



Local governance in Integrated Water Resources Management in the Netherlands

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Executive summary

The people of the Netherlands are renowned for their water management and engineering ingenuity as they have always had to contend with multiple water problems: major river floods, drainage of the polders, pollution and even occasional droughts. As a result the Dutch have been relatively early to adopt principles of Integrated Water Resources Management (IWRM) in national laws and policies as an approach to water governance.

Various stakeholders at local level including municipalities, water boards, citizens and consultants are now struggling with the complexities that these new laws and policies bring. This report considers a number of local actions of improved water management - from creating space for rivers to reduce flood risks, de-coupling stormwater from sewerage systems and bringing back water bodies into the cities – in order to highlight how local government are responding to the challenge and how to do better.

These local actions in local water governance do show an increase in cooperative governance between different spheres and levels of government, though not everybody is receiving the other with open arms. Participation is also on the rise. Citizens are participating more in planning processes sometimes through angry confrontation and sometimes with creative ideas. Local governments, having promoted participation as an idea, need to take citizens' views seriously to maintain credibility and accountability.

On the other hand, the report shows that authorities still often do put short term economic interests before long term water management considerations, sometimes pressurised by the local private sector. Many of the cases of good practice are, to some extent, exceptions. They nearly all come from parts of the country that were most affected by water crises such as floods, local inundations and water quality emergencies. Disasters, or near disasters, it seems create the needed impetus to support more radical changes in the way water is managed.

This report concludes that while there are many dynamic processes underway, still more effort needs to be put into enhancing local governance for integrated water resources management across the country. Successful pilot initiatives need follow-up and similar initiatives need to be scaled up elsewhere.

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Preface

LoGo Water¹ is a research project aiming to improve the capacity of local governments to implement Integrated Water Resources Management (IWRM), and thus contributing to the achievement of water-related Millennium Development Goals (MDGs). The project focuses specifically on the Southern Africa Development Community (SADC) region, and particularly on the countries of the Limpopo river basin. It involves eight associated local governments from this basin in South Africa, Botswana, Zimbabwe and Mozambique². In addition, the research draws lessons learnt from experiences in several countries in the European Union (EU) and their potential relevance in the African context.

Specific activities of the LoGo Water project include:

1. Reviewing existing knowledge and experience on the role of local governments in water resources management, especially in SADC countries and the EU,
2. Identifying an effective role for local government in IWRM in SADC countries,
3. Supporting the implementation of local government actions contributing to IWRM in SADC countries through the development of an implementation strategy

The activities are being carried out collaboratively by a consortium of African and European research institutes, resource centres and local governments³. This report aims to contribute to the first activity of evaluating experiences within the EU.

Further information can be found at www.iclei-europe.org/logowater.

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National government

Vincent Coenen, Projectbureau Maaswerken

Pauline van der Broeke, Ministry of Housing, Spatial Planning and Environment (VROM)

¹ LoGoWater: Towards effective involvement of local government in Integrated Water Resources Management (IWRM) in river basins of the Southern African Development Community (SADC) region, EC Contract 003717

² The associated local governments are: Selebi-Phikwe Town Council and Serowe/Palapye District Council in Botswana; the Municipality of Chokwé and the Municipality of Xai-Xai in Mozambique; Makhado Local Municipality and Tshwane Metropolitan Council in South Africa and Beitbridge Rural District Council and the City of Bulawayo in Zimbabwe.

³ The partners are ICLEI - Local Governments for Sustainability, European Secretariat, Germany; Centre for Ecology and Hydrology (CEH) United Kingdom; Foundation for a New Water Culture (FNCA), Spain; IRC International Water and Sanitation Centre, the Netherlands; ICLEI - Local Governments for Sustainability, Africa Secretariat, South Africa; Institute for Natural Resources (INR), South Africa; Institute for Water and Sanitation Development (IWSD) Zimbabwe; IUCN - The World Conservation Union, Mozambique and the Kalahari Conservation Society (KCS), Botswana.

Municipalities

Saskia van Walwijk, Municipality of Dordrecht
Ellen Kelder, Municipality of Dordrecht
Tiny Arts, Breda Municipality of Breda

Water boards

Tim Smit, Water Board Groot Maas en Waal
Michiel van Willingen, Water Board Eemen Vallei

Consultants

Marnix de Vriend, Arcadis
Govert Geldof, TAUW
Pieter Lems, TAUW
Bert Raven, independent consultant; formerly of the Union of Water boards (UvW)
Rob van Ham, Route IV

Researchers

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In addition, further interviews by Madeline Winnubst undertaken as part of her PhD research have contributed to this report.

The authors would like to thank Joep Verhagen of IRC for assistance in carrying out some of the interviews.

Glossary, abbreviations and acronyms

<i>Bundesland</i>	Federal State (in Germany)
DGR	Delta Plan for the Major Rivers
EC	European Commission
EU	European Union
FP6	6 th Framework Programme
<i>Inspraak</i>	Process of enabling the public to have its say
IRC	IRC International Water and Sanitation Centre
IWRM	Integrated Water Resources Management
MDG	Millennium Development Goals
NIMBY	Not In My Back Yard
RAP	Rhine Action Plan
<i>Rijkswaterstaat</i>	National Water Authority
SADC	Southern African Development Community
<i>Waterschap</i>	Water Board
WB21	Water Management in the 21 st Century (policy document)
WFD	Water Framework Directive

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1 Low and dry in the delta? The water problems facing the Dutch

The Dutch are renowned for living with water. In fact, water is an indelible part of cultural identity in the Netherlands. The Dutch have to contend with multiple water problems: major river floods to localised inundations, from overburdened sewerage systems to high nutrient concentrations in groundwater, and even occasional droughts. These are just a sample of the water problems in the country.

1.1 The Dutch delta

The water problems of the Netherlands are, obviously, to a large extent framed by the physical location of the country. Here we find the last section of the river Rhine and its tributaries before they drain into the North Sea and Lake IJssel.

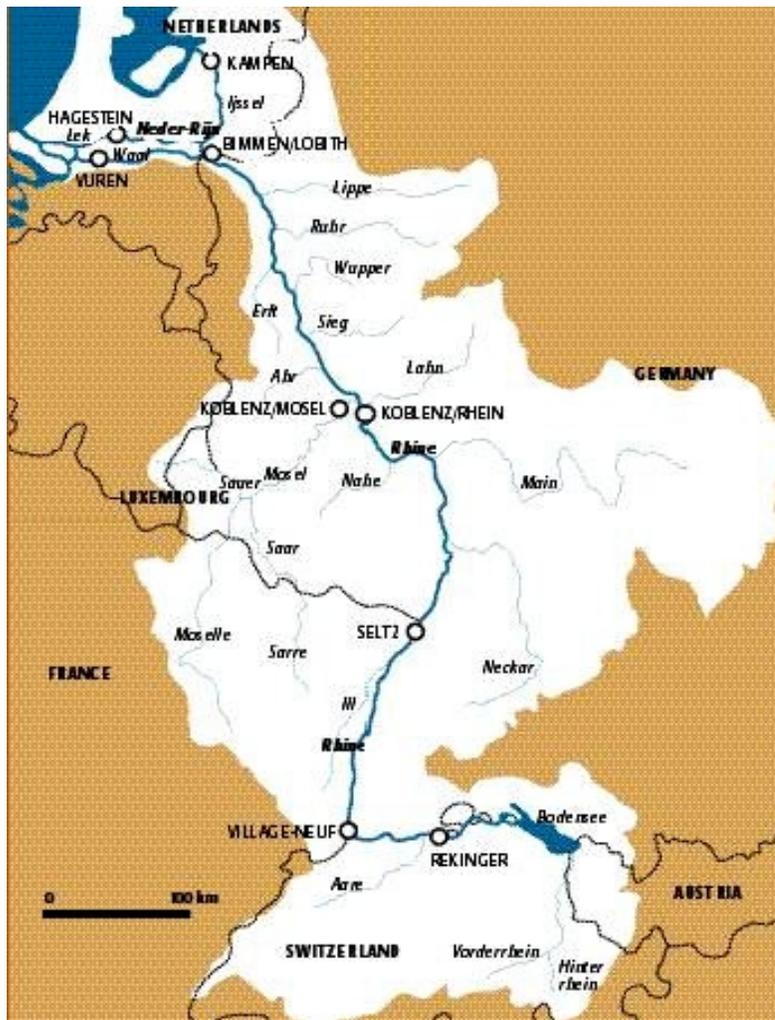


Figure 1: The Rhine basin

The Rhine has a catchment of 185,000 km², and a total length of 1320 km. The final 170 km (representing 25000 km² of the catchment) is in Dutch territory, the river previously having traversed Switzerland, France, and Germany. In the Netherlands, the river forms the so-called Rhine delta (which in fact is an estuary). At the village of Pannerden, the river Waal splits off. Further down, it splits into the Nederrijn and the river IJssel. Together these rivers form the Rhine system.

Two other major rivers discharge into the sea through the Dutch delta: the Meuse and the Scheldt. Together with the Rhine system, they shape the physical context of water management in the Netherlands. Although the sections below mainly refer to the Rhine system, similar problems are found in the Meuse and Scheldt.

1.1.1 Water quality and ecology

As the Rhine flows through one of the most industrialised and most densely populated parts of Europe, it is not surprising that this river has often been dubbed as the sewer of North West Europe. Heavy pollution loads used to come from the chemical and metallurgic industry, food producing industries, mines and domestic wastewater. As a result, in the 1970s the river was declared biologically dead. Drinking water companies had great trouble finding acceptable freshwater sources. Water fleas exposed to Rhine water would die immediately and heavy metals were everywhere.

After a fire at one of the locations of the Sandoz chemical company at Basle, water used for fire extinction flowed freely into the Rhine taking along tonnes of detergents. In the next few days the toxic wave travelled seaward killing all river life upstream and lower-order organisms further downstream. Dead fish were taken out of the river by the tonne. Only after this emergency, action was taken to address pollution issues. This led to the Rhine Action Plan of 1987 (see Box 1).

Box 1: Rhine Action Plan and Rhine 2020

The Rhine Action Plan (RAP), accepted by the riparian states and the EC in 1987 in Strasbourg, committed its signatories to the following:

- By the year 2000, salmon should have returned to the Rhine.
- The preparation of drinking water from Rhine water should be possible with near-nature treatment procedures;
- The contamination of river sediment should be decreased to such a degree, that it may be applied on land or dumped in the sea without causing any harm for organisms living in or on the soil;
- A reduction of high water levels by 60 - 70 cm by 2020.

The sequel to the Rhine Action Plan was the “Rhine 2020 Programme for the sustainable development of the Rhine”. The principal objectives of the programme are:

- Rhine ecosystem improvement; restoring the network of habitats typical of the Rhine (habitat connectivity) and ecological accessibility (up- and downstream migration) of the Rhine from Lake Constance to the North Sea
- Flood prevention and flood protection; reduction of flood risk in lowlands by 25% and uplands by 70%.
- Water quality; fish caught in the Rhine, as well as mussels and crayfish must be apt for consumption. It must be possible to bathe in suitable places along the Rhine.

Over recent decades, the ecological value of rivers and water has risen up the agenda. By international standards, the Netherlands is an ecological ‘desert’ - only 4% of its surface is natural - and all Dutch water courses are artificial or heavily modified. This difficult starting point has not stopped environmental action groups emphasising the importance of ecology to water managers. The closing piece of the Delta Works to guard against sea floods in the Netherlands, the Oosterschelde dam, sparked years of struggle between those in favour of higher dams and environmental groups and citizens in favour of combining flood protection works with nature conservation and landscape values. The *Rijkswaterstaat* (the National Water Authority) realised it had to change its path, and needed to seriously consider the ecological, cultural and landscape values of water. The concept of ‘nature development’ (De Bruin et al. 1987) proposed to return river branches to their ‘natural state’ where indigenous flora and fauna would find a place.

