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ROYAL HASKONING

Towards Integrated Water Legislation in The Netherlands

Lessons from other countries

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EXECUTIVE SUMARY

The Netherlands Ministry of Transport, Public Works and Water Management is in the process of integrating the heavily fragmented water management legislation. It is expected that a new Integrated Water Act will be enacted by parliament in 2005. Twynstra Gudde and Royal Haskoning were asked to explore the existence and contents of comparable foreign (integrated) water acts and the processes leading towards such integration. Purpose was to analyse and compare these different water acts, to identify similarities and differences, and to give suggestions for the further development of the Integrated Water Act in The Netherlands. This report and its appendix constitute the results of this study.

The appendix to the main report constitutes the result of the quick-scan of the legislation of 22 countries on the basis of which a selection was made for further analysis. Case studies of 15 countries are also included in the appendix, describing for each country the following elements of their water legislation:

- Water issues and drivers for recent changes in water legislation;
- General legal and administrative system of the country;
- Roles, responsibilities, authorities defined in the main water legislation;
- Scope, degree of detail and degree of integration of water legislation;
- Inter-sectoral cooperation, river basin management and planning arrangements; and
- Instruments for and financing of water management;

From these case studies, Belgium (Flanders), the Czech republic, Germany, South Africa and Sweden were further elaborated in order to draw lessons and inspiration for the development of the Integrated Water Act in the Netherlands.

This report describes the challenge and ambition for water management in the Netherlands as well as the scope and contents of the specific acts that are to be incorporated into the new Integrated Water Act. It then describes the main findings from the case study analysis. The final chapter describes the main conclusions and suggestions for the further development of the Integrated Water Act, in particular related to:

- Drivers behind and scope of new water legislation;
- Principles of water management;
- Degree of integration and structure of the Integrated Water Act;
- Changing roles and responsibility in water management;
- River basin management;
- Planning and translation into adjacent policy sectors;
- Instruments; and
- Financing water management.

It proved to be difficult to draw lessons from a comparative analysis of legal frameworks for water management. Countries have unique legal traditions as well as different historically grown water management systems. It is not recommended to just copy-paste (parts of) water acts from one country to another. Furthermore, specific political, administrative and societal issues and dilemmas will determine the development of the Integrated Water Act in the Netherlands much more than experiences elsewhere would. However, the case studies have shown many creative, interesting and perhaps useful elements of water legislation and management that can serve as a source of inspiration. For the Netherlands and, possibly, also for other countries involved in developing and improving water legislation and management.

SAMENVATTING

Het Ministerie van Verkeer en Waterstaat is bezig met een integratie van de gefragmenteerde waterstaatswetgeving. Naar verwachting wordt een nieuwe Integrale Waterwet in 2005 voorgelegd aan het parlement. De combinatie Twynstra Gudde en Royal Haskoning is tegen deze achtergrond gevraagd om bestaande (integrale) waterwetgeving in andere landen te bestuderen. Doel van deze analyse was om lessen te trekken uit de ervaringen van deze landen en suggesties daaruit te formuleren die relevant zijn voor een nieuwe Integrale Waterwet in Nederland. Dit rapport en de daarbij behorende bijlage bevatten hiervan de resultaten.

De bijlage bevat de resultaten van een uitgevoerde quick-scan van de wetgeving van 22 landen. Op basis van deze quick-scan is een selectie gemaakt van 15 landen die nader uitgewerkt zijn in aparte case studies (terug te vinden in de bijlage). Deze case studies beschrijven per land ondermeer:

- De waterkwesties en de redenen van recente wijzigingen in waterwetgeving;
- Algemene staatkundige en administratieve systeem;
- Rollen, verantwoordelijkheden en bevoegdheden zoals gedefinieerd in de waterwetgeving;
- Reikwijdte, detaillering en mate van integratie van waterwetgeving;
- Intersectorale samenwerking, stroomgebiedbeheer en planstelsel; en
- Instrumenten voor en financiering van het waterbeheer.

De waterwetgeving van België, Tsjechië, Duitsland, Zuid Afrika en Zweden is vervolgens in detail bestudeerd om lessen te trekken, inspiratie op te doen en suggesties te leveren voor de Nederlandse integrale waterwet.

Dit rapport beschrijft eerst de uitdagingen waar het Nederlandse waterbeheer zich voor ziet gesteld, evenals de wetten die samengebracht zouden moeten worden in de Integrale Waterwet. Vervolgens komen de belangrijkste bevindingen van de case studie analyse aan bod. Het laatste hoofdstuk bevat de conclusies en een aantal suggesties voor de verdere ontwikkeling van de Integrale Waterwet, voor zover af te leiden uit de ervaringen van andere landen. Daarbij wordt ondermeer ingezoomd op:

- Factoren van belang bij de totstandkoming van de Integrale waterwet;
- Principes van (goed) waterbeheer;
- De mate van integratie en structuur van de Integrale Waterwet;
- Verantwoordelijkheden en bevoegdheden;
- Stroomgebiedbeheer en planning;
- Planstelsel en samenwerking met andere sectoren; en
- Instrumenten voor en financiering van waterbeheer;

Het blijkt heel moeilijk om concrete lessen te trekken uit de ervaringen met (integrale) waterwetgeving in andere landen. Het waterbeheer en de waterwetgeving in ieder land zijn historisch gegroeid en ook de waterkwesties variëren. Het is daarom zeker niet aanbevelingswaardig om elementen uit waterwetgeving in andere landen zonder pardon te kopiëren. Verder bepalen (terecht) de voor Nederland specifieke politieke, administratieve en maatschappelijke factoren en dilemma's in het waterbeheer in veel grotere mate hoe de Integrale Waterwet er uit zal gaan zien. Maar de case studies bieden wel creatieve, interessante en wellicht nuttige tips en suggesties die als inspiratiebron kunnen dienen. Voor Nederland, maar wellicht ook voor andere landen die bezig zijn met de verbetering van hun waterwetgeving en beheer.

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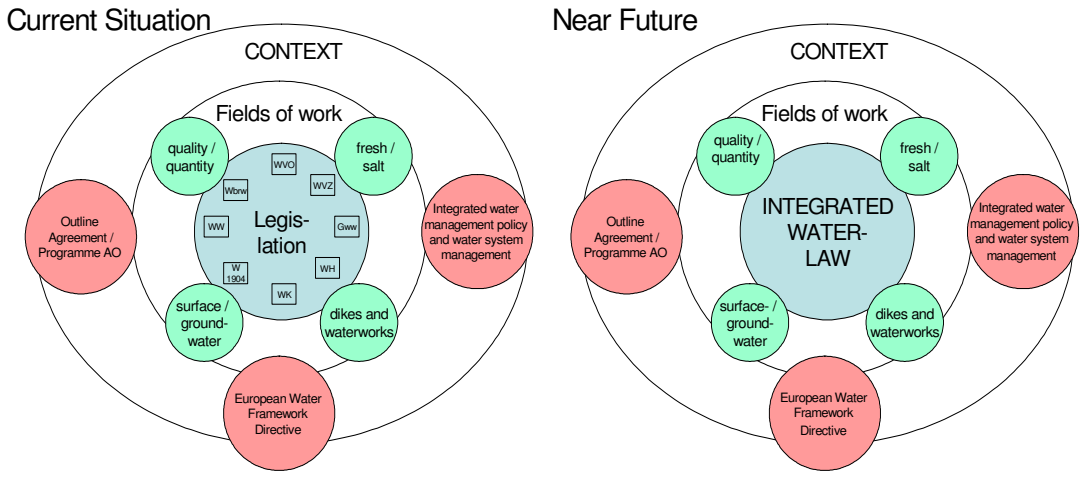
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1 INTRODUCTION

1.1 Towards integrated water legislation

In a letter of 6 July 2004, The Netherlands State Secretary of Transport, Public Works and Water Management informed the Parliament of her intention to integrate the currently heavily fragmented and sectoral water management legislation.[1] 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 financing of 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 now, as based on European rules, especially the Water Framework Directive, it has also been decided to introduce integrated management of water systems and river basins, in which both the quality and quantity aspects play a role.



[1] TK 2003-2004, 29 694, No. 1.

