Water Management and Spatial Planning in the Netherlands

The Netherlands is a country in a delta, dominated by the sea and the mouths of four major European rivers: the Rhine, Meuse, Scheldt and Ems. Twenty-six per cent of the country lies below sea level and, without the protective dunes and dikes, 66% would be flooded regularly. The delta is very urbanised and has a high population density, which in large parts of the west and south of the country exceeds 200 inhabitants per square kilometre.

In such an urbanised delta it is important to take water into account when deciding on spatial development. This is indeed one of the challenges of recent Dutch water management policy: the policy focuses on allocating more space for water (for example, by widening the rivers) and on safeguarding the space available for water from the encroachment of further urbanisation.

In 2001, an important policy instrument — water assessment — was introduced to implement the new water management policy. This instrument is meant to guarantee that the interests of water are explicitly and in a balanced way taken into account in spatial plans. In short, it entails from the outset actively engaging water authorities in the development of spatial plans.

This brochure describes the organisation of the Dutch water management, the challenge of water management in the Netherlands and the Dutch watermanagement policy, including Water Assessment as one of the instruments.

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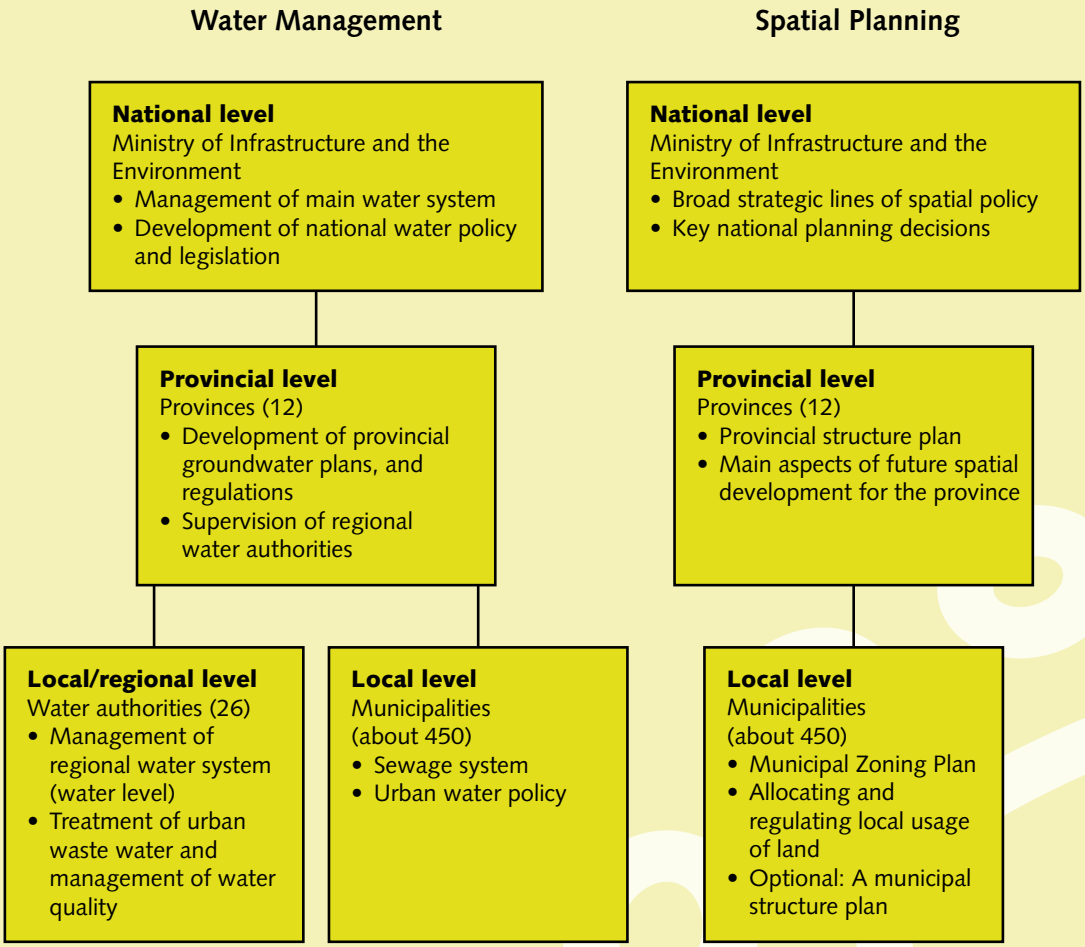
The organisation

The figure on this page provides an overview of Dutch water management and the spatial planning system.