Great improvements in the water quality and ecology of the Rhine and other water bodies have now been achieved. Yet, these issues remain a constant point of attention and key issue.

1.1.2 River floods and droughts

As the name suggests, large part of the Netherlands (literally: the Low Countries) is low lying and flat. In fact, about half of the land lies below sea level, the so-called polders. These are the former bottoms of lakes and swamps, which have been reclaimed over the course of history. This means that the country is prone to flooding and drainage of rainfall does not occur naturally or easily.

With the focus on water quality, flood management issues took a backseat until being rediscovered recently. The Rhine is partly fed by snowmelt from the Alps in the upper reaches. In spring, when the snow starts to melt and precipitation is still high, peak discharges occur giving rise to floods. Over centuries of living next to the rivers, the Dutch managed to keep dry by building ever higher dikes.

As the fire in Basle triggered changes in water quality management, the (near) floods of 1993 and 1995 in the Rhine and Meuse caused changes in thinking about river flood risks and dealing with them. Citizens and authorities alike realised that risks were still there. They also realised that proven approaches were no longer valid and that new approaches needed to be developed (For a more detailed description of those approaches, see Chapter 3).

As well as floods, the Rhine experiences recurrent low water levels in the major rivers. In the hot summer of 2003, water levels dropped to such an extent that power stations had difficulties in discharging their cooling water into the river without negatively affecting biological life. Water supply companies also struggled to take in sufficient raw water.

1.1.3 Flash floods

Heavy rainfall may cause local flash floods in the Netherlands, even in the better drained areas of the country, especially now that built-up areas are ever increasing and areas for retention and storage are decreasing. In the province of Groningen, the Tussenklappenpolder was in fact opened as a safety valve in 1998 after unexpectedly heavy rainfall caused great damage in inundated areas. This once again drove home the realisation that traditional local water management policies might no longer be adequate.

1.1.4 Groundwater management

In winter, rainfall may be so high that groundwater comes very close to the surface in most parts of the Netherlands, entering into cellars and affecting construction (see chapter 3.3). In the drier summer season, local desiccation may occur, especially in the “higher parts” of the country. This is either caused by over-extraction of groundwater or by rapid drainage during winter, so that there is too little time for rainfall to replenish the groundwater. This negatively affects forest areas especially. In these periods, restrictions are often placed on the amounts of groundwater to be extracted for irrigation.

1.1.5 Water supply and sewerage services

With near universal coverage in water supply and sewerage services in the Netherlands, most water management discussions do not pay attention to service provision. Indeed, service provision is of high quality, especially when compared to many other countries, and most people pay their bills (which in 2006 amounted to an average price for water supply, excluding sewerage, of €1,53/m³ including taxes). Yet, there are important links between the provision of these services and water resources management. Quality of water resources (see above) affects the costs of the drinking water treatment process, and equally high costs are incurred in treating wastewater to the level at which it can be discharged back into water bodies. Fluctuations in ground and surface water levels have an impact on the amounts of drinking water which can be abstracted. A key challenge therefore is to better link water services provision to water resources management. This report also highlights some of issues at the interface of water resources management and water services.

1.2 Integration challenges

In response to the variety of water problems faced at different scales, the Dutch were relatively early to adopt principles of Integrated Water Resources Management (IWRM) in national laws and policies. In fact it became a leading policy principle in the mid 1980s, and became national policy in the form of the Third Memorandum on Water Management (*Derde Nota Waterhuishouding*) in 1990. Coming from an environmental background, and in reaction to the Rhine water quality problems, the focus was on integrated approaches towards water quality issues, river biology and hydrology, and the management of river banks. Soon after the Memorandum, the Dutch were reminded of flood risks.

Introducing flood management into the IWRM agenda brought a realisation that water management actually goes beyond water and has broader implications for society. IWRM implies integrating many aspects:

1. Integration of the different *links in the water chain* (stormwater, surface water, wastewater and groundwater) such that the management of one part of the chain doesn't harm management in another.
2. Links between *land and water management*. In a built-up country with relatively little open space, any change in land use has impacts on water. In spatial planning, water is increasingly used as a guiding principle but in practice, integrating land and water management remains difficult.
3. Each of the links in the water chain (and land management) has traditionally been assigned to different *institutions*, or (in the case of urban groundwater) remains unmanaged in practice. Water management criss-crosses administrative and hydrological boundaries and mandates

and as a consequence poses co-ordination problems. IWRM therefore implies integration or coordination of the actions a diversity of institutions, such as national and provincial government, water boards and municipalities, each with their own policies and mandates. It means that different sections within each of these institutions need to work with each other, which has not always occurred in the past.

4. Integration across different *levels*. River flood management, for example, requires an overall framework for action at national or even international level. Local measures need to fit into that. Local actions of course may have impacts at the river basin scale. Balancing local needs and impacts with basin scale interests is required.
5. Even more complicated is the integration of the ideas and *interests* of different *stakeholders*. Often, interests of stakeholders are not compatible or even mutually exclusive. Farmers prefer to have low groundwater levels in spring and high groundwater levels in summer, whereas for nature the reverse is ideal. Municipalities have an interest in housing development, whereas water boards would like to keep built-up areas to the minimum and leaving sufficient capacity for rain water infiltration and retention. Although there is a long tradition of balancing diverging interests, this is not an easy game to play.

Most of these integration challenges come down to the governance of water management, i.e. the range of political, social and economic and administrative systems that are in place to develop and manage water resources and the delivery of water services at different levels of society (Rogers and Hall, 2003). The governance system determines to what extent these different issues in integration can be achieved or not.

1.3 About this report

As part of the LoGo Water project, this report examines the role of local government in integrated water resources management in the Netherlands. As suggested by Smits and Butterworth (2006), we take a local governance perspective, analysing the position of local government vis-à-vis other groups of stakeholders involved in local, such as national government, water resources management authorities and different groups in civil society, including the private sector (see Figure 2).

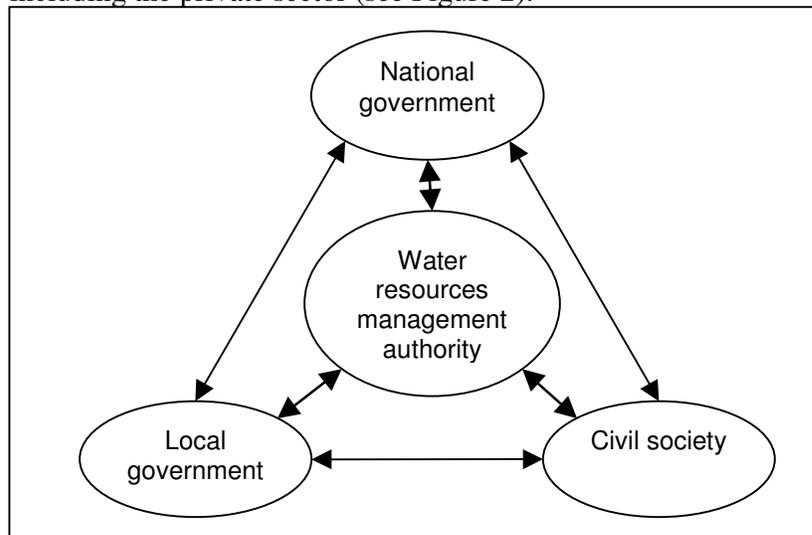


Figure 2: local government in relation to other stakeholders in water management (Smits and Butterworth, 2006)

This report therefore starts by introducing the water governance structure, defining the roles and mandates of the various stakeholders in water management in the Netherlands, with a focus at the local level. Then, using a number of extended cases, local actions to improve local water management are analysed. These cases are considered with discussion of the various challenges in local water management as described in the previous section. Most of the cases are from the Rhine system (which includes the IJssel, Neder-rijn and Waal), but some interesting cases from the river Meuse and smaller local streams such as the Berkel are also included (see Figure 3 for a map with the locations of the various cases). Furthermore, comparisons are made with German experiences in the same basin but a different governance context.

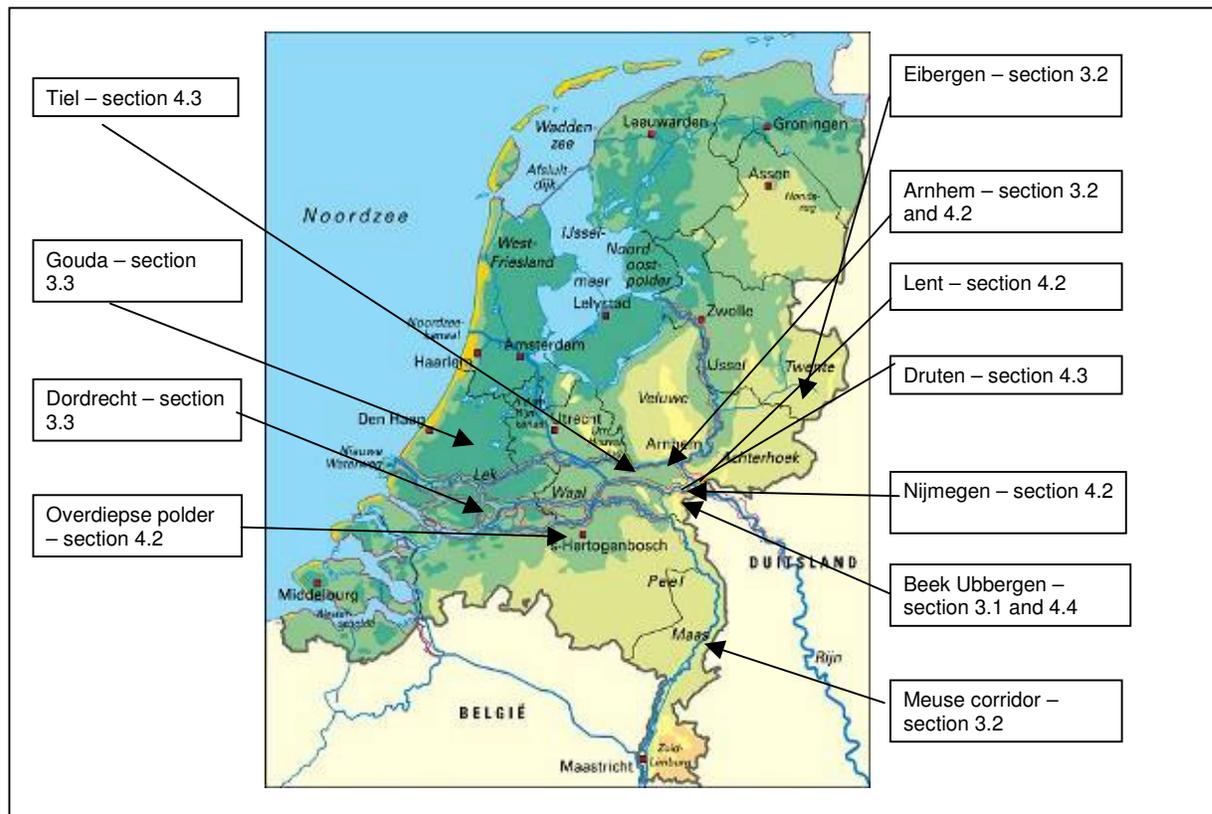


Figure 3: Map of the Netherlands with locations of cases used in this report (source: www.bosatlas.nl)

Note: the dark green colours indicate areas lying below sea level

Based on these cases, the report aims to draw lessons for implementation of IWRM that are related to the local governance context. Using the framework the relations between each of the various stakeholders are analysed highlighting a number of key governance issues, such as mandates, participation and representation, accountability, enforcement, power and politics, and knowledge and capacity of local government.

