsgesetz* which establishes a fund out of which contributions to investments in water infrastructure works are paid.[34] After the transposition of the WFD into the Water Rights Act, Austrian water management is based on a river basin approach, dividing Austria into 9 river basins.

[31] § 98-101, Water Rights Act
[32] Website 'aquamedia'; www.aquamedia.at
[33] Website of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLUW); http://www.lebensministerium.at
[34] Website of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLUW); http://www.lebensministerium.at

6.2.4 Horizontal coordination

The Austrian Water Rights Act doesn't seem to hold specific relations with other policy domains. In the field of flood control, there are however prevailing policy principles on giving water more space through spatial planning measures. This is called 'passive flood control'. The passive flood control entails that settlements are to be built far from rivers. As a result, area planning, in the context of zoning, will have the remaining flood discharge and retention areas as much as possible free from e.g. houses and other buildings.[35]

6.2.5 Planning

The Water Rights Act holds two sections on water management planning (5 and 6).
In section 6 the tasks and responsibilities of the *Länder* (*Landeshauptmann*) are described and those of the federal level (*Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft)*. The *Länder* are responsible for all planning problems within the Länder; the federal level is responsible for the coordination of water management planning in the Länder and for problems relating to more than one Land or foreign countries.
Section 6 also holds the WFD based planning system. The country is part of three international rivers basin districts, that of the Rhein, of the Danube and of the Elbe. The parts which lie in Austria are called *Flussgebietseinheiten*. For these three areas a national water management plan (*Nationaler Gewässerbewirtschaftungsplan*) is drawn up. The core of these plans will be the legally binding identification of measures (requirements) as well as the concrete implementation of measures in light of achieving the objectives of the WFD. Furthermore, the river basin districts are divided into 'planning areas' (*Planungsraümen*), which can be considered as sub-basins. It is not clear which authority is responsible for drawing up plans for the sub-basins.
Section 5 of the act holds general provisions on water management planning. It stipulates that all authorities which want to contribute to reaching the objectives of the act, can draw up 'water management structure plans' (*Wasserwirtschaftliche Rahmenpläne*). In addition to these plans, the federal level can issue 'water regulations' (*Wasserwirtschaftliche Rahmenverfügungen*) which hold binding elements, relevant for the issuing of permits and drawing up water management plans by authorities. The exact functioning of and relation between the several plans isn't clear, because of lack of information.

6.2.6 Instruments

Permits and licenses
One can say that the Water Rights Act roughly holds two kinds of permits for uses of water. On the one hand there is a permit for practically each use of water regarding the safeguarding and managing of water quantity. These permits include the withdrawal of surface water and groundwater, including the building or restructuring of installations which are deployed for this purpose[36]. On the other hand, a permit exists for all actions which directly or indirectly affects the quality of water, for example the discharge of substances into water and certain uses of fertiliser[37]. All these permits are issued by the water rights authorities (*Wasserrechtsbehörde*).

[35] ibid.
[36] § 8-12, Water Rights Act
[37] § 32, Water Rights Act

Economic instruments

Austria has an 'Act on funding water works' (*Wasserbautenförderungsgesetz*) which provides through the federal level 'resources' (through a fund) for the improvement of the water system and the protection of flooding and also for measures which safeguard the ecological state of water.[38] The act holds mainly provisions on the conditions under which one can call upon the fund for financial expenditure. Furthermore, the Austrian Water Rights Act holds provisions on penalties when violating the act[39].

Public Waters Property

The river bed and the bank of major water streams are, as a rule, Public Waters Property (PWP). This is a special form of public property of the Republic of Austria, which is regulated by the Water Rights Act. It is permitted to everybody to have access to the areas designated as Public Waters Property. If the access is only possible via private-owned land, permission for right of way is required from the owners. This applies also to the mostly smaller brooks, whose beds are not public property and are mostly not identified as individual parcels in the land register. Public Waters Property is subject to acts guaranteeing special protection with a view to the use and the sale of these areas and is earmarked for a special purpose:

- Preservation of the ecological functionality of waters
- Preservation of littoral groundwater reserves
- Retention and discharge of flood and ice
- Maintenance of waters
- Establishment and maintenance of hydraulic constructions and hydrological institutions
- Recreational and leisure activities

Authorities in charge of the administration of the Public Waters Property have been established at the Offices of the Provincial Governments and at the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW).

Information and communication

Under the amended Water Rights Act, a 'Water Information System for Austria' has been set up, which should serve as a tool in drawing up several water management plans. An appendix (*Anhang C*) holds the contents of the data which should be included in the information system. It is not clear whether and how these water information systems function already in practice.

Sources of information

Legislation

- Water Rights Act

Literature

- Dimova, D. (2002) *Austrian Water*, Case Study out of the Trade Environment Database (TED), American University, The School of International Service, Washington D.C.

[38] Website of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLUW); http://www.lebensministerium.at/wasser/

[39] §137-138, Water Rights Act

Websites

- Website of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLUW); http://www.lebensministerium.at/wasser/
- Website 'aquamedia'; www.aquamedia.at
- Website of Austrian Water; http://www.austrianwater.at/english/start.html

6.3 Table of contents of the Water Rights Act

Wasserrechtsgesetz 1959; idF BGBl... I Nr. 82/2003

1. Von der rechtlichen Eigenschaft der Gewässer (§§ 1 – 4)
§ 1 Einteilung der Gewässer
§ 2 Öffentliche Gewässer
§ 3 Privatgewässer
§ 4 Öffentliches Wassergut

2. Von der Benutzung der Gewässer (§§ 5 – 29)
§ 5 Benutzungsberechtigung
§ 6 Schiff- und Floßfahrt; Überfuhren
§ 7 Holztrift
§ 8 Gemeingebrauch an öffentlichen und privaten Gewässern
§ 9 Besondere Wasserbenutzung an öffentlichen Gewässern und privaten Tagwässern
§ 10 Benutzung des Grundwassers
§ 11 Bewilligung
§ 12 Grundsätze für die Bewilligung hinsichtlich öffentlicher Interessen und fremder Rechte
§ 12a Stand der Technik
§ 12b Vorhaben von minderer wasserwirtschaftlicher Bedeutung
§ 12c Typengenehmigung
§ 13 Maß und Art der Wasserbenutzung
§ 14 Verkehrssicherung
§ 15 Einschränkung zu Gunsten der Fischerei
§ 16 Widerstreit zwischen bestehenden Wasserrechten und geplanten Wasserbenutzungen
§ 17 Widerstreit zwischen geplanten Wasserbenutzungen
§ 18 Ausnutzung der Wasserkräfte durch das Land
§ 19 Mitbenutzung von Stau- und Wasserführungsanlagen
§ 20 Abgabe ungenutzter Wassermengen
§ 21 Dauer der Bewilligung; Zweck der Wasserbenutzung
§ 21a Abänderung von Bewilligungen
§ 22 Persönliche oder dingliche Gebundenheit der Wasserbenutzungsrechte
§ 23 Verhaimung
§ 23a Talsperrenverantwortlicher
§ 24 Einhaltung der Stauhöhe
§ 25 Einschränkung bestehender Wasserbenutzungsrechte bei Wassermangel
§ 26 Schadenshaftung

§ 27 Erlöschen der Wasserbenutzungsrechte
§ 28 Wiederherstellung zerstörter Anlagen
§ 29 Vorkehrungen bei Erlöschen von Wasserbenutzungsrechten

3. Von der nachhaltigen Bewirtschaftung, insbesondere vom Schutz und der Reinhaltung der Gewässer (§§ 30 – 37)
§ 30 Ziele
§ 30a Umweltziele für Oberflächengewässer
§ 30b Einstufung als künstliche oder erheblich veränderte Oberflächenwasserkörper
§ 30c Umweltziele für Grundwasser
§ 30d Ziele für Schutzgebiete
§ 30e Stufenweise Zielerreichung
§ 30f Ereignisse unter außergewöhnlichen Umständen
§ 30g Kombinierter Ansatz für Punktquellen und diffuse Quellen
§ 31 Allgemeine Sorge für die Reinhaltung
§ 31a Anlagen zur Lagerung und Leitung wassergefährdender Stoffe
[§ 31b aufgehoben]1
§ 31c Sonstige Vorsorge gegen Wassergefährdung
§ 31d Bestehende Anlagen
§ 32 Bewilligungspflichtige Maßnahmen
§ 32a Einbringungsbeschränkungen und -verbote
§ 32b Indirekteinleiter
§ 33 Reinhaltungspflicht
[§ 33a aufgehoben]2
§ 33b Emissionsbegrenzung für Abwasserinhaltsstoffe
§ 33c Sanierung von Altanlagen
§ 33d Immissionsbeschränkung
[§ 33e aufgehoben]3
§ 33f Programm zur Verbesserung der Qualität von Grundwasser
§ 33g Bestehende Kleinanlagen und Indirekteinleiter
§ 34 Schutz von Wasserversorgungsanlagen (Wasserschutzgebiete)
§ 35 Sicherung der künftigen Wasserversorgung
§ 36 Anschlusszwang bei öffentlichen Wasserversorgungsanlagen
§ 37 Schutz von Heilquellen und Heilmooren

4. Von der Abwehr und Pflege der Gewässer (§§ 38 – 49)
§ 38 Besondere bauliche Herstellungen
§ 39 Änderung der natürlichen Abflussverhältnisse
§ 40 Entwässerungsanlagen
§ 41 Schutz- und Regulierungswasserbauten
§ 42 Herstellung von Schutz- und Regulierungswasserbauten
§ 43 Vorsorgen gegen wiederkehrende Überschwemmungen
§ 44 Beitragsverpflichtung zu öffentlichen Schutz- und Regulierungswasserbauten
§ 45 Beitragsverhältnis; Vorauszahlungen
[§ 46 aufgehoben]4
§ 47 Instandhaltung der Gewässer und des Überschwemmungsgebietes
§ 48 Wirtschaftsbeschränkungen im Bereiche von Gewässern

§ 49 Hilfeleistung in Notfällen

5. Von allgemeinen wasserwirtschaftlichen Verpflichtungen (§§ 50 – 54)
§ 50 Instandhaltung
§ 51 Beitragsleistung zu fremden Wasseranlagen
§ 52 Anpassung an die wasserwirtschaftlichen Verhältnisse
§ 53 Wasserwirtschaftliche Rahmenpläne
[§ 54 Wasserwirtschaftliche Rahmenverfügungen]5

6. Einzugsgebietsbezogene Planung und Durchführung von Maßnahmen zur nachhaltigen Bewirtschaftung insbesondere zum Schutz und zur Reinhaltung der Gewässer (§§ 55 – 59b)
§ 55 Wasserwirtschaftliche Planung
§ 55a Planungsgrundsätze
§ 55b Flusseinzugsgebiete
§ 55c Nationale Gewässerbewirtschaftungspläne für Einzugsgebiete (Nationaler Gewässerbewirtschaftungsplan)
§ 55d Bestandsaufnahme (Ist-Bestandsanalyse und Abweichungsanalyse)
§ 55e Maßnahmen
§ 55f Maßnahmenprogramme
§ 55g Umsetzung der Maßnahmenprogramme
§ 55h Verfahren für die Erstellung der Nationalen Gewässerbewirtschaftungspläne
§ 55i Beteiligung der Öffentlichkeit bei der Erstellung von Nationalen Gewässerbewirtschaftungsplänen
[§ 55j Umweltprüfung für andere wasserwirtschaftliche Pläne]6
§ 55k Nationale, supra- und internationale Berichte
§ 55l Programme im Rahmen der Europäischen Integration
§ 56 Vorübergehende Eingriffe in den Wasserhaushalt
§ 57 Gewässerkundliche Einrichtungen
§ 58 Förderung der Gewässerkunde
§ 59 Wasserinformationssystem Austria (WISA)
§ 59a Elektronisches Register der Belastungen und Auswirkungen
§ 59b Verzeichnis der Schutzgebiete

7. Erhebung des Zustandes von Gewässern – Wasserkreislauf und Wassergüte (Hydrographie) (§§ 59c – 59i)
§ 59c Grundsätze der Überwachung und der Erhebung
§ 59d Überwachungsprogramme
§ 59e Überblicksweise Überwachung
§ 59f Operative Überwachung
§ 59g Überwachung zu Ermittlungszwecken
§ 59h Umsetzung der Überwachungsprogramme
§ 59i Verfahren für die Umsetzung der Überwachungsprogramme

8. Von den Zwangsrechten (§§ 60 – 72)
§ 60 Einteilung der Zwangsrechte und allgemeine Bestimmungen
§ 61 Öffentlicherklärung von Privatgewässern

§ 62 Vorarbeiten für Wasseranlagen
§ 63 Enteignung von Liegenschaften und Bauwerken
§ 64 Enteignung von Privatgewässern, Wasserrechten, Anlagen und anderen Vorrichtungen
[§ 65 aufgehoben]7
§ 66 Schutz des landwirtschaftlichen Wasserbedarfes
§ 67 Schonung bestehender Nutzungen
§ 68 Mitbenutzungsrecht des Servitutsverpflichteten
§ 69 Verpflichtung zur Einlösung von Liegenschaften und Anlagen
§ 70 Erlöschen der Zwangsrechte; Rückübereignung
§ 71 Wasserbenutzung bei Feuersgefahr und Wassermangel
§ 72 Betreten und Benutzen fremder Grundstücke

9. Von den Wassergenossenschaften (§§ 73 – 86)
§ 73 Zweck der Wassergenossenschaften
§ 74 Einteilung und Bildung der Wassergenossenschaften
§ 75 Genossenschaften mit Beitrittszwang
§ 76 Zwangsgenossenschaften
§ 77 Satzungen
§ 78 Aufteilung der Herstellungs-, Erhaltungs- und Betriebskosten
§ 78a Genossenschaftsorgane
§ 79 Wahl der Genossenschaftsorgane
§ 80 Genossenschaftliche Verpflichtungen als Grundlast
§ 81 Nachträgliche Einbeziehung
§ 82 Ausscheiden
§ 83 Auflösung der Genossenschaft
§ 84 Eintreibung der Genossenschaftsbeiträge
§ 85 Aufsicht; Maßnahmen gegen säumige Genossenschaften
§ 86 Beitragsleistungen von Nichtmitgliedern

10. Von den Wasserverbänden (§§ 87 – 97)
§ 87 Zweck und Umfang; Mitgliedschaft
§ 88 Bildung von Wasserverbänden
§ 88a Wasserverbände mit Beitrittszwang
§ 88b Zwangsverbände
§ 88c Satzungen
§ 88d Aufteilung der Herstellungs-, Erhaltungs- und Betriebskosten
§ 88e Verbandsorgane
§ 88f Wahl der Verbandsorgane
§ 88g Ausscheiden
§ 89 Allgemeine Verbandsaufgaben
§ 90 Dachverbände
§ 91 Besondere Aufgaben von Reinhaltungsverbänden
§ 92 Sanierungsplan
§ 93 Verbandsverpflichtungen als Grundlast
§ 94 Allgemeine Befugnisse von Wasserverbänden
§ 95 Übertragung besonderer Aufgaben

§ 95a Auflösung des Wasserverbandes
§ 95b Eintreibung der Verbandsbeiträge
§ 95c Beitragsleistung von Nichtmitgliedern
§ 96 Aufsicht über Wasserverbände
§ 97 Allgemeine Bestimmungen

11. Von den Behörden und dem Verfahren (§§ 98 – 129)
§ 98 Zuständigkeit
§ 99 Zuständigkeit des Landeshauptmannes
§100 Zuständigkeit des Bundesministers für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft
§101 Besondere Bestimmungen über die Zuständigkeit
§101a Zuständigkeit des Unabhängigen Verwaltungssenates in Anlagenverfahren
§102 Parteien und Beteiligte
§103 Antrag auf Erteilung einer wasserrechtlichen Bewilligung
§104 Vorläufige Überprüfung
§104a Vorhaben mit Auswirkungen auf den Gewässerzustand
§105 Öffentliche Interessen
§106 Abweisung ohne Verhandlung
§107 Mündliche Verhandlung
§108 Beiziehung von Behörden und Fachkörperschaften
§109 Widerstreitverfahren
[§ 110 aufgehoben]8
§111 Inhalt der Bewilligung
§111a Grundsatzgenehmigung; Detailgenehmigung
§112 Fristen
§113 Behandlung privatrechtlicher Einsprüche
§114 Anzeigeverfahren
§115 Anzeigeverfahren bei bestimmten Anlagenänderungen
§116 Amtsbeschwerde
§117 Entschädigungen und Beiträge
§118 Ermittlung und Entrichtung der Entschädigung bei Einräumung von Zwangsrechten
§119 Grundbuchsrechtliche Vorschriften
§120 Bestellung einer Bauaufsicht
[§ 120a aufgehoben]9
§121 Überprüfung der Ausführung von Wasseranlagen
§122 Einstweilige Verfügungen
§123 Kostenersatz
§124 Wasserbuch
§125 Führung der Wasserbücher
§126 Einsichtnahme; Berichtigung; Alteintragungen
§127 Eisenbahnanlagen
§128 Wasserbenutzung für Zwecke der Luftfahrt
[§ 129 aufgehoben]10

12. Von der Aufsicht über Gewässer und Wasseranlagen (§§ 130 – 136)
§130 Umfang der Aufsicht
§131 Zuständigkeit für die Aufsicht
§132 Aufsichtsorgane
§133 Durchführung der Aufsichtstätigkeit
§134 Besondere Aufsichtsbestimmungen
§134a Mitanwendung wasserrechtlicher Bestimmungen in Anlagenverfahren
§135 Gewässerbeschau
§136 Verwertung der Ergebnisse; Kosten

13. Von den Übertretungen und Strafen (§§ 137, 138)
§137 Strafen
§138 Herstellung des gesetzmäßigen Zustandes

14. Schluss- und Übergangsbestimmungen (§§ 139 – 145)
§139 Aufhebung älterer Vorschriften
§140 Aufrechterhaltung wasserrechtlicher Vorschriften
§141 Bestehende Wassergenossenschaften und Wasserverbände
§142 Fortbestand älterer Rechte
§143 Anhängige Verfahren
§143a Befreiung von Verwaltungsabgaben
§143b Kostentragung für die Erhebung des Zustandes von Gewässern – Wasserkreislauf und Wassergüte
§144 Vollzugsklausel
§145 Inkrafttreten und Übergangsbestimmungen
§145a Inkrafttreten und Übergangsbestimmung der WRG-Novelle 2003
§145b Bezugnahme auf Gemeinschaftsrecht

Anhang A: Verzeichnis der Gewässer zu § 2 Abs. 1 lit. a
Anhang B: Tabelle zu § 32 Abs. 2 lit. g
Anhang C: Inhalt der Bewirtschaftungspläne zu § 55c Abs. 2 WRG
Anhang D: Normative Begriffsbestimmungen zur Einstufung des ökologischen Zustands
Anhang E: Kriterien für die Herleitung von Umweltqualitätsnormen gemäß § 30a Abs.
Anhang G: Einzugsgebiete
Anhang H: Kriterien für die Festlegung des Standes der Technik
Übergangsbestimmungen zur WRG-Nov 1997, BGBl I 1997/74
Übergangsbestimmungen zur WRG-Nov 1999, BGBl I 1999/155

7 BELGIUM (FLANDERS)

7.1 Context of water legislation

7.1.1 Water issues and drivers for change

In 2000 the Flemish Government issued a Water Policy Plan (*Ontwerp Waterbeleidsplan 2002-2006*). In this plan the concept of 'integrated water policy' takes a central place. Four goals are formulated for the integrated water policy in Flanders:

- To develop an instrument for the preparation, implementation and evaluation of water policy and water management in Flanders.
- To achieve integration with respect to the content of all aspects of water policy and management with a view to protecting and sustainable use of water systems.
- To expand the knowledge of water systems, to spread the knowledge to several actors and to use it to pursue a well thought through and efficient water policy and management.
- To strive for cooperation and consensus in the field of water policy between the related policy sectors and the administrative levels.[40]

In 2003 the Integrated Water Decree (*Decreet betreffende het integraal waterbeleid*) was passed in Parliament. Before this Decree, Flanders did not have its own (Flemish) legal framework for water policy and water management. There have been efforts in the past to draw up a Decree on water policy and water management, but the idea really got momentum when the Water Framework Directive was adopted. The WFD is thus transposed with the coming into effect of the Integrated Water Decree. River basin management planning is now an important part of the decree.[41]

7.1.2 Governance

Flanders is one of the three regions in federal Belgium. The regions of Belgium have full competency in policy domains which are 'region related', such as economic development, nature conservation, spatial planning and water policy. The Flemish region consists of five provinces and over one hundred municipalities. Flanders is a strong economic region which accounts for 60% of Belgium's Gross Domestic Product. Flanders is a very densely populated region in which some what more than ten million Dutch-speaking people live.

7.2 Contents of water legislation

7.2.1 Organic elements

The Integrated Water Decree states that the Flemish Government will appoint one minister who is responsible for the co-ordination and organisation of the planning of integrated water policy[42].

[40] Vlaamse Regering (2000) *Ontwerp Waterbeleidsplan Vlaanderen 2002-2006* (found at: http://viwc.lin.vlaanderen.be/)
[41] Website Vlaams Integraal Wateroverleg Comité; http://viwc.lin.vlaanderen.be/
[42] Article 24, §2; Integrated Water Decree

He will be assisted by the Co-ordinating Commission for Integrated Water Policy (*Coördinatiecommissie Integraal Waterbeleid – CIW*). This multi-disciplinary commission is responsible for the preparation, planning and the monitoring of integrated water policy, and it oversees the functioning of the sub-basin districts and is responsible for the implementation of the decisions on integrated water policy of the Flemish government.

The Integrated Water Decree designates three organisational levels for Flemish water policy and water management: river basin districts (4), sub-basin districts ('bekkens') (11) and so-called 'deelbekkens' (± 100). The Flemish government is responsible for drawing up river basin management plans for the four river basin districts.
For each sub-basin, a sub-basin board and – council ('bekkenbestuur en bekkenraad') will be established. The board will be, amongst other things, responsible for drawing up the sub-basin management plans and for advising authorities on action programmes which affect the water systems and/or sewerages and sewage works. The boards will consist of several representatives of the Flemish region, provinces and of each 'deelbekken' which falls under the sub basin. The board will be assisted by a secretariat, which is, amongst other things, responsible for the preparation of the sub basin management plan. The sub-basin council should advice on all documents produced by the board, thus including the sub basin management plan. The council consists of representatives of several civil interest groups which are concerned with integrated water policy.
For one or more 'deelbekkens', cooperation agreements will be made in the form of establishing water boards (*waterschappen*). These water boards are responsible for drawing up a management plan for each 'deelbekken' which lies in the territory of the water board. Furthermore, the Integrated Water Decree makes provisions for other tasks which the water boards can take upon them, such as the management of non-navigational water courses and the management and exploitation of public sewerage and sewage treatment on a small scale. [43]

7.2.2 Framework versus operational legislation

The Flemish Integrated Water Decree holds general provisions on (integrated) water management in Flanders. It gives objectives, means and a planning system for an integrated water policy. However, on certain aspects, more operational and more detailed provisions are in place, for example in the case of the planning system, which is worked out in detail.

7.2.3 Scope and degree of integration

The Integrated Water Decree applies to the water systems which are situated in the Flemish Region. Water systems are defined as 'a coherent and functional entity of surface water, groundwater, water beds and banks, including all living communities therein with all physical, chemical and biological processes thereof, and the corresponding technical infrastructure'[44]. The Flemish Decree has thus as its scope surface waters and groundwater, as well as infrastructure such as bridges, dikes, locks and dams, etcetera[45]. Furthermore, the decree contains regulations

[43] Chapter V, Integrated Water Decree
[44] Article 2 and 3, 16°, Integrated Water Decree
[45] 'Memorie van Toelichting – Ontwerp van Decreet betreffende het integraal waterbeleid'

on water quality management as well as on water quantity management (flood prevention). There is no specific reference to coastal waters.
The aim of the Decree is not only to integrate water related aspects, but also to integrate water policy in other policy sectors, such as spatial planning policy and environmental policy. In article 6, eleven principles are laid down for the preparation, approval, implementation and monitoring of Flemish integrated water policy. One of these principles is that the water system is one of the basic principles for spatial planning[46]. Another principle is called the principle of ex ante evaluation, which prescribes that before approving the integrated water policy, systematic and thorough evaluation should be carried out of the consequences of the policy on the environment and on economical and social aspects of the society.

7.2.4 Horizontal coordination

As mentioned above, integrated water policy according to the Flemish Decree means an integration of water policy with other policy fields such as spatial planning and the environment. As for the integration with spatial planning (legislation), the water management plans which should be drawn up can contain certain parts that should be translated into spatial plans. We will discuss this further under 'planning'. The coordination with the field of environmental policy is regulated in a separate section of the Integrated Water Decree. In it, it is stipulated that the Flemish Government, according to the Environmental Policy Decree of 1995 (*Decreet houdende algemene bepalingen inzake milieubeleid*), will decide upon standards for environmental quality (*milieukwaliteitsnormen*) which should comply with the environmental objectives for surface water and groundwater of the WFD[47].

7.2.5 Planning

The Integrated Water Decree states that the Flemish Government decides upon guidelines for integrated water policy. To this end, it draws up a water policy plan (*Waterbeleidsnota*). Furthermore, the Flemish government is responsible for drawing up river basin management plans for the four designated river basin districts (of which two are transboundary). The sub-basin boards are responsible for drawing up sub-basin management plans and the water boards are responsible for drawing up 'deelbekkenbeheerplannen'.
These plans all have as purpose to give guidelines for integrated water policy in its respective territory, including measures, means and terms which are needed to achieve the objectives. For the river basin districts, the Flemish government decides upon programmes of measures (respecting the requirements of the WFD). For each of the above mentioned plans, an overview of contents which at least should be included is given in the annexes of the Decree. The Flemish Region, the sub-basin board and the water boards can decide upon which parts of the irrespective plans will be binding. These parts can only be binding on the Flemish public administrations. However, this means that regional spatial implementation plans (*Gewestelijk ruimtelijk uitvoeringsplan*) or other implementation plans are to be drawn up or amended if the binding parts requires so. Furthermore, all plans are subject of a so-called public scrutiny (*openbaar*

[46] This principle was already included in the Spatial Structureplan of Flanders of 1997. However, it is deemed necessary to give this principle a legal basis, in order to give the principle a more steering function. Ibid.
[47] Chapter VII, part 1, Integrated Water Decree

onderzoek), in which everyone is allowed to see the plans and to make remarks, which are taken into account in the further procedure of approval of the plans.[48]

7.2.6 Instruments

Permits and licenses

The Integrated Water Decree holds no references to any permit or license. Other pieces of legislation however do hold provisions on permits and licenses. On the basis of the Groundwater Decree of 1984, the Flemish Government can prohibit, make regulations for, or decide that a permit is needed for the discharge or storage of substances in soil which can contaminate groundwater. Furthermore, the Government can designate areas of water abstraction (*waterwingebieden*) and protection areas for which it can formulate specific regulations. The Government has done so in the years following the draft of the Groundwater Decree in several statutory orders.[49]

On the basis of the Act on the Protection of Surface Waters against Pollution (*Wet op de bescherming van de oppervlaktewateren tegen verontreiniging*) the discharge of objects or substances is prohibited, except for the discharge of waste water which is permitted (according to regulations of the Act) and the discharge of domestic waste water into the public sewerage.[50]

Economic instruments

Several acts stipulate levies for certain uses of water, such as the discharge of waste water into surface water or the abstraction of ground water (the Act on the Protection of Surface Waters against Pollution, the Groundwater Decree). These acts also stipulate penalties in case non-compliance.