In this context, attention also needs to be paid to initiatives at European level concerning flood risk management.[2] Achieving the objectives of the Directive will require more legislation than the Water Framework Directive Implementation Act[3] 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 lays down the necessary foundation[4], 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 accompanying 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.

1.2 What is to be integrated?

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

- Water Management Act (Wet op de waterhuishouding)
- Pollution of Surface Waters Act (Wet verontreiniging oppervlaktewateren)
- Marine Pollution Act (Wet verontreiniging zeewater)
- Groundwater Act (Grondwaterwet)
- Reclamation and Dikebuilding Act (Wet op indijkingen etc.)
- Flood Defences Act (Wet op de waterkering)

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.

1.3 Purpose and scope of the Integrated Water Act

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

[2] Communication from the Commission to the Council, the European Parliament, the European Economic and Social Comittee and the Committee of the Regions, COM (2004)

[3] TK 2002-2003, 28 808, Nos. 1-3; EK 2003-2004, 28 808 A.

[4] See inter alia the references to literature and opinions of the Council for Public Administration and the Advisory Committee on Water Management Legislation.

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 laws (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

1.4 Objectives and outline of the study

The Ministry of Transport, Public Works and Water Management has asked Twynstra Gudde and Royal Haskoning to explore the existence of comparable foreign integrated water acts or of developments leading towards such integrated water acts. Purpose was to analyse and compare these different water acts and to identify similarities and differences, and to give suggestions for the further development of an Integrated Water Act in The Netherlands.

The survey was carried out in three steps:

1. Quick scan survey of existing and emerging water and environmental legislation in 22 countries with special focus on experiences important for the development of a Dutch Integrated Water Act;
2. Brief analysis of similarities and differences in water legislation in 15 countries;
3. Conclusions and recommendations on aspects of other integrated water acts and environmental legislation which are relevant in arguing and positioning in the Dutch process of development and implementation of an Integrated Water Act, taking into account the governmental organisation on water management in the Netherlands. This took place on the basis of in-depth analysis of 5 countries, of which 4 have developed an integrated water act.

The result is this report on the findings, conclusions and siuggestions of the study, supported by an appendix that contains the results of the quick-scan survey and case study analysis.

The report reflects the opinions of the researchers.

1.5 Methodology

Water legislation can not be understood without taking into account the (historical) context in which it is developed. This imposes a serious limitation to the possibility of comparing different water acts, let alone "copying" parts of foreign water legislation. However, it is possible to draw inspiration from other countries' experiences. These experiences have been summarised in the appendix in different case study reports.

The table in the appendix (case study reports) provides an overview of the main characteristics of water legislation in 22 countries, namely:

- **Australia**
- **Austria**
- **Belgium (Flanders)**
- California
- **Czech Republic**
- **Denmark**
- **England & Wales**
- Finland
- **France**
- **Germany**
- **Nord-Rhein Westfalia**
- **Indonesia**
- Italy
- New Zealand
- Northern Ireland
- **Norway**
- **Scotland**
- **South Africa**
- Spain
- **Sweden**
- **Switzerland**
- Zimbabwe

A number of criteria have been applied in determining, first, this list of 22 countries and, later on, selecting 15 countries (highlighted above) 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 arrangements (e.g. federal vs unitary states) and degree of (de)centralisation of water management
- degree and modes of public participation in water management and the process of developing new water legislation

The Netherlands Ministry of Transport, Public Works and Water Management has contributed to the drafting of the new Indonesian integrated water act. The exchange of knowledge between the Netherlands and Indonesia has also been a criterion for selection. Indonesia was therefore included in the list of 15 countries to be analysed in the second part of this study. Finally, also the availability of solid and reliable information sources (in English, German or French) has been an important criterion.

With these criteria in mind, we found Belgium, the Czech republic and Denmark of the utmost relevance (meeting 6 out of 7 criteria). England and Wales, Germany, Austria, Scotland and Sweden met 5 out of 7 criteria). Of the countries not meeting at least 5 out of 7 criteria, some have still been selected because of meeting particular criteria. These are: France (river basin management), Indonesia and South Africa (integrated water legislation), Switzerland (highly decentralised), Norway (coastal issues) and Australia (river basin management).

This report provides an overview of the main findings, with special emphasis on 5 countries that seem to be of particular relevance to the Netherlands and its challenge to develop an integrated water act, namely:

- Belgium (Flanders)
- Czech Republic
- Germany (including North Rhine-Westphalia)
- South Africa
- Sweden

During the analysis phase of this project, we have had the chance to talk to "insiders" that are able to shed light on the effectiveness of implementation only for Belgium and South Africa. Furthermore, the results do not show the effectiveness of water legislation that is not integrated into one act. Also here more inside information would be needed. Finally, this analysis does not give any indication of the transaction costs of developing, enacting and implementing a new integrated water act (and if these costs are outweighed by the benefits).

1.6 Structure of this report

The following chapter (chapter 2) contains a description of the current water legislation and water management challenges in the Netherlands. The conclusions from the case study reports (in the appendix) are described in chapter 3. It contains observations and conclusions from especially Belgium, the Czech Republic, Germany, South Africa and Sweden (but also from other countries) on:

- drivers for change
- principles of water management
- the degree of integration
- the structure of water acts
- roles and responsibilities in water management
- cooperative policy making and planning
- instruments, and
- the financing of water management.

It concludes with observations about the robustness of water acts and the degree to which water legislation is able to incorporate changes and development relevant to water management. Finally, chapter 4 contains the conclusions and suggestions for the (further) development of the Integrated Water Act in the Netherlands.

2 WATER LEGISLATION IN THE NETHERLANDS

2.1 Drivers behind the revision of the water legislation

Just like many other countries in Europe the Netherlands has to deal with a number of developments which determine the water policy which is to be conducted. 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 which is 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 lowering of the soil surface is taking place in the Netherlands. This lowering is partly a natural phenomenon and partly caused by man as a result of peat extraction, water drainage and the extraction of natural gas and salt. All these impacts have led to the fact that in the future, the Netherlands will have to cope with more water. The combination of rising sea levels and increased precipitation may result in the fact that drainage into the major rivers will become more difficult at times of high water. The developments mentioned above go hand in hand with the (historic) tradition in the Netherlands to drain water as quickly as possible. With a view to utilising the soil for agriculture, building and infrastructure to the maximum extent possible however, the consequence is that the damage resulting from possible flooding will be greater, while flooding is at the same time not considered as acceptable 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 following from an excess of water, the Netherlands is also coping with the problems caused by a water deficit. This concerns 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.

2.2 Recent developments within European and Dutch water management

As of the mid-1990s, a stream of current 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 national legislation. 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 legislation.

In 2000, the Government Note 'Anders omgaan met water' [Handling water differently] – abbreviated WB 21[5] – and the government plan for the Vijfde nota Ruimtelijke ordening [Fifth Note on Spatial Planning] were published. The Committee for water management in the 21st century examines the possibilities for maximum water storage.[6] 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 water problems. The 'Beleidslijn Ruimte voor de Rivier' [Policy Line Space for Rivers] has by now entered the stage which has to result in a key planning decision (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, lowering of the soil surface and an increase in hard 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 sediment, the clean-up of aquatic sediment, and ecology'. The approach and the implementation of the NBW 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 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 which account is taken of 'birds and habitats directives' requirements. Tasks have been divided between the national 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.

[5] 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.
[6] 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.

In the near future the Water Framework Directive Implementation Act should come into effect, although it should have been implemented in December 2003,[7] as are the River Basin Districts (Boundaries) Decree – an order in council based on the future Section 2a of the Water Management Act – and a new Groundwater Directive and a new Bathing Water Directive of the EC. There are also plans for a separate EC directive on actions plans with regard to flooding.

2.3 Dutch water legislation

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 protection 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 by-laws and regulations. Provincial regulations prevail over by-Acts 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 protection 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 to enter dwellings, provisions to protect, to maintain and to improve flood defence and water management on national, provincial and water board level.

[7] Kamerstukken II 2002-2003, 28808, nos. 1–3 (Implementation Act concerning the EC Water Framework Directive).

The Rijkswaterstaat, provinces, and water board also have particular competencies in case of (threat of) a flood disaster. The Rijkswaterstaat prepares the national policy on flood protection and water management. The Rijkswaterstaat supervises the implementation of water policy by provinces and water boards. The Rijkswaterstaat also has the responsibility for the state managed waters and flood defences.