This report is based upon a review of grey literature from (local) governments and other sources, and a number of interviews held with experts, local authorities and consultants. A full list of interviewees can be found in the acknowledgements.

2 Waves and poldering: water governance in the Netherlands

2.1 A history of centralisation and decentralisation

Analysing local water governance in the Netherlands is best done by looking at the Dutch phenomenon of polders (see section 1.1.3). The polders are located below sea and river level so artificial drainage is needed in combination with protection against floods. When the first polders were developed, cooperation between all land users and owners was essential for such works and this gave rise to local water management entities known as water boards (*waterschappen*). The first was established in the 12th century when a group of people collaborated to dam up the Kromme Rijn at the town of Wijk bij Duurstede. This model was followed in the subsequent centuries in other parts of the country, leading to 2500 water boards in the country at one time.

This localised approach to cooperation worked to the extent of addressing local water management issues. However, larger scale water management problems, especially river flood management could not be addressed effectively by the water boards. In addition, a fair degree of competition was occurring between water boards and actions of one water board did create negative externalities for others. In response, during the Napoleonic era, many responsibilities in water management were centralised under the National Water Authority (*Rijkswaterstaat*). After the sea flood of 1 February 1953, an even stronger round of centralisation took place to come up with a quick (infrastructure-driven) response to sea flood risks. Since the 1970s however, a remarkable combination of centralisation and decentralisation has taken place. While some responsibilities have been decentralised from *Rijkswaterstaat* to water boards, at the same time, many water boards have merged to create economies of scale and more power has been given to Provinces (as a supposedly strong middle level control entity).

These waves of centralization and decentralization reflect the generic tension between the principle of subsidiarity in bringing water management down to the lowest relevant level, and the need to defend national interests through approaches that go beyond the local. Disasters and crises have often triggered these waves to ripple through the country, either demanding stronger national action, or bringing down power to the local level. The pattern left by these waves in the Netherlands is a governance system consisting of broad central policies, many decentralized responsibilities and a curiously strong middle level control. This is discussed further in section 2.2.

2.2 The institutional framework

The roles and responsibilities for water resources management are distributed between National government, Provincial authorities, Municipalities and Water Boards (see Figure 4). In addition there are regulations agreed upon at European level. Citizens can participate directly and indirectly in decision-making processes.

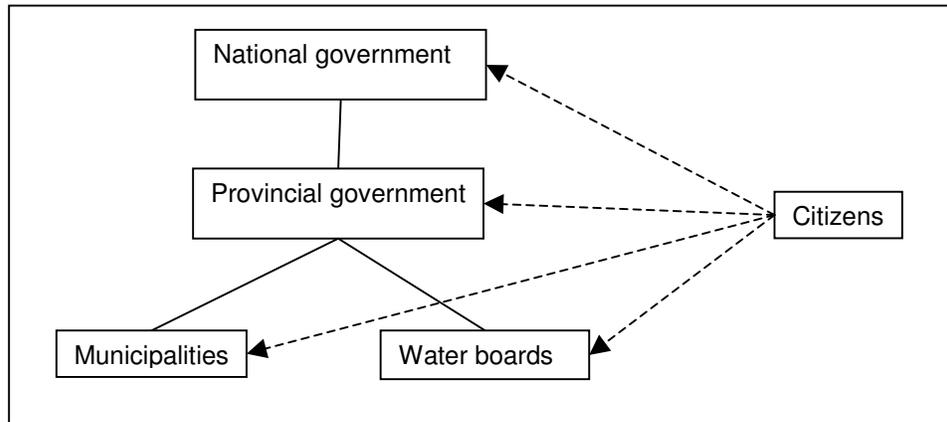


Figure 4: Institutional framework for water management in the Netherlands (Based on Havekes, 2005)

2.2.1 National level

National government provides mainly broad policy guidance for water management (see section 2.3). In addition, the Ministry of Transport and Waterways, through the *Rijkswaterstaat*, is directly responsible for management of the main “structural” elements: the large river bodies themselves, the major lakes and the coastal zone. These are also linked to the major areas of economic activity in the Netherlands.

2.2.2 Water boards

At the local level, water boards are responsible for surface water management. While these are deeply rooted in the history of water management in the Netherlands, over time, waves of centralisation and decentralisation have in turn taken away powers from water boards and returned them. Nowadays, water boards’ main responsibilities are:

- maintenance of flood protection infrastructure (dunes, dikes);
- water quantity management (drainage and irrigation) to ensure that surface water is kept at the appropriate levels;
- water quality management of surface waters;
- treatment of urban wastewater; and
- (Sometimes) management of inland waterways and rural roads.

Water boards are almost completely self-financing. They cover their costs through taxes levied on all residents and land owners. These taxes are broken down between a water board charge (mainly for water quantity management and flood protection) and a water pollution levy (mainly to cover the costs of wastewater treatment). The level of the tax depends on a number of factors such as the area of land, property value and the size of the household. Some figures are provided in the box below, as well as in Havekes et al. (2004).

Box 2: Key figures for Dutch Water Boards in 2004

Number of water boards: 37 (at the time of writing this number had reduced to 27 as a result of mergers)

Number of employees: about 11,000

Main dikes under responsibility of the water boards: 3,000 km

Length of main waterways under responsibility of the water boards: 55,000 km

Number of waste water treatment plants operated by water boards: 390

Tax revenues: € 1.9 billion/year

Average annual taxes in 2004: Open land water board charge: € 60 per hectare; Buildings water board charge: € 39 per household; Residents water board charge: € 33 per household; Pollution levy: € 50 per pollution unit (more or less equivalent to € 150 per household)

Source: Havekes et al. (2004)

A key characteristic of the water boards is that the executives of water boards were (and still are) democratically⁴ elected, and held accountable to the residents and land owners. In 2003, the Dutch were represented by 1445 people in the water boards, of which only 219 were women. Managing water within polders often gave rise to many discussions between different inhabitants of the polders: farmers, fishermen, and residents all with their different interests. Specific representation mechanisms were therefore established for different user groups. Meetings of water boards involve extensive joint consensus building. In fact the word “poldering” is now used as metaphor in Dutch for inclusive multi-party consensus building processes outside water management.

2.2.3 Municipalities

Municipalities, the other sphere of local government, have only limited responsibilities in water management. Their only direct function is providing sewerage services (not including wastewater treatment). Normally, they do not have a section in their administration dedicated to water-related issues. Rather, water is a cross-cutting issue in many areas (such as spatial planning, recreation and agriculture) for which they do have responsibility. Municipalities get part of their funding for water-related activities from central government and part from local taxes. In general, municipalities are quite autonomous and strong and they have significant budgetary and discretionary powers, in addition to their role administering central policies. Because of their autonomy, municipalities can sometimes significantly delay national-driven programmes.

2.2.4 Provinces

The final government stakeholders are the Provinces. They have an increasingly important role in controlling both municipalities and water boards, aiming to avoid competition between them. Officially they even have the rights to establish and abolish water boards. They also aim to ensure coherence in the strategies of all the municipalities located within a Province. In addition, they are directly responsible for groundwater management, for which they receive financial resources from the national treasury.

⁴ Elections do not take place along party politic lines, but according to functional categories. There are specific regulations on how water board elections are taking place. These are elaborated in more detail in Havekes et al., 2005.

2.2.5 Citizen involvement

Citizen involvement in water management has long time happened through their representation in water boards. However, The flip-side of elected representation of citizens and special interest groups in water management is that over time most people have lost interest in the issues at stake. Most people are happy to pay their taxes and vote once in a while for members of a water board (while hardly knowing what it does) as long as their feet remain dry. Only “big” water issues now mobilize citizens. The plans for closure of the East Scheldt, the controversial last piece of the famous Delta Coastal Protection Works, gave rise to unanticipated public mobilisation in the 1970s. This led to an alternative in which the East Scheldt would remain open, and retain its ecological character, but could be closed off during emergencies through sliding gates. Moreover, it led to a realization that citizens voices need to be heard in decision-making over water management.

In addition to election of water board representatives, citizens have other ways of getting involved in water management. Not unique to the water sector, public participation is regulated through the process of *inspraak* (enabling the public to have its say). This form of consultation, developed in the 1970s, is now a mandatory part of Dutch planning procedures including spatial and environmental planning. Any plan must be published in draft form so that the broad public and specific interest groups can submit their opinions to the relevant government agency, either in writing or through public hearings. These can result in amendments to the plan before it is adopted, and *Inspraak* has contributed to the increased openness of planning procedures and inclusion of citizens’ opinions. However, this form of consultation does have considerable disadvantages also:

- Consultation in the final phase of the decision-making process tends to result in rigid opinions and conflicts and does not necessarily encourage a search for creative solutions
- It is not designed for complex, multi-faceted problems, and it often fails to achieve a broad societal support for decisions
- In many cases the group participating in the process is not fully representative of the population (a predominance of older, well-educated, white males). It can be particularly hard to involve non-organized stakeholders.

Dissatisfaction with *inspraak* resulted in experiments with 'interactive policy-making' especially in spatial planning. A State Advisory Committee on Public Communications recommended in 2001 for more two-directional involvement of citizens in policy and planning processes. Although the government endorsed most recommendations, current guidelines for public participation still have no legal status.

A bemusing current development in the Netherlands is to de-emphasise participation. The Dutch government seems to be pushing for a less ambitious interpretation of ‘public consultation’. Participation, it is felt, is costly and time-consuming. Rights to *inspraak* in numerous cases have become a tool to delay or stop major interventions in people’s backyards. In the course of the 1990s, coalitions of citizen action groups and local authorities became very adept at delaying and even undoing major infrastructural works. As we shall see though, it is not just citizens who test participation to its limits. Local authorities themselves have also found ways of dragging their feet on projects initiated at national level.

2.3 Policies and planning instruments

2.3.1 European Union

The main relevant policy at European Union (EU) level is the Water Framework Directive (WFD). The WFD aims to stimulate an IWRM approach to water management. It requires EU member countries to draw up basin plan and sub-basin plans. Since, traditionally the Dutch water boards have not been organised according along catchment lines but drainage areas, there is the first mismatch between the Dutch reality and the European policy. Another element of the WFD prescribes that all water bodies are to be classified according to different levels of water quality with set targets. When a study by the Wageningen Research Institute Alterra (Bolt, 2003) showed that the Netherlands would not be able to meet those standards anywhere unless it abandoned its agricultural sector, locally authorities feared that those standards can never be met.

Although negative feeling abound around the relevance and feasibility of the WFD, local authorities need to comply with it, and government at all levels is starting to work towards its implementation.

The WFD does not deal with what is probably the most important issue at the moment in Dutch water management: flood management. Neither are there any other comprehensive EU policies on flooding. However, there is already a set of “best practices” on flood risk management. Recently, a draft directive on flood management has been prepared which is expected to be debated by the European Parliament later this year. A key principle is that risks for people, the environment and infrastructure need to be analysed in an integrated way. In addition, member states may not cause externalities upon its neighbours, i.e. measures to deal with floods in one country, may not lead to increased flooding risks in other countries.

