



Designing on the interface between water and spatial planning

Guide and examples



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Action Programme on Spatial Planning and Culture

The Ministry of Housing, Spatial Planning and the Environment with the Ministry of Agriculture, Nature and Food Quality, the Ministry of Education, Culture and Science, and the Ministry of Transport, Public Works and Water Management

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Foreword

It was widely assumed until well into the last century that we in the Netherlands had succeeded in taming the water. The Afsluitdijk (Enclosure Dam) and the Delta Project had rendered the sea inlets harmless. The major beds of the rivers were constrained within improved major dykes. The wet grounds were drained as part of the land reparcelling schemes in order to achieve optimum agricultural production. Having mastered the water, it seemed that we were free to use land in the Netherlands as we saw fit. Farmers started to grow corn in stream valleys, and cities expanded into adjacent deep polders.

Climate change has shattered this comfortable illusion of having water under control. We now realize that we cannot simply use any land for any purpose, since rising sea levels, higher river flood levels and falling water tables and salination have thrown something of a natural spanner into the works of the 20th century 'water machine'.

However, at the start of the 21st century, we may wonder whether being deprived of the option of indiscriminate land use is actually a problem. Might it not be an excellent opportunity to augment the diversity of our landscape, now that we are obliged once again to carefully consider differences in the subsurface and the power of the water?

This book is an account of a quest for an intelligent way of applying the water system's planning principles in enriching cities and landscapes. New perspectives arise by combining the technical requirements of water management with an area's spatial planning programmes into a single spatial design issue.

For instance, the need in the 1950s and 1960s for increasing the amount of surface

water in residential areas is a benchmark for shaping urban renewal. The PLANTAGE ZUID PLAN in Rotterdam is an example of how a navigable network can vitalize public space, and how new waterside residential forms can be created. The measures being proposed to deal with saline seepage water in studies for the HAARLEMMERMEER WEST-FLANK project will be a visually dominant basis for this future residential area. And stream restoration (Essche Stroom) and river widening (river IJssel) plans present an opportunity to expose again historic patterns that had been almost obliterated.

These few examples from among the many innovations in the seven pilot projects illustrate the potential pioneering role of spatial designers in early planning phases. To concur with the Vision on Architecture and Spatial Design: Design to the Fore! I sincerely hope that the output of the 'Spatial design with water' project will instil the ambition to combine technical innovation and original spatial design in all flood defence and water storage projects.

Yttje Feddes

National Landscape Adviser



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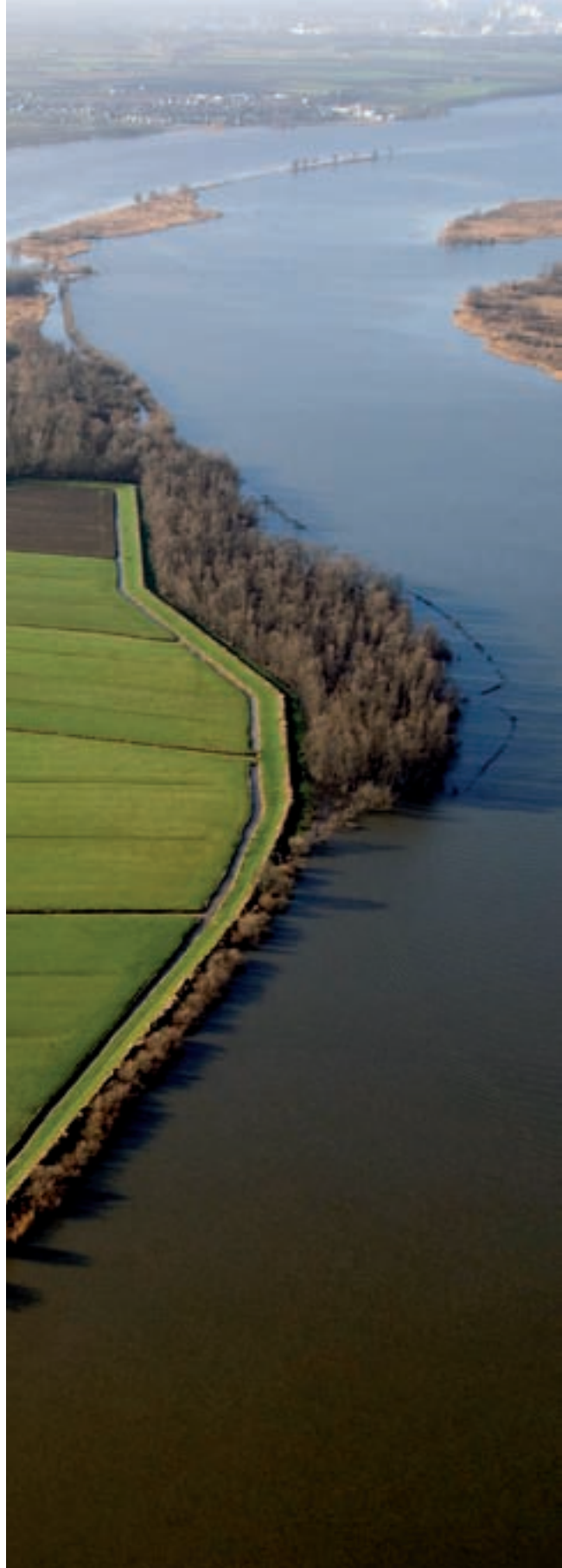
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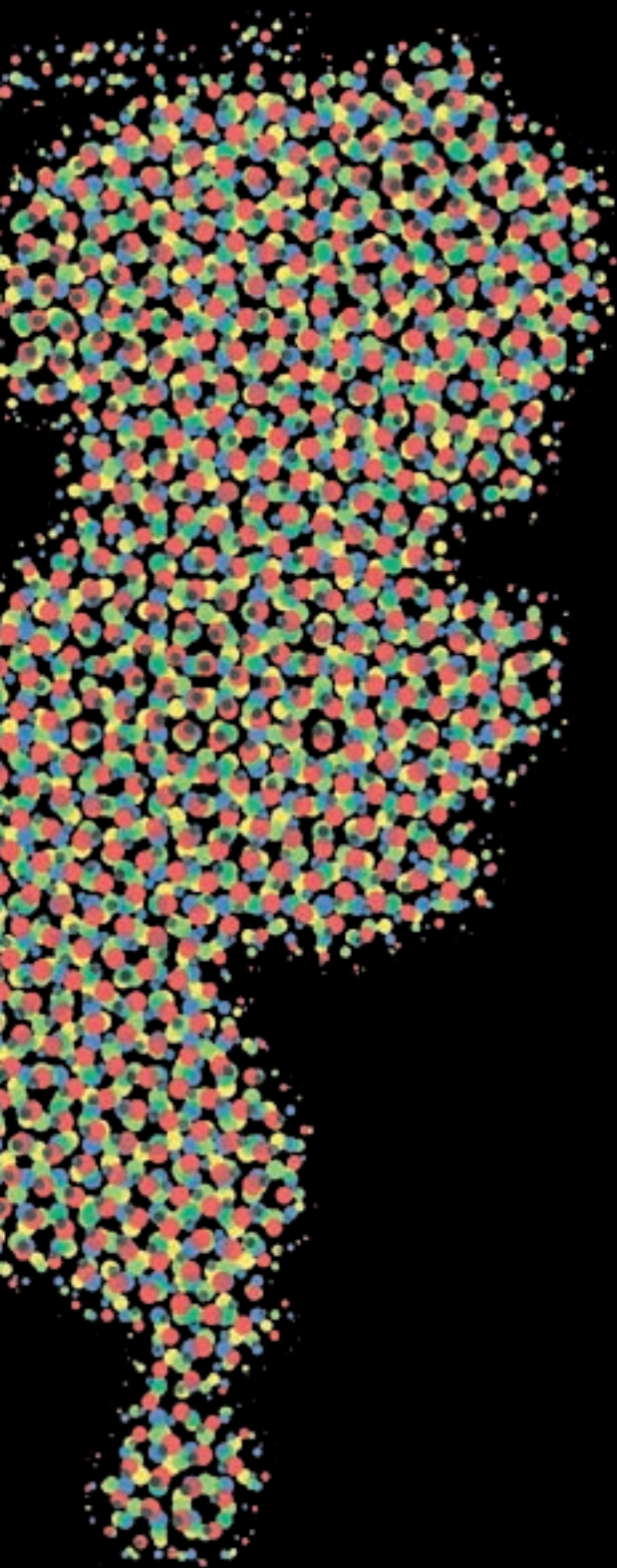
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Introduction

More space is needed in the Netherlands for retaining, safely storing and responsibly discharging water. More space is needed at the same time for urbanization and a wide variety of other functions. We are obliged to combine functions on a spatial level. There is no other option. However, the situation also presents new opportunities. The spatial water issue sharpens the focus on design, both in urban development and landscape architecture.

The 'Spatial design with water' project was set up as a way of promoting design in projects on the interface between water and spatial planning. The project will help ensure that water's considerable cultural and historical significance in the Dutch landscape receives the attention it deserves, and that the spatial quality of the many future water projects can be improved. The project is part of the Action Programme on Spatial Planning and Culture, and was performed between 2005 and the end of 2008 by the Ministry of Housing, Spatial Planning and the Environment with the Ministry of Transport, Public Works and Water Management, the Ministry of Agriculture, Nature and Food Quality and the Ministry of Education, Culture and Science. Seven pilot projects were set up around different water systems in the Netherlands. Each project involved municipalities, water boards, provincial governments and others, and used instruments such as design, and research through designing, on the interface between spatial planning and water to produce plans that would do justice to the spatial quality and the cultural distinctiveness of the areas concerned.

The seven pilot projects are teaching us a great deal. It would appear that the inclusive approach to water and spatial planning issues is a source of inspiration. It would likewise appear that the process of using the design can lead to surprising insights. Experience in the pilot projects with design studios has been encouraging. The projects show that the design process is cyclic in nature, constantly shifting between research, drawing and estimating, generating new input all the time. Furthermore, the area development concept has been shown to work. Uniting various sectors and stakeholders on a spatial level enables more to be achieved with the same space.

This publication describes and conceptualizes the output of the seven pilot projects, and makes the lessons learned accessible to anyone involved in area development projects in comparable situations. Part I brings together the lessons from the projects into a concise guide. The guide follows the cyclic design process through start, preparation, method, objective and follow-on. Part II presents the seven pilot projects: what was the issue, and how was it approached?

This publication marks the completion of the 'Spatial design with water' project. The national government parties have enjoyed contributing to this process. We are confident that you will derive knowledge and inspiration from this contribution, and will set out with at least equal pleasure to resolve the complex issue of water and spatial planning.

A photograph of people walking on a wet, reflective beach under a blue sky with white clouds. The water is shallow and reflects the sky and the people. The people are seen from behind, walking away from the camera.

Part I The guide

‘Water keeps moving on, like the history of our water management. New times bring new challenges.’

Tineke Huizinga, state secretary for Transport, Public Works and Water Management

Speech at the launch of the Canon of Netherlands Water, 16 December 2008

1 Water and spatial planning in the Netherlands

The Netherlands was formed through conflict and harmony between people and water, which has made our landscape a unique living and working environment. The responses to the opportunities and threats presented by the sea and the rivers have produced the most attractive river towns, dam towns, fortified towns, mound villages and landscapes. This process continued for many centuries¹. The rich Dutch water tradition is appropriate again today, because climate change, subsidence and rising sea levels are demanding new solutions and a new balance between spatial planning and water system development.

The water is coming

In postwar spatial planning in particular, water systems have been modified by ever more drastic means to meet the needs of land use. But water is not so amenable to being tamed, as has been evident on several occasions in recent decades. And the IPCC and Dutch meteorological institute scenarios point to greater extremes in surpluses and shortages of water in the coming decades, with rising sea levels, increased river discharges, brief but torrential downpours, and longer periods of drought. The (draft) National Water Plan² maps out what is in store for us. The Water Plan succeeds

the Water Management policy document, from which it differs most significantly in linking the water issue with other spatial development issues in the Netherlands. The basic principle of sustainable water management is to bend with natural processes where possible, to offer resistance where necessary, and to grasp opportunities for prosperity and wellbeing.

The water issue is no trivial matter.

- The risk of flooding is increasing because of greater peak river discharges and rising sea levels.
- It is becoming wetter because of greater precipitation extremes.
- It is becoming drier because of precipitation shortages and more modest river discharges in the summer months.
- The land is continuing to subside.
- It is becoming more saline as rising sea levels cause sea water to travel further up estuaries, and because of increased seepage.

¹ Fransje Hooimeijer, 'Stedenbouw in een waterrijke traditie (Urban development in a water-rich tradition)', in: *Ontwerpen met Water; Essays over de rijke traditie van 'waterwerken' in Nederland (Designing with Water; Essays on the rich tradition of 'water projects' in the Netherlands)*, Ministry of Housing, Spatial Planning and the Environment, 2007.

² Ministry of Transport, Public Works and Water Management, *Ontwerp Nationaal Waterplan (Draft National Water Plan)*, The Hague, 2008. The plan will be adopted by the end of December 2009.

Using space intelligently

We have to look for space for water while almost every square metre of the Netherlands is already being used intensively. Furthermore, another 120,000 to 190,000 hectares will be developed for housing and employment in the next few decades³, which is about the same area as the province of Utrecht. Much additional space is also needed for infrastructure, leisure activities and nature. Some space may be released because less is needed for agriculture, but it is clear that we in the Netherlands are obliged to look for combinations. We will have to allocate, utilize and manage the space intelligently. The combination of water and spatial development is a necessary part of all development projects. The issue also involves protecting valuable and threatened areas from landscape clutter, and improving access to the landscape and ensuring its attractiveness for recreational purposes⁴. This is a complex issue, but, provided it is handled well, is one that will benefit spatial quality.

Water as a blueprint

Spatial developments determined the structure of the water system to an ever greater extent in the past century. Things will be different in the future. The fact is that solving the water issue cannot be postponed. The water system will therefore have more prominence in spatial development. But

³ Ministry of Transport, Public Works and Water Management, *Nederland in Zicht (The Netherlands in View)*, 2007.

⁴ Ministry of Agriculture, Nature and Food Quality, *Agenda Landschap (Landscape Agenda)*, The Hague, 2008 and the contribution from the Ministry of Housing, Spatial Planning and the Environment's 'Mooi Nederland (Beautiful Netherlands)' innovation scheme.

rather than a single issue, there is a different issue for each water system, and even within a given water system there may be substantial variation. The national government has translated the water issue into nine water systems in the National Water Plan. A set of assumptions has been defined for each system.