The Ministry of Housing, Spatial Planning and Environment is responsible for the national environmental policy: setting water quality objectives 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 protected 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 regional and local flood protection 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 *Municipal Act* defines the organisation and tasks of the municipalities. The water management task at municipal level is collecting 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 for financing the tasks to be 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 protection and water management including wastewater 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 issues. In the 1970s the water board also became responsible for water quality in local and regional surface waters including wastewater treatment. According to the reflection of the profit principle, the “polluter pays principle” led to the participation of representatives of households and industry in the administrative and executive bodies of the water boards.

2.4 Water management legislation

The Dutch legislation concerning the *management* of water was mainly enacted during the second half of the last century and 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 managing 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 managing emergency overflow and storage. Quality management of surface water includes combating water pollution including the treatment of wastewater. 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 responsibilty 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 main international rivers, Lake IJssel, the Amsterdam-Rhine Canal, the Wadden Sea, the Eems-Dollard estuary and the Delta waters.
The water boards are competent for the regional waters.

2.5 The water acts

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 quantity management of surface waters. The *Groundwater Act* regulates the distribution of scarce groundwater resources and only sets quality requirements with respect to the infiltration of water into groundwater. The act especially focuses on extractions by means of pumping installations and the recharge of aquifers. The act contains the following instruments:

- Registration of extractions
- Extraction and recharge permits
- Obligations to tolerate extraction and infiltration, and damage compensation
- Supervision and penalties
- Levies
- Monitoring

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 remedy soil and ground water pollution. The act provides the structural basis and the administrative instruments to implement the soil and ground water 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.

Surface water

The *Surface Waters Pollution 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 lays down instruments for the reduction of discharges and the improvement of the water quality.
Instruments are:

- Permits regarding discharges
- Discharge standards
- Water quality objectives
- Supervision and penalties
- Levies
- Monitoring

Seawater

The *Marine Pollution Act* regulated the protection of seawater quality. The Marine Pollution Act designates the Ministry 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 aircrafts. By Order of Council the discharge of certain substances are strictly prohibited (art. 3), for other substances a permit is possible (art. 4). In case of an accident the discharge should be reported to the Minister. The import into the Netherlands of hazardous waste with a view to its discharge or dumping at sea is prohibited unless a permit from the Minister of Environment is granted (art. 6b).
Instruments:

- General rules
- Permit/license (ontheffing)
- Report (melding)

Flood defence

Parts of flood defences (where primary water retaining structures are concerned) have been regulated in the *Flood Protection 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 competent authorities.

Flood Protection Act

This act aims to maintain the flood protection standards achieved by the Delta-plan and the reinforcement of the dikes 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 about the conditions of its defences every five years. The reports are stepwise summarised by the provincial and central Government and sent to Parliament.
- procedures to approve strengthening plans,
- procedures to prepare for emergency situations,
- procedures to fight the structural coastal erosion

Delta waters

The Delta Act formulates the principles to protect the Netherlands against storm surges by closing estuaries and reinforcement of dikes and dunes.

Public works

The management of public water control works (including rivers, the North Sea and the Wadden Sea) is regulated in the *Public Works Act* (Management of Engineering Structures) (or: *State-managed Infrastructure Act*) 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 dikes. In this act the Former River Act 1908 has been incorporated.

2.6 Water Management Act

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

- Registration of extractions and discharges
- Permits
- Water agreements
- Water level decisions
- Levies
- Supervision and penalties

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.

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 nucleus 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 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.[8] 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".[9] In the second place, the Water Management Act provides rules for water quantity management, by which a gap in previous legislation (acts of Parliament) 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 interlinkages. It is intended to better express the 'internal' interlinkages within the policy area of water management, i.e. connections between surface water and groundwater in both the quantitative and the qualitative sense. The act also aims to do justice to 'external' interlinkages 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.

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[10] and provincial water management plans. 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 latter plan is established by the water boards. The management plans concern surface water. As mentioned before, the provinces are the competent authority for 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 act for the implementation of the Water Framework Directive reviews will take place every 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 into 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.

[8] *Omgaan met water*, Ministry of Transport, Public Works and Water Management, The Hague, 1985, p. 33.
[9] *Derde Nota Waterhuishouding*, Ministry of Transport, Public Works and Water Management, The Hague, 1989, p. 12.
[10] Currently the fourth Water Management Note is in place.

2.7 External integration: harmonisation and coordination with other policy areas

At a strategic level, the plans for water management are strongly interlinked 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)
- the environment; (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)
- 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 are 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.

1. 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.
2. 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 three reasons for this, concerning the rules for coordination between the environmental permit and the permit issued under the Surface Waters Pollution Act, the sections of the Environmental Management Act which are also applicable to the procedures for granting authorisations under the Surface Waters Pollution Act and the regulations concerning water quality requirements.

1) The Environmental Management Act has largely achieved the integration of environmental legislation in the Netherlands. Many environmental laws have been subsumed by the Environmental Management Act, with the exception of the Surface Waters Pollution Act (and the Marine Pollution Act, the Groundwater Act and the Water management Act). Discharges of hazardous substances, pollutants and waste substances into surface water are subject to a separate authorisation based on (among others) the Surface Waters Pollution Act. In order to be able to guarantee an integrated assessment, the Environmental Management Act and the Surface Waters Pollution Act contain a

coordinating arrangement which provides for the harmonisation 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).

2) The Surface Waters Pollution Act also declares applicable many provisions from the Environmental Management Act concerning the procedures of granting 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), the different kinds of authorisations and requirements, and the aspects which must be taken into consideration in granting authorisation.

3) 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 Act) are laid down, i.e. bathing water, 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 legislation requires the Member States to implement and establish many water quality objectives, not just the ones following from the directives containing water quality objectives, but also based on Article 7 of Directive 76/464. 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.

From this description of water legislation and management challenges in the Netherlands, we move forward to the findings and conclusions of water legislation and management challenges in other countries to see if lessons can be learned for the further development (process) of the foreseen Integrated Water Act.

3 WATER LEGISLATION IN SELECTED COUNTRIES

3.1 Drivers for change

The water challenges of the Netherlands are not unique. Other countries are facing similar challenges. Clearly, the EU member countries all have to implement the Water Framework Directive. The table below shows that only a few countries have so far succeeded in doing so.

Figure 1: EU WFD Implementation progress (October 2004)

	National legislation	Measurement locations	River basins
Belgium	Almost complete	Almost complete	Almost complete
Germany	Almost complete	Complete	Complete
Czech Rep.	Complete	Almost complete	Complete
Netherlands	Not yet complete	Complete	Complete
Sweden	Complete	Complete	Not yet complete

Countries such as Germany, Belgium and the Czech Republic are also facing a similar threat as the Netherlands: increased risk of floods due to changing climatic conditions and increasing (demographic and economic) pressure on space. Yet, in other countries different water problems occur. In Spain, Australia, California and South Africa water scarcity seems a more critical issue, sometimes also directly attributable to climate change, sometimes a structural issue in the region. What many of these countries have in common is that their governments increasingly respond to these (different) challenges with legal and institutional adjustments, or even institutional reform, in order to achieve a greater degree of integration in water management.[11]

[11] Integrated water management is (the endeavour to achieve) the best possible balance between different interests in order to arrive at the sustainable use and development of water—the interests, for instance, of different users, striking the balance between the economy and the environment, between space for water and space for housing and enterprise, and between potable water and polluting activities. Above all, consequently, integrated water management demands cooperation between government agencies, but equally with the public, interest groups and private parties. It is essential that people with an interest are involved in the decision-making process. It is only in this way that people will be persuaded of the need for action, the various interests can be properly balanced, and therefore decisions will find a broader support base. At the same time, roles ands responsibilities, as well as the rules and processes for coordination must be clear, and the bodies responsible for water management will have to operate effectively and efficiently. To ensure achieving this, water management, legislation and administrative procedures have to be harmonised. *(World-wide improvement on Water Governance, J. Bout and S. Nijwening in: Bouwen met Water, V+K Publishers, 2004)*

Figure 2: Overview of main drivers for legislative change

Country	Main drivers for legislative change
Belgium (Flanders)	Implementation of the WFD and flood protection
Czech Republic	Implementation of the WFD and flood protection
Germany	Implementation of the WFD and flood protection
South Africa	After abolishing apartheid: democratisation and the need for equal access to water recourses, the call for equitable water distribution and the need for effective and efficient integrated water resource management (decentralisation processes); water protection was also an important driver, as this was not arranged for in previous legislation.
Sweden	Political call for environmental sustainability and the implementation of the WFD

Like all EU member countries (and some other European countries), the implementation of the WFD constitutes an important driver to amend water legislation. In a number of countries governments have taken that opportunity to develop a more integrated water act. However, whereas Belgium, the Czech Republic and Germany have aimed to incorporate flood defence with water quality management, Sweden has incorporated water quality management aspects into its Environmental Code. The severe problems the Czech Republic and Germany have with flooding have made these countries to seek increased integration with other aspects of water management. In Belgium, the integrated water act includes all aspects of water management, but water quality standards are incorporated in their environmental legislation. In the water act, reference is made to this.

