Analyzing the Renaturalization of the Dutch Regge River

Complex and Dynamic Implementation Processes

Cheryl de Boer and Hans Bressers

UNIVERSITY OF TWENTE.

Analyzing the Renaturalization of the Dutch Regge River

Complex and Dynamic Implementation Processes

Cheryl de Boer and Hans Bressers
CSTM – University of Twente

This book contains a careful evaluation of the case of the Regge River Renaturalization process according to an analytical framework that coherently integrates a wealth of approaches to policy implementation and project management. An overview is provided of the most interesting aspects of the policies that are combined in these multi-functional projects. Looking towards the actors, the analysis shows a remarkable variety of strategies of practitioners to cope with many different environments. The overlapping of project goals, open communication and adapting to different opportunities are seen as being key aspects of successful stream restoration projects taking place in a complex and dynamic context. The study includes many lessons for practitioners on how to make optimal use of the opportunities given – or create new ones.

"This important volume should be of interest not only to those who care about water management and river renaturalization, but also to those who can appreciate and value a stronger and more sophisticated theory of the public policy implementation process". *Laurence J. O'Toole, Jr., Golembiewski Professor of Public Administration and Distinguished Research Professor, University of Georgia, United States*

"A good illustration that a policy strategy, flexible in its mode of implementation, is able to produce results and is an effective response to complex processes".
Corinne Larrue, University Professor of Spatial and Urban Planning, Université Rabelais de Tours, France

"A recommendable book for scholars interested in enlightening insights on water management and on how to analyse its implementation in an intelligent and fascinating way".
Peter Knoepfel, Professor of Policy Analysis and Environmental Politics, Swiss Graduate School of Public Administration at the University of Lausanne, Switzerland

Complex and Dynamic Implementation Processes

The renaturalization of the Dutch Regge River

Cheryl de Boer

Hans Bressers

UNIVERSITY OF TWENTE.

In collaboration with the Dutch Water Governance Centre

A publication of the

UNIVERSITY OF TWENTE.

In collaboration with the Dutch Water Governance Centre

Research sponsored by A.N.R. Systerra ANR-08STRA-09 project “New Rurality”

Publication sponsored by EU Interreg IVB project “WAVE”

Cover design: Martine van Dijk, Ontwerpbureau 10
Cover pictures: Mrs. Niens (front), Gijs van Ouwerkerk (back)

Email: c.deboer@utwente.nl & hans.bressers@utwente.nl
CSTM – Twente Center for Studies in Technology and Sustainable Development – Institute for Innovation and Governance Studies
University of Twente – PO Box 219 – 7500AE – Enschede – The Netherlands

ISBN: 978.90.365.3257.0

Contents

Chapter 1. Introduction

Introduction

After long periods during which water management implied working against nature to ensure 'progress' for mankind, there has been a remarkable paradigm shift in the last one or two decennia. Several European countries, including the Netherlands, experienced floods and risky high waters from rivers. Although further improving dikes and embankments has typically been the first response, it has also lead to a reconsideration of the basic underlying principles of water management. Instead of only containing rivers, the new paradigm seeks to maximize opportunities to make nature an ally in the strife to stabilize water levels and prevent floods. In the Netherlands this new paradigm is accompanied by slogans such as 'space for rivers', 'living with water' and 'building with nature'. The predicted further increase of irregular rainfalls caused by climate change as well as the emphasis of the European Water Framework directive on respecting ecology and natural river basins have contributed to this paradigm shift in water management.

Working *with*, rather than *against* nature to ensure human purposes comes however at a price, which is especially relevant in densely populated countries such as the Netherlands. This trajectory almost invariably costs a great deal of space and accordingly so, part of the reason behind the creation of 'unnatural' interventions in the past was precisely the 'rationalization' of the use of space. Working *with* nature also poses new challenges in the field of spatial planning. Spatial planners are as such not unfamiliar with these kinds of challenges. Many see the integration of various spatial claims into productive "neighbourships" and multiple uses of the same area as their core business. Water managers then, do not want to come by at the eleventh hour and be integrated alongside the already previously included interests and purposes. Ideally, they seek to have the water system as the guiding framework, with water rules and policies backing them in this claim. Of course, reality is more complicated and powers are sufficiently balanced to result in complicated processes within and around each project with which the new innovative paradigm is to be realized.

This book deals with one such project – the Regge Renaturalization Project. Here we interpret and examine the involvement of many processes and actors, in order to get a deeper insight into the implementation of these innovative policies.

Being a delta country, the Netherlands' understandable concerns regarding the increasing frequency of high and low water situations as a result of climate change has warranted a drastic change of approach of water, land and nature management towards a strategy that uses nature's resilience to provide for both human and natural environmental needs. The *subject* of our study is the implementation process of this planned multi-functionality, increasing space for river beds and connection of natural areas that are at the heart of efforts in the Dutch rural areas to meet habitat and water quality and quantity goals from the National and European levels. Recreation, agriculture, nature and flood management are expected to find each other to be good partners under the Regge River Restoration Project. Such projects are not only complex, but also need extended periods of time to manage opportunities and threats that are unpredictable from the onset, and thus are also dynamic by nature. The *basic hypothesis* with which we started our study is that *to enable success, project managers and other practitioners from the organisations involved need to apply very adaptive boundary spanning strategies that in turn need apt governance regimes to provide the proper stimuli.* Central questions of the study are to identify: (1) what *kinds of strategies are used with some success by the actors involved?* and *(2) how are these impacted by the characteristics of the governance regimes?* These factors sit amidst a setting of other factors that might influence their development and relationships, so they cannot be dealt with in relative isolation but need to be positioned in a more encompassing approach to policy implementation.

In this study we will be using an approach to implementation as an actor interaction process that is embedded in multiple layers of context: the Contextual Interaction Theory. Implementation results are seen as the product of (inter)actions in the process, like certain adaptive strategies used, which in turn are impacted by a parsimonious set of actor characteristics. These are in turn impacted by specific characteristics of the case specific, the structural (governance regime) and even wider contexts. The relationship between the possibility for adaptive strategies and the enabling characteristics of the governance regime is put central stage. This is done while playing due attention to its setting in this multi-layered explanatory model.

River renaturalization as a complex and dynamic implementation process

The Netherlands is a geographically small country with a land surface totalling only 41,546 square kilometers, and the longest distance which can be travelled is 300 kilometres from North to South. With a population of more than

sixteen million people, the average population density is some 450 people per square kilometer. The people however are not evenly dispersed throughout the country, with the majority living in the Randstad (the western metropolitan part including Amsterdam, Rotterdam and Utrecht) and nearly 70% of the landscape is used for agricultural purposes. The majority of the remaining surface area is more or less evenly split between housing, businesses and infrastructure and nature reserves.

The eastern part of the country belongs mainly to the Rhine East sub river basin. In a water basin approach as urged by the European water Framework Directive all major development need to be coordinated in this area, adding to the challenge of connecting the actor networks and measures taken (Van Leussen 2011). Within this area the transboundary Vecht River provides the drainage for most of the surface before it flows into the IJssel River in the Rhine delta, just before it enters into the IJssel Lake. A main tributary to the Vecht is the Regge River that drains most of the Dutch region of Twente. In the past this river has been re-engineered and regulated among many others to provide faster drainage of farm land in the area. Consequently, a water system has been created that not only lacks natural qualities but also the buffering capacity that is seen to be required. The expectations for the future based on predictions as well as by past experiences point towards further climate change that will involve both more droughts and increasingly heavy rainfalls (even though there are also other important reasons for the increase of flooding risk, Schaap 2010). A broader view on the functions of waters including their role for nature has gained wider acknowledgment and consequently, river renaturalization projects have commenced that are for a large portion in fact “undoing the – recent – past”.

The Regge restoration case is in many respects a fairly typical one in a country where renaturalization projects abound[1]. Within the background of “undoing the recent past”, multiple purposes and consequently many governments and private organizations are involved. The complexity of project implementation in such a setting and the various strategies of coping with this level of “chaos” in the system are much more typical than not in Dutch water and nature restoration projects. On the basis of the many case studies done (e.g. Projectteam Evaluatie NBW 2006) it can be said that the case deviated from about half of the others in that it is progressing in a reasonably successful manner. Many of the other projects have a tendency to get stuck at some point along the way towards project completion. To understand this current

[1] Throughout this book the terms restoration and renaturalization will be used interchangeably. Within the scope of the Regge projects, returning the dynamics of the stream to the previous state is often not possible however they do aim to create a more natural situation.

situation, it can be said that the Regge and Dinkel Waterboard is considered to be quite progressive in dealing with these complexities. Generally the interactions in the southern and eastern parts of the country are a bit more relaxed in terms of resistance towards land use projects than in the west.

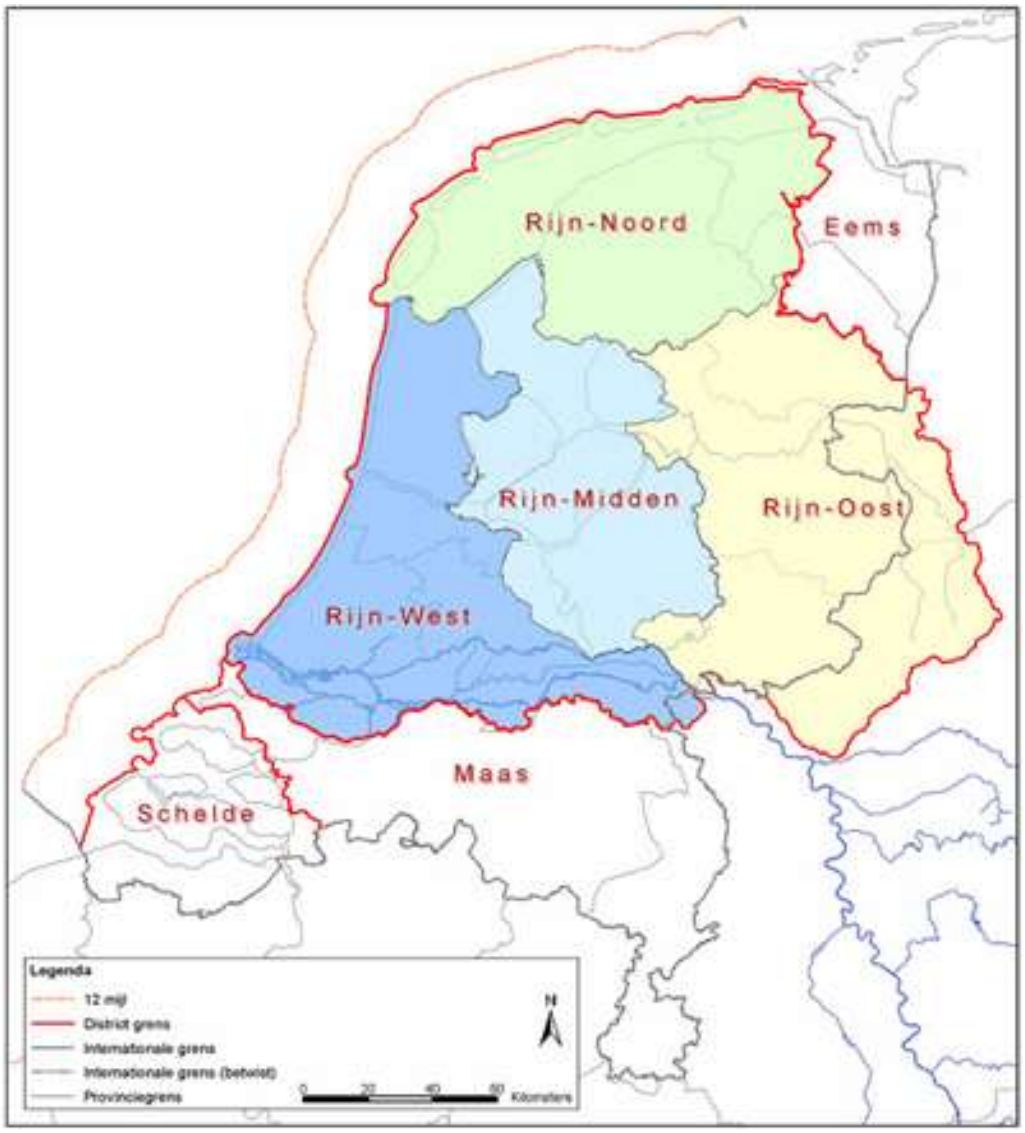

Figure 1: The various catchment areas in the Netherlands (on the right, crossing the German border: Rhine–east)

Successful completion of the renaturalization projects can increase the attractiveness of the areas and thus attract more users and uses, both incidental ones such as tourists and more permanent ones that come as a result of changing farms into bed and breakfasts and the like. The nature organizations that often manage the areas after completion (including the agricultural portions that remain) are generally reluctant to let the number of visitors increase too significantly. Farmers also resist the development of an increasingly public nature of their lands even in the cases where they have

agreed to cooperate with renaturalization efforts. Dutch agriculture has a strong traditional history in the rural areas where these projects take place though it has also more recently gone through a transition to innovative, intensive and export-oriented agribusiness (Bieleman 2008). There is also a category of farmers which have chosen and continue to choose to steer away from this course and apply for the available payments to allow nature development on their land as well as provide retention areas in cases of potential flooding. More farmers are now further diversifying their sources of income through adding extra activities such as small shops, recreational facilities or various health care related services to their businesses.

Threats connected to climate change and to a lesser extent a response to the EU Water Framework Directive have developed new perspectives on water management and are the main political driving forces behind these projects. Water systems need to become more "resilient" (Jansen, Immink, Slob and Brils 2007) and this poses new challenges on the adequacy of knowledge use in water management (Brils et al. 2009). Also the link between water and nature has become much more acknowledged. "Water is the driving force of all nature" as Leonardo da Vinci already seems to have stated (Juuti and Katko 2005). Additionally, nature policies strive to form connections between existing nature areas. The additional development and connection of new areas for nature are meant to create a robust natural system from the fragmented and shrinking one that was under threat until 1990.

Despite these policies having a long history in the Netherlands and a large level of support they are very hard to implement in such a dense country. Furthermore they are challenged by people who suggest that defence from flooding can be more effectively obtained by developing additional, stronger dikes rather than by renaturalization. There are also some revisionist beliefs in the field of experts that much of the fragmented nature structure should be abolished and instead the concentration of efforts should be on developing the larger areas which are already in existence. This includes for instance the wetlands that are rarer in Europe than the woods, heather and tributary river plains that are typical for the East and South of the Netherlands.

In our view this idea is biased too heavily on the side of biodiversity and ignores the role of direct human experience of nature, water and landscape beauty, as a real asset to human well-being, even though it is only partially measurable in economic terms. Some studies hold that the measurable economic effects are indeed substantial, for instance through the increase of housing value and tourism development. More importantly, as unlimited material consumption increase will likely continue to deplete earth's natural

reserves at an increasing rate it is essential that a different conception of wellbeing in the rich countries is pursued. A change of focus from material consumption based growth, and instead investing in nature restoration and beautiful living surroundings in general certainly fits into this conception.

Currently, most western societies are desperately trying to regain the economic growth rates common to some periods prior to the financial crisis, often at a cost to natural and cultural values. The current Dutch government has gone as far as to break away from 20 years of policy continuity and is planning to forgo any further realization of ecological pathways. This is one of the major sources of support for the river renaturalization projects in the Netherlands. Whether they can maintain this position and to what extent the Provinces will step in to take over the support for the ongoing projects is as yet (May 2011) unclear. While the debate is ongoing, the proponents of the river renaturalization projects point to the risks that result from this. Projects not only come to a temporary halt, but are made nearly impossible to complete in the future since new infrastructure will have encroached into these zones. In the meanwhile, the interruptions of nearly completed agreements between the actors involved, including the landowners that were intending to sell some of their lands, frustrate not only present relationships, but could also easily destroy trust that was built up in long and carefully handled negotiations. The determination of the partners in the Regge restoration has been strong however and they are using their creativity to continue to find new sources of support. This shows the resilience of both the vision and the trust based inter-organizational cooperation.

The research reported on in this book period was completed before this new policy and financial situation developed, and thus portrays the preceding policy implementation setting and processes. In the text we will refer here and there to the new situation when appropriate although we will typically describe the policy situation background as it was in our empirical research period of the first half of 2010. The proven vulnerability of these remarkably complex and yet cooperative projects is by no means annihilating the important lessons that can be learnt on how clever practitioners can make the most of such complex and dynamic multiple implementation challenges.

Structure of the book

Following this brief introduction, in Chapter 2 we will explain the complex multi-level and multi-sectoral policy context under which these river

renaturalization processes and the Dutch Regge River Renaturalization project in particular operate.

In Chapter 3 some main characteristics of the river and the surrounding area as well as the renaturalization project itself are described.

Chapter 4 makes explicit the theoretical lens that we use for analysing the processes. This lens is explained in a relatively brief manner however it includes a newly extended version of Contextual Interaction Theory (CIT). This includes elements of previous versions of CIT, but adds new emphasis on strategies of actors, their organizational receptivity, and the roles of intensity and flexibility of the regime context. These are important to encourage adaptive implementation of multiple change oriented policies, as these create complex and dynamic implementation challenges.

Chapters 5, 6 and 7 follow the course of the Regge River from origin to mouth, describing and analysing the various renaturalization projects realized and the intermediate areas where activities are underway. Limited attention is paid to the physical process of renaturalization, but more so to the social interaction processes that are incorporated to achieve those interventions.

Chapter 8 provides an overview description and analysis on the process setting, the strategies used, the receptivity of the main actors, and the impact of regime qualities on the Regge Renaturalization project as a whole.

The final Chapter 9 provides some reflection and lessons learned as well as a discussion on Contextual Water Management.

Chapter 2. Blending Multiple Policies and Interests into a Single Project

Introduction

In this chapter we will deal with the multiple policy context of the Regge renaturalization project. The project is not solely a water management process, as it includes nature development aspects as well as many other policies and societal goals. Furthermore the Regge renaturalization is embedded in water buffering policies and corridors connecting nature areas at a bigger scale. On the other hand the Regge project falls apart in various smaller scale projects. Likewise it is placed in a certain time period, through which relevant policies can undergo relevant changes (as was shown quite dramatically at the end of the research period). The Regge renaturalization can be characterized as multi-sectoral and long term and is thus a "complex and dynamic" implementation process. We will show below some of the relevant Dutch and regional policies and their development as part of the context for the Regge renaturalization process. First we will begin with an explanation of the basic Dutch government organization.

Some specifics of Dutch government organization

With approximately one quarter of the area being located below sea level (21% of the population) and three main rivers running through it, flooding issues have long been an important matter for Dutch society. At this moment important tasks are completed by the relevant state agencies and their regional branches (sea dikes, management of big rivers) however, independent regional water governments (the Waterboards) also play a major role. Due to the urgent and timely nature of responses to flooding, local bodies were the earliest structures framing the development of the authorities delegated to manage these threats to loss of life and land. Waterboards were set up beginning in the 13th century to manage the water that was being held back in the interest of agriculture and security. This generally happened in a 'bottom up' fashion through the actions and interests of farmers who had a large stake in trying to keep their 'feet dry'. The Waterboards largely dealt with the maintenance and security of polders (a low-lying tract of land enclosed by embankments, with man-made drainage systems) as well as water levels outside the polders. The Waterboards are the oldest democratic institutions in

the country and are still governed according to the interest-taxation-representation principle in which groups paying for their 'services' are represented and have to work together in the board. This experience has also influenced the general decentralisation and communal cooperation of Dutch Government. They are responsible for management and maintenance of water barriers, waterways, proper water levels and surface water quality through wastewater treatment within their territories. In 1955 there were 2480 Waterboards spread across the country, though through amalgamation actions it has been reduced to a total of 25.

Outside of the Waterboards, there are three administrative levels of government: national, provincial and municipal. All four tiers of government are rooted in the constitution, making the Netherlands a so-called decentralized unitary state. The Netherlands is, in principle, also a constitutional monarchy where the position of the monarch, the head of Council of the State, is provided for in the Constitution. The monarch and the ministers form the government referred to as the "Crown". The Council of State is the Government's chief advisory board and the Crown appoints Councillors for life. The Council of State is also important for renaturalization since it also acts as the highest administrative court, where appeals against land use changes are eventually dealt with when pursued by the opponents.

National backgrounds and policies

In the national government policy document "Agenda for a Vital Countryside" (Dutch Government 2004), it notes that the character, use and appearance of the Dutch rural area are all undergoing change. Of particular note is that agriculture is no longer the main occupation or main economic base of the areas however it does still dominate the overall land use. Industry is increasingly attracted there (including retail, transport, leisure companies, commercial and public services) and the traditional dividing lines between urban and rural are fading. The perception of countryside is changing from one of a physical space for food production to a space to be used for consumption and one that contains authenticity, naturalness and quality for all Dutch citizens, not just rural dwellers. It is also very difficult to generalise across the various rural areas in the Netherlands as they are becoming increasingly connected to the urban areas and have such a variation of policy challenges (OECD 2008). Nevertheless: "The countryside is a major concern for the Government. It covers around 80% of the area of the Netherlands and

accommodates nearly 40% of the population" (Dutch government 2004, Agenda for a Vital Countryside, p. 6).

Land use and nature

The steady dwindling of natural areas since the early 1900's has been only recently halted. By contrast, the area of woodland and forest remained constant for the first half of the 20th century and increased gradually thereafter. From 1900 until about 1950 the agricultural area increased. Prior to 1940 this was primarily as a result of land reclamation and after 1945 because of the poldering of the Zuiderzee. The main causes of the decrease in the agricultural area since the 1950s are residential and industrial development, and infrastructure.

With the exception of forest and woodland, there has been a sharp fall in the area set aside for all natural forms of land use. The table and figure below show how between 1950 and 1990 the percentage of farmland has also declined.

Table 1: Trends in areas of ecosystems (Source: CBS (CBS/NC/Oct02)

	ha in 1950	ha in 1990	% Change
Agricultural area	**2 523 510**	**2 373 890**	**-5.9**
Forest & woodland	**245 850**	**329 390**	**34.0**
Deciduous	75 310	118 580	57.5
Coniferous	155 430	135 710	-12.7
Mixed	15 110	75 100	397.0
Nature areas	**262 670**	**146 040**	**-44.4**
Marsh, bog & swamp	43 600	47 530	9.0
Salt marshes	24 980	10 080	-59.7
Dunes & beach	48 030	43 870	-8.7
Heathland	110 840	35 820	-67.7
Active dunes	7 340	3 540	-51.8
Raised bog	27 880	5 200	-81.3
Built-up	**262 770**	**541 010**	**105.9**
Built-up area	97 850	133 210	36.1
Roads etc	164 920	407 800	147.3
Water	**782 500**	**664 770**	**-15.0**
Total	**4 077 300**	**4 055 090**	**-0.5**

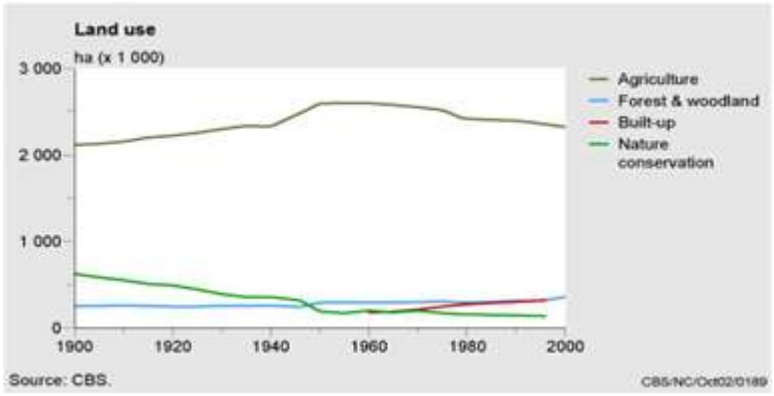

Figure 2: Trends in areas of ecosystems (Source: CBS (CBS/NC/Oct02)

At the beginning of the 1900's the majority of the "wild" nature in the Netherlands had been destroyed in the development of the land with ditches, dykes, fields, tree paths, etc.

Legend:

Pink: Fields and pasture, with locks and twist locks

White: Woods, dunes and uncultivated land

Blue: Mainly pasture, with locks

Brown: Mainly arable land, with ditches, ditches and field margins

Green: "Coulisselandschap": Boscage (walls, hedges)

Figure 3: Dutch land use patterns around 1900
(source: Vereniging Nederlands Cultuurlandschap 2007)

From the 1900's onward, land consolidation programs significantly fragmented nature in the countryside. Additionally, over 225,000 kilometres of tree border planting has disappeared since 1900 and nearly 95% of all of the streams have been straightened. Between 1924 and 1985, 1700 land consolidations were undertaken in 70% of the rural area (Vereniging Nederlands Cultuurlandschap 2007, De Pater & Renes 1999). In such land

consolidation projects generally the interests of modern agriculture prevailed resulting in much larger fields and new roads, erasing much of the small scale landscapes that had developed over centuries.

In the 1970's there was a major shift in the environmental policy of the Netherlands. Previously strong agricultural powers and related planning models began to shift in favour of a more protectionist manner for nature. In 1972 the Netherlands Society for Nature and Environment was founded and was indicative of the new nature of the environmental movement which was pursuing cooperation amongst old and new actors. Particularly important was including the wildlife onto agricultural land in the vision on nature which had been difficult during the booming period in agriculture. The desire to involve private land owners is also observed from the time of the "Relationship Document" (subsidies for nature friendly extensive agriculture from the Ministry of Landbouw, Natuur en Voedingsqualiteit (agriculture, nature and food quality), the Ministry of Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer (housing, spatial planning and environmental management) and the Ministry of Cultuur, Recreatie en Maatschappelijk werk (culture, recreation and social work) in 1975) which was used more often following 1990 (Bogaert & Gersie 2006).

In 1989 there was an even more significant shift as a result of the institutionalization of the first real nature policy in the country. The National Ecological Main Structure (Ecologische Hoofd Structuur- EHS) was even an inspiration to the Natura 2000 initiative at the EU level. Given that the Netherlands is a very densely populated and ecologically fragmented country the governmental agencies started to give a significant amount of importance to linking the areas of ecological importance to create the highest possible value of biodiversity that could result. Nature development is generally promoted in the context of completing the Ecological Main Structure. From around 1990 onwards until recently, all governments from various political colours have worked consistently to create stable and functional ecological linkages for that purpose.

The Netherlands has 20 national parks composed of single areas comprising of at least 1000 hectares. These parks are nearly all integrated in the Natura 2000 efforts of the Netherlands and/or Ecological Main Structure. In deciding on strategy and policy, the national parks work closely together in the platform Samenwerkingsverband Nationale Parken (Collaboration of National Parks). The Ministry of Agriculture, Nature and Food Quality (in October 2010 it was integrated with the Ministry for Economic Affairs into a Ministry

for Economic Affairs, Agriculture and Innovation[2]) retains responsibility for the functioning of the Dutch system of national parks as a whole. Recreation also takes place within the national parks in various forms such as hiking and cycling trails, information booths, plaques, etceteras. In a dense country like the Netherlands, landscape issues are heavily debated (Kolen & Lemaire 1999).

Not all Dutch nature areas are included in the national parks. Due to the fragmented character of most of the nature areas, a lot of areas are found outside of the parks, typically in smaller dimensions. The total acreage in the possession of public authorities and NGO's has gone from 150,000 ha in 1970 to 450,000 ha in 2005. Land purchasing was the dominant method of securing natural area in this time period.

As indicated above, the one policy that has governed all development of corridors of passage in the Netherlands is the Ecological Main Structure (Ecologische Hoofd Structuur - EHS). The EHS is a network flowing throughout the Netherlands that contains natural areas that are protected from expansion of other activities such as campsites, agricultural business and of course urban developments. The idea began in the Netherlands political sphere in 1990 as the term ecological was introduced in the Nature Policy Plan through the Ministry of Agriculture, Nature and – then – Fishery. This project attempts to improve on the fragmentation of the ecological network of the Netherlands by linking them to each other. As part of this program there are 12 main ecological links that have been studied and are being developed: the Northern Water Axis, Drenthe plateau- South Twente, Veluwe-North East Twente, Veluwe-Utrechtse Heuvelrug, Veluwe-Achterhoek, the Western Water Axis, Biesbosch- Zeeuws Vlaanderen, Oostvaardersplassen- Veluwe-Germany, Beerze, Schinveld-Mook, New Dutch Waterline (Nieuwe Hollandse Waterlinie) and Gateways to the Veluwe. The EHS comprises existing natural areas, nature reserves and areas and robust connections, agricultural areas with potential for agricultural nature management (management areas) as well as large water areas (such as the coastal zone of the North Sea, the IJsselmeer and the Wadden Sea). The policy aimed at completing these main ecological links and the other parts of the National Ecological Network by 2018 in a series of phases. Until the beginning of 2009 the acquired area of new nature for this purpose had risen to more than 80 thousand hectares, of which about half was already transformed into nature. About an additional 40 thousand still had to be acquired (Planbureau voor de Leefomgeving 2010:

[2] We will typically describe the policy situation backgrounds and use the names of Ministries as they were in our empirical research period of February – September 2010.

168-9). This national ecological network is being realised in cooperation with provincial and municipal authorities, Waterboards, nature conservation organisations, civil society organisations, farmers and private parties. Although the central government had made some rather unsuccessful attempts to replace the efforts to develop a multiplicity of ecological corridors with larger "robust corridors" (Turnhout 2009), the central idea of the policy remained intact for two decades. In the new coalition government agreement of October 2010, parties however agreed to stop with the further development of the link zones due to changes in funding as a result of shifting government priorities at the national level. It is still unclear what this will mean in practice, though the various local parties are actively looking for alternatives to continue the projects of river renaturalization and certainly not just stopped the projects. Furthermore, Waterboards still face the task of realizing more water buffering capacity and renaturalization of rivers still is the most sensible way to achieve this.

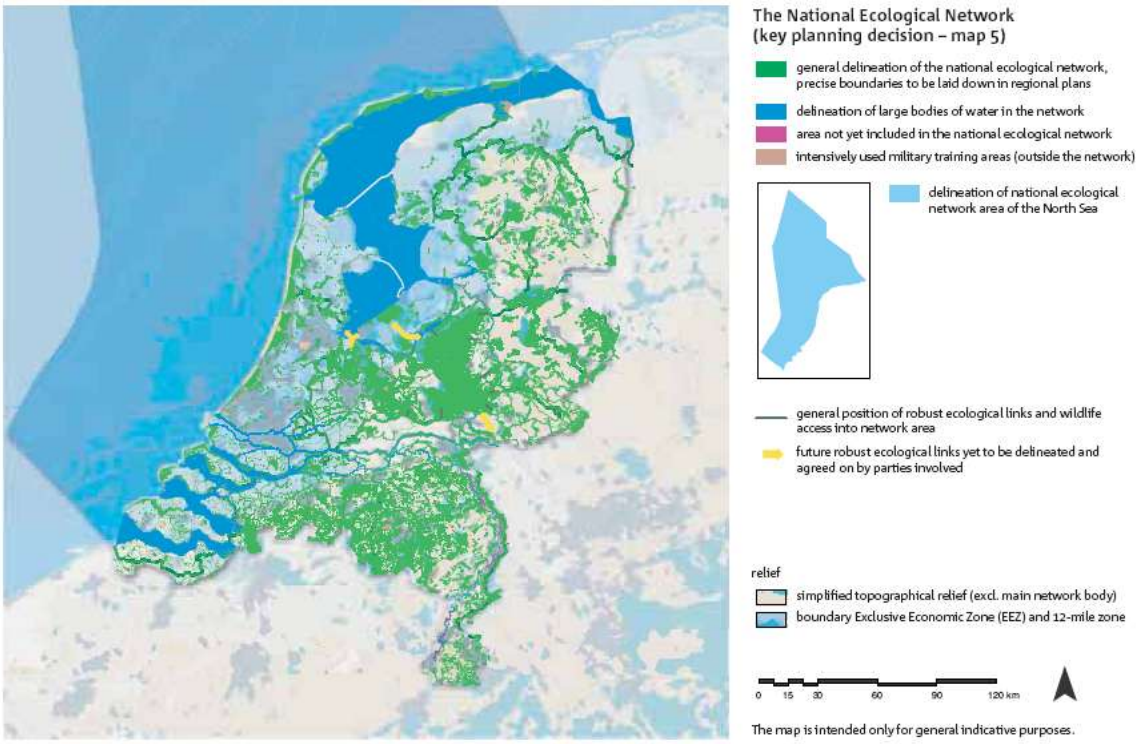

Figure 4: Nature Conservation in the Netherlands
(Source: Ministry of LNV 2005)

The government has often attempted to reach out to and cooperate with farmers and other rural landowners through funding for the design and management of nature reserves. But even more commonly in the past the government has bought the land of interest for the realization of the EHS. This

is done through the Agricultural Land Management Agency - part of the Rural Service Area (Dienst Landelijk Gebied- DLG).

Most of the EHS is achieved through the Rural Area Investment Budget (ILG) which entered into force on January 1, 2007. The ILG is a 7-year agreement with the Provinces on the establishment of the rural area. Desiccation, eutrophication and fragmentation are the most persistent challenges for biodiversity conservation in the EHS. The European Habitat Directive is also used to help determine the priorities in establishing a healthy EHS. Land managers, Waterboards, Municipalities, Provinces and the state all use the EHS and the EU Birds and Habitat Directive to guide implementation. The usefulness of this approach increases as all these parties can come to common agreements on the implementation of the EHS and the monitoring data.

Natura 2000 sites located within the EHS are more strongly subjected to regulations regarding protection and use. The Ministry of Agriculture, Nature and Food Quality (name until 2010) is responsible for approving any plans that affect these areas. There are certain conditions that can allow for specific exceptions that are related to whether or not the development serves an overriding public interest or that no alternatives exist. Underneath the EHS legislation there are opportunities to compensate where mitigation is not sufficient. Wetlands and the plant and animal species that are associated with them, are also protected by the Ramsar Treaty. This is one of the oldest treaties regarding nature. Since 1980, the Netherlands have submitted 44 areas to the list of wetlands of international importance. All Dutch wetlands submitted to the Ramsar agency are also designated as Natura 2000 areas.