For obtaining real estate which is needed to achieve the goals of integrated water policy, the Flemish Region can, according to the Integrated Water Decree, decide to expropriate[51]. Also, according to the Integrated Water Decree, the Flemish Region has the right of 'initial purchase', which gives priority to the Region to buy real estate in designated flood areas and banks when these are put up for sale[52]. Also, owners of real estate have the right to put their real estate for sale for the Flemish Region, as their real estate devaluates due to the designation of flood areas and banks. In such cases, the Flemish Region will be obliged to buy the real estate.[53]

Standards

The Integrated Water Decree states that environmental standards should be set for surface waters, groundwater and artificial or heavily modified water bodies. This shall be done through regulations of the Environmental Policy Decree (see above). The Decree also sets specific standards for the development and use of banks[54]. The Decree on water for human consumption

[48] Chapter VI, parts 1, 2 and 3
[49] Article 3, § 1, Groundwater Decree (found via http://www.emis.vito.be/navigator)
[50] Article 2, Act on the protection of surface waters against pollution (found via http://www.emis.vito.be/navigator)
[51] Article 11, Integrated Water Decree
[52] Article 12-16, Integrated Water Decree
[53] Article 17, Integrated Water Decree
[54] Article 9, Integrated Water Decree

(*Decreet betreffende water bestemd voor menselijke aanwending*) states that the Flemish Region can set standards for the quality of water for human consumption.[55]

Communication /information
The water test (*watertoets*) is an instrument introduced in the Integrated Water Decree and which prescribes that public authorities that decide upon a permit, plan or programme should always ensure that no adverse effects occur for the water system, unless there are reasons of public interest[56].

Sources of information

Legislation

- Decreet betreffende het integraal waterbeleid, 2003
- Decreet betreffende water bestemd voor menselijke aanwending, 2002
- Decreet houdende algemene bepalingen inzake milieubeleid, 1995
- Decreet houdende maatregelen inzake het grondwaterbeheer, 1984
- Wet op de bescherming van de oppervlaktewateren tegen verontreiniging, 1971

Literature
- 'Memorie van Toelichting – Ontwerp van Decreet betreffende het integraal waterbeleid'
- Vlaamse Regering (2000) *Ontwerp Waterbeleidsplan Vlaanderen 2002-2006*

Websites
- Website of the Belgian 'Staatsblad'; http://www.staatsblad.be/index_nl.htm
- Website of the 'Vlaamse Navigator Milieuwetgeving'; http://www.emis.vito.be/navigator/
- Website of the Department water of the Flemish Administration of the Environment, Nature, Land- and water management; http://www.mina.be/front.cgi?s_id=126
- Website of the 'Vlaams Integraal Wateroverleg Comité'; http://viwc.lin.vlaanderen.be

7.3 Table of contents of the Integrated Water Decree

18 JULI 2003.

TITEL I. — Doelstellingen, beginselen, organisatie, voorbereiding en opvolging van het integraal waterbeleid

HOOFDSTUK I. — Inleidende bepalingen

HOOFDSTUK II. — Voorwerp, doelstellingen en beginselen

HOOFDSTUK III. — Algemene instrumenten van het integraal waterbeleid
Afdeling I. — De watertoets
Afdeling II. — Oeverzones

[55] Article 4, Decree on water for human consumption
[56] Article 8, Integrated Water Decree

Afdeling III. — Verwerving van onroerende goederen, aankoopplicht en vergoedingsplicht
Onderafdeling I. — Onteigening ten algemene nutte
Onderafdeling II. — Recht van voorkoop
Onderafdeling III. — Aankoopplicht en vergoedingsplicht

HOOFDSTUK IV. — De geografische indeling van watersystemen
Afdeling I. — De stroomgebieden en de stroomgebiedsdistricten
Afdeling II. — De bekkens
Afdeling III. — De deelbekkens

HOOFDSTUK V. — De organisatie van het integraal waterbeleid
Afdeling I. — Het stroomgebiedsdistrict
Afdeling II. — Het Vlaamse Gewest
Afdeling III. — Het bekkenniveau
Afdeling IV. — Het deelbekkenniveau

HOOFDSTUK VI . — Voorbereiding en opvolging van het integraal waterbeleid
Afdeling I. — De waterbeleidsnota
Afdeling II. — Stroomgebiedbeheerplannen
Afdeling III. — De bekkenbeheerplannen, deelbekkenbeheerplannen en bekkenvoortgangsrapporten
Onderafdeling I. — De bekkenbeheerplannen en deelbekkenbeheerplannen
Onderafdeling II. — Het bekkenvoortgangsrapport

HOOFDSTUK VII. — Bijzondere verplichtingen met betrekking tot de stroomgebiedsdistricten
Afdeling I. — Milieudoelstellingen
Onderafdeling I. — Vaststellen en bereiken van de milieudoelstellingen
Onderafdeling II. — Aanduiding van kunstmatige of sterk veranderde oppervlaktewaterlichamen
Onderafdeling III. — Omstandigheden waarin van het bereiken van de milieudoelstellingen kan worden afgeweken
Onderafdeling IV. — Kostenterugwinning van waterdiensten
Afdeling II. — Analyses en beoordelingen
Afdeling III. — De maatregelenprogramma's
Afdeling IV. — Programma's voor de monitoring
Afdeling V. — Register van beschermde gebieden

HOOFDSTUK VIII. — Slotbepalingen
Afdeling I. — Overgangsbepaling
Afdeling II. — Wijzigingsbepalingen

Bijlage I. Inhoud van de stroomgebiedbeheerplannen
Bijlage II. Inhoud van de maatregelenprogramma's
Bijlage III. Inhoud van de bekkenbeheerplannen
Bijlage IV. Inhoud van de deelbekkenbeheerplannen

8 CZECH REPUBLIC

8.1 Context of water legislation

The Czech Republic (CR) is one of the most fast developing countries in Eastern Europe. It has joined the European Union in 2004 and is therefore now subject to European legislation, most notably (in this context) the Water Framework Directive (WFD).

8.1.1 Water issues and drivers for change

The Czech Republic belongs to the three major watersheds, draining into the North sea, Baltic Sea and Black Sea and practically all its more significant water - courses run through its neighbouring countries. Consequently, water sources in the Czech Republic are limited and dependent on atmospheric precipitation. As there are no significant water streams flowing into the Czech Republic, all pollution in rivers leaving the Czech borders originates from "domestic" sources and contributes to the pollution of the rivers in neighbouring countries and finally in the receiving seas. Therefore, water quality management in the Czech Republic gains an international dimension. That is also the reason why the Czech Republic is involved in most major European projects on water pollution control.

From this point of view the protection of the Elbe river has been of the utmost importance for the Czech Republic during the last ten years. Because of pollution in the Elbe river catchment area in neighbouring Germany, and especially because of the extremely vulnerable North Sea with regard to eutrophication (with the Elbe river as second major source of nitrogen and phosphorus), the Czech effluent standards should meet (as closely as possible) the requirements of Directive 91/217/EEC. Advanced nutrient removal systems have to become standard technology in this region if one wants to meet the goals of the Elbe River Treaty and of the programmes for the remedy of continental seas.

Floods

Activities in the management of water courses have also been fundamentally influenced over the last few years by the catastrophic floods in 1997, 1999 and the winter of 2000. In 1999, in the framework of renewal of water courses, 2175 construction projects were initiated, 2051 of which were finalised that year. Flood protection projects were undertaken along 2200 km of water courses, 116 km of dikes, 49 water reservoirs and 175 dams. In parallel with work on renewal of areas affected by flooding, over the last two years basic conceptual and legislative measures were implemented to increase the level of flood protection in the CR. In 1999, Government Resolution 100/1999 Coll., on protection against floods, was adopted and in 2000 the Government adopted the Strategy of Flood Protection in the CR, which is the first comprehensive document of its kind. In connection with this strategy, a set of programmes has been adopted, of which the Program of Designating Flood Areas, study of run-off conditions and flood protection measures is of the greatest importance. Implementation of the Programme of Recovery of River Systems and the Landscape Programme are of considerable significance. The issue of flood protection was also included in the draft of the new Water Act and the legislation adopted in the area of crisis management and the integrated rescue system.

8.2 Contents of water legislation

8.2.1 Water Act 2001

The Czech Republic enacted a new Water Act No. 254 in 2001 with particular emphasis on implementing the WFD. This new legislation, from a technical point of view, is more compatible with Directive 91/271/EEC as the preceding Governmental DeCzech Republicee No. 171 /1992 by introducing 24-hour, flow- proportional composite samples and permitted non-compliance according to the number of analysed samples. In its last version this new regulation also reflects different winter and summer conditions for nitrogen removal in municipal wastewater treatment plants. Two kinds of standards are included in this legislative norm:

- Effluent standards. The discharge consent standards have been set up for parameters most characteristic of domestic and municipal effluents. Their numerical values depend on the capacity of the plant expressed in personal equivalents.
- Environmental quality standards. As mentioned earlier, the receiving waters in the Czech Republic are very sensitive to pollution from effluent discharges due to low dilution rate.

To provide the water authorities with appropriate tools for the protection of the vulnerable receiving waters, the legislator added environmental quality standards to this new regulation. According the Governmental DeCzech Republicee No. 82/1999, the water authority has the right to apply effluent standards when it is justified by “the interests in water pollution control and according to local water management conditions”. The act integrates several formerly separated acts from the 1970s, which represented the typical centralized system of the socialistic government exhibiting state ownership. The new act (effective as of 1st January, 2002) is introducing private ownership in the free market economy. Simultaneously, all EC legislation for the water sector has been transposed into national legislation. In this respect, the Czech Republic is the first country having adopted the Water Framework Directive (2000/60/EC) into national legislation.

8.2.2 Water courses, ownership and rights

The new Water Act defines water streams in a new manner. They are divided into major and minor streams. The major streams are specifically listed in an ordinance (470/2001 Coll.). Each water stream must have its own administrator. Major water streams are administered by Watershed agencies instituted by act. Minor water streams may be administered by legal entities or by natural persons designated by the Ministry of Agriculture. Municipalities may administer minor water streams which are flowing through their territories, and if they are designated by the Ministry of Agriculture. Administration of a water stream does not imply any rights or obligations related to possible water works or land plots connected with the stream, as they do not form a part of the water stream. The water stream thus does not include the land plots, which form the bed of the water stream. Neither the previous act nor the land registry were able to deal with the vast number of facts that occurred by the year 2000. After the great floods of 1997, water beds were transformed, resulting in unclear situations and in which it was necessary to actually return to the original status according to old regulations. In case of doubt, water legislation is decisive. This legislation may even determine that other surface waters, which do not fulfil the legal requirements, are actually water streams (such as Czech Republiceeks with

occasional flow). In order to define ownership titles to water-bed land plots, which do not have individual plot numbers in the land registry, the new act defines that from 1 July 2002, the ownership titles are transferred to the landowners. However, they have the right to refuse the ownership titles within a period granted by the act. Together with the land plots, the ownership of permanent overgrowth is also transferred to the landowners. This transfer of ownership titles will bring about undeniable advantages, as it will eliminate the discrepancies between the landowners and the state.

8.2.3 River basin management and planning

Water management planning is a systematic conceptual activity that is ensured by the state. It consists of management of main river basins in the Czech Republic, river basin areas, and programmes of measures. Water management planning in the Czech Republic is in accordance with the EU Water Framework Directive. Therefore, some articles of the Water Act have been updated. State enterprises – "Povodí" – are responsible for management of river basins areas. The Ministry of Agriculture has established the committee for Water Management Planning as a main consultation committee to fulfil tasks of new process of water management planning in the CR.

There are five state enterprises: Povodí Labe (Catchment Basin of the Labe River - www.pla.cz), Povodí Vltavy (Catchment Basin of the Vltava River - www.pvl.cz), Povodí Ohre (Catchment Basin of the Ohre River - www.poh.cz), Povodí Odry (Catchment Basin of the Odra River - www.pod.cz) and Povodí Moravy (Catchment Basin of the Morava River - www.pmo.cz). These enterprises play a dual role in the water administration process: they are a part of management and they are professional agencies. However, the public authority is not considered to be bound by expert opinion. It is considered important that water boards and other authorities have an expert opinion if and only if it could contribute to the solution of the given legal or technical problem.

In comparison with the previous situation, there is a change in the extent to what water management can achieve or regulate. In the new situation the administration of a catchment basin, a professional board for overseeing all activities in the catchment basin, may, on the regional scale, influence water management and the prerequisites for it throughout the entire country. Apart from the water administration process, watershed management is involved in many other administrative proceedings; this concerns mainly the activities of water boards, urban planning and construction authorities. In these fields, public authorities require the cooperation of the watershed management authority when affecting water systems.

8.2.4 Financing

The act implements a modern financing mechanism, which leads to the recovery of costs in water management- i.e. polluter pays and user pays principles. Thus, the improved charge system is introduced for water abstraction from both surface and underground water resources. The payments for surface water abstraction are used for financing river basin authorities, state enterprises, whereas charges collected for abstraction of ground water are transferred to the State Environmental Fund (50%) and to the state budget (50%). Similarly, the charges for the discharge of pollution are fully implemented based on discharge limits for both concentration and quantity load of pollutants. Appropriate fines are set for exceeding the limits given in the form of

standards. In addition, the state subsides may be allocated to water related activities (namely construction of infrastructure and flood defense measures) in support of the public interest. Simultaneously with the new Water Act, the Act on Water Supply and Sewerage (No. 274/2001 Col.) has been prepared and adopted for the first time in national history. This Act is very necessary due to the consequences of privatisation processes in the sector of water supply in 1992 - 1995.

Both acts and the associated secondary legislation have fully implemented the legislation of the European Communities. Thus, the Czech Republic indeed was ready for accession to the EU as regards to the component of 'water quality', which is part of the chapter 'environment' of the 'acquis communautaire'. However, for the water sector related Directive 91/271/EEC (on municipal wastewater treatment) a transition period was needed. The appropriate implementation programme and financial strategy are however in place to fulfil also these directives objectives by 2010.

Sources of information

Legislation
- National Water Act

Literature
- Anonymous (2002) W*ater in the Czech Republic*, found at: Website of the Ministry of the Environment; http://www.env.cz/www/zamest.nsf/0/1776e442315cd885c1256585003ce9a0?OpenDocument

Websites
- Website of Aquamedia; www.auquamedia.at
- Website of the Ministry of the Environment; http://www.env.cz/env.nsf/homeie?OpenFrameSet

8.3 Table of contents of the Water Act

INTRODUCTORY PROVISIONS
The Purpose and Subject of the Act
Definition of Terms
Rights to Water and Legal Character of Water

THE USE OF WATER
Use of Surface Water
General Use of Surface Water
The Use of Surface Water for Shipping
Permission, Approval and Expert Opinions
Permission for Use of Surface Water or Groundwater
Changes and Cancellation of Permission for Water Use
Invalidation of the Permission for Water Use
Permission for Certain Activities

Permission for a Water Management Structure Construction
Permission for Discharge of Waste Water Containing Especially Dangerous Harmful Substances into Sewerage Systems
Records of Water Authority Decisions
Information Recorded in the Real Estate Register

SURFACE WATER AND GROUNDWATER STATUS

PLANNING IN WATER MANAGEMENT
Plan of the Main River Basins of the Czech Republic
River Basin District Plans
Programmes of Measures

PROTECTION OF THE WATER REGIME AND WATER RESOURCES
Protected Areas of Natural Water Accumulation
Protected Zones of Water Resources
Sensitive Areas
Vulnerable Zones
Surface Water Used for Bathing
Fish Life Support
Minimum Residual Flow
Minimum Level of Groundwater
Waste Water
Harmful Substances
Accidents
Obligations in Case of Accident
Remedial Measures

WATERCOURSES
Watercourses
Watercourse Channels
Watercourse Channel Changes
Protection of Watercourses and their Channels
Administration of Watercourses
Watercourse Administrators
The Rights in Watercourse Administration
Obligations of Owners of Land on which Watercourse Channels are Located
Obligations of Owners of Land Adjacent to Watercourse Channels
Obligations of Owners of Structures and Facilities Situated in Watercourse Channels or Adjacent
Doubt as to the Extent of Obligations and Rights

RIVER BASIN ADMINISTRATION

WATER MANAGEMENT STRUCTURES
Water Management Structures

Structures for Land Reclamation
Use of Water Management Structures by Third Persons
Protection of Water Management Structures
The Obligations of Owners of Water Management Structures
Access to Land
Technical and Safety Supervision of Water Management Structures
The Obligations of Owners and Builders of Water Management Structures During the Technical and Safety Supervision

PROTECTION AGAINST FLOODS
Floods
Flood Protection Measures
Flood Plain Areas
Restrictions in Flood Plain Areas
Areas Determined for Flooding
Territories Exposed to a Special Flood Danger
Degrees of Flood Protection Activities
Flood Protection Plans
Flood Protection Inspections
Flood Forecasting and Warning Service
Flood Rescue Activities
Flood Security Activities
Flood Documentation and Assessment
Flood Protection Authorities
Municipal Flood Protection Authorities
District Flood Protection Authorities
River Basin Flood Protection Authorities
Central Flood Protection Authority
River Basin Administrators
Administrators of Watercourses
Owners of Water Management Structures
Owners of Land and Buildings Situated in the Flood Plain Area or Exacerbating Flood Evolution

FEES AND CHARGES
Charges for the Withdrawal of Groundwater
Fees for the Discharge of Waste Water into Surface Water
Fee for the Pollution of Discharged Waste Water
Monitoring, Measuring and Keeping Records of Waste Water Pollution
Waste Water Pollution Analyses and Control
Advance Payments
Statement of Fees
Postponement of the Fee Payment
Remission of a Part of the Fee
Administration of Fees
Fee for Permitted Discharge of Waste Water into Groundwater
Payments to Cover Watercourse and River Basin Administration
Payments for Covering Costs of Measures in Public Interest

EXECUTION OF STATE ADMINISTRATION
Municipalities in Delegated Jurisdiction and Military Zone Authorities
District Authorities
Regional Authorities in Delegated Jurisdiction
Ministries as a Central Water Authority
Powers of a Water Authority in Emergency Measures
Water Management Supervision Executed by Water Authorities
Supreme Water Management Supervision
Czech Environmental Inspection
Powers of Persons Executing Water Management Supervision and Supreme Water Management
Water Administration Proceedings
Fines Imposed on Natural Persons Doing Business or Legal Entities
Fines for Illegal Water Withdrawals
Fines for Illegal Discharge of Waste Water or Mining Water
Fines for Illegal Use of Harmful Substances
Fines for Breaching Obligations Regarding Water Management Structures
Fines for Breaching Obligations Regarding the Use of Surface Water for Shipping
Fines for Breaching Other Obligations
Fines for Repeated Breach of Obligations
Imposing the Fine
Fine Waiver

JOINT AND TEMPORARY PROVISIONS
Joint Provisions
Temporary Provisions
Amendment to the Act on Public Health Protection
Amendment to the Misdemeanour Act
Amendment to the Act on the State Environmental Fund of the Czech Republic
Amendment to Act on Inland Shipping
Amendment to the Criminal Code, the Act on Hunting, the Act on Fishing, the Act on State Administration in Water Management Sector, the Act on the Protection of Nature and Landscape and the Forest Act
Amendment to Act on the Amendment to the Act on State Administration in Water Management Sector and the Competencies Act
Amendment to the Building Code
Amendment to the Act on the Powers of the Authorities of the Czech Republic in Matters Relating to the Transfer of Some State-owned Property to Other Legal Entities or Natural Persons

FINAL PROVISIONS

ENTRY INTO FORCE

9 DENMARK

9.1 Context of water legislation

9.1.1 Water issues and drivers for and process of change

The protection of groundwater is a main issue in Denmark. The Danish drinking water supply is almost entirely based on groundwater of a quality enabling the water to be potable after simple treatment: oxidation and sand filtration. In addition, most water courses originate from ground water wells.[57]
The coastal zone (and the integrated management thereof) is also a main topic in Danish water management. Denmark has 7,300-km coastline and no point in Denmark is further than 50 km from the nearest sea or fiord. In recent years the coastal zone is exposed to pressure and impacts due to of changes in uses (human activities). Among these changes are urbanisation, recreation and tourism, retreat of coastal occupations, changed functional demands and working conditions for harbors and reorganisation of freight traffic from land to sea.[58]
The most recent change in Danish water legislation came into force at the end of 2003. At this time, the WFD was transposed into the Law on Environmental and Ecological Objectives. [59]

9.1.2 Governance

Denmark is a unified state divided into 14 counties (*amter*) and 273 local authorities (*kommuner*) with county parliaments and local authority representatives directly elected for a four-year term. As for water management, at the national level, the Danish Ministry of the Environment sets up the overall framework for water resources management in Denmark in line with EU directives and international conventions. The Danish Environmental Protection Agency (inter alia groundwater) and the Danish Forest and Nature Agency (surface water) prepare decisions and guidelines to ensure a uniform administration of water resources in Denmark.
The counties (regional level) are responsible for water resources management, including planning, implementing, and for issuing permits for groundwater protection within their jurisdiction. Water resource plans play a vital role in the balancing of plans for the use and protection of natural resource in the open landscape. After the implementation of the WFD into Danish legislation (2003), the water resources plans are known as river basin management plans (RBMPs). Relating to groundwater, the counties have a series of management and protection duties, such as: mapping the groundwater resources, determining action plan areas for groundwater protection, preparing and implementing action plans for groundwater protection, and establishing a coordination forum for groundwater protection (COOP). This forum assists the county in the preparation and realisation of water resources planning.

---

[57] Christiansen, O. (2003) 'EU Waterframework Directive – what's the aim?', in: *Danish EPA magazine MiljøDanmark*, October 2003
[58] Anker, H.T., V. Nelleman and S. Sverdrup-Jensen (1998) *Integrated Coastal Zone Management in Denmark – ways and means for further integration*, Discussion paper for the Transnational Seminar on the European Spatial Development Perspective, Göteborg, 26 & 27 october 1998
[59] website of the Carl Bro Group; on this website it is said that the WFD is implemented via the 'Environmental Targets Act' of 2003. All seems that this is actually the Environmental and Ecological Objectives Act and that the exact translation into English isn't used unambiguously.

The municipalities are responsible for drinking water distribution planning and wastewater treatment. The utilities, which carry out the operation, can be private (owned by consumer's cooperatives) or public (municipally owned). Duties of the municipalities comprehend the preparation of a water supply plan and additional groundwater protection plans, and establishing a cooperation forum (COOF) with local waterworks with the aim of coordinating and allocating costs related to water supply safety.[60]
The Danish Coastal Authority (*Kystdirektoratet*) is a technical institution under the Ministry of Transport. Tasks of the Danish Coastal Authority include monitoring coastline changes, coastal protection, storm tides warning, supervising public bodies and individuals on compliance to Coastal Defence Acts.

9.2 Contents of water legislation

Danish legislation on water management is scattered over several acts. Primary water related acts are the Water Supply Act (1971), the Environmental Protection Act (1991), the Law on Environmental and Ecological Objectives (2003), the Coast Protection Act and the Planning Act.

9.2.1 Organic elements

The organisation of Danish water management is described above. It isn't clear which acts contain the specific elements and provisions that constitute the described organisation of roles and tasks in Danish water management.
Furthermore, it can be said that the implementation of the WFD into Danish legislation (22 December 2003) resulted in the designation of 12 river basin districts. In each district a river basin authority will be designated. This will be a county administration which is situated in the river basin. This county is responsible for the preparation of the river basin management plan.

9.2.2 Framework versus operational legislation

Denmark doesn't have a framework act in the field of water management. The several water related acts all seem to cover certain aspects of water management and (consequently) hold fairly specific provisions and regulations. However, several secondary regulations (ministerial orders) in the water field are in effect too. Because of lack of information, we cannot be more specific on the extent to which Danish water legislation has a framework character or is rather detailed in its provisions.

9.2.3 Scope / degree of integration

Danish water legislation is scattered (see above). The role and responsibilities of public bodies in the provision of water services, are defined in the Water Supply Act. This Act holds provisions on the abstraction of groundwater and surface water, as well as coastal water[61]. Waste water works however, are regulated under the Environmental Protection Act. This act also contains

[60] Jørgensen, L.F. and G. Brandt (2004) 'Description of the wider water resources management in Denmark', in: Geological Survey of Denmark and Greenland, *Report from the Merit Project – Test of Bayesian belief network and stakeholder involvement*
[61] Article 25, Water Supply Act

regulations on the prevention of water pollution (surface water as well as groundwater).[62] We don't have more information on the contents of the water related acts in Denmark. Consequently, we cannot be more specific in determining which aspects (e.g. quality – quantity; surface water – ground water) are regulated under which act(s) and how this is done. The Law on Environmental and Ecological Objectives implements the WFD in Danish legislation and includes a river basin approach. Denmark has now 12 river basins. Again, however, it is not clear what the act exactly regulates and how it functions in practice, because of lack of information (no English translation of the act available).
Coastal zone management is a main topic in Danish water policy. The legal framework concerning coastal management is however (also) scattered. The Planning Act and the Nature Protection Act are relevant for in-land activities and functions. The former lays down a 3-kilometre in-land coastal protection zone within which planning for new activities is restricted (this protection zone is not specified in urban zones, thus urban zones are not included). These coastal protection considerations should be integrated into conventional regional, municipal and local planning. The Nature Protection Act lays down a 300 meter in-land beach protection zone, in which new activities are prohibited, unless particular circumstances indicate a need to grant an exemption. Sea-based activities in the coastal zone are mainly regulated by the Marine Environment Protection Act and the Coast Protection Act. The latter deals primarily with coast erosion issues. The Danish Coastal Authority administers this Act. The strong separation as regards to land-based and sea-based activities is considered to be a main obstacle for an integrated coastal zone management.[63]

9.2.4 Horizontal coordination

Water related requirements are incorporated into environmental legislation (Environmental Protection Act, Law on Environmental and Ecological Objectives; see above) and into planning legislation (Planning Act). In the latter many provisions are incorporated for coastal zone management (see above). These incorporations of water aspects into legislation of other policy fields seem to point to horizontal coordination. However, water does not seem to be a real focal point in this coordination. We cannot further elaborate on this point further because of the lack of information on the Danish case.

9.2.5 Planning

Before the implementation of the WFD, water resource management took place on county and municipal level. Counties used to be responsible for the planning and management of the aquatic environment. Therefore, they drew up water resources plans that played a vital role in the balancing of plans for the use and protection of natural resource in the open landscape.