2.3.2 National policies

At the national level, a number of broad policy frameworks define the rules within which the provincial and local authorities must operate. The key ones are:

- the Surface Water Act (*Wet Oppervlaktewater*) of 1970. This act has, in turn, been incorporated in the Environmental Management Act of 1996. This mainly deals with water quality issues.
- the Third National Policy Memorandum on Water Management (*Derde Nota Waterhuishouding*) of 1989, which seeks to integrate.
 - water quantity and quality
 - groundwater and surface water
 - land and water use
 - short the long term priorities
- the Fifth National Guidelines on Spatial Planning (*Vijfde Nota Ruimte*), approved in 2006 and articulating the role of water in spatial planning. The main focus areas in relation to water management of this policy are: security against floods, water quality, and the links with the main economic infrastructure such as the Rotterdam harbour.

In addition to these policies, an important guiding document is WB21 (for its Dutch abbreviation meaning Water Management in the 21st Century). It is a joint vision for water management shared by national government, the Union of Water Boards, the Association of Dutch Municipalities and the Interprovincial Forum. Its principles are ratified in the National

Governance Agreement on Water of 2001 (*Nationaal Bestuursakkoord over Water*) and it sets the agenda for cooperative governance in the water sector.

2.3.3 Provinces, municipalities and water boards

Part of the National Governance Agreement on Water focuses on the integration between the ‘policy column’ for water management (Ministry of Transport and Waterways; provinces and water boards) on the one hand and the ‘policy column’ of spatial planning (Ministry of Housing, Spatial Planning and Environment, provinces and municipalities) on the other. Water boards and municipalities, who traditionally worked in splendid isolation from each other, now need to work together. In practice it leads to an often well-intended but not always well-coordinated interference in each other’s plans. And at the decentralised levels there are numerous plans, as can be seen in Figure 5).

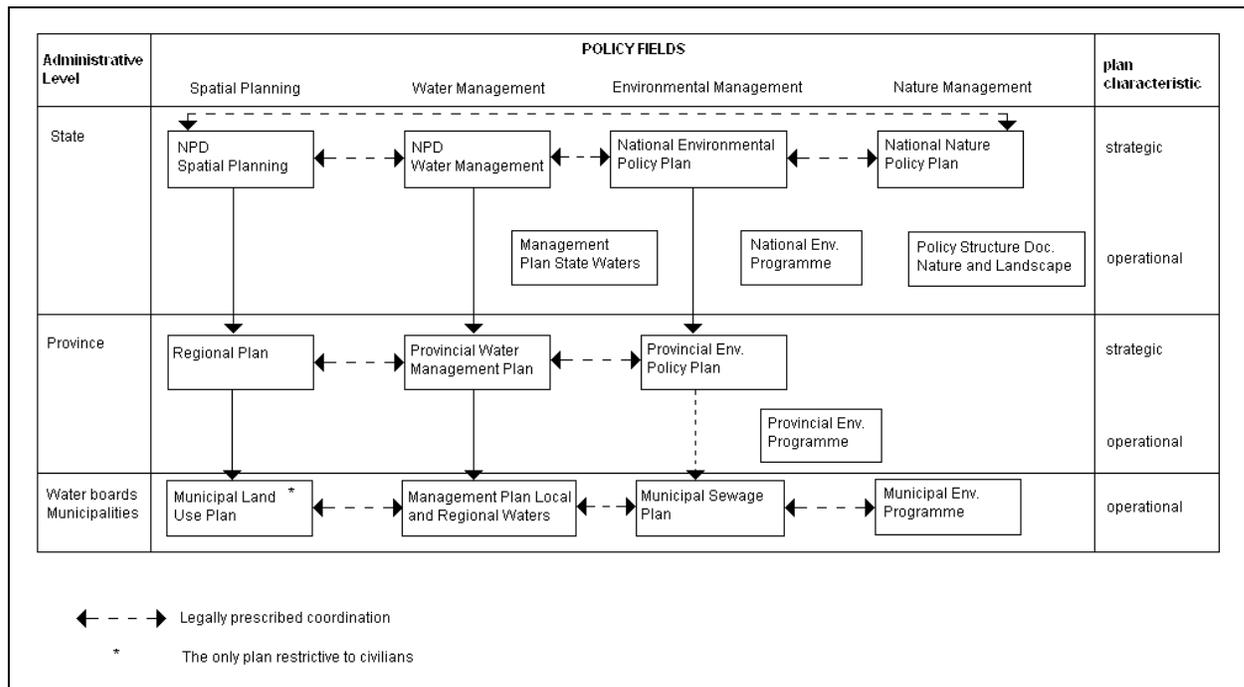


Figure 5: Policies and plans

In the water ‘column’, provinces are responsible for the coordination of the development of sub-catchment plans (*deelstroomgebiedsvisie*) as required by the WFD (see section 2.3.1) and to be finalised by 2009. Based on a water assessment and the sub-catchment plans, provinces give guidance to municipalities in the development of municipal water plans (*gemeentelijk water plans*). This is a non-binding instrument (mentioned in WB21) which aims to make sure that water is used as a guiding principle in spatial planning.

On the spatial planning side the following hierarchy of plans is found: municipal spatial plans (*bestemmingsplan*) must fit into the regional plans (*streekplan*) as defined by the province, and which in turn must comply with national environmental and water management policies. The municipal water plan should inform the municipal spatial plan and the sub-catchment plan should inform the regional plan. Although provinces have quite some power in this, in practice they do

not provide sufficient guidance and feed-back on these plans according to some of the interviewees.

In the processes of drawing up these plans tools are used to check on key water management measures such as setting aside sufficient space for wetlands, infiltration and retention and for controlled flooding in the case of extreme events. A so-called Water Test (*watertoets*) can be applied to see if new or changed land uses would have an impact on the functioning of the water system. This is shown on a Water Opportunities Map (*waterkansenkaart*). Finally, there is the so-called Urban Water Challenge (*Stedelijke Wateropgave*). This urges cities to consider urban water issues in their municipal water plans. For example, setting part of land aside in urban areas for surface water storage is a requirement for all new urban developments. In addition, underground water storage is encouraged along with multiple use of available space. The policy also challenges urban municipalities to improve water quality. Although the Urban Water Challenge is not obligatory, some municipalities have used it as an opportunity to develop inspiring visions in water management.

3 Local responses

Having explained the overall water governance framework in the Netherlands this chapter assesses how stakeholders are responding to the challenges of integrated water resources management at a local level. Each of the key water challenges mentioned in chapter 1, water quality, river floods, stormwater and groundwater management are considered. The main focus of the analysis is on the practical responses at local level to the water challenges and their impact. Problems in implementing and sustaining these local actions are highlighted.

3.1 Water quality and ecology

Although the WFD focuses very much on water quality, this appears not to be a major priority in the agendas of Dutch municipalities. In general, water quality norms and pollution control norms are strictly enforced by Water Boards so there are few problems and conflicts related to water quality for municipalities to contend with. There is one notable exception: the pollution of water with nutrients especially nitrate. However, action on this issue falls mainly within the domain of agriculture and outside the mandate of local governments.

This does not mean that municipalities are not looking for alternative and innovative ways of integrating water quality management into their water plans. A major development has been the so-called de-coupling of stormwater and sewerage. In the Netherlands, 62% of sewerage and drainage systems take wastewater and stormwater through the same piping system. This leads to extra loads on wastewater treatment plants during storms and makes the treatment process less efficient and effective. In periods of heavy rain, the stilling basins may also overflow and contaminate surface water. De-coupling (i.e. separate pipes for stormwater and wastewater) is becoming the norm in new housing developments. However, decoupling of existing works takes time and trouble to implement since structural works are needed under existing roads and gardens. In some cases it is also not effective to replace a perfectly good (but combined) sewerage system which may have a lifespan of 60-80 years.

In Ubbergen (see Box 3), the stormwater drainage system was completely re-routed to take maximum advantage of clean rainwater and natural seepage flows. Apart from reducing pollution, de-coupling of rainwater from sewers has released high-quality water with a high amenity value and even helped in mitigating groundwater nuisance in people's cellars. Ubbergen's water plan relied heavily on this 'natural capital'.

Box 3: Ubbergen - making groundwater surface

Rainstorms were a major problem in Beek en Ubbergen, a municipality consisting of two small villages near Nijmegen with a combined population of some 12,000. Freshwater in this hilly area is abundant, but gets mixed with wastewater. In 1998, in response to citizens' enquiries the municipality initiated a project that would later be named "Water Werkt! in Beek en Ubbergen" (Water Works! in Beek en Ubbergen). Problems included that water from small streams and wells infiltrated into sewers and caused them to overflow into relatively clean surface water. A storage basin could help out to a degree. The municipality decided to tackle the problem at its root, by preventing large inflows of stormwater into the sewers. Several streams and springs were de-coupled and re-routed through the village until they discharge into the river Waal. This helped

in restoring or creating natural watercourses. Some streams now supply the fountain on the church square or are driving the water mill. This meets the aims of the local water plan which intended to make water more visible to the general public.



Figure 6: de-coupling - rainwater no longer flows into the sewer system

(source: Water Werkt! www.waterwerkt.nl)

Marnix de Vriend, a consultant with Royal Haskoning explains the rationale: “If you keep relying on overflow of wastewater into surface water, it’s either European legislation (the European Water Framework Directive) or the environment itself that will come and get you. Sewerage people are used to hiding problems underground while citizens will only complain when there is a funny smell or when there are road works in their street. In ‘Water Werkt!’ we made a clean break in the philosophy of water management. The water was taken to the surface, into the streets”.

Other local initiatives are also being taken to find natural ways of wastewater treatment. An interesting initiative is found in the city of Groningen in a neighbourhood where citizens are involved to keep the green spaces ‘natural’ (meaning a somewhat rough natural appearance). While the water board manages water quality, the municipality of Groningen is the manager of the sewer system which contaminates ten ponds (water detention areas). The municipality put in a canal to connect the ponds and enable regular flushing. Nature-friendly banks were developed in the ponds to enhance the natural flushing capacity, reducing the need for regular dredging and nasty smells from rotting leaves and sewerage. There is also an economic benefit to water quality improvement: the price of dwellings overlooking the water bodies has gone up. Manpower of the citizens is used to operate the pump (a kind of ‘bicycle pump’), with negligible capacity but stimulating citizens awareness and involvement in water management in an enjoyable way.

Another example of an ecologically-driven activity is in the city of Den Bosch where a part of the water plan was the re-naturalisation of the mouth of the Dieze, a local water body. This was fitted with a halophyte filter and allowed to become marshy. Fish barriers were lifted and a historic gate restored to separate commercial shipping from recreational boating.

But in general, municipalities do not seem to put a very high priority on ecological values. This is in part because it costs money without giving short-term returns. Rather, such measures have been used in bartering and negotiations, such as around programmes to restore flood plains. In such cases, stimulating recreation and the local economy can be drivers for enhancing the ecology of water courses, and can make water management measures more acceptable. More details are given in the next section.

3.2 River flood management

3.2.1 Looking for space for rivers at national level

Until the near floods of 1993 and 1995, the main paradigm in river flood management was raising the dikes. However, these events showed the limits of that approach. In the direct aftermath, the *Rijkswaterstaat* did design a major programme of dike reinforcement and raising (Delta Plan for the Major Rivers, DGR), but the floods also started people thinking about alternative approaches. Rather than constraining rivers between ever higher embankments, these involve creating space for rivers to flood and to attenuate peak flood levels.