One of the earliest legislative acts relating to nature was the Birds Act of 1936 and this Act was updated/consolidated in 1994 and further repealed by a change of the Flora and Fauna Act in 2002. This Act was responsible for prohibiting the killing and trapping of protected birds. The only exceptions were for birds that were otherwise included in the Hunting Act of the time. The Flora and Fauna Act deals with the protection of wild animals and plants in terms of meeting international commitments as well as more adequately protect them in an integrated and effective way. The Act outlines clearly which species are covered by the Act as well as the living environment management regulations. There are also special comments made regarding the effects of hunting legislation. Provincial councils may appoint Fauna Management Units consisting of hunting associations and in certain cases provincial councils can approve fauna management plans in accordance with the other sections of the Act. The Flora and Fauna Act applies to all fish species which are not included in the application sphere of the Fisheries Act of 1963, which are exempt. In the Nature Conservation Act of 1998 the purpose was to give

legal protection to areas and water with special nature and landscape values. Bird and Habitat Directive guidelines are implemented in a revision to this law.

There are also significant effects due to the local planning processes. At the municipal level, the local government is required to submit zoning plans which are to incorporate the various needs of the national and provincial goals. Specific species protection legislation and protection of national landscapes must also be included in these plans and developed in an integrated approach. A special characteristic of Dutch local zoning plans is that they are detailed at the plot level and directly legally binding. Thus all other land uses than the one specified are forbidden.

The incorporation of the spatial planning and environment policy related to nature preservation into the Ministry of VROM (Housing, Spatial Planning, and the Environment – in 2010 integrated with Public Works into a Ministry for Infrastructure and Environment) was performed in 1982 which unfortunately gave it relatively few instruments to work with. However it did publish the "Structure Scheme for Nature and Landscape Conservation" in the 80's attempting to protect any remaining nature. As a result, conflicts arose between agriculture and nature. However, in 1982 the Departments of Nature Conservation and Open Air Recreation were moved into the Ministry of Agriculture and Fisheries and this drastically changed the dialogue between the two former enemies. The concept of ecological networks was developed as a result and the EHS was essentially a compromise between agriculture and nature conservation. Following this there was also the development of the Nature Policy Plan (1989) and the National Environmental Policy Plan and the Fourth Policy Document on Spatial Planning where the EHS was a prominent fixture in each. Implementation of the policy at the regional and local level was introduced and nature policy in general was strengthened (Bogaert & Gersie 2006). Additionally, the increased support at the EU level for problems dealing with manure, animal welfare and disease improved the relative strength of the EHS policy in the agricultural policy arena.

The subsequent policy of the Ministry of Housing, Spatial Planning and the Environment was that the "areas in protected nature reserves fall under the 'no, unless' principle. New plans, projects or activities will not be permitted if they affect the essential features or values of the area. Deviations from this rule can only be made if there are no other realistic alternatives and if they can be justified by major contributions to the common good. In that case, the project initiator must take steps to eliminate or overcome the negative effects and, where this is insufficient, to compensate for the negative consequences by creating areas of equivalent value, preferably in or near the affected area. The

relevant authorities will ensure that such compensation does in fact take place. If physical compensation is impossible, then financial compensation will be offered. Financial compensation is not an option for EU Bird and Habitat Directive areas. If an activity has significant consequences for these areas, the project initiator is required to create an alternative nature reserve in advance and complete it in time. In the assessment framework for the National Ecological Network, plans, projects and activities are evaluated individually". (Netherlands Ministry of Housing, Spatial Planning and the Environment 2006: 28)

Renaturalization in the Netherlands is done as much as possible in conjunction with any and all other related land use and policy opportunities. There is as such quite a long list of important groups and documents that make up the policy relevant regime for this activity. A partial list of those involved during the first half of 2010 is provided below: *EU Policies:* Natura 2000, Water Framework Directive, and Common Agricultural Policy. *Policy Documents and Regulations:* Nota Ruimte (Spatial Planning Document), WILG (Rural Investment Law), Wet Ruimtelijke Ordening (Spatial Planning Law), Environmental Management Act, Local Bestemmingsplannen (Local Spatial Plans), Ecologische Hoofdstructuur (EHS, National Ecological Network), Green and Blue Services Legislation, National Park and Landscape Programs, Flora en Fauna Act, Species Strategy, Nature Conservation Act. *Agencies:* Provinces, Waterboards, Municipalities, Local and provincial NGO's and nature organizations, Land Trust Estates, Rural Area Service (Dienst Landelijk Gebied), Ministerie van Landbouw, Natuur en Voedselkwaliteit (National Ministry of Agriculture, Nature and Food Quality), Netherlands Environmental Assessment Agency.

Water management

A very important policy sector that accompanies renaturalization to such an extent that is in fact of equal importance to many renaturalization projects than the renaturalization policies themselves is the regulation of the water system. This is the case especially due to the desire to create more buffering capacity in the water system to be better able to deal with climate change. Two-thirds of the population live in floodable areas: land below sea level requires permanent protection, and further large areas need protection from temporary inundation by the sea and the rivers. During the 1990s the Netherlands experienced serious river floods in 1992, 1995 and 1998, causing evacuations of people and extensive material damage. Space around the rivers is needed not only for safety reasons (to allow rivers to rise and fall without

risk to human life or harm to economic interests), but also for the ecological development of the river. Increasingly, water interests compete with other interests for the limited remaining space in the Netherlands. An important new objective of Dutch water policy is therefore to make water and its natural movements a key determining factor in spatial planning (Wiering and Immink 2006). This renders decision making difficult, especially at the level of the Waterboards and Municipalities. The Waterboards have an interest in considering water as a guiding principle in physical planning and to leave areas unbuilt if a risk of inundation exists, while the Municipalities have a final say in physical planning and have an interest in economic and urban expansion (Smit et al. 2008, Woltjer and Al 2007). Submitting their plans to a 'water risk assessment' before adopting them is seen as being a huge challenge for the regional and local authorities in the next decades (OECD 1995).

Regulation of the water cycle has of course a very long and complicated history in the Netherlands as for nearly the last 1000 years it has been integral to the development of the society. The democratically formed Waterboards began as early as the 13th century due to the land subsistence problem encountered after peat and clay were extracted from delicate lands. The Waterboards are responsible for surface water management, are autonomous and have the power to collect taxes for their operations (Havekes et al. 2010). These operations are however partly coordinated by the Provinces and they are also closely linked to the central government, because the management of the main river system like Rhine and Meuse occurs at that level. Recently (following WWII and more specifically the 1970's) their scope of responsibilities has broadened; initially to include water pollution, and then ever increasingly relevant aspects included in integrated water management. They have a profit-payment-participation based structure with a representative general council including farmers, land owners, industry and inhabitants. With the increase of pollution abatement and water system activities, the share of inhabitants rose gradually to become a clear majority position. The local government is responsible for the sewage networks though in some rare cases they are separate privately operated and then they are heavily regulated and overseen. Water policy at the state level is the responsibility mainly of the (former) Ministry of Transport, Public Works and Water Management (V&W) including all of the main navigable rivers and waters. Water quality management is a co-responsibility of the Ministry of Housing, Spatial Planning and the Environment at the state level, though it is coordinated through the Ministry of V&W (as a compromise to a competence battle of the two ministries that were merged in 2010). The Ministry of Agriculture, Nature Management and Fisheries is also involved in national policy making regarding water for obvious reasons.

In the Netherlands, where a large part of the country is a river delta and is partially below sea level, the most typical policy on water has been to intervene into the natural system for flood protection, in order to achieve water security and to protect land uses. Construction of dikes, storm barriers, and even land reclamation are intended to keep the water at bay. A related and very old use in the Netherlands, concerns the use of drainage systems to develop agricultural and urban development areas. Land reclaimed from the sea requires the permanent extraction of water through pumping operations. At the present time, these uses are still important for the country, and are even on the increase due to an increase in the demand for land for urban expansion and new infrastructure (like roads). In rural areas more than half of the drainage capacity is needed to get the water out of developed areas. Urban areas and roads occupy 14 % of the territory, and water covers 9 %.

The physical water situation is well described as the following by Kuks (2002: 5-9): "The Netherlands is situated at the downstream end of three European river basins (Rhine, Meuse and Scheldt). The inflows of the Rhine and Meuse are the country's main freshwater resources. Compared to other European countries, the Netherlands depends a lot on external water resources, with over 75 % of its total resources coming from abroad rivers. About 30 % of the total surface area of the Netherlands lies below sea level, protected in the west and north from the sea by barriers of dunes and dikes. The need to protect the land from high water from rivers and sea, and the tradition of artificially draining low-lying areas, have combined to give the country a complex hydraulic infrastructure. The country practices highly intensive agriculture and has developed water-based transport for passengers, products and raw materials to and from the European hinterland. The combination of physical circumstances and human pressures has led to a technically unique system of water management: the flow and level of almost every water body in the country is under human control."

"Nowadays, there is a heavy rivalry between urban expansion and leaving floodplains unbuilt for water storage in times of severe rainfall due to inundation risks and the resultant damage to property. As a reaction to growing urban development and land reclamation, compensation in the form of space for water storage is requested; space is however also increasing in value due to a growing scarcity in the Netherlands. This compensation has become extra urgent since climate change is having and will continue to have the effect of delivering more rainfall at irregular periods, and having higher and more frequent peak water levels and droughts. Another rivalry exists between drainage and overexploitation of groundwater (for drinking and industrial water supply) versus the water demanded by ecosystems, natural areas and wetlands, which suffer from water depletion. The demand for

drainage in wet periods results in desiccation in dry periods (summertime). These reasons add support to the requests for more space for water storage over the entire country."

"River renaturalization is seen as the best way to achieve more water buffering capacity given the future climate expectations. It is also seen as a way to answer the call of the EU Water Framework Directive to achieve high ecological water quality standards. To a large extent this vision and its implementation can be viewed as undoing the recent past" (end of citation), when canalization of waterways was used to increase drainage capacity.

The governance system for water management has thus gone through a series of developments in which gradually more and more issues were taken into account with important consequences for the public policies and property rights involved (Kuks 2004a: 118-120, Kissling & Kuks 2004: 122-124). In 2001 the central Government and the three national associations representing the Waterboards, Provinces and Municipalities concluded a first agreement on the implementation of such policies and each role therein. Later in 2003 they concluded the National Administrative Agreement on Water (Nationaal Bestuursakkoord Water) that elaborated upon the responsibilities and resources for implementation mostly regarding the water buffering aspect of water management. This national agreement was evaluated in 2006 and updated in 2008. In 2008 also the report of the national Delta Committee was issued in which ambitious plans for flood safety in an era of climate change were developed (Deltacommissie 2008). Nevertheless the transition towards this new paradigm was as that time as well as today not without disputes and required the "contribution of policy entrepreneurs" (Huitema and Meijerink 2009). However these changes might have taken place somewhat easier than in other European countries (Kuks 2004b: 364).

River renaturalization as complex and dynamic process

The Netherlands has been investing large amounts of resources (hundreds of millions of Euros) into the construction of the Ecological Main Structure (EHS) and in the renaturalization of rivers and creeks. Precise numbers regarding the costs of these restoration projects are however hard to ascertain, since most projects are multifunctional and thus funded by a variety of layers and sectors of government and various subsidy schemes from the EU and other outside sources. Currently the majority of nature restoration activities take place in conjunction with the EHS. Most of the financing for these activities originates at the national level though it is filtered mostly down to the Provinces for implementation. To highlight the order of spending seen we can say that of the total budget for investment in the countryside (4 billion

Euros) nearly two thirds is set aside for renaturalization activities (Slangen et al. 2008)

The potential flooding damages which are removed through prevention oriented means are also hard to quantify. They involve decreasing the risks of serious flooding by improving the likelihood of regular flooding of areas that are opened and prepared for that function. When towns are flooded high costs can be incurred, but this has not happened along the Regge in recent times.

In terms of the relevant stakeholders in these types of projects, the Dutch Waterboards have a national association in The Hague (The Union of Waterboards), as do the Provinces and Municipalities. The farmers have both national and regional associations. Estate owners are a bit less organised, but also have clear regional networks. The relevant nature organisations consist of Landscape Overijssel (Landschap Overijssel), a regional organization (though Provinces outside of Overijssel have similar bodies and in total they have some 300,000 members), the State Forestry Agency (Staatsbosbeheer) and the national NGO Nature Monuments (Natuurmonumenten) which has a large membership of over 750,000.

The main rivalries in the case of stream restoration projects are those between the use of the riparian land for farming and urban activities and those of natural flood control and habitat. One topic over which this debate takes place is regarding different perspectives on flood control methods. There are those that feel that the traditional technological solutions can maintain the flood waters at reasonably safe levels while not disrupting development and use of the land for agriculture and other industrial or urban type activities. The Waterboard feels that more natural means are a more effective manner that provide more opportunities to create surplus value of the water body and a number of tools with which to regulate these rivalries. Land purchasing in areas that are desired for flood water storage has been used successfully to overcome these use rivalries. The Green and Blue Service payments[3] are in principle another way to accommodate the desire for farmers to make a profit off of their land and the needs of the flooding management system and the habitat desired for the EHS and supporting biodiversity.

[3] Green Service Agreements take place between the Province and the landowner and are intended to compensate the landowner for not using their land in an intensive manner. Instead, it is to be used solely for natural purposes such as habitat creation and biodiversity. This is a tool that the Province can use to help implement the Ecological Main Structure. These payments are provided yearly and are reassessed every 6 years to determine the appropriate amount to be paid based on the amount of natural benefit being provided. Blue Service Agreements are similar except that they are between the Waterboard and the landowner and that they now occur as lump sum payments and that they are for allowing water storage on the property.

The debate surrounding these renaturalization projects is also multi-layered. At the highest layer there exists some opposition against the basic principles, though this is rarely voiced. At that level there also exists distrust regarding the priority of government to really set aside enough means (both money and political resources) to enable a good pace of progress for the required implementation. This tends to be less true for the water aspect of the projects since they are important to the nationally significant interest in managing "flood security". Additionally, the Waterboards are supported through their personal taxing structure from which they can fund parts of these projects. In Overijssel this debate is reflected at the provincial level. At the project level the main debates occur around land and money issues. A central yet opposite perspective that goes beyond practicalities of pros and cons for individual land owners is the reluctance of the farmers and their organizations to give up increasing acres of farm land. Within the Waterboards there is always some discussion on the extent to which they should include goals that are not directly related to water quality and quantity but more related to "experiencing water": recreational facilities, beautiful landscapes, art. The Waterboard of Regge and Dinkel has until now held quite an open perspective on what aspects of water and its management are considered to be included within the domain of their tasks.

Land use planning and property and use rights

For the process of renaturalization, whether it's nature area or river renaturalization, the soil that the renaturalization takes place upon can be both public and private land. The properties involved in this activity were owned to a significant proportion by the Society for the preservation of Nature Monuments (in brief: Nature Monuments) as well as some of its regional partners: some 50,000 ha in 1970's and 180,000 by 2005 (some 100,000 by Nature Monument itself). In our case study area these are the Dutch NGO Landscape Overijssel (that has its counterparts in other Provinces), and the Dutch State Forestry Agency (100,000 in 1970's and 230,000 by 2005). These areas cover 70% of the natural land in the Netherlands (Bogaert & Gersie 2006). As the creation of new corridors claims additional land, purchases of new land by these partners are often undertaken in a coordinated fashion to meet EHS and other goals.

However, as prices for land have begun to increase and since the agricultural interests insisted that the sales be voluntary in nature, this method has become increasingly difficult. Additionally other instruments such as zoning appeared to be too weak or clumsy to produce the necessary zones for the

Ecological Main Structure (EHS). Consequently the proponents of renaturalization projects such as the Waterboards, municipalities and NGOs developed improved skills in creating coalitions that enable the gradual voluntary increase of the renaturalized area.

Zoning is an important issue that affects the property rights of an individual and in the Netherlands this is very closely tied to land use planning (Van der Cammen & De Klerk 2008). Though currently most land use planning changes are done through a voluntary process that takes place through consensus based negotiation, there are experiences in the past where mandatory participation was involved. Land consolidation was one area where this happened with more frequency. The 50's and 60's saw a major reconstruction of the country side with land consolidation projects. Following World War II large parts of the countryside were drastically changed. A very telling aspect on the issue of property rights can be seen in the voting procedure that was followed in the land reconsolidations: farmers that didn't show up to the meetings were assumed to have voted in favour of the plan. Clearly their property rights were regarded as being subordinate to the national reconstruction and progress project. This was not only the era of large scale intervention, but also intervention was stronger than ever in forcing the old adagio of separation of concentrated cities and towns in an open countryside. Separating these uses as much as possible with sharp boundaries was seen as very important in such a densely populated country.

In the present research, it was found that municipalities had quite often not made or updated local land use plans for their non-built-up areas. In principle they could have used this instrument as a very powerful means to specify permitted land uses that are directly legally binding on the level of individual plots of land. Provinces have their own non-binding land use plans and must give approval to the local plans before they can become officially binding. The procedure to design and approve them is quite elaborate and changes have in principle to follow the same procedure. For the use rights connected to the property rights of land ownership this has considerable limiting consequences, since changing land use is quite difficult and without it land owners are limited to the specified use. This can also be seen as protection against day to day policy interference. Nevertheless, in the mind frame of most policy makers the existing uses of land are by no means seen as intrinsically valued. The procedures under the spatial planning law have consequently always had some short-cuts with somewhat smoother ways of approving changes than a full change of the land use plan. Even those however need multiple approvals and have ample possibilities for appeals.

Public pressure resulted from the new perspectives of the 1970's and led to other land uses and ecological values being given more attention. The strong Dutch stance in spatial planning (policies, laws, procedures) had been until then mostly only relevant for the countryside due to the indirect implications of city planning for rural areas. Under this new era, it also began to increasingly lead the governance of spatial developments in the countryside. The "Structure Sketch Rural Areas" of 1977 was the first devised national vision on the development of rural areas from a spatial planning perspective. Until then of course the strong policy of separation of the built-up area and countryside was relevant, even when it was implemented from the perspective of urban planning. What is very interesting is that already in this very first vision the multifunctionality of large parts of the rural area – especially the sandy soils of the East and the South - was "planned" as a desirable development. In the Twente region this area surrounded a narrowly defined urban area band of the three largest cities in which at this moment more than half of the 600.000 inhabitants live.

For the Ecological Main Structure (EHS), the Provinces are responsible for determining the areas which are to be used and the municipalities are tasked in zoning the areas and providing the appropriate legal protection. The government has in the past largely financed the purchase, installation and management of the land. Linking the ecological corridor of passage into a river renaturalization project that the regional Waterboard wants to promote, has the great advantage that sources of money, expertise, legitimacy, etc. can be combined. To enable this, the goals can be made to overlap significantly by clever project design.

With respect to water, the historic private property rights were under the public domain per the Constitution of 1814 and the Civil Code of 1838. There is also a common property aspect for regional waters which was given to the Waterboards. Later expropriations were made in the name of navigation, flood protection and land reclamation in which compensation was provided for the effects on private property. According to Kuks (adaptation of the chart found in Kuks 2002) the following constitute the more recent aspects of the private property rights of water in the Netherlands:

1. Limitation of waste water discharge rights to protect surface water (1969)
2. Full cost recovery of waste water treatment by retribution (1969)
3. Expropriation at the benefit of waste water treatment (1969)
4. Creation of a concession system for all groundwater extractions above 100,000 m3 (1981)

5. Compensation for negative effects on public water works on private property (1971, 1981)
6. Limitation of farming practicing rights affecting water tables (1989)
7. Limitation of drainage rights to protect ecosystems (1989)
8. Water becoming a res nullius and being separated from property on land and water beds (1992)
9. Compensation for negative effects of public water works on private property (1986, 1989,1995)
10. After 1995 there has been consideration of expropriation of flood plains, limitation of land use rights in flood plains and the attribution of liability for flood damage to Waterboards and land owners.

This overview shows that even while in most renaturalization projects expropriation is avoided as much as possible; in the Netherlands intervening in property rights for the sake of water management has a long tradition of use.

Provincial policies

From the national level we now move to the Regge River area in the Province of Overijssel. Thus the administration of the Province of Overijssel is an important stakeholder in the area. It is in principle the key coordinator of all spatial developments. It has developed together with the Municipalities and the two Waterboards located in the area, a Provincial Living Environment Vision (provincial "Omgevingsvisie" 2009), in which environmental, spatial planning, nature and water policies are combined. In this white paper the zoning in the Province is detailed on a large scale. What is interesting about this is that it encourages multifunctionality in various areas and hence contributes to a very dynamic project approach. The Dutch zoning regulations are very strict and have in the past provided the additional benefits of curbing urban expansion into the rural areas. There is however a new direction being taken in Dutch spatial planning policy that is intended to encourage more development through taking a less top down perspective and leaving more of the decision making about spatial planning to the lower levels of government.

The Regge also plays an important role in the creation of the ecological pathway system in Overijssel for which the Province is responsible for implementation. The policy strives for the creation of 'robust linkage zones' between existing nature areas, in addition to those of the national EHS system, in order to create much larger habitats than the scattered areas

themselves can offer. In addition to the EHS, the Omgevingsvisie document has also maps outlined for: agrarian culture landscape, urban areas, 'lust and leisure' areas, nature and development perspectives, landscape development perspectives, infrastructure, networks etceteras. Below we show the parts from the Omgevingsvisie that are specifically relevant for the Regge Valley.

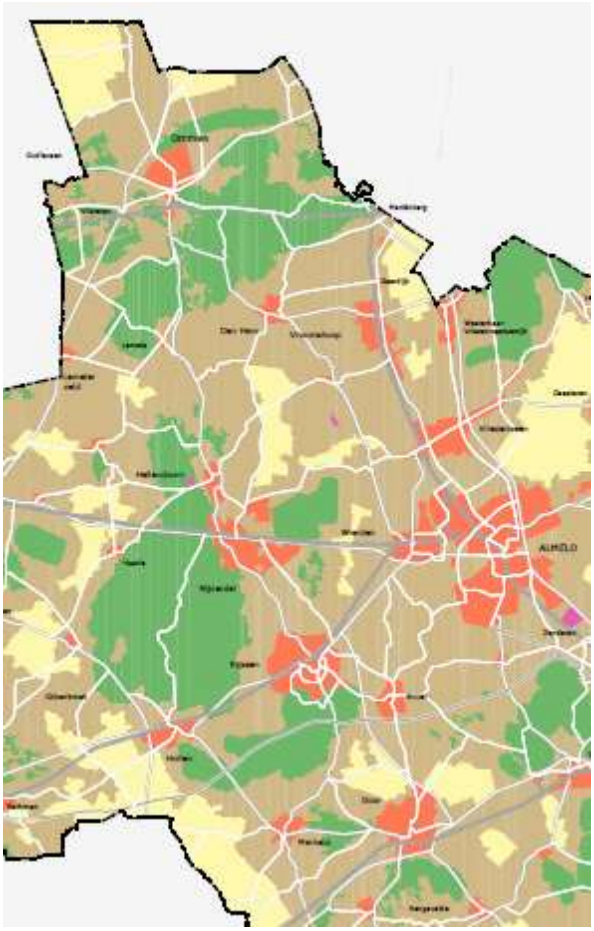

Figure 5: Zoning of the area as part of a land reconstruction area as seen in the Provincial Living Environment Vision 2009 – legend in text below
(Source: Province of Overijssel)

The map shown above is a selection from a map in the Omgevingsvisie (Provincial Living Environment Vision) where the zoning concerning the land reconstruction area of Twente and Salland is presented. In such land reconstruction areas (Owens 2010) the relation between agriculture, nature etc. has been reconsidered. In contrast to old land reconsolidations it is not only a matter of increasing agricultural efficiency and the separation of functions. Controlled multifunctionality is specifically striven for in large areas. In this map the brownish parts are such "weaving" areas. In the green areas agriculture is to be "extensified" (it is allowed to produce less output per ha) in order to create more room for nature and water as well as other possible functions. To the contrary, further intensification of agriculture is allowed in the yellow area and large initiatives of this type are directed towards those areas. These are the so-called "landbouwintensiveringsgebieden" (agricultural intensification areas).

As seen below, this map indicates what the more concrete development perspectives for the area involved are as indicated in the Provincial Vision.

Legend:

Dark green: nature
Green dots: future ecological pathway
Green stripes: desired ecological pathway
Blue: continuous recognizable water system
Pale grey: beauty of modern agriculture
Horizontal light green stripes: agricultural development zones – intensification
Light green: mix landscape: agriculture, nature, water and living as good neighbours
Dotted green: border of mixed landscape"
Blue stripes: brook valley, low areas and peat (veenweidegebied) meadow areas
Castles: estates

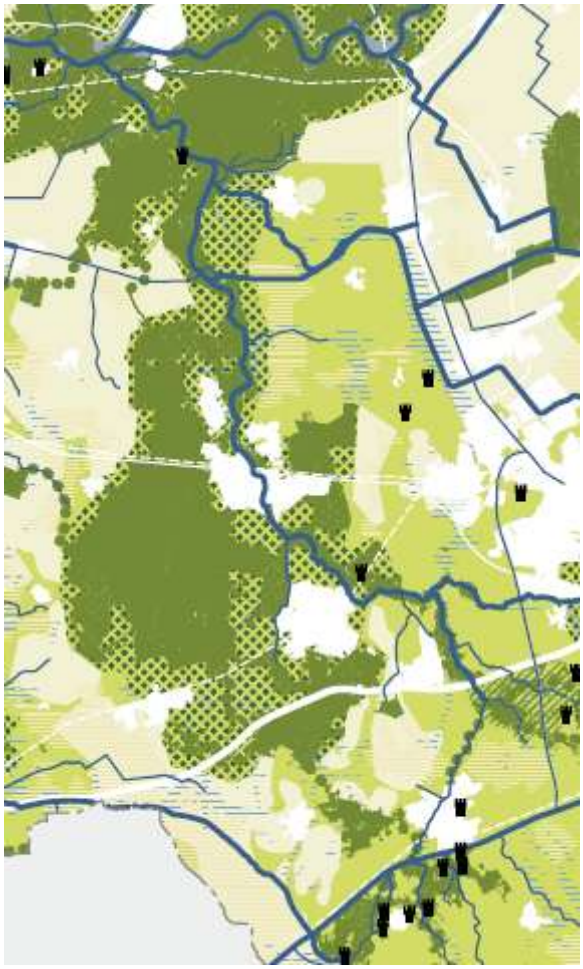

Figure 6: Development perspectives in Regge area
(Source: Province of Overijssel)

The Regge is seen to play an important role in the creation of the Ecological Main Structure and the 'robust linkage zones' between existing nature areas in Overijssel.

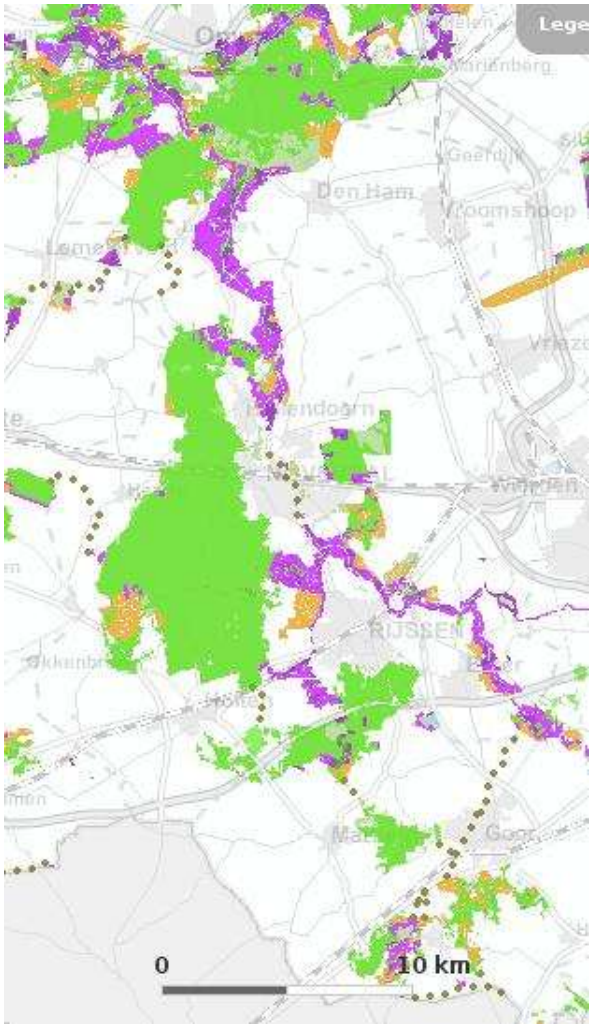

Figure 7: Ecological Main Structure in the Regge valley – legend in text below
(Source: Province of Overijssel)

The map above shows in green the existing nature areas and in purple the ecological linkages. The dotted lines are corridors where the exact location is not yet fixed. Plots of the darkest purple have already been realized, and they are in fact only a small proportion of the overall objectives.

In addition to general land use and nature development the Province also pays attention to the qualities of the area for recreation and tourism. Taken from the same source, the following map can be seen to depict various areas with qualities of 'lust and leisure' in Overijssel. Here the castles within the darker and lighter green areas are estates, which often feature castles or big houses; the stars are attraction points; and the brown and blue dotted lines are special hiking or cycling paths. The grey-blue grid areas are those where darkness at night is relatively well preserved. Solid grey-blue represents cities and towns. The red lines are beautiful or interesting fronts (townscapes) and the green dots indicate an area with such views (landscapes). As one can see the Regge River plays an important role in creating such views.

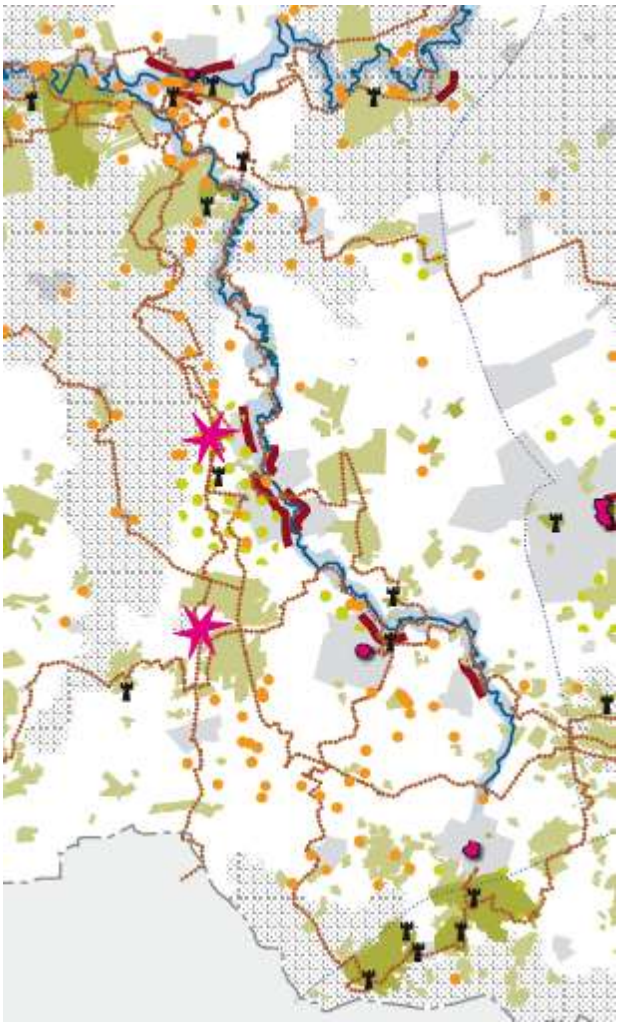

Figure 8: "Lust and leisure" along Regge River
(Source: Province of Overijssel)

Part of the Overijssel "Omgevingsvisie" is the Water Annex (Province of Overijssel 2008). This part serves as the official provincial water plan, though it was drafted together with several partners including the Waterboards. In addition to the more general goals it also specifies context and goals for separate rivers and stretches. It states that the Regge is characterized as "a slowly flowing normalized river located on sandy soil. The most upstream portion is disconnected by the Twente Canal (a shipping canal). From the Twente Canal, the river first flows through the built-up area of the town of Goor and then through a small scale, predominantly agricultural area. The upper river is part of the national Ecological Pathway System (EHS)." "The middle and lower stretches (which are partly EHS as well) run predominantly through agrarian areas, but also alongside the urban areas of Rijssen and Nijverdal."

With respect to the goals for the Regge it states that "to achieve a "good ecological status" (the goal for natural waters of the WFD) the whole water course would need to be re-meandered, the disconnected trajectories would all need to be reconnected, some watercourses would need to be deadened, the drainage level raised and a naturally responsive water level management

introduced. These measures would cause significant damage to agriculture, industry and buildings. For that reason the water body is labelled as "strongly modified" and the ecological goals are adapted to this." (compare Kampa and Hansen 2004). These goals are consequently not very ambitious. Even so, the plan does not foresee that these goals will be fully reached before 2015 (the EU target date), since part of the measures will be implemented after 2015. Similarly un-ambitious wording is used regarding other water courses, which helps in reducing strict targets against which they can legally be measured against in Brussels and associated uncertainties (Raadgever et al. 2009). Nevertheless, the plans for the Regge that remain are actually very substantial, both in terms of investment and land use change. Though the provincial "vision" gives an overall picture of relevant policies, the Province is by no means the "policy maker" and the Waterboard and municipalities its implementers. Its role is more a coordinating one than that of a higher authority. Waterboards and municipalities have equally important domains of their own.

Waterboard policies

The Waterboard of Regge and Dinkel (the Waterboard responsible for the Regge River as well as the nearby Dinkel River) is nationally seen as innovative and progressive towards the new demands of water and nature restoration tasks. With respect to the Regge River Basin the Waterboard of Regge and Dinkel (WRD) considers it to be relatively large and quite suitable for water retention. They participate with various nature organizations in the purchasing of available land in this designated ecological linkage zone while they are searching for a more overall coherent and strategic approach.

The Waterboard, in collaboration with the national agency for rural areas (DLG) and the Province of Overijssel, initiated and issued the Regge Vision in 1998 (Reggevisie 1998). This vision was in fact laying the foundations for the restoration of the Regge River to become a much more natural river again. The arguments put in favour for such renaturalization were various and already showed an interest in the multifunctionality of the area. Its function was seen as setting an agenda for further consultation and concrete decision-making about integrated aspects of water quantity and quality, nature, agriculture, drinking water supply, recreation, landscape, and estates, with all local and regional, governmental and non-governmental actors involved. While it provides a clear vision, its implementation is thus left very open.

The Waterboard is responsible for reducing the susceptibility of the Regge to increasing climate change related circumstances and does this in cooperation with different inhabitants and organizations. The awareness that the pre-existing collaborations between the partners were too small scale to achieve catchment level results pre-empted its pro-active attitude. They strongly consider the water system, ecology, recreation, archaeology, economic diversification, public support and landscape as important factors when considering how to move forward in more coordinated and effective actions.