3.2 Principles of water management

Principles of water management can be considered as founding values and norms considering the use and protection of water. Well-known principles are the “polluter pays principle” and “cost recovery” principle. These principles are well-accepted nowadays.[12] However, a number of additional principles can also be identified. Many countries mention these principles in their water act. This clarifies the purpose with which certain legal arrangements have been worked out in water acts. Moreover, they support interpreting the goals and scope of the legal and institutional arrangements in the water acts, for administrators, practitioners, but possibly also for the judicial system when interpreting the act.

It is important to realise that, besides the fact that different principles can be found in different countries, principles can also be interpreted somewhat differently in each country. They are listed below, taking the definitions of the principles used in the (translated) texts of the relevant acts.

[12] Principles for “good” water management were the main outputs of, among others, the Rio de Janeiro summit on sustainable development (1990) and especially the Dublin (1992) and Noordwijk (1994) conferences on water management.

In Belgium the following principles are incorporated in the Integrated Water Degree:

- cost recovery principle
- polluter pays principle
- high level of protection principle
- participation principle
- precautionary principle
- prevention principle
- principle of the ex ante evaluation
- repair principle
- source principle
- standstill principle
- water as a leading element principle.

In the Czech Republic the following principles are incorporated in the Water Act:

- cost recovery
- polluter/user pays
- private ownership.

In South Africa the following principles are incorporated in the National Water Act:

- cost recovery
- sustainability and equity are general guiding principles.

In Sweden the following principles are incorporated in the Environmental Code:

- polluter/user pays principle
- burden of proof principle
- knowledge requirement
- precautionary principle and best possible technology principle
- appropriate location principle
- resource management and ecocycle principles
- product choice principle.

The Netherlands does not have a tradition of including principles in its legislation. Even though some of the above principles are also accepted and practiced in Dutch water management, they have not been explicitly mentioned in water legislation. They have been incorporated however in the several policy notes on water (quality) management form the 1970s onwards.

Water as a leading element

In Belgium the principle that the water system is one of the basic elements for spatial planning was already included in the Spatial Structure plan of Flanders. However it is deemed necessary to give this principle a legal basis, in order to give the principle a more steering function. The integrated water policy clearly aims to integrate water into other policy sectors, such as spatial planning and environmental policy. A major goal is to strive for a basis of improved cooperation and consensus in the field of water policy between all relevant policy sectors and administrative levels.

In the Czech Republic, Germany, South Africa and Sweden the principle of water as a leading element is not mentioned explicitly in the water act. Nevertheless, in some of these countries the principle has been incorporated to some extent. In these cases, requirements and arrangements for plans and instruments give water a strong position on a strategic, tactical and operational level (see also the section on translation of water in adjoining (policy) sectors. For example, in Germany the Federal Water Act relates at certain points to spatial planning (legislation). The programme of measures and the management plan 'should comply with regional planning objectives and should take account for regional planning principles and other requirements'. The Water Act of North Rhine-Westphalia states that 'the goals and requirements of spatial planning are to be observed'.

3.3 Degree of integration

One can distinguish between different types of integration achieved within water legislation. Some water acts integrate water quality and water quantity arrangements; others bring together surface and groundwater management within one water act. For the purpose of this study, and based on the results of the quick-scan, we speak of (a degree of) integration if (one or more of) the following water management arrangements are brought together within one water act:

- Water quality and water quantity management (and water (defence) structures)
- Surface and groundwater management
- Water resources management and water supply and sanitation (WSS) services
- Freshwater and coastal and/or marine waters
- Water, environment, spatial planning and/or nature protection
- International (transboundary) cooperation

Figure 3: Aspects of water management included in main water legislation

	Quality	Quantity	Flood protection	Surface waters	Ground waters	Structures	Water transport	Emergencies	WSS	Coasts	Cross-sectoral	Transboundary
Belgium (Flanders)		X	X	X	X	X	X		X		X	X
Czech Republic	X	X	X	X	X	X	X	X			X	
Germany	X	X	X	X	X					X	X	
South Africa	X	X		X	X	X						X
Sweden	X			X	X	X			X	X	X	

3.4 Structure of water acts

Present Dutch water legislation can be characterised as object oriented, with several acts covering several objects in water management, such as flood defence works, Rijkswaterstaat infrastructure, (quality of) surface waters, groundwater, etc. Now that these acts will be brought together into one Integrated Water Act, the question one can ask is whether the object-orientation of the several laws should be taken over in the Integrated Water Act or whether a new structure should be followed. As discussed in chapter 2, the foreseen table of contents of the Integrated Water Act in the Netherlands is as follows:

I. Definitions
II. Objectives
III. Water system management
IV. Coordination and administrative supervision
V. Plans and programmes
VI. Water agreements
VII. Discharges and extraction
VIII. Other management activities (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

The table of contents of the different water acts studied have been included in the case study reports (appendix). They show that different structures are being used, but commonalities can be identified as well. For example, most foreign water acts start with establishing principles or general rules of consideration, which apply to the whole of water management. Then, elaborating on these general principles, water acts become differentiated. Furthermore, the use of water (extraction and discharge) is often combined into one chapter. Another commonly found chapter within (integrated) water acts is planning. Within the EU countries, this is often specified into basin planning, which is a requirement according to the WFD. Another commonality in other foreign water acts is a chapter on the protection of water quality, also as a result of the WFD. But then, the content and structure of water acts starts to vary.

The Flemish Integrated Water Decree is built up along the division of (river) basins. The Decree determines which river basins, sub-basins and even a lower branch of the sub-basin are to be designated, and it provides for the management of these basins as well. The Water Act of the Czech Republic combines a distinction between use of water and type of water. This leads to separate paragraphs on aspects as ‘the general use of surface water’ and ‘the use of surface water for shipping’. In addition, there are more object-oriented chapters, involving surface water and groundwater status and the protection of water resources and water management. The Federal Water Act of Germany is explicitly structured according to the type of waters that the act covers. First, general provisions are provided for all waters, followed by separate chapters on surface waters (including flood plains), coastal waters and groundwater respectively. The North Rhine-Westphalia Water Act shows a similar structure, although the division is only explicitly used when it comes to the chapter on ‘uses of water’. Further down, it specifically zooms in on objects of water management, such as water works and flood defence infrastructure.

The table of contents of the South African Water Act also distinguishes between the protection of water resources and the use of water. After that, the bulk of the water act consists of organic elements, describing the roles and responsibilities, duties and obligations as well as powers and instruments of the different water institutions.

Finally, the Swedish Environmental Code, after establishing general rules of consideration on general environmental management, makes a distinction between types of activities. These include environmentally hazardous activities (for water management especially the discharge of wastewater), water operations (including extraction of water), and other activities of which only some are water-related.

All foreign water acts conclude again with general provisions relating to aspects such as penalties, monitoring and supervision and transitional provisions.