[62] website of the Danish Environmental Protection Agency; http://www.mst.dk/homepage/
[63] Anker, H.T., V. Nelleman and S. Sverdrup-Jensen (2003) *Integrated Coastal Zone Management in Denmark*, paper submitted for the conference "Rights and Duties in the Coastal Zone", Stockholm, June 2003

Furthermore, the regional (spatial) plans, under the Planning Act, should include guidelines on the quality of water and use of watercourses, lakes and coastal waters.[64]
After the implementation of the WFD, planning will take place at the level of river basins and consequently the water resources plan will be known as a river basin management plan. The procedure for drawing up and approving the plan seems complicated. First, each county council in the river basin district prepares a proposal as regards to its own territory. These proposals are merged by the designated water district authority (one of the counties; see above) for the entire district. This proposal goes for approval to the county councils. After approval, a hearing is held for the municipal councils in the district. The proposal should then be revised as a result of the hearing and is forwarded to the county councils again for approval. Then, a public hearing is held, which can also result in a revision and new approval of the proposed plan.[65]
According to the Water Supply Act, the counties shall identify in their regional (spatial) plans a priority grouping of valuable drinking-water abstraction areas. For these areas, action plans should be prepared. These plans shall be based on a detailed survey of land use, potential contamination threats and nature protection of the relevant water resources. The plans should include a detailed assessment of the need for protection and guidelines. Also a time schedule for the action required by the public authorities to achieve this protection should be included. Municipalities may adopt water supply plans which determine how water supply shall be organised, including the supply zones each system shall have. All or part of a water supply plan may be prepared in cooperation with other local councils. The water supply plan may not contradict the regional spatial plan, the water resources plan or a regional action plan. The municipality can, however, draw up additional action plans for areas, if the local council or the owner of the public water-supply system considers that the guidelines or priorities established in the water-resource planning and the regional plan are inadequate to ensure the interests of the local council or the public water-supply system. These plans cannot, however, contradict with the county plans.[66]

9.2.6 Instruments

Permits and licenses

A permit is required for the abstraction of groundwater and surface water as well as for the renovation or alteration of a construction serving this purpose. Abstractions (> 3000 m3/ year) of groundwater are subject to licensing by the county council. Licenses for minor groundwater abstractions (< 3000 m3/ year) are issued by municipalities. Permits for the abstraction of water shall be granted for a specific period of time and shall not exceed 30 years. Permits for the abstraction of water for the irrigation of crops and for freshwater aquaculture, however, may not exceed a time period of 15 years for groundwater and 10 years for surface water. A permit shall specify the purpose and quantity of the abstraction. It also describes the way in which the owner

[64] Jørgensen, L.F. and G. Brandt (2004) 'Description of the wider water resources management in Denmark', in: Geological Survey of Denmark and Greenland, *Report from the Merit Project – Test of Bayesian belief network and stakeholder involvement*;
[65] Anker, H.T. 'Implementation of the WFD in Denmark, presentation for a Nordic Environmental Law Network (NELN) Workshop "Planning Law and Integrated Resource Management", 25-26 august 2003, Copenhagen
[66] articles 11-13, Water Supply Act

of an installation used for abstraction should monitor to enable an assessment of the impact of any harm to the environment resulting from changes in the water table, the flow in watercourses, or the water level in lakes etc.[67]

Economic instruments

The Water Supply Act holds a part on penalties for not complying with the act[68]. Furthermore, the Water Supply Act provides for the possibility to expropriate for the purpose of the development of a publicly owned water-supply system or a privately owned public water-supply system when the public interest requires this (and when a permit has been granted to the system)[69]. We did not identify information on other economic instruments in Danish water management

Monitoring, control and supervision

The local councils shall supervise the organisation and operation of water-supply systems. The owner of a water-abstraction installation must periodically check the amount of water abstracted and report this to the local council each year. Furthermore, the minister for the Environment may establish rules for water supply systems, e.g. rules on registration of quantities of water abstracted, rules specifying which substances may be added to water used for drinking water, rules on the quality of drinking water, etc.[70]

Sources of information

Legislation
- Water Supply Act

Literature
- Anker, H.T. *Implementation of the WFD in Denmark*, presentation for a Nordic Environmental Law Network (NELN) Workshop "Planning Law and Integrated Resource Management", 25-26 august 2003, Copenhagen
- Anker, H.T., V. Nelleman and S. Sverdrup-Jensen (1998) *Integrated Coastal Zone Management in Denmark – ways and means for further integration*, Discussion paper for the Transnational Seminar on the European Spatial Development Perspective, Göteborg, 26 & 27 October 1998
- Anker, H.T., V. Nelleman and S. Sverdrup-Jensen (2003) *Integrated Coastal Zone Management in Denmark*, paper submitted for the conference "Rights and Duties in the Coastal Zone", Stockholm, June 2003
- Christiansen, O. (2003) 'EU Waterframework Directive – what's the aim?', in: *Danish EPA magazine MiljøDanmark*, October 2003

[67] article 19-22, Water Supply Act; Jørgensen, L.F. and G. Brandt (2004) 'Description of the wider water resources management in Denmark', in: Geological Survey of Denmark and Greenland, *Report from the Merit Project – Test of Bayesian belief network and stakeholder involvement*;
[68] part 14, Water Supply Act
[69] part 7, Water Supply Act
[70] Article 56-60, Water Supply Act

- Jørgensen, L.F. and G. Brandt (2004) 'Description of the wider water resources management in Denmark', in: Geological Survey of Denmark and Greenland, *Report from the Merit Project – Test of Bayesian belief network and stakeholder involvement*

Websites
- website of the Danish Environmental Protection Agency; http://www.mst.dk/homepage/
- website of the Carl Bro Group; http://www.carlbro.com

9.3 Table of contents of the Water Supply Act

Consolidated Act No. 130 of 26 February 1999 on Water Supply etc. as amended by section 10 of Act No. 355 of 2 June 1999 and Act No. 374 of 2 June 1999

PART 1
Purpose etc.

PART 2
General provisions

PART 3
Surveying and planning

PART 4
Abstraction of water and installations for the abstraction of water

PART 5
Other abstraction and drainage of water

PART 6
Change in and lapsing of the right to abstract water

PART 7
Expropriation and agreements on real property

PART 8
Supply obligation etc.

PART 9
Relationship between a public water-supply system and the consumers

PART 10
Supervision etc.

PART 11
Various provisions

PART 12
Decisions in water-supply cases

PART 13
Appeals

PART 14
Penalties and entering into force

10 ENGLAND AND WALES

10.1 Context of water legislation

10.1.1 Water issues, drivers and process of change

A big issue in the dryer parts of England, especially in the summer, is the risk of drought in relation to irrigation. In these areas (south-east) the density of population is very high, which increases the problems. Problems arose in the early 1990s as a result of over-abstraction. Some authors suggest that this could take place because abstraction licenses had been granted with little restriction in the past. To deal with this problem, the English and Welsh authorities amended their legislation with a view to preventing shortage of water by adding a time limit to new permits.[71]

There is also a lot of attention for the water industry in English and Welsh water management. The water and wastewater industry was privatised in 1989 by the Water Act 1989. This created ten large privatised water/wastewater service companies. After the privatisation, regulations and legislation have been issued to ensure that the water companies would provide acceptable quality services. In these regulations and legislation, a lot of attention seems to go to the interest of the water consumers. The 2003 Water Act for example provides for the establishment of a new Consumer Council for Water (see further).

Flooding is another important issue in English and Welsh water management. 10% of England is at risk (ca. 4-5 million people); the greater proportion of this area is at risk of flooding from the sea rather than rivers. As regards to the risk of flooding, the Environment Agency is developing 120 Catchment Flood Management Plans that will analyse flood risk management over entire catchments[72].

Water quality has been an issue in water management for the last 50 years, particularly for rivers in urban areas. The need for this is illustrated by the River Thames case in London in 1950. The river was so polluted that fish could not survive. Since then, major efforts have been made to water quality of rivers. However, this issue remains high on the agenda of water managers.[73]

The WFD is already transposed into legislation in England and Wales. It hasn't led to an amendment of the Water Act though, but to the enactment of a separate piece of legislation, the Water Environment (Water Framework Directive) (England and Wales) regulations 2003. These regulations seem to be a strict implementation of the WFD. River basin districts are designated and the Environmental Agency is made responsible for drawing up the river basin management plans and the programmes of measures. For the monitoring and achieving of the good status of surface water and groundwater, the Regulations frequently refer to the provisions of the WFD itself.

[71] Tunstall, S. and C. Green (2003) *From listener to talker: the changing social role of the citizen in England and Wales*, report produced as part of Work Package 4 of the HarmoniCOP Project, Middlesex University Flood Hazard Research Centre

[72] bid.

[73] ibid.

10.1.2 Governance

The UK does not have a written constitution and the courts have historically been subservient to parliament and relatively centralised, which was even further strengthened in the Thatcher period. The Blair Government introduced significant decentralisation to regional parliaments (devolution) and local government.[74]

The UK has different legal and administrative arrangements for water and environmental management in England & Wales, Scotland and Northern Ireland. The responsibility of all aspects of water policy in England and Wales resides under the Department of the Environment, Food and Rural Affairs (DEFRA). This includes (1) drinking water quality, (2) the quality of water in rivers, lakes and estuaries, coastal and marine waters, (3) sewage treatment and (4) reservoir safety.
Within DEFRA there is a Water and Land Directorate which is responsible for all aspects of water policy, including water supply and resources, and the regulatory systems for the water environment and the water industry. Although DEFRA is the department with overall responsibility for environmental issues including water, the bulk of its work is carried out, at arms length, by the Environment Agency (EA). The EA is a so-called non-departmental public body. Is should operate within the directives of DEFRA and since 1999, the National Assembly of Wales. The EA is the executive body for water management in England and Wales, besides it is responsible for the long-term planning of water quality, water provision and protection against flooding.[75] DEFRA also oversees the Office of Water Services (OFWAT), which is responsible for economic regulation of the water industry. It is a non-ministerial government department led by the Director General of Water Services. Its tasks are inter alia, setting limits on what companies can charge, ensuring companies are able to carry out their responsibilities under the Water Industry Act 1991, protecting the standard of service of the water companies.
For preventing local flooding 235 internal drainage boards exist. These boards are under supervision of the EA (water collection, drainage), the Drinking Water Inspectorate (quality of drinking water) and the Office for Water Management (OFWAT) who regulates the water price.

10.2 Contents of legislation

The most recent piece of water legislation for England and Wales is the Water Act and the abovementioned Water Framework Directive Regulations of 2003. The Water Act concerns mainly the regulation of certain aspects of the water services industry. The four broad aims of the act are:

- the sustainable use of water resources;
- strengthening the voice of consumers;
- a measured increase in competition; and
- the promotion of water conservation.

[74] ibid.
[75] Ngurare, T. E. (2002) *Implementation of Water Reform in Namibia: - Are there Lessons to be learned for the United Kingdom Case Studies?*, A dissertation submitted to the Centre for Energy, Petroleum, Mineral act and Policy of The University of Dundee in partial fulfillment of requirements for the degree of Masters of Law (LLM)

The act contains 3 parts: (1) abstraction and impounding (mainly on a new type of license), (2) new regulatory arrangements and (3) a part miscellaneous. The provisions of the Water Act mainly amend other acts; the first part primarily amends the Water Resources Act of 1991 and the second part primarily amends the Water Industry Act of 1991. Furthermore, in part three, in addition to the acts mentioned, the Environment Act of 1995, the Environmental Protection Act of 1990 and the Reservoirs Act of 1975 are amended. All these acts can be considered as water-related legislation.

10.2.1 Organic elements

It is not clear what the legal foundations are of the described organisation of water management. The organisation of the water industry however is more accessible. The legal framework for the organisation of the water industry began with the enactment of the 1973 Water Act. This legislation reorganised the water industry in England and Wales into ten regional Water Authorities (9 in England and 1 in Wales) based on river basin catchment areas. These were responsible for water and sewage treatment services. The legislative reform continued with the enactment of the 1983 Water Act, which for the first time obliged the Water Authorities to make arrangements for the representation of consumer's interests. The legal and regulatory framework again changed in 1989 with the 1989 Water Act which in turn was subsequently consolidated into the Water Industry Act 1991 and the Water Resources Act 1991. The fundamental change introduced by the 1989 Water Act has been the transfer of the Water Authorities water supply functions to the Water Service Companies. This led to the privatisation of the water industry sector.

The 2003 Water Act contains some organic elements with regard to the water industry sector, mainly on consumer interests. Before the 2003 Act, 10 regional Customer Service Committees existed in England and Wales under the name of WaterVoice. These committees represented the interests of customers in respect of price, service and value for money; they also investigated complaints from customers about their water company. The 2003 Act sets up a new independent Consumer Council for Water to replace the Customer Service Committee. Another change introduced by the 2003 Act, is related to the OFWAT, the economic regulator for water and sewerage services in England and Wales. According to the 2003 Water Act, the tasks of OFWAT will be transferred to the Water Service Regulation Authority. Both Council and the Regulation Authority are given duties in relation to contributing to sustainable development and consumer interest.[76] It isn't quite clear what the practical consequences are of these transfers of responsibilities.

10.2.2 Framework versus operational legislation

The provisions of the 2003 Water Act amended mainly the Water Resources Act and the Water Industry Act. The goal of the act is inter alia to increase the opportunities for competition in the supply of water services. The provisions to achieve this seem to be on the one hand of a

[76] Tunstall, S. and C. Green (2003) *From listener to talker: the changing social role of the citizen in England and Wales*, report produced as part of Work Package 4 of the HarmoniCOP Project, Middlesex University Flood Hazard Research Centre; Website of WaterVoice and the Office of Water Services; www.ofwat.gov.uk; part 2, Water Act 2003

framework character and on the other hand of a more operational character. An example of the former is the establishment of the new Water Services Regulation Authority which is given new regulatory powers to administer the competition framework. The more operational character of the 2003 Water Act is reflected in setting up a system to license new entrants to supply water to large commercial and industrial customers based on a water consumption threshold.[77]

10.2.3 Scope / degree of integration

The most recent piece of water legislation is the 2003 Water Act. This Act holds provisions which amend legislation relating to abstraction and impounding of water and the organisation within the water Industry sector. The act is not to be considered as an integrated water act. It holds provisions on water quantity, but not (or very little) on water quality; it relates to water services, but it doesn't take an explicit (river) basin approach. It is not clear whether the act applies to surface water and groundwater. This is because the act is in fact an amendment of several other acts, so the provisions which it contains are inserted in other legislation. As mentioned above, besides the Water Act, the Water Resources Act, the Water Industry Act, the Environmental Protection Act and the Reservoirs Act of 1975 can be considered as water-related legislation. However, it is not quite clear which of these acts contain what aspects of water management (see also under instruments).

10.2.4 Horizontal coordination

Water management in England and Wales does not seem to have strong links with other policy fields. As mentioned below, water management could be considered as subservient to spatial planning, resulting in the lack of links with this policy field. Also in the case of integrated coastal zone management, where one could expect interdisciplinary links, little cross-sectional initiatives seem to exist. Institutional roles and responsibilities are said to be spread across many organisations and are covered by a large number of legal provisions. Authors state that rarely an interdisciplinary approach is chosen to work across the several sectors involved in the coastal zone.[78]

10.2.5 Planning

In England and Wales there exist a whole range of water (related) management plans. Examples are the Local Environment Agency Plans (LEAP's), Catchment Abstraction Management Strategies, Water Resource Management Plans, Shoreline Management Plans, Drought Plans, Integrated Coastal Zone Management Plan, Catchment Flood Management Plans and several more.[79] The names of these plans suggest what they are about, but it is not clear what the exact contents of the plans are or should be. Although lots of water management plans can be named;

[77] Explanatory Notes to Water Act 2003
[78] Atkins (2004) 'Institutional roles and responsibilities in the coastal zone', in: *ICZM in the UK: A Stocktake, chapter 3*, (found at: http://www.defra.gov.uk/environment/marine/iczm/)
[79] Department for Environment, Food and Rural Affairs (2002) *Directing the flow – Priorities for future water policy*, Defra Publications: London

some authors have suggested that water management (planning) is seen as subservient to land management rather than a constraint on land management[80].
Under 'water issues' we referred to the preparation of flood management plans. It remains however unclear what these plans are and how this works in practice.

Currently, the Blair administration is reforming government through a devolution process. This trend has influenced the thoughts on planning as well, leading to a reform of the English (spatial) planning system. In 2004 the Planning and Compulsory Purchase Bill was passed by Parliament, containing the roots of a new planning system[81]. Under the system, central government will provide less guidance and regional planning by new regional planning bodies will be enhanced.[82]
It is not quite clear what the effect of this reform of the planning system is on water management planning.

10.2.6 Instruments

Permits and licenses
It is fairly unclear in which other primary legislation permits and licenses are regulated for certain water uses, except for the abstraction and impounding of water (see below). In the Environmental Protection Act of 1990 it is regulated that the Secretary of State may, by regulations, prescribe any description of process which after a prescribed date requires an authorisation. The Secretary of State has the same competency in prescribing any description of substance as a substance the release of which into the environment is subject to authorisation.[83]
The act itself does contain provisions on several detailed aspects of the 'authorisation', but it is not clear what is subject to authorisation.
It is possible that there are more provisions on authorisations, permits and licenses in the Control of Pollution Act of 1978, the Sewerage Act of 1968 and the Water Act of 1980 (and secondary legislation), but we could not access information of these acts.

The Water Act of 2003 holds some amendments to the existing framework of abstraction and impounding licenses, based on the Water Resources Act of 1991[84]. It moves from a licensing scheme based on purpose of use to one based on volume consumed.
The Water Act of 2003 creates two new forms of abstraction license besides the existing 'full license', namely the transfer license and the temporary license. A temporary license is required for any abstraction from a source for less than 28 days. A transfer license is available for abstraction of water for 28 days or more for transfer from one source of supply to another without use. A transfer license is also available for transfers between two points in the same source of supply where the abstraction is related to drainage of works such as quarries. It is possible to

[80] Tunstall, S. and C. Green (2003) *From listener to talker: the changing social role of the citizen in England and Wales*, report produced as part of Work Package 4 of the HarmoniCOP Project, Middlesex University Flood Hazard Research Centre
[81] Website of the Office of the Deputy Prime Minister; http://www.odpm.gov.uk/
[82] Tunstall, S. and C. Green (2003) *From listener to talker: the changing social role of the citizen in England and Wales*, report produced as part of Work Package 4 of the HarmoniCOP Project, Middlesex University Flood Hazard Research Centre
[83] Section 2, Environmental Protection Act 1990
[84] Article 24 and further, Water Resources Act 1991

apply for a full license if the applicant wants full protection from derogation for his transfer. A full license is required for any other abstraction for 28 days or more.
In addition, all new abstraction licences will be time-limited. This should help to prevent over-abstraction and the risk of drought. The time-limited licenses should increase flexibility to make changes to abstraction rights in view of climate change and increased demand.[85]

The Water Act also amends existing control over impoundments. It widens the control over impoundments so that licenses are required for the whole duration of impoundment works. The current restriction on impounding of water makes it an offence to start constructions or alter an impounding work unless an impounding license has been obtained. This section amends the current restriction on impounding in order to impose controls throughout the lifetime of new impounding works. Impounding licenses (whether issued before or after the coming into force of this section) will remain in force for the lifetime of the works, allowing the Agency to attach or modify conditions to the licence to ensure that impounding works do not cause damage to the environment[86].

Economic instruments
Under the Environmental Protection Act, it is determined that the Secretary of State may, from time to time, make or revise a scheme prescribing fees and charges that should be paid in respect of application for authorisations[87]. We have not found more information on these fees and charges or any other specific economic instruments.

Sources of information

Legislation
- Water Act 2003
- Water Resources Act 1991
- Environmental Protection Act 1990

Literature
- Atkins (2004) 'Institutional roles and responsibilities in the coastal zone', in: *ICZM in the UK: A Stocktake, chapter 3*
- Department for Environment, Food and Rural Affairs (2002) *Directing the flow – Priorities for future water policy*, Defra Publications: London
- Explanatory Notes to Water Act 2003 (chapter 37) of the UK Parliament
- Ngurare, T. E. (2002) *Implementation of Water Reform in Namibia: - Are there Lessons to be learned for the United Kingdom Case Studies?*, A dissertation submitted to the Centre for Energy, Petroleum, Mineral act and Policy of The University of Dundee in partial fulfillment of requirements for the degree of Masters of Law (LLM)
- Tunstall, S. and C. Green (2003) *From listener to talker: the changing social role of the citizen in England and Wales*, report produced as part of Work Package 4 of the HarmoniCOP Project, Middlesex University Flood Hazard Research Centre

[85] Explanotory notes to Water Act 2003; section 1, Water Act 2003
[86] Explanotory notes to Water Act 2003; sections 2-4, Water Act 2003
[87] Section 8, Environmental Protection Act, 1990

Websites

- Website of the British and Irish Legal Information Institute; www.bailii.org
- Website of WaterVoice and the Office of Water Services; www.ofwat.gov.uk
- Website of the Department for Environment Food and Rural Affairs; http://www.defra.gov.uk
- Website of the Office of the Deputy Prime Minister; http://www.odpm.gov.uk/
- http://www.defra.gov.uk/environment/marine/iczm (literature)

10.3 Table of contents of the Water Act 2003

PART 1

ABSTRACTION AND IMPOUNDING

Restrictions on abstraction and impounding

Section

1 Licences to abstract water
2 Restrictions on impounding
3 Existing impounding works
4 Existing impounding works: works notices
5 Rights of navigation, harbour and conservancy authorities
6 Rights to abstract small quantities
7 Rights to abstract for drainage purposes, etc
8 Amendments relating to section 7
9 Power to provide for further exemptions
10 Orders under section 33 of the WRA, etc

Applications for a licence

11 Who may apply for a licence
12 Abolition of combined licences
13 Applications: types of abstraction licence
14 Publication of application for licence

Consideration of licence applications

15 General consideration of licence applications
16 Protection from derogation
17 Protected rights
18 Register of certain protected rights

Form, contents and effect of licences

19 Form, contents and effect of licences
20 Limited extension of abstraction licence validity

42 Standards of performance in relation to sewerage services

Functions of the Council

43 General functions of the Council
44 Provision of information to the Council
45 Provision of statistical information to consumers etc
46 Consumer complaints
47 Investigations by the Council

Enforcement of obligations

48 Financial penalties
49 Enforcement of certain provisions

Remuneration and standards of performance

50 Links between directors' pay and standards of performance

Miscellaneous

51 Reasons for decisions
52 Co-operation between water regulators

The Competition Commission

53 Specialist members of the Competition Commission
54 Determination references under section 12 of the WIA
55 Conditions of appointments under the WIA

Licensing of water suppliers

56 Licensing of other water suppliers

PART 3
MISCELLANEOUS

The Drinking Water Inspectorate

57 The Chief Inspector of Drinking Water and the Drinking Water Inspectorate

Water fluoridation

58 Fluoridation of water supplies

Water resale

59 Charges for services provided with the help of an undertaker

Penalties

60 Abstraction and impounding offences
61 Supplying water unfit for human consumption

Water resources management plans
62 Water resources management plans

Drought
63 Drought plans
64 Drought orders and drought permits: charges
65 Procedure at local inquiries

Land drainage and flood defence
66 Revocation of local flood defence schemes
67 Membership of regional flood defence committees in Wales
68 Regional flood defence committees
69 Grants for drainage works and flood warning systems

Information
70 Information

Powers of entry
71 Extension of Environment Agency's powers of entry

Environment Agency's general water resources duty
72 Efficient use of water resources

Border rivers
73 Border rivers

Reservoirs
74 Environment Agency to be enforcement authority under the Reservoirs Act 1975
75 Extension of enforcement authority's reserve powers
76 Service of documents
77 Flood plans: large raised reservoirs
78 National security
79 Offences
80 Crown application

Water conservation

81 Duty to encourage water conservation
82 Water conservation: requirements on relevant undertakers
83 Water conservation by public authorities

Fire hydrants
84 Fire hydrants

Coal mine water pollution
85 Control of water from coal mines

Contaminated land
86 Contaminated land: pollution of controlled waters

Discharge consents
87 Transfer of discharge consents

Trade effluent consents
88 Trade effluent consents
89 Trade effluent consents: conditions of consent

Water mains, etc
90 Water main requisitions: financial conditions
91 Water main requisitions: calculation of payments
92 Self-lay and adoption of water mains and service pipes

Sewers and drains
93 Requisition and adoption of sewers
94 Provision of public sewers otherwise than by requisition
95 Requisition of lateral drains
96 Adoption of lateral drains
97 Requisitioning and adoption of lateral drains: supplementary
98 Schemes for the adoption of sewers, lateral drains and sewage disposal works
99 Communication with public sewers

PART 4
SUPPLEMENTARY
100 Devolution: Wales
101 Minor and consequential amendments and repeals
102 Specific transitional and transitory provisions

103 Powers to make further supplementary, consequential and transitional provision, etc
104 Regulations and orders
105 Interpretation, commencement, short title, and extent

11 FRANCE

11.1 Context of water legislation

11.1.1 Water issues, drivers and process of change

France enacted its first water act in 1964, which laid down the basis for water management in France. This was followed by the establishment of six Water Agencies (later known as *Agences de l'Eau*; or River Basin Agencies) in 1971. In 1992, considerable amendments were made in the 1964 Water Act. Some factors that had influence on the amending operation of the 1964 act were: recurring droughts, newly identified pollution problems, insufficient development in the field of wastewater treatment and an inadequate approach to the problems of storm water. Goals of this operation were to remedy the inadequacies and disparity of existing legislation, improving the effectiveness of water policy and promoting a 'balanced' management of water and aquatic environments.[88]
In 2002 the Water Act was amended again to transpose (parts of) the WFD into law. The 2002 amendments contained provisions for decentralising the management of water resources, provisions for water and waste water treatment (*services publics*), provisions for the reform of the Water Agencies and provisions for the protection of water resources.[89]However, many of the provisions of the WFD need to be transposed into legislation. As a consequence, the French Ministry of Ecology and Sustainable Development has started a national debate on the necessary reforms in the French water sector and French water policy. The river basin approach which is an important part of the WFD, is already common practice in France. This means that the basic structure of water resources management will remain unchanged. There are however some changes to be expected in the competencies and instruments of several bodies involved in water resources management.[90]

11.1.2 Governance

France is a unitary state characterised by the large authority vested in the central government. The lowest level of government are the municipalities (almost 37.000 *communes*). In between the municipalities and the central state, there are two administrative layers, namely that of the Departments (*96 Départements)* and of the Regions (*22 Régions)*. Furthermore, there are six specialised, functionally decentralised water agencies, the River Basin Agencies (*Agences de l'Eau)*. France is a centralised country; this is for example reflected in the system of prefects at the regional level, who are the representatives of the State in the regions.

[88] Chéret, I. (1993) 'Managing Water: The French Model', in: I. Serageldin en A. Steer (eds.) *Valuing the Environment – Proceedings of the First Annual International Conference on Environmentally Sustainable Development*, held at the World Bank, Washington D.C.
[89] Bongaerts, J.C. (2002) 'The *Projet de Loi sur l'Eau*', in : *European Environmetal Law Review*, august/september 2002
[90] Ministère de l'Écologie et du Développement Durable (2004) *Premières propositions pour une réforme de la politique de l'eau – débat national sur la politique de l'eau*

11.2 Contents of water legislation

The Water Act (*Loi sur l'eau*) is the most important water act in France. It stipulates that "water forms a part of the common assets of the nation. Its protection, value enhancement and its development as a usable resource, while respecting natural balances, are in the general interest"[91].