The Waterboard of Regge and Dinkel has explained its policies in the case study area as follows (WAVE-magazine 2009; WAVE is an EU Interreg exchange and learning project):
"The Regge river basin is large and suitable for water retention. The river itself has been designated as an ecological zone, and various nature protection organizations have consequently begun to purchase available plots of land in the river basin. Waterschap Regge en Dinkel takes a positive attitude toward these initiatives, but the approach has been ad hoc so far and there is little coherence between the various projects.

The Waterboard's responsibilities

Waterschap Regge en Dinkel will act in accordance with its tasks and responsibilities in adapting the water system to the demands of climate change. The Waterboard will have to depend on the cooperation of many different inhabitants and organizations in order to create the necessary retention capacity. This requires it to take a pro-active attitude and to take control, in the knowledge that existing partnerships are too small-scale to meet the needs of the whole catchment area.

Planning and policy

Given the above, the Waterboard wishes to collaborate with all the stakeholders to develop a coherent strategic agenda that will make the catchment area climate proof and benefit all the stakeholders. The following dimensions must be taken into account: water system; ecology; recreation; archaeology; economic diversification; public support; and landscape.

Spatial measures

Measures are being undertaken within the WAVE project at two locations along the Regge. These will be innovative measures providing for a more natural river. Their aim is to minimize undesirable drought and periodic

flooding in the Regge's river basin and simultaneously reinforce the different functions of the water as much as possible." (End of citation). These two locations are not the only ongoing projects. In addition to this a number of other projects are already completed or in an earlier stage of preparation.

A very interesting source to see the internal and external policies of other governments that the Waterboard deems relevant for such projects is the overview given in the plan for the reconstruction of a recently completed project (May 2007). Most of the policies below will also be applicable in the cases of the other projects.

Relevant policies

The following policies, plans and white papers are mentioned in this document:
1. EU level: European Water Framework Directive
2. National level: Water management for the 21st century (WB21, 2000): a report from a national advisory committee, which is accepted by Dutch politics as a sound basis for water management in the shadow of climate change, and emphasizes: storing surplus water rather than discharging it immediately, more space for water and increasing multifunctional land use.
3. Provincial level: Reconstruction plan Salland-Twente (2004): a provincial plan for the development of the rural area with attention for agriculture, water system, nature and landscape, including cultural history and estates.
4. Provincial level: Water management plan Overijssel 2000+ (2001): the provincial water plan (now integrated in the new provincial Living Environment Vision (Omgevingsvisie).
5. Regional level: Nature area plan Vecht-Regge (2004): a further territorial elaboration of the provincial nature and landscape policy plan (BNLO) and the "Area perspective Vecht-Regge", that earmarks this area as a "precious cultural landscape".
6. Waterboard: The Regge vision (1998): the starting point for the Regge restoration projects.
7. Waterboard: Water management plan 2002-2005 (2002): the water plan of the Waterboard with the central issue of "to manage water and to create space", and emphasizing the interrelatedness with spatial planning, agriculture, nature, environment and recreation.
8. Waterboard: Policy paper Retention (2004): a Waterboard policy paper elaborating the advices of the WB21 for the Twente region.
9. Waterboard: Policy paper Recreation (2002): a Waterboard policy paper emphasizing recreational co-use of water courses, to make and keep the water

and its surroundings attractive for the visitors and to use the recreational and experience value of the resource as a communication instrument.

What is also interesting is that in this overview the only European policy that is mentioned is the Water Framework Directive despite the Ecological Main Structure being also very clearly related to Natura 2000. There is no mentioning of the EU Common Agricultural Policy and the new emphasis it is developing on the provision of environmentally related services over output and yield subsidies. The EU Habitat and Bird directives are also not mentioned even though the National Park is home to a rare species of bird.

A few other related policies that are in place that affect the Regge River area are the Dutch Flora and Fauna Law and Nature Protection Law. There is however great efforts given to integrating the EU goals into national policy documents in the Netherlands. The national park Sallandse Heuvelrug that is also included in the project area is designated under both the Habitat and the Bird directives. The nearby Wierdense Velt (nature area) and the large State Forestry area of Ommen (Boswachterij Ommen) are also Habitat Directive designated areas.

Municipal policies

The municipalities that are involved in the Regge restoration projects are Hellendoorn, Ommen, Wierden, Rijssen-Holten, Hof van Twente ('Garden of Twente') and an outlier part of the Municipality of Twenterand. Though not specifically poor, the region has a considerably lower average income than the Dutch average. Politically the affiliations are mixed, but the Christian Democrats are historically rather strong in this area, while in some municipalities the representatives of orthodox Christians are also in the local government.

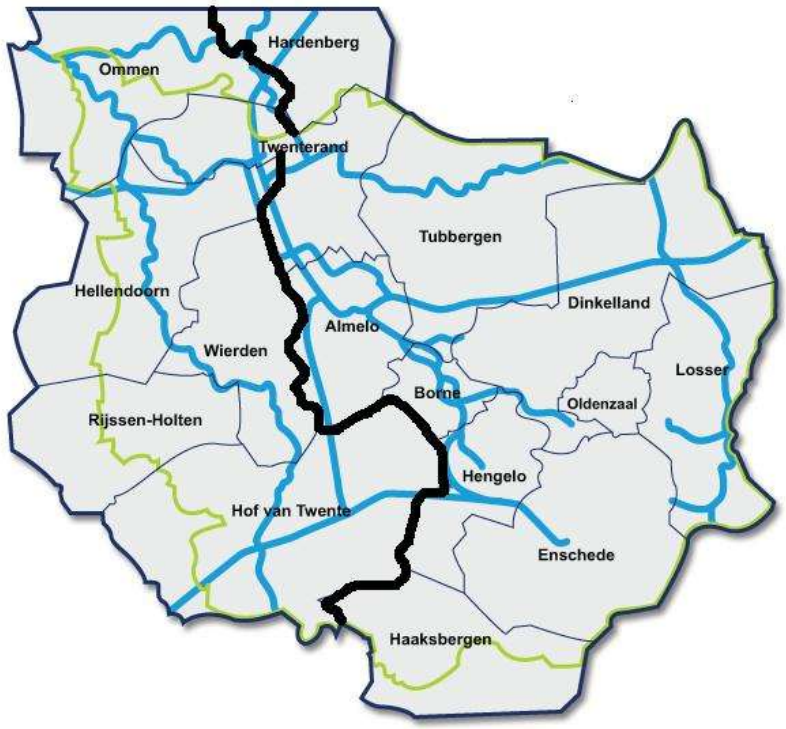

Figure 9: Map of Twente region with main waters and municipalities involved in this study – legend in text below
(Source: WRD)

The straight waters in the above map are artificial canals. The boundary of the Waterboard of Regge and Dinkel is in green and the municipalities that are involved in the Regge restoration projects are to the west of the black line. Only a portion of the Twenterand Municipality is included in the area. The blue line running from bottom to top in this west area is River Regge.

The municipalities are involved in all spatial planning and development issues on their territory, for instance when projects of land restructuring or land elaboration are set up. The three most involved municipalities in the projects that are realized now are Ommen, Hellendoorn and Hof van Twente.

The Municipality of Ommen in the north of the region has a lot of woods within its borders. In municipal politics opinions vary about whether that is a blessing or a curse. Some hold that it is too much already and shouldn't be increased. The tourism industry, including the dozens of campsites, is regarded as being already at its maximum desirable size. Furthermore the orientation is more towards other municipalities west and east along River Vecht and less downwards along River Regge.

The Municipality of Hellendoorn in which several of the realized projects are, has on the contrary adopted its wealth of nature (including forests, wetlands and the Regge valley) as an asset that could make it attractive for both people and industries. Consequently it is more active in trying to further the renaturalization projects. The Municipality has its own Water Plan (2007), which was made in collaboration with the Waterboards of Regge and Dinkel and Groot Salland (part of its western surface is in that Waterboard's area). In

this plan the Municipality supports the various aspects of the Regge renaturalization and emphasizes its own desire to add recreational facilities.

The Municipality of Hof van Twente is also a Municipality with a lot of nature. Its nature plots are often relatively small because they belong to the attractive patchwork that is characteristic for the many estates that cover a large proportion of its area. Generally, this municipality has a very characteristic and attractive landscape that it sees as worthwhile to protect and strengthen rather than weaken. Together with its neighbouring Municipality of Haaksbergen it developed a “Landscape Development Plan”, that was confirmed by the Municipal Council in May 2005. The Municipality of Haaksbergen has a number of tributary creeks to Regge River. Even though most of them are cut off by the Twente shipping canal, this creates a unity with the Municipality of Hof van Twente in terms of landscape. Apart from the aesthetic, water and nature aspects cultural history also plays an important role.

Chapter 3. The Regge River as an Example of a Dutch Tributary River Basin

Introduction

In this chapter we will introduce the river, its basin and the river renaturalization project that is the focus of this book. Our case, the Regge River, is the most important river in the western part of the Twente region. Numerous smaller rivers and creeks flow into this river. In the periods 1848-1879, 1894-1913 and 1925-1935 the Regge suffered from piecemeal canalization efforts. This was done mainly to facilitate shipping and agriculture, although the shipping industry has long since died out. It resulted in the situation where nearly all of the meanders were cut from the river. Over the years the Regge was in this manner changed from a meandering river into a water course that was confined by narrow shores with paths for "maintenance" (e.g. dredging). In the context of the Water Framework Directive all waters contained within this watershed are consequently labelled as 'strongly modified'. This context is the starting point for the Regge Renaturalization Project.

The Regge River basin

The Regge valley is a particularly rural area of the Netherlands which has been historically a rich area for farming activities, though the overall area used for traditional (intensive) farming is decreasing. It belongs to the region of Twente, where, despite having a high population density most of the inhabitants are concentrated in a line-up of cities, leaving the rest of the region quite "rural" in terms of Dutch standards. We can classify the Regge valley as an area with an increasingly interwoven combination of agriculture, recreation & tourism, towns, and both wet and dry nature (Natura 2000 areas), with a quickly diversifying set of resource uses. There are large investments in recreation and wetlands and creek restoration. This creates various physical planning issues.

There are also a relatively high number of estates remaining in the area dating from medieval periods to early in the last century. These estates are either under private ownership or managed by foundations that are governed by a board of directors. Their large size makes them an important player in the

development of the landscape. They also contribute to the relatively large number of natural lands seen in this region of the country (recognizing of course that the large majority of natural lands in the Netherlands are actually man made). Camp sites and holiday parks are an increasingly popular use of the land.

The following map shows how the Regge river basin is part of a much larger Vecht river basin (all of the coloured areas in the map). The Vecht River flows into the IJssel Lake in the centre of the Netherlands (with the narrow purple mouth on the left of the map), just after being merely connected to the river IJssel, one of the branches of the Rhine. The Vecht is a middle size rain fed river, which originates in Germany. The total length is 167 km, of which 60 km is situated in the Netherlands. This Dutch portion of the catchment is used more intensively than the German part (Lulofs and Coenen 2007). The size of the Dutch part of the catchment is 2400 km2, the elevation in the area ranges from 0 to 83m above sea level; however the total decline of the Vecht itself is just 10m.

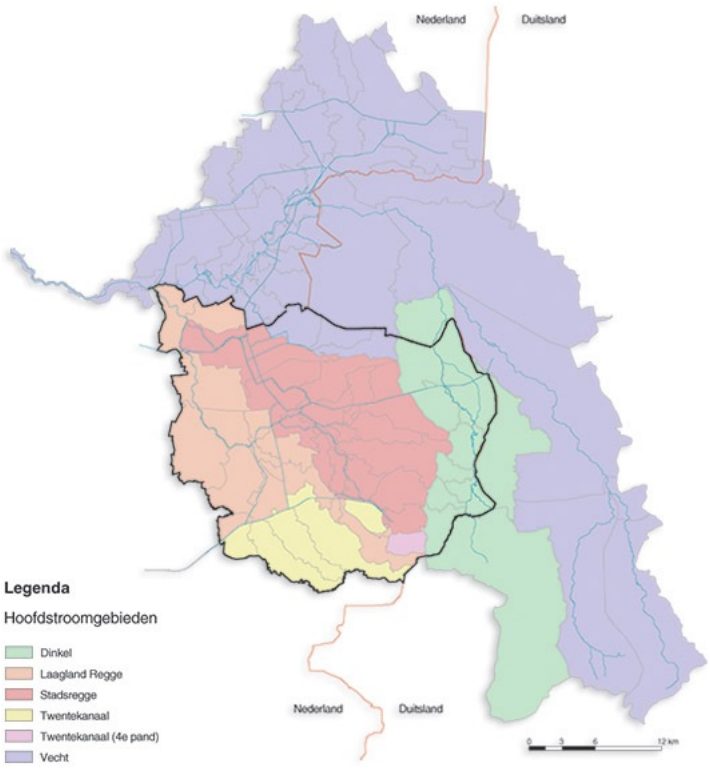

Figure 10: Transboundary German-Dutch Vecht river basin (Source: WRD)

In this figure the light red area is the so-called lowland Regge basin that predominantly consists of rural waters. The darker red is the so-called urban Regge basin of which the waters are mostly of an urban nature. This water is

kept apart and discharged into the Vecht separately. Not all of the water in this area is urban however. A large project that is not the focus of this study (the Breakthrough – see Bressers et al. 2010) will reconnect the rural creeks in this part to the main Regge River. The yellow area is partly disconnected by a large shipping canal, the Twente canal. The watercourses are mostly led underneath the Twente canal (the watercourse entering the Twente region from the southwest), but discharge into the canal in case of high water levels. Despite this, it is the watercourse in the west of the yellow area that is regarded as being the start of the upper Regge.

In the map below the land use patterns are shown for the part of the Waterboard area where most projects are located. Red denotes the built-up area, the darker green is for the woods and forest, purple is the bog and heather area, brown is the crop fields, darker brown is scattered buildings (farms, sheds and the like) and the light green is for meadows. The small scale grid and fragmented pattern is clearly visible from this depiction.

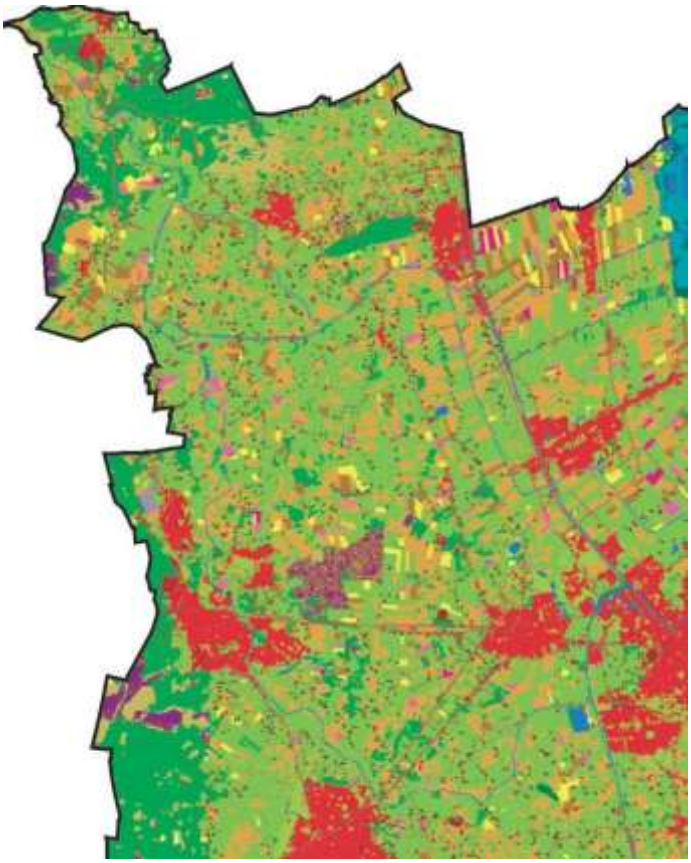

Figure 11: Map with land use pattern in northwest Twente
(Source: WRD)

A large proportion of the area is so-called 'verwevingsgebied' (weaving of functions area). There is a wealth of new activities in the countryside, both by farmers and by others that use the area for recreational types of activities. They can be grouped into categories such as museums (nature park visitor's

centres, 'zomp' boats that were previously for transport but now serve recreational purposes, wooden shoe-, radio-, tin can-, village-, lifestyle fun-, farm-, and 'agricultural nostalgia'- museums), activities (canoeing, survival, holiday farms, farm campsites, miniature golf, archery, shooting, corn labyrinths), special agriculture with guided tours (winery's, nuts), festivals (open air plays, harvest feast, 'trekkerslep' (tractor games), flower parades, fruit parades, religious praying sessions), as well as extended opportunities for hiking and cycling along marked paths. New care-taking farms arise where groups such as children and the disabled can find day care.

Figure 12: Agrarian cultural landscapes along the Regge River
(Source: selected map section in policy information documentation to support the provincial Omgevingsvisie Overijssel)

The area along the Regge River is also rich in what is labelled "agrarian cultural landscapes". The light green areas in Figure 12 are old farmstead landscapes ('oude hoeven'), the darker green mark 'essen' landscapes and the blue ones 'maten and flieren' landscapes.

The Regge area also contains two major nature reserves: the forest near Ommen in the north and the National Park Sallandse Heuvelrug in the west. The Sallandse Heuvelrug was established as a national park in development in August 2000. Its designation as a national park means that the area can be more effectively protected and the relationship between the different sections of the park can be strengthened in coming years. The Sallandse Heuvelrug consists of a number of peaks, such as the Hellendoornse Berg, Haarlerberg, Holterberg and Koningsbelt, the latter of which is the tallest, at 75 metres above sea level. Standing on the flanks of the Sallandse Heuvelrug, you can see forests and heathlands in the distance. It is an attractive area with numerous

opportunities for quiet recreation. The vast forests have excellent routes for walking, bicycling and horseback riding, as does a section of the centrally located heath-lands. The Sallandse Heuvelrug is the only place in the Netherlands where a viable population of black grouse exists. The entire area measures approximately 3500 hectares (35 square km). The Dutch State Forestry Agency, Nature Monuments, and a number of private owners strive to preserve and improve the features of the park for nature and recreation by means of the national park system. The area also boasts a network of signed bicycling, walking and horseback riding routes. Since nature-oriented recreation is one of the explicit goals of the park, much attention is devoted to the quality of the facilities, although much has already been done for visitors. There is a visitor's centre, with a fun and educational play forest, and an information hut.

Figure 13: Part of the National Park Sallandse Heuvelrug, mostly in the municipalities of Hellendoorn and Rijssen-Holten (Source: National Park website)

A major side effect of the grazing of sheep and goats in previous times was the destruction of forests. This system ultimately resulted in the nearly total deforestation of the Netherlands. At the start of the last century, the Sallandse Heuvelrug was covered almost solely in heather. In some areas, the pasturing was so intensive that even the hardy heather disappeared and was replaced by drifting sand. It was at that time that the Dutch State Forestry Agency was assigned the task of afforesting the heath-lands and drifting sand. A number of campgrounds and holiday bungalow sites are located around the area, in addition to various food service facilities (National Park website, 2001 / 2010).

Many of the projects described in this book are at least partially situated in the Municipality of *Hellendoorn* which totalled 35.800 inhabitants by the end of 2010. The northern part of the Sallandse Heuvelrug is part of the Municipality of Hellendoorn, south of the main road from Almelo to the provincial capital of Zwolle that was built in 1829. The Hellendoorn Adventure Park is also a very busy tourist attraction. There is consequently an extensive tourist infrastructure, including an impressive network of marked paths and eating and drinking facilities.

The village of Hellendoorn, first mentioned in the year 1078 and with a church that originates from 1150, has now only some 5000 inhabitants. In the village a factory for various consumable ice products started that produced Caraco (a brand of ice cream) until 1996. After being taken over by Unilever it gradually started to produce Ola and Hertog brand ice cream and now is increasingly manufacturing Ben & Jerry's ice cream. At the original site there is an ice cream-making museum, one of many examples of how history has been turned into tourism here.

The town of Nijverdal is considerably larger than Hellendoorn. Its name combines nijver (industrious) and dal (valley) and refers to its recent past as a textile town and its situation in the Regge valley. Such an artificial name is an exception in old Europe. In 1836 the Dutch Trade Company started a textile mill here in close collaboration with the famous Thomas Ainsworth and the name of the small village of "Noetsele" was then changed into Nijverdal. Around 1850 another textile mill (Salomonson royal steam weaving) was added that ended the home weaving industry completely. Nijverdal is also the only place in the Netherlands where gold digging has occurred and where a formal concession for it has been issued.

Another Municipality where several of the projects are situated is *Ommen* (17.300 inhabitants by the end of 2010). The town of Ommen got 'city rights' in 1248 and was considered as a place to cross the river Vecht from 1100 onwards. The historical centre is small though and there are plans to renovate and restore it underway.

In the 20's and 30's the town of Ommen was the world centre of Theosophy. On Phillipp the Baron of Pallandt's Estate of Eerde, Krishnamurti established the "Order of the Star" and large camps were organized there yearly. In 1929 Krishnamurti abolished the order because he was against the personality cult that had developed around him though the camps continued until 1939. Unfortunately, the estate was turned into a prison camp by the Nazi's, and Krishnamurti did not want to return after the War. The same idealistic baron also donated nature areas to the scouting groups that still use these grounds today. Some 10.000 scouts sleep here annually.

There is a rather large forest area contained mainly within the Municipality of Ommen that is also designated as a Habitat area. A portion of the forest lies between the Regge and the Vecht and another potion lies on the other side of the Regge to the southwest. The visitors centre near the Regge River is a cooperation of the State Forestry Agency, Nature Monuments, Landscape Overijssel and the Municipality of Ommen, who are together the owners of the nature area. The Vecht valley, the woods and the hills attracted many tourists, particularly from the Second World War onwards. Consequently there is a significant supply of campsites and recreational infrastructure available.

A third Municipality that is involved in several projects is *Hof van Twente* (the "Garden of Twente"). It has some 35.600 inhabitants and is a merger of several smaller and previously independent municipalities. In this Municipality many estates are still intact.

Twickel is the largest private estate of the Netherlands, though it now takes the form of a foundation. Apart from the castle and surrounding parks, it possesses about 300 farms, restaurants, hotels, schools (both land and buildings) and a home for elderly people (only the land however is part of the estate). The whole area has an interesting small scale landscape that the foundation and farmers are determined to preserve. Recognizing they cannot compete on the world market in this small scale landscape they work to find other sources of income, such as green and blue service payments from the Province and Waterboard, respectively. In the Twickel area, farmers rent their land from the estate, which maintains the property rights. These rents can be transferred from one generation to another ("erfpacht"). However, even in those cases, the Board has a lot of power in governing all aspects of the areas that farmers "rent".

Next to Twickel, that is itself outside of the direct Regge area, there are several other estates in this Municipality, which are indeed alongside the Regge. They coordinate informally with one another whereby one of them, also the manager of the large Twickel estate is said to have a strong influence.

Summary of the relevant data regarding the Regge River area

Basic technical data
- The geographical location is in the centre of the Dutch Province of Overijssel.
- Technically the activity does not pose very restrictive challenges.
- Judicial planning processes and land allocation are the main challenges.
- The Regge restoration projects have their origin in a 1998 white paper and were to continue for at least a decade. Most studied sub-projects are recently realized.
- Ownership of the facilities varies; sometimes the Waterboard, sometimes nature organizations, both private and public, and sometimes private landowners, estates and farmers. Ownership is regarded as crucial in case owners do not want to cooperate with renaturalization.
- The key administrative decisions are local land use plans, land allocation, subsidy allocations, and most of all voluntary agreements with owners.

Historical evolution
- Before the renaturalization a gradual tendency towards restricting nature and intensifying agriculture was present. Urban development has being well contained around existing built up areas, as this is the core of Dutch land use planning.
- There were no simultaneous alternatives discussed, but the renaturalization was a reaction to the opposite change that had taken place before, in which for instance the Regge was increasingly canalized.

Economic data
- The region is not specifically poor, but has a lower average income than the national average income.
- That has only limited consequences for the budget of the local government, since most of the budget is allocated on the basis of national taxes and divided on the basis of a formula in which the number of inhabitants, surface area, etceteras are included.
- The renaturalization has no direct customers that pay individually. The main beneficiaries in economic terms are related to recreation and tourism. Furthermore some municipalities, like the central one of Hellendoorn expect economic benefits from being attractive as a place to live and thus attractive for companies that are relatively “foot loose”. In others like in Ommen there is much more debate whether to see its abundance of nature as an asset or a hindrance to economic progress.

The "Regge Natural" renaturalization project

The Waterboard of Regge and Dinkel is tasked with realizing around 10,000 hectares of 'retention area' (to buffer stored water at peak levels) and a large proportion of this challenge is hoped to be realized in the Regge valley. It will also significantly decrease the size of the area that suffers periodically from drought. The area also contains portions of the Ecological Main Structure (Ecologische Hoofd Structuur – EHS), the Dutch policy program to increase the interconnectedness of the various natural areas in the Netherlands. So within the project area we have various levels of government, different nature organizations, farmers, companies and citizens. Ideally they are all working together in this project with similar and overlapping goals to increase to the fullest extent they can, the multifunctionality of the landscape under study.

In 1998 the Waterboard of Regge and Dinkel, the Rural Areas Agency (Dienst Landelijk Gebied – DLG) and the Province of Overijssel worked together to develop the Regge Vision. With the Waterboard being responsible for the surface water quality and quantity in the region and the DLG working on land development projects for various environmental, water, economic, spatial, sectoral and social policies in the rural areas, it was clear that the two bodies would better serve their longer term goals through an integrated visioning and strategy framework.

It was decided that the vision would be as clear as possible in terms of goals, though specifics on implementation and planning would be foregone. In the Regge Vision they provided information on the ideal situation towards which they would work, difficulties and complexities they would encounter as well as possible measures they could use to reach the goals. They also mentioned the various partner institutions that they expected to be strategic in its accomplishment as well as a number of accepted criteria for various measures of acceptable drainage, water quality, etceteras.

Given the large scale of the project, it was realized early on that spending too much time in the planning stages would be seriously detrimental to the achievement of the overall goals if this time was spent with the idea of developing a perfect plan to meet all of the goals for the entire area. They chose to adopt an opportunistic approach at the beginning of the project. By this it is meant that they would not start in a methodical manner, but wait to see what projects would develop on their own and then work to include as many aspects of the vision as possible. They left ample room in the Regge Vision for coincidences and opportunities to determine where they would focus their short term project efforts.

The Waterboard and its partners have initiated a series of new projects that together they have labelled Regge reconstruction projects, under the heading of “Natural Regge” which began in 2000/2001. The first project began as a pilot project in the Municipality of Hellendoorn (referred to as the Velderberg Project) where a natural area would be reconnected to the canalized Regge. The initial desire to complete this was by the Waterboard as it would increase the overall storage capacity for the Regge. The nature organisations were concerned that the high nutrient levels of the Regge water would negatively affect the health of the natural areas that they were managing. Discussions were had and an agreement to try the connection was agreed upon and the project was very successful. Lessons were learned in terms of early communication with stakeholders, looking for common desires and sharing of information. People began to see the project for its overall goals in terms of a dynamic river system and not for their separate interests in its completion. Lessons were also learned in this small scale project that would improve their rain models and as well how to include the cycling paths desired by the Municipality alongside the nature development goals. Had this not been done, the project most likely would have taken much longer if it would have been completed at all.

The nature organizations, the Province and often the Municipality have goals that are mostly in synergy rather than conflict with the Waterboard, so a new project is in this regard rather easily created. General inhabitants and especially landowners have goals that are often more difficult to fit in. Various parties have not only different interests, but moreover also can have different notions of what spatial quality actually is to them (Driessen 2005). So even while many parties are involved and strive for a consensus based solution, the project cannot really be considered as watershed management “from the ground up” (Blomquist and Schlager 1999). Recurring partners in the project include a few relevant municipalities, and the nature organizations Landscape Overijssel and Nature Monuments. These nature organisations currently hold large amounts of land, are active in the purchasing of land and cooperate with one another in the region. A popular choice for reducing the negative impacts of agricultural operations along the Regge is to purchase the land and change its function to a mixture of nature and recreation. This solution was quite easily implemented when in a few cases the farmer was interested in quitting farming, and so land exchanges were able to be arranged.

After having accomplished many things along the Regge the Waterboard is now discussing with all of the other partners where the gaps are and how they can plan to fill these in and which parties can do what. The ecological linkage

zone policies of both national and provincial authorities have been very helpful as a co-driver for changes, since it involves ultimately the whole of the Regge. In the perspective of the Province it is they who should have the lead as both nature development and the coordination of spatial development belong to their domain. However, the close collaboration with the Province on this is not really evolving well, partly because of the lack of capacity freed for participation in the projects by the Province and more recently due to national discussions on the division of competencies. Larger scale "area development" projects with various resource use issues are becoming increasingly utilized as a setting to enable the scaling up of the projects and the associated benefits. In those projects all relevant authorities have a role.

From the perspective of the Landscape Overijssel the Regge restoration until now has not yet realized its full ecological and landscape potential. The small projects that were realized in the beginning were essential to get the ball rolling, even though they took much effort, because there was no other way of doing it. The bigger programs enable these small successes to spread to other areas. The Regge Vision has improved the reputation of the Waterboard as being an ally to nature. Previously they had a poor reputation for only pursuing traditionally developed water projects. The positive results in terms of water quality improvement in the Regge are already being seen due to this new approach.

As in many other river basins, it is necessary that the buffering capacity increases in the Regge basin since climate change is producing increasingly irregular rains as well as heat waves and drought periods. Through the Natural Regge projects the previously canalized Regge is being transformed into a dynamic and resilient river system. This is being accomplished in accordance with the national water policy as stated in WB21 (water management for the 21st century), but it also reflects the policies of the Waterboard such as the Regge Vision of 1998, the Water Management Plan, and the Water Retention Note, and is in accordance with the Provincial Living Environment Vision. The Natural Regge projects also provide a clear contribution to the tasks as stipulated in the National Administrative Agreement on Water (a covenant of ministries, Provinces, Waterboards and municipalities on what is to be done and by who in order to prepare the water system for the implications of climate change).

The projects that now belong to the Natural Regge collection are included in the following list. In the brackets are the municipalities that are involved as government actors, in addition to the Waterboard of Regge and Dinkel and the Province of Overijssel.

1. Estates of Diepenheim (with Hof van Twente)
2. Veldkamp (with Hellendoorn and Wierden)
3. Groene Mal (with Hellendoorn)
4. Kalvenhaar (with Hellendoorn)
5. Velderberg (with Hellendoorn and Ommen)
6. Onderland (with Ommen)

These projects do not cover the entire length of the Regge. Between these projects (which are either realised or are in a quite developed phase) there are projects that are only in an early stage or that have been only envisioned. In two cases these areas also contain small projects that had already been realized before the Regge Natural program, like Exoo and Tatums. Next to the six projects mentioned above and the projects along the intermediate stretches of the Regge there are a few other projects that are also relevant for the future of the River Regge. Two of them are actually within our delineated area; the others are in the 'urban Regge' part of the river basin.

Elsenerbeek is a newly constructed brook near the town of Rijssen and forms the core of a newly created ecological pathway. It is developing in between the Regge, the Holterberg (hill) and Zunasche Heide (heather) on one side and the still to be developed nature area of Middelveen (bog) and Friezenberg (hill) on the other. The ecological zone will have a width that varies between 45 and 100 meters. The Elsenerbeek will create an outlet for the creeks to the south of the railway between Rijssen and Holten and the Regge to the north. The new brook will have a meandering character and will be as shallow as possible. After the construction the brook will be allowed to meander within the designated width. The ecological zone will be as open as possible for visitors. There will be some groups of trees on characteristic spots for the purpose of marking the landscape. This project is commissioned by the Rural Area Agency (of the Ministry of Agriculture, Nature Protection and Food Safety). Other partners involved are: the State Forestry Agency (management of the ecological pathway), the Waterboard (the Elsenerbeek itself), and the municipalities of Rijssen-Holten and Wierden.

The Wierdense Velt project is a wetlands restoration project in the area in which two story lines have been investigated, one on the side of Wierden and one on the side of Hellendoorn. This was part of a recent study on wetlands restoration projects (Owens 2008). This marsh is relatively near to the Regge but in no way connected to the river. Its renaturalization played a role in developing awareness of the value of its landscape beauty in the Municipality of Hellendoorn.

The next three projects are in the 'urban Regge' part of the river basin. The first of these however shows that they are not irrelevant to the case study area.
The Breakthrough project is a new 13 kilometer river and 75 meter wide ecological pathway that aims to reconnect the relatively natural part (rural waters) of the disconnected portion of the Regge river basin to the east with the main Regge river. The good quality rural waters from creeks that were previously disconnected from the Regge and discharged via artificial channels will be reconnected to the Regge by the newly made river referred to as the Breakthrough (Bressers, Hanegraaff and Lulofs 2010).
The Azelerbeek project is positioned directly to the southwest of the town of Borne. The Azelerbeek is a part of the disconnected urban zone of the Regge basin, which will be reconnected by the Breakthrough (Janson 2009).
The Bornse beken project is to the northeast of Borne (Huitema 2002, Huitema and Kuks 2004).

The nature of the Regge renaturalization projects

Renaturalization cases are typical 'boundary spanning projects', in which complexity arises from the fact that not only the context, but also the projects themselves need to be multifunctional in order to have any chance of being successful, for instance by gathering enough funding and legal approval. As seen in the "Omgevingsvisie" of the Province of Overijssel, showing multifunctionality is included in the definition of successful completion of projects in the areas determined to be "mixed landscape". Consequently the regime involved, is not only the regime regarding a specific activity, but the "inter-regime" of policies and rules regarding many activities, even when the starting point is just a singular issue. The multiplicity of actors and "their" policies involved in polycentric regulation regimes can sometimes pose problems of legitimacy and accountability (Black 2008, May 2007).

The projects are also typically multi-level by nature. Classic decentralization concepts (including the European 'subsidiarity' and the American 'new federalism') often search for the "right" level of regime: the lowest one that is apt for solving problems. The local level is however involved in all stages of the policy process (Bressers, Kuks and Ligteringen 1998). Multi-level governance is based on the acknowledgement that all levels and scales influence a certain situation simultaneously (not necessarily to the same extent) and that all levels influence each other. Upper governance scales can have direct impacts on local governance regimes (Andersson and Ostrom 2008). This does not occur only in either a top down or bottom up fashion, but in both ways and

can also skip some steps in between (Bressers and Rosenbaum 2003). Though the projects studied are local by nature, abundant relations with upper levels (including the EU and world climate change arrangements) and lower levels (kitchen table conversations with individual citizens) are at centre stage.