3.5 Roles and responsibilities in water management

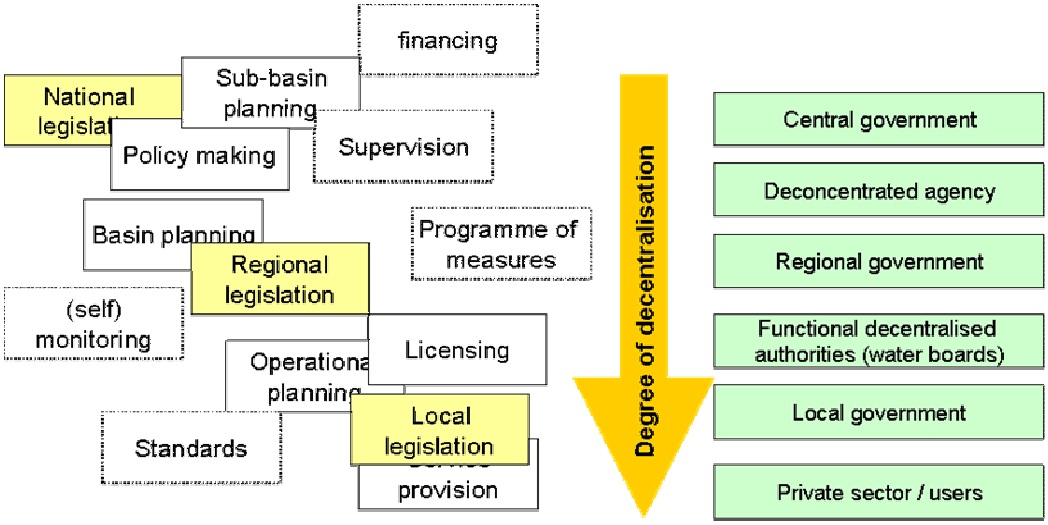
A strategic goal of the Dutch Government in general and the Ministry of Transport, Public Works and Water Management and the Integrated Water Act in particular, is to deregulate and decentralise responsibilities to the lowest appropriate level (the principle of subsidiarity). In other countries, similar processes can be observed and it is interesting to see the results of this process for water management. However, one does have to take in mind the typical constitutional settings of countries when analysing the (vertical) division of roles and responsibilities, as well as other (historically grown) characteristics of each country's administrative structure.

The countries studied can be categorised according to their constitutional setting. Some countries have a federal structure (with relatively autonomous states), while other have a unitary structure, like the Netherlands. Federal legislation and water management at the federal level is relatively strategic and distant, or decentralised. But also between countries with a unitary structure, the degree of (de)centralisation differs.

Federal countries in the first list of 22 countries are Austria, Australia, Belgium, Germany and Switzerland. Of these, only Germany and Belgium have been studied in further detail. On the other hand, and also interestingly, countries such as the Czech Republic, France and Indonesia can be seen as relatively centralistic (unitary) countries. Some of these countries (most notably Indonesia) have recently initiated water sector reform, oriented towards decentralisation. France combines a river basin management approach with a relatively centralistic constitutional setting. Also their water acts will therefore be interesting to analyse and possibly draw lessons for the Integrated Water Act of the Netherlands.

All these countries differ how the different water management roles and responsibilities have been divided among government (and other) institutions.

Figure 4: Assigning roles and responsibilities to water management institutions



Belgium (Flanders)

In Belgium, 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). For each sub-basin, a sub-basin board and – council ('bekkenbestuur en bekkenraad') will be installed. The board will be, amongst other things, responsible for drawing up the sub-basin management plan and for advising authorities on action programmes which have an impact on water systems and/or sewerage 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. For one or more 'deelbekkens', cooperation agreements will be made in the form of installing 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. However, it must be noted that the intended transfer of especially licensing authorities of the current "polders" en "wateringen" to these water boards did not take place. This leaves a discrepancy between the Decree and the actual division of responsibilities especially in the executive powers in the Flemish water sector.

Germany and NorthRhine-Westphalia

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 of 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 regulating further details of water management 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. This requires significant coordination 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 (*Länderarbeits-gemeinschaft 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.

The allocation of tasks and responsibilities in the field of water management at the level of the Länder, are designed to 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. The implementation of the WFD has introduced 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 Maas, 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 are installed to, eventually, draw up sub basin management plans (*Bewirtschaftungspläne*) and to install a water information system. However, it seems that none of these sub basins already has prepared such a plan.

Czech Republic

In the Czech Republic, state enterprises - "Povodí" - are responsible for the management of river basins areas. The Ministry of Agriculture has established the Commission for Water Management Planning as a main consultation commission to fulfil tasks of the new process of water management planning in the CR. This constitutes a significant change compared to the situation before. Under the new organisational structure, the administration of a catchment basin is the professional board of all activities in the catchment basin, which may, on the regional scale, influence the water management and water conditions throughout the country.

South Africa

In South Africa, 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 people. The Minister is also responsible to ensure that water is allocated and used beneficially in the public interest, while promoting environmental values. The executive body is the Department of Water Affairs and Forestry, responsible for administering all aspects of the National Water Act delegated to it by the Minister or Director-General. As soon 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. 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 extensive implementation of a catchment management strategy. They 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 strategy must be consistent with the National Water Resource Strategy, within its water management area. Finally, Water User Associations (WUA) are associations of individual water users that undertake water-related activities for mutual benefit. WUA becomes the third tier of water resource management institutions if water management activities are developed to the WUA.

Sweden

In Sweden, the EU Water Framework Directive of 2000 is described as 'nothing less than a revolution to traditional Swedish water management'. This revolution is first and foremost an organisational revolution. It 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.

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, programs for monitoring and measurement. The objectives set by the Autorities 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 are to be distributed among existing regional and local authorities.

Roles, responsibilities and river basin management

Roles and responsibilities in water management are unique in every country as they are to a large extent historically and culturally determined. It is therefore difficult to compare different countries' administrative systems for water management. However, many countries have or are aiming to introduce river basin management into their administrative systems for water

management. This results in a mix of river basin management approaches which cannot be understood without taking into account the administrative set-up of the different water sectors.

Figure 6 below describes (briefly) the main characteristics of the (division of) roles and responsibilities in each of the five country's water sectors. With that in mind, the different basin management approaches are also outlined. These illustrations should be considered as very crude. It would require further study to come up with a more consistent, comprehensive and detailed characterisation and understanding of these basin management approaches that are now in practice in the different countries.

Figure 5: Highlights of central and basin authorities

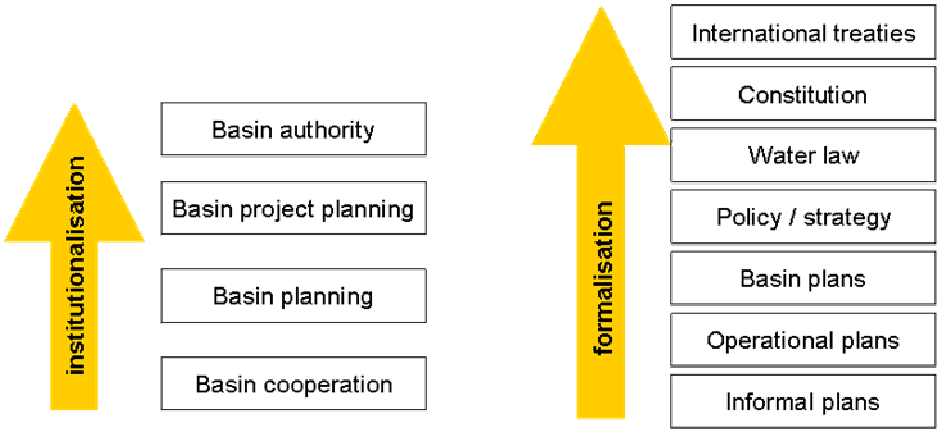
Belgium	One minister for water management; multi-disciplinary commission for policy making and (strategic) planning; basin administrations (board and (gov.) participatory council)
Germany	Federal structure: water management responsibility of Land; one supreme water authority; Supreme water authority (Lander level) and joint Lander Water Commission for support and coordination;
Czech Rep.	Commission for water management planning as consultation platform for ministry of agriculture; basin authorities as deconcentrated executive management agencies;
S. Africa	Ministry of Waters; powerfull DG; decentralisation based on need and capacity to basin administrations and user associations, depending on need and clarity
Sweden	Water quality management integrated within Ministry of Environment; powerfull Water Authorities (policy, strategic planning, supervision) foreseen in the future; cooperative basin planning

The division of roles and responsibilities in countries is perhaps most dependent on national context, compared to the other studied aspects of foreign water legislation. Historically grown institutions, constitutional setting and political-administrative culture all play an important role. It is also the most politically sensitive factor when developing an integrated water act. It is therefore very difficult, if not impossible, to draw lessons from other countries as to how to divide roles and responsibilities in the Netherlands. However, all EU countries have to adapt somewhat to the WFD requirement of river basin management. The Netherlands is in a similar position as other countries. It is therefore interesting to see how these countries have coped so far in adopting this requirement.