This shift in mindset also trickled through to the policy level. The *Rijkswaterstaat* decided to move away from a policy of higher dikes and opted for creating space, witnessed for example in the Ministerial Declaration of Arles of 4 February 1995 signed by Holland, Belgium, France and Germany. The WB 21 policy also deals more explicitly with climate change, sea-level rise, soil subsidence, and urbanization and its impacts on water management in the long term. In this policy there is thus a clear focus on the three principles of ‘retention - storage – discharge’ which constitutes a major change in the approach to river flood management in the country.

This all resulted in a much-debated set of policy principles, issued in 2000, called ‘Space for the river’ (*Ruimte voor de Rivier*). This urges authorities at all levels to find space for floods through measures such as:

- creating side channels
- restoring flood plains
- restoring meanders in the river
- assigning areas for controlled flooding in case of emergencies, and
- re-locating dikes

A programme of specific local measures has been developed and was approved in December 2005 with total costs of about € 2 billion for the period to 2015.

3.2.2 Finding space locally

Creating space for the river ultimately comes down to setting aside land for water. In a densely populated country where land is scarce, this is expensive. It is not surprising that Municipalities and citizens both did not react overwhelmingly positively to the new plans. Although there is general recognition that national interests have to prevail over the own particular interests of those municipalities having to set aside land for water, different strategies were taken to engage with the new plans:

- “*We agree and hope to benefit from the planning*”: the community integrates the planning in its own development (cooperative win-win strategy)

- “*We agree only under specific conditions*”: the community supports flood protection in general but expects compensation for any negative effects (negotiating strategy).
- “*We understand the need, but we don’t want flood retention here*”: not in my backyard strategy, a common response from municipalities and local inhabitants alike.
- “*We do not agree since we are not responsible for the floods*”: the affected community does not feel responsible to provide space for the river for floods caused by interferences in river systems in upstream regions. They demand that the downstream flood-affected regions take action in the form of flood protection (confrontational strategy).

Based on these responses, negotiations and searches for trade-offs were widespread. For example, if municipalities could give up land to create space for rivers, they would be compensated by funding for measures outside the water domain e.g. bicycle lanes or other public facilities. Also, trade-offs were found in restoring nature and enhancing tourism in restored flood plains. Often compromises were found when measures pushed from national level were combined with local initiatives. This process meant a move away from the traditional top-down engineering approach of *Rijkswaterstaat*. This is well illustrated by the experiences with the Meuse Corridor in Venlo (see Box 4).

Box 4: The Meuse Corridor around Venlo

The initial works to improve the safety of a stretch of the Meuse (in the province of Limburg) started by deepening and widening its channel where possible. These activities were being conducted by a central project organisation, called *Maaswerken*. However, *Maaswerken* was seen by many people in Limburg as too much dictated by national government.

While the *Maaswerken* gained momentum, four municipalities and three nature conservation organisations in the northern part of Limburg started a contribution to this programme, called the Meuse Corridor. Their goal was to achieve not only flood safety, but also restoration of the original river landscape, improvement of the tourist infrastructure, and urban and rural development. Unfortunately, by the time their plan was finalised, the key decisions in the *Maaswerken* had been taken and there was no going back. However, the parties sought ways of integrating the two programmes and they have come a long way despite some problems. Victor Coenen of *Maaswerken* readily admits the inflexibility of large programmes, but also points at the fragility of local plans like the Meuse Corridor. ‘If the councillor of Venlo who has championed this project is not re-elected in the local elections of March 2006, I am not sure the Meuse Corridor project will still be supported from the local side’.

The programme consists of 46 separate projects. The proposed measures vary from adaptation of the river bed (excavation of floodplains and making side channels) to small scale interventions like developing cycling routes. The final result would be a safe and beautifully meandering river in an attractive landscape with hectares of a surrounding riverine ecosystem through which people can walk and bike freely.

With an initially limited budget of Euro 40.000 to which the municipalities, the province of Limburg, and nature conservation organisations contributed, and only a few employees, the project started with the execution of the most striking activities so as to communicate “quick-wins” and attract new funding. For example, natural landscape areas have been opened to the public and hiking routes have been realised. Local communities are being informed through

many excursions, organised field education, publications, website, media events, and lectures. As a result, they have a positive attitude towards the proposed interventions. With this approach some 329 hectares became available to create more space for the river. Thanks to these developments the formerly run-down city of Venlo was crowned 'Greenest city of Europe' in 2003.

Not everywhere can compromises be found as easily as in this example from Venlo. In many cases, municipalities and citizens are keener to build in floodplains than to leave space for the river. Until 1993 and 1995, Dutch water management had a permissive attitude with respect to building in floodplains. The 1995 Delta Plan for the Great Rivers put a temporary stop to development of housing in floodplains, even though projects in planning were exempted from the ban. However, shortages of land for housing and economic pressures have again proved to be too big to hold back. Since 2005, municipalities are again allowed to plan housing developments in floodplains which seems to clash with the sustainability goals of municipal Water Plans. Arnhem is an example where wild ideas abound on how to combine water regulation functions of floodplains with housing development (Box 5).

Box 5: Urban floodplains in Arnhem

Arnhem, where the IJssel branches off from the Rhine, aims to modify the city through its water plan to create space for both floodwater storage and a new waterfront-cum-floodplain that strengthens ties between the city and its river. New ideas include creating an island by making a side channel on the south side, using the former brick factories in the flood plains for public events, building floating houses and a shopping mall on the bridge, upgrading a "bad" neighbourhood by linking it to the river-front and creating a natural zone along the river. It goes without saying that some of these ideas, especially of building in the floodplains, have received quite some criticism. It remains to be seen whether the plans can be put into practice. For now, the floodplain is a children's play ground and the neighbourhood has taken ownership of its floodplain.

Finally, it is not just the Rhine and Meuse that contend with floods. Along smaller river courses similar issues are at stake and also there more space was given to water (see Box 6).

Box 6: De-canalizing watercourses

Eibergen is on the Berkel, a small tributary of the IJssel which in turn connects with the Rhine. The water course was canalized 30 years ago leading to flooding downstream, while surrounding agricultural and nature areas were affected by low water levels and desiccation. The weirs and steep river banks limit living space for plants and animals, are not very attractive for tourism and make for poor landscape value. The municipality of Eibergen and the local water board therefore decided to re-develop 143 hectares of flood plains along 60 kms of the water course. A major problem was land acquisition. Land-exchange schemes proved to provide a solution, where arable land along the river was changed for land elsewhere. In addition, use was made of the new approach of 'natural farming' i.e. farming whilst maintaining natural and landscape values. An association for agrarian nature management was offered an area of land at the price for nature lands rather than at the going price for agricultural lands (De Water, 2005).

3.2.3 Crossing borders

Looking at river floods in the Rhine does not make sense without looking across the border. Much of what needs to be done in the Netherlands, is linked to progress made in Germany. There, an approach of finding more space for the rivers has also been taken. A chain of retention areas has been created and land has been assigned for controlled flooding in extreme events. People living in these areas have been bought out. As in the Netherlands, reactions have been mixed as not everyone is overjoyed at giving rivers more room (see Box 7 for examples).

Box 7: Negotiating over new retention basins in Germany

In various federal states in Germany, studies were done to analyse the necessary negotiation processes around setting aside land for retention areas involving affected communities and planning authorities. In Hesse, the parliament decided unanimously not to implement retention areas against the population's will. But, in Baden-Wuerttemberg and Rhineland-Palatinate, authorities had no choice but to try and negotiate. They were bound by national and international treaties to develop such retention areas. They experienced different levels of acceptance by the population. In Ingelheim (Rhineland-Palatinate), apart from the planning process being a well-organised one, the proposed agricultural area to be set aside was of no significance for the further development of the area and the planning authority had room to negotiate and make agreements with the land users. Far more difficult were the initial conditions in the case of the forested retention area of Kulturwehr Breisach (Baden-Wuerttemberg). The current interpretation of the nature conservation law requires a periodical flooding to simulate the natural ecosystem. The community of Breisach and the citizens' initiative did not want to accept this so-called ecological flooding. They regard this measure as an unnecessary additional burden upon other forms of land use in the area such as tourism and recreation. As a consequence, there was less room for the planning authorities to negotiate.

Compensation measures proved a way out. In Baden-Wuerttemberg and Rhineland-Palatinate, standardised compensation catalogues for agricultural or forested areas were used. In Baden-Wuerttemberg special funds were also available to make compensations through recreational development.

Affected communities and citizen's action groups often demanded for a critical review of plans for retention areas. In that way, often flaws were discovered, and plans could be substantially upgraded, in terms of the retention area's efficiency.

Some Dutch authorities have sought more proactive contact with their German counterparts than others. The Dutch Province of Gelderland took the policy decision to make space for the river, going further than was strictly necessary. It sought contact with the German *Bundesland* (Federal State) of North Rhine-Westphalia to develop high water scenarios and to carry out joint response planning even though transboundary water management is a matter for national government. Results have been slow. In part, this seems due to the fact that North Rhine-Westphalia is the size of the Netherlands and therefore is more comfortable talking to Dutch national government rather than with a single province.

There are also other initiatives to start talking across the border. 42 Dutch municipalities and 42 German municipalities meet several times a year, as members of the association of riverine municipalities. Through these meetings the Dutch have learnt about the practical problems

encountered by their upstream partners in Germany. In addition, a regional programme called IRMA (Interreg Rhine and Meuse Activities) was started focusing on various cross-boundary projects for water management, spatial planning and damage prevention.

3.3 Stormwater management

Stormwater drainage is an increasing challenge due to the spread of hard, impervious surfaces in urban areas. Stormwater cannot infiltrate sufficiently and concentrates rapidly, leading to flooding. In stormwater management similar concepts are now being explored as in river flood management. The policy WB 21 puts clear focus on the triad of ‘retention - storage – discharge’ as the main paradigm for stormwater management. In practice, this means making more space for stormwater retention and storage rather than draining water away as fast as possible, as the policy used to be. In this way, it is expected that local flash floods can be more effectively controlled. At the same time, retention and storage would contribute to stabilizing groundwater levels and hence combating desiccation in summer periods. This section shows how at a local level, this triad of principles is being tried out at different levels: household, polder and city level. But it also shows that applying these principles sometimes implies making difficult trade offs between setting aside land for retention and storage, and the need to use land for other purposes notably housing. And as we see arguments outside the direct domain of water often carry more weight than purely hydrological considerations.

3.3.1 Household level actions

Managing rainwater starts at the household level – especially aiming to retain as much as possible around the homestead, and then to infiltrate or reuse it. Interventions, such as rain barrels to store some rainwater for use in drier periods provide an example. However, such practices have not yet moved beyond the pilot scale. The performance and uptake of twin piping systems has also been low. In Leidse Rijn, faulty plumbing meant that people drank rainwater out of their taps. A municipal officer said “one such mistake, and 15 years of excellent performance is down the drain”.

We already saw how de-coupling can be used to reduce sewerage treatment and stormwater quality problems caused by the mixing of stormwater and wastewater. De-coupling also allows for improved water quantity management as it can be easily combined with infiltration of stormwater into permeable surfaces. In new housing development schemes, central infiltration *wadis* or infiltration piping are constructed to take drainage from hard surface areas. Often the drains divert infiltrated water elsewhere to avoid local groundwater table rises and related problems of flooding and damp in cellars. De-coupling in general allows for easier groundwater level management. As we see in Dordrecht (Box 8) there are sometimes unexpected relations between groundwater and de-coupling.

Box 8: Dordrecht - no cure yet for groundwater problem

Saskia van Walwijk and Ellen Kelder, who both work for Dordrecht municipality, point out that the water plan there could not address one of the key water problems in the city: that the groundwater table is too *low* causing cracks in walls and occasionally collapsing house fronts.