Inevitably projects of the size and ambitiousness of the Regge River renaturalization are "complex", but moreover they are also dynamic. The period through which they are implemented is sufficiently long to allow ample room to "play the game", but also long enough to try to continuously modify the context of the game. As such, analysis of the processes needs to reckon with the fact that not only the process, but also its contexts evolve and are made to evolve.

Thus the water and nature restoration projects channel the attention to the analysis of multi-policy implementation in complex and dynamic social interaction processes. When one studies the renaturalization processes these (inter)actions of the actors involved form the main portion of the story. These are also theoretically highly relevant. Given the fact that the processes operate in a complex and dynamic, and thus unpredictable and uncertain environment, so-called linear project management is a recipe for failure. To be able to succeed in integrating multiple legitimate and desired uses, multiple actors' consent, sectoral policy schemes, funding rules, time frames and scale issues, members of project teams need to be skilled "boundary spanners" (Williams 2002) and able to see, use and sometimes create "windows of opportunity". Consequently the narratives of the (inter)actions are highly informative on what strategies are used to achieve good results under various contexts. For that reason, the characteristics of the actors in these implementation processes are a vital part of the study. This includes how the actors are influenced by on the one hand regime characteristics and on the other hand the strategies they or others in the process apply to make the most of these contexts.

The next theoretical chapter serves to make our concepts and analytical lens explicit. The follow-up chapters are written such that they also can be read and understood without this explanation.

Chapter 4. The Contextual Interaction Theory as a Conceptual Lens

Introduction

River renaturalization projects are complex implementation processes related to multiple policies. Often they require many years to develop and thus work under a dynamic set of circumstances. In this chapter we will explain "Contextual Interaction Theory" as our conceptual lens for studying these implementation processes.

This theory has been developed over the years with initial roots in the implementation analysis in the dissertation of one of the authors (Bressers 1983), further elaborated in "instrumentation theory" designed to enable comparing instruments while acknowledging that their efficacy is fully dependent on context factors (Bressers and Klok 1988, Klok 1991, Bressers and Ringeling 1995), subsequently adding network analysis (Bressers, O'Toole and Richardson 1995, Bressers 1998, Bressers and O'Toole 1998, 2005, Ligteringen 1999), learning and dealing with uncertainty (Bressers and Rosenbaum 2000, Arentsen, Bressers and O'Toole 2000), multiple scale issues (Bressers and Rosenbaum 2003) and other governance regime aspects as context (Bressers and Kuks 2003, 2004, Bressers 2009). Also the original core of the theory was reconceptualised, rephrased and renamed (Bressers 2004). Lastly the role of boundary judgments (Bressers and Lulofs 2010) was included. In this book the authors elaborate further on the strategies used by actors in such complex and dynamic implementation processes and the consequences for the relevance of governance regime characteristics (De Boer and Bressers 2011).

We mention here briefly which topics will be addressed in the rest of this chapter:

First we will describe the nature of policy implementation as a multi-actor interaction process and the main approaches to policy implementation in policy research.

We will further discuss the general evaluation criteria with which we assess the renaturalization projects. Within the context of this book this section serves to make our own vision explicit and is not intended to be provided as evidence or an argument for a methodological step, since the study emphasizes the implementation process rather than the ultimate results. Apart from the completion of the process, results can be specified in the form

of rivalries in resource use that are solved (or created) and in terms of natural and manmade resources' values being improved or reduced.

We then specify how the many possible factors affecting the interaction process can be organized and simplified as the actors in the process and their characteristics are the main force driving the implementation. These form the ultimate setting of the process. All other external factors have only an influence on the process because and in as far as they influence the core characteristics of the actors involved. These characteristics and their mutual relations are specified.

The characteristics of the actors are influenced by factors from various layers of context. One of the layers of context is the structural context which involves the elements of governance and the relevant property and use rights. Previous research showed that the extent (completeness) and especially the coherence – together making up the degree of integration of this context – are very relevant for guarding the sustainability of river basins.

While we identified river renaturalization processes as complex (multiple sectors and scales) and dynamic (long time horizon) processes, striving for improvement rather than protection of what is already there, the actors involved do not take the setting of the process for granted. Rather they try to influence not only the course of the process but also its setting over the longer period. This is done by using externally oriented strategies that often are forms of "boundary spanning", spanning scales, times and sectors. These adaptive strategies can be reactive, but also responsive and even proactive. To be able to do this requires various capabilities of actor organizations that can be summarized as "receptivity". To increase receptivity organizations can use internal strategies.

Using various internal as well as external strategies as an adaptive response to complex and dynamic contexts requires a structural context that allows or even stimulates one to do so. This is not self-evident because often governance aspects such as policies and rules are more control than empowerment focused. Thus, especially with dynamic and change oriented projects, the flexibility of the governance context is important alongside the influence of the extent and coherence. Lastly the degree of change that is striven for also matters and we call this the intensity of the governance context.

Implementation processes

The classical vision of implementation in which previous decisions that are often made externally to the process are realised, has limited value when analysing complex implementation processes. This is even considered to be

true when much simpler situations of implementation are concerned such as in the case of permit systems. Consequently the first wave of studies and literature on implementation that could be labelled as having a top-down perspective (e.g. Pressman and Wildavsky 1973, Mazmanian & Sabatier 1983) was quickly followed by so-called bottom-up studies (e.g. Berman 1978, Hjern 1982, Hjern and Hull 1982). Thereafter several scholars attempted to bridge these approaches or synthesize their strongest elements in new "third generation" approaches (Goggin, Bowman, Lester & O'Toole 1990). The approach elaborated here can clearly be viewed as such a "third generation" approach to policy implementation (O'Toole 2000: 281-282).

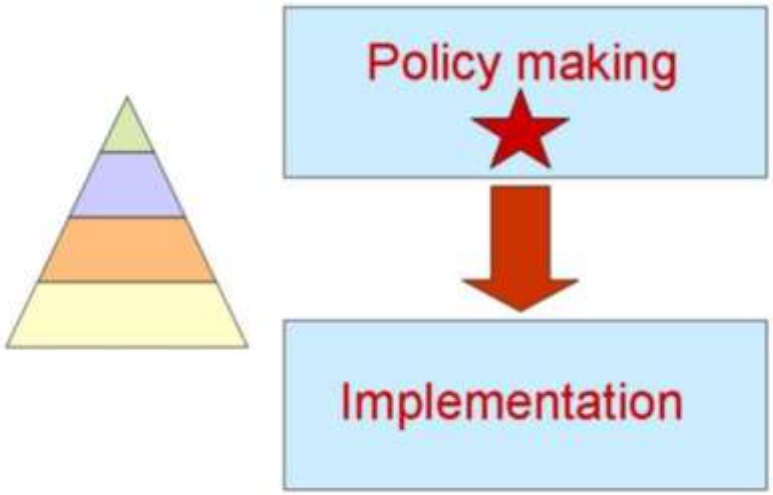

Figure 14: Classic approach to policy implementation: "Do what you've been told"

Its starting point is that the relationship between policy making and policy implementation is most often a mutual one, since much of the policy resulting in practice cannot be predetermined but has to be adapted to local situations to make it work. These experiences should also be an input into the policy making process, which turns the relation between policy making and policy implementation into a mutual learning process rather than a one-sided relationship.

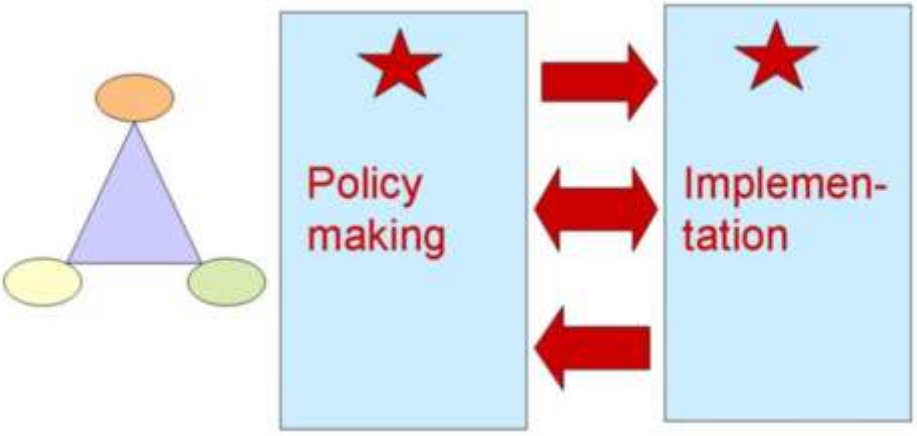

Figure 15: Modern approach to policy evaluation: "Exchange and learning"

Even in the case where the ultimate research interest is about the degree to which a certain policy is realized, it makes sense not to think in terms of the compliance (or even obedience) of implementers with the stated policies. Rather, and providing much more insight, one should emphasize that implementation processes are multi-actor processes in which not the vertical relation between "higher" and "lower" authorities, but the relations between the parties involved in the process itself, like the implementers and the so-called target groups, determine the course and results of the process. In this vision the policies to be implemented belong to the inputs of the process, and are by no means the only inputs.

The concept of "*process*" is not used here in one of its two common meanings: "change of a phenomenon over time", but in the meaning of a conversion process, like for instance in the famous early political science model by David Easton (1965a: 122, 130-132, 1965b: 478-479). A conversion process is not a change of a phenomenon, but something that forms the relationship between phenomena.

Several inputs are in such a process "processed" into something new and different. Since in social reality this conversion is not produced by e.g. production lines, but by activities and interactions of actors (people; representing themselves and/or organisations), they are specified as "interaction processes".

Such interactions take place in what is often labelled an "arena", of which the boundaries – issues, actors, rules of actions in a certain space-time "envelope" - are explicitly or implicitly specified by common agreement, with the alterative being that they will be in flux.

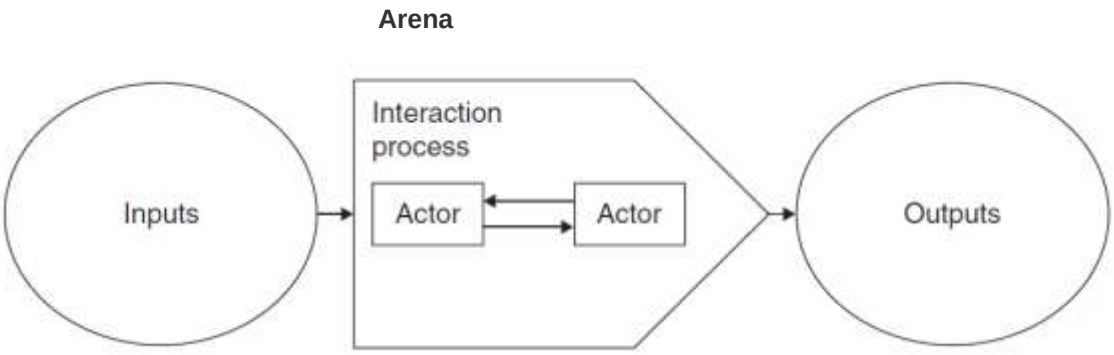

Figure 16: Simple model of interaction process as conversion of inputs into outputs

The interactions are visualised here as being based on two actors. Of course in many interaction processes there are generally more active actors. So to some extent this representation is only symbolic. On the other hand: while in many processes multiple issues are at stake, in many cases *per issue* there will be two sides, only two groups of actors (Owens 2008). These groups often include background actors in the actor network that do not participate directly in the (inter)actions, but give forms of support to actors that do.

In the debate in the literature on implementation studies (see for overviews Hill & Hupe 2002, O'Toole 1986, 2000, 2004ab) the shift in attention from the vertical to the horizontal relationships can be seen as the essence of the bottom-up rather than top-down focus (cf. Torenvliet 1996). Often such a bottom-up perspective is accompanied by an ideological preference for bottom-up solutions no matter whether they address the purposes of the policies involved. What we state here is that one of the basic ideas of Contextual Interaction Theory is that the bottom-up perspective is more informative as an analytical tool even when the researcher adheres to the top-down policy goals. Even when the purposes of the policies to be implemented do inspire the evaluation criteria of the researchers, such as in our case the realization and quality of the Regge River renaturalization and the water and nature policies involved, it still makes sense to analyse the process not in terms of compliance to these purposes but it is considered paramount first to get an understanding of what happens and why.

Since the term "policy implementation" is used less frequently than it was in the seventies and eighties, a debate has ensued about whether the subject is still relevant in this new age of "governance instead of government" and "network management". "Implementation" might seem to be connected to the

ideas of top down steering that are generally forsaken as neither being achievable nor desirable. Nevertheless, implementation should not be considered out-dated. It is unlikely that any innovative governance concept will work which has no stimuli for action for the individual stakeholders and its effectiveness will likely erode rather quickly when defection has no consequences. Attention to implementation in policy analysis is far from superfluous in modern governance (Bressers 2004). Authors are increasingly revisiting the field of implementation (e.g. Hill and Hupe 2002), and are stating that it might be "out of fashion, but still very much alive and relevant" (Saetren 2005) or even that it bridges the missing link between policy and governance models (Waters Robichau and Lynn 2009).

All processes, like an implementation process, are part of an in principle infinite fabric of other processes and their inputs and outputs (labelled below as (system) "elements"). The level of detail with which one "maps" the system is of course dependent on the number and detail of the processes taken into account in a study. Very much like with geographical maps there is no single "best" level of abstraction, as this depends on the use one wants to make of the overview. For instance, the Regge restoration project implementation process that is the subject of this study can be seen as one process, or as a combination of several sub-processes that partially take place in parallel (the various cases as described in the next three chapters), or even as various phases in each of those. In fact, it could be seen as characteristic for the Regge River renaturalization that the main division in sub-processes is not consisting of the various phases of classical linear project planning and realization (problem analysis, design, decision-making, elaboration of working plan, commissioning, realization, maintenance), but working in parallel in these geographical sub-areas. Each process can be "parsed" into sub-processes of more detail (and of course the other way around).

When the process(es) which are regarded as relevant to the study are identified in this way, there remain various options in terms of how to deal with them. The first way is to recognize the process character, but nevertheless deal with the relationship between the phenomena that this process produces as merely a causal relationship, for instance for the purpose of quantitative modelling (the "back to the arrow" approach). A second way of analysing such a process is to further divide the process up into sub-processes and sub-elements. This way one "zooms in" into the part of the domain one wishes to concentrate the analysis on. In fact there is no 'right' of 'wrong' level of abstraction. Like with geographical maps it is just what serves the purposes of the user best. Figure 17 illustrates this approach graphically, this time without presenting the actors involved separately.

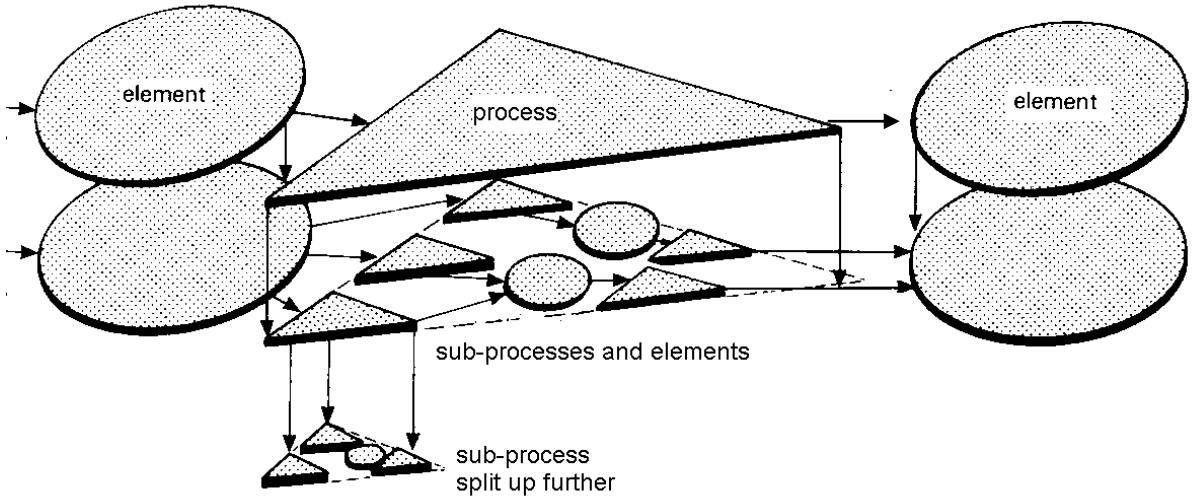

Figure 17: Zooming in into the map of a social domain (graphical representation)

While zooming in can reveal more detail in description it does not really provide a means of explanatory analysis. As an alternative for quantitative analysis and modelling a more qualitative actor-oriented approach, which could start at each level chosen, is considered as a third option with which to analyse processes. This approach often signals the start of a more interpretative or "qualitative" method of analysis. Contextual Interaction Theory can help to systematize such an analysis, although more quantitative uses have also been recorded (e.g. Grimberg et al. 1989, Owens 2004, Bressers, De Bruijn & Lulofs 2009). First however, we'll pay attention to the implementation outcomes.

Results: rivalries and resources

When the policies to be implemented take aim primarily at behavioural changes of target groups the implementation process will in first instance produce outputs that turn designed policy instruments into real behavioural incentives. This can occur for instance by providing subsidies with specified conditions and then checking to see whether or not they have been complied with (cf. Bressers 2004). The ultimate results thereafter depend on a chain of further potential consequences, like the degree of actual behavioural change by the target groups and the effects that has on for instance the goal attainment of the policies. In the case of river renaturalization the bulk of the implementation results are direct physical changes in the landscape and thus have immediate effects on certain characteristics of the sustainability of the natural resource. This is not to say that other follow up processes like the

behaviour of people in these renaturalized areas, or the development of ecological flora and fauna systems in these areas are unimportant for the results. More so, just that the physical intervention in itself already determines many of the effects on the natural resources. Still, these effects can be evaluated against various criteria.

River renaturalization is inspired by various policies and values that are not addressed in policies that officially guide renaturalization, but are brought forward by the actors involved. It is not easy to evaluate such projects on the basis of their contribution to the attainment of official policy goals. This is even more so the case since the relevant policy goals are not only multiple, but often also changeable, vague, abstract, and sometimes even contradictory. An alternative is to link the results of the processes to "sustainable development" as a broad, repeatedly legitimized and encompassing societal purpose. This is however an alternative that introduces a lot of new questions and dilemmas. There is an extensive literature on sustainable development evaluation, which we will not deal with in this book.

Here we just refer to the idea that the various uses and users of natural resources create *rivalries* that threaten the sustainability of the resources. Such rivalries do not only exist between different (heterogeneous: e.g. nature, fishing and industrial discharges) use types. They may also appear among homogeneous uses (uses of the same type: e.g. overuse for irrigation in dry periods). Often such rivalries are regarded as being caused by a lack of or failed distribution of property and use rights, which could be improved by local institutional arrangements (Ostrom 1990, Bromley 1991). However we believe that in most modern complex societies the protection of natural resources requires the intervention by public policies, partly to adapt use rights, partly as direct intervention, as is also stated in the Institutional Natural Resource Regime (IRR) framework. (Knoepfel, Kissling-Näf and Varone 2001, 2003, Knoepfel, Nahrath and Varone 2007, Gerber, Knoepfel, Nahrath and Varone 2008). Without trying to assess whether a certain degree of sustainability is reached, it is possible to assess which of the pre-existing rivalries have been solved or softened and additionally which new rivalries might have been created in the process. An important aspect for sustainability in this sense is to ensure an adequate inventory of uses, which does not take a limited view of the various human and natural "uses" which in turn of course provide for various human interests.

Another way to assess the renaturalization projects from the perspective of sustainability improvements is to specify which *resources* have benefitted or lost and to what extent this influences their capacity to provide goods and

services for both mankind and the ecosystem. This approach is linked to the Institutional Resource Regime (IRR) framework. Knoepfel (2010) suggests the "four-capital method" (Ekins, Dresner and Dahlström 2008) to be used here. They discern ecological or natural capital, manufactured or manmade capital, human capital and social capital as assets that should remain able to support future processes and thus should be both protected and if possible accumulated.

In this study we will not emphasize the sustainability results of the renaturalization projects since our focus is put on the implementation process. Nevertheless we will at some points in the text refer to the projects' results in the terms specified above.

Actor characteristics as the ultimate process setting

When implementation processes are viewed as social interaction processes that are ultimately driven by the actors involved, as they are in Contextual Interaction Theory, it makes sense to place them and their main characteristics central stage in any analytical model, and to build any further explanation of the course and results of the process on that simple starting point. This is also relevant while in the history of implementation research hundreds of crucial success factors were proposed and used to analyse all kinds of different cases. This can be theoretically interesting when one can try to carve out the impact of a single factor from those of all the others. In practical reality however practitioners do deal with situations in which all factors are around simultaneously, and thus with combinations of all factors that are thought to matter. Even in a rather simple model of fifteen factors having each only two possible values there are some thirty thousand different combinations of circumstances that can be imagined. That is not only unworkable as an analytical tool (Goggin 1986), it is also overdone. There are no thirty thousand (or more) fundamentally different implementation settings.

But since interaction processes are human activities, all influences – including those created by policy instruments – flow via the key characteristics of the actors involved. Thus, it is possible to set an inner core of factors that is far more parsimonious, at least to begin with. In the next figure we include these factors (inputs and outputs of the process are not shown in this figure).

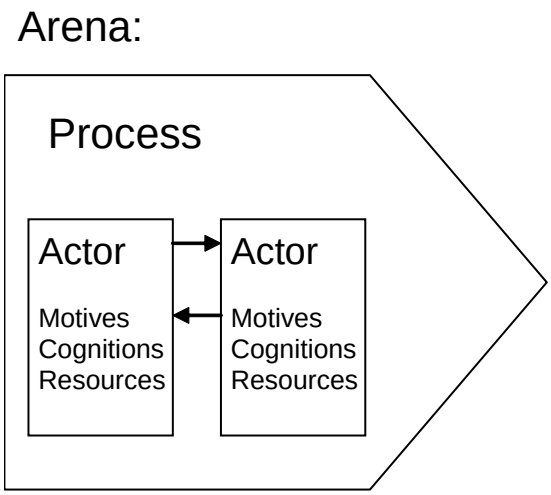

Figure 18: Process model with the actor characteristics used in Contextual Interaction Theory

We consider the characteristics of actors in the process as the ultimate driving forces of the process, rather than as mere consequences of the "arena" in which the process takes place (cf. Ostrom 1999). Next to the resources of the actors, that provide them with capacity to act and power in relation to other actors, motivations and cognitions also play an important role in creating productive or non-productive settings for the process (see also further below). Resources only get meaning in the context of cognitions and motivations. These three core actor characteristics are not just a subset selection from several other equally important ones. In fact they represent different perspectives on social interaction processes, which have proved themselves to be exceptionally useful in explaining the dynamics of such processes. There are also long traditions of thinking in one or more of these perspectives. Owens (2008: 44-50) demonstrates this by categorizing the implementation success and failure factors identified by the more than 80 references that were reviewed by O'Toole (1986).

"Actors" are in the end, of course, always people. Quite often however, these people represent (parts of) organizations or groups. In many analyses therefore such organizations rather than individual people are considered as "actors". In terms of the process, the relevant characteristics of representatives are often determined to such a large extent by the organization or group they represent that a change of individual in most cases doesn't even change the setting of the process. "Where one stands depends on where one sits" is an aphorism already cited by Allison (1971: 176) in his classic policy analysis. One should not forget however about the potential impact of characteristics of individual people, such as their diplomatic skills (or lack thereof), creativity

and the degree to which their task-driven motivation is supported by personal enthusiasm. Productive "chemistry" between individual persons and other positive and negative emotions can also occur.

The assumptions of Contextual Interaction Theory to explain the dynamics of social interaction processes, like the implementation processes that are involved in the realization of the activity of nature and water renaturalization, are in fact quite simple and straightforward (Bressers 2009). The theory's first main assumptions are:

a. Policy processes are not mechanisms, but human social interaction processes between a set of actors (people, parts of organizations). This includes policy implementation management and project realization.
b. Many factors can have an influence on the activities and interactions of these actors but only because and in as far as they change relevant characteristics of the involved actors.
c. These characteristics are: their motives (which drive their actions), their cognitions (information held to be true, with which the situation is interpreted) and their resources (providing capacity and power) (see also Bressers 2004).
d. These three characteristics are influencing each other, but cannot be restricted to two or one without losing much insight.
e. The characteristics of the actors shape the process, but are in turn also influenced by the course of and experiences in the process and can therefore gradually change during the process
f. A first layer of such influential sub-factors is specified in the boxes in figure 19 below, including how they influence the core actor characteristics. Of course these factors can in turn be influenced by numerous other factors from within or outside the system.

On the basis of these assumptions *a probabilistic predictive part of the theory* can be constructed on what combinations of actor characteristics will create what kind of interaction atmosphere with what kind of results (Bressers 2004). In flowcharts that are indicating a prediction of type of interaction and implementation results for each combination of actor characteristics of two actors (-groups) all the hypotheses involved are specified. Thereby a differentiation is made between the likelihood that a certain policy gets implemented at all and the degree of adequacy of such implementation. The reason is that the three key actor characteristics might very well differ when one considers for instance motivation and resources to implement a policy in some form (e.g. providing licenses), compared with the implementation that keeps the incentive strength of the policy fully intact (e.g. with strict conditions and enforcement) (Bressers 2004). The predictive part of the

Contextual Interaction Theory has been successfully tested in, among others, a 4 country study into 48 wetland restoration cases (Owens 2008). It has also been applied to a variety of policy fields, as diverse as for example the enforcement of environmental permits in the Netherlands (Van Veen 2003), the implementation of Clean Development Mechanism criteria in Cameroon (Minang 2007) and anti-HIV programs in China, Indonesia and Vietnam (Spratt 2009).

The possibilities offered by the theory to the user expand on each other and can be broken down into the following points:

(1) Prediction of the effectiveness of a certain policy given certain circumstances (ex ante).
(2) Comparison of the predicted effectiveness of a policy using different instruments or occurring in different circumstances (ex ante).
(3) Analysis of the sensitivity of predictions to variations in the design of policy instruments or in the circumstances (ex ante).
(4) Explanation of an observed degree of effectiveness based on the central circumstances as well as the characteristics of the policies and the circumstances which influence the central circumstances (ex post).
(5) Targeting evaluation studies by concentrating on the specific influence of the characteristics of the policies and circumstances that are both crucial following the theory and on which little information is available (ex post)

The relationships between the core actor characteristics are further elaborated in the Figure 19 below. Compared to Figure 18 above, Figure 19 also shows process development (change processes – in the form of the processes over time). The actor characteristics are more thoroughly elaborated here, though not visualised as linked to specific actors and for presentation reasons placed outside of the process box. This depiction enables the mutual influences between these factors and the process itself to be more clearly shown.

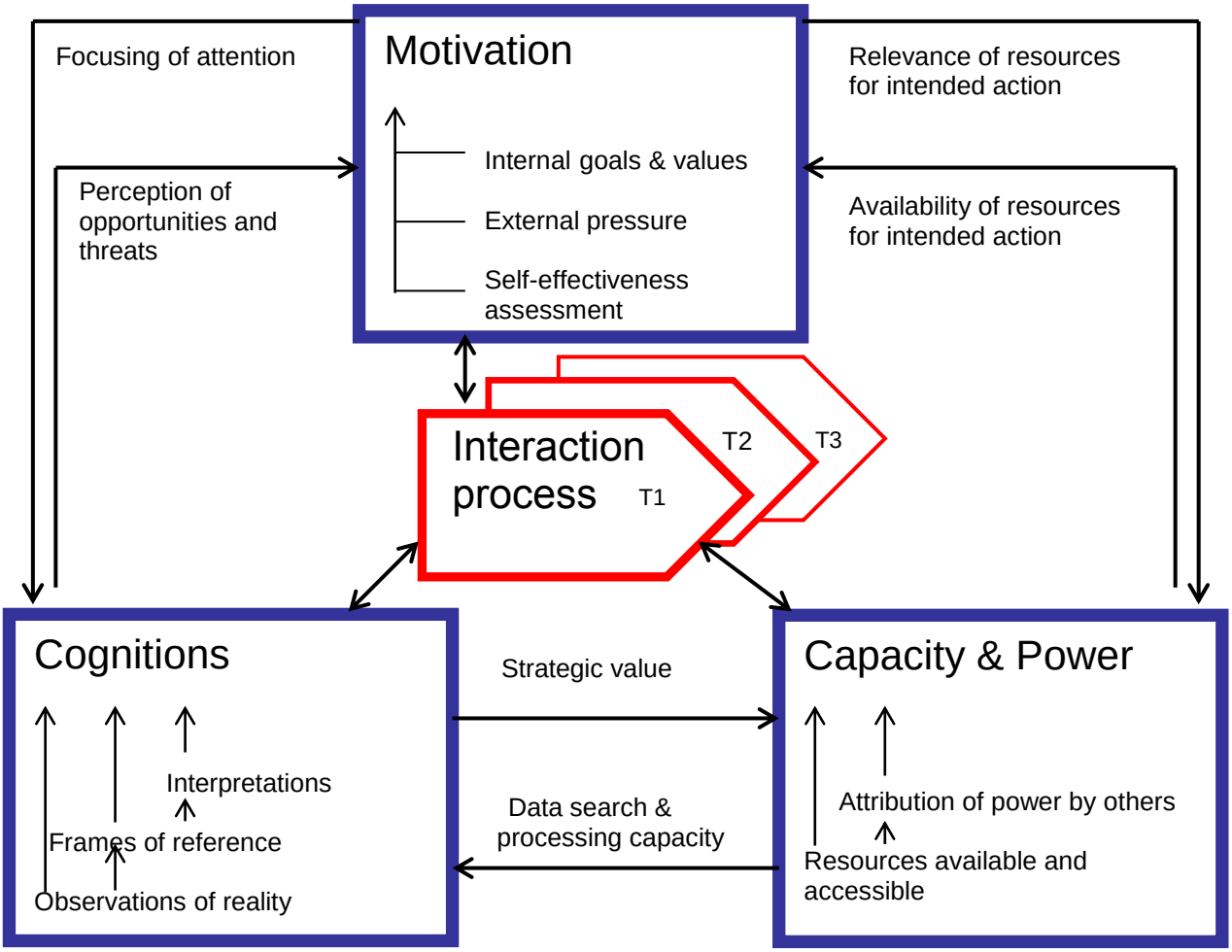

Figure 19: Dynamic interaction between the key actor-characteristics that drive social-interaction processes and in turn are reshaped by the process

The "motivation" box seeks the origins of motivation for behaviour, including for the positions taken in interaction processes, in first instance due to one's own (personal, internal) goals and values. Self-interest, like in many economic theories, plays of course a strong role here. More altruistic values can also lead directly to genuine personal goals (Gatersleben and Vlek 1998). External pressures can also be a motivating force. Like all motivational factors they could in principle also be conceptualised as belonging to one's "own" purposes. However, the likelihood is great that in practical analysis such conceptualisation will cause them to be forgotten or underemphasised. These pressures can be based on force, but even more often will be softer influences from normative acceptance of the legitimacy of such external wishes and even by identification with the group from which such expectations come. Last but not always least as a motivational factor the 'self-effectiveness assessment'

(Bandura 1986) can play a large role. This concept points to the de-motivational effect that can occur when an actor perceived its preferred behaviour as beyond its capacity. It shows part of the relation between motivation and the availability of resources, which can be personal/internal resources or those made available by others.

The "cognitions" box is based on the recognition that the cognitions of actors (interpretations of reality held to be true) are not only a matter of observations and information processing capacity. These aspects are important however and as a result of the information technology revolution they can be a source of fast developments changing our understanding of problems and potential solutions. In policy sciences the so-called 'argumentative turn' (Fischer 1995), reflects a variety of approaches that emphasise that knowledge is produced itself in mutual interactions, based on interpretations of reality of actors, that themselves are mediated by frames of reference. Such frames of reference are termed by Axelrod (1976) as "cognitive maps", by Schön (1983) as "frames", by Sabatier and Jenkins-Smith (1999) as "policy core beliefs" and "deep core beliefs" and by Termeer (2001, 2007) as "configurations", each emphasizing specific aspects. Dryzek (1997) speaks of "discourses", thereby also stressing the language dependency of understanding and the role of word, one-liners, stories and the like to guide, but also to restrict and bias understanding. For some "story-telling", not only of people themselves but even in the way the material world presents itself to us, is the essence of creativity and understanding (McLean 2009). While these approaches are quite different in their conceptual understanding and methodology of reconstruction, they also share some understandings: that cognitions are not just factual information about, but more so interpretations of reality, and that such interpretations are influenced by filters, frames and interactions with other actors. Not the whole of the theoretical approaches mentioned, but only this "common ground" is incorporated in the cognitions box of the contextual interaction theory. The relevant cognitions are not only about the tasks in the process but also about the motivation, cognitions and resources of the other actors in the process, thus not just content knowledge, but also relational knowledge is of utmost importance in interaction processes.

Since river renaturalization projects are integrative in that they are combining various scales of time and space and various sectoral policy objectives, a very interesting aspect of these frames of interpretation are the so-called "*boundary judgments*" of the actors involved. These are the sometimes implicit notions of what belongs (and thus also what does not belong) to the issues at stake. We will come back to this later.

While resources as an actor characteristic are important to provide capacity to act, in the relational setting of an interaction process they are also relevant as a source of power. Therefore this box is labelled “capacity and power” in this figure. The relationship between power and resources is not always direct. Power is in first instance largely a result of attribution to an actor by others. However when this attribution is not backed by real resources it is far from stable. The resources that are the root of these powers encompass much more than formal rules, though legal rights and other institutional rules can be an important part of it, next to resources like money, skilled people, time and consensus (Klok 1995, Knoepfel & Imhof 1991). For instance, skilled people like good process managers or “boundary spanners” can make a lot of difference, by making optimal use of the available resources of the organization and creating synergies that make also the resources of others available to be combined with those. Not only the resources of the actors themselves, but moreover the dependency of an actor on the resources of another actor shapes the balance of power. A classic example is the dependency of authorities on the jobs created by industry, which industry can use as a source of negotiation power. Resources not only shape power relations, but are also a prerequisite for action as such, determining the capacity to act of any actor. The resource base for action can be greatly enlarged by engaging in dependencies with other actors with relevant resources, at the expense of loss of autonomy and thus – in some cases – power. Whether a specific resource contributes to power depends on the action that is intended. Resources that seem irrelevant to get certain things done might be essential to get other things done.