Managing water systems at the level of catchments has been introduced in all five countries. In Europe this was clearly the result of the WFD. However, different modes of river basin management have been adopted. These vary depending on the degree of institutionalisation. The Netherlands so far has adopted "basin cooperation": the different authorities responsible for aspects of water management cooperate within a catchment. The central government is responsible for delivering river basin management plans.

The Czech Republic and South Africa (and also countries such as France and Australia) have adopted a more institutionalised mode of river basin management through the establishment of river basin administrations with more formal authorities, among others to develop catchment management plans.

Figure 6: Institutionalisation and formalisation of basin planning and management



3.6 Cooperative policy making and planning

In the five countries analysed the translation of water policy and planning in adjacent (policy) sectors is a complex challenge. The analysis shows a range of different arrangements for this, for example:

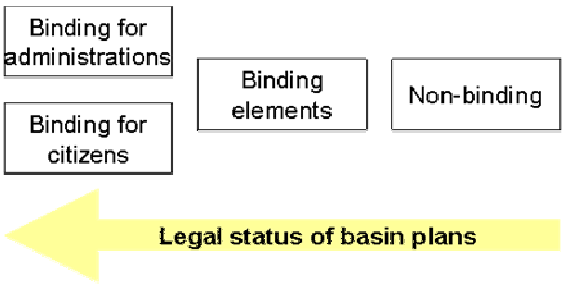
- policy statements on (the requirement for) cooperation between sectors
- ban on modifications (planning areas where no modifications may be carried out that increase the value of this area or which considerably hamper execution of a planned project in the area)
- parts of a plan which should be translated into spatial plans which are binding
- water test (to assess consequences of management and planning activities on all aspects of water).

The possibilities to implement a binding requirement for water management into other policy sectors depend to a large extent on the specific legal and administrative context of a country.

The Flemish Integrated Water Decree states that the Flemish Government decides upon the guidelines of integrated water policy. For this purpose, 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 ‘deelbekkenbeheer-plannen’. Furthermore, 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 goals for surface water and groundwater of the WFD. As for the integration with spatial planning (legislation), in Flanders the water management plans may contain certain parts which should be translated into spatial plans. It can be decided which parts of the plans are 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 require to do so. Furthermore, all plans are subject to public scrutiny. Also, the instrument of the water test (watertoets) was introduced in the Integrated Water Decree which prescribes that public authorities that decide upon a permit, plan or programme should always ensure that no harmful effects exist for the water system, unless there are substantial reasons of public interest. Contrary to its Dutch equivalent, in Flanders the results of the water test are binding.

Figure 7: Legal status of basin plans



In the Czech Republic there is a change in the extent to what water management can achieve or regulate, in comparison with its previous situation. 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.

In Germany the Federal Water Act only states that '*Land* legislation 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. How the programme of measures and the management plan are coordinated and integrated with *Land* planning is therefore subject to *Land* policy and law. Another aspect of the Federal Water Act relating to spatial planning (legislation) is the instrument of the 'ban on modifications'. 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 of this particular area 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.

Article 2, which contains the objective of the North Rhine-Westphalia Water Act, states that 'the objectives and requirements of spatial planning are to 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 any link made with the field of spatial planning. For flood control, however, it seems that there are some horizontal links with spatial planning. Following article 32 of the Federal Water Act, the North Rhine-Westphalia Water Act stipulates that flood areas are to be designated by statutory order. 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.

In South Africa there is a large variation in cooperation between water institutions and other governmental organisations. Most interactions to coordinate local spatial development planning and water strategy development planning are of an informal nature. Formal cooperation takes place in technical committees that address specific issues. Currently there are no specific procedures to guide such cooperation. Cooperation that does take place depends very much on the willingness and capacity of individuals within the institutions concerned. The challenge is therefore to sensitise cooperative governance and to set common priorities. Cooperative governance at the local level should be institutionalised.

In Sweden 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 as there is a municipal planning monopoly. Planning legislation is covered by the Planning and Building Act. The river basin management plans that are to be drawn up, are not regulated in the Environmental Code. It is in the Report of the Committee on Swedish Water Administration that it is stipulated that the inter-municipal partnerships are responsible for preparing the river basin management plans.

How the translation of water management instruments into adjacent policy sectors takes place through enforcement and conflict resolutions mechanisms could not be established in the context of this study, and would require further investigation.

3.7 Instruments

Water management instruments can be found in all countries in a wide variety. In this section we have categorised them according to their use:

- Water quality standards
- Instruments for the management of abstraction and discharge
- Characterisation of waters
- Other instruments (e.g. for making room for the river and punishing pollution)

Water quality standards

The Flemish 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. The Decree on water for human consumption (*Decreet betreffende water bestemd voor menselijke aanwending*) states that the Flemish Region can set standards for the quality of water intended for human consumption.

The Swedish Parliament has, independently of the Environmental Code, adopted 15 national environmental quality objectives which describe environmental statuses that are a precondition for sustainable development. 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.

Instruments for the management of abstraction and discharge

The Flemish 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, for example, 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. 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.

In Germany, the Federal Water Act holds that all water uses require a permit or a license, unless it is otherwise specified in the Federal Water Act or in Länder regulations. 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. A permit (*Erlaubnis*) may be granted temporarily or permanently, and it can be withdrawn at any point of 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 general public interest). Besides the Federal Water Act, also the Wastewater Charges Act and the Waste Water Ordinance hold restrictions and obligations for especially discharges of wastewater. In North Rhine-Westphalia, the *Land* Water Act, following the Federal Water Act, holds provisions on water usage for which a permit (*Erlaubnis*) and for which a license (*Bewilligung*) is required. The North Rhine-Westphalia Act further specifies what should be the content of a permit and a license and stipulates under what conditions a permit or license could be withdrawn. In addition, the act 'introduces' a variant of the permit, namely the 'raised permit' (*Gehoben Erlaubnis*). Persons who experience detrimental effects of a 'discontinuation' (*Unterlassung*) of the activity / use of water for which this permit is issued, cannot hold the holders of the permit liable for damage and compensation.

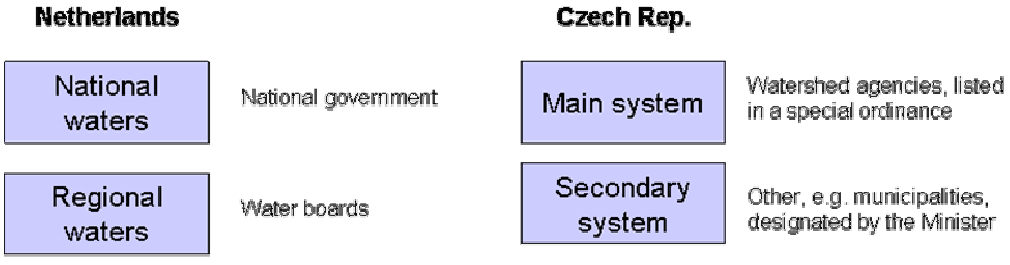
In South Africa, a system of general authorisations gives the relevant authority the possibility to exonerate types of water uses, groups of persons, certain parts of a catchment at certain periods of time from legal restrictions or license application. Any other water use, not compromised under any of these categories, requires 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. In Sweden, a permit must be obtained for all water operations, unless public or private interests are manifestly not harmed by the impact on the condition of water of these water operations. Permit applications are considered by environmental courts or county administrative boards. The Environmental Code also contains a so-called permissibility ('approval') 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.

Water categories

The EU WFD requires that all EU countries should come up with a pre-defined characterisation of waters in order to develop and implement appropriate measures to improve the quality of waters. However, many countries, including the Netherlands, also have other types of characterisations, sometimes also determining who is responsible for that particular water (in the Netherlands we distinguish between national waters (responsibility of Rijkswaterstaat) and regional waters (under the responsibility of provinces and water boards).

The new Water Act in the Czech Republic defines water streams in accordance with their size and importance. They are divided into major and minor streams. The major streams are specifically listed in a special ordinance (470/2001 Coll.). Major water streams are administered by Watershed agencies instituted by law. 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.