In many areas in Holland, the top soil is too soggy to carry buildings. Therefore, wood, steel or concrete piles are bored into the ground to provide sound foundations. This has worked for

hundreds of years. Wooden piles need to remain under water to keep them free from exposure to bacteria and fungi that may result in rotting. Different materials require different groundwater levels.

In Dordrecht, the wastewater and stormwater conveyance systems are not yet de-coupled. As a result, stormwater cannot be used for local infiltration. As stormwater is exported from the city in drains the groundwater level is going down exposing piles to bacterial and fungal damage. Building a new parking garage or the cutting of trees may also alter groundwater flows in unpredictable ways. These problems affect 10% of the city's population.

Unfortunately urban groundwater does not have an owner. Unlike rural areas, where water boards are responsible, no one is responsible for urban groundwater management. Ellen Kelder says: "Every single day, I am contacting the national government and the Association of Dutch Municipalities to make sure we get this de-coupling funded".

A good example of an approach in which de-coupling and infiltration were combined comes from De Vliert in the city of Den Bosch. While working to solve a traffic congestion issue the opportunity was taken to improve the drainage system as well. Together with the residents the system was re-planned to avoid stormwater running into sewers (see 3.1) and to infiltrate as much stormwater as possible within gardens and public green spaces such as parks, and to visibly discharge some water into surface watercourses. Nearly all residents cooperated in disconnecting drainage from their roof surfaces. Afterwards, the citizens were especially positive about the executed plan because the traffic problem was solved and water issues were included along the way. This shows the importance of addressing water issues together with other areas of concern (Geldof, 2004).

3.3.2 Polder level actions

The challenges are much bigger at the polder level as these don't have any natural drainage. Artificial drainage requires a close balance between land use (especially in terms of land available for retention and storage) and installed drainage capacity such as pumps. Sound spatial planning is therefore at the heart of (storm)water management in polder areas. However, the demand for land is often so high that too little land is set aside for retention and storage. The construction sector plays an important role as they often have invested already in land for housing development. For municipalities, economic and housing needs also sometimes prove to be more important than water considerations. This is witnessed in the case of low-lying Gouda (Box 9), where the Minister stepped into a controversy over housing development.

Box 9: Gouda - controversy over the Westergouwe development

The old town of Gouda (world famous for its cheese) is located in one of the lowest lying areas of the Netherlands, some five metres below sea level. There is significant seepage from the peat soil, complicating the already difficult drainage conditions and adding to flood risks. All discussions around water have recently been overshadowed by controversy over new housing developments.

A municipal plan to develop a new residential area in Westergouwe, one of the lowest areas of the polder, would lead to very high flood risks during heavy rains. It provoked the outrage of

prominent commentators like the Union of Water Boards' chairman, Sybe Schaap, who felt that the municipality is recklessly courting danger.

The Minister of Housing, Spatial Planning and Environment stepped in, pointing to questions on the compatibility of the project's sustainability and its robustness in light of flooding risks. In its reply to the Minister, the municipality explained why it is intent on going ahead. As a major commuter town it faces rapid population growth and needs to accommodate the high demands for housing. When in 2003 the (new) Minister showed a positive inclination towards the programme, a working group was created to see how a development could be planned in a responsible way. The Werkgroep Wateropgave Westgouwe (3W) consists of representatives from the Ministry of Spatial planning, Ministry of Waterways, province, water board and Gouda municipality and organised three 'think tank' sessions. However, some people felt that local constructors are pushing too much for housing development, not paying sufficient attention to flooding risks, and that the municipality applies short term thinking to water risks that may become apparent only on the long terms scale. The issue remains high on the agenda.

According to some experts, this case shows the need for a broader discussion on flood risks and impacts. At the moment, decisions on flood risks are taken quietly. For example, flood protection works and drainage capacity in the economic heartland of Zuid Holland (where Gouda is located) are being designed on the basis of return periods of floods of once in 10,000 years. In the less densely populated and economically less important Meuse the design return periods may only be once in 250 years. Some make a call for more transparent decision making and information provision on flood risks and the impacts of those. Then citizens themselves can decide whether they want to live in such areas and bear the risks themselves.

3.3.3 City level actions

In cities we find similar problems as in the polders. Indeed, cities are often located within polders. Yet, urban areas deserve a special mention here, as a number of cities have taken innovative measures in balancing the need to create space for water with other land uses. They do this by capitalizing on the amenity value of water. People like living by water (or by the ice in winter days) as it enhances the attractiveness of the living environment and they are willing to pay it. Geldof (2004) notes that water solutions can score 'extra points' if they are connected with other areas of intervention like amenity improvements. Also Lems and Valkman (2003) find that water is moving away from being seen as an unfortunate 'condition' towards an opportunity with a high amenity value. Capitalizing on this amenity value can make necessary measures such as the building of retention areas more acceptable. In The Hague, for example, the old inner city harbour area was opened up to create retention capacity. This was combined with restoring the impoverished harbour neighbourhood, creating better value for land use in that area and higher acceptability of the works within the community.

Similarly, the cultural identify of many towns is clearly linked to water. Several Water Plans emphasise water as part of the city's history and its shaping of current identity, proposing measures accordingly such as reinstating old watercourses, sluice-gates and forts. This helps make water measures more acceptable, stop the not-in-my-backyard thinking, and also promotes tourism and recreation. Dordrecht is such an old city (see Box 10) which uses water to reconnect with its past and to stress and upgrade its urban allure.

Box 10: Water strengthens identity in Dordrecht

In the city of Dordrecht, located on a reclaimed island to the south of Rotterdam, history matters. The 1421 ‘Elizabeth’ flood inundated the whole island except for the historic inner city and some isolated neighbourhoods between the dikes. Currently Dordrecht is a city of 120,000 people and growing.

Like Venlo, Dordrecht, has the image for many of a not-so-well-off town. A key component of its Water Plan is to enhance spatial quality and strengthen neighbourhoods’ identity, so as to attract well-to-do residents and companies or perhaps stop them from leaving.

The Water Plan categorises 17 areas, which then served as the mould for interventions at neighbourhood level. First of all, more water storage space was created. In the harbour area in the inner city, there was hardly any space to make changes. But in the Krispijn area, built in the 1920s and 30s, there was already a canal structure which was used as a starting point for developing storage in the older areas. Highly visible storage has been realised in many areas through green zones and retention basins. Water was also routed along old dikes to highlight these structures. Outside the urban area, creeks and ditches are being rehabilitated in their old meandering status which leads to more stable drainage. Through these actions, the Water Plan reconnects Dordrecht’s citizens with an element they had taken for granted and they now have more opportunities to enjoy the scenery, for example riding on a water bus.

Residents will also be able to enjoy the regenerated nearby wetland of the Biesbosch. Two areas of the Biesbosch wetland that are outside the dikes are now a National Park. The Water Plan included those areas and aims to reinforce or bring back the old structure of creeks.

However, re-linking cities and towns involving water and people’s identity needs communication and information. Media-friendly, enjoyable events have helped in raising awareness and improving communication about water. Water fairs, playgrounds, and cultural water events have been enjoyed and elicited positive suggestions from stakeholders who were happy to be ‘water plan ambassadors’ themselves. Stakeholders include not just citizens but other interest groups as well, such as the private sector and public officials at different levels.

4 Scratching the surface or improving local water governance?

Whereas the previous chapter analysed practical examples of IWRM at the local level in the Rhine basin, this chapter will look into some of the undercurrents, i.e. the processes and mechanisms that affect local water governance. The central question is whether such local actions are only scratching the surface of water management, or whether they do address deeper governance issues and lead to more structural improvements?

As mentioned in section 1.3, the framework introduced by Smits and Butterworth (2006) was followed. Accordingly, the chapter examines the relations between local government and:

- other government entities
- citizens/ civil society
- the private sector

In examining each of these sets of relations, we will look at cross-cutting principles of governance such as mandates, accountability, enforcement, power and politics. Some of these principles appear to be more important and relevant in some of these relations than in others. While doing the analysis, capacity and knowledge of local government emerged as another key issue impacting upon local water governance and specific attention is also given to that.

4.1 Government: Searching for cooperative governance

A first key concern in improved water governance is promoting coordination and cooperation between different levels and parts of government. The way in which these support, complement and control each other is captured under the name of *co-operative governance*..

Water boards and municipalities in the Netherlands have traditionally minded their own business. However, the changing relations between different planning instruments (section 2.3) has created the need to work together. Some senior government staff still find this a bewildering development. However, at operational level, many staff do see the sense in coordinating actions and seeking joint benefits. Most municipal Water Plans described in this document are joint plans between a municipality, one or more water boards, and in many cases also a water supply company. It is often the first time they have worked together in a structured way. But other examples of cooperative governance have been found in this review such as collaboration between different municipalities. Some examples include:

- Five years ago, the municipality of Helmond used to draw up spatial plans that were then examined for compatibility with regional plans by the province. Now, both parties draw up their plans together. They recognise that there are benefits in coordination and cooperation, necessary to achieve the good governance principle of ‘no appreciable harm’ i.e. that actions to overcome a water problem in a certain municipality or water board do not cause any significant impact on water management in the neighbouring municipality or water board area.
- In Dordrecht, the city and the water board perceived water challenges as an opportunity to carry out their management tasks more efficiently, seeing clear complementarities between interests: the Water board is responsible for ensuring ‘dry feet’ and water storage while the

municipality has land where water can be stored. The water board has also taken up a considerable share of the bill for the Water Plan.

- While municipalities usually draw up plans within their own administrative area, four municipalities in similar hydrological situations in the hilly Utrechtse Heuvelrug area (Driebergen, Amerongen, Leersum and Doorn) started a joint Water Plan for de-coupling stormwater and cleaning up water bodies. The idea was to co-ordinate the different municipal agencies, provincial government, water boards and drinking water utility.
- Amsterdam which has taken the institutional dimension of integration further than others. Waternet, is the result of a merger of the drinking water supply company and the local water board. It is jointly managed by the municipality of Amsterdam and the water board. As a whole they now take care for the entire water cycle: drinking water, wastewater and ground-water and surface water management.

These cases show that within the current institutional framework, one can move towards more integrated water management without needing to completely change mandates. Rather, matches can be found within the mandates of each of the actors by “just” improved coordination and joint planning. The flip side of the focus on coordination and cooperation however is a maze of tedious and slow planning procedures (see section 2.3) that often kill local initiatives.

Another way, in which current mandates are evolving is through looking across borders. Municipalities realise that the actions they undertake within their areas have impacts outside their municipal borders. Equally they are affected by the actions of others. Therefore they see the need to find common ground with neighbouring municipalities at regional level. These relations may, at least initially, be less than amicable. The villages of Ubbergen and Millingen still remember the last flood of 1995 when the mayor of neighbouring Nijmegen reportedly seriously considered flooding the Ooij polder in which those villages are located. As we saw in section 3.2 some local authorities even look across the country’s borders.

The changes in terms of cooperation across different levels of government is less clear. The reactions of municipalities to the national “space for the rivers” plans show that not all municipalities are happy to cooperate. Some are also just dragging their feet so as not to have to implement national policies. On the other hand, national authorities are now taking a less top-down approach and are creating the space for dialogue and cooperation between municipalities. Also WB21, as a document accepted by authorities from all levels, has helped to create cooperative governance across levels, at least on paper.

4.2 Civil Society: Public participation

Public participation in water management has recently received a new impetus. On the one hand, this has been started by local government involving citizens in drawing up municipal Water Plans as required in the EU WFD. On the other, citizens themselves have started exercising their right to have their voices heard in (angry) reaction to government plans, such as ‘Space for the River’.