There are *mutual relations* between the three key actor characteristics. Every change in one of the three has influences on the other two. While we typically start with mentioning motivation, many would like to start with the way reality is cognitively filtered and understood and problems and chances perceived, or whether some technical information is available (pertaining to technology, economics, social or environmental information), as a prerequisite for motivation. It must be kept in mind that the influence is mutual: without certain interests and values, available data may be overwhelming and too time consuming to process. The development of information needs some focusing of attention (creating selective perception as a bias). The actions for which an actor is motivated require resources, and the availability of those resources is bound to influence the actors’ ambition, for instance because a lack of necessary resources creates a low self-effectiveness assessment (Bandura 1986) and actors want to avoid cognitive dissonance. While ‘knowledge is power’ may be in some contexts an exaggeration, it is certainly true that information can serve strategic purposes and hence can be

used as one of the bases of power. On the other hand gathering and processing data is also an activity that needs resources, also when the subject of the information is the motivations, cognitions and resources of other actors in the process. In addition to the relations between the core factors, the three factors are not only shaping, but are also (re)shaped by the activities and interactions that happen in the process.

An example of this might be given regarding the development of *trust* in a process, referring to the above figure (cf. Vinke-de Kruijf 2010). This is a resource for the ones who possess it, but also a cognition for the ones who grant it. Mutual trust can furthermore be one of the strongest motivational factors and provide many productive shortcuts in the course of the process. It can start with reliable and honest behaviour of actor A, or in a mutual interaction of A and B that in turn is observed by other actors. When this observation is accepted and internalized in perceptions than this will attribute the resource trust to actor A (or mutually to all involved in the initial interaction). Presenting more opportunities and fewer threats on the basis of this cognition, it will influence the personal goals, goals to keep good network relations, and self-effectiveness assessment of the various actors positively. A higher self-effectiveness assessment will arise due to the extra trust resource that acts as a lubricant in freeing other resources for mutual use. This has an impact on the process of actually more resources being available for action by pooling of resources for joint or accepted purposes. Next to this, the higher level of motivation will also stimulate the process. Ideally all of these are acting as positive feedback loops creating even more productive process settings later on (T2 and T3 in the figure). Of course: what is presented here is the positive spiral – a negative one is also conceivable. As we shall see in later chapters, trust is indeed a very important factor in river renaturalization processes (Lundin 2007, Vangen and Huxham 2003).

Layers of context and their relevance

The three main actor characteristics are not only intrinsic to the actors and influenced by the process, but also influenced by many external factors from a multi-layered context. Part of that context is the *case specific context*. This involves factors like the characteristics of the geographical place where the project is realized (Kotzebue, Bressers & Yousif 2010), but also all kinds of other circumstances. A special category is that of the case history consisting of previous decision making and framing. This sets an institutional arena for the process that influences which actors participate to what extent and with what legal resources and expectations. While we do not believe, such as is in the

Institutional Analysis and Development (IAD) framework (Ostrom 1999) that such arenas determine the process and its outcomes, they are certainly relevant. Again, like with the previous comparison with the IRR framework, the comparison is not completely correct, as we are not aiming to explain collective choice issues on the use of natural resources, but at explaining the course and outcomes of implementation processes – even though these might ultimately affect such collective choice processes on natural resource uses. A further layer of context is the structural context, with both the elements of governance and the relevant property and use rights (Bressers and Kuks 2004). Next there is a less specified layer of wider contexts, among which the culture, and economic and technological developments and political system (Brynard 2005: 659).

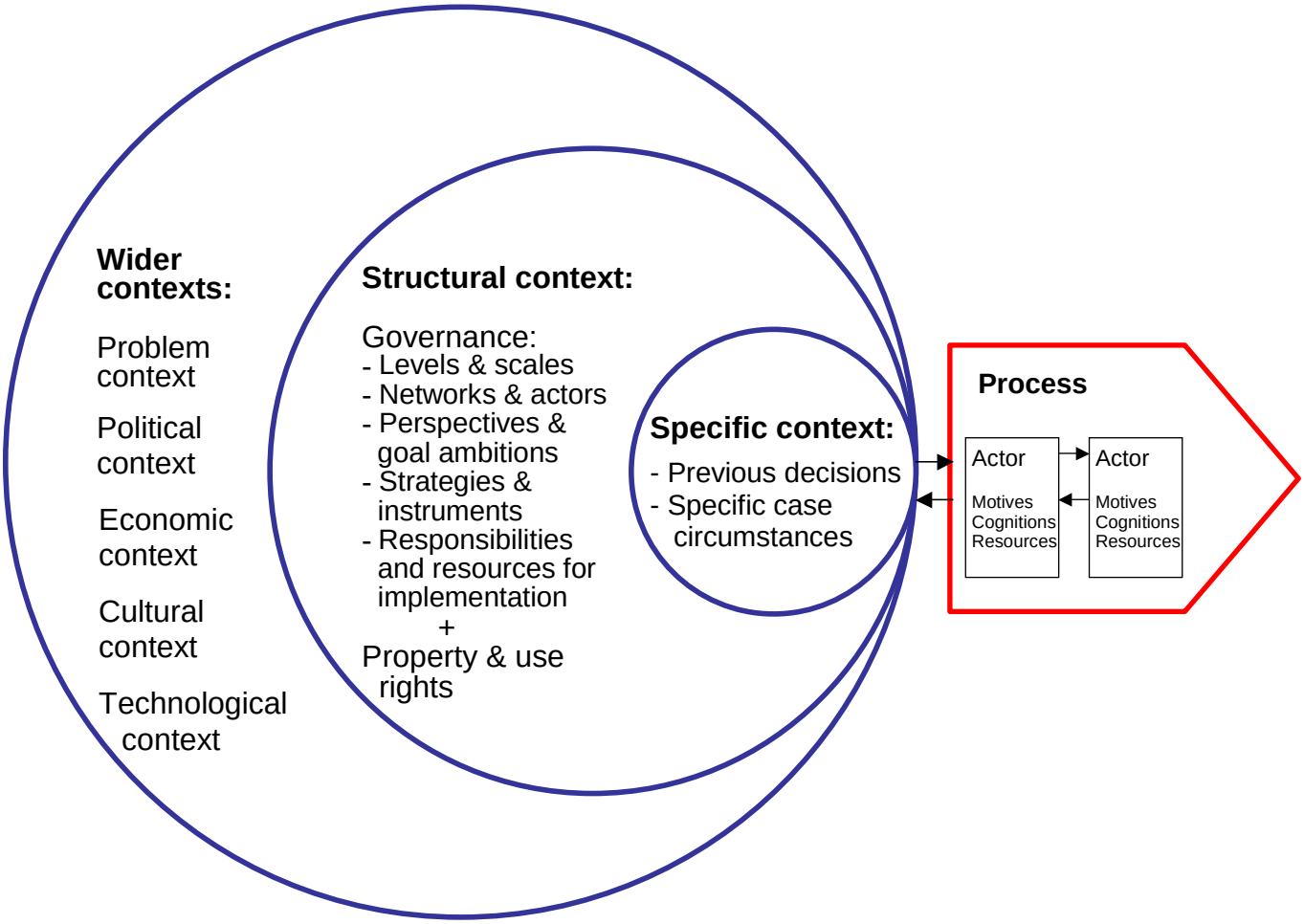

Figure 20: Layers of contextual factors for actor characteristics

Though there is some resemblance with the three levels of analysis of Ostrom (1990: 50-55) operational, collective and constitutional, again an important difference is that the CIT model is implementation oriented, rather than

resource use oriented. Ostrom's operational rules could be seen as contexts for both the "street-level" implementation process and the resulting behavioural change processes. As a consequence the collective level doesn't really match our governance level as parts of what Ostrom would gather under the constitutional level also belong to it (compare also Hardy and Koontz 2009). In the wider context only the characteristics of the political system are included in Ostrom's IAD model. A further difference is that the CIT model does not only include institutional, rule-based factors, but a wider variety that only with a very broad interpretation could be labelled as "institutional". Reflected is again that CIT's basic starting point is in an actor-based approach in which rules are just one of the relevant inputs in the context. Nevertheless, both Ostrom's IAD model and CIT discern three layers, even though these are differently demarcated. Another similarity is the expectation that the more encompassing the level of context is, the smaller the likelihood that it will prove to be changeable by actions that stem from the concrete process under study. The specific context is in that regard much more adaptable than the structural one (as is already suggested in its name) and the wider contexts are even less so. This is not to say that the structural context is not changing over time, just that these changes are even more the emergent result of many actors and factors.

An important part of the structural context is formed by the "five multiplicity aspects of governance" (Bressers and Kuks 2003) outlined below. Governance is not used here as a normative concept or as a hypothesis of developments in government-society relationships (Howlett 2011: 7-10), but as a neutral, yet enlarged understanding of the scope of (often national level) policy. The concept has been elaborated on the basis of a variety of policy studies literature (Allison 1971, Axelrod 1976, Baumgartner & Jones 1993, Davis & Lester 1989, Dror 1971, Dryzek 1987, 1997, Fischer 1995, Fischer & Forrester 1993, Hogwood & Guy Peters 1983, Kingdon 1995, Kiser & Ostrom 1982, Milbrath 1993, Ostrom 1990, 1999, O'Toole 2000, Sabatier 1988, 1991, 1999, Sabatier & Jenkins-Smith 1993, 1999, Scharpf 1997a, Schön 1983, Schön & Rein 1994, Zahariadis 1999) and specific governance literature (Björk & Johansson 2000, Blomquist and Schlager 1999, Jordan 2000, Kooiman 1994, Lundqvist 2001, Lynn, Heinrich and Hill 2000a, 2000b, Marks et al. 1996, Peters and Pierre 1998, Rhodes 1996, 1997, Rose 1980, Rosenau 2000, Smith 1997, Scharpf 1997b, Young 1994):

1. Multiple levels of governance. Which levels of governance dominate the policy discussion? What is the accepted role of government at various scales? Which other organizations are influential in the governance activities on these

levels? Who decides or influences such issues? How is the interaction between various levels of governance organized?
2. Multiple actors in the policy network. How open is the policy arena? Open to whom and where, precisely? What role do experts play? How do the various governmental and other organizations relate to each other?
3. A multiplicity of problem definitions and other policy beliefs. What are the dominant maps of reality? To what degree do the actors accept uncertainty? Is the policy problem regarded as something individuals must deal with, or is it a problem for society in a collective sense? Where coordination is required with other fields of policy, what are the links accepted by the actors?
4. Multiple instruments in the policy strategy. Which (other) instruments belong to the relevant strategy or strategies? What are the target groups of the instruments, and what is the timing of their application? What are the characteristics of these instruments?
5. Multiple responsibilities and resources for implementation. Which organizations (including government organizations) are responsible for implementing the arrangements? What is the repertoire of standard reactions to challenges known to these organizations? What authority and other resources are made available to these organizations by the policy? With what restrictions?

The governance context at for instance national level is much more stable than the specific case context. The structural context will to a far lesser degree be influenced back by individual implementation cases. In fact it is the essence of the difference between the specific and the structural context that the latter holds for in principle all similar cases and not only for any specific case. Nevertheless it too will gradually change in processes on a larger scale than the case, but with similar dimensions of motivational, cognitive and resource developments in response to external influences and internal frictions (Bressers and Kuks 2003: 74-83, Costéja 2003). These developments need not always be coherent across the various elements of governance (compare Howlett and Cashore 2007). The development over time of the national governance context of watermanagement has been described for France, Switzerland, The Netherlands, Belgium, Spain and Italy (Kissling and Kuks 2004, Bressers and Kuks 2006) and later for Greece (Kampa and Bressers 2008) and Romania (Vinke-de Kruijf, Kuks and Augustijn 2010). The elements of governance also influence each other when new situations are dealt with. For instance the degree of interconnectedness and cohesion of the network relations are influencing the characteristics of instruments in instrument selection processes (Bressers & O'Toole 1998, Ligteringen 1999, Bressers & O'Toole 2005).

The *specific case context* is certainly not determined entirely by the structural context. There are often formal and informal degrees of freedom and so given the multiple policies involved in river restoration projects there is even often a choice as to what to regard as the main policy guiding the project. For instance: a lack of interconnectedness and cohesion of the network relations at the national governance level need not be replicated among the constellation of actors that participates in the project, as we will see in this case of the Regge restoration project. More generally in the specific case context the structural relations between levels, actors, goals, instruments and resources will be adapted to the specific case in as far as the actors strive for this and in as far as possible. In the case where the process continues on long enough, or is a process in a series of similar processes that together give enough time, this adaptation is then feasible and it is worthwhile to build for instance better networked relations among the actors involved in this series of processes. Such collaborative policy implementation networks are supposed to have important self-reinforcing characteristics (DeLeon and Varda 2009). The strategies they use for this "meta-process" will be discussed further below as we will see this occurring in this case of the Regge restoration project.

Another part of the structural context is the valid *property and use rights* system towards land, water and other relevant resources (e.g. Ostrom 1999). The relevant structural context - or "regime" - is thus a combination of both public governance *and* property and use rights (Knoepfel and Nahrath 2005, Knoepfel et al. 2007). Apart from the possession of titles, also for instance the exclusion of uses and the access of users are organized by these. With what "bundles of rights" does a property title come in this domain (Fuchs 2003, Bressers, Fuchs & Kuks 2004)?

Around the structural context there is yet another more encompassing *wider context circle* of political system, socio-cultural, economical, technological development and problem contexts. Some cultural settings can for instance make hierarchical approaches less feasible, or make some degree of social control obsolete, compare "cultural theory" (Schwarz & Thompson 1990, Thompson, Ellis & Wildavsky 1990, Wildavsky 1982).

In summary, some further assumptions are:

a. Specific case characteristics, like the characteristics of the geographical place, and the history of the process, e.g. earlier decisions made before the delineated research period, often specifying the setting the institutional arena for the case process, form a first layer of context. This context is also partly dynamic over time, caused by experiences in the process itself and by targeted actions of those involved.

b. The characteristics of the actors are also influenced by factors from a wider and more general external context that is labelled the structural context in CIT. It consists of elements of public governance and private property and use rights. The structural context will to a far lesser degree be influenced back by individual implementation cases. In fact it is the essence of the difference between the specific and the structural context that the latter holds for in principle all similar cases and not only for any specific case. Nevertheless it too will gradually change in processes on a larger scale than the case, but with similar dimensions of motivational, cognitive and resource developments in response to external influences and internal frictions.
c. Around this context there is yet another more encompassing circle of political system, socio-cultural, economical, technological development and problem contexts.
d. Each wider context not only influences the narrower one, but can also directly influence the actor characteristics.

Extent and Coherence

The structural context influences the process not only through its direct contents, but also though its *extent* and *coherence* (Knoepfel, Kissling-Näf & Varone 2001, 2003, Bressers & Kuks 2004). The extent refers to the completeness of the regime. The coherence is the degree to which the various elements of the regime are strengthening rather than weakening each other.

A regime increases its extent and consequently becomes more complex when more layers and scales are involved, more actors are involved, more perceptions of the problem and accompanying goals are involved, and more instruments are part of the policy mix and more organisations share responsibilities for implementation. The most eminent feature of extent is however the gradual increase of the domain of the regime, which consists of the uses and users regulated by one or more parts of the regime. With it also comes an increase in relevant property and use rights. This is then viewed as an increase in the crucial variable of *extent*. Regimes with an insufficient extent are by definition weak as guardians of sustainable use, while some relevant parts of the domain go unregulated.

Complexity as such is thus not wrong. Most of the time, growing complexity is an answer to real needs and developments. As a matter of fact, societies in modern times have generally grown into a situation of increased complexity. Increased populations, borders, overlaps, activities, rivalries, etc. are a fact of our current living environments. A growing complexity in governance can be

viewed as a logical adaptation to that development (Gerrits 2008, Teisman et al. 2009). Many external change agents, such as technological developments, add new scales, new actors, new problem perceptions, new instruments, and new responsibilities to the existing ones.

While the term 'integration' is common in most policy papers (e.g. those on 'integrated water resources management'), coherence is used here instead, for the reason that, in most policy papers the term integration (e.g. in 'integrated water management') is used in a sense that implicitly or explicitly includes an increase in the domain of the regime (the extent increased to all relevant users and uses). Therefore, we believe that integration as it is used in the policy sphere is a combination of what we call *extent and coherence*. For the sake of conceptual clarity and the possibility to adapt to the meaning of the term integration in policy practice, we use these terms further when appropriate, and reserve 'integration' for the combination of the two.

By coherence of the public governance component we mean the following: When more than one layer of government is dealing with the same natural resource (as is often the case), then coherence means inter alia that the activities of these layers of government are recognised as mutually dependent and influencing each other's' effects. Likewise if more than one scale is relevant the interaction effects between those scales should be considered. When more than one actor (stakeholder) is involved in the policy, coherence means that there is a substantial degree of interaction in the policy network, and preferably productive interaction providing coordination capacity. When more than one use or user is causing the problem of unsustainable resource use for example, coherence means that the various resulting objectives are analysed in one framework so that deliberate choices can be made if and when goals and/or uses are conflicting. When the actors involved have problem perceptions that start from different angles, coherence means that they are capable of integrating these to such an extent that a common ground for productive deliberation on ambitions is created. The same holds for instrumental strategies that are used to attain the different objectives, as well as for the different instruments in a mix to attain one of these objectives. Coherence of the organisation of implementation means that responsibilities and resources of various persons or organisations that are to contribute to the application of the policy are co-ordinated, or these actors themselves are co-ordinated.

With more coherence in the public governance component of the regime, the goals of the implementers and target groups involved in the implementation process can be expected to be less likely in discord. All elements of a more

coherent regime can be assumed to contribute to a lowered degree of experienced uncertainty, an increase in information exchange, and a lower degree of distrust. Coherence also means that there will typically be fewer possibilities for target groups to play implementers off against each other and more standard operation procedures for the solution of conflict. Additionally, there is a reduction in confusion of local level implementers in terms of which procedures, policies, guidelines, etc. take priority over others and can thus perform their tasks more efficiently. This implies that a more coherent public governance component of the regime can outperform a regime with an equal degree of extent, but more fragmentation. This is expected to be the case, not only through the direct effects of more mutually reinforcing and less mutually destructive side effects on the resource use, but also through indirect effects on the quality of the implementation process.

This leads to some further assumptions:

e. Regimes with a deficient extent will be more likely to lead to degradation of water resources or an inability to protect the ecological functions of the natural resource, than regimes with a larger extent.
f. Regimes with a large 'extent', but with low coherence will more likely lead to degradation of natural resources or inability to protect the ecological functions of the water resource, than regimes with a similar extent but a higher degree of coherence.

These last assumptions were tested as hypotheses in a six country, 24 cases study on tributary river basin management and were mostly confirmed (Bressers and Kuks 2004). However the relation between the extent growth of the regime and the sustainability improvement estimates proved to be rather weak and hardly significant. The relation between the general assessment of regime change towards more integration (extent and coherence taken together) and the assessment of sustainability improvements is however much stronger (Spearman's rho = .533, p = .004). Of the separate regime aspects, by far the most important factor was the coherence of public governance. It correlated even more strongly with the assessment of sustainable resource use than the general regime change (rho = .635). The CIT relationships between extent and coherence of governance regimes, the motivation, cognitions and resources of actors and the implementation results, were also confirmed in a separate study on Greece and the implementation of the EU Water Framework Directive (Kampa 2007).

Mind that these results were found in cases where the water resource management itself was the dependent process, not – as in our case – the long term implementation of physical resource changing renaturalization interventions. Nevertheless we hold that a more coherent regime can

outperform an equally complex but fragmented one not only through the direct effects of more mutually reinforcing and less mutually destructive (side) effects on the resource use, but also through the indirect effects on the quality of the implementation process.

Our assumptions here are that:

g. In the implementation process, the additional fragmentation that is typical for complex regimes will tend to lead to more discord between the actors (goals), more uncertainty (cognitions), and more stalemates (power) and, thereby, can hamper implementation.
h. In the implementation process, coherence of the structural context (the regime) will tend to lead to less discord (due to more 'win-win'-solution creativity), less (subjective) uncertainty (due to more exchange of information and less distrust) and less stalemates (due to less possibilities for target groups to play the implementers off against each other and more standard operation procedures for the solution of conflict).

Complex and dynamic processes

Boundary judgements

When we speak of implementation the implicit idea is that there is a certain policy to be implemented. However in many cases – for instance in spatial development projects like those of river renaturalization – it is not one but several policies that are among the inputs to the process, referring to various spatial scales (Jochim and May 2010). How many and which of those are involved is partially influenced by the actors in the project themselves (Jones and Jenkins-Smith 2009). In as far as such combinations are inevitable they require a lot of mutual "social learning" from the various actors involved (Pahl-Wostl and Hare 2004, Pahl-Wostl 2004). It produces the likelihood of extra complexity of the combination of multiple governance contexts in a sort of *inter-regime*. All of this makes it inevitable not to look only from the input to the process (project), but also the other way around, from the project as it develops to the context(s). This is because it is not a fixed or given situation defining what the relevant policies and thus sectors and scales are, but partially dependent on the boundary judgments of the various actors in the process.

To enable innovative policies to be integrated into a coherent governance framework and ultimately to be fully used or complied with, *boundary judgments* should be both sufficiently similar among the actors involved and sufficiently flexible. There is an certainly an optimum in this conception as too much consensus on the boundaries of the domain might shut out new information from outside the specified domain. The challenges posed could often have been better integrated had they come to light early enough in the process. This decreases instead of increases the resilience of the regime. Alternatively, too much openness could lead to such a high degree of changeability and flux that it frustrates joint action and in this way decreases the resilience of the regime and its capacity to fully respond to the (policy) innovation (Winder 2007).

When dealing with uncertainty in both problems and solutions of sustainability matters there is no escape from "learning while doing", even though there are intelligent ways to do so (Rose 1993, Geldof 2004, Koppenjan and Klijn 2004, Hommes 2008). The contexts to stimulate such learning require an "uneasy marriage" of both sufficient openness to let new disturbing knowledge and challenges in and sufficient capacity for consensus building or at least accepted decision making (Arentsen, Bressers and O'Toole 2000, cf. the participative and integrative political system capabilities of Jänicke 1997: 18). Emphasis on one extreme is detrimental for the sufficiency of the other. The same kind of efforts towards reaching an optimum is required here.

But having said this: what kind of boundaries are we talking about? Where do they play a role? Looking at Figure 20 we can discern at least three places where *boundary judgments* are made:

- They are part of the cognitions of the actors involved in an interaction process, where they can be conscious and unconscious;
- They are explicitly or implicitly implied in possible specific inputs to the process (policy documents or project plans and the like);
- They are explicitly or implicitly implied in each of the five discerned elements of governance and in the property and use rights deemed relevant for the issue(s) at stake.

The dimensions that can be used to delineate the boundaries of the domain are specified in Figure 21.

- A domain can be regarded as fitting one scale and thereby often also one level of relevant actors[4], or alternatively more than one scale.

[4] Not always is this equivalent. Think for instance of the river basin scale of the WFD that does often not coincides with administrative levels and actors.

- A domain can be regarded as a relatively narrow bundle of relevant aspects or as wide as even encompassing several sectors that are often viewed as domains in their own right.
- A domain can be regarded as stretching over a rather limited period or alternatively as a permanent evolution far into the future.

To illustrate the above with an example of a water management project:

- A local project to raise the water level of a bog, creating relatively wet meadowland between this bog and the next one, can be regarded as purely local, but also as part of a national policy to create an ecological infrastructure of vital and linked nature areas, or as implementation of European habitat protection policies. Actors and procedures that are regarded as relevant will differ accordingly.
- The same project can be seen as a purely water management affair but also includes nature policy (quite obvious here, but still not always accepted), recreational and tourism policy, revitalisation of the rural economy, land use planning, etcetera. Actors and procedures that are regarded as relevant will differ accordingly.
- The same project can be seen in project terms with clear beginning and completion dates, or as an ongoing and permanent effort to improve the quality of the natural resource. Actors and procedures that are regarded as relevant will differ accordingly.

The three dimensions are not necessarily unrelated. The time dimension may for instance behave differently at various scale levels, with different speeds. Natural resource regime developments on the national level could for instance be best described in long periods of decennia, covering a hundred years or more at the national level, while practical cases could be described in periods of a decennium or even shorter periods.

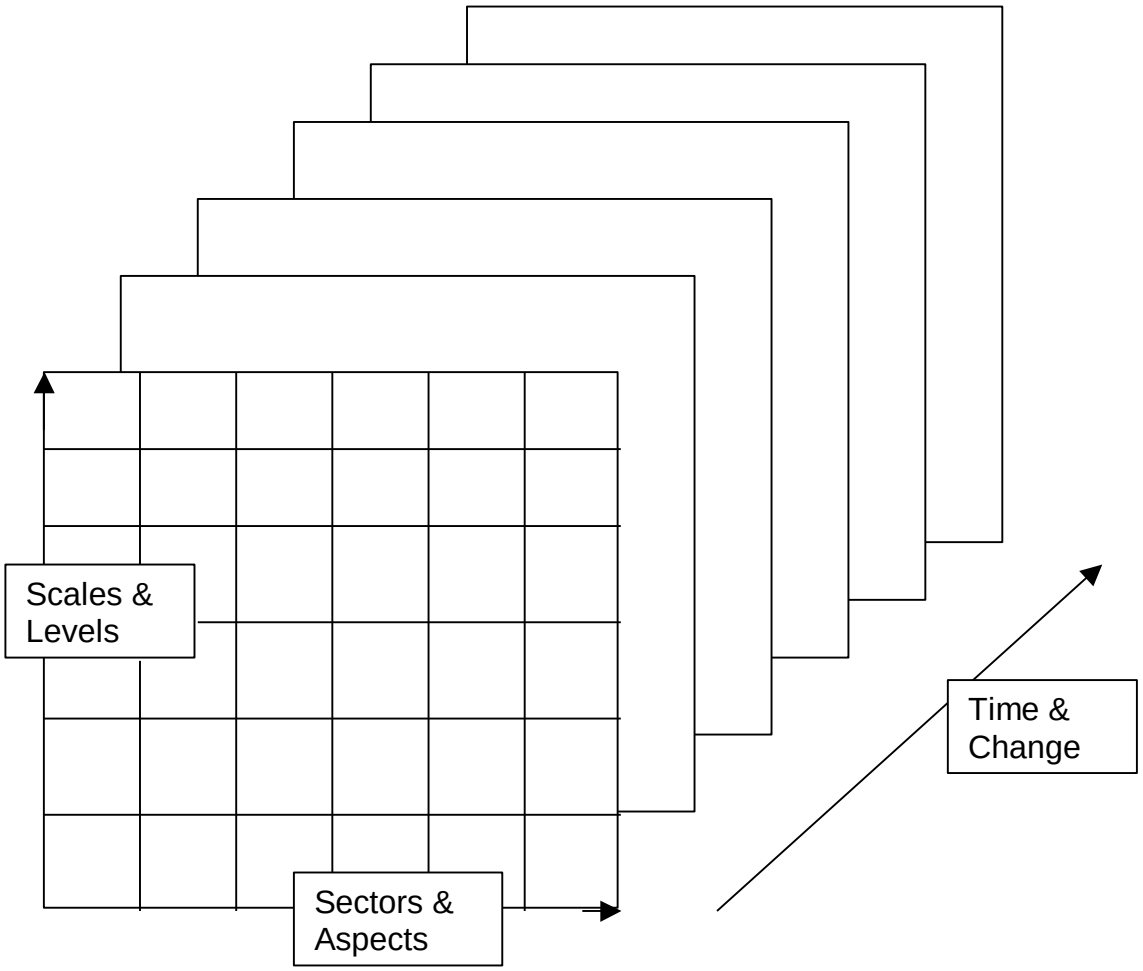

Figure 21: Three dimensions of sustainable development that require integration and are thus relevant for boundary judgments

Within each specification of scales, sectors and time (forming a three-dimensional figure consisting of a certain combination of cubes in figure 21) a number of (sub-) processes take place. How many processes are included in this area depends of course partly on the degree of detail with which the analyst wants to discern them from each other. The resulting set of processes and elements is part of the infinitive fabric that ultimately covers all processes on earth. The included processes will always have relationships with other processes not included in the domain. Sometimes it might be worthwhile for the analyst to include some of these in the graphic, just to clarify the demarcation lines between what is regarded as the domain and what is not. This is also true if the domain specification of individual actors in the process or a joint understanding is not represented, but just the specification of the area under study.

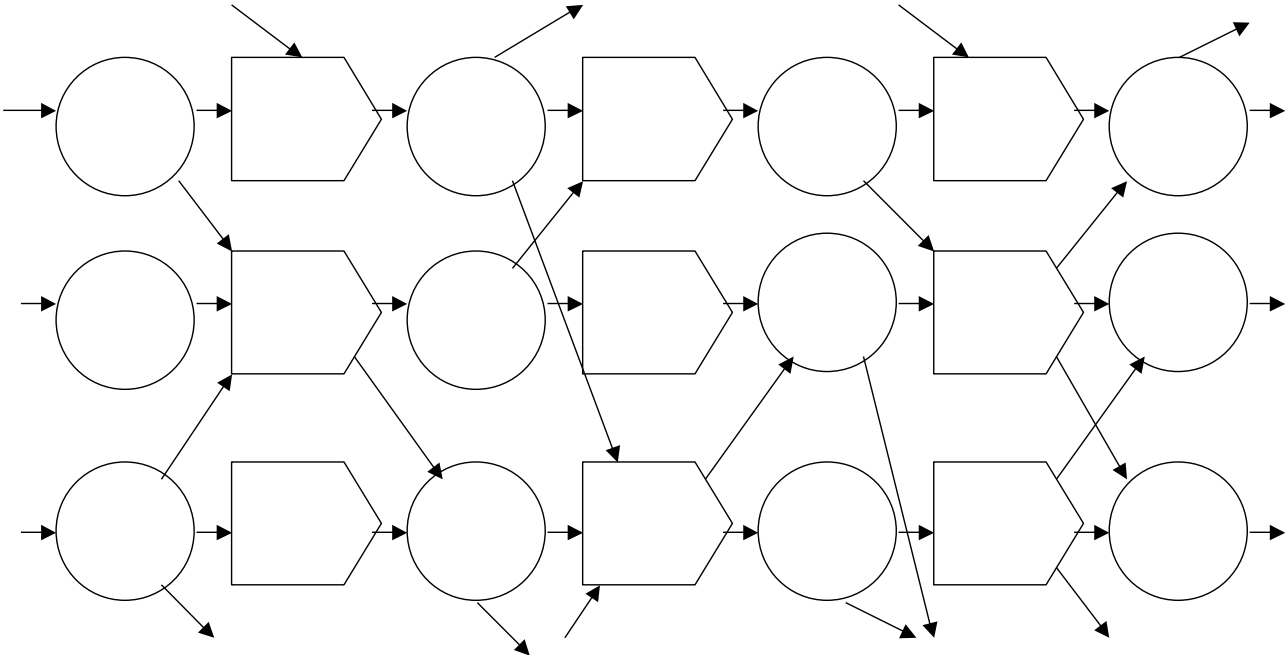

Figure 22: Multiple process model as part of an infinite fabric (feedback relations left out for clarity of picture)

In this "cut out" of the fabric of processes, there can still be different perceptions of the relevant domain and its boundaries and how to deal with it (compare Bol, Edelenbos & Teisman 2009: 10-12). It is unlikely that the attention given will be spread evenly. There are at least three ways to deal with the domain.

One manner is to concentrate further on a specific process. The rest of the domain is then acknowledged yet also regarded as just a context for what one really sees as the job to be done. This could be labelled an "operational" project of programme definition. It is actually quite common, both in practice and in implementation research. However the Regge renaturalization process has a much wider scope.

Another manner with which to deal with the processes in the domain could be labelled as a "chain perspective", in which also previous and follow-up processes are included, as worthwhile to pay attention to. Note that each specification of a "chain" has a degree of will, since there are also other orders or constructions imaginable. Acknowledgement of a chain also opens the possibility to challenge the serial character of it by wondering about the consequences of putting these more in parallel or even integrating them into a joint process wherein even more multiple issues and actors meet. The added and accepted complexity is claimed to be balanced by the avoided complexity

of transitions from one process to another (Geldof 2004, Evers 2011, compare also Teisman 2000). Furthermore the integration of various implementation phases in the time dimension can be partially compensated by cutting the process geographically into smaller scale sub-projects. This is actually seen to be practiced in the Regge Natural project!

In this third way of dealing with the domain a more "integrative" perspective fully blooms, in which processes from various sectors, scales or time horizons are pragmatically combined in the way the actors operate in the domain. Lafferty (2002) sees both horizontal (between sectors) and vertical (between scales) policy integration as essential for any well-functioning sustainable development programme. Often this will imply a (partial) blurring of the boundaries between the processes. The Regge renaturalization processes clearly have such integrative character.

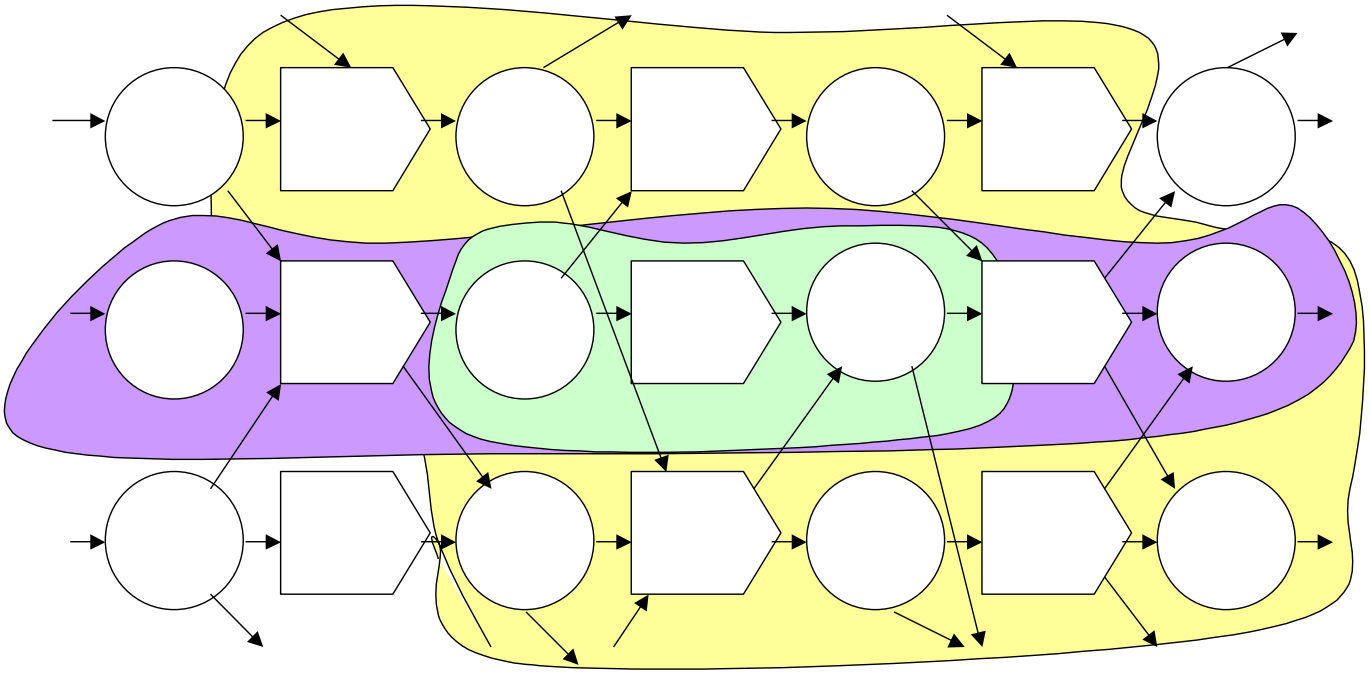

Figure 23: Domain boundary perceptions
Green: operational project / programme definition;
Lavender: chain perspective definition;
Yellow: multi-sectoral (or -level, -time, -geographic space, etceteras) integrative definition

All these forms of integration are in need of adaptive boundary spanning to enable the actors involved to handle the extended multiplicity of issues, procedures, actors etcetera. While for each policy sector involved the relevant elements of governance can already be classified as "multiple" (scales, actors, problem perspectives etcetera), this is more true when in fact several policies are involved and need to be integrated in the concrete projects. This is even more complex when there is potentially disagreement among actors and / or changes in time regarding the domain specification that may lead to

adjustment problems in the processes involved. The next section will present some ideas on such adaptive management strategies for processes under extended boundary judgements and the characteristics of the governance context that are important to facilitate them. First however, some remarks about the time dimension.