- Coast: the elevation of the coastal foundation must change in line with sea level rise.
- Rivers: more space for the rivers, both outside and within the dykes.
- IJsselmeer area: revised level management regime, and in due course a higher level in IJsselmeer.
- Southwestern Delta: raising of coastal foundation and restoration of tidal dynamics.
- Randstad: measures for coastal safety, drinking water supply and water storage.
- North Sea: sustainable, spatially efficient and safe use.
- North of the Netherlands and Wadden Sea: quality and safety on the salt-fresh water boundary.
- Higher ground in the Netherlands: address water shortages, groundwater, flooding and water quality.
- Urban area: urban development must yield more space for water storage.

The national government is giving water a higher priority in legislation and regulations, and the water issue is being embedded in many more points in other policy areas. For instance, the National Water Plan supersedes some components of policy from the National Spatial Strategy for IJsselmeer, the North Sea and the rivers. Operation of the water assessment is being legally underpinned in urban plans. The national government is requesting public authorities and market parties in the



regions to develop the key assumptions into firm plans for river sub-basins.

Central design

Projects on the interface between spatial development and water cross administrative boundaries, which automatically gives designing, and research through designing, a higher priority. In conventional planning, administrators determine the rules of the planning process, within which designers then operate. In current practice, with a multiparty regional client organization, not all rules of the game have been determined. Many design processes have dynamics and rules of their own. Designers are expected to deliver more than just a spatial plan, in that the plan should also serve as a guideline, or source of inspiration, for the administrative and legal definition⁵. The design cannot then be viewed as the result of specification with hindsight, but is instead a structural

part of the process. The designing discipline is part of the quest for solutions for the complex issue⁶. Designing, and research through designing, are what make it possible to broaden the issue and to identify unique, comprehensive solutions that are effective on multiple fronts. Defining development projects on a spatial level makes it possible to combine spatial and

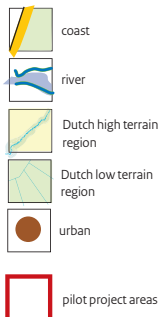
water issues. Specific regional opportunities then come into the picture. Experience with this approach has been acquired in the past three years in seven regional area development projects for various water systems. The design was given centre stage, whereby the initiators combined the water and spatial issues. The approaches taken in the seven pilot projects were monitored, and any lessons to be learned were gathered. The most important conclusion is that the design is indeed an effective way of combining water and spatial issues in an area. Giving the design a central place leads to a higher process and product quality. The design offers a reference point for harmonious cooperation, and the combined approach to water and spatial planning makes high area quality feasible.

⁵ Maarten Hajer en Dirk Sijmons (ed), *Een plan dat werkt, ontwerp en politiek in de regionale planvorming (A plan that works, design and politics in regional planning)*, 2006.

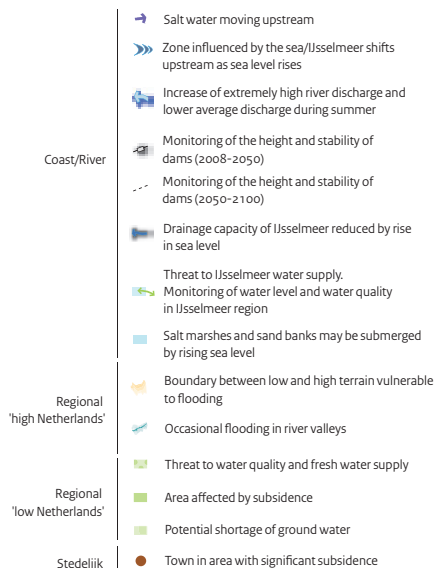
⁶ Ministry of Education, Culture and Science, *Een cultuur van Ontwerpen; Visie Architectuur en Ruimtelijk Ontwerp (A culture of designing; Vision on architecture and spatial design)*, The Hague, 2008.

Pilot project	Water system	Water issue	Spatial issue
Guide for spatial quality of the river IJssel	River	Safe discharge of flood water	Reinforcing the character of the river and the identity of the landscape
Groene Woud and Essche Stroom	Sandy soil catchment area: central section of the Dommel	Stream restoration, water storage, clean water, ecological links, Natte Natuurparels (wet nature gems)	Natural assets, landscape, ecological agriculture, leisure activities
Plantage Zuid, Rotterdam	City	Rainwater storage, link with urban programmes	Urban renewal, attractive residential environments, leisure activities, cultural history
Haarlemmermeer Westflank	Green Heart catchment area: drained lake	Water storage, water quality improvement (measures against seepage and salination)	Housing, green space, leisure activities, new infrastructure, double use of space
Amsterdam Zuidoostlob	City and urban fringe	Water storage, seepage, drought, subsidence, avoiding shifting problems to adjacent areas	Urbanization (restructuring and transformation), leisure activities
Walcheren Waterfronts	Coast	Coastal safety	Attractive waterfronts and boulevards
Bodegraven-Woerden Window	Green Heart catchment area: peat grassland landscape	Water storage	Landscape buffer, strengthening city-countryside relationship, green backbone, improved access

Water system



Water issue



Planning issue





‘Linking initiatives from several social sectors with the water issue enables us to serve multiple interests.’

Peter Glas, De Dommel water board
From: *Traditie in transitie* (Tradition in transition), 2007

2 Areas and opportunities

The national government provides general frameworks. The water and spatial issues may be combined, refined and broadened on the scale of an area, catchment area, or region. Refining is defined here as specifying the objective precisely. Making sure that everyone is talking about the same thing. Broadening is defined as gathering combinations of different spatial issues in a single area. This is a way of making work with work. The pilot projects demonstrate how refining and broadening an issue can yield unexpected opportunities.

Liaise with other area programmes

There are often multiple concurrent water and spatial programmes and issues in an area. The plan density can sometimes be enormous. Opportunities for synergy can be created by merging objectives and plans from as many sectors and area programmes as possible. Grasping these opportunities will lead to higher quality, support and efficiency. See for example the AMSTERDAM ZUIDOOSTLOB pilot project, where the water and spatial solutions have been aligned with the policies for Groene Scheggen (green wedges between urban zones) and for leisure activities. New landscapes may emerge through the early creation of combinations. Agreement was reached in the HAARLEMMERMEER WESTFLANK project by exploring various combinations of housing, green space and water in expressive scenarios. This project demonstrates clearly that thinking in pictures and comprehensive solutions feed the debate in an area, and ultimately lead to better solutions. The

public clients, which are represented in the Haarlemmermeer Westflank Area Development Steering Group, think and work as a single entity rather than as separate sectors. The water issue in Bodegraven-Woerden has been aligned with the spatial vision for redeveloping this part of the Nationale Landscape Green Heart.

Define the boundaries of the playing field

The combined water and spatial issue proceeds in a broad geographical and administrative context. It is important to establish the boundaries of the playing field at the start of the process. It can easily be seen from this position which influences from the surroundings of the playing field, and which from the higher policy frameworks, help define the issue. The interrelationship with adjacent geographical areas, administrative environments and sectors can help strengthen the solution. Defining the issue from the viewpoint of different scales

makes the playing field tangible, logical and comprehensible. This interrelationship is documented in the *GUIDE FOR SPATIAL QUALITY OF THE RIVER IJSSEL*, which outlines the identity of the river and the surrounding landscape on local, individual river section, and 'river as a whole' levels. Four river sections are recognized, with thirty constituent ensembles, each of which has its own set of core qualities. These then form a source of inspiration in the planning, for giving more space for water discharge on the river IJssel and protecting the living environment against flooding. An important related point is that it is not just about the river, but about viewing the river and its surroundings as an entity. Another example is the *WALCHEREN WATERFRONTS PROJECT*, in which the issue is defined in part by the higher scale of the Voordelta, such as protection with sand replenishment or new sandy shoal. The future of the Western Scheldt with the Antwerp harbour development and a possible relocation of the navigation channel for Flushing are also in the scope of the discussion.

Start from the future

Long-term developments determine short-term measures in the water issue. Climate scenarios indeed extend over a long term of many decades. It is therefore important for spatial design to be as unconstrained as possible by today's limitations. An imaginary jump into the future gives a fresh perspective, from which unexpected insights often emerge. A vision of the future determines a framework for sustainable solutions and measures that will give no cause for regret later. The longer term perspective also gives a model in which an area is able to change with the times and adapt to any new insights. The area will then be more flexible and have a greater capacity to anticipate

change. Long and short term perspectives of this kind have been defined for the *WALCHEREN WATERFRONTS*: 'dreaming about a far-off day' and 'action perspective for now and later'.

Use the power of ambassadors

Residents, businesses, stakeholders and local administrators are committed to the wellbeing of their area. People possess specific area knowledge. Many aspects of area identity are undocumented, but reside in the heads of the people who live in the area concerned. These people are vital when drawing up sound plans that will be supported by stakeholders and residents. Ambassadors are invaluable because of their authority in, and knowledge of, the area, and their networks of contacts. They look favourably upon the project, which they communicate to everyone who is willing to listen. For instance, the water board chairman's role of ambassador was conspicuous in the *GROENE WOUDE AND ESSCHE STROOM* pilot project, and created much enthusiastic commitment both inside and outside the organization. The lack of an ambassador may cause delays, as the *BODEGRAVEN-WOERDEN WINDOW* project illustrates. This project involves many administrative units and has many owners: the Green Heart steering group, the provincial governments of South Holland and Utrecht, the municipalities of Bodegraven, Woerden and Reeuwijk, and the Rijnland and Stichtse Rijnlanden water boards. The project gathered momentum only slowly. It is likely that a single ambassador for the entire area would have expedited matters.

Ensure a strong client role

Combined development projects cross boundaries, whether geographical, sectoral, administrative, or time-related. A strong

client with considerable patience is needed to guide projects of this kind satisfactorily. The client may be a public authority, a market party, or a steering group comprising various parties. A strong client role involves making clear agreements about the project, the status of plans, objectives, responsibilities, authorities, output, activities, money and phasing. Firm agreements must also be made about the use of designing, and research through designing, and the assurance of spatial quality throughout all phases of the process. The client controls processes in a clear and consistent way. It is important, in particular in areas with high plan density and complexity, to coordinate the water and spatial issue properly with all ongoing processes. The commitment of administrators is needed in order to keep the project on course and to give project leaders formal cover. Without an effective client, the course will become vague and opportunities for cost containment and quality improvement will be ignored.

Select the right designer

An inspiring professional contribution from designers in the implementation of water and spatial issues is indispensable. It is important to select the right designer with care, with a view to compatibility with the area and the issue. A good designer will be able to forge bridges between the area, the interests and the solutions. A good designer will visually express the information and make connections in stories and knowledge. An expert, but above all open, attitude in this designing role will release creativity in the design studios. The designer's specialist skills can be brought to bear on clarifying issues and ideas, and compiling the process output in the form of language, maps, sketches and photographic

impressions. In a designing dialogue, the designer can listen, interpret, contribute ideas, suggest alternatives and help identify the true intention. Spanning all the various scales, a designer can supply solutions. Various designers and design bureaus were engaged as clients in the pilot projects in order to perform area analyses, to supervise studios and to elaborate and conceptualize solutions.



‘Water boards can use landscape architects to help conceptualize the strategic, spatial and cultural relationships between the water issue and other planning aspects of the Netherlands.’

Eric Luiten

From: *Ontwerpen met Water; Essays over de rijke traditie van ‘waterwerken’ in Nederland* (Designing with Water; Essays on the rich tradition of ‘water projects’ in the Netherlands), Ministry of Housing, Spatial Planning and the Environment, January 2007.

3 Designing together

The substance of solutions can be strengthened in an interactive design process, as happened in the seven pilot projects, in the form of design studios. People from a variety of backgrounds contribute their expertise and creativity. They come out from behind their desks and work tirelessly together, preferably in an inspiring on-site setting. And as soon as synergy is created, enthusiasm among people and organizations will start to blossom. It is important to allow sufficient time, money, space and capacity at the start of the process.

Select the right mix of actors

The composition of the group in a design studio is one of the success factors. In any area, many people are stakeholders in some way. When inviting administrators, remember that water is not constrained by administrative boundaries. Also invite mayors, for instance, and do not shy away from potential differences of opinion. Depending on the scale, it may also be important to involve residents and land and property owners in the process. The participants in a good studio also represent a mix of target groups and disciplines:

- knowledge carriers: historians, researchers, hydrologists, ecologists, and area experts;
- makers: planners, landscape architects, urban developers, students;
- strategists: policymakers and administrators.

It is therefore not a matter of putting the makers in a back room to cobble together

a design. What happens in a studio in the course of the work is 'chemistry'. Knowledge carriers convey an understanding of the area, strategists illuminate policy processes, and makers contribute the expertise to translate solutions into images. New links are made by arranging to have people with different perspectives and roles work together. The multiple objectives are clear. Joint technical and strategic ideas for water and spatial plans emerge in a series of meetings. In the process, layout sketches and plans are produced that are both innovative and realistic, while enjoying the support of the participants.

A variety of stakeholders was involved in the PLANTAGE ZUID ROTTERDAM pilot project, including the housing associations, the municipality and the water board. The housing associations have an interest in quality improvement of the neighbourhood's housing and living environment. The municipality has an interest in a



sustainable, feasible and manageable plan, and wants the district to have a strong social structure. The water board wants a sustainable and easily managed solution for the water issue. This partnership creates a firm link between water, housing and urban renewal. A conspicuous aspect of the AMSTERDAM ZUIDOOSTLOB project is the mix of researchers and policymakers that was selected.

Arrange for supervision and input

Design in a studio needs careful preparation. The studios in the pilot projects were supervised by a chairman who ensured that every participant was able to make their own contribution. The assignment was initiated with a presentation of all existing knowledge and plans. A presentation of the analysis of the water system and the spatial structure often gives inspiration for seeking out water and spatial combinations. For instance, an analysis of cultural history and water in the GROENE WOUDE AND ESSCHE STROOM project helped the participants appreciate the complexity of groundwater seepage and infiltration in the sandy soils. A presentation in the WALCHEREN WATERFRONTS project conveyed useful information about the coastal morphology, which was

later used in solutions for the coastline and the water-fronts. A spatial analysis of the water system in the AMSTERDAM ZUIDOOSTLOB project prompted the parties to consider multidisciplinary solutions.