11.2.1 Organic elements

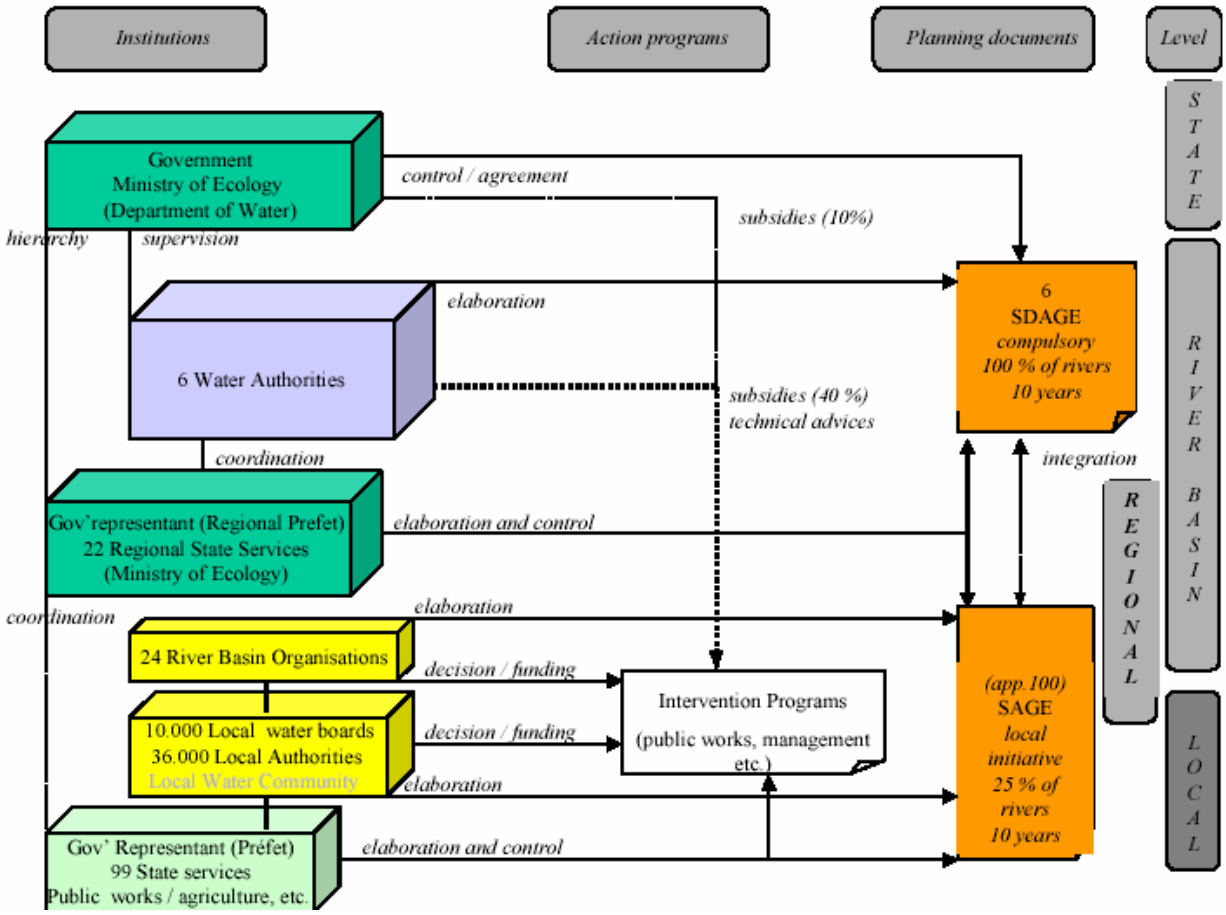
In 1992 all governmental bodies with responsibilities in the field of water management were grouped within the Ministry of the Environment, in particular in the new Water Directorate. This directorate is now responsible for the field of water management at the central level and coordinates and supervises the River Basin Authorities. Furthermore, it prepares water management policy, initiates and monitors water use regulations, and oversees the organisation of the water sector. In this, the Directorate receives guidance form (1) the Interministerial Water Commission (*Mission Interministérielle de l'Eau*), which represents thirteen ministries, and (2) the National Water Committee (*Comité National de l'Eau*), which consists of representatives of the different categories of water users, river basin authorities, and the government, and expresses opinions on national water management policy.[92] The explanation below on the organisation of the French water sector, follows the division made in figure III.

At the river basin level (level of Water Authorities in figure 1), each basin has its Basin Committee, which functions as a 'water parliament'. It defines the water management policy for the basin. The committee consists of representatives of governmental bodies at different levels, stakeholders and some experts. The Basin Committee's executing agency is the Water Agency, an administrative public body under the responsibility of the State, but that has a significant autonomy. The Water Agencies are responsible for drawing up the *SDAGEs* (see below). In addition, the Agencies impose charges on pollution and abstractions. They also grant subsidies for pollution reduction measures, sewage treatment and river maintenance.[93]
The Regional Prefect is in charge of co-ordinating water planning at the département level, in particular concerning zones sensitive to eutrophication, sustainable sand and gravel extraction and migration of fish, which are in fact main issues in France.[94]
In 1999 (officially), 24 major joint water boards were created (*établissements publics territoriaux de basin*) to promote their interests and vision on water policy (which can be different from the Ministry of the Environment or the Water Agencies). These organisations have the administrative status of transboundary coalitions uniting *communes*, *départments* (2 at least) and/or a region. (These organisations are called *syndicat mixte* or *institutions interdépartementales*). The 2002 amendments of the Water Act acknowledged the existence of these organisations and mentioned

[91] Article 1, Water Act
[92] Chéret, I. (1993) 'Managing Water: The French Model', in: I. Serageldin en A. Steer (eds.) *Valuing the Environment – Proceedings of the First Annual International Conference on Environmentally Sustainable Development*, held at the World Bank, Washington D.C.
[93] Jaspers Frank G.W. (2001), Water Law and Institutions, IHE Lecture Notes, Delft
[94] ibid.

their role in the process of drawing up the SAGE (see below). In addition, they have a role in deciding upon and funding public works.[95]

Figure III: Institutional framework of the French water sector



Source: Anonymous (2002) 'Public participation and the European Water Framework Directive – Developing water citizenship', French Report of the HarmoniCOP project

As a result of the 1992 amendments, local water boards (*commission locales de l'eau*) have been set up, which are responsible for drawing up SAGEs. The boards are composed by one half of elected representatives of local communities, by one quarter of water users and by one quarter of State representatives.[96]
The municipalities are responsible for drinking water supply, sewage collection, waste water treatment and river maintenance. Since French municipalities are quite small entities (80% of them have less than 1000 habitants) and therefore lack the funds and knowledge to carry out these tasks, such services are usually either contracted out to the water industry, or taken care of

[95] Anonymous (2002) *Public participation and the European Water Framework Directive – Developing water citizenship*, French Report of the HarmoniCOP project
[96] Jaspers Frank G.W. (2001), *Water Law and Institutions,* IHE Lecture Notes, Delft.

by a number of municipalities jointly (*communauté de communes*). The French water industry is a major player, providing approximately 80% of drinking water in France, managing the largest waste water treatment plants and a large part of the sewerage network.[97]

11.2.2 Framework versus operational legislation

The French Water Act is to be considered as framework legislation. It contains general guidelines on water management in France and it describes the organisation of the water sector plus the main instruments for implementing it (planning, fees). Article 8 states that 'rules for the preservation of the quality and the allocation of surface, ground and ocean waters within the limits of the territorial waters, shall be determined by a decree of the 'Conseil d'Etat'. The article further specifies what should be regulated concerning quality standards, allocation rules and other relating provisions. The act thus delegates more specific, operational rules to secondary regulation.

11.2.3 Scope / degree of integration

The 1992 Water Act is aimed at 'the balanced management of water resources'[98]. This concept covers the management of water quality as well as water quantity, with special reference to flood control. Also, the act applies to groundwater, surface water, including marine waters, and aquatic environments (e.g. wetlands). The Act is based on a river basin approach and also holds provisions on some aspects of water services. These provisions actually amend the Municipal Code (*Code des Communes*) and the Public Health Code, in which it is stated that water services are a task of the municipalities[99].

11.2.4 Horizontal coordination & cooperation (including international)

Integration of water resources planning (see below) in regional planning (spatial planning) is sought in the regional development plans. Water policy should be integrated in these plans[100]. Furthermore, the Regions are represented in the Basin Committees which draw up Water Master Plans for the river basins (see above). We have found no other specific reference on horizontal coordination with water management issues. However, it seems that the water management plans which are drawn up in France (see below for an explanation on the SDAGEs and the SAGEs) may also have serious spatial planning consequences. We have, however, no information found on how this coordination is regulated.

---

[97] Jaspers Frank G.W. (2001), Water Law and Institutions, IHE Lecture Notes, Delft

[98] Article 2. Water Act

[99] Chapter II, Water Act; Chéret, I. (1993) 'Managing Water: The French Model', in: I. Serageldin en A. Steer (eds.) *Valuing the Environment – Proceedings of the First Annual International Conference on Environmentally Sustainable Development*, held at the World Bank, Washington D.C.

[100] Chéret, I. (1993) 'Managing Water: The French Model', in: I. Serageldin en A. Steer (eds.) *Valuing the Environment – Proceedings of the First Annual International Conference on Environmentally Sustainable Development*, held at the World Bank, Washington D.C.

11.2.5 Planning

River basin management planning in France was not introduced as a result of the WFD, but was already institutionalised by law in 1992. This particular act lays down the procedures concerning the policing and management of water resources at two geographic levels: the entire hydrographic basin and the individual hydrographic unit (river or aquifer). For the first, a Water Resources Development and Management Master Plan (*SDAGE*) is drawn up, which determines policy orientations for a basin or a group of basins. It defines the objectives concerning a wide scope of issues, such as water quantity, quality, surface and groundwater, wetlands and ecosystems, coastal regions, flooding, etc., as well as the measures needed to achieve the objectives. The SDAGEs include very detailed appendices listing water resources, main users, pollution discharges, etc. The SDAGEs are prepared by the Basin Committee on the initiative of the Prefect of the Region in which the Water Agency is located and cover a period of five years. The Water Agencies direct the planning process for the SDAGE from start to finish, with the help of regional governmental bodies. The Prefect approves, on behalf of the state, the final version of the *SDAGE*. Programmes and administrative decisions in the water field must be compatible or made compatible with the contents of the SDAGE. Some SDAGEs define boundaries for the SAGEs. [101]

Management plans (*SAGES*) are drawn up for (a group of) sub-basins corresponding to hydrographic units or aquifer systems and define general objectives for the use, development, and quantitative and qualitative protection of surface and groundwater resources and aquatic ecosystems, as well as the preservation of wetlands. The preparation, revisions, and monitoring of a SAGE are the responsibility of a special commission, the Local Water Commission (81 *Commissions Locale de l'Eau* in 2002). To make it easier to meet the objectives of the SAGE, the act provides for the possibility of establishing a public body, a Local Water Community (*Communauté Locale de l'Eau*), which will act as the owner for public works, structures, and installations executed in pursuance of the objectives of the SAGE.[102]

11.2.6 Instruments

Permits

Permits are needed for almost all uses of groundwater and surface water. Applications are handled by the departmental or regional state administrations. A public inquiry is required if an activity or particular use of water is considered harmful to health and safety, has serious impacts on water resources and aquatic ecosystems, is harmful to the free flow of water, or increases the risk of flooding. After this inquiry a permit may be given. Upon receiving the permit, the owners or operators of a facility are required to set up monitoring systems and report on their results.[103]

[101] Anonymous (2002) *Public participation and the European Water Framework Directive – Developing water citizenship*, French Report of the HarmoniCOP project; Jaspers, G.W.
[102] Chéret, I. (1993) 'Managing Water: The French Model', in: I. Serageldin en A. Steer (eds.) *Valuing the Environment – Proceedings of the First Annual International Conference on Environmentally Sustainable Development*, held at the World Bank, Washington D.C.
[103] Jaspers Frank G.W. (2001), Water Law and Institutions, IHE Lecture Notes, Delft

River contracts (contrats de rivière)

At the end of the 1970s it became evident that riparians of privately owned rivers would participate less and less to the maintenance of the bed and banks. The duty was left to local authorities which lacked the qualified personnel. Therefore, the regional branches of the Ministry of the Environment Water Agencies, with the financial support of the Water Agencies, support the development of specific water policy communities at catchment level through so-called river contracts, to collectively organise river maintenance.[104] In short, river contracts provide a framework for collaboration between local and higher level governments, water administrations and users. It is less formal and therefore more flexible than the procedures for the SDAGEs and SAGEs.[105]

Economic instruments

Charges may be levied on public or private groups or individuals if they:
- contribute to the deterioration of water quality;
- extract water for use from natural sources; or
- alter a river basin's aquatic environment.

The water charge system is managed by the six Agencies and is based on a compulsory declaration made to the Agencies by all persons or bodies liable for the charge. The Agencies thus operate under the "user-polluter-pays"-principle.[106]
Furthermore, the French Water Act contains penal provisions for violating the act[107].

11.2.7 Financing structure

Water policy is almost exclusively funded through the Water Agencies; state subsidies have been abolished progressively. In fact, the main role of the Water Agencies is of a financial nature (the agencies initially were set up as Financial Agencies). They cannot build or operate works themselves and they are not in charge of enforcement. The collected funds are used to subsidise water users who are willing to reduce their impact on the resource. Approximately 90% of the charges levied by the Agencies are used for this purpose. The remaining 10% concerns operational costs and research activities. Rates of the levies are determined by each Agency with the agreement of the River Basin Committee. Priorities are set according to Five-Year Action Programmes.[108]

Sources of information

Legislation
- Water Act (Loi sur l'eau, January 3, 1992, act no.92-3)

[104] Anonymous (2002) *Public participation and the European Water Framework Directive – Developing water citizenship*, French Report of the HarmoniCOP project
[105] Jaspers Frank G.W. (2001), Water Law and Institutions, IHE Lecture Notes, Delft
[106] Jaspers Frank G.W. (2001), Water Law and Institutions, IHE Lecture Notes, Delft
[107] Articles 21-25, Water Act
[108] ibid.

Literature
- Anonymous (2002) *Public participation and the European Water Framework Directive – Developing water citizenship*, French Report of the HarmoniCOP project
- Bongaerts, J.C. (2002) 'The *Projet de Loi sur l'Eau*', in : *European Environmetal Law Review*, august/september 2002
- Chéret, I. (1993) 'Managing Water: The French Model', in: I. Serageldin en A. Steer (eds.) *Valuing the Environment – Proceedings of the First Annual International Conference on Environmentally Sustainable Development*, held at the World Bank, Washington D.C.
- Jaspers Frank G.W. (2001), *Water Law and Institutions,* IHE Lecture Notes, Delft
- Ministère de l'Écologie et du Développement Durable (2004) *Premières propositions pour une réforme de la politique de l'eau – débat national sur la politique de l'eau*

Websites
- Website of the Ministry of the Environment and Sustainable development; http://www.ecologie.gouv.fr/rubrique.php3?id_rubrique=4
- Website on the French Public Water Management Policy; http://politique-eau.oieau.fr/en/sommaire.php3

11.3 Table of Contents of the Water Act

French Water Act of January 3, 1992,
Law No. 92-3 of January 3, 1992, On Water, ("Journal officiel" Jan. 4, 1992, p. 187).

TITLE I
WATER REGULATION AND MANAGEMENT

TITLE II
REGARDING THE INTERVENTION OF TERRITORIAL AUTHORITIES

CHAPTER I
Regarding the Intervention of Territorial Authorities In the Management of Water
CHAPTER II
Regarding Water Sanitation and Distribution

TITLE III
MISCELLANEOUS PROVISIONS

12 GERMANY

12.1 Context of water legislation

12.1.1 Water issues and drivers for change

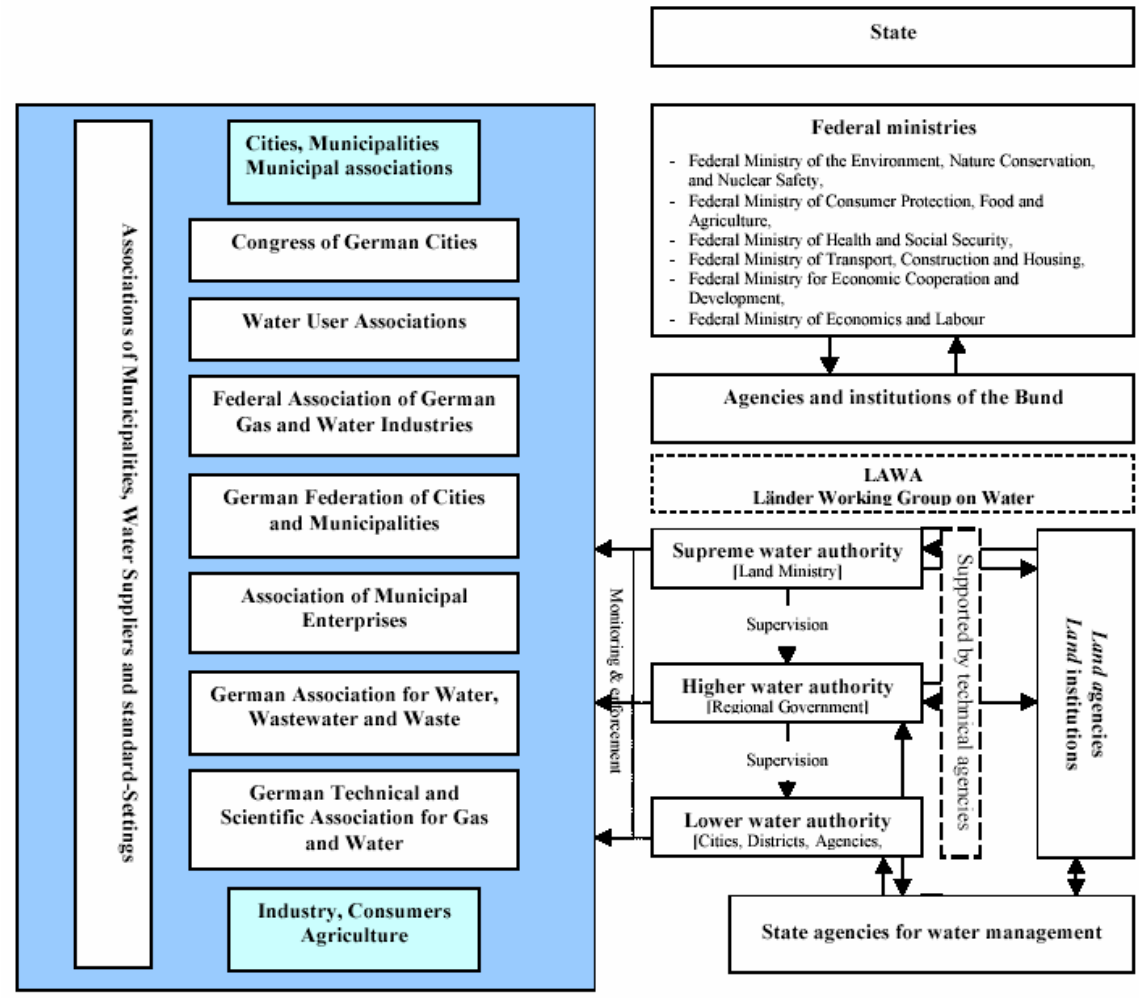
The primary focus of water policy is improving water quality. About thirty years ago, water pollution in Germany gave great cause for concern as during the post-war reconstruction years in the Federal Republic of Germany, water protection did not keep pace with the expansion of industrial activities. The Federation and the Länder have therefore introduced a variety of measures aimed at a long-term improvement of water quality as quickly as possible. A priority here is to prompt those responsible for polluting waters to take far-reaching water protection measures.
In 2002 the Federal Water Act was amended to implement the Water Framework Directive. River basin management is now implemented into the act and it designates 10 river basin districts. The details of water management planning in the river basin districts, and other elements of the WFD, are regulated through Länder legislation. Another important issue in German water management is flood control. Germany has seen some major floods in recent years, such as along the Rhine in 1995, along the Oder in 1997, in southern Germany in 1999 and especially along the Elbe and its tributary rivers in 2002. Following these events, the Federal Government has launched a flood defence program, the so-called "5-points-Program" (*5-Punkte-Program*). A major undertaking in this light is the implementation of a catalogue of measures jointly drafted by the Federation and the Länder for an improved flood control. Also, the federal government has presented the draft of a Flood Prevention Act, which was recently passed by the German Parliament in July 2004.[109]

12.1.2 Governance

Germany has a federal government structure in which the 16 "Länder" have a relatively large degree of autonomy. Federalism and subsidiarity are therefore prominent features in German water management. Competences for general water management are shared between federal and state level. Under article 75 of the Basic Law (*Grundgesetz*), the Federal Government is only able to enact *framework* legislation in the field of water resources management. The 16 Länder are competent for the regulation of all the details based on the principle of subsidiarity. Therefore, the Länder have their own Water Acts in which their States' water-related specifics are taken into account.[110]
In German water management good co-ordination is necessary; between the Federal level and the States – because of the shared competence – as well as co-ordination between the States themselves. For the latter, the States organised themselves in a Joint Water Commission (*Länderarbeitsgemeinschaft Wasser, LAWA*). When the implementation of the WFD into German law came into play, this organisation drew up a guidance document to, inter alia, ensure a uniform approach across Germany and to avoid any duplication of effort. Also, for co-ordination purposes, a permanent communication system called *WasserBLIcK* was built up that allows the

[109] Website of the Federal Ministry for the Environment, …; http://www.bmu.de/en/
[110] LAWA (2003) *German Guidance Document for the implementation of the EC Water Framework Directive*, working paper

Federal level and the States' level to keep in touch and interchange topical information in an easy way[111].



Source: Kampa, E. et al. (2003), p.14

Federalism is not merely a matter of distributing competencies between the federal level and the states that are joined in the federation. The principles of federalism also underlie another characteristic of water management in Germany: municipal autonomy (*kommunale Selbstverwaltung*). The Basic Law of the Federal Republic, as well as the constitutions of the *Länder* guarantees municipal control over local affairs. This includes an obligation to provide for adequate living conditions at the local level and a corresponding right to manage the provision of public services such as water supply and sewerage. For this, municipalities have a high degree of

[111] Barton, T. (2003) 'The Water Framework Directive and its implementation into German act. An analysis with special focus on the environmental objectives and 'good status' of all European waters by 2015; in: H.F.M.W. van Rijswick (ed.) *The Water Framework Directive: Implementation into German and Dutch Law*, CELP/NILOS: Utrecht;
see also : Website of WasserBLIcK; http://www.wasserblick.net

freedom to choose institutional and organisational arrangements, either on their own, together, in public corporations or in partnership with private enterprises.[112]

12.2 Contents of water legislation

The Federal Water Act (*Wasserhaushaltsgesetz – WHG*) lays down basic provisions relating to water management. The 16 Länder are competent for the regulation of all the details. The Federal Water Act very directly states for certain aspects what should be regulated in Länder law. Under article 30 of the Basic Law, in case of a conflict between the federal and a state's act, the federal act is prevailing.

12.2.1 Organic elements

The Federal Water Act, or any other federal act, does not contain organic provisions. This is the competency of the Länder and lower authorities (see above). In most Länder however, power over water resource protection and management is allocated to three levels of government, normally following the structure of administration. There's a Supreme Water Authority (*Oberste Wasserbehörde*) which is usually the Länder Ministry of the Environment and which is responsible for strategic decisions in water management and supervision of lower water authorities. Next level is the Upper Water Authority (*Obere Wasserbehörde*). This is usually the regional government (*Bezirksregierung*) which is responsible for regional water management planning, permitting and licensing. The Lower Water Authorities (*Untere Wasserbehörde*) are usually cities, city districts and rural districts, as well as technical agencies, which are responsible for permitting and licensing (for small uses), monitoring and other enforcement functions. The way in which the various water management activities are allocated varies among the Länder.[113]

12.2.2 Scope and degree of integration

The Federal Water Act concerns all waters, surface waters including coastal waters and groundwater[114]. The act first gives general provisions which relate to all waters (part 1); then it gives provisions for respectively surface waters, flood plains, coastal waters and groundwater (respectively part 2, part 2 section 4, part 3 and part 4). Furthermore, the act lays down basic provisions relating to the management of water quality as well as water quantity.
The Federal Water Act relates at certain points to spatial planning (legislation). The programme of measures and the management plan (*Bewirtschaftungsplan*) that should be prepared for each river basin district should 'comply with regional planning objectives and should take account of regional planning principles and other requirements'[115]. How these plans and programmes are co-ordinated and integrated with *Land* planning, is subject to policy and legislation of the Länder.

---

[112] Kraemer, R.A. (1999) *Water Management and policy in Germany*, paper for the Semana Internacional de Estudos sobre Gestão de Recursos Hídricos, Foz do Iguaçu, 19 – 23 April 1999 (found at: http://www.ufrgs.br/iph/kraemer_water_ management_and_policy_in_germany.pdf)
[113] Kampa,E., N. Kranz and W. Hansen (2003) *Public Participation in River Basin Management in Germany – "From borders to natural boundaries"*, report as part of Work Package 4 of the HarmoniCOP Project
[114] Article 1, Federal Water Act
[115] Article 36 and 36b, Federal Water Act

The Federal Water Act only states that '*Land* law shall stipulate that a management plan and a programme of measures shall be prepared' and it states what should be included in these plans and programmes. Another aspect of the act relating to spatial planning (legislation) is the instrument of the 'ban on modifications'[116]. This means that the competent Supreme Land Authority may designate, by statutory order, certain planning areas where no modifications may be carried out which considerably increase the value or which considerably hamper execution of a planned project for the abstraction or storage of water, disposal of waste water, groundwater recharge, use of hydropower, irrigation, flood control or development of a body of surface water, where such plans are in the public interest, as well as plans for projects under the programme of measures.

12.2.3 Planning

According to the amended Federal Water Act, a management plan and a programme of measures shall be prepared for each river basin district[117]. These can be supplemented by management plans and programmes for sub basins. Legislation of the Länder shall stipulate that a management plan shall be prepared and it shall stipulate within which deadlines the plans shall be published, reviewed and updated. The Federal Water Act describes what should be included in the management plans, which is, inter alia, a description of the characteristics of the waters and a summary of the programme of measures. As mentioned above, the plans should comply with regional planning objectives and principles.
The Flood Prevention Act of 2004 provides, inter alia, for some amendments to the Federal Water Act. One of the amendments of the Federal Water Act includes the introduction of flood protection plans (*Hochwasserschutzpläne*)[118]. These plans have as a goal to minimise the flood risks which statistically occur once every two hundred years. Measures in these plans could include the relocation of dikes, the reservation of natural flood plains (for water storage and to prevent construction), or the reclamation of these areas.