The time dimension

Projects of the extended scope of the Regge restoration tend to take a considerable amount of time. This doesn't only bring added complexity, but also opportunities. Not only do the dynamics of the actor characteristics cause the settings for the interactions to change but there is also ample time for strategies pursued by the actors to achieve such change and these are often deliberately used. We will come back to this below. Before this, we draw attention to the sources of change of the setting of the process during a somewhat longer term and thus often dynamic project.

Firstly, the setting of the process can be altered over time by changes in the wider context, the structural context (mostly the governance part of it) and the specific context, which are due to factors that are not related to the process itself and not initiated by it. This is the kind of change the actors will often try to adjust to, albeit that this adjustment can also imply that they try to make good use of it.

Secondly, there can be influences from within the process. Experiences by the actors involved with the behaviour of the other actors will create learning processes that can change motivations, cognitions and even resources. As an example think of the development of trust that was described earlier as part of the interaction effects of the three actor characteristics. The first two influences mentioned are already sufficient to make the results of the process highly dependent on complex and hardly predictable coincidences. Coincidences should be taken literally here: the possibilities for complex multifactor causal developments are so huge that results often appear to be just "coincidental". This is also sometimes labelled as "emergent" (Van der Walle & Vogelaar 2010).

Thirdly, in a medium or long term process as in the projects we study, there can also be an influence from the other end. Thinking in a 'policy – implementation – results' scheme it might feel as counterintuitive that the result influences the process. Nevertheless one can imagine that in a sense the "result" exists from the beginning. At first it is only there in the imagination of the actors, on the basis of the inputs into the process and their own most likely varied expectations on how it will evolve. In the beginning the images of the future results can be very varied and vague. Gradually over time however it

materializes into more definite plans and – like in spatial projects with geographically segmented subprojects as in this book – even partial realization. This way one can imagine that the evolving result receives an ever stronger impact on the (relevance of) motivations, cognitions and resources of the actors, thereby creating either positive of negative feedback loops for the progress of the project.

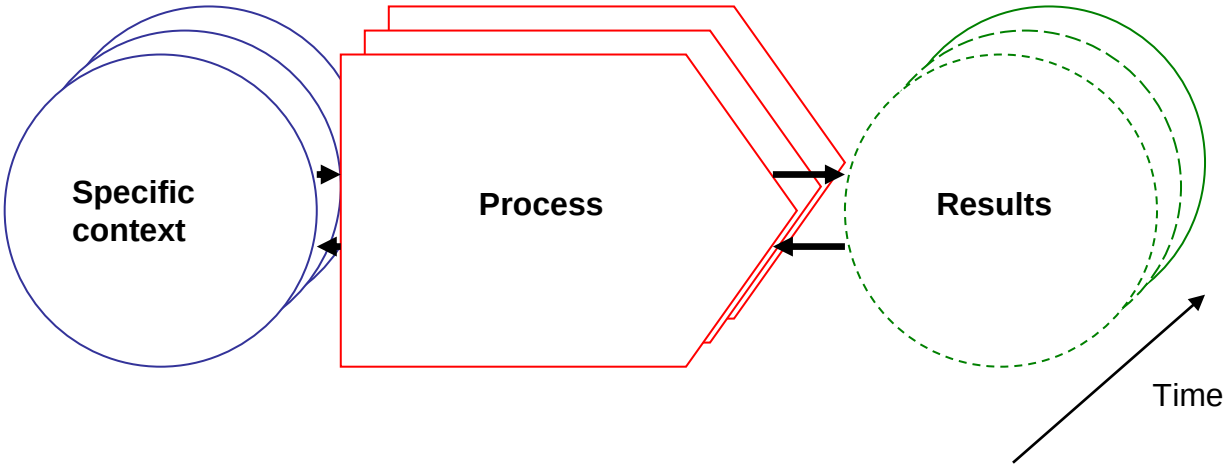

Figure 24: Evolving results influencing the process in longer term processes

Fourthly, part of the influences on the context stems from deliberate action of the actors involved. We call them strategies. The main process characteristics (the rules of the game, the actors and their characteristics) are essential for the decision making on the projects. The set rules of the game – "the institutional arena" – forms part of the direct context of the process. It is part of the specific context ("previous decisions"), even though it is to some degree defined by the structural context. In processes with a longer time horizon like these however, during the process the rules of the game are continuously – to various degrees – modified as a consequence of the interactions in the process and often also by deliberate interventions of actors. Thus, part of the interaction will be directed towards the modification of the motivations, cognitions and resources of actors, or even the involvement of actors in the process or the institutional arena. This implies that this part of the process itself and these (inter)actions of the actors deserve ample attention, in order to extract from them the productive strategies for dealing with complex and dynamic settings.

Adaptive strategies

Such adaptive management of actors consists of various strategies. These strategies can be a response to unsatisfactory processes, though with experienced actors they can also be preventive, trying to avoid an unproductive setting before it becomes a fixed context for the process to come. Such strategies rarely have a "the more the better" character. In fact their (degree of) application needs to be continuously balanced with the evolving threats and opportunities of the context, that often itself is in flux for more reasons than deliberate strategies of the actors involved. These strategies can involve more than just the motivations, cognitions and resources concerning the issues at stake. The actors can also try to change the specific context of the process. Sometimes it is possible to bring in new actors or exclude existing ones or try to redefine the process and its issues at stake differently to shift it to another arena with a (partially) different governance context (see for an elaboration Bressers and Lulofs 2010: 27-30). Some examples are:

- adding new actors among which could be policy brokers or "inviting oneself" to consultations among other actors on new plans, or more generally keeping regular interaction with other potentially relevant actors even when no immediate issue is calling for attention, this way providing better network relationships not on the level of the general governance context but much closer to the level of the specific case;
- creating new arenas by adding new meeting points such as through the choice of a particular administrative setting (e.g. a voluntary process or under the institutional setting of a certain law) for the process when possible or by installing working groups or committees;
- creating new cognitions by introducing new information, spreading information and perceptions by new catchy key words and metaphors, involving the media and so on (compare Van Buuren 2006);
- creating new motivations by creating salience among others through luring with resources, or by promoting with positive intermediate results;
- adding new resources and power bases for instance by exchanging relatively flexible ones (like money) in advance for relatively fixed ones that are hard to get when and where you want them, like land ownership.

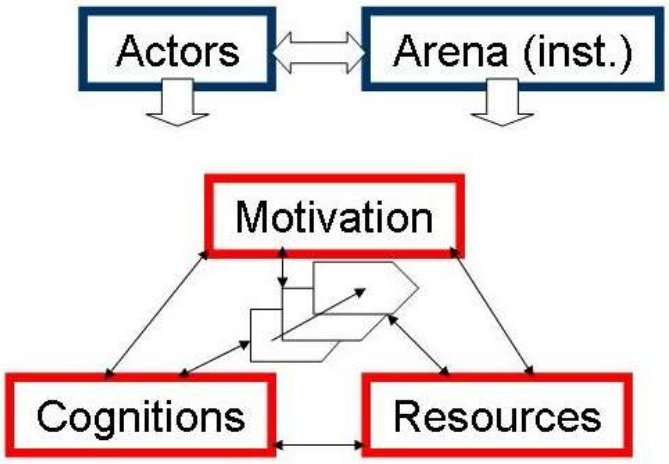

Figure 25: Intervention points for external strategies applied to influence the direct process context

While the use of strategies might seem to be presented here as deliberate and precise, it is in practice often not. Better understandings of strategic options do not always provide efficient tools since they require skilful actors for their meaningful exploitation (Hermans 2005). In complex systems many developments are "emergent"; quite unpredictable consequences of a multiplicity of factors and circumstances. Consequently, the use of strategies must often be quite spontaneous and quick. Moreover, it can be quite wise to simultaneously use diverse strategies and include a degree of "redundancy" in order to create fall-back options when one of the strategies does not have its intended or desired effect, as the literature also states about water management institutions (Constanza 2001, Low et al. 2003, Ostrom 2005). While it is important to keep various options open as long as possible, in order to provide a sufficient degree of accountability towards elected representatives it is necessary to work within an agreed dynamic frameworks for various stages of action (Koppenjan, Kars and Van der Voort 2009). Such accountability need not be at the expense of organizational capacity when the performance criteria are under reflexive adjustment and do not remain fixed regardless of new situations (Pires 2011). "Good water management will only become a reality once we recognize that water managers have complex duties." (Figuères, Rockström and Tortajada 2003).

Portions of the strategies of dynamics apply to the actors themselves internally, by trying to prepare themselves better for such games in complex settings. Such internal strategies attempt to increase their receptivity: Jeffrey & Seaton (2003/4) coined the term receptivity as not only dependent on the degree of exposure to new knowledge, but also more specifically on the way the actor can associate and exploit new knowledge around existing knowledge,

activities and objectives. This requires that the actor "lets the outside come in", opening and regrouping understandings to include reckoning with the new knowledge. Thus, receptivity is by no means to be interpreted as a form of passiveness or weakness. Rather it could be seen as a form of alertness and openness towards the contexts that enables well targeted innovative and adaptive action by self-confident people and organizations.

Receptivity tends to play a major role in recognizing the opportunities that an enlarged domain perception might have to create synergies with the activities of other actors. If potential synergy is perceived by both parties, meaning that they see joint chances in cooperation, boundary spanning is more likely to create productive linkages (Bressers and Kuks 2004, pp. 259–262). Thereby, it in turn reinforces the degree of openness towards enlarged domain boundaries. If one or both parties consider the situation purely as rivalry or even mutually exclusive, one might even observe attempts to reinforce existing boundaries or bring up new boundaries in order to keep domains apart or separate them. Jeffrey and Seaton (2003/4) discern four aspects of receptivity: awareness, association, acquisition and application (see also Nanny Bressers 2011). In the cognitive system these can be linked to, respectively, the observations, the filtering through frames of reference (including boundary judgements on what belongs to the subject of the process at stake and what not), the interpretations of reality and the impacts of the cognitive system on motivation, capacity and the process itself.

Here we expand the concept of receptivity even somewhat further to "the ability to combine new information with existing cognitions, to recognize new goals as matching existing motivations or the values behind them and to recognize the opportunities of new resources or combinations with existing resources to optimize their capacity and power". A greater likelihood for interaction processes with one of the more productive combinations of motivation, cognitions and resources of the actors involved might result from an increase in such receptivity.

Receptivity can be both a quality of people and organizations. While we typically will speak about receptivity as an organizational characteristic, we acknowledge the importance of skilled, experienced and open-minded project managers that fulfill important roles as "boundary spanners". The receptivity of an organization is partly important to enable them to fulfill this function.

Like the arena and constellation of actors and their characteristics, the receptivity of an organization is not entirely fixed and can thus be altered in the course of time by external factors and deliberate *internal strategies*. It is

crucial to an organizational philosophy that it is oriented towards external cooperation. For instance through rewarding project managers that are communicative, flexible and entrepreneurial. This can also be done by having the project managers regularly visit the meetings of each other's projects, so they can learn from each other and from the enlarged variety of situations they experience. Being honest and open to the governors about the risks of proposals, developments and the project as a whole will only then ensure that the support won't fail after the occurrence of an initial disappointment. As a governor, it would be advised then to give some leeway to your representatives, even in the form of some controlled degree of risk taking. As a representative of the organization, you are also then able to provide the confidence to your co-participants that your proposals are backed up by the responsible governors (which should, of course, also be true in cases where it is necessary).

Some further assumptions are:

i. The rules of the game that e.g. provide or restrict resources are often not static but themselves subject to change partly by *external strategies* by actors in the process unless they are firmly fixed by the regime. The same holds for the actor constellation in the process.
j. The setting of actor characteristics that impacts on the course and result of the process is not only dynamic due to external factors, but can also to some extent be manipulated by clever *external strategies* of the actors during the process (these are often forms of "boundary spanning" – see Bressers and Lulofs 2010).
k. Since adaptive boundary spanning strategies often require concerted actions by more than one individual person, this also draws attention to the internal organization of the actor ("actors" in most analyses are in fact "corporate actors": organizations or parts of organizations). Here the *receptivity* of these actors and actor organizations is relevant.
l. Also this receptivity can be positively influenced by *internal strategies* of actor organizations, which promote continuous learning, conscious dealing with uncertainty, and stimulating mutually supportive intra-organizational relations.

Governance flexibility and intensity as requirements for adaptive management

The use of adaptive strategies to influence not only the course of the process itself, but also in turn its setting has implications for the relevant regime qualities. While extent and coherence are the most important regime qualities

in more or less steady state situations or in situations where one wants to compare the before and after situations of resource use, in a highly dynamic process situation in which success depends on quick and timely adaptive action, the flexibility of the regime is also an important and influential quality.

Most scientific research on the success and failure of complex spatial projects and policy implementation in complex situations in general, concludes to the importance of 'adaptive implementation', trying not only to see the reality as a field of obstacles, but also as a terrain of potential – often unexpected – opportunities and being adaptive enough to use every "window of opportunity" to bring the ultimate purpose closer to realization. Therefore it is essential that the somewhat static factors of extent and coherence are supplemented with this factor of flexibility, indicating to what degree the relevant actors have formal and informal liberties and stimuli to act. The flexibility of the regime is considered to be essential. The attention given to the flexibility of the regime will not only be approached on the basis of the documentation about the regime elements per se, but also from the very bottom up: what success and failure factors of the actual projects can be rightfully attributed to inflexibilities in provincial, national and ultimately EU policies, and how are the latter moderated by national and subnational regimes?

Flexibility is defined here as "the degree to which the regime elements support and facilitate adaptive actions and strategies in as far as the integrated (et al. multi-sectoral) ambitions are served by this adaptiveness". Consequently it is also the degree to which hindrances for such adaptive behaviour are avoided. The addition "in as far as …" is needed to discern implementation that is just weak from a genuine attempt to make the most of the situation. The term "integrated (et al. multi-sectoral) ambitions" refers here to the integrated multi-functionality of land use. Further specification of this could be ultimately achieved with the help of the four capitals' approach that is inherent in the Institutional Resource Regime (IRR) framework mentioned earlier in this chapter.

Like extent and coherence, the flexibility of the regime as such could be understood in terms of the five elements of governance described above. Mind again that here we are not labelling the relationships of the actor-constellation in the case process, but the characteristics of the policy domain on a national or in any case much more general level. It will show clearly that flexibility is in need of at least a certain degree of coherence to be built upon. Otherwise, when it's just extensive discretion and self-reliance for implementers there is a high risk that a fragmented and a weak form of implementation would result.

A regime is more flexible in as far as the relationships between the levels and scales involved are more based on decentralization of power, without upper levels withdrawing support. This is closely related to empowering rather than controlling relations, and thus on trust.

A similar feature describes flexible regimes in terms of actor relations in the policy network. Here too the combination of giving leeway to each actor group to optimize its contribution to the whole program while still viewing the program as a joint effort qualifies as flexibility.

In terms of general problem perception and goal ambitions flexibility implies that these in their variety are not only integrated into a sort of common denominator (like with coherence), but also that these mixtures are allowed to be different in emphasis according to the opportunities of the context in the various concrete situations. This implies some acceptance of uncertainty and openness to emergent options, which again relates to trust.

The instruments and their combinations in policy strategies or mixes are more flexible in as far as means from different sources (like public policies and private property rights) may be used as well as indirect means (here relating to opening or improving options for the use of means that more directly serve the goals) are available and allowed to be used.

Lastly the flexibility of the organization responsible for the implementation – the responsibilities and resources given by the policy program(s) – can be measured by the discretion available to pool resources like funds and people with those of others to serve integrated projects and to be held accountable on the basis of the balanced virtues of the achievements (as in an integrated project), rather than on the basis of separate performance criteria.

Given the dynamic and change oriented nature of some policies, like river renaturalization, there is yet another regime quality that can be influential for the practical process. That is the obvious, but no less important aspect of intensity. *Intensity* is "the degree to which the regime elements urge changes in the status quo or in current developments". The "amount of change" is thereby measured in analogy with Newton's "law of inertia", so as the degree of energy it takes to produce the change. In systems theory, induced changes will typically meet negative feedback loops, weakening their impact, while in some cases positive feedback loops creating dynamics for permanent change are also conceivable (True, Jones and Baumgartner 1999, Bressers and Lulofs 2009). In policy studies' terms intensity is related to the size of the task to create new dynamics by creative cooperation, or conflict. Consequently this urges change of conservative motivations or overcoming them by power, changing cognitions including widening of boundary judgments regarding the issues at stake, and developing new availabilities and combinations of

resources. In other words: with more intensity the urge to use cleaver adaptive strategies to deal with and change the setting of the process increases.

In terms of the five elements of governance intensity is greater in as far as also upper levels are more deeply involved, actors that are also powerful in other domains are more deeply involved in the relevant policy network for the issue at stake, the issue plays a larger role in the public debate leading to a greater openness to try to push developments away from a business-as-usual track (thus with more ambitious goals), the instruments made available to be used include more interventionist ones, and the amount of resources made available for implementation is larger.

We acknowledge that there is an implicit potential tension between this "quality" of the regime and the previous one of flexibility. This is related to the eternal dilemma of the "quest for control" based on distrust, versus the "learning while doing approach" based on trust. When an actor wants to achieve much this can increase the distrustful tendency to try to control it all from the top down, leading to a decrease of flexibility. However in complex and dynamic situations decreasing flexibility is often a recipe for failure as chances are missed and failed to be created and obstacles often cannot be foreseen. However when there is sufficient trust in the implementers' motivation to genuinely work on the matter, it is far better to allow much more flexibility.

When the change striven for is multidimensional, e.g. involving multiple policy sectors, not only synergies should be welcomed, but also trade-offs accepted when necessary. This can often be the most difficult part. While in its definition "flexibility" is shielded from mere discretion that would also accept implementers doing nothing, there still is a natural limit to flexibility as a positive force. Especially when multiple policy sectors are involved there should be an integrated vision to guide the process, preventing extreme imbalances (coherence) or the exclusion of essential sectors (extent). Inevitably there will be some limitations to flexibility induced by this. Here the regime quality of flexibility is restricted to a certain degree by the regime quality of (multi-sectoral) inter-regime extent and coherence.

Some last assumptions of Contextual Interaction Theory specified here are;

m. While the *extent* and *coherence* are crucial qualities of the structural context when the main purpose is to stabilize and protect a certain situation, there are others that should be added however when change and the creation of new resources is the main purpose.
n. The first additional quality is the *intensity*: to what degree is the change striven for a deviation from "business as usual"? The greater the intensity, the more resistance that will have to be overcome (negative

feedback loops), but sometimes also more enthusiasm can be provoked (positive feedback loops).

o. The second is the *flexibility* of the regime; the degree to which it allows and facilitates the case-specific variation and boundary spanning strategies of actors needed for adaptive management in as far as the change ambitions are served by this adaptiveness. Under the conditions of sufficient motivation of the implementers and sufficient inter-regime extent and coherence more flexibility will lead to better adaptive strategies and thereby to improved results.

Methodology

The case study methods chosen in this study aim at providing an in-depth understanding of the different actors and their inter-relationships in order to expose new insights regarding how their behaviours are modified and targeted towards achievement of their goals. This piece of research is not designed as a theory testing work, and as such uses the previously discussed theoretical lens to guide the search for and understanding of information. The understanding and explanation of the theories as they are laid out in this chapter guided and focused the attention in the analysis of the empirical study and consequently the resulting discoveries made.

Where applicable within the text, it is made explicit which concepts are used as our conceptual lens. With these concepts we highlight the various phenomena that are the most interesting in these complex and dynamic implementation processes. Special attention will be given to boundary spanning strategies which were used to modify the direct case context and to the degree of flexibility of the regime allowing for them.

Data collection

The informational sources gathered include numerous provincial, municipal and Waterboard policy papers, white papers and maps. Background documents which were presented by the Waterboard to council members with proposed decisions on Regge restoration projects were an additional informational source which further developed the understanding of the relationship between the various actors. In addition, magazine and newspapers articles and publicity material, and information from websites from well-known organizations, like the Province, the Waterboard, the

National park, municipalities, the prominent nature NGOs and the like were used.

Strongly supporting the written material were several in-depth interviews with all kinds of active participants in these projects, people from municipalities, the province, the waterboard, nature organizations, estate owners, landscape architects, and farmers. As some interviewees had experiences with several sub-projects, most of the information from the interviews could be corroborated on important issues with information from another interviewee. Conflicting information regarding the facts mentioned was not uncovered and also the personal assessments of the processes were considered harmonious. Other factual information could be both supplemented and corroborated with the information from the written sources (Miles & Huberman 1984, Verschuren & Doorewaard 1999).

The interviews were tape-recorded and elaborated on that basis. In order to prevent mistakes and premature interpretations the descriptive information in the chapters below on the course and results of the various sub-projects' processes has been written on the basis of these transcripts. It is however at times supplemented by the information from written material. These descriptions deal with six completed or advanced subprojects and six intermediate starting or less advanced project areas, which make up the whole of the course of the Regge River. In two of the intermediate stretches small completed projects are situated that will also be described separately. For each advanced sub-project the description is followed by an interpretation on the basis of the theoretical concepts explained in this chapter. For the intermediate projects this is also done, though much more briefly and concentrating mostly on the strategies used by the actors involved and the governance regime inflexibilities that were mentioned and illustrated to have played a role in these cases.

Data analysis

For the illumination of the role of each of the various theoretical concepts in the sub-projects in the next three chapters, a qualitative though systematic contents analysis of the descriptive texts was used. The descriptive texts of the sub-projects, which are closely based on the transcripts of the interviews and written material, were scrutinized multiple times, each time with a specific focus in mind: the results, the motivations, cognitions or resources of actors involved, the external strategies used and the regime inflexibilities that the actors came across. While doing so, the specifications of these concepts as given in this chapter were used as indicators to recognize relevant statements.

With the intermediate areas and their much shorter texts we concentrated on the last two only since there are no results and the constellation of motivations, cognitions and resources was either just as usual, or not really clear yet.

A portion of the information relayed in the interviews addressed the Regge restoration process in general. This more general description of the Regge restoration was similarly analysed and used in combination with overviews of the information from the sub-projects for the concluding remarks in Chapter 8. The structure of the chapter reflects the structure of Contextual Interaction Theory and each section ends with concluding remarks which provide an overview of the observed events regarding these concepts in the Regge River renaturalization process.

The causal relationships between the concepts as stipulated in the theory cannot be tested in a statistical or even comparative manner in this study. While several sub-projects are present, a comparative analysis is not sufficiently plausible because the sub-projects are not independent from each other. Consequently the nature of analysis is: theory guided explanatory research in non-controllable social subsystems. Most of this study follows the usual case study approach of gathering data from multiple sources (documents, literature, media, interviews, own observations) to produce a "thick" or rich description that enables the presentation of an in-depth picture of the case, its circumstances and the developments therein (Eisenhardt 1989), followed by an analysis of the data from the perspective of the theoretical framework (Dente, Fareri & Ligteringen 1998).

Making causal inferences in qualitative case study research requires a logic that goes beyond the usual experimental logic. Even a quasi-experimental logic is in most cases not possible (Cook & Campbell 1979, Mohr 1995). In fact, one finds oneself usually in situations where the developments can be explained by a set of individually non-essential and non-sufficient factors, but together forming one of the sets of factors that can cause the phenomenon (Mackie 1974's INUS conditions, compare the notion of karma in Buddhism and Hinduism or several western philosophers, Tacq 1984). The contribution of individual factors is thus essentially and necessarily difficult to establish. Nevertheless, the pattern of observed actions and interactions of actors and factors can be compared with the theoretical framework that guides the study (Yin 2003ab, Gerring 2007). The pattern must at the very least make sense given the theoretical framework to increase reliability of the suggested causal relationships in the storyline of the cases. If for instance a certain regime inflexibility issue is blamed for lack of progress, it should be clear that for the

specific form of lack of progress this inflexibility matters. The reconstructed story of the case should have an internal logic.

More specifically: in our study we will use the theoretical framework explained in this chapter as a help for pattern recognition. This is possible by on the one hand using the conceptual logic to assess what impacts an explaining variable (e.g. a strategy used) would likely have, through what pathway, on the affected variable and looking in reality whether such intermediate and characteristic side phenomena are mentioned in documents and interviews or observed in practice (Scriven 1976). On the other hand we can also use an empirical backward mapping logic (Elmore 1980) that starts with the explanations given by the practitioners and look to see to what degree they match with the explanatory factors stipulated in the theory (Patton 1980). When both methods converge an additional basis for causal inference is established. In our study we combine these two ways of thinking to arrive at our conclusions.

Chapter 5. Upper Regge Project Implementation

Figure 26: Upper Regge renaturalization projects
(Source: WRD)

Introduction: working project by project

After the completion of the Regge Vision white paper, the Waterboard began shortly thereafter to prepare the Regge renaturalization projects. In the following three chapters we will deal with each of the various projects in the sequence of the river flow, from upstream to downstream; first the upper, then middle and finally the lower Regge.

Of the various projects studied, different levels of completion had been achieved during the research period. Those that are nearly and fully completed, are dealt with in full sections with additional subsections to introduce them and describe and analyse the process. The intermediate areas that make the river stretches complete, in which plans are under development in various stages, are dealt with in this chapter as well; these are shown in some detail in the map above where the woods are green, and towns are pink. The projects seen in the figure correspond with the projects mentioned on the next pages. The blue areas are realized, while the red ones are in various stages of preparation.

Figure 27: Upper upper Regge River: the very beginning
(Source: Hans Bressers)

Several streams in addition to the main river body contribute to the Regge in the upper Regge area. Due to a shipping canal that interrupts the river, some streams that once belonged to the catchment area now flow directly into this canal. There are others however that are led together under the canal and then reappear as the Regge River just the north of it.

Estates of Diepenheim

Introduction

A number of beautiful estates and castles are situated in the wooded areas in and around the town of Diepenheim. Such estates however, often have problems with their water systems. Canals dry out, woods and nature areas suffer from drought and agricultural fields can become either too wet or too dry. Following an inventory made of the problems experienced by each estate, various projects have been developed in order to address them. The "Estates of Diepenheim" is one of these projects.

The castles of Weldam, Warmelo and Nijenhuis and the 'houses' of Westerflier and Diepenheim are working together with the Regge restoration project to address some of their water related issues. The rivers of Diepenheim mill brook, the Leidebrook and the very upper stretches of the Regge are naturalized as part of this project. Between the houses of Westerflier and Warmelo a stretch of Regge of 700 meters is set for restoration. This was made possible due to a voluntary land exchange which made the required land available for the water board to use. The potential to restore migration of various fish and crawfish in the area has drawn interest for the creation an ecological pathway. These additional features are made possible since it was proactively decided that chances to improve the landscape value of the water are to be exploited whenever possible.

A recent development is that the renaturalization of the upper Regge in this area is also a building block in a Regge Garden project in which art is an important contributor and tourism and recreation are important aspects that will be improved upon in the resulting developments.

Process and results

The estates around the artistic village of Diepenheim were independently active in trying to "re-shuffle" the agriculture on their estate and make the estate more natural. They later solicited the help of the Waterboard to help

improve on the natural qualities of the Regge and the waters surrounding the castles. The Waterboard was happy to support the estates in this because these actions align well with their general vision to both address water concerns, add nature to the area and allow more space for water (retention). In fact the Waterboard was involved in a number of things not directly related to Regge restoration. They for instance also restored the water basin of the old Den Haller water mill.

A further interesting extension activity was the attachment to the Regge Garden of Diepenheim. The Waterboard deliberately waited approximately a year and a half to begin discussions about a project in the area following learning that this interesting initiative was developing, which they felt could produce synergy with their ideas. Art was viewed as being an important contribution and tourism and recreation are important aspects that will be improved upon in the resulting developments.

This project was initiated by Herman de Vries – a domestically well-known artist. He continued to be involved in the project as it developed. The final result included artwork in the project area along the Regge, and various kinds of gardens – butterfly garden, winter garden, marsh garden, aroma garden, and many walking paths.

Timing played an important role in this project. The Waterboard was the first to contact the Municipality in which Diepenheim is situated in with their idea for an integrated project. The Municipality had already developed a long term interest in the Garden of Diepenheim project. When the project started to materialize, the Waterboard and the Municipality contacted the artists and other stakeholders to discuss the options for the project. This process not only produced synergies which would help the Waterboard's interests to materialize, but also opened up additional venues for subsidies. Working together with the other parties (particularly the art community) made them eligible to receive sponsorship from the Mondriaan Foundation for which they otherwise would not have been eligible. The Waterboard calls this deliberate combination of goals from different sectors to the projects "schakelen" (coupling). They view it as a strategy that produces synergy ("added value of water") and enables the combination of various financial, legal, expertise, etc. resources to support the project. They are thus also willing to accept (where and when necessary) the added complexity that it brings to the project organisation and implementation.

In this case the initiative was not just a matter of coincidentally finding shared interests. Advice was given to the project team by an individual who had ties

to the various organisations. He was well-known to the Waterboard, was the "rentmeester" (manager) of some of the estates and was also the director of the consultancy Eelerwoude. Through his inclusion in the project he was able to provide advice ahead of time about what opportunities there may be to work together with different actors.

A lot of the projects going on around Diepenheim are known as "area developments". These are voluntary processes intended to improve the overall character of an area and they are present in the area that the Regge is a part of. As a result the Municipality tries to have these fit together with the Regge projects. One of the issues experienced in the process of attempting this is that one third of the Municipality, and half of the Diepenheim Regge restoration area belongs to estates. The estates are managed under an attitude of "sovereignty and traditional ownership values". This is both a conservation mentality (that has successfully preserved the estates and their natural beauty) but also a conservative mentality that makes the "package deals" that often are involved in such complex projects difficult. Many estate managers follow the guidance of the estate owner and manager of the largest estate (Twickel), Mr. Schimmelpenninck. As a good negotiator, he has been successful in terms of cooperating based on his own, and other estates' benefits and interests.

Figure 28: One of the estates: House of Diepenheim
(Source: Tubantia)

However, the estates are in need of new economy to support their future existence. In the vision of the Municipality, Diepenheim has very nice aspects that support tourism (lots of nature, nice landscape, and small rivers). Nevertheless, problems occur when approaching estate owners for participating in projects such as extending a bicycle path along the river. There is a difference in perspectives in terms of how to preserve and manage the lands for the future. The Waterboards are often willing to support recreation possibilities where the estates are generally concerned about preserving the traditional nature of their lands. One cycling path project was unsuccessful due to the estates withholding their lands for use, despite the fact that the Waterboard and the Municipality were working well towards the development of a larger integrated cycle path system. This can lead to irritations at the Municipality since they have the responsibility of preparing land use decisions and feel frustrated by a refusal of the landowners to cooperate. An additional stumbling block is the differing between views on appropriate development of the land. Generally speaking, the estates are not development oriented in their long term approach. Nevertheless they are currently cooperating with a pilot project in another part of the Municipality. In this project, nature and landscape development and maintenance are set at the core of a new form of agriculture, sponsored by several governments. There are certainly opportunities however, as can be seen in the case of the Castle of Diepenheim. There are two estate farmers there who want to switch to a more nature oriented farming approach as an alternative to traditional farming. They are mostly hindered in this by their current lack of capacity and knowledge to do so.

Another interesting aspect of the project is the number of the Waterboard's water goals which are linked to the nature development goals of the EHS. In the last 10 years the Province has sought out parcels of land in order to complete the linkage zones. In terms of ecology, the area along the Regge is ideal for the EHS due to the special biotopes found in the river. The surrounding woods and small scale landscapes also make the area a good candidate. In principle the estates benefit from being a part of these areas because they can choose whether or not they will participate in develop the various natural functions of the land. According to the Municipality the estates like being able to keep their options open for land uses as there is no coercion mechanism in this "area development" restoration project. When behaving this way as land owners they create uncertainties for others in the planning progress. Since the project is considered to be part of the "area development" it has an official project status with EU funds. It is however still voluntary in

nature because the government bodies will not use expropriation of lands as a tool to enforce cooperation.

The estates have very specific interests regarding which areas they choose to use for agriculture and nature. Prior to the appearance of present day agriculture, economic exploitation of the estates was made through wood production; however, the estates are not well organised for the demands of modern large scale agriculture. In managing the estate lands they would for instance choose change the designation of a plot of land to become nature as a response to whether or not they approve of the manner a certain farmer manages his land. This causes problems for the Province since they would like to organize the EHS lands quickly, and thus have specific interests in the lands adjacent to a continuous zone. The local government prefers to stay out of these negotiations because they recognize the ease of which conflicts arise. The EHS belongs to the Province's jurisdiction and thus the local government prefers that they take the lead.