The work in studios is performed in subgroups around drawing boards and flipcharts. Good area maps and design material are

essential. Sometimes several design studios have to be involved in the planning process, in which case a leading studio focuses on the area identity and problem analysis. A following studio conducts joint discussions about whether the leading studio's output has been properly incorporated, and proceeds to work on solutions and layout proposals. In the meantime, partial solutions can be estimated, or missing data filled in.

Allow scope for creativity

It will be possible to leave well trodden paths and develop innovative solutions only through creative thinking. Design studios are breeding grounds for creativity and enthusiasm for an area. Various methods were used in the seven pilot projects as ways of giving creativity the greatest possible chance.

- Local excursions are an indispensable way of developing a shared picture of an area.
- Reference images provide inspiration and give expression to perceived needs. Reference images played a significant role in almost all the pilot projects.
- 'Mindmapping' was used in the WALCHEREN WATERFRONTS project. This is a method in which the participants generate associations on a given objec-



tion about the project for this specific objective, as a way of conveying ideas that prompt refreshing and practical feedback. Opposition and feedback strengthen designs; friction polishes. At the same time, this process creates greater support for progressing the ideas. Round-table discussions of the kind held in the BODEGRAVEN-WOERDEN WINDOW project are excel-

lent opportunities for the parties involved and stakeholders to reflect on the output so far. The project team incorporates the responses in a final result, thus creating a cohesive and visual story that participants are able to identify with. Each studio in the WALCHEREN WATERFRONTS project closed with a sounding board meeting, to which social organizations, business people and experts were invited.

- Input from international design students with a fresh perspective led to surprising new approaches in AMSTERDAM ZUID-OOSTLOB and WALCHEREN WATERFRONTS.
- Proficient designers creatively translated and conceptualized the output of the studios in all projects in the form of plans. The detailed specification by design bureaus may provoke new creativity in a later round.

The joint process of generating and drawing out concepts, ground plans, profiles and collages brings solutions into view and enables the joint insights to be shared. It is not uncommon for a communal language to develop in the studios. Designers translate the ideas into collective images.

Organize opposition and feedback

Occasional feedback from relative outsiders is necessary to prevent tunnel vision in the design studio, which may lead to important impacts being overlooked. For this reason, output should be submitted while still in draft form to outside administrators and stakeholders. Use communica-



'Design knowledge is inextricably linked with theoretical knowledge and practical wisdom.'

Jannemarie de Jonge

From: 'Landschapsplanning en ontwerp in de netwerkmaatschappij (Landscape planning and design in the network society)', in: De Blauwe Kamer, February 2009.

4 Knowledge for quality

Creativity is necessary, but not sufficient, for a satisfactory result. Thorough knowledge is also needed: an understanding of how the current landscape and the water system interrelate. Which factors determine an area's identity? Correct and relevant information is the only basis on which all the opportunities can be revealed, and the highest quality achieved on all fronts. Gathering information is part of a cyclic process: as the design grows, new research questions emerge. This interaction between research and design makes knowledge gathering precisely targeted and efficient.

Take inspiration from the past

A cultural and historical analysis provides insight into an area's development and the area identity, which is a source of inspiration for future solutions. If cultural and historical elements or structures have a new function, tradition will acquire new meaning for the area. See for example the new functions that have been proposed for the links between city and countryside, such as the Muiden boat canal in the AMSTERDAM ZUIDOOSTLOB project and the harbour rail line in the PLANTAGE ZUID ROTTERDAM project, which is to have a new future as the Grand Canal. The historical analysis in the WALCHEREN WATERFRONTS project is important for acquiring a better understanding of the identity of Walcheren island and the relationship between the island and the sea.

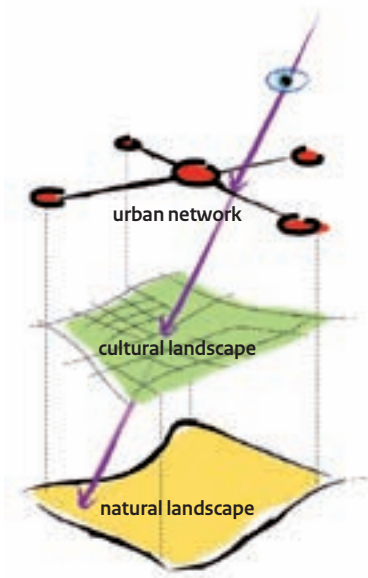
The structure of an area can be clarified by sketching the spatial development history in several steps or themes. A time line showing the developments that have been

dominant for the area is a clear method of presentation. The cultural and historical analysis can be augmented by historical maps and image material. For instance, the GUIDE FOR SPATIAL QUALITY OF THE RIVER IJssel describes the development history of the area based on three stories: the formation of the IJssel valley, the dyking-in and parcelling of the farmed landscapes, and the creation of compact towns along the river. In the GROENE WOUDE AND ESSCHE STROOM project the historical development of the water system was outlined in nine themes and recorded in spatial terms.

Identify the spatial quality

An area's identity is also determined by its existing spatial structure. Forming a clear view of this structure involves identifying an area's core qualities for the various landscape layers: the natural subsoil, the land use and the networks. The existing qualities can serve as building blocks for coordinated water and spatial develop-

	Economic interest	Social interest	Ecological interest	Cultural interest
Use value	Allocation efficiency Accessibility Stimulating effects Combined use	Access Fair distribution Contribution Options	External safety Clean environment Water in balance Ecological structure	Freedom of choice Cultural diversity
Subjective experience	Image Attractiveness	Equality Solidarity Personal safety	Calm and space Beauty of nature Healthy living environment	Distinctiveness Beauty of culture Contrast-rich surroundings
Future value	Stability and flexibility Agglomeration Bundled attractiveness	Everyone on board Public support	Ecological stocks Healthy ecosystems	Heritage Integration Cultural renewal



ment. An analysis of the physical qualities can also serve as a basis for strengthening these qualities. Image material was used for this analysis in all the pilot projects. For instance, the *GUIDE FOR SPATIAL QUALITY OF THE RIVER IJSSEL* shows the core qualities of the river on a map, categorized into three layers. The layers are natural landscape, man-made landscape and urban network. The three layers jointly determine the image of the landscape and how it is perceived.

The identity is conceptualized with photos and illustrations of the area. These images serve in the first instance as an atmospheric impression, but could equally be used as a building block. Image material was used in the *BODEGRAVEN-WOERDEN WINDOW* as a basis for a communal panorama for the spatial vision. The survey of spatial scenarios in the *HAARLEMMERMEER WESTFLANK* project provided insight into the solution space for housing and water. The pilot project contributed to a broad awareness that the issue for Westflank (housing, green space, water and infrastructure) can be realized only by binding functions innovatively, in a way that adds value to the area's spatial quality. The *WALCHEREN WATERFRONTS* project used the spatial quality matrix developed by Habi-forum⁷. The matrix proved to be a useful tool for making spatial quality tangible and amenable to discussion.

Exploit the sociocultural distinctiveness

Not all area identities are visible in a landscape's history and spatial structure. Specifically, many sociocultural identities may exist only inside the heads of

⁷ Hooimeijer et al., *Kwaliteit in Meervoud (Quality in Multiplicity)*, Habiforum, 2001.

the people who live in an area. These are the unwritten anchor points of identity. This anthropogenic part of an area – i.e. what people do with the area – may yield significant input for design solutions that are appropriate to the local distinctive attributes. Understanding and respect for local distinctiveness strengthens commitment and fosters enthusiasm and support for new solutions. A sociocultural survey can be facilitated by involving residents in a participation process, since residents are the ultimate agents of local distinctiveness. For instance, the GROENE WOOD AND ESSCHE STROOM project illustrates how a historical analysis can inspire participants and administrators, and increase residents' support for developments. New alliances and insights arose, thereby encouraging people and organizations to pursue their missions and ideas. Residents and anyone else involved are prouder than ever of their area.

Switch between scales

Historical, geographical and sociocultural research in the area help illuminate the local distinctive properties. Researching the area in its setting provides an understanding of the broader interrelationship between characteristics. Both approaches provide an understanding of an area's water system and spatial structure, and show what kinds of measures are desirable, necessary and possible. It is therefore useful in research through designing to zoom in and out on the subject. A related methodology was used in the GUIDE FOR SPATIAL QUALITY OF THE RIVER IJSSEL that divides the river's core qualities in accordance with scale level from high to low (the river as a whole, river sections, and local). Solutions were worked out in the AMSTERDAM ZUIDOOSTLOB project in subsectors. In GROENE WOOD AND ESSCHE STROOM, locations were portrayed in a way

that captured the historical themes of the area as a whole.

Bring feasibility into the picture

There are two components of the feasibility of alternative solutions: qualitative and quantitative. Much attention was given to qualitative feasibility in the design process of the WALCHEREN WATERFRONTS project. There was constant verification that the proposed development was in line with trends in ongoing developments in the area. Other pilot projects tended to have a more quantitative approach to feasibility, with a consideration of matters such as constraints, physical solution space, technical options and financial feasibility. The clearest example is the PLANTAGE ZUID ROTTERDAM project. In line with the 'estimating and drawing' methods, financial feasibility was studied during the design process. The design process proceeded alongside an analysis of financial, cultural and technical feasibility. The feasibility analysis accordingly provided new input to the design process, and fostered support from administrators. Working cyclically in this way meant that the process yielded useful building blocks for an implementation programme.



'Appoint a supervisor. Or set up a quality chamber comprising a professor, a local historian, a member of the public, a politician and a journalist. Then questions will be raised and choices made. No, this will be no guarantee that something good will always emerge. But you will see clearly what you are doing.'

Adriaan Geuze
PZC, 26 January 2009

5 Sustainable solutions

The pilot projects demonstrate that an integrated design process can lead to feasible layout proposals with intelligent and attractive water and spatial combinations. These combinations appeal to the imagination. Integrated solutions in the water system lead to a high spatial quality, and the combined solution for spatial issues leads to an effective water system. A sound process yields a clear, satisfactory and realistic result, which is also easy to communicate, so that the people responsible for the next phase will be able to set to work productively. The result creates enthusiasm and can count on support.

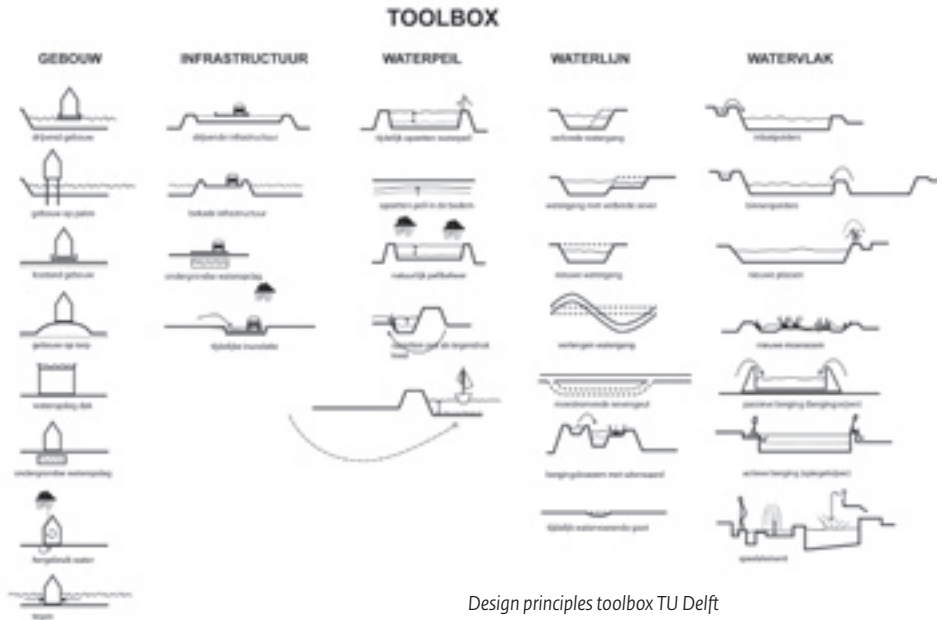
Vision on water and spatial planning

The overarching idea for the development of an area is set down in a concise vision document on the issue and the area. The vision answers the question of how best to utilize area-specific qualities to respond to the issues for water and spatial planning. The vision is often a key planning element, and may also be used for marketing an area. For instance, tasteful urban water in the PLANTAGE ZUID project in Rotterdam is the core element in the vision for the interventions in three related components of water in the city: the surface water Serpentine in Zuider Park, the new Grand Canal and the 'Vaartuinen', the network of navigable waterways. The development of a vision occurs in a cyclic process of working out and defining diverse ideas in parallel, which clarifies the design choices to be made, and the potential consequences of the vision. Proper discussion of the substance is then possible. For instance, three extreme models were explored alongside each other

for HAARLEMMERMEER WESTFLANK, in which the water and spatial issues were interpreted in widely varying design styles. The vision was made sharper in this way.

Building blocks for water and spatial planning

The vision materializes through the formulation of design principles, which serve as building blocks for layout proposals. The design principles can take different forms depending on the location or scale concerned. A concise vision can thus be developed into subtly shaded results, which can retain their integrity through the consistent use of design principles. This imparts the necessary flexibility to the vision and creates opportunities for custom solutions. The GUIDE FOR SPATIAL QUALITY OF THE RIVER IJSSEL clearly shows how design principles can be elaborated into building blocks. The three mottos from the layer approach and the division into four distinctive river sections were primary factors in



Design principles toolbox TU Delft

identifying solutions for each ensemble. For instance, one of the design principles for the natural landscape is 'high-relief river valley': 'Strengthen and utilize the gradient'. This building block is relevant for the Upper IJssel and Sallandse IJssel sections along the lateral moraine of the Veluwe and where the gradient is greatest. One of the building blocks of the 'landscape mosaic of the man-made landscape' is 'identifiable dike'. The retention of the historically formed red waterfront of compact Hansa towns is a design principle of the urban network with the motto 'Hansa town and surrounding areas'. These building blocks turn the guide into a useful source of inspiration for more detailed planning. The AMSTERDAM ZUIDOOSTLOB pilot project started with an extensive analysis of how the water system operates. Possible solutions for water storage and water discharge were visualized in a toolbox, which consists of design elements that integrate solutions for the water issue with the spatial design issue. The building blocks also contribute to spatial quality. The building blocks are catalogued in accordance with theme and

scale, to enable designers and administrators to find their way easily in the range of design solutions.