Water Management

The responsibility for Dutch water management is divided between the National Water Authority and the Regional Water Authorities. The coastal zone with its estuaries, and the major rivers, like the Rhine and the Meuse, are part of the control area of the National Water Authority (Rijkswaterstaat), which is one of the agencies of the Ministry of Infrastructure and the Environment. All other water is called 'the regional water system'. This regional water system, is actually controlled by 26 regional water authorities, but they are decreasing in number,

Water management includes flood control, water quantity management, and water quality management. Flood control is meant to keep dikes, dams, and dunes in good condition. Water quantity management includes water level management, for which often pumping stations are needed. Water quality management includes waste water treatment and monitoring water releases, and is meant to meet ecological en water quality standards, required for recreation, agriculture etc.

Provinces are responsible for groundwater management and municipalities are responsible for sewage systems and stormwater facilities. Drinking water supply is in the hand of private companies, indirectly controlled by municipalities and provinces, who are shareholders. Strategic water policy is made by the Government and by the provinces.

Spatial Planning

In 2010 the ministry of Housing, Spatial Planning and the Environment has merged with the Ministry of Transport, Public Works and Water Management tot form the Ministry of Infrastructure and the Environment. So the responsibility over water management and spatial planning actually is united within one ministry. Within the ministry the Directorate General for Spatial Planning is responsible for the national strategy on allocation of land and water resources for sustainable economic and social development. Areas and networks of national significance for the economic and social development are set out in the National Spatial Structure.

One of the key responsibilities of the Ministry of Infrastructure and Environment is preparing and coordinating national policy and strategies on spatial planning. This responsibility includes ensuring the implementation of EU legislation in national regulations.

In carrying out these tasks and responsibilities, the Ministry works closely with other ministries, provincial and municipal authorities, the private sector, research organisations, and the general public. This is in line with the long tradition in the Netherlands of consultation and cooperation between government bodies, citizens and civil society organisations. Consensus is a vital element in the political culture of decision-making.

The challenge

The incidents

Several incidents that occurred during the 1990s illustrate the growing constraints in Dutch water management. In 1993 and 1995, the rivers were abnormally high and threatened to over-top or breach the embankments. Thousands of people living in the hinterland had to be evacuated from their low-lying homes as a precautionary measure. In 1998, inhabitants and farmers suffered water logging after prolonged heavy rainfall. In the 1990s the Netherlands also experienced several summers with unusually low precipitation. The cumulative result of these experiences led the Ministry of Transport, Public Works and Water Management to conclude that the events of this decade cannot be considered as isolated occurrences and that water management in The Netherlands seemed to suffer under structural problems.

The causes

The problems are due to the way in which water management is given shape. Over the centuries, a complex and technical infrastructure has evolved, consisting of embankments, river regulation and pumping stations to drain polders. The total water surface has been cut back and the width of river beds has been reduced. The natural dynamics of the water system has been reduced. Human intervention has reduced the resilience of the water system and made it susceptible to increasing urbanisation and climate change.

Urbanisation

Ongoing urbanisation has had, and still has its effects on water management. In built-up areas, water cannot infiltrate in the soil, so any storm runoff is discharged very rapidly, due to the lack of retaining capacity of these areas, causing rapidly increasing water levels. In case of large scale urbanisation water systems need to be redesigned, which is not always put into practice. Furthermore some of these new urbanisations have been developed in areas susceptible to water logging or have been developed in the major bed of rivers. And finally within urban areas the availability of water storage capacity is often insufficiently taken into account in urban restructuring programmes.

Climate change

Climate change aggravates this situation. In winter the river discharges can be expected to rise. Furthermore the total amount of rainfall, but especially the intensity of showers is increasing. And finally the sea level is rising.

The policy

The change

In 2000, the government acknowledged the need for a change in water management and outlined a new approach, adding (new) spatial measures to (standard) technological measures. The rationale given for the inclusion of spatial measures was that sole reliance on technological measures had reached its limits, leaving us with a delta in which the natural characteristics had largely disappeared. Spatial measures would focus on measures like the widening the flood-plains and constructing water-storage areas.

The new approach

The new approach to water management has major implications for spatial planning, so it has been incorporated in the National Spatial Strategy under the slogan of "going with and anticipating the flow". In general, the strategy underlines the need to consider water as an important structuring principle for spatial planning. This means that spatial choices need to be considered explicitly in the light of the characteristics of water systems.