The Waterboard sometimes requires that the water levels be higher in conjunction with the restructuring of the water system. There are a number of farmers who feel higher water levels negatively affect their ability to farm. . This causes significant issues when these more traditional farmers are located near to other farmers who are interested in providing nature as an environmental service on their lands which is thought to require higher water levels. There is ongoing research on the effects of the water levels on farming, nature, fauna, etc. This is economically important because environmental services are supported by Blue and Green Services programs provided by the Waterboards and Provinces respectively. The higher water levels thus increase the profitability of some farmers while reducing that of others. The benefits of the different water levels to the estates will also be an important result of the ongoing research.

The estates entered into the project in this case to ask the Waterboard to help improve their water quality. The Waterboard took this opportunity to work with them to renaturalize areas as part of the overall Regge Restoration. Nevertheless it took years to prove to the estates that it would be in their best interest to cooperate as they continued to exhibit in this case their wait and see attitude. The original interest of the estates in raising the water tables was also that the foundations of the castle become unstable if they become too dry.

There are also examples which show the promise for future collaborations. The estate of Westerflier has made an agreement with the Waterboard in which some land exchanges were successfully completed. There is also an

example of a farmer in Diepenheimsbroek (north of Diepenheim) who was interested in developing large scale agriculture on his property. The Waterboard and this farmer were able to agree on incorporating a number of high tech solutions in order to solve the water levels issues.

Locally, there are two groups involved that influence the process with interests from a higher decision making level. The first is the Diepenheim Area Commission, and the second is a special committee on the exchange of lands that is responsible for pursuing the completion of landscape, water and nature goals of the area. In principle there is the option to use legal instruments which force non-voluntary land use changes however this was avoided in this project. The reason for this lies in the historical background of the area. In the late 1990's a voluntary form of land re-allocation "Ruilverkaveling Administratief Karakter", was initiated. They had not proceeded very far in the process when at the beginning of the last decade, a new Reconstruction law was prepared that put the future of this tool at risk. This further halted actions of the local project as they were unsure of the future plans for this area. When the plans were finally developed, the Ruilverkaveling Administratief Karakter had indeed been removed as a tool that could be legally used. The local government and the farmers did not want to engage in a full-fledged non voluntary land reconstruction project, because of experiences from other nearby areas like Rijssen and Haaksbergen, where projects had lasted for 20-30 years. The project teams involved in these processes had been working together for so long that they were able to celebrate when they had had their 500th meeting. The actors in the Diepenheim process did not want that sort of planning and program and as such they chose to operate on a completely voluntary basis. This was also considered appropriate because the area has so many small-scale plots which they felt needed to be handled carefully so as not to destroy the landscape.

The real discussion being had was however not about the voluntary or involuntary nature but basically about whether or not the other parties that represent the landscape, nature, etceteras should also be involved in the discussions regarding the exchange of soil. This is important because legally all stakeholders must be involved. This naturally adds significantly to the time required for the project. The alderman in this case made a strategic decision based on the recognition of the strong bargaining power of the farmers. It was expected also that the farmers would in the end be the ones that would be expected to alter their practices and so he solved this issue by conveying the situation to the farmers in a way that emphasized meeting the needs of the other groups. He suggested that the farmers should make their own proposal for how the different interests could be addressed. In such a way they needed

to seriously consider how their proposal would be accepted by the other parties. By putting the ball in the farmer's court to make a plan that everybody would like they were able to get things moving and to get them involved in a constructive attempt to propose what was best. They predicted that otherwise they were not likely to participate openly and would continually be preparing for resistance to any proposed actions. The local NGOs agreed with this procedure since their experience in the past was that the farmers would continue to plague the process with complaints for a very long time (10 years in one case) and would in the end eventually succeed. They too saw this as an opportunity to get the farmers active in the joint process. A large amount of money was provided by the government to perform the soil exchanges which significantly aided the process. This proved to be a good position to work from and overcame the previous concerns about the conflicts between nature, landscape, agriculture etceteras. This voluntary method also has the benefit of getting things done more quickly because of the reduction in red tape. The risk of proceeding in this way is however that by compromising amongst various local goals you may not meet the requirements of the EU programmes. In this case, the Netherlands would be required to pay some of the money back that was received for nature and biodiversity development. The risks associated with using involuntary measures are also high and should not be forgotten.

The Soil Exchange Commission has taken the same approach as that given to the farmers in the Diepenheim case. They have chosen to develop their own plans for land exchanges and until now they have been successful in getting general approval and consensus. The farmers are aware that they have to agree with the decisions of the commission and that in general the farmers are well represented by this. The estates have however remained a bit outside of this process as they generally do not exchange land except when it does not conform to their own deliberately stated interests. There are examples of where the estates could have contributed to collective problem solving of this sort and they have chosen to abstain. In one case, they chose not to contribute to the construction of a bridge that would directly benefit one of their farmers. Sometimes the relationship between the estate owners and their farmers is not very good. It is also important to note that the economic position of the estates varies widely. Some estates are doing quite well economically while others, such as in Warmelo (where there are connections to the family of Orange) the estate owner is concerned about how expensive the maintenance is for the estate.

As mentioned earlier, one large disappointment occurred in this process where the estates did not want proposed cycling paths to be added to their properties. The Municipality wanted to create the possibility for continuous

cycling along the Regge in an area where cyclists at that time had to travel along the road and instead wanted to provide a route that followed nicely along the river. The estate owner continued to refuse to participate because she was concerned about the effects of too many tourists and the negative impacts of the trash they would generate. Generally it was experienced by the Municipality of Hof van Twente, that the estates are only interested in doing what they are required to do and not what is possible to increase recreation and tourism. There are other areas however like in the adjacent Achterhoek region where the estates are really changing and are opening up their castles and increasing tourism (including restaurants and terraces). Some castles however feel like they can still survive in their traditional ways and choose to avoid going in this direction.

Another example of where these issues have arisen is the Kunstwerk Diepenheim ("Artwork of Diepenheim") project. This project supports both the municipalities' and the Waterboard's goals (tourism and "experiencing water") and great efforts are aimed at further enlarging it, involving many new gardens and artworks. It is part of a 10 million Euro innovation project. The artists involved want to create a historical connection to the Huize Diepenheim and its gardens. As part of this they want to build a bridge and the Waterboard has offered to help fund it. The overall goal is to connect the various historical features in the area. The castle owner is concerned about the extra traffic and garbage that will result. It was made clear that this was a feeling which is shared by Mr. Schimmelpenninck and thus backed informally by other estate owners. Additionally in case of the project of Eelerwoude, Mr. Schimmelpenninck's influence was experienced when even though the actual manager was involved at the beginning with the Waterboard, the negotiations with the farmers were almost always conducted with Mr. Schimmelpenninck involved. The actions taken in the preservation of the estate interests have caused issues in the development of the overall nature and water planning of the Waterboard and the Province. They play a strong role in many projects since they are such a large landowner.

Timelines are also a concern in terms of the exchanges of the land that take place. The Regge restoration project members had set a deadline of 2011 to complete all land exchanges with the estates in the realization of the water goals. At the end of 2018, the Province is committed to having the EHS (Ecological Main Structure) completed. However the Municipality and the whole committee continue to strive to finish their project by 2012 as they have already agreed to with the various stakeholders. They set a high priority on being action oriented and as such place emphasis on not becoming a "tea club".

There are still discussions taking place regarding the implementation methods and rates between the Municipality and the Province. The Municipality expects the Province to cooperate more in terms of providing the means to accomplish the tasks that have been asked of them. At the time of the interview (spring 2010) the provincial staff member that was interviewed was still under the assumption that the Province would continue to try and do whatever they could in the next few years despite not being on target to meet their goals. Money was not considered to be an issue for these investment projects due to the availability of reserve investment funds which could be used even as budgets shrink. These reserve funds are actually known as "Essent money" which is a financial reserve that was previously earned by the Province through the selling of their shares in a large energy company. Later however, in view of the national budget cuts and low priority given to restoration by the new government that came into office in October 2010, the Province has decided to temporarily stop investing money in buying land for restoration purposes.

In the Netherlands the European Nature 2000 regulation is translated into the Nature Protection Law and is often mentioned as a source of fragmentation and inflexibility from a regime level. An area protected under this legislation (a designated Habitat area) is located close to the Regge on the Estate of Weldam. This estate has beautiful gardens though they have had large problems with increasing the size and intensity of their farms because of this designation. The estate owner claimed that had he been aware of this consequence of the designation as a Habitat area he never would have suggested that this area become protected. The Municipality of Hof van Twente sees it as potentially disastrous when these protection laws are put into practice strictly in the manner in which they were designed in Brussels. They are thus still negotiating with "The Hague" (Dutch seat of government) on this issue. The Hague is then required to work with Brussels to come to an agreement. The Borkelt is another habitat area in the vicinity. As a result of the designation there is a 4 kilometre area surrounding it that is restricted for development. A large scale agriculture area exists there and cannot expand despite it being officially designated as an "agricultural intensification" area under the provincial planning strategy.

In terms of the Water Framework Directive, there is an inherent risk that if the project remains voluntary that people would continue talking about plans and not feel the urgency of the nearing WFD timeline. Even as the timeline approaches, the Waterboard will not have the ability to use legal instruments

to realize their goals. The Waterboard is at this point in time fortunate that there are other processes happening in the area that they can connect with.

Concluding observations

In this section, extensive attention will be paid to the results of the project, both in terms of resource use rivalries and values of the resources involved. As these are for the most part similar in other restoration cases, the treatment at the end will in those sections be considerably shorter.

The drainage of the Regge and other creeks were once "improved" to serve agriculture interests while somewhat higher water tables are important to prevent the drying out of both castle moats and nature areas. As a result, the initial rivalries over the resource use were predominantly experienced over the level of the water table. The Diepenheim projects started out as an attempt to resolve these issues. New ambitions developed to add value to the natural and landscape resources and thus created new rivalries to be included and to be resolved by the projects. One such rivalry is that between the preservation of quietness and privacy associated with the (natural) areas of the estates and their sometimes centuries old ensemble and the wish to expand infrastructure to enable more recreation and tourism, e.g. the cycle path along the Regge. These estate values can as well sometimes collide with the construction of the Ecological Main Structure despite the fact that they need to be uninterrupted geographically to maintain their value. On the other hand, existing land uses are not often easily dismissed and estate owners prefer to determine for themselves where land for new nature would be most suitable for them. While restoration efforts generally require higher water tables, the actors that were satisfied with the previous situation, as many farmers were, see this as a new rivalry. New factual information is sought to show whether there really is a disadvantage or that the preference for lower water tables is based on false assumptions of the specific case. It is also possible that high-tech solutions can be used to produce different water levels at small distances to overcome these rivalries. Finally, the remaining "new" rivalry that was uncovered was between the designation of a protected nature and its sometimes unforeseen consequences for agricultural practices and their growth.

The identification of new rivalries that the Diepenheim Regge restoration projects create, should not however overshadow the new values provided to the natural resources. These enable the provision of more goods and services to numerous people and natural processes. From a general perspective, the new rivalries result as a consequence of reshuffling the old land use

arrangement that primarily served agricultural interests into one that also serves the interests of other people and nature. It is also arguable that there were rivalries already present in the old situation which were just hidden because the challenging rival uses were only latent at the time. The extent of uses and users served was clearly enlarged by the project. Perhaps not so much by new post-project use arrangements, but by the new realities created by the project itself. The project added value to nature and its corridors of passage, including those for fish. It added to the robustness of the water system, which is necessary for climate adaptation through adding retention capacity and buffering additional water to prevent droughts. Cultural historical values were also served, for instance by restoration of water mill creeks and basins, but also by preventing damage to the castles' foundations caused by dry moats. The value of the landscape and the "experience value of water" were served by the restoration itself, but also by joining forces wherever possible with projects such as the art and gardens of Diepenheim and by contributing to recreational infrastructure like marked walking and cycling paths. All these positive characteristics and results have nevertheless taken a great deal of time and more still is needed to proceed.

This brings us to the process in which the project is designed and realized. What strikes one's attention is that partners have sought actively to engage each other in a supportive set of actors from the very beginning. This is was even seen to be true in the one instance, where the NGOs were left out of the design process and the farmers were given the first chance to design an integrated proposal. In fact, one can argue that this strategy was not really leaving the NGOs out, since they were very aware that the alternative of the farmers dropping out of the interaction process and deferring to a wait-and-see attitude could greatly delay the process. In with the instance of the Diepenheim gardens, the interaction with the citizens and their organizations was actively sought. The main actors seen throughout are the Waterboard, the Municipality, the estates, the farmers, and some citizen groups. In more of a background role, the Province, NGOs, and potential sponsors played a part. Apart from more informal contacts, an important platform is the area committee and its land exchange subcommittee.

Relating to the conceptual framework used to guide this research, the actors have been analysed through the specific motivations, cognitions and resources that impact their (inter)actions. While most of the motivations and resources are similar throughout the Regge restorations projects, here we highlight a few aspects of cognitions (frames of reference and information or interpretations of reality held to be true) that stand out.

The estate owners often think in terms of continuity over hundreds of years. Theirs is a dynamic vision of continuity: there has always been change occurring, however this takes place on a much longer time scale. There is also a cognizant desire to maintain control over these changes to ensure that they occur along the lines of what the Estate considers key as its core values. Their initiatives are often responses to changes that are induced from the outside, for example the inclusion of dry moats due to water drainage. The Municipality also sees itself as the governor of the area and finds it sometimes hard to see the estates' visions of reality as anything other than insensitivity to the recreational needs of the modern citizen. The Municipality thus see the estates as being negatively motivated regarding most of the proposed changes.

An interesting development has taken place over time with respect to how the Waterboard operates. Generally one can say that they have developed from having a strictly engineering attitude towards managing water towards an attitude in which "coupling", linking and producing synergies from various interests is regarded as their core business. This is what they call "contextual water management" and it is not about foregoing their water goals, but is about recognizing that working with rather than against other stakeholders avoids stalemates and produces more "value of water" to people. The Diepenheim projects were approached in a considerably advanced stage of this transformation of self-conceptualization. As a final point, the farmers find themselves at a crossroads. Those using traditional agricultural practices often consider themselves to be the modern entrepreneurs that they have been stimulated to be for nearly fifty years. There is also an increasing number that sees this as a path without a future and are open to looking for alternatives. This is not just a matter of motives; it is also a frame of reference, which gives meaning to a lot of information. An example can be seen in the previously discussed questions over the appropriate height of the water table. Generally, a lower water table has been considered better because of the heavy equipment that needs to be able to enter the field. Some farmers are more aware of and open to including the alternative argument that unseen, but real drought damage is in fact restricting yields more than damage from wet periods.

The project initiators could in principle choose to set the project up under various types of agreements or "rules of the game": voluntary on a case-by-case basis, a voluntary "area development" process or more legally specified forms of land reconsolidation. The last option was deliberately not chosen and only the first two were used. A setting that on the one hand appears to be a "stronger" with more public authority (legal land reconsolidation) can be on the other perceived as risky and conflict prone and preventing opposition is

regarded as superior to overcoming opposition. The nearby experiences where such processes under these rules-of-the-game were seen to take up to 20 or 30 years. Instead, in Diepenheim they tried to "dissolve" rivalries through a voluntary approach that would not evoke fear and preliminary anger and instead tried to create win-win package deals that would satisfy all stakeholders.

On the whole we see a wealth of strategies used by the actors in the Diepenheim cases to create a maximum likelihood of a positive setting for the institutional arena, actor constellation and their characteristics of motivations, cognitions and resources. Referring to Figure 25 on the intervention points for such strategies we can present these in a summarized version in the figure below.

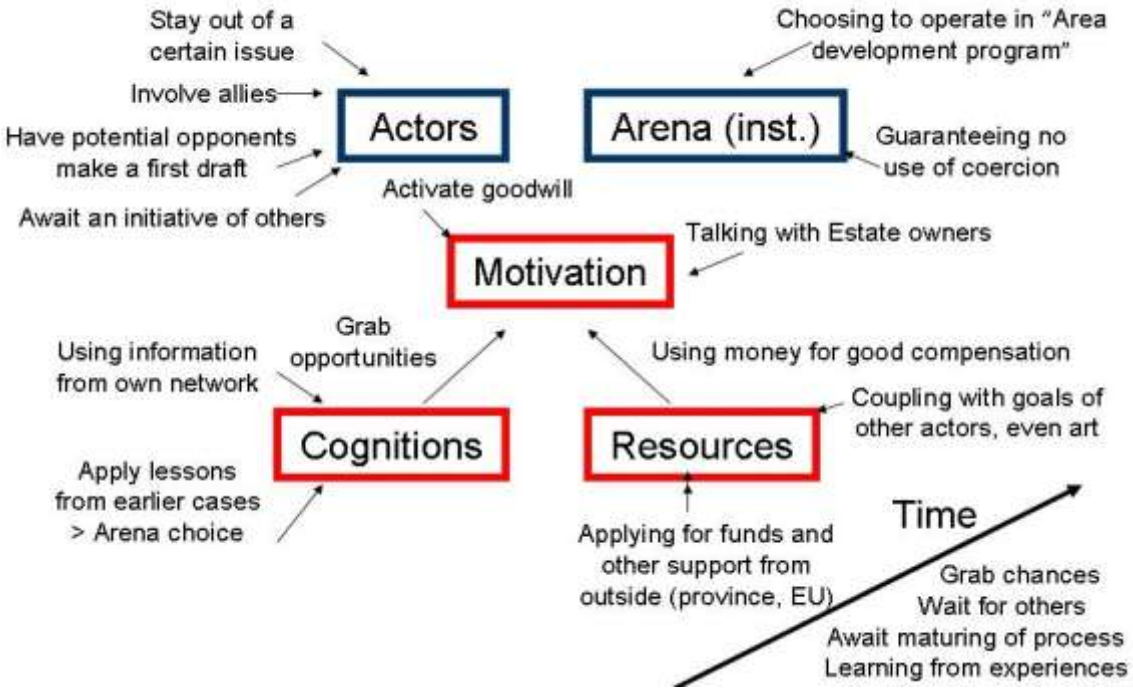

Figure 29: Overview of external strategies used in the Diepenheim cases

In addition to this wealth of both proactive and reactive strategies, the Diepenheim cases also reveal some regime inflexibilities. One is that there are deadlines approaching for project completion that could limit the use of certain strategies and techniques; the self-imposed 2011 deadline for land exchange for watermanagement and the 2018 deadline for the completion of the Ecological Main Structure. There is however very little clarity about how these deadlines will be dealt with in practice. Another inflexibility is formed by

the restrictions that are imposed by the presence of a Habitat protection designation in parts of the area. Here again, apart from the restrictions that are feared to reduce opportunities for work and development, the uncertainty about to what extent these will really "bite" in practice is also a factor that hampers the progress of the process.

Intermediate area: Plan Upper Regge Goor

Following the Diepenheim estates project down the Regge the next initiative is considered to be intermediate and as such is not yet realized. This is a project that is intended to improve the upper Regge River north from the underpass under the Twente canal and through the town of Goor that belongs to the Municipality of Hof van Twente, through to the area where the next project is situated.

This project near the town of Goor in the Municipality of Hof van Twente is in the case study period not yet listed as one of the Regge Natural projects because no final decision has yet been made about how the project will proceed. Here the Municipality Hof van Twente and the Waterboard found out about each other's interests as a result of a call for projects from the Municipal Water Task. This call coincided well with the ideas of the Waterboard which was interested in making the Regge more visible and enjoyable, partly in response to the WFD and to limit the risk of flooding. Both organizations commissioned a study together regarding what kind of project they could best work on. As a result they developed project descriptions of various levels – Gold, Silver and Bronze based on how much "extra" they would do to advance various goals. Bronze projects deal mainly with flooding, Silver projects also aim to improve the qualities of the river banks and Gold projects deal more broadly with all aspects and possible benefits of the area, as a sort of Area Development (Gebiedsontwikkeling).

The boards of the project members have made a Declaration of Intent to aim towards a Gold level project. While this of course also implies more chances and investments, it will not be financially, spatially and qua time constraints possible to really realize Gold everywhere, but that is still the intention. They are now involved in developing a communication plan together with the Municipality Hof van Twente and each will be contributing support to the project. Additionally, they are seeking out a commitment from a housing corporation since this housing corporation is seeking to sell some of its property. Housing prices are not good in the current market so it could be also in their interest to have a nicer river adding to the value of their property and so they are now considering participating in the project. There is also a

company that currently has land on both sides of the Regge. The renaturalization could also accommodate this through changing the river bed around this property, but then a contribution would be expected. This is the way in which additional financing is sought. All in all, this project could become a sort of area-development (gebiedsontwikkeling) and could generate a substantial economic impulse to the area.

The local government is very interested in the project because it passes right through one of the built up areas and is an opportunity to improve the appearance of a "not so beautiful" town. It will be done with money from the local community, the Waterboard and hopefully the Province. In this project they are trying a new method for acquiring funds known as community funding. This idea comes from the US and its basic principle is that parties are found who are interested in the area as a whole – farmers, banks, housing corporations, individual people, etc. The Municipality consulted with all of the parties, then they made a matrix out of their individual interests and put the ones that were similar together (November 12, 2009) and 3 main lines developed. This has also been done by the Municipality of Wierden in their part of the restoration area. The Municipality also attempted to arrange various interests (for instance at the industrial estate of Goor) and make deals among organizations and people. They basically opened up a market for the interests in the area and the Municipality was the broker. There is a program through the Rabobank, one of the largest banks in the country with strong roots in agriculture and the rural areas in general. For those that set up accounts in this area, the bank will donate a very small percentage to an area development fund that those people then get to decide upon what to do with it. The Municipality thinks that they should scale up the area to increase the pot of money available. Another project idea is to use the motorway passing of the Regge as a formal entrance to Twente and to have a nice sign and landscaped area there, making the Regge renaturalization project a billboard for the Twente region.

In terms of *strategies* used this case showed (1) proactive information gathering resulting in early information on municipal plans, which in turn enabled them to join further studies that resulted in the gold, silver and bronze alternatives. Through (2) direct communication with the housing association its support was sought. Thoughtful communication (3) influenced the motivations of the people in a proactive fashion. Actively investigating the interests of groups in the community was also tried in order to (4) increase resources in an innovative way through "community funding".

The major *regime inflexibility* observed is (again) the temporal horizon of the water and nature policies that might make the "gold" alternative unfeasible.

Intermediate area: Elsenerbrook - Boven Regge

This project area is a so-called reconstruction area near the town of Enter and located in the municipalities of Wierden and Hof van Twente, where part of the Ecological Main Structure is to be realized. The Waterboard is not the main actor in this project, but one of several trying to get its own interests realized in the process (Janson, 2009). This project has proceeded somewhat differently from the others as there are still discussions occurring regarding the assignment of the different roles and responsibilities. An important aspect is the ecological pathway that is at the core of the Province's interest; however it also poses restrictions to the inclusion of the ideas of the others. The municipalities were somewhat restricted after the self-imposed decision not to use land expropriation in order to gain lands desired to complete the project.

This project began with the community improvement work of an initiative group of inhabitants who were supported by the Stimulant organization (which is itself supported by the Province). Their primary initiative was met with some scepticism and so they decided that to gain support they would need to be able to show concrete results. With the support of the Municipality they were able to realize a foot and cycle path through the upper Regge area. This in turn created more trust, among many stakeholders including the farmers. On this basis of trust and support a new plan for river renaturalization was developed.

In this same area there is a local foundation pursuing the "Area Development Elsenerbroek" project where water goals are now included as a part of it. In this project, the Waterboard started out with their focus being mainly on the water. They had already purchased about 10 hectares of land to obtain a good land ownership position in the area. Some of the area is designated as being agricultural, other parts are so-called "weaving areas" where they are trying to accommodate multiple functions in the area (in Dutch "verwevingsgebied": a multifunctional area where the functions weave through each other). This area is considered as being economically in decline. The project, including the work by the Waterboard, could contribute to its revival. In late February 2010 a "walk in meeting" to communicate the various ideas had been organized.

A strategy observed to have been used in this project area is (1) the buying of ten hectares of land preceding the project development, in order to get a

private landowner position in the area. This kind of resource can be put into use in several ways during later phases of the process; to use the land itself, but also to exchange it with other lands that are needed for the project. Buying land when there is not yet a project developed is of course an investment, but it has also the benefit of avoiding both resistance and possible price pressures compared to buying when a projects need to be realized at a given spot. Another strategy of the Waterboard is (2) not to start the project on its own, but to wait and to latch on to the efforts of an existing initiative of Area development (arena choice). Thus not the Waterboard, but the Municipality is the main director of the process, which might have disadvantages under adversarial conditions, but mainly advantages when the goals are in accordance with one another. A third strategy observed had a time aspect to it, namely (3) to have a public information meeting at a very early stage of project development. This way one can try to prevent negative cognitions from "hardening" to a point where they are no longer able to aligned through cooperative works, even when they are in essence avoidable, and also to learn about the preferences of the involved inhabitants.
In this early stage no regime *inflexibilities* had yet been encountered.

Figure 30: "Zomp" boat wharf
(Source: WRD)

Chapter 6. Middle Regge Project Implementation

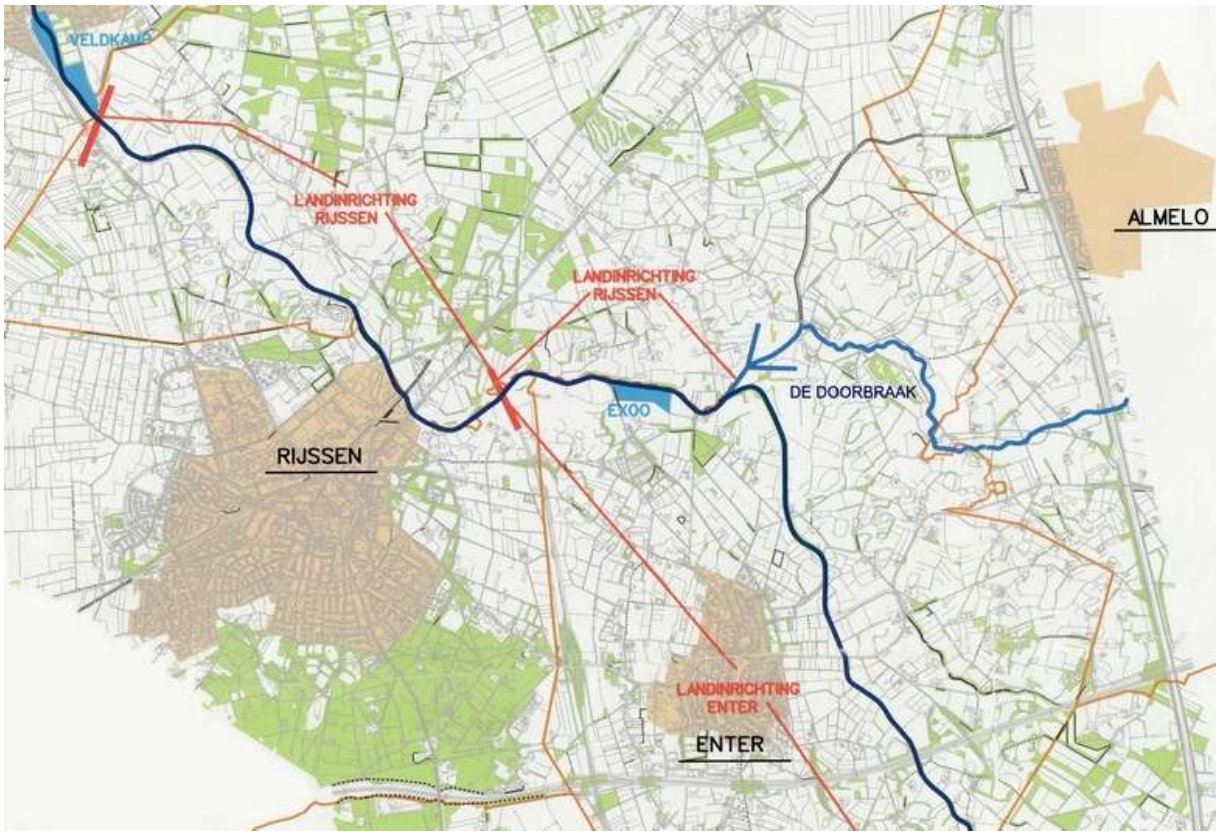

Figure 31: Middle Regge renaturalization projects – upper part
(Source: WRD)

Introduction

Not only has the Regge been severely canalized in the past, a very large part of its catchment area in the eastern part of the Twente region has been disconnected from the system. A large part of this area, with relatively clean creeks, will now be reconnected by 2013 by the creation of new river that will flow into the Regge river a bit north of Enter in the Municipality of Wierden. We will not discuss this large and important project here (see Bressers, Hanegraaff and Lulofs 2010), but instead concentrate on the renaturalization of the river itself. Apart from the Municipality of Wierden, the Municipality of Hellendoorn is a very important partner in this part of the Regge.

Intermediate area: Land restructuring projects Enter and Rijssen, including the small realized project of Exoo

This next stretch of the Regge where the Waterboard wants to realise its goals in the context of the upcoming land reconstruction is the Enter project. The small area of Exoo is situated here which is seen as being a predecessor to the Regge restoration projects. A land owner had taken the initiative in this case to ask the Waterboard whether they wanted to renaturalize the river and surrounding area. The Waterboard was interested since they regarded it as a good opportunity to develop a demonstration project. The new 13 kilometre long river (the Breakthrough or Doorbraak in Dutch, as discussed at the beginning of this section) will reconnect a large portion of the "urban Regge" area to the Regge quite near this Exoo project. Further downstream another stretch will be renaturalized in the context of the Rijssen land reconstruction project. It is at this stretch that the new river of Elsenerbeek is planned to be connected.

In this area the plans of the Waterboard are fully integrated into the work of the "landinrichtingscommissie" (land restructuring committee), in which they participate and through which they try to achieve their goals. There are two separate committees assigned for the stretches / areas near Enter (Municipality of Wierden) and near Rijssen (Municipality of Rijssen-Holten).

The Enter portion is progressing more difficultly than Rijssen. This is arising mainly due to a substantial claim by nature development in the area and as a result farmers have stated they will not support it given that they feel there is an excessive amount of nature development claimed and this stance will significantly slow the process. Most of the nature development claim comes from the national Ecological Main Structure (EHS) policy that the Province has to implement. There are additional claims however following from the separate but related main provincial natural structure plans.

This is a good example of how in a number of these areas, the EHS is an overriding policy that is helping to steer the various projects in the Regge Vision. Below in Figure 33 we include a portion of a map that is being used by the Province of Overijssel to plan the overall implementation of the EHS in the Regge area. This brings to light a number of aspects of the various subprojects included in this case study. They are all to some extent involved in the achievement of various strategies included inside and outside the recognized project area. The Province has various types of plans in terms of different land parcels which depend on the various characteristics of the land. Ownership, geography, topography, resources available, proximity to connection areas,

etc. are all taken into consideration when planning the EHS in terms of land opportunities.

As in other places and projects along the Regge, attention in the Enter area is given to developing/preserving the cultural history: in the past there was commercial boating on the Regge with so-called zomps. To build on this cultural value a boathouse has been developed, where they can build new boats and also have a visitor center where tourists can take boat rides. The Waterboard provided some financial support for this project.

In 2000, somewhere in between Enter and Rijssen the first small scale renaturalization project was realized in this area (Exoo), however it did not change the structure of the Regge at all. Here the landowner had a teahouse and wanted to improve the natural quality of the area and he worked with the Waterboard to do so. New nature and water retention features were combined. The new water is still more or less uncoupled with the Regge which runs around it like a sort of bypass.

At the time when the talks started they were not completely done with the new Reggevisie white paper but they already knew what direction the new policy would take. The land owner's ideas were seen to fit well, thus creating an option for a "show case" project. The further integration with the Regge river will likely be part of the Landinrichting Enter project.

Figure 32: Enter "zomp" boat

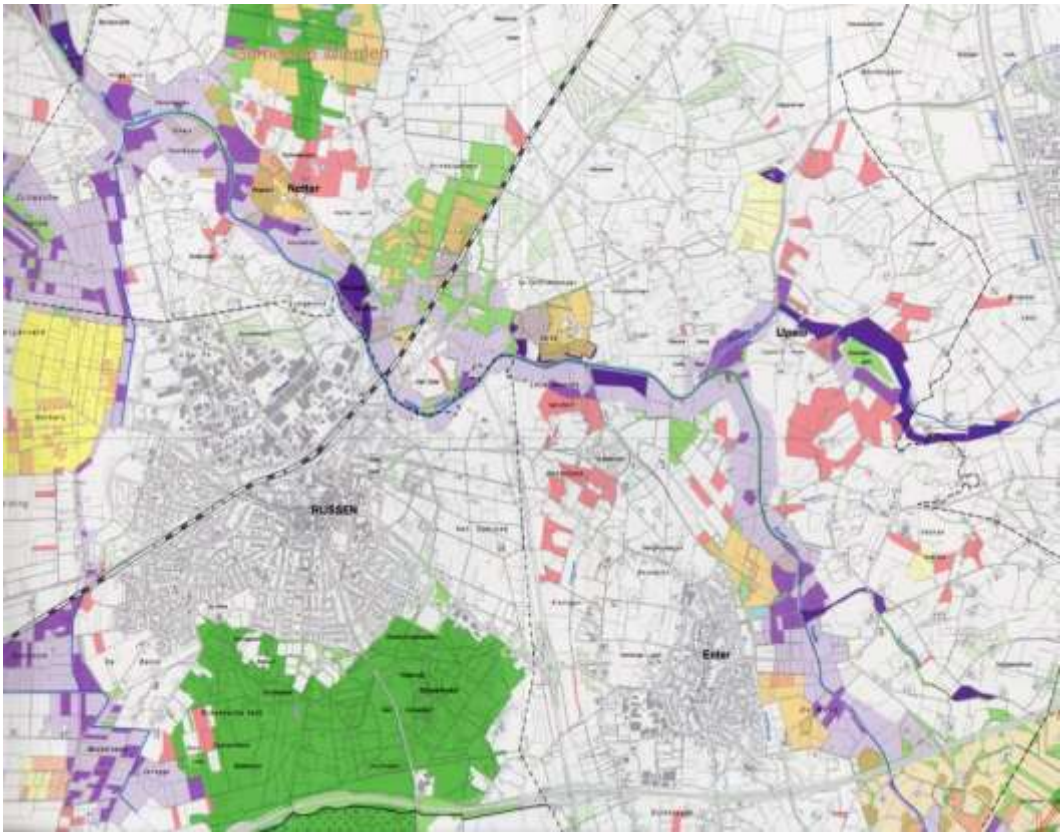

Figure 33: Planning Map for the Middle Regge area
(Source: Province of Overijssel)

The various purple areas in the map are the new nature areas that are desired by the Province for delivering the EHS. The different shades of purple denote the different phases they are in with respect to completing them and what will be necessary in terms of changes of functions. The pink areas are also interesting as they have been purchased with the intention to exchange them for lands that are really needed to develop the actual EHS. The solid pink areas are lands outside of the project area that are used as a flexible future resource for securing valuable private property rights in the previously mentioned land acquisitions games.