12.2.4 Instruments

Characterisation of waters

The designation of water protection areas is an instrument for the protection of water bodies against adverse effects, to recharge groundwater or to prevent the harmful effects caused by rainwater run-off as well as by erosion and the introduction of soil components, fertilisers, herbicides and pesticides into bodies of water. Within water protection areas certain activities can be prohibited or only permitted to a limited extent. Also, owners and authorised users of land may be obliged to accept 'certain measures'. This is not further elaborated, except that this also includes measures for monitoring the water and the soil. In certain cases compensation can be awarded.[119]

[116] Article 36a, Federal Water Act
[117] Article 36, Federal Water Act
[118] Article 1 of the 'Gesetz zur Verbesserung des vorbeugenden Hochwasserschutzes'; this article states that the Federal Water Act should be amended to insert a paragraph 31d, which holds provisions for the preparation of the flood protection plans.
[119] Article 19, Federal Water Act

Permits and licenses

All water uses require a permit or a license, unless it is otherwise specified in the Federal Water Act or in regulations of the Länder[120]. These exceptions apply for uses of coastal waters and uses of groundwater under certain conditions. No-one has the right to a permit or license but anyone can expect, by right, a proper decision on applications by the competent authorities.
A permit (*Erlaubnis*) can be granted temporarily or permanently, and it can be withdrawn at any point in time if this is justified on the grounds of water resource protection and management. A license (*Bewilligung*) establishes a right to a specific water use which cannot normally be withdrawn. When issuing a license, competent authorities have to take the rights and interests of other water users into account (in addition to the public interest).
Because of the entitlements they create, licenses (*Bewilligung*) are issued only for specific water uses where the effects on the water body are well understood and where granting a permit (*Erlaubnis*) would not be acceptable to the water user. Established water quality requirements, often reflecting the need to maintain quality for specific uses, can justify denying a permit or license.[121]

Two other pieces of legislation than the Federal Water Act are relevant for the discharge of waste water into water bodies and the permits and licenses needed for this: the Wastewater Charges Act and the Waste Water Ordinance. The Wastewater Charges Act regulates that a charge shall be paid when wastewater is discharged directly into a body of water. The charge is the first eco-tax levied at the federal level as a steering instrument. It ensures that the polluter-pays principle is applied in practice, since it requires direct discharges to bear at least some of the costs that their use of the environmental compartment water involves. The charge is determined on the basis of the quantity and harmfulness of specific constituents discharged into the water. Wastewater charges shall be paid to the Federal States. They are earmarked for measures needed for preventing water pollution.[122]
A permit for discharging waste water into water bodies may only be granted if the pollutant load of the waste water in question is kept as low as possible through application of appropriate procedures using the best available techniques[123]. This means that someone who wants to discharge waste water is forced to reach a certain quality status for this waste water by technical treatment procedures before it can be discharged into waters or mixed with other waste water. The quality related requirements which correspond to the best available techniques are laid down in the Waste Water Ordinance. Apart from general requirements and regulations on analysis and measurement procedures, it contains requirements related to specific pollutants for waste water from different sources and industrial branches in 45 appendices. For example, Appendix 1

[120] Article 2, Federal Water Act; 'uses of water' is defined in detail in article 3
[121] Kraemer, R.A. (1999) *Water Management and policy in Germany*, paper for the Semana Internacional de Estudos sobre Gestão de Recursos Hídricos, Foz do Iguaçu, 19 – 23 April 1999 (found at: http://www.ufrgs.br/iph/kraemer_water_ management_and_policy_in_germany.pdf)
[122] Website of the Federal Environment Agency; http://www.umweltbundesamt.de/water
[123] Article 7a, Federal Water Act

applies to domestic and municipal waste water and Appendix 22 lays down requirements for waste water from the chemical industry.[124]

The Groundwater Ordinance is of relevance for permits for the use of groundwater. This ordinance defines details of the application of provisions of water legislation and waste legislation and contains requirements regarding supervision and monitoring and minimum requirements for the contents of authorisations. The lists of substances are not exhaustive with regard to other water legislation.[125]

Monitoring and control

For monitoring the use of water, the Federal Water Act states that any individual who uses a body of water, shall be obliged to accept official supervision of the installations, equipment and processes which are of importance for water use. Furthermore, users of waters under private law who are permitted to discharge more than 750 cubic metres of waste water on one day shall appoint one or more work officers for water pollution control. This water pollution control officer is authorised and obliged to supervise compliance with regulations, terms and conditions in the interest of water protection. For this, he must submit an annual report to the user on the measures taken and planned. Additionally, the opinion of the water pollution control officer should be known prior to making decisions on the introduction of procedures and products and any investment decision where this could be of relevance to water pollution control. These regulations also apply for users of water under public law who are permitted to discharge more than 750 cubic metres, but the Länder may adopt regulations which deviate from the abovementioned situation or conditions. Such a regulation must guarantee at least an equivalent level of self-monitoring and intensified efforts in the interests of water pollution control. [126]

Penalties and fines

The Federal Act contains provisions for 'administrative offences'. Anyone who commits an offence to regulations in the Federal Water Act can be fined with up to fifty thousand Euros.[127]

Communication and information

Water Registers (*Wasserbuch*) shall be kept for the bodies of water covered by the Federal Water Act. In this Register should be entered: permits, licenses, the water protection areas and flood plains.[128] Earlier, we mentioned the establishment of a permanent communication system (*Wasserblick*) which allows the Federal level and the States' level to be kept informed.

Sources of information

Legislation
- Federal Water Act

[124] Website of the Federal Environment Agency; http://www.umweltbundesamt.de/water
[125] ibid.
[126] Article 21 (21a – h), Federal Water Act
[127] Article 41, Federal Water Act
[128] Article 37, Federal Water Act

- Flood Prevention Act
- Wastewater Charges Act
- Waste Water Ordinance
- Groundwater Ordinance

Literature

- Barton, T. (2003) 'The Water Framework Directive and its Implementation into German Law', in: H.F.M.W. van Rijswick (ed.) *The Water Framework Directive: Implementation into German and Dutch Law*, CELP/NILOS: Utrecht
- Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2003) *Germany country profile*, report for the World Water Council
- Kampa, E., N. Kranz and W. Hansen (2003) *Public Participation in River Basin Management in Germany "From borders to natural boundaries",* report part of Work Package 4 of the HarmoniCOP Project, Ecologic, Institute for International and European Environmental Policy
- Kraemer (1999) *Water Management and Policy in Germany*, paper for the Semana Internacional de Estudos sobre Gestão de Recursos Hídricos
- LAWA (2003) *German Guidance Document for the implementation of the EC Water Framework Directive*, working paper
- Rudolph, K.U. and T. Block (unknown) *the German Water Sector*, Umweltbundesamt: Berlin

Websites

- Website of the Federal Environment Agency; http://www.umweltbundesamt.de/water
- Website of WasserBLIcK; http://www.wasserblick.net
- Website of the Federal Ministry for the Environment, …; http://www.bmu.de/en/
- Website of LAWA; http://www.lawa.de/
- http://www.ufrgs.br/iph/kraemer_water_ management_and_policy_in_germany.pdf

12.3 Table of Contents of the Federal Water Act

Amended Version of the Federal Water Act
of 19 August 2002

Introductory Provision

Part I
General Provisions Relating to Waters

Part II
Provisions relating to surface waters
Section 1
Uses not requiring a permit
Section 2
Management objectives and requirements
Section3
Maintenance and development

Section4
Floodplains

PartIII
Provisions for coastal waters

PartIV
Provisions for groundwater

PartV
Water management planning; Water Register; procurement and transmission of information

PartVI
Administrative fines and concluding provisions

Annex 1
Annex 2

13 NORTH RHINE-WESTPHALIA

13.1 Context of water legislation

13.1.1 Water issues, drivers and process of change

The transposition of the WFD is a main topic in North Rhine-Westphalia. In Germany, this transposition takes place in a two-fold manner. First, the Federal Water Act (*Wasserhaushaltgesetz*) is amended (see case study Germany); in the second place, the State Water Acts (*Landeswassergesetze*) need to be amended to 'fill in the details'. This is a result of the shared competence in the field of water management between the Federal level and the State level. The Federal Water Act has already been amended in 2002; the process of amending the North Rhine-Westphalia Water Act is currently underway. In addition, North Rhine-Westphalia works on an 'operational transposition' (*operationelle Umsetzung*) of the WFD. This focuses on establishing the required information system for the parts of the river basin districts in light of the WFD. After the establishment of the information system and the collection of the data, an analysis will be made of the information at State level. With the results of the analysis, guidelines (*NRW-Leitfaden*) have been formulated for the entire State in November 2003. These comprehend detailed standards, which are consistent for the entire area of North Rhine-Westphalia.[129]
Flood control is also a main topic in North Rhine-Westphalia. As in The Netherlands, the floodings in 1993 and 1995 along the Rhine gave strong imputes to invest in flood control. The concept of giving more space for water, as regards to flooding (*"Raum für den Fluss"*), is incorporated in new legislation, policies and measures.
Significant attention is paid to the water industry sector, in particularly to secure the high standard of the industry in the light of increasing internationalisation (and competition). In this perspective, North Rhine-Westphalia has established a 'Water Management Initiative' (WMI) aimed at providing a platform for the water & sewage industry in North Rhine-Westphalia, which enables the interlinking and supplementing of existing activities in a meaningful way. One can say that the basic idea is to join forces and to combine strengths; the aim of the WMI to reap the benefits of shared synergies through cooperation. In order to promote the communication and the co-operation of all players, the WMI provides a people-oriented network of expertise, supported by an Internet-based network. The WMI is financed through the State and through the EU.[130]

In 2002 the Federal Water Act was amended to transpose the WFD into German law. This should be followed by amendments of the State Water Acts (*Landeswassergesetz*), because the Federal State does not have the competency to transpose the whole of the WFD into federal legislation. This would conflict with the division of competencies and responsibilities laid down by the Basic Law (*Grundgesetz*) of the Republic. There's no reference found that North Rhine-Westphalia has transposed these elements already (such as river basin planning) into its own Water Act, but

[129] Ministerium für Umwelt und Naturschutz, Landwirtschaft und Verbraucherschutz des Landes Nordrhein-Westfalen (2002) *Gewässerbewirtschaftung in Nordrhein-Westfalen – Neue Impulse durch die Europäische Wasserrahmenrichtlinie*, Wasserrundbrief 5/2002; Website of the transposition of the WFD in NRW (www.flussgebiete.nrw.de)
[130] Website of the Water Management Initiative (www.wasser.nrw.de)

there's a lot of attention for the consequences of the WFD. It is not clear whether other German *Länder* have amended their *Land* Water Acts to transpose the WFD.

13.1.2 Governance

North Rhine-Westphalia is one of the 16 states (*Länder*) in the Federal Republic of Germany. It covers an area of about the same size as the Netherlands and is inhabited by approximately 18 million people. 10 million of them live in the urban core of the Land, the Ruhr Area. This is a traditional industrial area alongside the rivers Ruhr and Emscher. North Rhine-Westphalia is composed of five districts (*Regierungsbezirke*). One level below this tier, is the level of the counties and cities (*Kreise* and *Kreisfreie Stadte*) which consists of several municipalities (*Gemeinde*).
The German Länder have a relatively large degree of autonomy, for instance in the field of water management. In this field, the Federal government is allowed to issue framework legislation, comprehending general objectives and regulations. The Länder have the competency to regulate the details (see also the case study of Germany). Therefore, in addition to the Federal Water Act (*Wasserhaushaltsgesetz*), every *Land* has its own Water Act (*Landeswassergesetz*) and so has North Rhine-Westphalia.

13.2 Contents of water legislation

13.2.1 Organic elements

The allocation of tasks and responsibilities in the field of water management at the level of the Länder, follows three levels, namely that of the Supreme Water Authority (*Oberste Wasserbehörde*), the Upper Water Authority (*Obere Wasserbehörde*) and the Lower Water Authorities (*Untere Wasserbehörde*). In North Rhine-Westphalia these Authorities are, according to the Water Act, respectively the Ministry for the Environment and Nature, Landplaning and Consumer protection, the governments of the regions, and the cities and counties[131].

A start of the implementation of the WFD in Germany has been made by amending the Federal Water Act in 2002. There remain, however, things to be done at State level. To guide this process, the Joint Water Commission (*LAWA*), in which all States organised themselves to coordinate water management throughout Germany, prepared a guidance document. This document describes what should be amended in the Länder Water Acts and it even contains an outline of an ordinance for the State level which should implement all the detailed substantive provisions out of the Annexes II and V of the WFD[132]. At State level in North Rhine-Westphalia, this guidance document is further elaborated and made specific for the own situation, by issuing guidelines for further implementation of the WFD. These guidelines contain several detailed provisions and methods which should be used and complied with[133]. It is not clear how far the process of this part of the implementation of the WFD has evolved in practice.

[131] Paragraph 136 of the Land Water Act
[132] LAWA (2003) *German Guidance Document for the implementation of the EC Water Framework Directive*, working paper
[133] Arbeitsgruppe Wasserrecht (2003) *NRW-Leitfaden zur Umsetzung der WRRL*

As for the river basin approach and the planning system related to this, the WFD provides for some changes for the organisation of water management in North Rhine-Westphalia. In the State, four river basins (of which three international) are situated, namely the Rhine, the Meuse, the Ems and the Weser. These four river basins are already subdivided into 12 'work areas' (*Bearbeitungsgebiete*) which can be considered as sub-basins. In all these areas project organisations have been established to draw up sub-basin management plans (*Bewirtschaftungspläne*) and to install a water information system.[134] It seems that none of these sub-basins have already prepared such a plan.

13.2.2 Framework versus operational legislation

The Water Act of North Rhine-Westphalia is a piece of legislation which fills in the federal framework legislation, provided by mainly the Federal Water Act and the Waste Water Charges Act. Frequently, the paragraphs of the Water Act of North Rhine-Westphalia refer to sections of these federal acts and elaborate on them. This gives the act an operational character (in comparison to the federal acts). However, also the North Rhine-Westphalia Water Act seems to leave certain aspects up for further specification in secondary legislation and regulations.

13.2.3 Scope / degree of integration

Article 1 of the North Rhine-Westphalia Water Act states that the act applies to the waters which are named in the first paragraph of the Federal Water Act. This means that the act applies to surface water as well as groundwater[135]. Installations and constructions which affect the water and its uses (such as dikes) are added to this as subject of the act. The act furthermore contains provisions on water quality and water quantity, including a separate section on flood control[136].

13.2.4 Horizontal coordination & cooperation (including international)

Article 2, which contains the goal of the Water Act, states that 'the goals and requirements of spatial planning should be observed' (*Die Ziele und Erfordernisse der Raumordnung und Landesplanung sind zu beachten*). This fairly broad rule isn't really made more specific in the act, nor is there any link with the field of spatial planning. Specifically for flood control, however, it seems that there are some horizontal links with spatial planning. Following article 32 of the Federal Water Act, the *Land* Water Act of North Rhine-Westphalia stipulates that flood areas shall be designated by statutory order[137]. The council of all (Land) ministers of spatial planning in Germany (*Ministerkonferenz für Raumordnung*) in 2000 already defined 'flooding areas' (*Überschwemmungsbereiche*) as a new category for spatial planning. These are the areas which are flooded during high water which can occur once in one hundred years (HQ_{100})[138].

---

[134] http://www.flussgebiete.nrw.de; this website holds all the links to the sites of the project organizations in the sub basins.
[135] The Federal Water Act also applies to coastal waters. However, North Rhine-Westphalia does not have any coastal water.
[136] Section 10 of the Land Water Act
[137] Paragraph 112 and 113, Land Water Act
[138] Ministerkonferenz für Raumordnung (2000) *Handlungsempfehlung zum vorbeugenden Hochwasserschutz – Vorbeugender Hochwasserschutz durch die Raumordnung*

Since then, the spatial plans of the Länder and the regional plans (of the *Bezirke*) were supposed to designate these areas. The spatial development plan and programme of North Rhine-Westphalia (*Landesentwicklungsplan und -programm*) are already amended and now contain provisions for the preparation of the 'regional development plans' (*Gebietsentwicklungspläne*). This includes maps of areas in the whole of North Rhine-Westphalia which are under threat of flooding in times of high water flow[139]. This is supposed to assist the regions in drawing up their spatial development plans. The provisions in the spatial plan of the Land state that the flood areas shall be kept free of activities which conflict with retention of water, such as additional building in the areas. Eventually, this flood control policy and these measures will be found in the local plans.[140] It is not quite clear what the legal status of all these measures and plans is in ensuring that there's enough space for water (*"Raum für den Fluss"*). Also, it isn't clear what the effect of the recently adopted Flood Prevention Act (at the federal level; see also case study of Germany) and the instrument of the flood protection plan (introduced by this act) , is on the flood control policy and measures in North Rhine-Westphalia.

13.2.5 Planning

The section on water management planning (section 4) is very brief and elaborates on the Federal Water Act. In the latter, it is described what should be included in the so-called Water Management plans (*Bewirtschaftungspläne*)[141]. The North Rhine-Westphalia Water Act adds procedural provisions to this and stipulates that the water management plans are binding on other authorities[142]. Another type of plan that is mentioned in the North Rhine-Westphalia Water Act is the 'water management structure plan' (*Wasserwirtschaftliche Rahmenplan*). The act refers to article 36 of the Federal Water Act, but in this article, there's no reference of the said plan. This article is (now) about the programme of measures (*Maßnahmenprogramm*) which will be prepared for the river basins. Probably, this incongruence has to do with the transposition of the WFD into the Federal Water Act and the probably still unamended Länder water acts.

13.2.6 Instruments

Permits and licenses

The North Rhine-Westphalia Water Act, following the Federal Water Act, contains provisions on water usage for which a permit (*Erlaubnis*) and for which a license (*Bewilligung*) is needed. The Water Act further specifies what should be the content of a permit and a license and stipulates under what conditions a permit or license should be withdrawn. In addition, the North Rhine-Westphalia Water Act 'introduces' another type of authorisation, namely the 'raised permit' (*Gehoben Erlaubnis*). Persons who experience detrimental effects of a 'discontinuation'

---

[139] These maps are on display on the website of the Environment Agency; www.lua.nrw.de

[140] Bongartz, M. (unknown) *"Vorbeugender Hochwasserwschutz im rahmen der Regionalplanung in Nordrhein-Westfalen"*; Unknown (unknown) *Einführung zum vorbeugenden Hochwasserschutz aus der Sicht der Landesplanung NRW*
respectively found at: http://www.staedtetag-nrw.de/veroeff/eildienst/ 2003/eil_2003_12.htm and http://www.mvel.nrw.de/cipp/mvel/custom/pub/content,lang,1/oid,11724/ticket,g_u_e_s_t

[141] Article 36b, Federal Water Act

[142] Paragraph 21, Land Water Act

(*Unterlassung*) of the activity / use of water for which this permit is issued, cannot hold the owners of the permit liable for this.

Monitoring and Enforcement (standards and guidelines)

By issuing guidelines, the State tries to ensure a coherent and smooth implementation of the WFD. In the above, already the *NRW-Leitfaden* were mentioned, which can be considered as an instrument in ensuring this goal. These guidelines can be seen as an elaboration of the LAWA-guidance document which was drawn up at an inter-State level.

Economic instruments

In addition to the provisions on 'administrative offences' in the Federal Water Act, the North Rhine-Westphalia Water Act also contains a section on penalties for non-compliance. In addition to what is said on this in the Federal Water Act, the Water Act of North Rhine-Westphalia further specifies what should be considered as an offense in light of its own provisions.

Communication and information

As it is regulated under the Federal Water Act, the Water Act of North Rhine-Westphalia contains provisions on the establishment of a Water Register (*Wasserbuch*). However, lots of it seems to be left to additional regulations[143].

Sources of information

Legislation
- *Land* Water Act (of North Rhine-Westphalia)
- Federal Water Act

Literature
- Anonymous (unknown) *Einführung zum vorbeugenden Hochwasserschutz aus der Sicht der Landesplanung NRW*
- Arbeitsgruppe Wasserrecht (2003) *NRW-Leitfaden zur Umsetzung der WRRL*
- Bongartz, M. (unknown) *"Vorbeugender Hochwasserwschutz im rahmen der Regionalplanung in Nordrhein-Westfalen"*
- LAWA (2003) *German Guidance Document for the implementation of the EC Water Framework Directive*, working paper
- Ministerkonferenz für Raumordnung (2000) *Handlungsempfehlung zum vorbeugenden Hochwasserschutz – Vorbeugender Hochwasserschutz durch die Raumordnung*

Websites
- Website of the Water Management Initiative; www.wasser.nrw.de
- Website of the transposition of the WFD in NRW; www.flussgebiete.nrw.de
- Website of the Environment Agency; www.lua.nrw.de
- Website 'Dokumentenarchiv des Landtags'; http://sgv.im.nrw.de/

[143] Paragraph 157 (in particular the first part), Land Water Act

- http://www.staedtetag-nrw.de/veroeff/eildienst/ 2003/eil_2003_12.htm (literature)
- http://www.mvel.nrw.de/cipp/mvel/custom/pub/content,lang,1/oid,11724/ticket,g_u_e_s_t (literature)

13.3 Table of Contents of the *Land* Water Act

Wassergesetz für das Land Nordrhein-Westfalen - Landeswassergesetz - LWG
vom 25. Juni 1995

ERSTER TEIL EINLEITENDE BESTIMMUNGEN

ZWEITER TEIL OBERIRDISCHE GEWÄSSER
ABSCHNITT I EINTEILUNG DER GEWÄSSER, BEGRIFFSBESTIMMUNGEN
ABSCHNITT II EIGENTUMSVERHÄLTNISSE AN DEN GEWÄSSERN

DRITTER TEIL SCHUTZ DER GEWÄSSER
ABSCHNITT I WASSERSCHUTZGEBIETE, HEILQUELLENSCHUTZ, REINHALTEORDNUNGEN
ABSCHNITT II WASSERGEFÄHRDENDE STOFFE

VIERTER TEIL GRUNDLAGEN DER WASSERWIRTSCHAFT, BEWIRTSCHAFTUNG DER GEWÄSSER

FÜNFTER TEIL BENUTZUNG DER GEWÄSSER
ABSCHNITT I GEMEINSAME BESTIMMUNGEN
ABSCHNITT II BESONDERE BESTIMMUNGEN FÜR DIE BENUTZUNG OBERIRDISCHER GEWÄSSER
ABSCHNITT III BESONDERE BESTIMMUNGEN FÜR DIE BENUTZUNG DES GRUNDWASSERS

SECHSTER TEIL WASSERVERSORGUNG UND ABWASSERBESEITIGUNG
ABSCHNITT I GEMEINSAME BESTIMMUNGEN
ABSCHNITT II WASSERVERSORGUNG
ABSCHNITT III ABWASSERBESEITIGUNG

SIEBENTER TEIL ABWASSERABGABE
ABSCHNITT I ABGABEPFLICHT, UMLAGE DER ABGABE
ABSCHNITT II BEWERTUNGSGRUNDLAGEN
ABSCHNITT III ERMITTELN DER SCHÄDLICHKEIT
ABSCHNITT IV FESTSETZEN UND ERHEBEN DER ABGABE
ABSCHNITT V VERWENDEN DER ABGABE

ACHTER TEIL AUSGLEICH DER WASSERFÜHRUNG, GEWÄSSERUNTERHALTUNG, ANLAGEN
ABSCHNITT I PFLICHT ZUM AUSGLEICH DER WASSERFÜHRUNG , PFLICHT ZUM GEWÄSSERAUSBAU
ABSCHNITT II GEWÄSSERUNTERHALTUNG

ABSCHNITT III ANLAGEN IN UND AN GEWÄSSERN

NEUNTER TEIL GEWÄSSERAUSBAU, TALSPERREN UND RÜCKHALTEBECKEN
ABSCHNITT I GEWÄSSERAUSBAU
ABSCHNITT II TALSPERREN UND RÜCKHALTEBECKEN

ZEHNTER TEIL SICHERUNG DES HOCHWASSERABFLUSSES
ABSCHNITT I DEICHE
ABSCHNITT II ÜBERSCHWEMMUNGSGEBIETE
ABSCHNITT III WILD ABFLIEßENDES WASSER

ELFTER TEIL GEWÄSSERAUFSICHT
ABSCHNITT I ALLGEMEINE VORSCHRIFTEN
ABSCHNITT II BESONDERE VORSCHRIFTEN

ZWÖLFTER TEIL ZWANGSRECHTE

DREIZEHNTER TEIL ENTSCHÄDIGUNG

VIERZEHNTER TEIL WASSERBEHÖRDEN

FÜNFZEHNTER TEIL VERWALTUNGSVERFAHREN
ABSCHNITT I ALLGEMEINE BESTIMMUNGEN,
UMWELTVERTRÄGLICHKEITSPRÜFUNG
ABSCHNITT II FÖRMLICHES VERWALTUNGSVERFAHREN ,
SCHUTZGEBIETSVERFAHREN
TITEL 1 ALLGEMEINE BESTIMMUNGEN
TITEL 2 BEWILLIGUNGSVERFAHREN, GEHOBENES ERLAUBNISVERFAHREN
TITEL 3 ANDERE VERFAHREN
ABSCHNITT III PLANFESTSTELLUNG
ABSCHNITT IV VERFAHREN BEI ENTSCHÄDIGUNG

SECHZEHNTER TEIL WASSERBUCH

SIEBZEHNTER TEIL BUßGELDBESTIMMUNGEN

ACHTZEHNTER TEIL ÜBERGANGS- UND SCHLUßBESTIMMUNGEN
ANLAGE ZU § 3 ABS.1 NR.1

14 INDONESIA

14.1 Context of water legislation

14.1.1 Water issues and drivers for and process of change

In 2004 the Indonesian Parliament passed the Law on Water Resources (act no. 7/2004). This act is a direct result of the Water Resources Sector Adjustment Loan programme (WATSAL-programme) of the World Bank which was started in 1999. The goal of the programme is to reform the Indonesian water sector. It contains a loan for Indonesia of 300 million dollars, if the reform is carried out to the satisfaction of the World Bank. This loan has been a major driver for the reform of the Indonesian water sector and the water legislation[144]. In addition, the on-going pollution and environmental degradation and the ineffectiveness of legal structures, regulations, policies and institutions were problems asking for a reform of the water sector.[145]
Furthermore, Indonesia is in the process of far-reaching decentralisation. After the fall of the Soeharto-regime, Indonesia is abolishing the old centralised government system. As a result, more governmental and financial autonomy is given to regional and local governments. This decentralisation process influenced the new Law on Water Resources significantly.
The main water issue in Indonesia is the supply of water for irrigation areas for achieving food independency (cultivation of rice). Furthermore, Indonesian water management faces pollution and environmental degradation of water areas. Floods and droughts are major problems facing Indonesia as well.[146]

14.1.2 Governance

Indonesia had for a long time a centralised governance system. The organisation of water management could be characterised as top-down. The new Law on Water Resources is a major change in this perspective: it decentralises governmental and financial authorities in the water sector from the national level to the lower tiers (provinces and the districts / towns). The role of the central government is now limited to that of an enabling (setting frameworks) and regulatory one. The practical consequences of this change aren't fully apparent yet, because the decentralisation operation needs to be worked out in regulations based on the Law on Water Resources.[147]
The water sector in Indonesia based on the previous legislation, was characterised as having weak sector institutions for integrated water resources policy formulation and an inadequate coordination of government agencies[148]. It remains to be seen whether the institutional and legal

[144] Teeuwen, H.H.A. (2004) 'De nieuwe Indonesische waterwetgeving', in: Environmental act and policy in Indonesia', Universiteit van Maastricht
[145] Zaman, M. (2002) 'Restructuring of the Water Sector in Indonesia: An Institutional and Legislative Challenge', A Preliminary Assessment for the Bank Information Center; http://www.bicusa.org/bicusa/issues/misc_resources/455.php
[146] Teeuwen, H.H.A. (2004) 'De nieuwe Indonesische waterwetgeving', in: Environmental act and policy in Indonesia', Universiteit van Maastricht
[147] ibid.
[148] Ministry of Settlements and Regional Infrastructure, Directorate General of Water Resources, Republic of Indonesia (2003) *Water Resources Management – Towards enhancement of effective*

reform in the Indonesian water sector can solve these problems, because the reform has to be developed and implemented by a reluctant water sector bureaucracy that is fearful of losing its traditional authority and status.[149]

14.2 Contents of water legislation

The Law on Water Resources is an integrated water act the objective of which is to promote a coherent, integral and open approach to several aspects of water resources management aimed at sustainable management of water resources. All references in the text below are on the Law on Water Resources.