Layout proposals for water and spatial planning

The most detailed results of a design process are the layout proposals for water and spatial planning. References from other areas (in the Netherlands and other countries) are sometimes used in conceptualizing these proposals. Some solutions are innovative, but traditional solutions can often also be applied in novel ways. For instance, it has been proposed in AMSTERDAM ZUIDOOSTLOB to adapt the water level control area boundaries near Duivendrecht to suit the spatial development, and there was a proposal to dig a new watercourse for Gaasperplas and reverse the water flow, so that the waste water from the residential areas would flow around rather than through the clean lake. Seven possible forms of above-ground rainwater storage were considered for Watergraafsmeer, such as an aqueduct and water columns, which make water in the district visible in an inno-

vative way. Traditional interventions were proposed for GROENE WOOD AND ESSCHE STROOM, such as diverting and retaining the water for nature conservation and leisure activities. HAARLEMMERMEER WESTFLANK needs new forms of water storage in order both to satisfy the housing issue and to implement a sustainable and climate-resilient water management solution in this deep drained lake. The new water system in PLANTAGE ZUID ROTTERDAM provides an attractive residential environment.

Tenable solutions

The issue for water applies for a longer period than that for spatial development. A sustainable solution must accommodate this difference in time periods. All being well, the solution will anticipate the future, such as by proposing measures that from the outset fit in with the issue for the long term. The issues for the water system determine the spatial development. It is also possible to propose a spatial development in small increments, where the design grows in step with the water issue. The requirements of the water system then act as time constraints. The method followed in WALCHEREN WATERFRONTS is an example of this last approach. This project abandoned the traditional way of thinking in reservation zones for future coastal reinforcement. The issue 'from one day to now' has led to growth models for the waterfronts of Flushing, Zoutelande and Westkapelle that can anticipate sea level rise in a stepwise fashion: design by decimetre. Long-term coastal reinforcements are integrated in this approach into short-term spatial developments. Examples of specific design solutions then include buildings that are part of the coastal foundation, and temporary buildings that are accepted under the condition that they are demolished or moved

when the sea so demands. This is a new way of thinking that offers opportunities for spatial quality and allows space for the necessary coastal protection.

Feasible solutions

If a design process progresses well, the outcomes will enjoy support and be technically and financially feasible. The feasibility is established by quantifying the social costs and benefits of the proposed solutions. The support aspect of feasibility was embedded in the process in all pilot projects by involving as many relevant actors as possible. Insight into the number of cubic and square metres of water storage may have an influence on the scale of the solution, as can be seen in the HAARLEMMERMEER WESTFLANK project, in which estimates were made based on various different forms of water storage. A cost-benefit analysis indicates whether the investment is justified by the envisaged objectives, and how the burden can be divided. It was demonstrated for one of the scenarios developed in the PLANTAGE ZUID ROTTERDAM project that water and spatial design would yield more for the investors if they were combined than if separate approaches were taken.



‘Quality assurance acts like a relay baton that has to be passed from one phase to the next..’

Dirk Sijmons

ARC working conference, 24 January 2008

6 To work

The output of the design process shows how the area-specific qualities can be used to answer the above spatial and water issues. It is a tenable and feasible plan on which decisions can be based, so that the next phase may begin. The people responsible for the next phase will be able to set to work productively with the vision, building blocks and specific layout proposals.

Defining the relay baton

If the process went well, the output will be clear, satisfactory and realistic, and will moreover be easy to communicate. The output will be a source of enthusiasm for the parties to continue development and implementation. It is important to explicitly identify and document the content and follow-on process. The process compels clarity: what is our ambition? Are we in agreement? And it provides a fallback position if any questions or uncertainties arise later in the process: what was our original intention? How should we proceed?

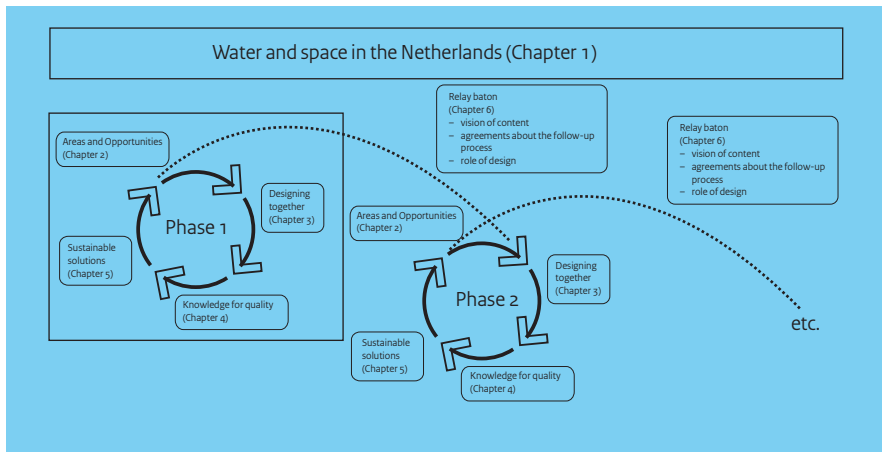
Passing the relay baton

Clear output from the preliminary phase makes success more likely in the next phase. But success requires the relay baton to be passed smoothly to the involved parties, and in particular to the driving forces in the next phase. In addition to a clear vision, this also demands dependable support and a

satisfactory mandate of the government in its client role. It demands of market parties and advisers in their contractor roles expertise and a willingness to progress the vision in a cyclic process. The client does not fulfil his duties simply by throwing the assignment over the wall. It is important that the client and contractor keep each other alert throughout the implementation process. Only then can the ambitions originally set actually be achieved.

Design is still a necessity

Design, and research through designing, remain necessary in order to arrive at attractive and well supported results. The cyclic process can be iterated up to and including the implementation phase. To ensure the maximum contribution from research through designing, agreements can be made at the start of the process between the parties involved, possibly in the form of a protocol. In the Architecture Vision,



Cyclical process for projects with water and planning objectives

the national government⁸ made recommendations for recording an early design contribution in order to guarantee design quality. Market parties are usually the ones who take responsibility for the implementation phase. A protocol or other collaboration agreement can be a means of securing the contribution of consultant designers throughout the process, on the part of the client and of the contractor. It is important for the client to be aware of what he wants, and to have a critical stance regarding the designs, implementation proposals and quality criteria presented by the contractor. A sharp but constructive interaction between the two parties will enhance the quality of the end product.

Everything for spatial quality

The climate change forecast for this century implies that much will have to happen in order to make the Netherlands resilient. In the light of the Delta Committee's recom-

mendations, the National Water Plan gives the necessary direction. Solutions may be technical in nature, but spatial solutions are providing an answer increasingly often. The water and spatial planning combination offers opportunities for municipalities, water boards and provincial governments to add value. The seven pilot projects on which this guide is based show that design and research through designing are useful instruments for tackling this complex issue. A permanent contribution from the design discipline will help retain and improve spatial quality in the Netherlands.

⁸ Ministry of Education, Culture & Science, *Een cultuur van ontwerpen; Visie op Architectuur en Ruimtelijk Ontwerp (A culture of designing; Vision on Architecture and Spatial Design)*, The Hague, 2008.



Part II

The

Examples



Guide for spatial quality of the river IJssel

A safe river in harmony with its surroundings

The National Spatial Planning Key Decision on Space for the Rivers was adopted in 2006. The objective is guaranteed safe flood water discharge, and secondly that the measures taken also improve the spatial quality of the river area. Defining the details of this secondary objective will require a clear picture of the spatial quality for the design: details of the core qualities, a statement of the inter-relationship with the relevant qualities and developments inside the dykes, and a definition and conceptualization of the design principles. Details are given in the **GUIDE FOR SPATIAL QUALITY OF THE RIVER IJSSEL**. The guide identifies the IJssel's unique qualities, and explains their relationship and how they can be further strengthened. It also suggests the opportunities that new developments could offer in underlining the IJssel's identity in its surroundings. The guide states the most important design issues for the IJssel, starting from higher policy frameworks. It gives design principles for strengthening the core qualities, for

eliminating obstacles, and for taking advantage of opportunities for new development. The guide is a source of inspiration and offers practical support to planners, project leaders, policy officers and administrators, in particular those in municipalities and water boards.

Water issue:

- Safe discharge of flood water.

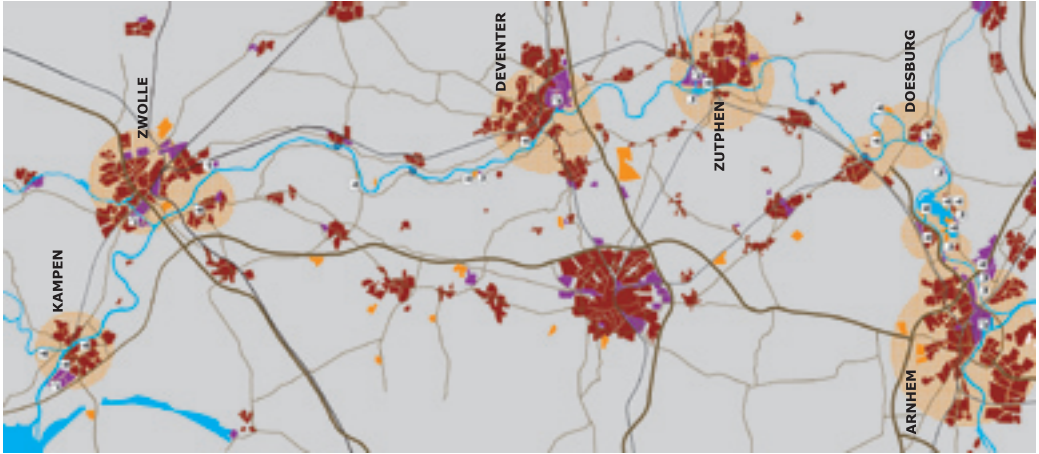
Spatial issue:

- Strengthening the river character and the identity of the river landscape.

Design principles

Starting from the layer approach, the core qualities of the IJssel are characterized based on three mottos. Specific design principles are given for each motto.

- 'High-relief river valley' makes the essence of the natural landscape clear. The dominant form of the subsurface is a river valley with meanders and a varying width, where the defining factor



Urban network: the 'Hanze' towns and surrounding area



Cultural landscape – a mosaic of different landscapes



Core qualities: Natural landscape - river landscape with highly contrasting relief

is the location between lateral moraine and wind-borne sand deposits. The main design principle is strengthening the natural character and the clear identity of the relief and the existing meanders.

- ‘Landscape mosaic’ means a large variation of different landscape types along the IJssel, often with a notable cultural and historical significance. This variation leads to a multicoloured but inter-related mosaic of man-made landscapes. A design principle is retention and strengthening of the man-made landscape, the water heritage and the country estate character.
- ‘Hansa town and surrounding areas’ refers to the pattern of the urban network that is rooted in the historical tradition of the Hansa towns. The image is defined by a rhythm of compact historical towns interspersed with emphatically rural and green surrounding areas. The design principles are strengthening of the Hansa towns and the IJssel villages, and enhancing the recreational significance.

Four sections

The spatial design issues are formulated by dividing the river IJssel into four sections: the Upper IJssel, Central IJssel, Salland IJssel and IJssel Delta. Within these sections, thirty-one ensembles have been defined. These are spatial units that are characterized by a specific set of core qualities. Icons on the map indicate the design principles that can be used for each ensemble in order to retain and strengthen the core qualities.

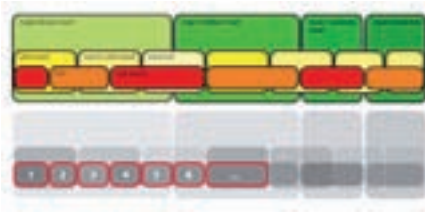
Parties involved

The provincial government of Overijssel (also on behalf of the provincial government of Gelderland) was the client for producing the guide. A supervisory group was assembled with representatives of the

Government Department for Archaeology, Cultural History and Historic Buildings, and the Ministry of Transport, Public Works and Water Management, the Ministry of Agriculture, Nature and Food Quality and the Ministry of Housing, Spatial Planning and the Environment. The work was performed by Bosch Slabbers Landscape Architects. The guide was produced in the first pilot project in the ‘Spatial design with water’ programme. One of the project’s aims was to serve as an example for drawing up guides for the other river branches.

The design studios

Two design studio rounds were held for each of the four separate sections of the river IJssel. The studios comprised experts from knowledge institutes, municipalities, water boards, provincial governments and nature managers. The studios were mainly oriented to formulating and conceptualizing the core qualities. Strategic thinkers (policymakers and administrators), successfully complemented knowledge carriers such as researchers and designers in the studios. Although the studios were organized for each river section, the starting points were the cohesion of the river branch and the differences between the sections. By working specifically on images and design solutions, the team members learned a communal language. It was possible to gauge the quality of the guide during the process through interaction with the pioneering projects in Zwolle and the IJssel Delta South area development. The emphasis in studios in the first round was on the core qualities, with the focus in the second round on specific design issues and working with the ensembles and design principles. New insights emerged in the process of outlining possible solutions for sections. For instance, an option emerged



name of project area → **16 Clay meadows and bulwark meadows by Wilp**

characteristics → Wide strip of farming land on water meadows in an authentic overflow area