Figure 8: Similarities in typologies (and management) of waters



Other countries have other systems of distinguishing and categorising waters.

Other instruments

Belgium has far reaching instruments for *making room for the river*. For obtaining real estate which is needed to reach the objectives of integrated water policy, the Flemish Region can, according to the Integrated Water Decree, decide to expropriate. 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. Also, owners of real estate have the right offer their real estate for sale to the Flemish Region, if because of the designation of flood areas and banks their real estate considerably devaluates. In such cases, the Flemish Region will be obliged to buy the real estate.

In Germany, for *monitoring the use of water*, the Federal Water Act states that any individual who uses a body of water, shall be obliged to tolerate official supervision of the installations, equipment and processes which are of importance for water use.

The Environmental Code of Sweden contains a separate chapter on *penalties*. In this chapter, several offences are listed 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 activities'. 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 sanction charges are payable and the amounts to be paid for various infringements.

3.8 Financing water management

The Water Act in the Czech Republic implements modern financing mechanism, which leads to the recovery of costs in water management- i.e. polluter pays and user pays principles. Thus, the improved fee system is introduced for water abstraction from both surface and ground water resources. The payments for surface water abstraction are used for funding river basin authorities, state enterprises, whereas fees collected for abstraction of ground water are transferred to the State Environmental Fund (50%) and to state budget (50%). Similarly, the charges for the discharging of pollution are fully implemented based on discharge limits for both concentration and quantity load of pollutants.

Figure 9: Cost recovery mechanisms



In Germany, a charge is payable 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 involved with water quality measures. The wastewater charges are payable to the Federal States. They are earmarked for measures preventing water pollution.

The Swedish Environmental Code holds 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 has been caused by an operation involving water pollution, alteration of the groundwater level, pollution of air or soil, noise or vibrations or similar implaws. Persons who have suffered damage or loss can bring an action before an environmental court. The person who causes damage is held liable and should pay compensation. When liability for injury or damage cannot be proven, compensation will be paid from the environmental damage insurance, for which persons who obtained a permit for environmentally hazardous activities pay contributions to this insurance.

3.9 Implementation aspects

Figure 11 gives an indication of the process of developing, enacting and implementing integrated water acts. It shows that of the countries with an integrated water act, only a few have serious experience with implementing it. Most of the integrated water acts have been enacted since 2000. This gives an indication of the relatively little experience with integrated water acts.

Figure 10: Process of enacting integrated water acts

Country	Drivers	Year	Complete	Previous legislation	Secondary regulation
Belgium (Flanders)	WFD, floods	2003	**No**	Not yet abolished	Not yet
Czech Republic	WFD, floods	2001	**Yes**	Amended	Yes
Germany	WFD, floods	2004	**No**	Amended	Not yet
South Africa	Equal access	1998	**Yes**	Amended	Yes
Sweden	WFD	1999	**Yes**	Abolished	Yes

Developing and enacting an integrated water act is one thing. Implementing it is yet another. Especially when an integrated water act includes significant changes in the division of roles and responsibilities, the implementation can turn out to be a slow and complex process.

In the Netherlands, new water legislation usually does not include an extensive revision of roles, responsibilities and authorities. However in the five countries analysed, the reorganisation of water management is an important factor in the process of developing an integrated water act.

In Flanders, the transfer from the current authorities "polders and wateringen" into the (in the Water Decree) proposed water boards has not yet materialised. As a consequence, licensing authorities are still with water institutions that are not foreseen in the Integrated Water Decree.

And also in South Africa the process of transferring the irrigation boards into the new Water User Associations yet to be established, is materializing only very slowly. In Belgium, the associated costs of the new Water Decree are expected to be very high. As a result, the Implementation Decision that should accompany the Water Decree has still not been approved. These examples show that implementation aspects should be taken well into account when drafting an integrated water act. It also illustrates limitations to the scope of integration that should be aimed for. It is likely that, the larger the scope of integration, the more complex and costly its implementation.

4 CONCLUSIONS AND SUGGESTIONS

One has to be careful in trying to draw lessons from a comparative analysis of legal frameworks for water management. Countries have unique legal traditions as well as different historically grown water management systems. It is impossible to just copy-paste (parts of) water acts from one country to another. Furthermore, specific political, administrative and societal issues and dilemmas will determine the development of the Integrated Water Act in the Netherlands much more than experiences elsewhere would. However, the case studies have shown many creative, interesting and perhaps useful elements of water legislation and management that can serve as a source of inspiration. Furthermore, some experiences with the *process* of developing and implementing an Integrated Water Act might be useful for the Netherlands as well. In this chapter, you will find conclusions and suggestions that can be useful for the further development and implementation of the Integrated Water Act.

Drivers for change

It is concluded in the previous chapter that the European Water Framework Directive (WFD) constitutes an important driver for change throughout Europe. This is valid for the Netherlands as well. But how to incorporate the WFD (requirements) into the Integrated Water Act? Experiences in other countries with integrated water acts indicate a "framework approach" in which not so much the detailed requirements of the WFD are incorporated in the main water legislation, but into secondary regulations. Elements to be considered for inclusion in the Integrated Water Act are, at least:

- identification and establishment of river basins;
- position and (table of) contents of river basin plans;
- categorisation of waters;
- water quality goals and standards;
- organic elements (responsibilities and authorities for the above, but also for the programme of measures, water register and other WFD requirements).

Besides the Water Framework Directive other triggers for integrated water legislation can be found, depending on all kinds of reasons that are typical for specific countries, like severe problems with flooding, extreme dryness, and a lack of (drinking) water for the population.

The proposed Dutch Integrated Water Act will cover and incorporate the WB21 goals related to flood control as well as water quantity management aspects. Experiences in especially Flanders, the Czech Republic and Germany indicate that this is indeed possible. Even though these (and other) countries are facing the WFD requirements, it seems that all countries "stick to their own policy agenda", while at the same time translating and incorporating the WFD requirements in (many) different ways.

Principles of water management

The case studies show a diversity of principles. Some can be found in most of the researched water legislation (mostly based on international treaties and conventions), some are quite unique. The question here is twofold: should the Integrated Water Act list (environmental and water management) principles? And, if yes: which principles?

Arguments in favour of identifying and listing specific principles are:

- in case of lack of clarity or "mazes," it facilitates courts in resolving conflicts by interpreting the goals of the act and its implementation as clarified by principles;
- in case of new developments or changing circumstances, principles provide guidance in how these should be dealt with; this improves the robustness of the IWA;
- principles provide a strong "backbone" for translation of water policy and regulations into adjoining policy sectors (e.g. environment, land-use and nature);
- it provides the Integrated Water Act with a more clear "face", a strong basis of water management in the Netherlands.

An important argument against identifying and listing principles is that it is relatively difficult to predict the outcomes of (legal interpretations of) conflicts as the Netherlands has little experience with listing and applying principles in its legislation, as they are most of the time laid down in policy plans et cetera. Furthermore, a number of environmental and water management principles are identified and listed in European regulations, including the WFD. It could be argued that at least these principles can also be listed and incorporated in the Integrated Water Act. This has the advantages mentioned above, while the main obstacle for listing principles is not valid (as the principles are already valid references in the Dutch legal system).

The Netherlands has less of a tradition to list principles as discussed in the previous chapter in its legislation. Instead, goals and scope of (i.e. environmental and water) legislation are being listed. Often, the accompanying explanatory memorandum ("Memorie van Toelichting") provides insight in the (interpretation of) meaning and purpose of legislation. Water policy goals can also be found in water policy plans, although it should be clear that this does not take care of legal binding, nor regarding other authorities and other policy areas, nor regarding citizens. It could be argued that these existing solutions would also meet the advantages of listing principles.

Clearly, the experiences in other countries do not provide clear-cut answers to the issue of listing water management principles in the Integrated Water Act or not. They may, however, provide inputs and inspiration for the discussion.

Degree of integration

The case studies show a variety of water management activities and themes that are incorporated in integrated water acts. In the previous chapter it was already concluded that a model integrated water act does not exist. Instead, what elements are brought together into one act depends on historically grown legal and institutional setting and the specific management challenges each water sector is facing. So, again, the experiences elsewhere do not provide clear recommendations on the issue of what to include, and what not. They do, however, provide food for thought.