The principles

The new policy is based on four principles:

1. The space that has already been allocated to water, and that is crucial for the water system, must be kept. Where necessary, extra space for water needs to be created. Necessity may for example be brought about by the need of protection against flooding: available space along the major rivers and the coast may be reserved for dike reinforcement.
2. Application of a three-step strategy: retaining, storing and draining. The strategy entails retaining precipitation as long as possible in the area where it falls, but when this is no longer possible, storing the water temporarily in areas created for this purpose. Excess water is drained only when these options have been used to their full potential. The three-step strategy is to prevent or reduce water surpluses or water shortages affecting adjacent areas.
3. The application of a three-step strategy for water quality: preventing, segregating and purifying. This strategy entails zoning and designing space and using it in such a way that groundwater and surface water will not be polluted. If this fails, unpolluted and polluted watercourses will be segregated. The last stage requires purification and decontamination.
4. Any adverse influences on the water system from spatial interventions will be compensated for, with the aim of achieving a situation in which it is possible to prevent or reduce problems in groundwater and surface water overflowing to the surrounding areas.

Since its introduction this new policy has been extended with numerous additional themes, which will not be elaborated upon.

Water Assessment as an important instrument

The history

The new policy was supported by the introduction of a new instrument. In 2001 Dutch water autorities agreed on the implementation of the instrument of Water Assessment on all spatial plans and spatial decisions relevant to water.

As of November 2003 Water Assessment has become obligatory for formal spatial plans, such as municipal zoning plans, integration plans en project decisions. For these plans one is obliged to timely consult the water authorities and to formulate a water-paragraph.

Also for non-formal plans

In addition, national an regional public authorities agreed on application of the instrument of Water Assesment to all other non-formal spatial plans and decisions relevant to water, such as spatial perspectives and landscape plans. Thus Water Assessment is applied to all scales of spatial planning, from national to local, and to all sorts of plans: urbanisation, industrial areas, infrastructure, landscape planning etc. A building permit itself may not be subject to Water Assesment, if the water interests have been sufficiently covered in the Water Assesment of the higher-level plan -for example the municipal land-use plan.

The objectives

The objectives of Water Assesment are to guarantee that water interests are taken into account in spatial and land use planning, so that negative effects on the water system are prevented or compensated for elsewhere.

This integration of water in spatial planning works in two ways: a plan is assessed on its implications for the water system and the restraints that the water system puts on land use are made explicit.

The evaluations

Evaluations of the instrument of Water Assessment in 2003 and 2006 indicate it is most effective at the level of zoning plans and development plans. However, the Water Assessment was originally intended to help incorporate water management in a more effective way at a strategic planning level, where location decisions are made on the location of f.e. new urbanisation.

In 2011 a new evaluation will be conducted. This evaluation will specifically address the question of how Water Assessment takes shape in strategic spatial planning projects and whether spatial water issues, that form part of these projects, receive due attention.

The process

Water Assessment is not meant to be a new tool or procedure, but to form part of the process of interaction in existing spatial planning procedures. When Environmental Impact Assessment or Strategic Environmental Assessment (as prescribed by the EU) take place as well, both assessments provide each other with information.

The actors

In the process of Water Assessment there are two formal actors: the spatial planning authority and the water authority. In the case of the municipal zoning plan, the municipality is the spatial planning authority. If the impact on water crosses existing boundaries between water authorities or if the plan affects both surface water and groundwater, more than one water authority may be involved.

The phases

1. *The initial phase ➔ Agreement on water assessment criteria and cooperation during the planning process*

   In the initial phase, which starts as soon as the ideas about the plan start developing, the spatial planning authority takes the initiative to inform the water authority. The water authority provides information about the water system and about the priorities in water management for that specific area. Together they define the criteria for water, which the urban and landscape designers and architects have to take into consideration.

   The result of this initial phase is an agreement on the assessment criteria and the further process to be followed.

2. *The developing phase ➔ Water Recommendation*

   In this phase the water authority and the spatial planning authority work interactively and creatively together on the design of the plan. The resulting draft plan is formally sent to the water authority with a request to give a Water Recommendation. The water authority checks if the agreed water criteria are addressed in the draft spatial plan in a satisfactory way. In the Water Recommendation - which is a formal advice - the water authority informs the spatial planning authority on its findings and makes, if necessary, recommendations for adjustments of the plan. If the process of interaction has been successful this Water Recommendation brings no new surprises!