14.2.1 Organic elements

The act is based on the river basin management approach and so is the organisation of the water sector. Four categories (levels) of river basins will be created: state crossing (transboundary), province crossing, district or town crossing and town or district river basins. In the table below, the responsibilities and tasks for the four river basins plus the 'village specific water resources' are set out[150].

Water Resources	**Implementation Responsibility**	**Tasks**
Village specific water resources	Village Administration	- Manage water resources in its regions *if* community and governing layer above it (i.e. district/town administration) does not already do so - Maintain effectiveness, efficiency, quality and good order with regards to water resources in its region - Fulfill basic needs of villagers in accordance with its capacity. - Observe the interests of other villages - Cooperate with other villages in water resources management
River basin in one district or town	District and Town Administration	- Prepare district or town level management plan - Regulate supply, usage allocation, and exploitation of water resources by issuing licenses

water governance in Indonesia, country report for the 3rd World Water Forum, Kyoto – Japan, March 2003

[149] Zaman, M. (2002) *Restructuring of the Water Sector in Indonesia: An Institutional and Legislative Challenge*, A Preliminary Assessment for the Bank Information Center

[150] This table is based on the draft act on Water Resources of 27 august, 2001 version. All seems however that this is not changed in the act that was passed in 2004; see articles 13-19.

District crossing or town crossing river basin	Provincial Government	- Prepare Provincial Water Resources Master Plan in consultation with regents and mayors. - Determine water resources management pattern for river basins falling within its jurisdiction. - Prepare guidelines and technical standards for district and town governance. - Determine management standards that are complementary to national standards - Monitor and evaluate implementation and submit report to Provincial River Basin Authority. - Provide districts and towns with technical assistance and services.
Province Crossing river basin.	Government	- Determine river basin water management with the recommendation of Water Resources National Council in consultation with related provincial government. - Determine water management of strategic river basins with approval of related provincial government. - Determine water management of province crossing river basins. - Regulate and determine national policy on water resources. - Regulate and determine technical standards for water resources management. - Regulate and Coordinate water resources at national level. - Establish Water Resources National Council.
Strategic river basin	Government together with Regional Government.	- As above.

Source: Zaman, M. (2002) 'Restructuring of the Water Sector in Indonesia: An Institutional and Legislative Challenge', A Preliminary Assessment for the Bank Information Center; http://www.bicusa.org/bicusa/issues/misc_resources/455.php

Councils will be set up to coordinate between the several levels involved in water management. In these councils representatives of the relevant authorities as well as interest groups will participate. The goal is to gain support for water management and water policy. It is striking to see that at national level, the responsibility for groundwater falls under the Ministry of Energy and Mineral resources, whereas for all other aspects of water resources management, the Ministry of Settlements and Regional Infrastructure is responsible.[151]

[151] Teeuwen, H.H.A. (2004) 'De nieuwe Indonesische waterwetgeving', in: Environmental act and policy in Indonesia', Universiteit van Maastricht

14.2.2 Framework versus operational legislation

The Law on Water Resources is a framework act. Rules should be made specific in ca. 10 so-called government regulations. This is done by revision of certain existing regulations and by issuing new regulations. These regulations are a part of the WATSAL-programme, which means that the World Bank is closely involved in the operation. Until now, these regulations are not yet passed, leaving a lot of the new integrated Indonesian water management unimplemented. In addition to having a framework character, the act can be characterised as strongly decentralised, giving many governmental and financial competences to regional and local levels. [152] In this respect, Indonesian water management has not manifested itself, because the act was only recently passed in Parliament.

14.2.3 Scope / degree of integration

The scope of the Indonesian water act are surface waters and groundwater and the act contains provisions on water quality and water quantity management including water infrastructure and flood control. Sea water is included for so far this is used on land. The act is based on the river basin approach (see above). In addition, the act contains provisions on the exploitation of water services. It gives private parties the possibility to engage in the water services sector through Public Private Partnerships.[153]

14.2.4 Horizontal coordination & cooperation (including international)

Although the water act covers the aspect of surface water quality, the elaboration of it in more specific regulations will be based on the Law on Environmental Management (2001), namely the Regulation on Water Quality and Water Pollution Control. It isn't clear yet how the Law on Water Resources and the Law on Environmental Management will relate to each other. Coordination with the field of spatial planning is regulated in the Law and the Regulation on Water Resources Management. It is determined that a water resources management plan (see below) should be an element in the preparation, revision and/or improvement of a regional spatial plan. How this should be done, however, remains unclear.[154]

14.2.5 Planning

Every administrative level has the authority to draw up a water resource policy. On a national level, the formulation of a water resources policy is compulsory. It isn't clear yet which elements will be included in the water resources policies; this has to be made specific in the Regulation on Water resources Management. In addition, all authorities need to draw up a so-called 'Pola' and a water resources management plan (WRM-plan) for all river basins that fall under their responsibility. The Pola is a strategic plan in which long term goals are determined for the river basin. The WRM-plan should be based on the Pola and is drawn up on river basin level. The WRM-plan consists of three parts: a master plan for water resources management, a programme

[152] ibid.
[153] ibid.
[154] ibid.

for water resources management and a plan of activities for water resources management. These parts are targeted at respectively the long term, the medium-long term and the short term.
The planning system in the act seems fairly complicated. On the one hand there are plans (water resources policy) which are drawn up along administrative borders, and on the other hand there are plans which are drawn up along hydrological borders (river basins).
Also, there is an overlap in the strategic character of the water resource policy, the Pola and the strategic part of the WRM-plan. It isn't clear yet in what way these plans will relate to each other in practice. There are however provisions for the internal coordination in the planning system. The National/Provincial/District/Town water resources policy should be used as a guideline in the preparation of the Pola and the WRM-plans for the river basins. Furthermore, the WRM-plan should be based on the Pola. Surprisingly, there are no provisions on the coordination between the water resources policies of the different administrative levels.[155]

14.2.6 Instruments

Permits

The act guarantees a 'water user right': there is free access of individual citizens to water for their daily essential needs[156]. For all other uses of water, a permit is needed. Permits are given by the Government or regional government according to their authority[157]. There are no more provisions on permission or licensing. It seems that certain aspects (such as procedure, contents of the permit, etc.) will be stipulated in secondary regulations.

Enforcement

The act contains a specific instrument on enforcement. In addition to State Police investigators, a Civil Servant Official may be installed, who will exercise special investigation powers. This Official has, inter alia, the authority to carry out inspections of water resources infrastructures and take out of operation equipment suspected of criminal acts, check the correctness of reports or information about the occurrence of criminal act, and invite witnesses for hearing and interrogation in criminal cases related to water resources. His findings are handed over to the attorney general.[158]

Economic instruments

Authorities responsible for the management of water resources have the right to charge individuals or corporations who cause "water resources management problems", such as water pollution[159]. The act contains separate 'criminal provisions', which contains penalties for non-compliance. These penalties vary from paying fines to a term of imprisonment, depending on the seriousness of the criminal act.

[155] ibid.
[156] Article 5, Law on Water Resources
[157] Article 8, Law on Water Resources
[158] Article 93, Law on Water Resources
[159] Article 90, Law on Water Resources

Communication and information

A water resources information system is set up to support the water resources management. All relevant information regarding water resources management (i.e. hydrology, policy, water resource infrastructure, technology, environmental state of water resources, social economy activities related to water resources) will be collected in the system. It isn't made clear how the system will be set up and who will manage it. According to the act, this will be further regulated in government regulations.[160]

14.2.7 Other elements (financing)

The Indonesian water act contains a chapter on the financing of water management. It stipulates that sources of fund can be in the form of: government budget, private budget and/or revenues from water resources management services. Only on the financing of the construction, implementation, operation and maintenance of irrigation system there are concrete regulations for procedures in place. There seems to be a division in irrigation systems, namely primary, secondary and tertiary systems, to which financing is related. The first two will be financed by central Government and regional government; the tertiary systems will be financed by the farming community. In certain cases, they can be assisted by regional government. Furthermore, it is regulated that for social services as well as services directed at public welfare and safety, the Government and regional government can provide financial assistance to water resources managing state owned enterprises/region owned enterprises. In addition, the water resources management institutions have the right to collect revenues from water resources users (exception are users of water resources to fulfil daily basic needs and for public agriculture). With these revenues, the sustainability of water resources management in a river basin will be supported[161]. There is no more specific information on financing.

Sources of information

Legislation
- Law on Water Resources

Literature
- Teeuwen, H.H.A. (2004) 'De nieuwe Indonesische waterwetgeving', in: *Environmental act and policy in Indonesia*, Universiteit van Maastricht
- Ministry of Settlements and Regional Infrastructure, Directorate General of Water Resources, Republic of Indonesia (2003) *Water Resources Management – Towards enhancement of effective water governance in Indonesia*, country report for the 3rd World Water Forum, Kyoto – Japan, March 2003
- Zaman, M. (2002) *Restructuring of the Water Sector in Indonesia: An Institutional and Legislative Challenge*, A Preliminary Assessment for the Bank Information Center

[160] Chapter VIII, Law on Water Resources
[161] Articles 77-80, Law on Water Resources

Websites

- http://www.bicusa.org/bicusa/issues/misc_resources/455.php (literature)

14.3 Table of contents of the Law on Water Resources

1. GENERAL PROVISIONS
2. AUTHORITY AND RESPONSIBILITY
3. WATER RESOURCES CONSERVATION
4. WATER RESOURCES UTILISATION
5. CONTROL OF WATER DAMAGING POWER
6. PLANNING
7. CONSTRUCTION IMPLEMENTATION, OPERATION
8. AND MAINTENANCE
9. WATER RESOURCES INFORMATION SYSTEM
10. EMPOWERMENT AND SUPERVISION
11. FINANCING
12. RIGHT, OBLIGATIONS , AND ROLE OF THE COMMUNITY
13. COORDINATION
14. COMMUNITY AND ORGANISATION CHARGE
15. INVESTIGATION
16. CRIMINAL PROVISIONS
17. TRANSITIONAL PROVISIONS
18. CONCLUDING PROVISIONS

15 NORWAY

15.1 Context of water legislation

15.1.1 Water issues, drivers and process of change

Hydropower, amongst others, is a main topic in Norwegian water management. Hydropower accounts for about 99 per cent of Norway's electricity production. Electricity generation is also the most important commercial use of water resources. Furthermore, coastal zone management is an important issue. Norway has a very characteristic coastline, which is more than 57 000 km long, including fiords and islands. About 80% of the population lives in the coastal areas. The coastal zone and the coastal resources have played, and still play, a major role for settlement, employment and the national and regional economy. Important activities in the coastal zone are fisheries, aquaculture, shipping, tourism and recreation. The coastal zone is also a significant cultural heritage area, encompassing an important part of the nation's history and identity. It seems that the Norwegian water legislation hasn't seen fundamental changes in the last years. Norway has committed itself to the WFD through the European Economic Area Agreement, but has not yet transposed the WFD into national legislation.[162]

15.1.2 Governance

Norway is a constitutional monarchy and is divided into 19 counties (*fylker*) and 435 municipalities. The municipalities are self-governing entities with powers of their own in areas such as schools, health care and social welfare. The counties are both instruments of decentralised state administration (with state-appointed governors, *Fylkesmann*) and self-governing entities with powers mainly in the field of secondary education. Both the counties and the municipalities have directly elected councils (municipal elections are held after two years of a parliamentary legislative period) and, in addition to receiving transfer payments from the government, have the power to levy their own taxes.
The responsibility for water resources management in Norway is divided between the national, regional and local levels. At the local level, municipalities prepare water resource plans concerning water supply and quality, land use, sewage, water pollution and fishing as a part of their ordinary planning work. At the regional level county planning is being used as a tool for management of rivers and lakes. Both long-term and corporate plans are statutory and represent important management tools for both municipalities and counties. At central government level, the Ministry of Petroleum and Energy and its subordinate agency the Norwegian Water Resources and Energy Directorate are responsible for the management of Norway's water and energy resources, particularly as regards to electricity generation and works that may have a significant impact on watercourses or the surrounding environment. The Ministry of the Environment and two of its subordinate agencies, the Norwegian Pollution Control Authority and the Directorate for Nature Management, are responsible for water pollution issues and for nature conservation and nature management.[163]

[162] Norwegian Ministry of the Environment (2002) *Environment and water resources management – the Norwegian way*; website of the Ministry of the Environment
[163] ibid.

15.2 Contents of water legislation

There is no Norwegian (integrated) water act. Water legislation is scattered and consists of several separate acts. The most important seem to be the Water Resources Act, the Planning and Building Act, the Watercourse Regulation Act and the Pollution Control Act.

15.2.1 Organic elements

The Planning and Building Act provides the organisational elements concerning spatial planning, which serves as a tool for the management of water resources (see above). But furthermore, it isn't clear which specific acts and / or provisions constitute the organisation of the Norwegian water sector.

15.2.2 Framework versus operational legislation

All relevant acts for water management don't seem to be framework acts, but contain fairly specific and operational provisions on parts of Norwegian water management. However, good information on the acts, as well as some texts of the acts themselves are not accessible, so we cannot be more specific on this.

15.2.3 Scope / degree of integration

Norway doesn't have an integrated water act. The Water Resources Act and the Watercourse Regulation Act mainly deal with hydropower, although these acts also include provisions on precautionary measures concerning the preservation of cultural heritage, pollution and other environmental issues when hydro power activities are to be undertaken. The Pollution Control Act deals with "the introduction of solids, liquids or gases to air, water or ground" and deals thus with discharges of water and discharges into water[164]. The Planning and Building Act regulates land use planning on national, county and municipal level. The purpose of planning is, inter alia, to provide for a basis for decisions concerning the use and protection of resources[165]. Under the Act, municipalities may establish environmental goals for their water resources and the environment in the vicinity of these resources.[166]

15.2.4 Horizontal coordination & cooperation

The Water Resources Act and the Watercourse Regulation Act contain quite specific regulations on the field of hydropower, although there are relations with other activities as well (see above). Furthermore, the system of spatial planning seems to have some relations with water related fields. Spatial plans at county level are used as a management tool for managing rivers and lakes, and municipalities prepare water resource plans concerning water supply and quality, land use, sewage, water pollution and fishing as a part of their ordinary planning work.[167] This is also

[164] Paragraph 6, Pollution Control Act
[165] Section 2, Planning and Building Act
[166] National Information Focal Point (2004) *FreshWater Country Profile Norway*;
[167] Norwegian Ministry of the Environment (2002) *Environment and water resources management – the Norwegian way*

reflected in the issuing of permits based on the Planning and Building Act (see below). Furthermore, the Planning and Building Act provides the legal mandate for a system for coastal governance. The system is built on the principles of Integrated Coastal Zone Management (ICZM), promoting a holistic, collaborative and bottom-up approach and involving all relevant stakeholders. The act serves as a tool for co-ordination and facilitates decentralisation of planning and building authority to the local and regional (county) authorities. The local authorities (the municipalities) can make legally binding decisions as long as national and regional frameworks and goals are not violated. The main objective is to ensure sustainable development of the coastal resources, both for the benefit of the coastal communities and for the nation as a whole.[168]

15.2.5 Planning

Several planning documents relating to water management exist. The most important are the Master Plan for Water Resources, the Watercourse Protection Plan and the spatial plans based on the Planning and Building Act. The relation between the latter and the management of water resources and the coastal zone, is already discussed above.
As mentioned before, hydropower is a main water management issue in Norway. For many years the development of rivers for power purposes was made on a case-by-case basis without a co-ordinated plan for the whole country. In view of increasing conflicts with other user interests, it became essential to consider the exploitation of the remaining watercourses in a larger perspective. In 1985 these considerations led to the preparation of the Master Plan for Water Resources, drawn up by the Ministry of the Environment. The plan has been updated in 1988 and 1993. The scope of the Master Plan is to present a priority grouping of hydropower projects to be brought forward for licensing. The priority grouping is the final result of evaluating development costs versus conflicts with other interests.
As opposed to the Master Plan for Water Resources, in which rivers (or basins) are designated for hydropower projects, the Watercourse Protection Plan is a conservation plan for other values and interests related to watercourses, like cultural heritage, fish, wildlife, outdoor recreation, pollution control, agriculture, forestry and husbandry. The most recent Master plan for Water Resources was accepted in 1993 by Norwegian Parliament.[169]

15.2.6 Instruments

Permits and licenses

The Water Resources Act and the Planning and Building Act contain the most important licensing procedures in the field of water management[170]. For the former, there's no additional information found, which enabled us to elaborate on this. As for the Planning and Building Act, certain projects on the ground, but also in the underground, in watercourses or in marine areas, are subject to permitting by the municipality. These projects, inter alia, include the erection of, addition to, extension of, underpinning or positioning a permanent, temporary or transportable

[168] Norwegian Ministry of the Environment (2002) *Coastal Zone Management*
[169] Norwegian Ministry of the Environment (2002) *Environment and water resources management – the Norwegian way*
[170] ibid.

building, structure or installation; and the alteration and demolition of these projects[171]. All water infrastructure works are thus part of this permitting procedure.
In the hydropower field, a licence pursuant to the Watercourses Regulation Act and/or the Water Resource Act grants permission to a specified company to develop and run power plants and dams. This will include conditions and rules of the operation of water, as well as construction plans regarding e.g. landscaping, environmental and safety aspects. In accordance with these conditions, the developer must also take precautions regarding preservation of cultural heritage, pollution and other environmental issues. This could involve constructing weirs, building fish traps, ensure minimum waterflows, and removing vegetation from regulated zones.
Licensing is also a part of the Pollution Control Act. The Pollution Control Act establishes the principle that pollution is prohibited unless a permit has been granted. The Pollution Control Authority may issue regulations concerning the type of activities that by their nature may lead to pollution and for which a permit is required. The Pollution Control Authority grants the permit. Moreover, this authority may also issue regulations relating to fees for dealing with applications for permits, and for control measures that are carried out to ensure compliance with the Pollution Control Act[172].

Economic instruments

The local authorities have the main responsibility for providing water and sewage services to both commercial and private users. Investment decisions for such projects are made by developers. Prices vary, since by law the usage fee levied by the municipality may not exceed what is needed to cover the costs of the service. There is no other charge on water use.[173]
Furthermore, the Pollution Control Act contains a section on compensation in case of economic damage caused by pollution. It states that if the owner requires so, the pollution control authority may determine that the person responsible for pollution shall, in return for compensation payable in accordance with an official assessment, purchase real property if the pollution will make the property unsuitable for the purpose for which it is used. This also applies in the case of leases, agricultural leases or other special rights of use relating to real property.[174]
The Pollution Control Act contains a chapter on penal measures in case of non-compliance[175]. It can be assumed that other acts which regulate water related aspects also contain such provisions, but we don't have information on this.

Monitoring and enforcement

On the basis of the Pollution Control Act, the Pollution Control Authority shall be responsible for monitoring the general pollution situation and pollution from individual sources. The Pollution Control Authority shall also be responsible for monitoring waste management. The Pollution Control Authority shall by means of advice, guidance and information seek to counteract

[171] Section 93, Planning and Building Act
[172] Chapter 3; Article 52a, Pollution Control Act; Norwegian Ministry of the Environment (2002) *Environment and water resources management – the Norwegian way*
[173] National Information Focal Point (2004) *FreshWater Country Profile Norway*
[174] Paragraph 17, Pollution Control Act
[175] Chapter 10, Pollution Control Act

pollution and waste problems and shall ensure compliance with the provisions of this act and of decisions made pursuant thereto[176].

Information and communication

Norway has a country-wide hydrological monitoring network which is currently being upgraded. There are about 700 monitoring stations that measure river discharge, 600 stations that measure reservoir water level, and 50 stations that measure ground water level. Data are collected at least on a daily basis, in many places continuously. In addition, the amount of water stored in snow and glaciers, water temperature and sediment transport are measured. Water quality in rivers discharging into the sea is monitored on a monthly basis in 10 rivers, and four times a year in 36 rivers. In addition, there is short-term monitoring of clean-up and restoration works. Both water quantity and water quality are measured according to national standards.[177]

Sources of information

Legislation

- Planning and Building Act
- Water Resources Act
- Watercourse Regulation Act
- Pollution Control Act

Literature

- National Information Focal Point (2004) *FreshWater Country Profile Norway*
- Norwegian Ministry of the Environment (2002) *Coastal Zone Management*
- Norwegian Ministry of the Environment (2002) *Environment and water resources management – the Norwegian way*

Websites

- Website of the Ministry of the Environment; http://odin.dep.no/md/engelsk
- Website of the Norwegian water Network; http://www.water-norway.org/water/index.html

15.3 Table of contents

The Water Resources Act, the Watercourse Regulation Act and the Pollution Control Act are not available in English.

[176] Paragraph 48, Pollution Control Act
[177] National Information Focal Point (2004) *FreshWater Country Profile Norway*

16 SCOTLAND

16.1 Context of water legislation

16.1.1 Water issues, drivers and process of change

Protection and improving water quality is an important issue for Scottish water management. Whilst on a national basis, the overall picture regarding water quality is good, there are problems identified in certain areas of Scotland. Water quality problems largely occur in urban conurbations in the central belt and settlements alongside coasts and estuaries.[178]
Furthermore, the Scottish water services get a lot of attention in water management. Recently, a great and complex merger took place in the water industry sector, resulting in the establishment of one publicly owned business responsible for supplying water and delivering services. In the debate on the privatisation of the water industry the public remained opposed to privatisation. Partly because of abundant water, the perception is that the public sector needs to ensure that water and water services are available and affordable for all sectors of the community.
Transposition of European Directives is a devolved matter for the Scottish Parliament. Hence, Scotland had to draw up legislation to transpose the WFD. With the enactment of the Water Environment and Water Services (Scotland) Act, Scotland did just that. This was actually the first transposition of a European Community law instrument into Scottish law by the Scottish Parliament through primary legislation.
The division of competencies in the matter of European Directives within the UK, results in the possibility of implementing directives in a different way. In the case of the WFD, this implementation is quite different in Scotland than it is in the rest of the UK, resulting in particular challenges, especially when it comes to river basins which border England and Scotland.[179]

16.1.2 Governance

Scotland is the northernmost country in the United Kingdom. Since 1999 Scotland is to a certain extent self-governing (following the Scotland Act of 1998). Certain matters such as foreign policy and defense are matters for decision by the United Kingdom Parliament in London. For other matters including environment, agriculture, industry and sustainable development issues, responsibility is devolved to the Scottish Parliament based in Edinburgh. The Ministers of this parliament together with the civil servants that support them are collectively known as the Scottish Executive.[180]
The Scottish Environment Protection Agency (SEPA = resource manager) is the equivalent of the Environment Agency (EA) in England and Wales. It is the public body responsible for environmental protection in Scotland. It was established, like the EA, under the Environment Act 1995 and became fully operational as from 1 April 1996. SEPA's main aim is: "to provide an efficient and integrated environmental protection system for Scotland which will both improve

[178] Walker, S. (2003) *National Approaches and Background on Public Participation – Scotland*, report as part of Work Package 4 of the HarmoniCOP project, annex to the report "From listener to talker: the changing role of the citizen in England and Wales", by Tunstall, S. and C. Green
[179] Ibid.
[180] Ibid.

the environment and contribute to the Government's goal of sustainable development." SEPA regulates potential pollution of natural waters and the air, the storage, transportation and disposal of controlled waste, and the keeping of radioactive materials.[181]
The Scottish water services were until recently the responsibility of three publicly owned water authorities. They were East of Scotland Water, West of Scotland Water and North of Scotland Water respectively. The three water authorities in Scotland were set up as public monopolies responsible for providing services to the public networks. In 2002, these three companies were merged into one, Scottish Water, a publicly owned business, answerable to the Scottish Parliament and the people of Scotland. It plays a key role in protecting the nation's health by providing water and waste water services to 2.2 million customers and 130,000 business customers across an area, one third of the size of Britain.[182]

16.2 Contents of water legislation

16.2.1 Organic elements

It is not clear what legal provisions constitute the organisation of Scottish water management. The Water Environment and Water Services (Scotland) Act contains some organic provisions, but these are merely very concrete amendments to the existing organisation of (parts) of Scottish water management (see above). Only on the issue of river basin planning, the Bill sets forth an organic framework. It sets SEPA as lead authority for the implementation of WFD in Scotland through river basin planning. This has broadly been welcomed, although SEPA, as environmental regulators, will need to develop suitable expertise to deal with economic and social development considerations, as highlighted in the Policy Memorandum, accompanying the act. Ministers will designate powers to other parties that have a key role to play, whilst all public sector bodies must take the need to protect the water environment into account[183].

16.2.2 Framework versus operational legislation

The Water Environment and Water Services (Scotland) Act is framework legislation. In the policy memorandum accompanying the act it is said that the Bill is enabling in nature and provides for regulations to be made in due course. This is particularly the case in relation to the controls over activities with the potential to damage the water environment. The reason for this is that the Executive wishes to put in place control regimes that are appropriate to Scottish circumstances, and that have been developed after thorough consultation and are flexible but will last[184]. It is not clear whether this has been done at the moment.

[181] Website of SEPA; http://www.sepa.org.uk/
[182] Website of Scottish Water; http://www.scottishwater.co.uk/
[183] The Scottish Parliament, The Information Centre (2002) *Water Environment and Water Services (Scotland) Bill – Overview*, SPICe Briefing, 02/76
[184] Water Environment and Water Services (Scotland) Bill 2003, policy memorandum

16.2.3 Scope / degree of integration

The scope of the Water Environment and Water Services Act covers the 'water environment', which means all surface water, groundwater and wetlands[185]. The aim of the act is, inter alia, to reduce water pollution, so water quality management is an aspect of the act. Less explicit as a goal of the act, but nonetheless included in the definition of 'protection of the water environment' is water quantity management. It is said that this includes 'contributing to mitigating the effects of floods and droughts'[186]. The river basin approach is also included in this act, as the act is supposed to transpose the WFD. Besides this, a considerable part of the act also covers water services, although these provisions mainly mean an amendment of other legislation.
Although the Scottish Water Environment and Water Services Act seems to cover a lot of aspects of water management, it should not be regarded as an integrated water act. It does not elaborate on all abovementioned aspects as much as one would expect from an integrated water act.