design principles →

- RIVER VALLEY WITH HIGHLY CONTRASTING RELIEF
- MOZAIC OF DIFFERENT LANDSCAPES
- "HANZE" TOWN AND SURROUNDING AREA

14 Stadland De Hoven

Green river bank by the IJssel opposite Deventer

design principles →

- RIVER VALLEY WITH HIGHLY CONTRASTING RELIEF
- MOZAIC OF DIFFERENT LANDSCAPES
- "HANZE" TOWN AND SURROUNDING AREA

15 Water meadows by Deventer

Urban river park with planted areas and beaches

design principles →

- RIVER VALLEY WITH HIGHLY CONTRASTING RELIEF
- MOZAIC OF DIFFERENT LANDSCAPES
- "HANZE" TOWN AND SURROUNDING AREA

17 Water meadows between Zutphen and Deventer

Meadows winding alongside the bends in the river

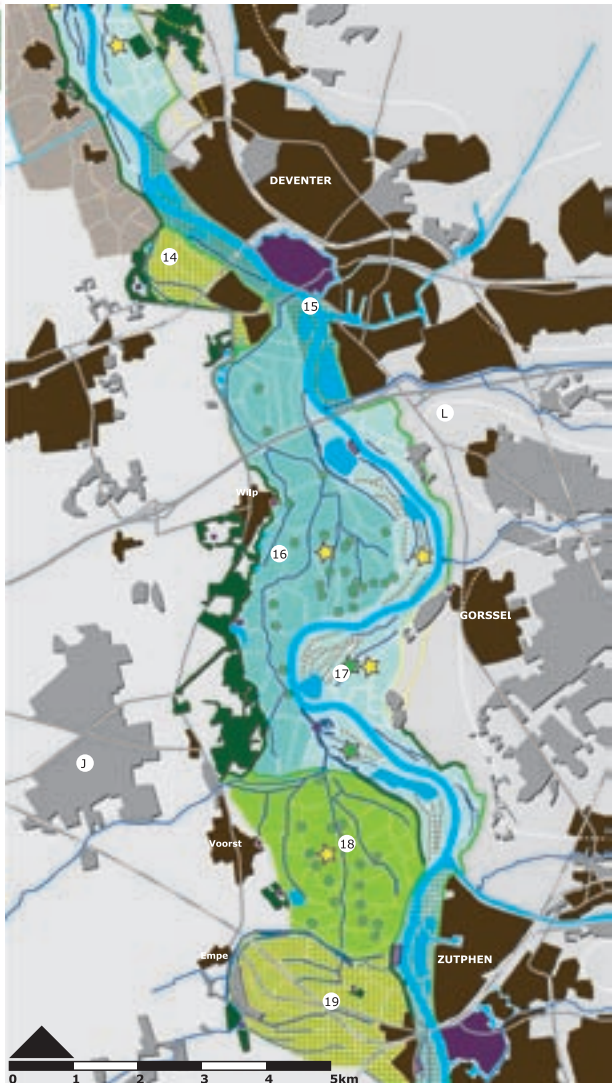
design principles →

- RIVER VALLEY WITH HIGHLY CONTRASTING RELIEF
- MOZAIC OF DIFFERENT LANDSCAPES
- "HANZE" TOWN AND SURROUNDING AREA

18 The Voorsterk (clay soils near Vorst)

design principles →

- RIVER VALLEY WITH HIGHLY CONTRASTING RELIEF
- MOZAIC OF DIFFERENT LANDSCAPES
- "HANZE" TOWN AND SURROUNDING AREA



Design principles for the landscape areas in the IJssel area between Zutphen and Deventer

• PROJECT: STRENGTHENING THE TOWNS AND VILLAGES ALONG THE IJSEL
Strengthening the functional and spatial relationship between town and river.



PRINCIPLE:
Town silhouette



in the Upper IJssel design studio for making old river structures and natural embankments visible in the Rhederlaag recreational area. These features had been damaged or obliterated through past mineral extraction.

The follow-on

The Provincial Executive of Overijssel adopted the GUIDE FOR SPATIAL QUALITY OF THE RIVER IJSSEL on 19 February 2007. The report was sent to the parties involved, including municipalities and water boards. The guide was used in drafting the provincial framework plan and in specific projects under the Space for the Rivers key physical planning decision. The Space for the Rivers programme management and quality team use the guide as a tool for reviewing river plans, and as a frame of reference for recommendations on key physical planning decision projects along the river IJssel. The guide also makes recommendations for further study into dyke typologies. Based on the given methodology, the need for enhancements mainly inside the dykes in some projects also emerged in an interim evaluation meeting. The provincial government of Gelderland instructed the production of guides of this kind for the rivers Waal and Nederrijn.

Lessons:

- Identify the plan area's core qualities. In the process, use the layer approach and incorporate cultural and historical values.
- It is important at the start of a project to make agreements with all parties about the status of the envisaged product. A guide serves as a source of inspiration and toolbox.
- Assemble the right people and experts at the right time in the process: strategic thinkers, administrators, users, designers and knowledge carriers. Ensure that there is enough time, money, space and capacity.
- A design-oriented approach makes it easier to switch smoothly between scales, which is important because of the many boundaries, whether hydrological, landscape-related or administrative.
- A provincial guide does not automatically work through to the municipal level, but the appropriate experts must be approached in the municipalities.

Project

Guide for spatial quality of the river IJssel

Location

The IJssel and the surrounding landscape

Client

Provincial government of Overijssel, also on behalf of the provincial government of Gelderland

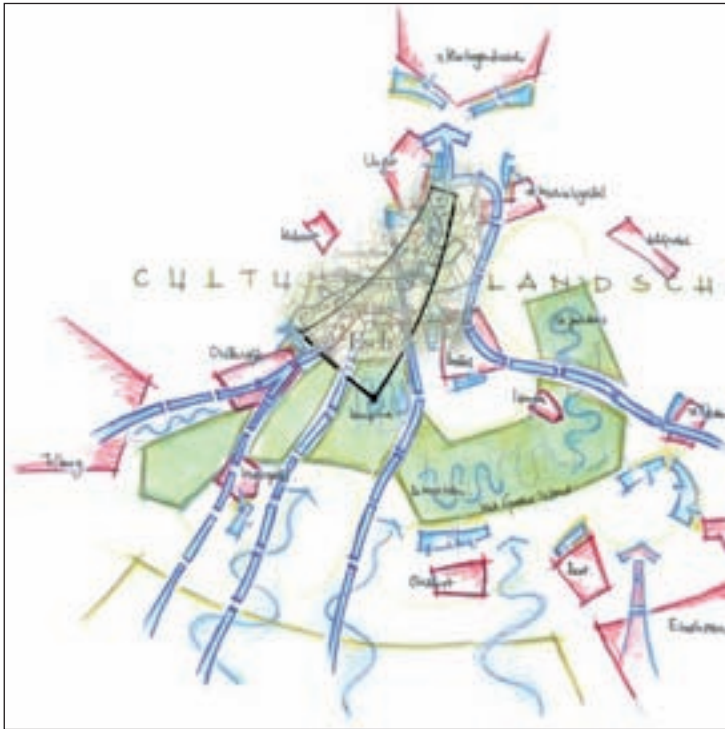
Contractor

Bosch Slabbers Landscape Architects

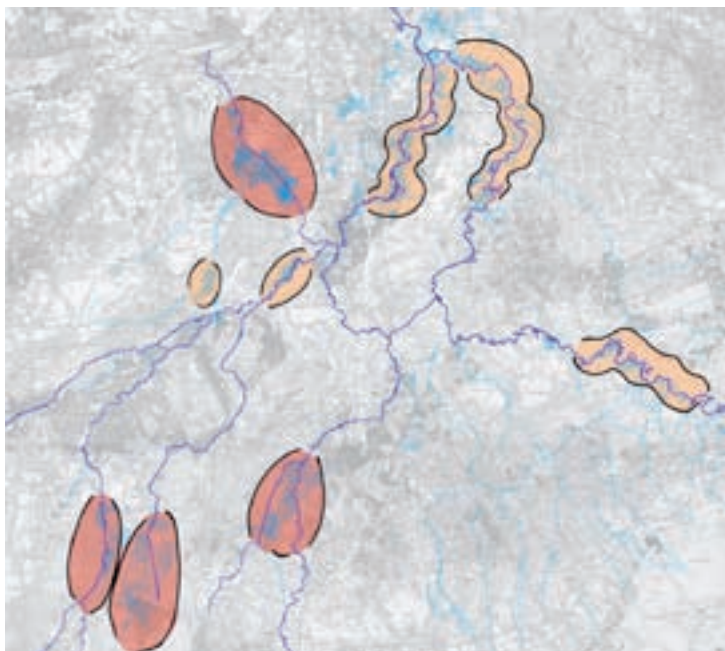
Additional information

Provincial government of Overijssel, Peter van Wijk, e-mail p.v.wijk@overijssel.nl, telephone (0031) (0) 38 499 81 13

The guide is available for download on www.provincie.overijssel.nl



Study area (Groene Woud) and planning area (Essche Stroom)



Proposal for the construction of watering area in Groene Woud



Groene Woud and Essche Stroom

Cultural history gives inspiration

The Groene Woud national landscape is an area of 35,000 hectares in the Tilburg-Eindhoven-Den Bosch triangle. The area has a mix of nature, culture and recreation, with countless charming villages, woods, chapels and other historical attractions. The continued development of this landscape makes demands on agriculture, nature and leisure activities. The Essche Stroom is one of the streams that crosses the area. The De Dommel water board intends to give the stream a greater significance, and has duly developed a vision, mainly from a hydrological perspective. The water board wants to clean up the stream and reintroduce the meanders. Space for water storage will be created at certain locations. The issue for the pilot project is to combine the continued development of the landscape with the stream restoration issue. Cultural history will serve as a related source of inspiration. The opportunities and options have been documented in a catalogue 'Omgaan met water in het Groene Woud'

(An approach to water in Groene Woud). By consistently making a link with history, the catalogue shows that developments are not new, but have traditionally motivated the people who live in this area. Working on the basis of the cultural and historical foundation has mobilized knowledge of the region, thereby creating quality, while on the other hand generating much enthusiasm and support.

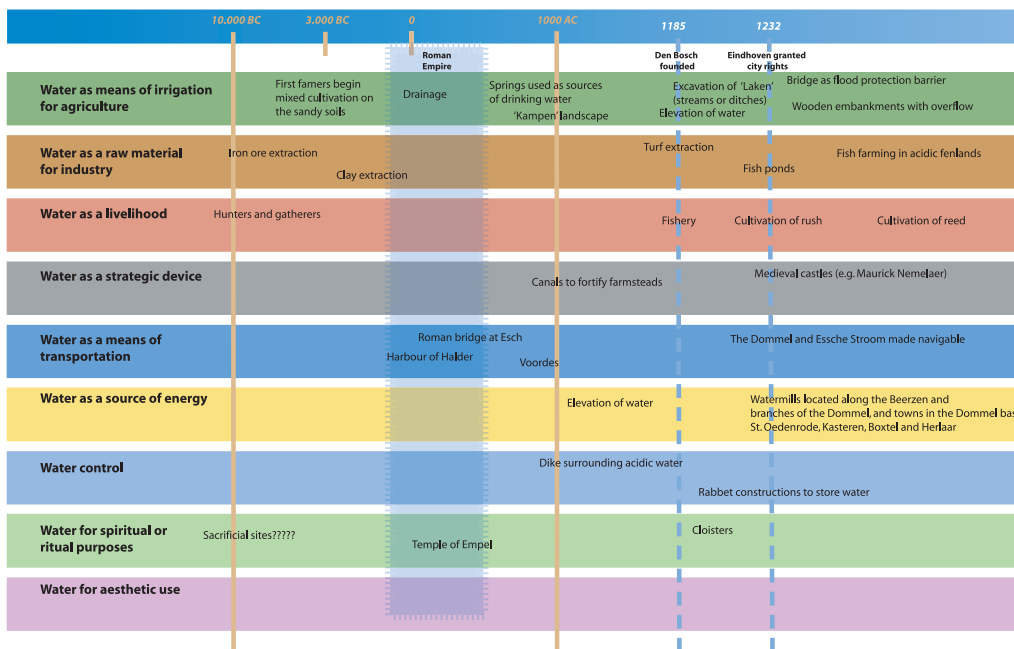
Water issue:

- stream restoration, water storage, elimination of water bed pollution, restoration of ecological links and restoration of Natte Natuurparels (wet nature gems).

Spatial issue:

- implementation of Groene Woud national landscape. Natural and landscape development, ecological agriculture, leisure activities.

Timeline showing water usage in Groene Woud



Design principles

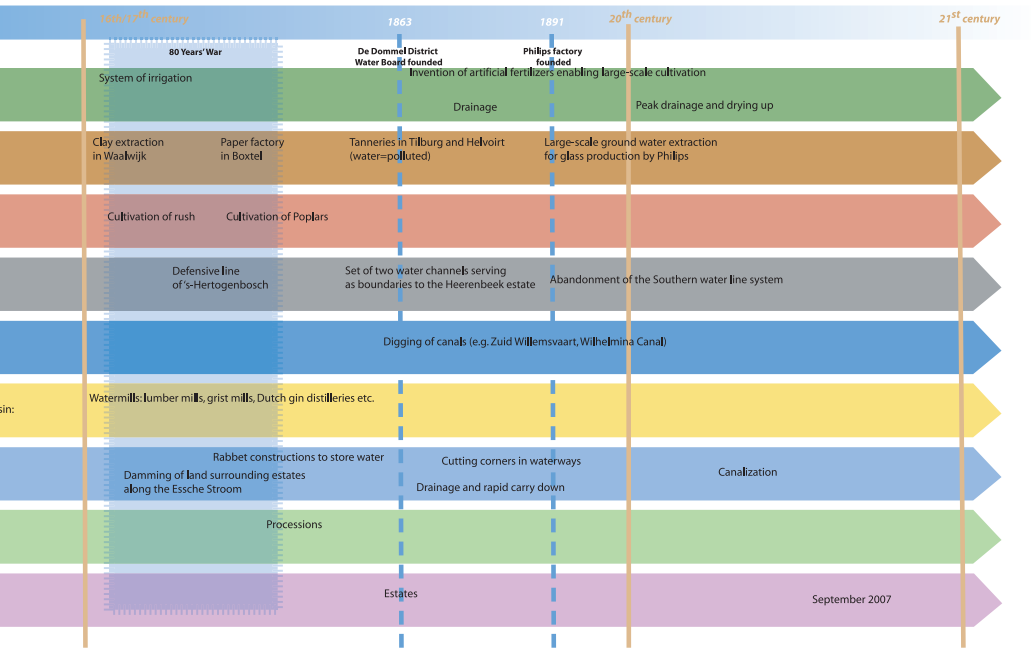
Viewed from the development of Groene Woud as a national landscape, there was a need for a greater understanding of the area's anthropogenic aspects, which is to say what its residents have done with the area in the past. At the same time, the water board wanted to revert to the natural, geological, cultural and historical components in the approach to the area's various streams, including Essche Stroom. This involves exploring how the streams behaved in the past, and how the area has been shaped by its residential history. Cultural and historical aspects are binding, and now too they are of great importance in defining the plans for the area. The local history society 'De Kleine Meierij' also pressed for history to be allowed to guide developments in the future. A product of the in-depth study of the area's origins is a catalogue of specimen

development plans. The central characteristics are:

- current issues are compatible with the qualities and perception of the area; Archaeology and cultural history are not viewed as limiting factors, but as opportunities;
- the catchment area of the streams guides the layout of the space: the appropriate use (water, nature, housing, employment, leisure activities) at the right place.
- Restoration of the water system and ecosystem (restoration of stream flow, water storage, improving groundwater quality, natural layout, fish and fauna passages and leisure activities).
- Flexibility in space, resources and time.