3. *The decision-making phase ➔ Water Paragraph*

   Based on the Water Recommendation the spatial planning authority makes the necessary final adjustments to the plan. If the spatial planning authority proceeds with the plan contrary to the advice of the water authority, these choices have to be motivated. A Water Paragraph, which has to be a part of the plan, outlines the consideration that has been given to water issues as a result of the WA process. Specifically it describes the Water Recommendation and how this has affected the development of the plan, including compensatory measures if the water criteria can not be met in the plan itself.

The key features...

...to the success of Water Assessment (WA)

The sooner the water authority is engaged in the planning process the better!

This is crucial! Spatial planning authority and water authority should work together on the spatial plan on the basis of their own responsibilities. They inform each other about the plan, relevant policies and important issues. The sooner the water authority is engaged in the development of the spatial plan the easier it will be to integrate water into the design and the smaller the risk of delay at a later stage.
This obligation of early interaction slowly starts to bring about a change of attitude from reactive to proactive. Both parties sense the need to anticipate on each other's upcoming plans and policies. A mutual understanding of each other's point of view and possibilities is growing.

The largest benefit of Water Assessment lies in the choice of the right locations!

Long before a building location is formally decided upon, many informal stages of planning will have passed. From the point of view of the water authorities, the most important choices are normally made in these early stages of informal planning or in plans with a high level of abstraction.
This implies that it is very important for the water authorities to be continuously alert on spatial developments within their region.

It is a flexible process, not a detailed prescription!

Spatial planing procedures vary widely regarding procedural steps, public consultation and complexity. Thus the process of WA also varies in intensity of consultation, in detail of criteria, and in time. Especially if it concerns a large complex plan, the agreement on the cooperation that is made in the initial phase of the WA is important and the Water Recommendation may be an extensive document.
In the contrast, for small plans the WA can consist of one phone call, a short letter from the water authority with one or two issues to take into account and two lines in the plan itself. It is up to the actors to decide on the precise steps to be taken!

Tailor-made criteria for each individual spatial plan!

In Water Assessment there are no fixed criteria! In the initial phase of Water Assessment the spatial planning authority and water authority together agree on the criteria to be met in the plan. Thus the criteria are tailor-made for each individual plan and can concern all aspects of the water system: susceptibility to flooding, groundwater levels, soil subsidence, sewage, water quality and ecology. The criteria are based on knowledge of the water system at hand, on all relevant legislation and policies and on existing spatial plans of a higher authority. The level of detail of the criteria has to fit to the level of detail of the plan. The more the accent shifts from the choice of location to actual design, the more detailed the criteria must be.

Translating water criteria into spatial criteria

An extra effort needs to be taken to 'translate' the technical criteria used by the water authorities into spatial criteria which can be used in the plan design itself. For example, it is easy to postulate that 11 percent of the plan area has to be reserved for water, but the real success is achieved by integrated planning leading to better drainage control and a more appealing physical environment.

No separate provisions for legal appeal

The WA process is integrated into the formally prescribed procedure for the establishment of spatial plans, and in itself does not include public consultation or possibilities to lodge formal objections or legal appeal. The public and private parties and NGO's can use legal spatial planning procedure to react to water related issues in the spatial plan. The water manager can also use these possibilities in case it doesn't agree with the final spatial plan.

Agreements on who pays what!

In general the spatial planning authority must fund the measures that are required to keep the water system in good condition. In the case that a private party such as a developer is the actual initiator of the plan, it will have to compensate the spatial planning authority for the costs of these measures. However, if prior to the realisation of the plan the water system does not meet the current standards as defined in national policies, the water authority must carry the costs to put the water system in order. In any case it is crucial that parties agree on who pays what before the decision-making phase is reached.

Colophon

This brochure is a product of the National Committee of Water Assessment, which is composed by the Ministry of Infrastructure and the Environment, the Ministry of Economic Affairs, Agriculture and Innovation, the Association of Regional Water Authorities, the Association of Provinces and the Association of Netherlands Municipalities.

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Literature
Woltjer, Johan and Al, Niels (2007) 'Integrating Water Management and Spatial Planning', Journal of the American Planning Association, 73: 2, 211 — 222

Van Dijk, Judith (2006) 'Water assessment in the Netherlands', Impact Assessment and Project Appraisal, volume 24, number 3, September 2006, pages 199–209

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