For example, one could consider to incorporate certain elements of (integrated) coastal zone management (which are related to the WFD) in the Integrated Water Act, as is the case in Germany and Denmark. At least the planning system related to coastal zone management might

be covered, as it is highly related to the water management planning system to be set-up in the Integrated Water Act.

It seems that a number of countries cover water quality management (especially licensing) also through specific environmental legislation. However, this is partly explained by the fact that these countries, such as Flanders and Sweden, did not have extensive water legislation at the time the EU developed water regulations. These countries responded by translating these regulations into their environmental legislation. In the Netherlands, we have a tradition of legislation especially for water quality management, including licenses for discharges of polluting substances and levies, while the planning system for water quality management has been laid down in the integrated water management plans in the Water Management Act. In this research no specific advantages have been found to disintegrate the water quality aspects from the water legislation to integrate them in environmental legislation.

A good example of how flood (disaster) management has been incorporated into an integrated water act is the Czech Republic. It describes the requirement of flood disaster plans and who is responsible in what situation. Some of these and other (mostly) organic elements could be considered when re-drafting the relevant parts of the Waterstaatswet 1900 into the new Integrated Water Act.

Structure of water acts

The tables of contents of the water acts studied provide a good indication of what elements are arranged for in (integrated) water acts. Furthermore, they constitute suggestions for a systemisation of the different elements of water management. For example, most water acts bring together in one chapter (the regulation of) all water uses, from abstraction and discharge to drinking water provision, ports and inland water transportation. In the current set-up of the Dutch Integrated Water Act, only abstraction and discharge are brought together. It could be argued to widen this chapter to include also other uses of water as well such as inland water transportation, recreation, etc.

Roles and responsibilities in water management

In principle, water management roles and responsibilities should be placed at the lowest appropriate level (subsidiarity). This principle is increasingly being applied in water sectors throughout the world, often in combination with a river basin management approach. This often implies decentralisation. Policy and legislation is developed at the central level, whereas more operational responsibilities and implementation is increasingly decentralised. However, in the Netherlands, parts of (operational) water management are already (historically) highly decentralised, i.e. in the hands of water boards. These are, in fact, becoming larger through mergers that have been taking place the last few years. At the same time, EU (water quality) obligations and the protection against floods of a large part of the country would require a degree of central control over water management (i.e. the primary water defence works). But this would not require a significant shift of roles and responsibilities in the Netherlands. Moreover, roles and responsibilities are unique in every country, and it remains to be seen if concrete lessons can be learned from other countries. However, there are some interesting elements in the water acts of other countries that could provide some suggestions when considering roles and responsibilities in water management in the Netherlands.

Some countries have brought the responsibility for water management under a single one Minister. Especially in Flanders this has been an important change of ministerial responsibility which was formerly also divided among different ministries. Also in other countries such a trend can be witnessed. This does not mean that this is a solution. Moreover, it merely demonstrates the need in these countries for strong central leadership and sense of direction for water management. In the Netherlands, this is achieved, among others, through a strong and participative policy development process in which different ministries, but also other stakeholders participate. This fits the Dutch tradition of cooperation and has resulted in relatively strong water policy.

An interesting suggestion for water policy making comes from Flanders, where the Minister is supported by a multi-disciplinary (and multi-interest) commission with a strong (strategic) policy making and planning role. This strengthens central water management in Flanders significantly. Such a more institutionalised, multi stakeholder policy making role could be considered for (elements) of water policy making and planning, for example in developing the river basin plans.

However, experiences in other countries have shown that shifting roles and responsibilities as part of legislation development process also brings along some dangers. Both the cases of Flanders and South Africa clearly show that a significant shift of powers and authorities in water management in the water act does not automatically mean that this will be effectively implemented. Moreover, such shift is likely to slow-down the development process due to significant resistance from stakeholders. It could even limit the chance that the act will be implemented successfully. Even though it is tempting to make the “ideal” water act, the enactment of a new integrated water act could also be perceived as a step in the process towards effective, integrated water management.

In the Netherlands it has already been decided not to seriously change roles, responsibilities and authorities in the new Integrated Water Act. Experience elsewhere indicates that this is a wise decision, given the limited time-frame for developing and enacting the new Act.

River basin management

The conclusion in the previous chapter showed four types of river basin management that different countries have adopted, with an increasing degree of institutionalisation (of river basin management):

- Basin cooperation
- Basin planning
- Basin project planning
- Basin authority

It would seem that, although not required by the WFD, the most direct and effective way to meet its goals and obligations would be the establishment of river basin authorities (as did Flanders and the Czech Republic). These bring together planning and implementation at a regional level, also enabling participation of direct stakeholders more effectively. However, this would require a serious change of roles and authorities to new to be established institutions, which is not desired at this point, as discussed above. It seems that in the Netherlands we are (so far) opting for basin cooperation: different organisations with specific responsibilities and tasks work together to

come up with basin plans, measures and implementation (including licensing, monitoring, enforcement, etc.). With basin planning taking place at the national level. It remains to be seen if this will be very effective and, ultimately, result in meeting the goals of the National Water Agreement (NBW) and the obligations of the WFD (and possible additional future requirements, i.e. related to flood management).

What could also be considered for inclusion into the Integrated Water Act is the obligation of developing, drafting and implementing river basin plans, what should be in them, what position they have (related to sub-basin plans, other (spatial, environmental) plans, its degree of "enforceability") and who is responsible for them. This could also be enumerated for sub-basin plans. A good example can be found in the Flanders Integrated Water Decree.
Of course other variations for river basin management by way of project planning are possible, like a more structural organisation for cooperation between the several competent authorities in the field of water management per river basin (or a part of a river basin), accompanied with a governmental agreement or covenant in which all tasks and responsibilities are laid down.

Planning and translation into adjacent policy sectors

A significant challenge for the Netherlands will be the translation of water policy into adjoining policy sectors. This also turned out to be one of the difficult aspects in developing, enacting and implementing integrated water acts (e.g. in Flanders). Based on these and other experiences we would recommend to pay significant attention to the translation of water policy in adjacent sectors.

Some suggestions for consideration can especially be found in Belgium (Flanders), which has incorporated significant arrangements for the translation of water policy into spatial planning. Among others:

- the "water test" is legally binding;
- authorities can announce parts of the sub-basin plans also legally binding (and to be incorporated into spatial plans);
- the authority to expropriate people and / or business in flood prone areas (but with the obligation to pay market-conform damages).

One has to bear in mind, due the expected costs of implementation, the current Government of Flanders has not approved the implementation decision yet. This seems to be a trade-off (between effective translation and associated costs) that has to be decided upon.

Instruments

The case studies have shown a great number of instruments for water management being applied in the different countries. In the case studies as well as the conclusions they have been categorised. When considering changes in the instrumentation of water management as part of the new Integrated Water Act, the types of instruments being applied in other countries could serve as a source of inspiration. However, most instruments in other countries are similar to those in the Netherlands. But, again, some interesting elements can be found.

The system of licenses in the Netherlands for use of water (abstractions, discharge, other uses) is often perceived as problematic. Many different types of licenses exist, administered by different authorities and arranged for in different acts. Experiences elsewhere show that it would be worthwhile to investigate further the possibilities to harmonise the licensing of (all) these water uses into one water use license (with different terms, criteria, time-frame etc. depending on type of use and on the water system), all to be arranged for within the new Integrated Water Act.

Interesting also to mention here is the water information network of the German Länder. This has been established as a result of the increasing need for knowledge and experience exchange between the Länder's water authorities, among others to effectively meet the EU WFD requirements. Such an information network could also be very helpful in the relatively decentralised water sector in the Netherlands. It would require further analysis to come up with recommendations on the scope and type of information to be included in such a network.

Financing water management

A number of arrangements for financing water management have been included in the water acts that we examined. However, large parts of water management in the countries analysed are financed through the general budget of central, regional and local governments. These financial arrangements are not mentioned separately in (water) acts, but are part of general financial provisions for government funding. However, some financial arrangements are listed for financing especially water pollution mitigation measures, such as the environmental damage fund in Sweden and the cost recovery mechanisms in the Czech Republic. However, the Netherlands has quite some experience with these types of financial arrangements. It remains to be seen whether useful lessons on financing water management can be learned from other countries.