Parties involved

A wide range of experts from various disciplines and with diverse approaches



has searched jointly for common ground and shared ambitions: De Dommel water board, the provincial government of North Brabant, the Meerij Reconstruction Committee, numerous municipalities and nature organizations, ZLTO, the Directorate-General for Public Works and Water Management and the Ministry of Housing, Spatial Planning and the Environment. It is not always a simple matter to set up a broad partnership of this kind. Some researchers have little enthusiasm for plans, and planners dislike history. People who know the area and outsiders look differently at an area. The threshold was levelled by concentrating from the start of the project on each other's perceptions and the power of partnership. Different initiatives can influence each other, which helps improve quality. The result of the quest, the catalogue 'Omgaan met water in het Groene Woud'

(An approach to water in Groene Woud) has helped put cultural history on the agenda for administrators, residents and planners.

The design studios

The first design studio established the water issue for Groene Woud and how to translate it into design solutions on regional and local scales. Building blocks for Groene Woud as a whole were then formulated, and translated in later working sessions for Essche Stroom and other streams. The working sessions were led by landscape architects from Grontmij. The participants included cultural historians, archaeologists, representatives of public authorities, the district water board and the local history society. Four aspects had a decisive effect in the design studios: the quality of the place viewed from the past, management, use and leisure activities, and cultural history

and perception. In this way, inspired by the past, solutions were defined for the short and long terms. A decisive moment in the design process was the presentation of a time line showing the region's historical origins. The time line shows differences in the form and meaning of water and water systems over the centuries. The time line helped archaeologists and hydrologists speak the same language, which reinforced mutual confidence.

The follow-on

The plan created in the pilot project is not a blueprint or assessment framework; it could be a tool for entering into discussion about redevelopment with players in the area. The catalogue is a source of inspiration for defining an up-to-date interpretation of the water and spatial issues. The catalogue also demonstrates that many of these issues existed at an earlier stage, and were often solved with what we would view as progressive measures. Sustainability, climate change, innovation and custom work are new concepts, but closed water circuits, grey water and reuse are centuries old.

Furthermore, fine plans do not necessarily cost much money. Mainstream projects often also have items that are related to leisure activities and landscape. Moreover, grants are often available for projects that provide a clear and comprehensive quality boost to an area.



Project

Groene Woud and Essche Stroom

Location

The east of North Brabant

Client

De Dommel water board

Contractor

Grontmij

Additional information

De Dommel water board, Rob van Veen

e-mail rvveen@dommel.nl, telephone (0031)

(0) 411 66 10 60

The catalogue is available for download from www.esschestroom.nl



Design idea Essche Stroom

Lessons

- History presents opportunities. Working from the viewpoint of cultural history not only raises the quality of plans, but also reinforces commitment and support, among both professionals and residents.
- Involve residents in the design process. They have substantial area knowledge, which helps enhance the quality of design proposals. Also bear education in mind.
- Make clear agreements about the assurance of spatial quality. Explicitly identify the aspects that contribute to spatial quality and the quality of the water system.
- Lay map concepts from different sectors alongside each other. Work both from higher scales and bottom-up from core qualities.
- The water issue is not always new. Knowledge from the possibly distant past is often relevant.



A fine network of navigable waterways



Reference images



Reference images



Railway track area converted into Grand Canal

Plantage Zuid, Rotterdam

Water for desirable neighbourhoods

Rotterdam South has an extensive restructuring issue. Part of the issue is concentrated in the postwar neighbourhoods of Zuidwijk and Lombardijen. The municipality wants to refurbish the housing, but at the same time to make the living environment more attractive for current and future residents. This approach could create scope for differentiated housing and for an influx of people with a higher disposable income. The solution for an attractive living environment is found in answering the urban water issue: increasing the storage capacity for discharge peaks, reducing sewage overflow and allowing more rainwater to infiltrate the soil. The solution for both issues is found in creating substantial additional surface water area. A system of watercourses has been designed from the water-rich Zuiderpark to the north rim of the neighbourhoods, which is linked at the south of the area with a newly designed Grand Canal. The Grand Canal follows the path of an old rail line. More homes and restructuring locations

will soon be looking out onto open water, and there will be more attractive outdoor space in the neighbourhoods. And the link between the water of Zuiderpark and the southern rim of Rotterdam creates far greater opportunities for pleasure boating.

Water issue:

- Water issue 2030, rainwater storage, linking water to urban programmes.

Spatial issue:

- Restructuring: urban renewal of the southern garden towns, attractive residential environments, differentiation of housing typologies, social cohesion, space for leisure activities, integration of cultural and historical values. As many waterside homes as possible.

Design principles

The Rotterdam project is a study that was started at the time of the 2005 Architecture Biennial. The idea then arose of combining the water issue with the issue for restruc-



Zuidwijk, current Schere situation and reference image

turing the southern garden towns. The current residents will notice spatial quality improvements, and the area will attract new residents. And the creation of more surface water will address the water issue. The specific design principles include:

- moving several allotments and sport complexes out of Zuiderpark, which will create opportunities for housing, add surface water, and improve access to the park;
- creating water-rich residential environments and many free waterside plots, the idea behind which is to create an archipelago with spurs from the Zuiderpark;
- linking the water system with a new watercourse to the south of the area, for which the path of the former harbour rail line can be excavated as a Grand Canal: a blue backbone for the neighbourhood;
- promoting recreational water use by reducing the number of different water levels in the area.

Parties involved

A steering group was assembled at an early stage with administrators from all involved parties: the municipality of Rotterdam (Urban Planning and Public Housing Department, City Development Corporation, Sport & Recreation Department and Public Works Department), the submunicipalities IJsselmonde and Charlois, the Hollandse Delta water board and the Vestia and Com-women housing associations. This steering group acted as client. All parties involved had a sense of being owners of the problem. A supervisory committee was also assembled with specialists from the same parties. The actual work was performed by a core team of representatives of the water board and the municipality, consultants from RIGO and designers from West 8. Existing policy frameworks were used as a

starting point for the study: the City Vision, the Water Plan and the 'Pact op Zuid' programme. As much account as possible was taken of the current and future restructuring schedule in the area.

The design studios

The five studios and working days that were held gave a significant boost to the creation of ideas. Designers from the West 8 bureau, experts from housing associations, several municipality and submunicipality departments, the water board and ministries participated in the studios. The studios started by working top-down from the higher scale to the area, which created a picture of interrelated water systems and spatial quality. The study was oriented explicitly to the long term, which meant the occasional deliberate departure from standard frameworks. Daring proposals appeared to be a useful way of broadening the thinking and revealing new opportunities. Various different scenarios were considered. One central idea was elaborated and estimated. The impacts of this scenario for the living and working environment in Zuidwijk and Lombardijen was defined on a low scale. It is noteworthy that West 8 succeeded in finding space for land-based homes in an attractive living environment for people of relatively modest means.

Drawing and estimating

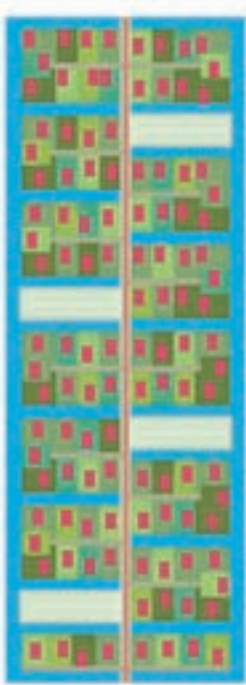
A notable part of the study process was the interaction of designers and estimators. Using a social cost-benefit analysis as a design tool enabled financial feasibility to be incorporated consistently throughout the study. The feasibility analysis was then not only a means of checking with hindsight, but also an instrument for optimizing the design during the process. This demands unusual skills of the estimators,



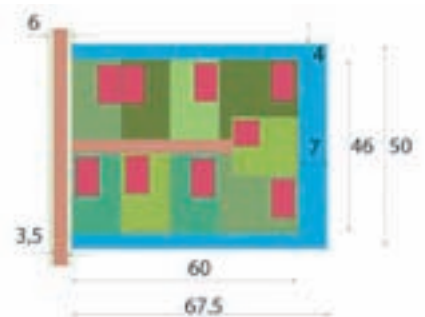
Gardenplots with waterways

The maximum percentage of land that can be granted (white)

Using smart constructions



Each plot is situated alongside water



in that in the course of the process they have to put their confidence in general data, rules of thumb and personal experience. It also demands unusual skills of designers, in that combining estimating with drawing must not be allowed to impede creativity and the formation of ideas. A decisive factor in the process was the estimator's revelation of how important it is to position as many homes as possible alongside the water. This is how the Vaartuinen waterway network concept came about. The design bureau West 8 stretched the technical frameworks of the original project.

The follow-on

The stakeholders will devise a proposed approach for incorporating the study output into a firm and feasible project. The circle of stakeholders is therefore to be expanded substantially. For instance, there were no contributions from local residents and social organizations in the study. Neither was the municipality of Barendrecht involved, while the study area overlaps this territory. The focus in the follow-on phase will therefore be more on communication and the creation of support.

Lessons

- Drawing and estimating using a social cost-benefit analysis helps arrive at a feasible design.
- Opportunities for spatial quality and a sustainable water system emerge when viewed from a higher scale.
- Make the parties involved problem owners. Formulate a shared ambition.
- It is important to start from established policy frameworks, but to let go of these frameworks occasionally as necessary. Scope for imagination and creativity appear only if 'wild' ideas are permitted.
- Do not lose sight of livability, and illuminate the impacts for the living environment on a low and specific scale.

Project

Plantage Zuid, Rotterdam

Location

Rotterdam Zuidwijk and Lombardijen

Client

Municipality of Rotterdam

Contractors

RIGO and West 8

Additional information

Municipality of Rotterdam, Urban Planning and Public Housing Department, Marcel van Blijswijk

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telephone (0031) (0) 10 489 74 49

The publication is available for download from www.vrom.nl (climate change/climate policy file)



Clean and sparkling waters

Water storage principles

Ground level, within the quays



Raise current level, and dig to generate extra capacity



Water storage in dunes



Haarlemmermeer Westflank

Housing and water in the polder

HAARLEMMERMEER WESTFLANK is set to change substantially in the next few years as part of the Randstad Urgent national government programme. The related issues are the implementation of an attractive residential, employment and living climate, accessibility and economic dynamism in a climate-resilient delta. The flat polder land of the west of Haarlemmermeer will change into a rich and varied residential and recreational area, interspersed with water and green space. The plan area will have some 10,000 new homes and 900 hectares of recreational area. The associated challenge is to develop a sustainable and robust water management system in the polder area, a precondition for which is that the area itself must be able to store precipitation water. There is a peak storage issue of one million cubic metres, and a seasonal storage issue of two million cubic metres. The space required will be combined with new residential forms, such as water dwellings, recreational and other green space, transport

and sustainable energy. The water issue will contribute in this way to improving spatial quality. The policy ambitions and constraints in the pilot project were catalogued and translated in spatial terms into images and layout sketches.

Water issue:

- 1 million m³ peak storage and 2 million m³ seasonal storage.

Spatial issue:

- 15,000 homes, 5,000 of which urban
- 900 hectares of recreational and other green space, some of which part of new expansion.
- Construction of new infrastructure.













Design principle

The low elevation means that Haarlemmermeer has a water management problem. Much salt seepage water arrives in ditches and watercourses in groundwater flow. This effect will increase as the sea level rises. The seepage water is not only saline, but also



Three models for the Westflank: Versailles, Dunes and Network with impressions



-  WATER
 -  WOODS
 -  ESTATE
 -  RECREATIONAL GREEN AREAS
 -  MAIN INFRASTRUCTURE
 -  BUS RAPID TRANSIT (BRT)
 -  BRIDGE FOR AUTOMOBILES
 -  BRIDGE FOR BICYCLES
- Residential areas**
-  5 dwellings per hectare (dph)
 -  15 dwellings per hectare
 -  30 dwellings per hectare
 -  50 dwellings per hectare



nutrient-rich, so that there is substantial algal bloom in ditches and ponds in hot weather. The watercourses are continuously flushed with fresh water from the outlet waterway around the polder, but this is not a sustainable solution. It would be better to guarantee Haarlemmermeer water quality with clean rainwater, which would be possible by raising the water level in the area, creating sufficient water storage, and working with a flexible water level. Water management of this kind would solve the salination problem in the polder, and would create space for rainwater storage in wet periods. This water would then be available for use in a drought. If more space is available for water, heavy downpours would also cause less flooding. Peak storage is therefore also being created in the area, with the purpose of storing water temporarily in periods with exceptionally high rainfall. The new surface water is to be combined with innovative residential environments and space for leisure activities.

Three models

Thematic surveys were performed as part of the pilot project into combinations of housing, green space and water, resulting in a joint conceptual framework. On this basis, three discussion models were developed as possible translations of the formulated programme and the associated ambitions. The models were based on various systems and forms of water management. The models made the communal issues tangible, enabling in-depth discussions about the programme and ambitions. A series of research questions was formulated based on the discussion. What position does Westflank occupy in the Amsterdam Metropolitan Area? Which sustainability ambitions are realistic? What infrastructure, in particular advanced public transport, will

be needed? Which physical aspects of the soil determine the opportunities for water storage? These and other questions will be worked out in greater detail as building blocks for the schedule of requirements and the master plan that are to be drawn up. The models and the research questions have been recorded in the report *Verkenning van de Westflank* (Westflank survey) of 1 May 2008, which has been adopted by the Haarlemmermeer Westflank area development steering group. The steering group has not selected any of the models, and for the time being considers this report as input for discussion.

Parties involved

Four parties are working together on the Westflank development: the national government, the provincial government of North Holland, the municipality of Haarlemmermeer and the Rijnland District Water Control Board. These parties are represented in the Haarlemmermeer Westflank area development steering group. The provincial government holds the chair, and was also the client for the pilot project on behalf of the steering group. The provincial government was supported by an external project manager, who controlled the design team and was responsible for the quality of the output. The design team consisted of staff of the provincial government of North Holland, the Rijnland District Water Control Board, the municipality of Haarlemmermeer and the design bureau Strootman Landscape Architects, which was engaged for the pilot project. The project manager reported to the Haarlemmermeer Westflank area development steering group.