We already saw that effective participation can take the form of mere protest and confrontational engagement, as also illustrated by the following examples:

- A famous victory was scored in 2005 by the inhabitants of the Ooij Polder against its designation as a controlled flooding area in really extreme events. The action committee (the High Water Platform) mounted a so-called ‘knowledge guerrilla’. They invited professional

engineers and lawyers to (voluntarily) tackle some of the technical arguments for controlled flooding, they invited all political parties for tours around the area, and they developed a professional web site (www.hoogwaterplatform.nl) with visualisation of the effects of controlled flooding in their area.

- In Groningen and Apeldoorn, angry farmers occupied the water board's office and threatened the board's director should the planned water project in their town go ahead.

Sometimes, local authorities have followed citizens in this confrontational approach towards higher authorities. In tightly knit communities where there are strong interpersonal links, municipalities find it hard to go against public opinion. Faced with a central government initiative for controlled flooding to ease the peaks of extreme flood events, the mayor of Ubbergen (near Nijmegen) summed up the dilemma: *'I know that something needs to be done, but hey, I'm also a mayor, and this just will not be accepted here'*.

However, rather than a not-in-my-backyard (NIMBY) reaction vetoing anything affecting their own areas, in some cases citizens have come up with surprising creativity and shown persistence. This is illustrated in the case of the Overdiepse Polder (Box 11).

Box 11: Overdiep: Water in our backyards? We'll move the backyard

Under the local chestnut tree, two farmers of the Overdiepse Polder situated along the Meuse invented the idea to relocate their farm houses on artificial mounds that serve as refuge areas. The objectives of their plan are to both meet the national policy goal of creating more room for the river and to safeguard the long-term future for their farms.

The Overdiepse Polder was reclaimed and settled only some 25 years ago. When the farmers in this closed community received the first word of 'Space for the Rivers' they took the initiative to discuss how to redefine their polder as a retention area, and yet continue their farming activities. In their plan, the polder would have an inundation frequency of once in 25 years but with limited damage to farming operations. The farmers founded a residents association to carry out their 'mounds plan'. This way, they hope to accelerate the decision-making process. "If something has to be done" they told the river managers, "then quickly, and on our terms and conditions".

One of the problems was that the plan proposed by the farmers became part of the national spatial planning procedure, a national decision-making process that ends with deliberations in the national parliament. That was not what the farmers of the Overdiepse Polder had in mind. They did not like to be confronted with drawn-out and opaque procedures that would have an uncertain outcome. They wanted quick decision-making, implementation in the short term, and above all, no uncertainty on whether the plan would be realised or not. In solution, the Overdiepse Polder won the special status of 'front runner project' that put it outside the cumbersome national planning procedure.

The case in Overdiep shows the importance of realising that if the commitment to participation is serious, authorities need to actually listen to citizen's initiatives and act upon them. If not, credibility and accountability of the authorities come under threat. This is happening to some extent with a citizen's initiative in Lent, a village located in a bottleneck of the Waal (Box 12).

Box 12: Setting aside land for dikes in Lent

When the village of Lent was annexed by the municipality of Nijmegen in 1998 it had a population of 3200. The city of Nijmegen, located on the other bank of the river, had its eyes set on Lent to build housing for a further 12,000 people across the river. However, Nijmegen/Lent happen to be located on the narrowest part of the river and widening this bottleneck was a priority in flood mitigation. This gave rise to a plan to relocate the northern river dike in order to make more room for the river.

The dike relocation plan was initiated by a commission set up by the *Rijkswaterstaat*. Moving the dike by 350 m would have required the demolition of 55 houses and farms. After initial rejection, the municipality helped to improve the plan to include a waterfront on the new dike, natural areas between the new and old dikes, improvements in recreation facilities and a guarantee that housing on the old dike area will be spared. The village however would be completely lost.

Following the procedures for public participation, the project was confronted with opposition. The inhabitants of the village were represented by diverse groups like the village council, inhabitants of the newly built suburb and the centre of the village, entrepreneurs, and historical clubs. The main argument of the inhabitants was that they didn't see the need for dike relocation and the demolition of a characteristic part of the village. The representatives of the inhabitants, who were organized as an official advisory group for the project organization, developed an alternative plan including setting aside land for possible future dike relocation and a parallel channel creating space for the river.

The councillors had a difficult time. On the one hand, being accountable to the community, they tried to support the communities' plan. On the other hand, they were also being pressured by policies of national government which was dike relocation. This led to confusion, a lack of credibility and problems of accountability.

Public participation does not mean, though, taking ideas from citizens only. Rather, it is a process of bringing together various ideas, from different angles, from authorities, private sector, citizens and even the same municipal organisation. This requires a differential approach to communication with those groups, as shown in the case of Arnhem. There different groups provide different inputs into the water plan, depending on their interest and expertise.

Box 13: Arnhem - differentiated target groups approach

The city of Arnhem realised that when talking to stakeholders, a one-size-fits-all approach might not work. In developing its water plan, different sessions were held with the main actors:

- The first session aimed at informing the municipality (the various municipal departments such as Urban Development, Urban Management and Social Development) making a problem analysis and inventory of potential solutions.
- The second session was specifically aimed at representatives of other governmental bodies such as the provincial government, the water boards, the national Ministry of Housing, Spatial Planning and Environment, the national authority for nature, and nature conservation organisations. The objective of this session was to get clarity on relevant policies of the various departments and to brainstorm about different development opportunities.
- A third session was especially organised for enterprises in the area who presented their plans and discussed them.

- The fourth session was directed at landscape architects, ecologists and urban planning departments of various governmental bodies going in more detail into spatial planning frameworks and options.
- The fifth, and last, session was organised for inhabitants and politicians. According to the administrators, this working method was highly effective in defining the problem and making an outline of the directions for development of the riverfront.

4.3 Private sector: It's the economy, stupid!

Local authorities have a role to play in protecting their citizens against floods and maintaining a healthy aquatic environment. Yet, implementing a Water Plan may carry a hefty bill, and may not generate any short-term cash returns. In addition, it may open a can of worms in terms of the relations with citizens as we have seen above. Of course, local authorities are obliged to improve water management by national and European policies. Yet, don't financial and economic considerations come into play as well? And in the end, who pays the bill?

To start with the second question, the answer differs from case to case. Sometimes, the bill is paid relatively easily. In the case of de-coupling of stormwater and wastewater, investing in separating clean from dirty water can lead to savings in future investment in wastewater treatment capacity (for example in Dordrecht). In other cases, water boards and municipalities expect economic efficiencies from streamlining their policies and meeting complementary needs. Water utility companies are also interested in paying part of the bill when improved water resources management may allow them to guarantee their supplies for the future. Finally, implementing a Water Plan may attract additional funding such as compensation funds from elsewhere or from one of the many subsidy streams, as shown by the case of Ubbergen (Box 14).

Box 14: Creativity to attract subsidies in Ubbergen

A water plan can be daunting, with a potentially crippling cost for a small municipality, despite its potential to attract investment or subsidies. In Ubbergen the original water plan would have cost € 6 million. The original consultant found that by making the project bigger (€ 8-9 million rather than 6 million), they would be able to get up to half the project subsidized. However, the municipality warned that if they exceeded the budget by 10%, the municipality would go bankrupt. The new consultant developed a new funding structure from these starting points.

An ecologist had noted that that in the open agricultural space between Beek and Ubebrgen, fish passages had disappeared. He then interested the provincial authorities and people from the Ministry of Agriculture, Nature and Fisheries, so as to attract various kinds of subsidies to reinstate them. This resulted ultimately in a 'subsidy tree' with an elaborate design of flows of subsidies.

In the end, funding for this programme was found from a wide range of sources. Unfortunately many subsidies were ring-fenced: money for combating desiccation cannot be used for high water relieve and funding for de-coupling of stormwater could not be used for creating new natural values.

‘The funders have given me such a hard time! Thing is, we had stretched the limits of the subsidy rules. For example, we had redesigned a parking lot in such a way that rain water was collected into a single drain and infiltrated into the soil. You can get subsidies for infiltrating water (anti-desiccation policy) but redesigning a parking lot is traffic policy. The Ministry of Agriculture said they were not going to fund a parking lot. This rigidity was hard to overcome. You can stack some subsidies on top of others but not in all cases. We solved this by economising enormously and created ‘free space’ with money saved, part of it used in a highly transparent way, part of it, well, not so transparent. When they found out we did this, there had already been some high-profile events with politicians. They were not going to bother us about it at that point, because worse than overspending your budget is underspending it’.

Finally, a total of €3.5 million was raised, of which €1.4 came from the municipality. Subsidies for the remainder came from the Province, national government, the European Union, the water board and the water supply company (van Dijck, 2003) as shown in Figure 7 (the various abbreviations indicate various subsidy-flows).

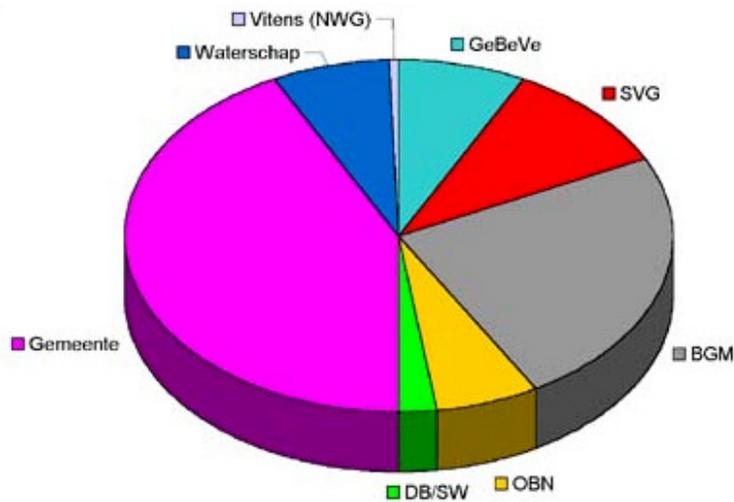


Figure 7: Financial contributions to Water Werkt! (Source: www.waterwerkt.nl)

However, not all water plans are money spinners. Many water interventions require long term investments with no immediate benefits. Decision makers at local government are elected for a 4 year period and therefore are often more interested in short-term gains than less visible long-term investments. Or, alternatively put, as we saw in the case of housing development, municipalities prefer short term benefits and don't properly consider the long term risks and associated costs.

Municipalities are often pressurised in such respects by the local private sector, notably the construction sector and land developers. In order to pursue their interests, they use the power that they have available, such as threatening to withhold funding, employment and co-operation to municipalities, and if need be with the help of the local press. As the construction sector is often of local economic importance, it is hard for municipalities to resist proposed housing and development schemes (see the case of Westergouwe in section 3.3). Back-room deals may be made between local authorities and private developers. Bribery and corruption are mentioned even though hard evidence for that does not exist.

Municipalities do have tools and powers to stop developments, as claimed by a councillor in Box 15.

Box 15: “Tiel needs to wrest power back from developers”

How can a municipality make sure things get built the way it wants? Councillor Schrijvers (Spatial Planning) of Tiel thinks there is plenty of scope for that, and he is going to use it too. “It may sound a bit crude”, he says, “but at least it’s clear”. The Councillor wants the municipality to take the power back from the construction sector. “I am not going to talk the usual euphemistic jargon about ‘directorship’. Tiel’s land use policy needs to be totally overturned. Municipalities have sufficient instruments such as regional plans, tax and expropriation, to decide what is going to be built within its territory”.