16.2.4 Horizontal coordination & cooperation

The co-ordination between water management and other policy fields remains somewhat unclear. Although, some concern has been raised about the interrelationship
between river basin management plans (RBMP) and development plans drawn up by local planning authorities. Given the long-term nature of both RBMPs and development plans, it will be vital to ensure that the WFD requirements are fundamentally built into the planning process and, on the other hand, that RBMPs take account of the development plan process. The policy memorandum accompanying the Water Environment and Water Services Act only states on this issue that: 'development plans will need to take appropriate account of the environmental objectives of RBMPs in their land allocations and development policies; i.e. take on board those aspects of RBMPs that are relevant to Planning. Similarly, it will be important that RBMPs take account of future development allocations and general policies for development control. It is clear that SEPA and Planning Authorities will need to work closely with one another in preparing RBMPs and development plans.'[187]

16.2.5 Planning

Scotland has 337 river basins which are larger than 25km². It would clearly be impractical to produce plans covering all of them. The Executive proposed to tackle this by designating one or more River Basin Districts (RBD), each covering a number of actual river basins. The Water Environment and Water Services (Scotland) Bill will give Ministers the power to designate River Basin District(s) in Scotland by Order. It does not specify how many districts there should be[188]. In the Policy Memorandum to the Bill, the Executive favours designating one RBD to cover the

[185] Article 3, Water Environment and Water Services (Scotland) Act 2003
[186] Article 1, Water Environment and Water Services (Scotland) Act 2003
[187] The Scottish Parliament, The Information Centre (2002) *Water Environment and Water Services (Scotland) Bill – Overview*, SPICe Briefing, 02/76; Water Environment and Water Services (Scotland) Bill 2003, policy memorandum
[188] Article 4, Water Environment and Water Services (Scotland) Act 2003

whole of Scotland, with separate arrangements for the transboundary rivers, Tyne, Tweed and Solway[189].
In a briefing of 2002 of the Scottish Parliament, it is said that the Executive has chosen not to prescribe the contents of River Basin Management Plans in the Bill, preferring to leave this to Regulations and Guidance. The consultation on the act said this was "particularly because technological and IT advances may well create new ways of presenting information between now and 2008"[190]. However, the act itself does contain, in an annex a list of what should be included in the plans, which naturally follows the WFD[191].
As it is likely that Scotland will be largely covered by one River Basin District, sub-basin planning will be an important way of fleshing out the detail of the River Basin Plan. These plans can either cover detailed management of a particular river catchment, or can address a common theme, such as diffuse pollution from agriculture. SEPA is designated as the body which must prepare these plans[192]. It is not clear whether SEPA already has drawn up such plans.

16.2.6 Instruments

Permits and licenses

The Water Environment and Water Services Act does not contain provisions on permits and licenses for certain water uses. It is fairly unclear in which other primary acts permits and licenses are regulated for certain water uses. In the Environmental Protection Act of 1990 it is said that the Secretary of State may, by regulations, prescribe any description of process as a process for the carrying on of which after a prescribed date an authorisation is required. The Secretary of State has the same competency in prescribing any description of substance as a substance of which the release the environment is subject of authorisation.[193] The act itself does contain provisions on several detailed aspects of 'authorisation', but it is not clear what is subject of authorisation.
It is possible that there are more provisions on authorisations, permits and licenses in the Control of Pollution Act of 1978, the Sewerage Act of 1968 and the Water Act of 1980, but we don't have the texts of these acts.

Economic instruments

Under the Environmental Protection Act, it is determined that the Secretary of State may, from time to time, make or revise a scheme prescribing fees and charges that shall be paid in respect of application for authorisations[194]. We have not found other specific economic instruments. This could have to do with the lack of information on the abovementioned acts.

[189] Water Environment and Water Services (Scotland) Bill 2003, policy memorandum
[190] The Scottish Parliament, The Information Centre (2002) *Water Environment and Water Services (Scotland) Bill: River Basin Planning*, SPICe Briefing, 02/96
[191] Schedule 1, part 1, Water Environment and Water Services (Scotland) Act 2003
[192] Article 15, Water Environment and Water Services (Scotland) Act 2003
[193] Section 2, Environmental Protection Act 1990
[194] Section 8, Environmental Protection Act, 1990

Information and communication

In Scotland, the Executive proposes to encourage participation in the implementation of the WFD by creating River Basin District Advisory Groups. The Bill leaves it up to SEPA to decide how many groups to establish, but it is likely that groups will be set up for the main river catchments e.g. the Tay, Forth, Clyde, the different regions, and a national co-ordination group. These would be standing consultees on the various stages of implementation of the WFD, and would be composed of representatives from the private, public and voluntary sectors. The Bill also places a requirement on SEPA to seek and have regard to the views of a wide variety of interest groups and stakeholders and to prepare a report demonstrating how they have done so.[195]

Sources of information

Legislation
- Water Environment and Water Services (Scotland) Bill 2003
- Environmental Protection Act 1990

Literature
- The Scottish Parliament, The Information Centre (2002) *Water Environment and Water Services (Scotland) Bill – Overview*, SPICe Briefing, 02/76
- The Scottish Parliament, The Information Centre (2002) *Water Environment and Water Services (Scotland) Bill: River Basin Planning*, SPICe Briefing, 02/96
- Walker, S. (2003) *National Approaches and Background on Public Participation – Scotland*, report as part of Work Package 4 of the HarmoniCOP project, annex to the report "From listener to talker: the changing role of the citizen in England and Wales", by Tunstall, S. and C. Green
- Water Environment and Water Services (Scotland) Bill 2003, policy memorandum

Websites
- Website of SEPA; http://www.sepa.org.uk/
- Website of Scottish Water; http://www.scottishwater.co.uk/
- Website of the British and Irish Legal Information Institute; www.bailii.org

16.3 Table of contents Water Environment and Water Services (Scotland) Act 2003

PART 1: PROTECTION OF THE WATER ENVIRONMENT

CHAPTER 1

PURPOSE, GENERAL DUTIES AND DEFINITIONS

Section

1 General purpose of Part 1

2 The general duties

[195] The Scottish Parliament, The Information Centre (2002) *Water Environment and Water Services (Scotland) Bill: River Basin Planning*, SPICe Briefing, 02/96

The Bill for this Act of the Scottish Parliament was passed by the Parliament on 29th January 2003 and received Royal Assent on 5th March 2003

17 SOUTH AFRICA

17.1 Context of water legislation

The National Water Act (1998) was promulgated by the introduction of a new Water Service Act (RSA Water Services Act, 97). This act deals with the provision of safe drinking water to all levels of society and is enhancing extensive processes of decentralisation of water supply to the local governments of the republic of South Africa. One of the most important elements of the Water Services Act is that it establishes and clarifies the institutional arrangements for water services provision, with local government at the centre.

Decentralisation efforts in the South African system follow the method of progressiveness in time. This means that the Minister and the Director-general only delegate when the need to do so is expressed by the stakeholders and when sufficient capacity has been generated to exercise the decentralised function.

For South Africa the following issues appear to be the major triggers for legal and institutional reform:

- Access to water resources; this process of reversing injustices of the past was already one of the main drivers for the National Water Act in1998, but it's still a topic high on the water policy agenda.
- The call for equitable water distribution based on a widely consented water resources management strategy;
- The need for effective and efficient integrated water resources management conductive to stakeholder participation through decentralisation processes;
- The redressing of legal shortcomings in former water legislation with the emphasis on the introduction of integrated approaches;
- The introduction of instruments of cost recovery for water resources management;
- The need to develop human resources capacity and institutional strength within the implementing agencies.

17.2 Contents of legislation

17.2.1 Framework versus operational legislation

The South African National Water Act can be defined as framework legislation. It attributes a clear set of tasks and responsibilities to the Minister and even to the Director-General of the Department of Water Affairs and Forestry, such as:

- establishment of water resources management strategies
- progressive delegation of authority to catchment management agencies
- decentralisation of the water supply function to local governments and the private sector

On the other hand there are some elements typical for operational legislation. A clear set of tasks and responsibilities is developed about:

- classification of river systems in terms of water quality
- establishment of a reserve for primary uses and environmental flows
- establishment of pricing policies
- policy development for the sharing of international water resources

- establishment of time frames for implementation for the respective activities

17.2.2 Scope / degree of integration

The South African water legislation combines aspects of equity, efficiency and environmental sustainability in an integrated approach for water resources management. There is sufficient emphasis on environmental protection, on the appraisal of groundwater as a major asset and the balanced use of water resource from transboundary rivers.

17.2.3 Institutions

This is an overview of water resource management institutions within the framework which the National Water Act provides.

First tier

- *Minister of Water Affairs and Forestry*
  The Minister of water Affairs and Forestry is the custodian of water resources and has the ultimate responsibility to ensure that water resources are protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, for the benefit of all persons. The Minister is also responsible to ensure that water is allocated and used beneficially in the public interest, while promoting environmental values.
- *Department of Water Affairs and Forestry*
  The Department of Water affairs and Forestry is responsible for administering all aspects of the National Water Act delegated to it by the Minister or Director-General. As the various water resource management institutions are established and the responsibility and authority for water resource management is delegated or assigned to them, the Department's role will change. It will increasingly focus on national policy, a regulatory framework for water resource management, and ensuring that other institutions are effectively fulfilling their roles and responsibilities. DWAF is also responsible for the National Water Resource Strategy, this is one of the main tools used to ensure that the nation's water resources are protected. The Strategy provides the framework within which water will be managed at regional or catchment level, in defined water management areas.

Second tier

- *Catchment management Agency*
  Catchment management agencies (CMA's) represent the second tier of the water resource management framework. A CMA will be established in each of the 19 water management areas. Each CMA is responsible for the progressive development and broad implementation of a catchment management strategy. The catchment management strategy must be consistent with the National Water Resource Strategy, within its water management area.

Third tier

- *Water user association*
  WUA's are associations of individual water users that undertake water-related activities for mutual benefit. WUA becomes third tier of water resource management institutions if water management activities are delegated to the WUA.

Advisory committees and non-statutory bodies

The act empowers the Minister to establish advisory committees. Advisory committees are statutory bodies because they are established in terms of the act. Advisory committees are established for a particular purpose with particular functions , for example advising the minister about the composition of a CMA governing board.

In addition to the statutory bodies provided for in the National Water Act, non-statutory bodies may also be established by interested and affected individuals and institutions (stakeholders). These bodies tend to play a facilitating and supporting role to the establishment of CMA's, for example catchment forums and catchment steering committees.

17.2.4 River basin management, planning and stakeholder participation

According to the NWA:

- The Minister is obliged to produce a National Water Resources Strategy. In general terms this means: equity, efficiency, sustainability, along the lines of an integrated approach with the optimal stakeholder participation. The Minister has to make sure that specific catchment management strategies are produced by the relevant authorities in line with the national strategy.
- 19 Water Management Areas (WMAs) are identified, based on hydrological boundaries. Catchment Management Agencies (CMAs) are responsible for managing, using, conserving, protecting, controlling and developing water resources in each of the water management areas. The CMAs have to incorporate the National Water Resources Strategy as set out by the Minister. The CMAs manage water resources but also coordinate functions of other institutions involved in water related matters in the catchment area.
- The Catchment Management Agencies are governed by boards. These boards represent the relevant interests in an area and 'have appropriate community, racial and gender representation'. Catchment Management Committees (CMC) may be established for sub-catchment areas. In addition, Catchment Management Fora may be established to assist CMAs, although their existence is not arranged for in legislation. The Catchment Fora could include a wide range of stakeholders.
- On agricultural scheme scale Water User Associations (= stakeholder) represent the water needs of the farmers.

For all 12 catchments in the country catchment agencies will be progressively established with a view to decentralising decision making to the lowest appropriate level. This progressive delegation will take place at the request of groups of stakeholders as and when sufficient management capacity has been established and can be demonstrated. Where catchment management agencies are not yet viable the Director-general will take care of their function, whether or not assisted by an Advisory Committee, as a first step towards establishing an agency.

17.2.5 Instruments

For application of the NWA a system of lawful or permissible uses, general authorisations and licenses is developed. The permissible use system is formulated in such a way that basic (mainly domestic) water uses, indicated in a special Schedule attached to the act are not subjected to the license and authorisation system. Water uses permitted under other or prior legislation will continue to remain lawful unless and until they are or will be covered under the restrictions of the act. The system of general authorisations gives the relevant authority the possibility to exonerate types of water uses, groups of persons, certain parts of a catchment at certain periods of time from legal restrictions or license application. Any other water use, not compromised under any of these categories, needs a license, with a maximum duration of 40 years. After this period the license has to be repealed. In the system of general authorisations and licenses the option is offered to the relevant authority to attach conditions or obligations to fulfill formal requirements.

The Minister may, after public consultation, set a pricing policy, which may be different among geographical areas, categories of water users or individual water users. The achievement of social equity is one of the considerations in setting differentiated charges. Waste charges will be used as a means of encouraging reduction in waste and provision is made for incentives for effective water use. Non-payment of a charge will attract penalties, including the possible restriction or suspension of a permit or the supply of water.

The act introduces a strong tool in authorising the relevant authorities to allocate water not belonging to the Reserve or to international obligations as per best economic advantages of most beneficial use. The term water auction or tender is even mentioned in the act. It should also be mentioned that the act opens a full spectrum of decentralisation and privatisation options. In practice the Department of Water Affairs is vigorously implementing this instruction. However, most of the financing will continue to be channeled through a system of allocation from government funding.

17.2.6 Implementation

Factors that influence the process of implementation of the South African legislation positive are:
- competencies, tasks and responsibilities are clearly defined in the acts;
- clear instructions have been given to the Minister an Director-general with regard to implementation and timing;
- government is successful in preserving its caretaker function;
- government seems to de able to preserve its institutional and human (managerial) capacity.

The time frame in which changes are taking place is much slower than anticipated, bur it must be stated that the scope of the reform is huge, or even pretentious.

Sources

Legislation
- National Water Act

Literature
- Jaspers Frank G.W. (2001), *Water Law and Institutions,* IHE Lecture Notes, Delft

Websites
- Department of Water Affairs and Forestry; http://www.dwaf.gov.za/

17.3 Table of Contents of the National Water Act 1998

CHAPTER 1: INTERPRETATION AND FUNDAMENTAL PRINCIPLES
1. Definitions and interpretation
2. Purpose of Act
3. Public trusteeship of nation's water resources
4. Entitlement to water use

CHAPTER 2: WATER MANAGEMENT STRATEGIES
Part 1: National water resource strategy
5. Establishment of national water resource strategy
6. Contents of national water resource strategy
7. Giving effect to national water resource strategy

Part 2: Catchment management strategies
8. Establishment of catchment management strategies
9. Contents of catchment management strategy
10. Guidelines for and consultation on catchment management strategies
11. Giving effect to catchment management strategies

CHAPTER 3: PROTECTION OF WATER RESOURCES
Part 1: Classification system for water resources
12. Prescription of classification system
Part 2: Classification of water resources and resource quality objectives
13. Determination of class of water resources and resource quality objectives
14. Preliminary determination of class or resource quality objectives
15. Giving effect to determination of class of water resource and resource quality objectives
Part 3: The Reserve
16. Determination of Reserve
17. Preliminary determinations of Reserve
18. Giving effect to Reserve
Part 4: Pollution prevention
19. Prevention and remedying effects of pollution
Part 5: Emergency incidents
20. Control of emergency incidents

CHAPTER 4: USE OF WATER
Part 1: General principles
21. Water use
22. Permissible water use
23. Determination of quantity of water which may be allocated by responsible authority
24. Licences for use of water found underground on property of another person
25. Transfer of water use authorisations
26. Regulations on the use of water
Part 2: Considerations, conditions and essential requirements of general authorisations and licences

18 SWEDEN

18.1 Context of water legislation

18.1.1 Water issues and drivers for and process of change

The Swedish Parliament has established 15 environmental quality objectives to guide Sweden towards a sustainable society. The 15 environmental objectives will function as benchmarks for all environment-related development in Sweden, regardless of where it is implemented and by whom. The overriding aim is to solve all the major environmental problems within one generation. The fifteen objectives are: [196]

1. Clean air
2. High-quality groundwater
3. Sustainable lakes and watercourses
4. Flourishing wetlands
5. A balanced marine environment and sustainable coasts and archipelagos
6. No eutrophication
7. Natural acidification only
8. Sustainable forests
9. A varied agricultural landscape
10. A magnificent mountain landscape
11. A good built environment
12. A non-toxic environment
13. A safe radiation environment
14. A protective ozone layer
15. Limitation of climate change

As for water, the attention goes especially to achieving good water quality and, in relation with this, to preserving ecosystems and the biological diversity in waters.

The Swedish water sector has seen some considerable changes during the last years. In 1999 the Environmental Code came into force, integrating a wide area of environment related issues, of which water management is one. Furthermore, the EU Water Framework Directive of 2000 is described as 'nothing less than a revolution to traditional Swedish water management'[197]. This revolution is first and foremost an organisational revolution; under the next paragraph we will discuss this further.

18.1.2 Governance

Sweden has three levels of government: national, regional and local. At the national level, the Swedish people are represented by the Riksdag (Swedish parliament). The regional level in Sweden is formed by 21 counties and consists of the county administrative board and the county council. The first is the central governments regional representative and functions as a link between the national and regional levels. The county administrative board is responsible for, among other things, certain social welfare matters and regional planning. The county council is a body which is elected by the people of the county. The principal area of responsibility for county

[196] Website Swedish Environmental Protection Agency; http://www.internat.naturvardsverket.se/
[197] Lundqvist, L.J. (2003) *Integrating Swedish water resource management - an administrative 'trilemma'*, paper for the Diffuse Pollution Conference, Dublin 2003

councils is health and medical service. The local level consists of 290 municipalities. The municipal council, which is elected by the people of municipality, takes decisions in many areas, one area of which is water and sewage.[198]

The described 'organisational revolution' in the water sector (see above) was proposed in a 2002 Report of the Committee on Swedish Water Administration. In this report, a new geographical pattern for Swedish water management is presented. The report comprehends the setting up of five Water Authorities in five designated Water Districts. The Water Authorities will form a whole new level of government 'above' the existing regional level (counties). On the 31st of March of 2004 however, the Swedish Parliament decided that these Water Authorities will be based on the existing administration (the County Administrative Boards) but that a new kind of co-operation between regional authorities and municipalities will be required. A main obstacle for this co-operation is the lack of time and resources at the municipalities.[199] The Water Authorities will be vested with a lot of power. They are expected to establish District programmes, including objectives for water quality and quantity, measures for achieving these management objectives, programmes for monitoring and measurement. The objectives set by the authorities will take the form of statutes and will thus be binding for all sectoral, regional and local authorities, as well as for private sector stakeholders and water users. The WA's will also coordinate and ratify the river basin management plans that will be drawn up for the major catchments. They also have the overarching responsibility for monitoring water quality and to work out how the operative responsibilities for this should be distributed among existing regional and local authorities.[200]
A level below the five water districts is the level of the major catchment areas and river basins. The borders of these areas are drawn along water divides, resulting in 119 catchment areas. For the 119 major river catchment areas, inter-municipal 'partnerships' including local governments of common catchment areas, as well as industrial, agricultural and other water users and their interest organisations are established. The number of partnerships should be limited to 70 – 80, due to the limited size of some river basins. The partnerships are responsible for drawing up river basin management plans. The 'super-local' level that is thus created can according to the Commission, consist of voluntary agreements between the several actors, or it can consist of the establishment of a 'joint management association' among the several actors.[201]

18.2 Contents of water legislation

18.2.1 Organic elements

The above described organisational setting of the water sector has not been laid down in the Environmental Code. In the available literature and documents, there is reference of the 2002 report of the Committee on Swedish Water Administration, which contained the above described

[198] Website of the Government of Sweden; http://www.sweden.gov.se/
[199] Anonymous (2004) *Freshwater country profile Sweden*, Nation Sustainable Development report for the UN Department of Economic and Social Affairs, Division for Sustainable Development
[200] Lundqvist, L.J. (2003) *Integrating Swedish water resource management - an administrative 'trilemma'*, paper for the Diffuse Pollution Conference, Dublin 2003
[201] ibid.

suggestions for the organisation of the water sector. Parliament decided that these suggestions should be taken over, but will be implemented on the *existing* administrative structure.
The five Water Authorities form a new level of government and there's a 'formidable concentration of powers in the WA's' (see above). This means that the degree of centralisation is relatively high. The integration of water management with spatial planning, for example in the case of drawing up river basin management plans, is expected to be difficult, because the planning system is extremely decentralised in Sweden since there is a municipal planning monopoly.[202]

As for property rights of water, the Swedish Environmental Code stresses that water in the natural environment cannot be owned in the normal sense, since water circulates constantly in the hydrological cycle. Instead, persons may have the right to use water in various ways. Owners of properties containing water have a general right of use. Right of use is a key concept in the legislation concerning various kinds of water operations.[203]

18.2.2 Framework versus operational legislation

The Swedish Environmental Code is a piece of framework legislation. Its rules do not generally specify limit values for various operations and it does not go into detail when it comes to striking a balance between various interests. The Code does however contain a number of general rules of application that assert, for example, the precautionary principle, polluter pays principle, product choice principle and principles regarding resource management, the ecological cycle and suitable localisation of activities and measures. Rules out of the Code are often made more specific by regulations issued by central government agencies in the environmental sector such as the Swedish Environmental Protection Agency and the National Chemicals Inspectorate.[204]

18.2.3 Scope / degree of integration

The Code contains provisions for a wide range of environmental aspects, namely: environmentally hazardous activities and health protection, polluted areas, water operations, quarrying and environmental concerns in agriculture, genetic engineering, chemicals and biotechnical organisms, waste and producer responsibility.
Under 'environmentally hazardous activities' is understood:
1. the discharge of waste water, solid matter or gas from land buildings or structures onto land or into water areas or groundwater;
2. other discharges and emissions or pollutants;
3. noise, vibration, light, radiation, etc.

'Water operations' include:
1. the construction and alteration of structures in water areas, the removal of water from or excavation in water areas, as well as other measures whose purpose is to change the depth or position of the water;
2. the diversion and recharging of groundwater;

---

[202] ibid.
[203] Ministry of the Environment (2000) *The Swedish Environmental Code, A résumé of the text of the Code and related Ordinances*
[204] ibid.

3. land drainage, i.e. measures undertaken to drain land.

Furthermore, the Code contains two chapters (7 and 8) on the protection of nature (areas and animal and plant species). The Code thus covers aspects of water management, environment and nature. Spatial planning aspects are still regulated in the Swedish Planning and Building Act.
The Environmental Code thus covers a wide range of aspects, including water. The provisions on water are on surface waters, as well as on groundwater. The management of water quality and water quantity – including water structures – is also addressed in the Code. Also, the Code states that all shores of all lakes, watercourses and of the sea are designated as so-called shore protection areas. Land and water areas shall be protected up to 100 metres from the shoreline for the purpose of maintaining good living conditions for plant and animal species on land and in water.
The last part of the Code is formed by the common provisions (chapters 16-33) which apply to all operations covered by the Code. These provisions cover: consideration of cases and matters, supervision, charges and fees, penalties, compensation, liability, insurance. In the Code's general provisions (part one), there are also basic and special provisions concerning the management of land and water areas included. The purpose of these is to specify important areas of interest to community development that are to be given priority when decisions are made concerning land and/or water use.

18.2.4 Horizontal coordination & cooperation (including international)

The provisions of the Environmental Code apply to operations and measures that affect the environment and human health even where these are covered by other legislation. Its rules and the provisions of other legislation are thus applicable in parallel. This means, for example, that it is not always sufficient to obtain building permission under the Planning and Building Act. In addition to building permission, it may be necessary under the Environmental Code to apply for a permit or exemption, or to notify the authorities of an operation before it starts.[205]

18.2.5 Planning

Planning legislation is covered by the Planning and Building Act. The river basin management plans that will be drawn up, are not regulated in the Environmental Code. It remains unclear where the legal basis of these plans can be found. The abovementioned Committee Report stipulates that the intermunicipal partnerships are responsible for developing the river basin management plans. The coordination between the (large amount of) river basin management plans is done by the Water Authorities, which also have to ratify the plans.

18.2.6 Instruments

Permits and licenses

Permits must be obtained for the establishment, operation and in some cases modification of environmentally hazardous activities on a certain scale. The structures
and operations for which permits must be obtained are covered by a separate

[205] ibid.

Ordinance. Further, a permit must be obtained for all water operations, unless public or private interests are manifestly not harmed by the impact of water operations on water conditions. Permit applications are considered by environmental courts or county administrative boards.
The Environmental Code holds a so-called permissibility procedure. This means that for certain large-scale operations (like for energy and waste disposal facilities, motorways, railways and airports) a review is made to assess whether the operation satisfies the conditions applying to such operations. This procedure does not replace the 'ordinary' permit application procedure.[206]

Economic Instruments
The Environmental Code contains a chapter on penalties. In this chapter, several offences are named and accordingly, the penalties are described. These have the form of a fine or even a term of imprisonment. Examples of offences are: 'environmental offence', 'causing environmental disturbance', 'environmentally hazardous handling of chemicals' and 'unauthorised environmental activity'.
A special charge (environmental sanction charge) must be paid by any economic operator who in his business activities neglects to comply with rules issued pursuant to the Environmental Code. The Government shall issue rules concerning infringements for which environmental sanction charges are payable and the amounts to be paid for various infringements.[207]

Standards
The Swedish Parliament has, independently of the Environmental Code, adopted 15 national environmental quality objectives which describe environmental states that are a precondition for sustainable development (see above). These environmental quality objectives serve as a guide when it comes to assessing the implications of sustainable development and thus to implementing the Code's provisions.
The Environmental Code itself contains some general rules of consideration which must *always* be complied with and which apply to all operations and measures covered by the provisions of the Code. It is the person who takes a measure and thus potentially makes an impact on the environment or human health who is responsible for complying with the rules and who must pay any resulting expenses. An exception to the general rules of consideration is made for measures that are of 'minor importance'. The general rules of consideration comprise several fundamental principles:
- the burden of proof principle;
- the knowledge requirement;
- the precautionary principle and the best possible technology principle;
- the appropriate location principle;
- the resource management and ecocycle principles;
- the product choice principle.[208]

Communication and information
For the purpose of supervision, a supervisory authority may order a person who pursues an activity or takes a measure that is governed by the provisions of the Environmental Code or rules

[206] ibid.
[207] Chapter 29 en 30, Environmental Code
[208] ibid.

issued in pursuance thereof, to submit any information and documents to the authority that are necessary for the purposes of supervision.
As a complement to supervision, the Code holds an obligation for operators to carry out self-checks. Furthermore, a separate Ordinance issued pursuant to the Code requires records of self-checks to be made for operations that are subject to notification and permit requirements. The obligation to carry out self-checks means that the operator himself must monitor the effects of his operations on the environment and take measures on his own initiative that are necessary for compliance with the provisions of the Code and rules, judgments, decisions etc. issued pursuant to it. Many operators have, moreover, introduced environmental management systems, i.e. voluntary commitments to monitor their activities that go beyond the scope of the Code's provisions.[209]

18.2.7 Other elements

The Environmental Code contains provisions on liability and compensation in case of 'certain kinds of environmental damage'. Persons who pursue an activity that has caused bodily injury, material damage or pecuniary loss may be liable for compensation. Such compensation is only payable where the damage was caused by an operation involving the pollution of water, alteration of the groundwater level, pollution of air or soil, noise or vibrations or similar impacts. Persons who have suffered damage or loss in this connection can bring an action before an environmental court. The causer of damage is hold liable and should pay compensation. When it cannot be established who is liable for injury or damage, compensation is paid from the Environmental Damage Insurance. Persons who obtained a permit for environmentally hazardous activities pay contributions to this insurance[210].