The design process

The design process was open and transparent. The results were arrived at together

with the stakeholders in the surrounding area. However, the issue transpired to be more complex than originally thought. A catch-up operation was therefore necessary in order to acquire sufficient knowledge about the water system. The design process came under time pressure because of the need to submit the administration agreement on time nonetheless. The original intention was to hold five successive working sessions with experts, social organizations and market parties. This approach was not strictly adhered to because of the time pressure.

The follow-on

The pilot project serves in the first place as a framework for seeking out water storage opportunities in Haarlemmermeer. It provides new reference points, which could have a controlling effect on the layout of the area. The pilot project serves as a basis for a plan of action, a schedule of requirements and a master plan, and as such the pilot project also gives an important boost to the administrative process. The added value resides mainly in the directive ambition and the shared body of ideas. It has become clear to everyone concerned that combining red (land), green (nature) and blue (water) functions is not only necessary, but actually also presents opportunities. The pilot project had an important role in the closed administrative consultation, which established the feasibility of the spatial ambitions. The project will be continued under new process management, with the first milestone being a schedule of requirements on 1 May 2009. The design studio has been strengthened qualitatively with the addition of both designers and specialist expertise. Effort will be given in the remaining process to refining and detailing a shared vision on the area, with the close involvement of

public and private parties and social stakeholders. Water as a part of the landscape is the carrier and driver of comprehensive area development and innovations.

Lessons:

- Specific details from (extreme) models inform the discussion and support a joint awareness of the water and spatial issues.
- Clearly illuminate the principles for water storage, such as new surface water in combination with innovative residential environments and space for leisure activities.
- Up-to-date and accessible information about soil and subsurface during the design process as a carrier for the transformation is absolutely indispensable.
- A thematic survey and research through designing are part of a cyclic process. It becomes clear step by step which components require further study in order to support sound decisions.
- More haste may mean less speed. Preparing administrative consultation consumes much time, and must not be allowed to detract from the time allowed for research through designing, detailing and coordination.

Project

Haarlemmermeer Westflank

Location

The southwestern part of Haarlemmermeer

Client

Haarlemmermeer Westflank area development steering group

Contractor

Strootman Landscape Architects

Additional information

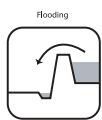
Provincial governments of North Holland, Rien Wezenberg

e-mail wezenbergm@noord-holland.nl, telephone (0031) (0) 23 514 43 93

Documents are available for download from www.gebiedsuitwerking.nl



Urbanization project Amsterdam Zuid-Oost



Flooding



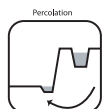
Heavy showers of rain



Dry spell



Subsidence



Percolation



Clean

Water storage Amsterdam

On the right (starting at the top):
Urban and rural organization; water
systems; relief map and soil
constitution

Amsterdam Zuidoostlob

Over the boundary between city and countryside

It was opted in Zuidoostlob to elaborate several subsectors on the transition from city to countryside. Major renewals are in progress in this area, such as the restructuring of postwar housing, a large recreational and leisure centre, a new train station and expansion of the Academic Medical Centre Amsterdam. The Zuidoostlob is also the wedge that links Amsterdam with the outlying area at Diemen and Amsterdam Zuidoost. All in all, it is a complex transitional area. It has deep polders, open enclaves in an urban area, old and young urbanized areas, and areas with a current urbanization issue. The landscape is intersected by waterways, railways and highways. The area functions as a recreational expansion area, but also as a collection area for urban water. The urban discharge capacity in deep polders is inadequate in heavy precipitation. There are problems with seepage, drought, water storage and subsidence. The large number of water level control areas with associated engineering

structures and pumping plants in the area makes the situation even more difficult. The municipality wishes to strengthen the structure by linking water management, the housing programme, leisure activities, cultural history and ecology. The entire water system, across the boundary between city and countryside, has therefore acquired a guiding and structuring role.

Water issue:

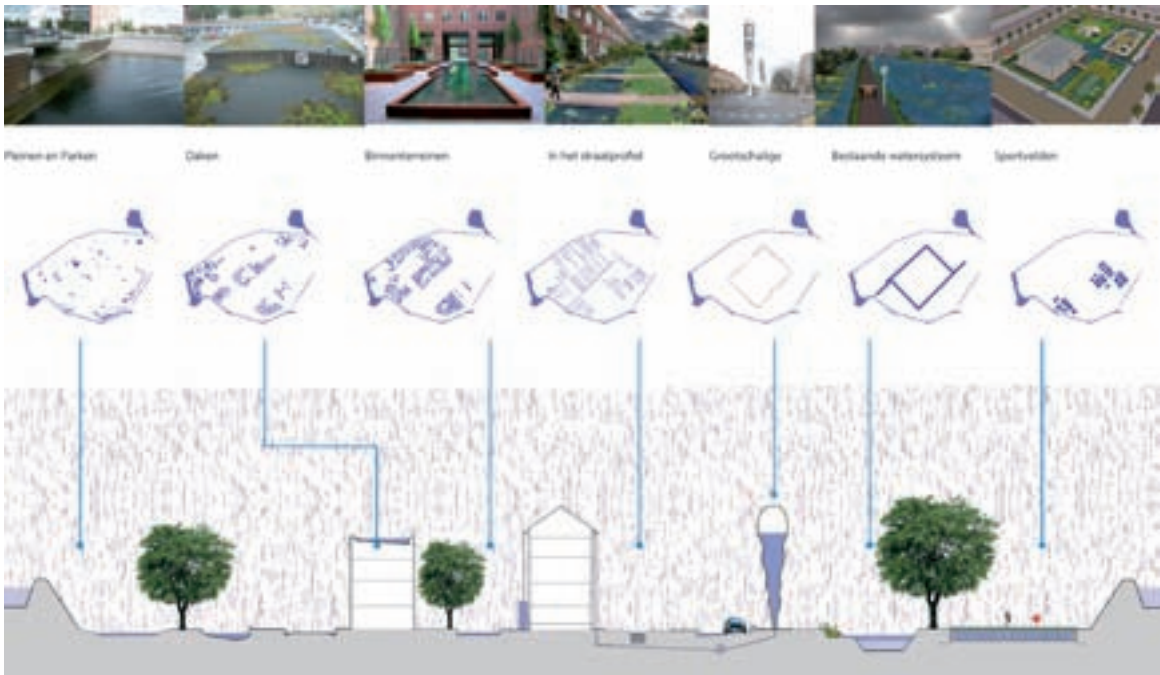
- Water storage and eliminating the consequences of seepage, drought and subsidence. Avoiding an offloading of the urban water issue onto the outlying area.

Spatial issue in four subsectors:

- Urbanization (Duivendrecht polder), improving recreational options of the outlying areas (Gaasperplas and surroundings, Diemen), transformation (Diemen, Watergraafsmeer).



Futuristic design of 'club-shaped water collectors'



Subsector Watergraafsmeer: Series of ways to store water

Design principles

Analysis and design on the level of water systems is the key for sound layout proposals.

It is then possible to combine solutions for water problems with sustainable spatial development in the area of housing, leisure activities, cultural history and ecology.

The lead was taken from an analysis of the regional and urban water management system, from which perspective obstacles and ambitions were translated into alternatives in four subsectors:

- Diemerscheg: use the complex stratification of waterways and routes. Improve the transition between city and outlying areas and the recreational options by creating additional places and routes, and, by rearranging Randstad functions, making the significance and use of the location visible again;
- Duivendrechtse Veld: facilitate urbanization by overall raising and a continuation of the urban grid, or through development based on the original peat polder landscape;
- Gaasperplas: design a new water cycle and a new staging of lake and banks;
- Watergraafsmeer: provide additional water storage in this deep polder on roofs and courtyards, with water playgrounds and wadis, and with the New Holland Aqueduct.

Parties involved

It was possible to link solutions for water problems with spatial developments and issues thanks to effective cooperation between the spatial planning department and Waternet. Both parties formed a project team and a steering group. The steering group also had contractor representatives of the Ministry of Housing, Spatial Planning and the Environment, the Ministry of Transport, Public Works and Water Management/

Deltares and TU Delft. In the course of the process intermediate results were submitted to the Zuidoostlob administrative coordination platform. On 18 June 2008 the results were presented to all involved parties and administrators at the 'Strong Water' symposium. The project gained in terms of critical reflection, focus and general awareness through taking every opportunity during the project to correspond about the results.

The design studios

The City of Amsterdam Physical Planning Department, Waternet and TU Delft held workshops and studios. Students produced design sketches for the area in some of the studios. The collaboration with TU Delft soon produced a wealth of plans, which broadened the project's focus. Design principles for water storage were formulated using the output of the studios, based on various landscape foundations.

Research through designing

A relatively large proportion of project time was expended on gathering knowledge and soundly analyzing and conceptualizing the water system. It was then possible to create the designs for the subsectors fairly rapidly. Research through designing was performed for the four separate subsectors. Two alternatives were also developed for three of the subsectors, while a series of solutions was devised and presented for one subsector, Watergraafsmeer. A high example value was achieved by illuminating differences.

Switching between scales

Zuidoostlob's complexity and great dynamism, with countless boundaries and transitions, make it extremely important to be able to switch between both geographic and temporal scales. The project has led to more intense collaboration between water man-



Subsector Duivendrechtse polder, with current water system and two alternatives for a new system

agers and spatial planners in devising water plans and on several current developments. The pilot project also justified boosting the Amsterdam water agenda.

The examples will contribute to a structure vision for Amsterdam that is to be produced. The cultural and historical spatial carriers of the landscape, the dynamism, the urban culture and the multiple landscape types have been incorporated into the project. Map material is used to conceptualize the harmony between the water system and space in the area. But the output of the pilot project was also soon scaled up to the level of the Amsterdam Metropolitan Area, which extends across the entire northern Randstad. The project justifies the formation of a vision on making this area water resilient in 2040.

The follow-on

A proposal has been made to the Zuid-oostlob administrative consultative platform for specifying a process that will better integrate the issues for water, water management, spatial planning and traffic in the entire Zuidoostlob, including the municipal districts and neighbouring municipalities. Assignments have been issued for the subsectors in order to develop the vision further.

Lessons

- Cooperation between municipality and water managers facilitates an integrated approach to the water and spatial issues, leading to a better living environment.
- Switching between scales is vital, especially when an area has many geographical and administrative boundaries.
- Arrange for a wealth of plans, and think in variants, because this can help broaden the focus. Use map material and images to set alternatives alongside each other.
- Communication and the early involvement of all relevant disciplines increases awareness of the project, encourages critical reflection, and benefits the quality of the result.
- Satisfactory design is impossible without a sound analysis of the spatial effect of the water system. A design can materialize fairly rapidly with these insights.

Project

Amsterdam Zuidoostlob

Location

Diemerscheg, Duivendrecht polder, Gaasperplas, Watergraafsmeer

Client

City of Amsterdam

Contractor

TU Delft (Inge Bobbink, Architecture, Landscape Architecture) and NL architects

Additional information

City of Amsterdam Physical Planning

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telephone (0031) (0) 20 552 79 64

See also www.zuidoostlob.amsterdam.nl



Walcheren Waterfronts

Handling uncertainties flexibly

Zeeland is in the front line when it comes to rising sea level. The provincial government is therefore fully engaged in improving coastal safety. However, the traditional method of coastal protection with a single high and strong dyke may pose problems in the future. More innovative forms of coastal protection are therefore also being worked out, including wider, multifunctional flood defences. Most of the Walcheren North Sea coast constitutes one of the eight weak links in Dutch coastal protection. Measures are currently being taken in two coastal reaches. In other coastal reaches, including the waterfronts of Flushing, Zoutelande and Westkapelle, measures of this kind will be needed in the long term, which is to say after 2020. There is time for reflection in the meantime. The provincial governments and the municipalities involved wish to make the best possible use of this time, and are therefore taking steps now to increase the momentum of thinking about the development of attractive boulevard areas. The

challenge is to arrive at a vision on how to integrate the coastal reinforcements into the necessary urban development transformations, with respect for cultural and historical qualities, and public acceptance of the measures. The issue is to investigate which innovative landward or seaward solutions are possible. Another question is whether there can be an element of gradual adaptation, or that the transformation would be better implemented in large steps.

Water issue:

- coastal reaches are weak links in bringing the boulevards to the required protection level (after 2020).

Spatial issue:

- transforming coastal boulevards in Flushing, Zoutelande and Westkapelle into high value waterfronts for residents, visitors and businesses.



Growth models for boulevards and waterfronts

Four subsectors have been identified in Flushing. With the Zoutelande and Westkapelle fronts this gives six waterfront types in which coastal reinforcement plus urban transformations will be needed in due course. From a historical analysis (then) and an analysis of the current spatial situation (now), an alluring future prospect (one day) has been outlined for these areas.

Clarifying this future prospect will first require answers to a list of research questions. These questions have been captured in a research agenda, which sets down the action perspective for the near future. The path between now and the future consists of designs for each decimetre of sea level rise. This principle leads to flexible scenarios in which the necessary space for coastal reinforcement will be available in the long term. Current plans therefore do not yet anticipate the maximum long-term sea level rise.

THEN: Vlissingen in 1809

This avoids making disproportionate spatial reservations for coastal reinforcements that will be needed only in the distant future. For each waterfront and for each step, a spatial view and in-principle cross sections have been made that clearly express the relationship between the centre, the sea and the boulevard. It will be determined at a later stage which step is appropriate on the basis of current needs. The project shows how this will require a turnaround in thinking: not based on safety standards, but on learning to deal with uncertainties flexibly.