Source: *De Gelderlander* regional newspaper 19 April 2003

It is not always as bad as the picture painted in Tiel. The local private sector in other cases have actually combined their own interests with the general interest of creating space for the rivers. They are often a source of creativity and innovation (see Box 16). In many cases, it has been local entrepreneurs that have been promoting the combination of creating space for water and capitalizing on the amenity value of water such as through the development of tourism and recreation.

Box 16: A private initiative meeting different interests in Druten

Druten is a rural village located on the south bank of the river Waal. Going from the river to the village, you first encounter a sandy levee where industries are situated, only some of which are river-dependent. Then the lower floodplain follows with clay soils, and the dike and the village behind it.

In 2002, the local industries started an initiative to meet the objective of creating room for the river, combined with urban, economic and nature development. The plan consists of the extension of the area allocated for enterprises with river-related activities, replacement of the dockyard, construction of a new harbour, an opportunity to build floating houses⁵ and a village-front facing the river, nature development and excavation of the floodplain, sand extraction, nature development and realising a parallel channel. Three different scenarios to accommodate all these ideas have been developed and are now being discussed with all parties concerned.

4.4 Seeking knowledge, from consultants and citizens

A key constraint for local authorities is their limited staff capacity (knowledge, skills and number of staff) in water. Generally speaking, water know-how and capacity at national level is high, medium at provincial level and low at local authority level especially in the smaller municipalities. Most municipalities do not have a water department, although water is a cross cutting issue in most of their work. This means that a small municipality is unlikely to have an official with a strong background in water management. Municipalities often rely heavily upon

⁵ In thinking about living with water, constructors have developed floating houses, i.e. houses that would start floating in a controlled manner when water levels rise.

external expertise. The main skill which is lacking at the Municipal level is the skill to work at higher levels of scale and analyse impacts outside the direct boundaries of a municipality, and consider effects at longer terms.

For that reason, municipalities and water boards increasingly rely on consultants for various aspects of their responsibilities:

- After the 1995 (near) floods, a number of emergency measures were taken under the responsibility of water boards. Due to the daunting scale of the works, they promptly contracted much out to consultancy companies. These carried out the work and in some cases negotiated directly with stakeholders where they wanted the dikes.
- Facilitation of participatory processes. Especially in spatial planning, there is often need for an entity which is seen as neutral, and can bring together ideas and interests of different stakeholder groups. Consultants often can fulfil this task for municipalities.
- Developing water plans.

Although the quality of the work of the consultancy companies seems very good (e.g. the water plans developed by consultancies are amongst the most exciting ones), there are risks attached to the reliance on consultants. In the first place, it may result in insufficient institutionalisation of water expertise within the municipalities. Secondly, it may undermine the legitimacy of the municipality as the authority responsible for planning and engaging with communities.

Municipalities are also aware that citizens have a lot of knowledge. This is witnessed in the innovations brought forward in cases where the community participate, such as the Overdiepse Polder and Lent (see previous section). There is a realisation that participation is not just a formality that has to be complied with, or a mechanism to create buy-in from citizens. Rather, it is a way of bringing together various sources of information for innovation and improved decision-making. The flip side is that some individuals of groups may dominate participatory processes while leaving other voices out. A structured approach needs to be followed, for example through establishment of focus groups.

Box 17: Mr A., the Muppets and Black Stef

Marnix de Vries, consultant for the Ubbergen plan (see section 3.3) says “On 1 December 1999 we had an inception meeting, combined with a lottery (people living on the hill could win a rain barrel) to promote decoupling rainwater discharge from the sewerage system. In Ubbergen, richer people live on higher ground than poorer citizens. Rain barrels have become hopelessly outdated in Dutch households, and when people living lower down heard about it, it almost sparked a riot: a rain barrel lottery for the rich? The people living down hill were the ones who frequently had to cope with water in their cellars”. It was necessary to involve people from the lower neighbourhoods as well. When the consultant socialised his approach he immediately got a protest letter from a Mr A., who was dead against it. “When I talked to the butcher and the music shop owner, I learned Mr A. was a very difficult character, and that they themselves liked the plan. That gave me some courage, so I went to make an appointment with him. It turned out he had enormous historical knowledge, he had maps showing where water used to flow. I talked with him for two hours and said: I am going to form a focus group with knowledgeable citizens, you’ll agree that you are totally inadequate to be in it, but I’d like you to be my advisor so I can benefit from your in-depth knowledge. He agreed!”

We saw in Ubbergen that citizens, especially elderly professionals have a wealth of technical or historical knowledge that can be tapped if they are willing to be panellists in a focus group. There was a steering group and a focus group. The president of the steering group was a local politician of 32 years' standing who was also the president of the local carnival club (and hence well embedded in the local community). "We had diehards, such as politicians, but we also made sure other voices were being heard, such as the cooperative bank and the 'informal mayor'. In the focus group, which always met before the steering group, we also had some colourful characters: a group of quite senior citizens who could help us draw a map showing where watercourses used to be.

There were also two notorious curmudgeons, nicknamed 'Muppets' (after Waldorf and Astoria from The Muppet Show series). They came up with all kinds of worries, such as the potential for rat infestation and malaria. Asking them for their opinion first almost became a communication trick, because as soon as they came forward, other notorious community leaders, one of them nicknamed Black Stef, age 80, would come up with counter-arguments, so actually favouring the initiative.

Despite these efforts, in the evaluation of the process, citizens voiced complaints that technical suggestions from citizens were not always heard and taken seriously. The 'professional' steering group seemed to underestimate the technical knowledge of the 'amateur' focus group.

A lesson from Ubbergen is that people *are* curious and eager: if you ask them what they would like to see in their neighbourhoods, they will easily be activated, especially the very old and the very young. But, it is important to approach different sub-groups in the community separately.

In seeking knowledge from citizens, a learning approach is often needed in which no pre-cooked plan is presented as a *fait accompli*. Rather, a joint planning process from scratch can elicit the most creative ideas. In Nijmegen (Box 18) we see how the city worked in a makeshift learning alliance with its citizens.

Box 18: Nijmegen and starting from scratch

In Nijmegen in 1997, the National Directorate-General for Public Works and Water Management, drinking water companies, water boards, and the Province of Gelderland conducted a workshop to develop a Water Plan. Representatives of farmers, industries, environmental groups, citizens groups, public authorities, research organisations, public representatives and the project partners attended the workshop. The planning process expressly started without a plan and residents were asked to draw up their own designs.

From the start, it was decided to have an interrelated planning and implementation process. The Nijmegen water plan mainly pertains to parts of the *existing* town and participants were aware that the planning process would not be a straightforward process of thinking, reporting, deciding and implementing. It was clear that a learning process was needed using experiences from pilot projects to reduce *uncertainties* about effectiveness and about public support in carrying out measures.

The idea was to improve the degree of contrast and diversity in public design, stormwater management, the historic character of Nijmegen and green spaces. In 2000 the water plan was

finalised and in 2001 it was ratified by the council. That year, the municipality of Nijmegen and all its 'water partners' also jointly established a service window where citizens can go for all their water queries

However, not all planning processes are as open and transparent as the examples above. Not always is all knowledge properly taken into account. Especially around flood management measures, there is a feeling that risks are not sufficiently made explicit and considered in a transparent way in planning. This sometimes comes back to the role of the private sector (see section 4.3) but often also to the functioning of local authorities. They often take decisions on the basis of short term concerns as their planning horizon is only 4 years. Flood management is typically an issue that needs to be addressed at larger time horizons. Some people call for a stronger role from provinces and even national authorities to make sure that a long term horizon is adequately considered in planning. This requires that open and transparent information sharing takes place.

5 Conclusions

The Netherlands prides itself on having been able to live with water for many generations. However, the love-hate affair of the Dutch and their water is entering a new era. Old recipes for old problems such as river floods and stormwater drainage in isolation no longer hold. New, more integrated, approaches are needed to deal with these challenges. This report aimed to help contribute to the search for these approaches and their effective implementation. In conclusion, we see a dynamic response to these challenges characterised by:

- Diverse local actions and initiatives
- More cooperative governance
- Changes in patterns of public participation and an increase in intensity

We all see some further challenges emerging. Local authorities have limited capacities that need to be addressed, and they are also vulnerable to, the not always positive, influence of the local private sector.

At the local level, especially in areas affected by the floods, there has been widespread agreement that action needed to be taken (but preferably not in their backyards). Increasingly, local stakeholders are working together to come up with innovative ways to deal with problems, as shown for example in the cases of Overdiep or Venlo. This does not always happen without pain. De-coupling of stormwater and wastewater can improve water quality and reduce wastewater treatment costs, but investment costs for a municipality are high, even if these can be covered by different subsidy mechanisms, such as in Beek and Ubbergen. Flood and stormwater management often come down to the fact that expensive land needs to be set aside for water. The case of Gouda shows that the pressure to develop that land for other purposes, especially housing, often turns out to be too high. On the other hand, there are new ways of living with water, especially by capitalizing on the amenity value of water, and by combining creating space for water with tourism and recreation. The creation of retention areas within cities (Dordrecht), or developing “natural” floodplains (Venlo) provide good examples of that. By creatively combining water issue with issues outside the direct domain of water, the acceptance of these interventions by the citizens and local authorities can increase.

Cooperative governance is starting to gain momentum, especially at local level. Municipalities and water boards are increasingly aware of the need to coordinate their planning instruments and are now developing joint water plans. If we look at the substance of these water plans, perhaps ‘IWRM’ is a big word. Some water plans, it is fair to say, display a degree of tokenism or ‘cosmetic’ improvements that bring easy wins. In addition, there are concerns that this is just another plan in the already big maze of planning instruments. Still, first steps have been taken. Across levels, there is also some progress towards cooperative governance. National authorities realise that it is better to work with local authorities than to fight them. Some local authorities have also shown openness towards proactive engagement with national agencies.

The increasing awareness among citizens and local governments alike that water problems need to be tackled more drastically, has sparked changes in the way in which public participation is happening. In some cases, angry citizens look for a path of confrontation and oppose pre-cooked government plans. But, in many cases they have shown willingness to negotiate or even pro-active engage with authorities. Innovative and creative ideas have been put forward by citizen

groups, Overdiep probably being one of the most exciting ones. Authorities need to take these reactions seriously in order to maintain credibility and accountability. The case of Lent shows that if citizens are not taken serious, it may backfire upon local politicians.

Creative ways of dealing with water problems in their municipalities is not the only direct benefit that local authorities can derive from engaging in IWRM. There may also financial benefits to be gained, such as the reduced need to develop wastewater treatment facilities, or the attracting of subsidies. However, not all IWRM plans provide win-win solutions. The most difficult trade-offs are between short term investment costs and reduction in long term risks. This applies in particular to the balance between setting aside land for water retention and storage to reduce floods and using that land for other purposes such as housing. Local authorities often struggle in making transparent decisions on this issue. They may well be pressurised by the local private sector which has a lot of power behind the scenes.

Another limitation in the role of local authorities in IWRM is their lack of capacity. Only a few of the larger municipalities have skilled dedicated staff working on water related issues. Increasingly, local authorities rely on consultants for their work in water. But, through participatory processes, they have also realised the potential of knowledge of citizens and may try to mobilize this through interactive planning.

The wake-up calls of near floods, flash floods and water quality crises have had their effect. Citizens and local authorities alike have started following a more integrated approach to water resources management. This has lead to some initial changes in local water governance, even without major structural institutional changes or policy reforms. This shows that local interests in water management can induce change, but that an enabling environment is needed to ensure that those dynamics can take place.

6 References

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