Sources of information

Legislation
- Environmental Code

Literature
- Anonymous (2004) *Freshwater country profile* Sweden, Nation Sustainable Development report for the UN Department of Economic and Social Affairs, Division for Sustainable Development
- Lundqvist, L.J. (2003) *Integrating Swedish water resource management - an administrative 'trilemma'*, paper for the Diffuse Pollution Conference, Dublin 2003
- Ministry of the Environment (2000) *The Swedish Environmental Code, A résumé of the text of the Code and related Ordinances*

Websites
- Website of the Government of Sweden; http://www.sweden.gov.se/
- Website Swedish Environmental Protection Agency; http://www.internat.naturvardsverket.se/

[209] Ministry of the Environment (2000) *The Swedish Environmental Code, A résumé of the text of the Code and related Ordinances*
[210] ibid.; chapters 32 and 33, Environmental Code

18.3 Table of contents of the Environmental Code, 1998

PART SIX
PENALTIES
Chapter 29. Penalty provisions and forfeiture
Chapter 30. Environmental sanction charges

PART SEVEN
COMPENSATION ETC
Chapter 31. Compensation in connection with public interventions and permit application procedures relating to water operation etc.
Chapter 32. Compensation for certain kinds of environmental damage and other private claims
Chapter 33. Environmental damage insurance and environmental clean-up insurance

19 SWITZERLAND

19.1 Context of water legislation

19.1.1 Water issues and drivers for and process of change

Switzerland is an Alpine country and because of its geographic situation, it has certain specific topics which are important in the field of water management. Flood control is one of these topics. During the last 25 years, floods have generated damages evaluated at about 125 million Euro per year. Furthermore, the protection of groundwater quality is a main issue, because the origin of 83% of the drinking water is groundwater. Hydropower is also a main water issue; Switzerland has approximately 1200 hydropower plants.
Switzerland, although not a member of the European Union, has committed itself to the WFD, but it has not yet transposed the WFD into national legislation. Though, Switzerland already has a history of river basin management planning. Many of these basins require two or more cantons to work together. Traditionally management in river basins is connected with on the one hand hydropower, and on the other hand flood control and protection against inundation.[211]

19.1.2 Governance

Switzerland is a Confederation, and consists of 26 cantons. The cantons may have their own constitution, parliament and government; 23 of the cantons have done so. The federal level has limited competencies in the field of water management. The Federal Government – the Swiss Federal Office for Water and Geology – can enact acts and rules aimed at rational use and protection of water resources and protection against possible water damages. The Federal Office for Water and Geology (FOWG) is the highest regulatory body for water management. The FOWG is the highest regulatory body competent in all issues concerning: i) water use, ii) river basin management, iv) hydrology, v) flood protection, vi) geology and hydrogeology; vii) natural hazards and displacement of hearth masses, and viii) earthquakes. Canton administrations have however considerable autonomy in determining water acts according to their own needs, geographical constraints and political choice. So it can be said that water management is highly decentralised to the cantonal level.[212]

19.2 Contents of water legislation

The two most important water acts at national level are the Federal Act on Protection of Waters (*Bundesgesetz über den Schutz der Gewässer*) and the Federal Act on River Training (*Bundesgesetz über den Wasserbau*). The former has as its goal to protect water from 'detrimental effects' (article 1). The latter has as its goal to protect humans and 'things of considerable value' (*erheblichen Sachwerten*) from the harmful effect of water, in particular floodings but also erosion and sedimentation. This goal is given the term *Hochwasserschutz* (article 1). Also, there is a Federal Act on the use of Hydropower.[213]

---

[211] Anonynous (2003) *Public Participation in River Basin Management in Switzerland,* report part of the HarmoniCOP Project
[212] ibid.
[213] ibid.

19.2.1 Organic elements

The organisation of the Swiss water sector can be characterised as highly decentralised to the cantonal level (see above). According to the Federal Constitution for example, the right to utilise a public river is principally the responsibility of a Canton. The Federal Government enacts acts and rules aimed at rational use and protection of water resources and protection against possible water damages (flood among others). A Canton can utilise itself a river which is under its sovereignty, or it can assign its use to a third party, (a hydropower company for instance) under a concession.[214]

19.2.2 Framework versus operational legislation

The two most important Swiss water acts have the character of framework legislation; they mainly contain provisions on what the responsibilities of the Cantons are in the field of water management. The Act on River Training stipulates that *Hochwasserschutz* is a responsibility of the Cantons and further specifies what these responsibilities are[215]. The Act on the Protection of Waters also delegates several responsibilities to the Cantonal level. However, this act contains also some specific provisions on mainly water quality, waste water treatment, fertilisation, discharge into and withdrawal of water. The Federal Act on River Training does not contain such specific provisions. It places the responsibility for flood control at the Cantonal level. Both acts contain provisions on the financing of measures in light of the goals of the acts.

19.2.3 Scope / degree of integration

The Act on Protection of Waters covers aspects of water quality and water quantity management and it includes surface water, as well as groundwater[216]. The Act on River Training contains provisions for flood control (*Hochwasserschutz*), including aspects of water infrastructure. In a way, Switzerland already has a history of river basin management planning. Cantons, together with the municipalities involved, manage the river basins in the country[217]. However, there's no reference of river basins or designations of rivers basins in Swiss federal legislation.

19.2.4 Horizontal coordination & cooperation (including international)

The Act on the Protection of Waters does not seem to contain specific provisions on the coordination with other policy fields. The act on river training on the other hand, seeks explicitly coordination with the field of spatial planning. Article 3 specifies that the Cantons in relation to flood control in the first place need to take non-structural, preventive measures, namely 'maintenance of the rivers'[218] and land-use planning.

---

[214] ibid.
[215] Article 2, Federal act on River Training
[216] Article 2, Federal act on protection of waters
[217] Anonynous (2003) *Public Participation in River Basin Management in Switzerland,* report part of the HarmoniCOP Project
218 'Maintenance of the rivers' refers to (1) the removal of trees and bushes which may reduce the discharge capacity and the stability of structures, (2) the removal of drift wood within the flood

The underlying idea of the latter is that development activity in urban and rural areas which considers natural hazards and which provides space for natural events – like floods – has to be promoted. This philosophy about flood protection was firmly established in 1994 with the 'Decree About River Works' (*Wasserbauverordnung, WBV*) which puts the new act into practice. The cantons are directed to establish hazard maps which have to be incorporated in regional and local development plans. Within a hazard zone the growth of vulnerability can be limited or even prevented by considering a few planning principles: (1) avoid hazard zones (prohibition of construction), (2) establish appropriate building codes, (3) reinforce existing structures (local protection), (4) issue codes for a particular agricultural use. The recognised hazards should not be punctually removed but imbedded in a global concept for the entire area. Only if the measures 'maintenance of rivers' and land-use planning are not sufficient, structural (technical) measures should be implemented, such as the building of dams, dikes, structures which hold glacial detritus and alterations of water flows.[219]
Another point of horizontal coordination is the fact that according to the Act on the Protection of Waters, a building permit can only be issued if the construction is near enough to the sewer system. There are some exceptions to this rule possible[220].

19.2.5 Planning

The Act on Protection of Waters contains some planning provisions. The Cantons are supposed to designate three areas in which different provisions apply in relation to the protection of water. These three areas are:

- *Gewässerschutzbereiche*: cantons are to determine the territory into protection zones as function of potential risks to both surface and ground waters. The necessary prescriptions are formulated by the Confederation. In zones with a high risk, a license is needed for certain building and construction works.
- *Grundwasserschutzzonen*: cantons have the responsibility to determine protection areas for ground water which are in the public interest and to determine what the division of property rights in these areas is. Provisions are in place for land owners in these areas.
- *Grundwassserschutzareale*: cantons determine immediate protection perimeters around intakes and the installation of artificial recharge of groundwater.

Also, the act contains a provision which states that the cantons should see to it, that on a local level and, if necessary, on a regional level drainage plans (*Entwässerungs-planung*) are drawn up[221].

Furthermore, the available Swiss water acts do not seem to contain planning systems of any kind. Land use planning is, like the management of water resources, a competence of the Cantons. There is however a Federal Act on Land Use Planning (*Bundesgesetz über die Raumplanung*), which lays down the framework within which the federal level, the Cantonal level and the municipal level (level of the *Gemeinde*) should engage in land use planning. It isn't clear

---

profile, (3) the clearance of dangerous river bed aggradation, (4) the excavation of sediment retention structures, and (5) the repair of minor damage to protective structures.

[219] Federal Office for Water and Geology (2000) *Flood Protection: A Common Goal for Federal, Cantonal and Municipal Authorities*

[220] Articles 17-18, Law on the protection of water

[221] Article 7, Law on the protection of water

however, how water management fits into this. More specifically, in the case of flood control, there are relations between water management and spatial planning. This is discussed in the above.

19.2.6 Instruments

Permits and licenses

The Federal Act on Protection of Waters contains provisions on licensing procedures for certain activities. For instance, the act stipulates that a license is needed for the discharge of polluted waste water. Cantons can decide whether a license is needed for the discharge of non-polluted waste water[222]. Water abstraction (of ground water and surface water) is in most cases subject of a license too[223]. The act gives a series of conditions under which abstraction is allowed[224]. Other licenses related to water management, is the one for building, renovation or expansion of installations within which people work with chemicals (*wassergefährdenden Flüssigkeiten*), a license for draining a storage reservoir and a license for extracting gravel and sand or other materials for which mining is required[225]. A licensing procedure for building in *Gewässerschutz-bereiche* is mentioned above.

Economic Instruments (including non-financial penalties)

The Act on Protection of Waters states that the cantons are responsible for the financing of waste water treatment installations. In the field of flood control, the federal level must provide *compensation* regarding certain flood control measures. It *may* give financial aid for river restoration or subsidies for other flood-control projects. This is, however no legal claim.[226] The two water acts which are discussed in this case study, both know the possibility of expropriation in the light of the goals of the acts. Furthermore, the Act on Protection of Waters holds provisions on financial penalties in case of violating the act. There's no further information available on economic instruments.

Monitoring and enforcement

The federal level is responsible for the cantonal enforcement of federal legislation. It can issue regulations on the implementation of legislation.[227] There is no further specific information available on monitoring and enforcement.

Sources of information

Legislation

- Federal Act on the Protection of Waters
- Federal Act on River Training

[222] Article 7, Law on the protection of water
[223] Article 29, Law on the protection of water
[224] Article 31-35, Law on the protection of water
[225] Respectively article 22, 40 and 44, Law on the protection of water
[226] Federal Office for Water and Geology (2001) *Flood Control at Rivers and Streams*, guidelines of the FOWG, FOWG: Bern
[227] Federal Office for Water and Geology (2001) *Flood Control at Rivers and Streams*, guidelines of the FOWG, FOWG: Bern

Literature

- Federal Office for Water and Geology (2000) *Flood Protection: A Common Goal for Federal, Cantonal and Municipal Authorities*
- Federal Office for Water and Geology (2001) *Flood Control at Rivers and Streams*, guidelines of the FOWG, FOWG: Bern

Websites

- Website of the Federal Office for Water and Geology; http://www.bwg.admin.ch/e/
- Website 'Systematische Sammlung des Bundesrechts'; http://www.admin.ch/ch/d/sr/sr.html

19.3 Table of contents of the Federal Act on the Protection of Waters

Bundesgesetz über den Schutz der Gewässer (Gewässerschutzgesetz, GSchG)
vom 24. Januar 1991 (Stand am 22. Dezember 2003)

1. Titel: Allgemeine Bestimmungen

2. Titel: Verhinderung und Behebung nachteiliger Einwirkungen
1. Kapitel: Reinhaltung der Gewässer
1. Abschnitt: Einleiten, Einbringen und Versickern von Stoffen
2. Abschnitt: Behandlung des Abwassers und Verwertung des Hofdüngers
3. Abschnitt: Abwassertechnische Voraussetzungen für die Erteilung
4. Abschnitt: Planerischer Schutz von Baubewilligungen
5. Abschnitt: Umgang mit wassergefährdenden Flüssigkeiten
6. Abschnitt: Bodenbewirtschaftung und Massnahmen am Gewässer
2. Kapitel: Sicherung angemessener Restwassermengen
3. Kapitel: Verhinderung anderer nachteiliger Einwirkungen auf Gewässer

3. Titel: Vollzug, Grundlagenbeschaffung, Finanzierung, Förderung und Verfahren
1. Kapitel: Vollzug
1. Abschnitt: Vollzug durch die Kantone
2. Abschnitt: Vollzug durch den Bund
3. Abschnitt: Besondere Bestimmungen über den Vollzug
2. Kapitel: Grundlagenbeschaffung
3. Kapitel: Finanzierung
4. Kapitel: Förderung
5. Kapitel: Verfahren

4. Titel:...

5. Titel: Strafbestimmungen

6. Titel: Schlussbestimmungen
1. Kapitel: Aufhebung und Änderung bisherigen Rechts
2. Kapitel: Übergangsbestimmungen

1. Abschnitt: Beseitigung nicht verschmutzten Abwassers, Lagereinrichtungen für Hofdünger und Treibgut bei Stauanlagen
2. Abschnitt: Wasserentnahmen
3. Abschnitt: Abgeltungen
3. Kapitel: Referendum und Inkrafttreten

LIST OF USED SOURCES

Australia

Legislation
- Murray-Darling Basin Act
- Murray-Darling Basin Agreement

Literature
- Hatton MacDonald, D and M. Young (2001) *A case study of the Murray-Darling Basin*, Final Report for the International Water Management Institute
- Hooper, B (unknown) *The Murray-Darling Basin Commission, Australia, Case #25*, case study for the Australia Water Partnership
- Murray-Darling Basin Ministerial Council (2001) *Integrated Catchment Management in the Murray-Darling Basin 2001-2010 – Delivering a sustainable future*
- Scanlon, J. (2003) *Applied Integrated Water Resources Management – The Murray Darling Basin Initiative – Australia*, University of Neuchâtel

Websites
- Website of the Department of the Environment and Heritage of the Australian Government; http://www.deh.gov.au/index.html
- Website of the Council of Australian Governments' (COAG); http://www.coag.gov.au/
- Website Murray-Darling Basin Commission; http://www.mdbc.gov.au/
- Website of the NRM & PI Ministerial Councils; http://www.mincos.gov.au/
- Website of the Australian Water Association; http://www.awa.asn.au/
- Website of the Australian Government on Natural Resource Management; http://www.nrm.gov.au/

Austria

Legislation
- Water Rights Act

Literature
- Dimova, D. (2002) *Austrian Water*, Case Study out of the Trade Environment Database (TED), American University, The School of International Service, Washington D.C.

Websites
- Website of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLUW); http://www.lebensministerium.at/wasser/
- Website 'aquamedia'; www.aquamedia.at
- Website of Austrian Water; http://www.austrianwater.at/english/start.html

Belgium (Flanders)

Legislation
- Decreet betreffende het integraal waterbeleid, 2003
- Decreet betreffende water bestemd voor menselijke aanwending, 2002
- Decreet houdende algemene bepalingen inzake milieubeleid, 1995
- Decreet houdende maatregelen inzake het grondwaterbeheer, 1984
- Wet op de bescherming van de oppervlaktewateren tegen verontreiniging, 1971

Literature
- 'Memorie van Toelichting – Ontwerp van Decreet betreffende het integraal waterbeleid'
- Vlaamse Regering (2000) *Ontwerp Waterbeleidsplan Vlaanderen 2002-2006*

Websites
- Website of the Belgian 'Staatsblad'; http://www.staatsblad.be/index_nl.htm
- Website of the 'Vlaamse Navigator Milieuwetgeving'; http://www.emis.vito.be/navigator/

- Website of the Department water of the Flemish Administration of the Environment, Nature, Land- and water management; http://www.mina.be/front.cgi?s_id=126
- Website of the 'Vlaams Integraal Wateroverleg Comité'; http://viwc.lin.vlaanderen.be

Czech Republic

Legislation
- National Water Act

Literature
- Anonymous (2002) W*ater in the Czech Republic*, found at: Website of the Ministry of the Environment; http://www.env.cz/www/zamest.nsf/0/1776e442315cd885c1256585003ce9a0?OpenDocument

Websites
- Website of Aquamedia; www.auquamedia.at
- Website of the Ministry of the Environment; http://www.env.cz/env.nsf/homeie?OpenFrameSet

Denmark

Legislation
- Water Supply Act

Literature
- Anker, H.T. *Implementation of the WFD in Denmark*, presentation for a Nordic Environmental Law Network (NELN) Workshop "Planning Law and Integrated Resource Management", 25-26 august 2003, Copenhagen
- Anker, H.T., V. Nelleman and S. Sverdrup-Jensen (1998) *Integrated Coastal Zone Management in Denmark – ways and means for further integration*, Discussion paper for the Transnational Seminar on the European Spatial Development Perspective, Göteborg, 26 & 27 October 1998
- Anker, H.T., V. Nelleman and S. Sverdrup-Jensen (2003) *Integrated Coastal Zone Management in Denmark*, paper submitted for the conference "Rights and Duties in the Coastal Zone", Stockholm, June 2003
- Christiansen, O. (2003) 'EU Waterframework Directive – what's the aim?', in: *Danish EPA magazine MiljøDanmark*, October 2003
- Jørgensen, L.F. and G. Brandt (2004) 'Description of the wider water resources management in Denmark', in: Geological Survey of Denmark and Greenland, *Report from the Merit Project – Test of Bayesian belief network and stakeholder involvement*

Websites
- website of the Danish Environmental Protection Agency; http://www.mst.dk/homepage/
- website of the Carl Bro Group; http://www.carlbro.com

England & Wales

Legislation
- Water Act 2003
- Water Resources Act 1991
- Environmental Protection Act 1990

Literature
- Atkins (2004) 'Institutional roles and responsibilities in the coastal zone', in: *ICZM in the UK: A Stocktake, chapter 3*
- Department for Environment, Food and Rural Affairs (2002) *Directing the flow –*

Priorities for future water policy, Defra Publications: London
- Explanatory Notes to Water Act 2003 (chapter 37) of the UK Parliament
- Ngurare, T. E. (2002) *Implementation of Water Reform in Namibia: - Are there Lessons to be learned for the United Kingdom Case Studies?*, A dissertation submitted to the Centre for Energy, Petroleum, Mineral act and Policy of The University of Dundee in partial fulfillment of requirements for the degree of Masters of Law (LLM)
- Tunstall, S. and C. Green (2003) *From listener to talker: the changing social role of the citizen in England and Wales*, report produced as part of Work Package 4 of the HarmoniCOP Project, Middlesex University Flood Hazard Research Centre

Websites
- Website of the British and Irish Legal Information Institute; www.bailii.org
- Website of WaterVoice and the Office of Water Services; www.ofwat.gov.uk
- Website of the Department for Environment Food and Rural Affairs; http://www.defra.gov.uk
- Website of the Office of the Deputy Prime Minister; http://www.odpm.gov.uk/
- http://www.defra.gov.uk/environment/marine/iczm (literature)

France

Legislation
- Water Act (Loi sur l'eau, January 3, 1992, act no.92-3)

Literature
- Anonymous (2002) *Public participation and the European Water Framework Directive – Developing water citizenship*, French Report of the HarmoniCOP project
- Bongaerts, J.C. (2002) 'The *Projet de Loi sur l'Eau*', in : *European Environmetal Law Review*, august/september 2002
- Chéret, I. (1993) 'Managing Water: The French Model', in: I. Serageldin en A. Steer (eds.) *Valuing the Environment – Proceedings of the First Annual International Conference on Environmentally Sustainable Development*, held at the World Bank, Washington D.C.
- Jaspers Frank G.W. (2001), *Water Law and Institutions,* IHE Lecture Notes, Delft
- Ministère de l'Écologie et du Développement Durable (2004) *Premières propositions pour une réforme de la politique de l'eau – débat national sur la politique de l'eau*

Websites
- Website of the Ministry of the Environment and Sustainable development; http://www.ecologie.gouv.fr/rubrique.php3?id_rubrique=4
- Website on the French Public Water Management Policy; http://politique-eau.oieau.fr/en/sommaire.php3

Germany

Legislation
- Federal Water Act
- Flood Prevention Act
- Wastewater Charges Act
- Waste Water Ordinance
- Groundwater Ordinance

Literature
- Barton, T. (2003) 'The Water Framework Directive and its Implementation into German Law', in: H.F.M.W. van Rijswick (ed.) *The Water Framework Directive: Implementation into German and Dutch Law*, CELP/NILOS: Utrecht
- Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2003)

Germany country profile, report for the World Water Council
- Kampa, E., N. Kranz and W. Hansen (2003) *Public Participation in River Basin Management in Germany "From borders to natural boundaries"*, report part of Work Package 4 of the HarmoniCOP Project, Ecologic, Institute for International and European Environmental Policy
- Kraemer (1999) *Water Management and Policy in Germany*, paper for the Semana Internacional de Estudos sobre Gestão de Recursos Hídricos
- LAWA (2003) *German Guidance Document for the implementation of the EC Water Framework Directive*, working paper
- Rudolph, K.U. and T. Block (unknown) *the German Water Sector*, Umweltbundesamt: Berlin

Websites
- Website of the Federal Environment Agency; http://www.umweltbundesamt.de/water
- Website of WasserBLIcK; http://www.wasserblick.net
- Website of the Federal Ministry for the Environment, …; http://www.bmu.de/en/
- Website of LAWA; http://www.lawa.de/
- http://www.ufrgs.br/iph/kraemer_water_ management_and_policy_in_germany.pdf

North Rhine-Westphalia

Legislation
- *Land* Water Act (of North Rhine-Westphalia)
- Federal Water Act

Literature
- Anonymous (unknown) *Einführung zum vorbeugenden Hochwasserschutz aus der Sicht der Landesplanung NRW*
- Arbeitsgruppe Wasserrecht (2003) *NRW-Leitfaden zur Umsetzung der WRRL*
- Bongartz, M. (unknown) *"Vorbeugender Hochwasserwschutz im rahmen der Regionalplanung in Nordrhein-Westfalen"*
- LAWA (2003) *German Guidance Document for the implementation of the EC Water Framework Directive*, working paper
- Ministerkonferenz für Raumordnung (2000) *Handlungsempfehlung zum vorbeugenden Hochwasserschutz – Vorbeugender Hochwasserschutz durch die Raumordnung*

Websites
- Website of the Water Management Initiative; www.wasser.nrw.de
- Website of the transposition of the WFD in NRW; www.flussgebiete.nrw.de
- Website of the Environment Agency; www.lua.nrw.de
- Website 'Dokumentenarchiv des Landtags'; http://sgv.im.nrw.de/
- http://www.staedtetag-nrw.de/veroeff/eildienst/ 2003/eil_2003_12.htm (literature)
- http://www.mvel.nrw.de/cipp/mvel/custom/pub/content,lang,1/oid,11724/ticket,g_u_e_s_t (literature)

Indonesia

Legislation
- Law on Water Resources

Literature
- Teeuwen, H.H.A. (2004) 'De nieuwe Indonesische waterwetgeving', in: *Environmental act and policy in Indonesia*, Universiteit van Maastricht
- Ministry of Settlements and Regional Infrastructure, Directorate General of Water Resources, Republic of Indonesia (2003) *Water Resources Management – Towards*

enhancement of effective water governance in Indonesia, country report for the 3rd World Water Forum, Kyoto – Japan, March 2003
- Zaman, M. (2002) *Restructuring of the Water Sector in Indonesia: An Institutional and Legislative Challenge*, A Preliminary Assessment for the Bank Information Center

Websites
- http://www.bicusa.org/bicusa/issues/misc_resources/455.php (literature)

Norway

Legislation
- Planning and Building Act
- Water Resources Act
- Watercourse Regulation Act
- Pollution Control Act

Literature
- National Information Focal Point (2004) *FreshWater Country Profile Norway*
- Norwegian Ministry of the Environment (2002) *Coastal Zone Management*
- Norwegian Ministry of the Environment (2002) *Environment and water resources management – the Norwegian way*

Websites
- Website of the Ministry of the Environment; http://odin.dep.no/md/engelsk
- Website of the Norwegian water Network; http://www.water-norway.org/water/index.html

Scotland

Legislation
- Water Environment and Water Services (Scotland) Bill 2003
- Environmental Protection Act 1990

Literature
- The Scottish Parliament, The Information Centre (2002) *Water Environment and Water Services (Scotland) Bill – Overview*, SPICe Briefing, 02/76
- The Scottish Parliament, The Information Centre (2002) *Water Environment and Water Services (Scotland) Bill: River Basin Planning*, SPICe Briefing, 02/96
- Walker, S. (2003) *National Approaches and Background on Public Participation – Scotland*, report as part of Work Package 4 of the HarmoniCOP project, annex to the report "From listener to talker: the changing role of the citizen in England and Wales", by Tunstall, S. and C. Green
- Water Environment and Water Services (Scotland) Bill 2003, policy memorandum

Websites
- Website of SEPA; http://www.sepa.org.uk/
- Website of Scottish Water; http://www.scottishwater.co.uk/
- Website of the British and Irish Legal Information Institute; www.bailii.org

South-Africa

Legislation
- National Water Act

Literature
- Jaspers Frank G.W. (2001), *Water Law and Institutions,* IHE Lecture Notes, Delft

Websites
- Department of Water Affairs and Forestry; http://www.dwaf.gov.za/

Sweden

Legislation
- Environmental Code

Literature
- Anonymous (2004) *Freshwater country profile* Sweden, Nation Sustainable Development report for the UN Department of Economic and Social Affairs, Division for Sustainable Development
- Lundqvist, L.J. (2003) *Integrating Swedish water resource management - an administrative 'trilemma'*, paper for the Diffuse Pollution Conference, Dublin 2003
- Ministry of the Environment (2000) *The Swedish Environmental Code, A résumé of the text of the Code and related Ordinances*

Websites
- Website of the Government of Sweden; http://www.sweden.gov.se/
- Website Swedish Environmental Protection Agency; http://www.internat.naturvardsverket.se/

Switzerland

Legislation
- Federal Act on the Protection of Waters
- Federal Act on River Training

Literature
- Federal Office for Water and Geology (2000) *Flood Protection: A Common Goal for Federal, Cantonal and Municipal Authorities*
- Federal Office for Water and Geology (2001) *Flood Control at Rivers and Streams*, guidelines of the FOWG, FOWG: Bern

Websites
- Website of the Federal Office for Water and Geology; http://www.bwg.admin.ch/e/
- Website 'Systematische Sammlung des Bundesrechts'; http://www.admin.ch/ch/d/sr/sr.html