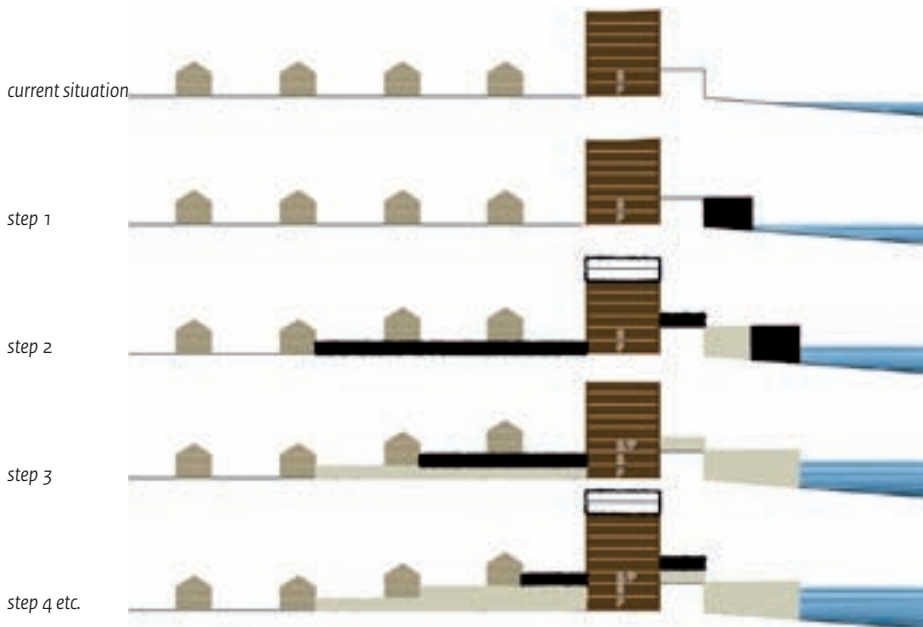
Parties involved

The municipalities of Veere and Flushing, the Zeeuwse Eilanden water board and the provincial government of Zeeland have formed a joint project team to specify the approach. The project team has engaged the engineering consultancy Arcadis to develop intermediate products and run



De Waterfronten

NOW: Subsectors Walcheren Waterfronts



IN THE FUTURE: cross-sections "Plans per decimetre"

design studios. The provincial quality team was also involved. The role of this team was not only to verify in hindsight, but also to work actively on the design process. There were also representatives of the Ministry of Housing, Spatial Planning and the Environment and the Ministry of Transport, Public Works and Water Management. A focus group was also assembled, consisting of social organizations, businesses and experts.

The design studios

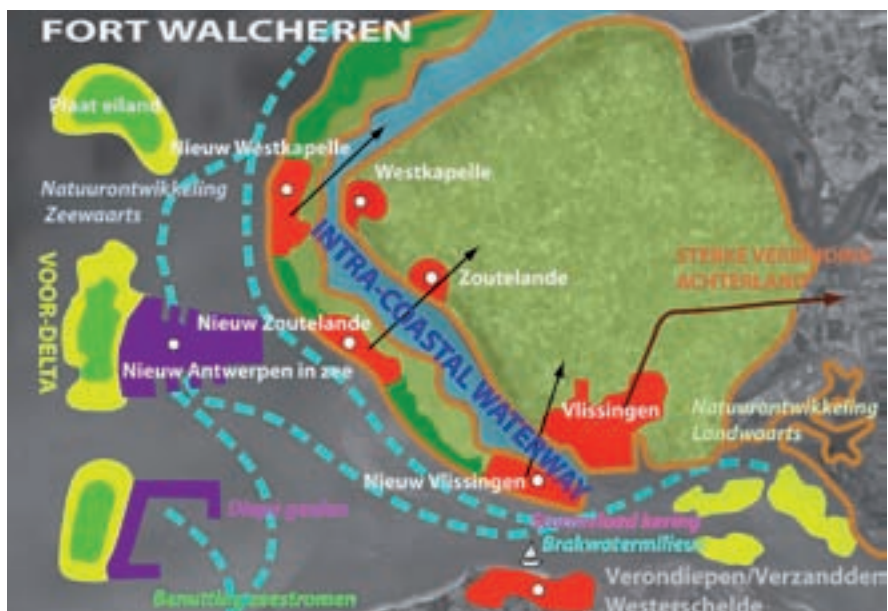
A kick-off meeting was followed by design studios about dreams, thinking and doing. The studios were attended by project team members and experts from Arcadis. The studios yielded some important insights, including the chosen concept of flexible coastal protection. It became clear that the coastal strip was more than just a 'thin

golden border'. A much larger area is envisaged for long-term coastal safety, covering the hinterland and a wide area off the coast, from the Antwerp harbour development to the Voordelta. This approach therefore demanded a correspondingly broad administrative approach. Another insight was that the sea level rise and the uncertainty about its pace and extent need not be viewed as a threat, but offer opportunities for new developments. The participating parties became increasingly positive as the process progressed about the opportunities presented by the proposed scenarios.

The follow-on

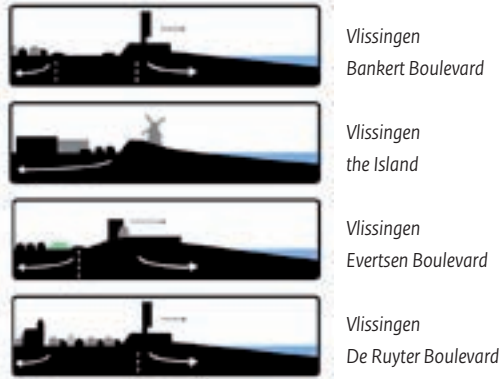
The output of the pilot project was adopted by the portfolio holders of the parties involved. The assessment of public support and the administrative decisions about the outcome will be based on the final output. It was proposed to designate at least one location in each municipality for which a Waterfront subproject would

SOMEDAY: one of the future visions developed during the workshops



be specified as a robust and flexible plan, with administrative embedding, and with any obstacles presented by legislation and regulations identified, and with willingness to alter financing strategies. In this way, in line with the new Spatial Planning Act, the old admittance planning approach will be replaced by modern development planning. In addition, the research agenda is to be adopted and executed jointly with the involved parties, possibly also with the Delta Coordinator.

Cross-section images Vlissingen Boulevard



Lessons:

- In order to put long-term issues on the agenda, it is important to develop an action perspective and a research agenda, and to convey their urgency to administrators.
- There is uncertainty about how fast the sea level will rise. It is therefore better to implement measures in phases (e.g. in ten-centimetre steps) rather than attempting to anticipate the uncertain long term at the outset.
- Involve a provincial or other quality team in the planning, which will strengthen the design, reinforce support and have a stimulating effect. Teamwork in studios helps people to look ‘beyond their own dyke’.
- Coastal protection is area development. An integrated approach is the one most likely to succeed and enjoy public support.
- Do not start from coastal protection in the distant future, but go on the offensive now by spatially embedding long-term coastal reinforcement in an effective way. This approach offers opportunities. Ensure that spatial developments can be adapted flexibly to the rising sea level.

Project

Walcheren Waterfronts

Location

The coastal area by the boulevards of Flushing, Zoutelande and Westkapelle

Client

The municipalities of Veere and Flushing together with the provincial government of Zeeland and the Zeeuwse Eilanden water board

Contractor

Arcadis

Additional information

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 (0) 118 55 53 41



Topographical map of Bodegraven-Woerden 1839-1859



Aerial view of the spatial organization of the 'Venster'

Bodegraven-Woerden Window

To be kept open with water

The BODEGRAVEN-WOERDEN WINDOW is still the only open link of reasonable size between the large open spaces in the north and south of the Green Heart. It is a quintessentially Dutch landscape with green grasslands, grazing cows and picturesque cloud formations. The area is one of the icons in the Green Heart implementation programme, and therefore serves as an example for a larger area. It was furthermore designated as a motorway panorama by the national government in 2008. However, the open character of the window is not unthreatened. Urbanization is advancing from the dynamic axis between Utrecht and The Hague-Rotterdam. The area is on the boundary between South Holland and Utrecht, precisely where the dynamic Old Rhine zone and the Utrecht region converge. The BODEGRAVEN-WOERDEN WINDOW is also part of the Green Backbone: the wet ecological link between IJsselmeer and Biesbosch. This is another of the Green Heart implementation programme icon projects.

The Window has various closely interrelated issues: protecting the openness of the landscape, strengthening the recreational and general significance of the Window for the surrounding centres, developing green and blue natural assets, and water storage.

Water issue:

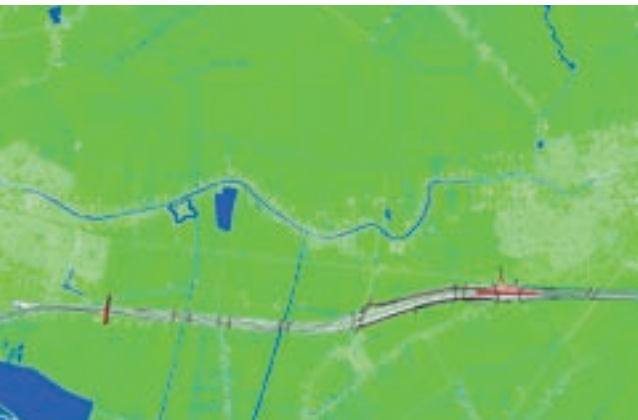
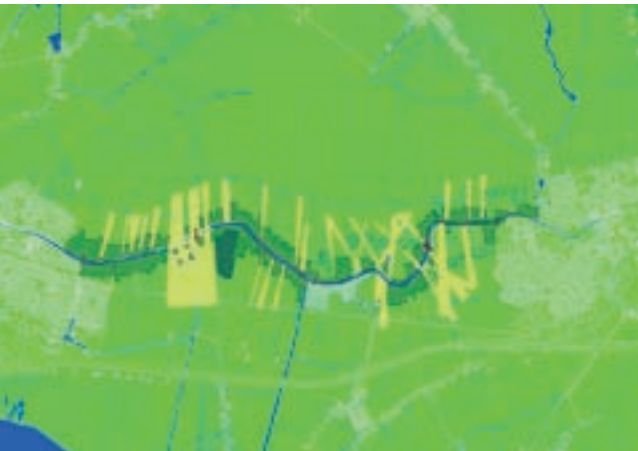
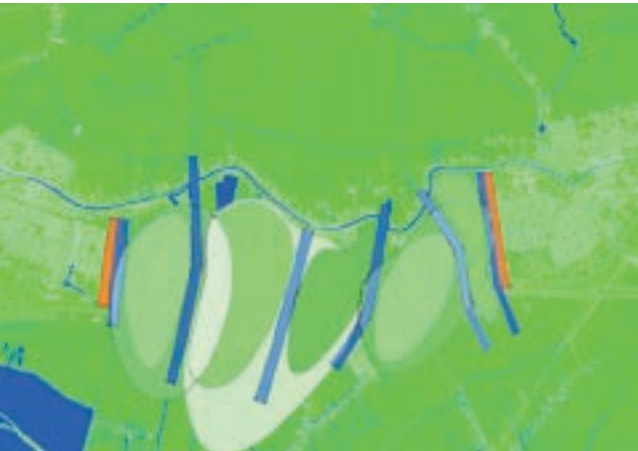
- Extending water storage options

Spatial issue:

- Keeping open (graded openness, leafy vistas of the Old Rhine, transforming the A12 from barrier to gateway).
- Strengthening the city-countryside relationship.
- Developing a green backbone.
- Enhancing the area's accessibility.

Core qualities in the picture

The bureau Alle Hosper was engaged by the Green Heart steering group to identify the core qualities of the BODEGRAVEN-WOERDEN WINDOW. The findings are recorded in the report INSPIRATIE VOOR REALISATIE (INSPI-



RATION FOR IMPLEMENTATION) (2008). The implementation agenda that follows from this report includes a proposal to specify the options for nature in greater detail: ecological links, wet/dry, clay/sand/peat, intensive/extensive. A layout sketch will be produced using these building blocks to form the basis of an integrated approach to water (quality and quantity), nature, agriculture, cultural history, leisure activities and north-south links. Important related subjects include: making water facilities and management sustainable, the coexistence of agriculture and nature conservation (subsidence and water level), guaranteeing the ecological linking zone (green backbone), further clarifying the identity of the Old Hollandse Waterlinie (defensive inundation line) and mitigating the barriers formed by infrastructure.

Models

Five models were developed in dialogue with involved parties, with a variation in the separation or interweaving of functions, water storage mainly along the urban fringes (combined with recreational functions) or more distributed around the area, an ecological link along the Wierickes (create an intermediate outlet waterway?), or along the east of Bodegraven. At the walk-in meeting held on 10 February 2009, all involved parties had an opportunity to respond to the description and conceptualization of the models.

Starting at the top: soil map with riverbanks of the Oude Rijn; spatial diversity; views of the Oude Rijn; entrance gate from the motorway.



Parties involved

The Green Heart steering group has appointed the provincial government of South Holland as pilot project coordinator. The provincial government of Utrecht, the municipalities of Bodegraven, Woerden and Reeuwijk, the Rijnland District Water Control Board, Water Board Hoogheemraadschap Stichtse Rijnlanden, and the national government (Ministry of Housing, Spatial Planning and the Environment/Ministry of

Transport, Public Works and Water Management/Ministry of Agriculture, Nature and Food Quality) were also involved. The pilot project was executed by the Alle Hesper bureau.

The design studios

The process started with round-table discussions with representatives of the public authorities involved (municipalities, provincial governments, water boards and

Panoramic image, designed during an atelier session





the national government), and of social organizations, market parties and residents. On the 10th of February there will be a walk-in day, to which the same parties and residents have been invited. There will be an opportunity to respond to the layout models that have been developed.

In the meantime, additional studios were held with experts, which zoomed in on the relationship between soil, nature and water, and between water, nature and agriculture. The aim after the walk-in day is to make a selection, and studios will be held to reduce the number of layout models to one or two.

The follow-on

In the spring of 2009 one or two selected layout sketches will be submitted to the administrators of the directly involved parties (provincial governments, municipalities and water boards). After selecting one of the variants, it will be elaborated into a layout

proposal for the area, followed by an implementation plan. This planning process will be conducted together with social organizations and residents.

**Project**

Bodegraven-Woerden Window

Location

Area between Bodegraven and Woerden, the Old Rhine and the A12

Client

Green Heart steering group

Contractor

Bureau Alle Hesper

Additional information

Provincial government of South Holland, Rob Ligtenberg

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Lessons

- Teamwork in studios and round-table discussions is extremely stimulating. The participating parties are willing to look beyond their own interests.
- Designing together helps all parties recognize the importance of water for nature, agriculture and leisure activities.
- Water can guide the production of an unambiguous vision on the future of an area, which will be supported.

Colofon

Designing on the interface between water and spatial planning

Guide and examples

This publication is based on the output of the 'Spatial design with water' project, which was part of the Action Programme on Spatial Planning and Culture. This project was performed between 2005 and the end of 2008 by the Ministry of Housing, Spatial Planning and the Environment with the Ministry of Transport, Public Works and Water Management, the Ministry of Agriculture, Nature and Food Quality and the Ministry of Education, Culture and Science.

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12 based on map National Waterplan and map 'Nederland in zicht'

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For additional information

www.vrom.nl (climate change/climate policy file)

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