The Landinrichting Rijssen, which is taking place just above the town of Rijssen along the Regge in the above figure, has a separate commission apart from that of the Enter area and seem to have fewer problems. Consequently this project might develop more quickly. In both cases the Waterboard does not plan on acting separately from the land reconstruction projects but just working along with them.

The newly restored Elsenerbeek creek will feed into the Regge in this area. It has been planned in a nature friendly manner and realized in the context of

land reconstruction. In addition to these actions, a new bridge has been built. A major new river that will also feed into the Regge in this stretch is the Doorbraak (still under construction). The Wendel will be yet another small new river and all of these will serve to reconnect previously disconnected parts of the river basin.

Strategies observed here are again (1) the Waterboard joining a process rather than starting one on its own (arena choice). A lot of "exchange grounds" (2) are available in this area as the map shows (filled and striped pink areas on the map – a build-up of resources). The small and early Exoo project within this area is a good example of timing: (3) grabbing an opportunity as soon as it occurs and in such a way that it remains in accordance with the broader vision.

Veldkamp

Introduction

This area lies near the town of Nijverdal and here the Regge has been reconstructed over a length of 1200 meters, creating a wide river valley arrangement with a surface of about 15 hectares. The grounds that are being used are under the ownership of Landscape Overijssel, the Waterboard Regge and Dinkel and the Municipality of Hellendoorn. The Waterboard was already in the possession of 2 ha of land (the Regge and its shores) and then bought an additional 3.5 ha from a nearby farmer. Most of the rest of the land was already owned by Landschap Overijssel. An additional 1 ha was obtained for the project by exchanging a parcel for another outside of the area. The present Regge and the additional secondary parallel river course are both partly drained and partly used as secondary courses, which will function only at extreme peak flows. Next to them a new meandering Regge is dug and at extreme peak levels the whole area in fact serves as a water buffering zone. About one third of the area will be flooded yearly. In extreme circumstances as much as two-thirds of the area can be flooded.

The area used by the project was previously a rather extensive meadow area. The farmer was no longer very active and the grounds themselves were considered too wet and low for more intensive use. In the past they were regarded as relatively fertile because of the silt of the Regge, but due to the use of industrial fertilizer this is no longer the case. There are also some grounds that are now part of the new meandering river bed.

By arranging the project area in a natural way it is also possible to create part of the Ecological Main Structure. The whole project site is now maintained as one singular area, predominantly by grazing. The partners in this project have developed a joint management and maintenance plan, which serves as a reference document for the workers in the field without necessitating that the efforts have a formal status. In order to increase the landscape value ("belevingswaarde") of the Regge, a number of areas with a clear view of the water were re-established. Previously dense scrub on both sides blocked views of the river and so the water was made visible again through cutting and thinning of the brush. Some additional hiking and cycling paths were created in order to strengthen the recreational infrastructure of the area. There is a new 1700 meters foot and cycle path with a new cycle bridge around the area in the east and south which allows for additional visual enjoyment of the area.

Figure 34: Middle Regge renaturalization projects – lower part
(Source: WRD)

On the west shore people are permitted to engage in sports fishing. Some of the 50 neighbours have made a low earthen wall there where they can enter from their garden and as well it is also possible for the general public to enter on the north side. A sign is posted that warns visitors to: “Be careful, vulnerable area”. Fishing is the only activity that is permitted; all other activity including picnicking is forbidden.

The neighbourhood inhabitants were generally supportive once they understood why the project was important and how it would be beneficial. As our interviewee stated: “Of course, when you have 50 neighbours there are always some that don’t see the importance of the project and find it too much spending of tax money”. The project costs approximately 850-900 thousand Euro in total. Buying and exchanging 4.5 ha of land incurred about 200 thousand Euros (the rest of the area was already in ownership of the partners) and the balance of the money was spent on the works themselves and their preparations.

Process and results

This project, predominantly in the Municipality of Hellendoorn and partially in Wierden, has been fully realized. The Waterboard worked together with the Landscape Overijssel both in the preparation and implementation phases of this project. The Waterboard already owned the west portion of the project area (which they had bought previously in preparation for these types of purposes) and the Landscape Overijssel owned the eastern part. Additionally, a farmer in the area was interested in selling some of his land that Landscape Overijssel was then able to purchase for this project. The Regge lies directly in the middle of this area and as such they were able to completely alter it for the purpose of renaturalization and flood control. They made new high water ditches on the spot where the old Regge used to be. On the west side there were lots of houses and gardens very close to the Regge and so lots of correspondence was necessary in order to bring the people up to speed and to get their approval on the project.

There was some opposition in the beginning due to the uncertainty about what the project would entail. However the project leaders took the approach of having conversations with all the stakeholders, walk in meetings, home visits, etc. and by doing so they were eventually able to satisfy everyone. They developed a newsletter to keep people informed and also used a well-known water maintenance person to go house to house to inform people about the

project. It has been experienced that this form of communication works well – one person/household at a time, “living room visits”.

Figure 35: Young cattle on the Veldkamp banks of River Regge
(Source: Mrs. Niens)

The meetings were important to understand all of the different interests (different kinds of gardens, sheds, etc.) and to overcome them in a cooperative and voluntary manner. The Waterboard performed much of their communications through the Municipality because other issues that the Waterboard was not dealing with would tend to also come up in these communications. An important issue to the community turned out to be the presence of paths. The inhabitants wanted an existing path between their gardens and the Regge plain removed, partly for reasons of privacy, partly because dogs walking with their owners had led to a lot of barking between the dogs. A different proposed path near other houses was removed from the plans after a representative of those households explained that that path would most likely become a shortcut for youngsters from the bus stop to their residential districts after the bus has brought them back from a visit to a large disco in the other town of Rijssen. They feared that the dark path would

become a place that teenagers would use for a night hang out and did not want the burden of the noise and any other inappropriate behaviour likely to occur.

In the Veldkamp project there was generally not much conflict experienced between the parties. The main issue was the recreational use of the area. The history behind the situation was that there had been one year in which the reconstruction works were somewhat delayed, following the departure of the involved farmer and the removal of the fences. During the interim period the people had free access to the plains and the Regge shores and had been using the area for fishing, sunbathing and dog walking. Landscape Overijssel took the position that the ecological linkage zone retained for nature here was quite narrow and would not be able to bear recreational co-use of this sort. They thus erected barriers on the natural lands that were also partly intended to keep in the bovine animals that the nature organization uses as a natural and inexpensive way of maintaining the area. As a result, this prevented the inhabitants and other people from walking through the lands. The direct neighbours however still desired access to the area from their gardens (as they previously had), although the Municipality found that it would be inappropriate to give some people access while denying others. Landscape Overijssel believed that open access would be a problem due to the relatively urban location which would see a lot of cyclists and hikers and so more than acceptable numbers of people and pets would use the areas. On one occasion a member of the city council that was visiting the area saw a dog enter the area and proceed to chase and kill small hares. This clearly visualized the problem for the majority of people and after this explanation they were adequately convinced of the necessity of the closure.

When the area was frozen in the winter, Landscape Overijssel chose to open the gates and allow people in to skate. In winter, damage to nature is less likely and by supporting this popular national pass time they showed that they were willing to try and work with the interests of the public and that they took the wishes of the people to also enjoy the area seriously. New cycle paths were made around the area and also a wooden bridge that was left over from another project was re-used for that purpose, also enabling people to overlook the area. Access to the water has been re-created at a spot where a sports field was already coming close to the Regge on one side. A connection has also been made from the floodplain, away from the Regge into an adjacent residential district park, enabling bovines from the plain to sometimes wander and graze in view of a number of houses.

Figure 36: Winter joy at the normally closed river banks
(Source: Ben Ordelmans)

Another way in which the Municipality tried to create support was by reusing some old pipes that were once used to bring the river flow underneath roads. The removal would have been as expensive as this new use: creating a bat habitat. Old oak trees located nearby already formed a good part of such habitat and the moisture of the nearby river plain is also very good for bats. The pipes were used, covered with sand and a door was added as an artificial cave were the bats could retreat and sleep. Re-use, ecology and raising the support of the people were combined in this project and such creativity is seen as essential by the present officials. They hope to be able to pass this orientation towards creative project development onto their future successors.

Figure 37: The new bat habitat
(Source: Ben Ordelmans)

The Waterboard distributed a survey to the residents after the completion of the project in order to get information on how the people involved had experienced the way in which they were involved in the development and decision making. The picture was mixed though certainly daring to do such a survey in the first place is already relatively unusual.

Downstream from the project, the Regge flows through the town of Nijverdal. There is as yet no project there, but the Waterboard has already started what they call “relation management” with adjacent industries in order to get into a better starting position when ideas and opportunities do arise.

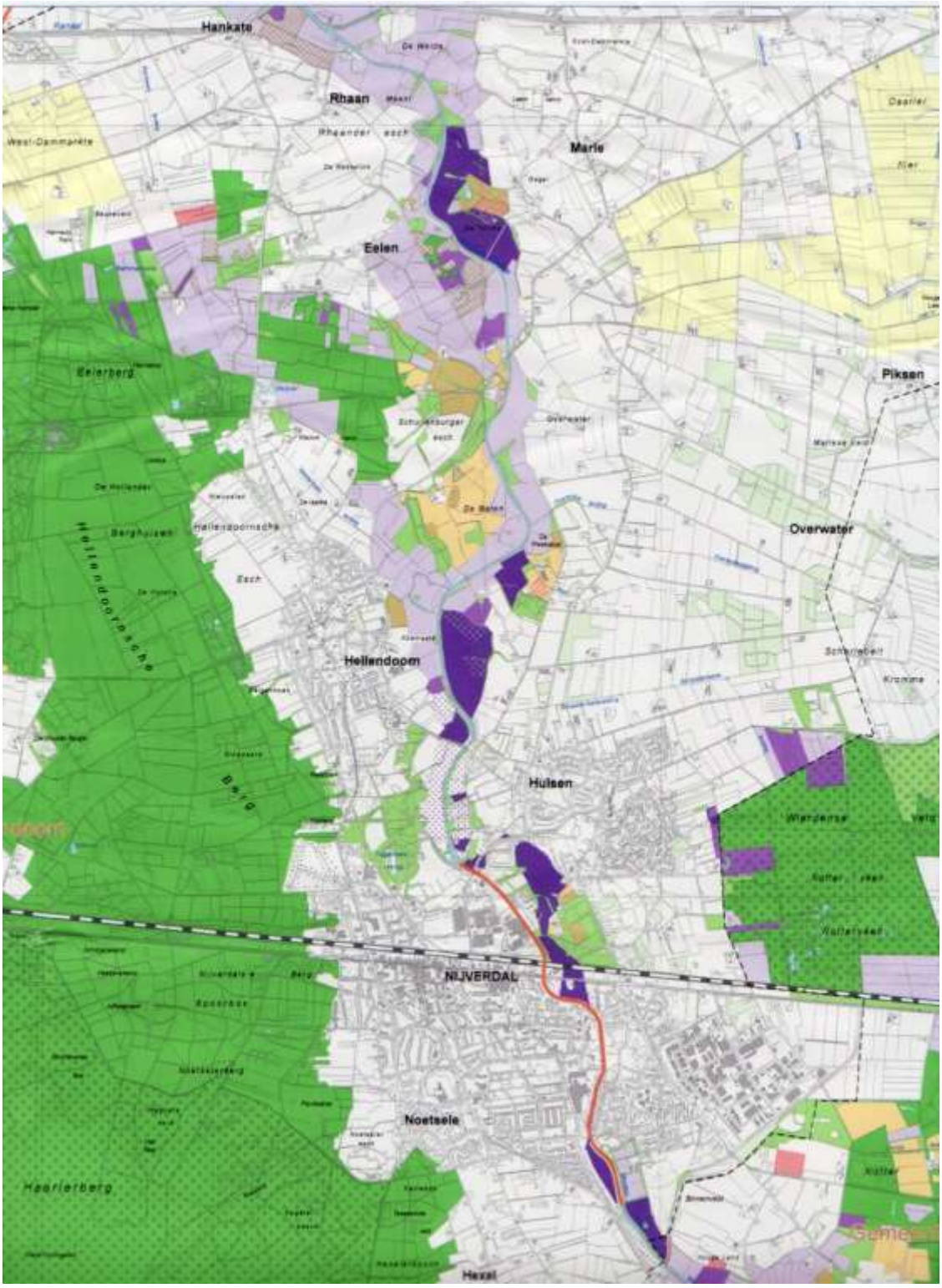

Figure 38: Province of Overijssel Planning Map for the Regge area from Veldkamp in the south to Hankate in the north (legend as with Figure 33)

Concluding observations

In this case many of the *results* realized are similar to that of the Diepenheim cases and are in fact quite typical for all of the river renaturalization projects examined here. In this case numerous and diverse added values to nature and landscape, recreation, water storage capacity, and infrastructure were realized as well. The Veldkamp case can be seen to consist of the following changes in land use: the creation of 14 hectares of wide river valley; 1200 m of river reconstruction also enabling it to be part of the EHS (Ecological Main Structure); increased drainage/peak water storage and buffering; extensive grazing (for maintenance); increased landscape value due to increased river visibility and open grazing areas; increased hiking and cycling with path alterations and a new bridge to meet social needs, including a new connection to a sports facility; new high water ditches; a bat habitat created from old obsolete pipes (under roads) which is also used as a tourism/recreation attraction. The shores were temporarily used for fishing, sunbathing and walking dogs (previously they were inaccessible while under the ownership of a private farmer), however they were later restricted again to only grazing animals. Skating in the area was permitted in the winter when it was considered to result in lower damage levels to natural values.

An important new *rivalry* occurred following the temporary access to the area by the neighbours who then felt that their use rights had been taken away by the re-fencing of the area to protect its function as a nature linkage zone. This was reflected in the *motivations, cognitions and resources* of the actors involved which were generally well-aligned, except on this point. While the Waterboard was successful to some degree in being able to weaken the negative motivation (mainly through the cognitions of the neighbours) they themselves were trying to use the media and local politics to enhance their resources in this use-right conflict. The nature organization's ownership rights over the area proved however to be sufficiently strong as a resource and with some compromises the fences remained. The *strategies* used proactively to create the generally productive setting were (1) again buying lands for exchange purposes, and (2) involving an ally, the Landscape Overijssel, from the beginning (actor constellation). In response to the process, with (3) various forms of personal communication with neighbours (walk in meetings, home visits, newsletter, and familiar person around), people's uncertainties and negative motivations were minimized and the project managers could learn from their preferences and cognitions. A survey was held for similar reasons: to learn, but also as a sign that the inhabitants were being taken seriously. Also various forms of (4) creating goodwill (various adaptations to the plan, skating in winter, bat home) were used to achieve the best possible

contact with the inhabitants. A proactive strategy for the future is (5) investing time and effort into relationship building with the industries downstream that should be involved in next steps. No specific *inflexibilities* have yet been encountered in this process.

Figure 39: Veldkamp work in progress
(Source: Photo Holland)

Groene Mal (Green Mould)

Introduction

This Regge project is a part of an ecological pathway that runs close to and partly within the built-up area of the town of Nijverdal. Providing more space for the river's natural path is part of the planned nature development for this area which will be implemented in different phases. A few years ago the first phase began when an athletics court was being fit into the landscape. This development served as a showcase of what the reconstruction project as a whole was going to look like (see photographic rendering below). Alongside the present main water course of the Regge a naturally landscaped side course is to be constructed. This would serve not only normal daily water drainage needs, but also increased buffering capacity at peak water flows. The landscaping of the project is designed to decrease the visual intrusion of two

major roads. In this project the Waterboard cooperated with the nature NGO Landscape Overijssel, the Province of Overijssel, the environmental NGO Natuur en Milieu (Nature and Environment) Overijssel, the State Public Works Agency and the Municipality of Hellendoorn.

Process and results

This project has three different sections all located within the Municipality of Hellendoorn. The middle portion of the project is still in progress while the two areas located before and after it have been completed. The Waterboard is working together with the Municipality to discuss matters on a higher strategic level over an area located in the middle of this project. Here, a number of developments can be seen to have come together into one project. Additional issues that must be overcome in the area however are the presence of a sewage treatment plant belonging to the Waterboard and a tunnel plan (deepening of the train track) coming from Nijverdal.

Ultimately the Regge will go underneath this deepened train track. Due to the large scale nature of the development, it was seen as necessary that the Municipality take the lead. As a result, there was a lot of space created for different initiatives in cooperation with the Waterboard.

Figure 40: Overview sketch of the Groene Mal area (Source: Eelerwoude)

To enable this level of cooperation there has been a lot of boundary spanning done at both the administrative board and civil servant official level. While the initial ideas regarding renaturalization activities in the area were originally from the Waterboard, out of the Reggevisie, the concrete plans originated from the Municipality. They had urgent plans such as the tunnel plan, and other developing interests underway and the Waterboard decided it was best to link in with these plans in order to realize its own purposes.

Despite the very cooperative atmosphere of "doing it together" across the project members which existed right from the start a lot of time was still necessary to develop the project. The discussions began initially at the civil servant level to exchange ideas, express desires and then to figure out how they could work with each other to combine all the various goals over so-called "charcoal sketches", allowing for and supporting free style thinking.

For this congenial way of working to be successful it is essential to effectively decide who to include and who not to include in the exchange. There is a natural limit to what extent other actors' interests be drawn into the project plans. Where and how the boundaries are drawn on who the members of the project teams will be further from the Waterboard and the Municipality is an important question. Even when the general interest is to include as many aspects as possible and that one should not exclude stakeholders with essential resources it is often impossible or unproductive to include everyone that has a stake at the stage of project development. In practice, this is done initially on the basis of land ownership and who is going to pay for the resulting developments. It is also important to include whoever is going to manage the area after the project is realized; in this case this was the Landscape Overijssel.

When the funders come together with their initial idea they can then decide to take their idea to higher levels (the Province for instance) for additional funding as well as to see what other parties should be involved (in this case Rijkswaterstaat – state public works agency - and ProRail – state company for railway exploitation – needed to be involved because of the train tunnel project). There are no initial project plans available in these cases which clearly define who should be in or out, however this kind of "snowballing" can be regarded in general as the model for the growth of the project team. In this project there has not been any instance in which there were concerns that the progress would be blocked by objections from any side. Generally, after reaching an agreement on all contents matters, the division of costs is always the trickiest point of debate.

Now, returning to the beginning of the project it is important to know that it was initiated based on the developments of a twenty year long discussion about what to do with the east-west state highway that runs right through the town centre; considered to be an undesirable situation. The highway was in fact connected to the development of the city; since it was there that it crossed the Regge, and attracted industry, textile being the most notable. Long discussions resulted in discarding options in which the bypass road trajectories would disrupt the Salland Hill range forest, and a deepened and tunnelled road at the same place as the present road was decided as a "liveability" variant. The resulting implication was that the present main north-south connection would need to be redesigned, since it connects to the tunnelled portion. The only option was to move it westwards, however this would require it to cut through part of a district, valuable agricultural lands, two estates with cultural historical and aesthetic value as well as come extremely close to the pending robust ecological linkage zone and the Regge River. In fact, when the hard "red line", containing urbanization including infrastructure developments in the land use plans of the several layers of government would be adhered to, not a single solution would be possible. They referred to this situation as being trapped in a "Red Mould".

At this point in the process two Deputies of the Province and the Mayor, two Aldermen and an involved civil servant from the Municipality held a special meeting and decided that rather than a solution that would maximize some interests (nature, water liveability of inhabitants, mobility etceteras) at the expense of the others, they would choose a solution that would "satisfy" all interests. This implied that they would need to encroach over the "red line" and somewhat intrude upon the nature and water interests that it protected. A problem that naturally needed to be addressed was: how to avoid that this would become a precedent for many other cases? This was assumed to be best dealt with by ensuring all interests were better off and that this be a requirement for any future "intrusions" against the development boundaries. In this instance they decided to include the road trajectory within an area plan that would indeed encompass all the issues concerning that area in an integrated way. They borrowed the idea of a "Green Mould" from the Overijssel section of the environmental NGO "Nature and Environment. As the red lines create a "red mould" to contain urbanization, the "green mould" would cradle integrated developments which give high priority to nature and landscape qualities. The process style in this vision would not be defensive in nature, through the protection of separate interests, but instead would focus on optimization and creativity, using a "give and take" mentality. An "Administrative Accord" (a voluntary agreement between governments)

including the Waterboard, the Municipality, the Province and also the NGOs Landscape Overijssel and Nature and Environment Overijssel then became the solid basis for the project moving forward.

In terms of the "give and take" and pragmatic mentality, it was recognised that within the town, some of the more natural places had a high probability of suffering from gradual urbanization[5] like horse riding meadows, road linkages and similar urban uses, were instead safeguarded and improved to be parts of the natural area with this new plan. The enlargement of the neighbouring district which occurred at the expense of the nice outskirt area was able to provide an additional fine walking area to replace the one that was removed.

A new river known as the Doorbraak (Breakthrough) will contribute considerably to the water flow of the Regge in the near future by (re)connecting a large creek area to the river. This situation had decoupled nearly half of the Regge basin. The river as it had been ran through a very built up area and was highly contained with walls making it very narrow. Buildings line the edges at many places, including a factory which is seeking expansion. Furthermore, pressures from recreation are strong as would be expected with a river running through the built-up area. Given this starting situation, there was very little chance to be able to make this portion a part of the ecological linkages structure. The clever solution was to dig an additional water course for the Regge somewhat further into the rural area. The new river bed will become the main one in terms of water flow and will have natural areas around its banks to produce the appropriate environment for the linkage zone and sufficient water storage capacity to prevent floods in the built-up area.

The old Regge bed will remain and will get an increasingly urban leisure functionality. The greater depth of the river is important for the "Zomps", the cultural-historical river boats from the town of Enter in the south in order to be able to reach Nijverdal. As part of the resulting developments, a recreation centre has been developed at the shores that organizes canoeing as well as many other recreational activities. The local authority regards the recreational co-use of the developments as crucial for the support of the people and the Waterboard also sees it as an opportunity to ascertain the necessary "basis" in society. The new Regge bed also creates the need for a new bridge for the state highway to prevent the "natural" river from being interrupted. As part of the multi governmental endeavour, the State Public Works Agency promised to build two bridges instead of just one, one for each river course, if they would be able to get clarity about the plans in time; which they got. Of course they

[5] This is often referred to as "cluttering of the landscape" to indicate the growing fragmentation and ugliness of the landscape.

needed the cooperation of the municipal government in the adaptation of the land use plan for the new road. It was felt that at least partially due to the process, that there was no "quid pro quo" atmosphere experienced, but a genuine feeling of cooperation to optimize the project for all of the parties involved.

Concluding observations

The *results* of the Groene Mal project are not certain as the project itself is still under development. Nevertheless they can be characterized as being quite varied in nature. They include: linking nature areas, additional water drainage by the addition of an extra double river course for some stretch of the river and also additional water buffering, allowing urbanization and new road and train infrastructure without compromising nature and landscape on the whole, and a new bridge. Recreational facilities are created for sports and hiking and by allowing zomp boats to sail the old Regge water course, as well as canoeing and other water recreation. So, at the expense of some financial resources and agricultural land, room has been created for water, nature, recreation and last but not least housing and infrastructure.

To date, the various *actor characteristics* in this process match remarkably well. This is partly a consequence of very careful *strategies* regarding the actor constellation and institutional arena's used. The process involved working from a small circle of project group members that have already learned to know and trust each other in previous projects. Working together from the beginning and paying attention to the inclusion of internal and external interests reinforced the availability of trust and enabled more creative solutions.

Some further strategies included linking the water, nature and recreation in combination with the urgency to create new infrastructure for trains and cars. This further multifunctionality of the project increased complexity but at the same time it was clear that this complexity was unavoidable due to the nature of the interests and starting condition. The special high-level consultation round resulting in a multi-governmental "administrative" agreement was also a strategy of arena and actor constellation management that was adaptive to this situation. This again required the use of internal strategies and receptivity to be possible, since not only the civil servants, but also administrators needed to go beyond their own domains and be able to commit to a joint solution rather than sticking to a position that was based on optimizing their own institution's goals. The main regime *inflexibility* that had to be overcome by this agreement came from the land use planning scheme which had hard "red lines" confining development within a "red mould". They were designed to

protect rural landscape, however in this case they were creating the impossibility to protect the Regge valley. They were replaced by a "green mould" that supported a solution for nature and landscape that would be at the very least, equally beneficial. Thus, the conclusion for this case is that the main inflexibility of the regime was indeed proven to be surmountable by clever concerted action of the involved actors.

Kalvenhaar and Visschebelt-Koemaste

Introduction

The Kalvenhaar project was realized during the years 2005 and 2006. In this particular area the primary goal was to decrease the likelihood of future flooding. Space for nature development was planned within this area which also provided an option to create water retention capacity and restoration of the natural characteristics of the river. Two old river arms were restored and put back into use, recreating a natural meander in this part of the Regge. Landscape Overijssel is the body generally responsible for the nature development in the area. This project is located on the east side of the river while on directly on the other side of the Regge they are currently in the planning process for the area of Visschebelt-Koemaste project.

Figure 41: Arial view of part of the Kalvenhaar area with the old meanders (Source: Photo Holland)

Process and results

Kalvenhaar is a fully completed project near the village of Hellendoorn. The project began when the Waterboard was looking for space for water to fulfill its goals regarding water retention capacity and became aware that the Municipality was dealing with a problem with a farm that lay right in the middle of the village of Hulsen. In a cooperative effort between the Waterboard, the Province and Municipality they were able to buy the land of this farmer as well as the lands of a farmer who wanted to go to Portugal. Since the first farmer wanted to continue farming, they were able to move him to the second area. This area was made more suitable for both nature and farming once they turned the lower ground into a nature area in combination with water storage and the upper ground into the farm, inclusive of farmhouse for the Hulsen farmer. The Waterboard has now successfully realized this project and the nature area is now under the management of Landscape Overijssel.

Opposite to this area, on the east side of Hellendoorn they are developing a new plan, Visschebelt-Koemaste. As an adaptation to new subsidy requirements asking for unambiguous project purposes the Waterboard and the Municipality found an opportunity to combine two projects in a way that enables them to be eligible for these funds. The Waterboard is mainly active in the south of the area (Visschebelt) restoring Regge meanders and the Municipality is working in the north of the area (Koemaste). Each have their own name for their portions of the project, but both see them as complimentary and in fact one. In this area plans for the north-south by-pass road have created dynamics which are seen as an occasion and thus opportunity to do something in terms of renaturalization of the area as well. The work that took place on the other river bank in the Kalvenhaar project enabled the Waterboard to become informed of the plans for this area and thus enabled the creation of this project. The Municipality has devoted 1.5 million Euros for working the new road into the landscape and the Province is also willing to devote a similar amount of money from the so-called Essent money (obtained by selling its share in a large energy company). The hope is that by using this 3 million to begin these kinds of works now they can show that the new road will be built attractively into the landscape and reduce the chance for legal appeal against the plans. This could speed up the process of road construction to be completed within two years.

Very near to this area is a Unilever / Ben and Jerry's plant (see Figure 41). There is a specific interest by this plant to build the tenets of sustainability and environmental stewardship into their processes as the Ben and Jerry's label strongly markets its environmental stewardship. For instance: the milk used comes from the various farmers in the direct surroundings. They already had a visitor's center but they would like to make it much bigger and to have it overlooking the river plain. They would also like to turn the current facility into something that more resembles an old factory. This projected centre lies directly on the shores of the Regge and so the Waterboard, the Landscape Overijssel and Ben and Jerry's have had preliminary discussions about the plans and funding and have decided to progress further together.

A new north-south road as discussed earlier also plays a role in this project. While the Municipality was able to achieve agreements with the farmers involved regarding the plans, some house owners objected to the new road coming too closely to their houses. They stated a preference for having it planned further away, in fact right through or closer to the Regge valley. This was however unacceptable for the Municipality, the Waterboard and also the Province given that they see this area as part of a planned ecological linkage zone. A variant of this plan including the Ben and Jerry's factory at the urban side of the new road would still intrude too much on this area, and in addition would make it impossible for the factory to have a visitor's centre overlooking the river plain and the grazing cows that they actually get their milk from. The Municipality has developed a plan that would turn the present street into a parallel road and the new main road would be set behind some natural brush, a solution that was able to satisfy the households that are adjacent to the present north-south road. The only place where it is not possible to accomplish this is right in front of the Ben and Jerry factory, for which money has been made available to erect a noise screen that would also remove the view of the factory and its traffic. In this process, the households are to certain extent allowed to "shop" for what they would like in order to improve their situation with the money made available. The company itself also wants to contribute to the improvement of the situation by relocating its truck entrance to the side where it can be connected to a roundabout to decrease the already present nuisance for the adjacent houses. The Municipality is also collaborating with the factory and supporting its idea to make the plant a sustainability showcase because they believe that it could be decisive for the future of the ice-cream production in the Municipality by this multinational and thus for a lot of direct and indirect jobs.

Figure 42: Fish passage in Kalverhaar
(Source: Hans Bressers)

Even though municipal elections were very near and thus political sensitivity was higher than usual, the project team held a "walk in meeting" in March 2010. The reason being that they felt it was very important to do this before the plans became too elaborated and because it was not an option to delay the preparation since both of the main subsidies (EU WAVE project of the Waterboard and provincial "Essent money" (financial reserves from selling energy company shares) required that the works started before the end of 2010. They tried to use their knowledge of the area and the people to maximize the likelihood of making the people feel a sense of co-ownership over the project. For instance they knew that the neighbouring village of Hellendoorn has many associations which are interested in the rich cultural history of the area and so they deliberately invited them to give their input. The organizers of the village's Easter Fire (a very old tradition in Overijssel) were invited because there is a debate happening surrounding the smoke blanket caused by the large fire that is carried over the village by western winds and the project area offers possibilities to improve this situation. Ben & Jerry's was also invited and considered it to be a good opportunity to explain their vision and position to a wider audience than just the neighbours and officials that were directly involved. All of the issues that were brought up were noted and attempts will be made to resolve or explain them. In this way

the project team hopes that appeals by the community that could block the progress of the project can be avoided. In actuality, there were no appeals in any the Regge restoration projects in the Municipality of Hellendoorn, which is quite extraordinary for such projects in the Netherlands.

Concluding observations

Infrastructure, recreation and eco-education benefits are present in this project in addition to the usual *results* in terms of water buffering, nature development and landscape. The nice manner in which the new infrastructure, a north-south connection road, is worked into the landscape, will hopefully help speed up the realization of the road by reducing any negative feelings towards the project by the community. The area is a relatively appropriate one for holding the regional and traditional Eastern fires and so supporting this through reducing the negative impacts is another example of a side benefit which has been provided by the process taken. The creation of a visitors centre for the large ice-cream factory in the project area also serves to underline its own green image. In turn, the municipality hopes that this will reinforce the attractiveness for further investment in the plant by the head company. This would thus also improve the strength of the economic basis of the town.

The *actor characteristics* were in this case again mostly well matched. A difficulty did arise when trying to fit the new road into an area that was rather close to existing houses. A lot of time and effort (and resources made available for small adaptations) was invested to soften the negative motivations of these neighbours and to create a more cognitive understanding of the importance of linking nature in the area. A council initiated study was done to reassess this importance amidst other interests. Though at the time of the interviews the procedure was not complete, it looked like this would succeed in causing the neighbours motivations to become neutral enough to prevent them from using their main power resource against the project: appealing to the courts. Other *strategies* used were the inclusion of the plant management in the project and even in the information meetings on the project (actor constellation). This information meeting was not postponed even though it was election time because of the pressure of subsidy deadlines and because they felt it was important in terms of getting information for the initiators themselves. Local knowledge is very important to be able to see new opportunities, for instance inviting the organization of the Easter fires to use the area, and creating further goodwill. Local knowledge about the wishes of land owners and other people had also already been gathered while working on the Kalvenhaar project on the other side of the Regge. A specific regime *inflexibility* issue – apart from subsidy term deadlines – was the split in different subsidy streams

which urged them to specify a single goal for each of the separate projects. In order to work within this, they chose to divide the project into two parts (officially). To prevent the two parts from becoming incompatible with one another all of the established intensive communication and trust (receptivity of the project team) that had developed in the (still joint) project team was necessary to foster and maintain. The risk is that when such a setting governs new situations it will create very suboptimal solutions and possibly even conflict.

Intermediate area: Area development of Eelen en Rhaan, including the realized project of Tatums

Downstream from Kalvenhaar an "area development" will take place via the Eelen and Rhaan project. Such a project is in fact quite similar to a land reconstruction project, with the important difference being that it is deliberately chosen to be a project where informal and only voluntary measures are possible. The restrictions and possible distrust that an official land reconstruction project can evoke are avoided by proceeding this way.

A "gebiedsuitwerking" project (area development, or: land use 'elaboration') is more or less similar to a formal land reconstruction procedure, except that it has no formal status. On a voluntary basis the various needs are taken into account to develop the project. The disadvantage is that formal rights such as expropriation or requiring that a proportion of all land changes must leave on balance more room for nature are not available. The advantage is that the process invokes less fear by the participants, thus making a constructive attitude somewhat more likely. The Waterboard is at this early stage just in the process of gathering resources for future use, by acquiring land or land use promises along the Regge.

The Tatums project is also situated along this stretch of the Regge although it is not listed on the Waterboard website as one of the official Regge Natural projects. An old meander of the river is renaturalized in this project, but not reconnected to the main stream, which remains unaltered.

Tatums

Tatums is located in the Municipality of Hellendoorn and it is another project which has already been fully realized. In the area belonging to the Tatums

project the old Regge has been more or less restored – meanders have been re-established and connected to the main Regge. The old Regge bed will be partly maintained to contribute to the buffering capacity. However, the meanders will not enter into full use as part of the stream until the project ideas on the other side of the "gebiedsuitwerking" are also in sight. Landscape Overijssel was already the owner of the majority of property in the Tatums area and the rest was purchased as part the project development. An interesting aspect of this area is that there was a heavily protected plant growing on Waterboard sand storage dunes which they together tried to avoid encouraging to grow since that would have increased the regulations covering the area (due to the EU habitat directive). It was believed that this would have really prevented them from moving forward in work that they wanted to do.

To better visualise the extreme changes that have taken place in this water system, we include here a before and after type of illustration. Here you can see how seriously the Regge has been disrupted in this small project area since the year 1900. The blue lines are the present water courses.

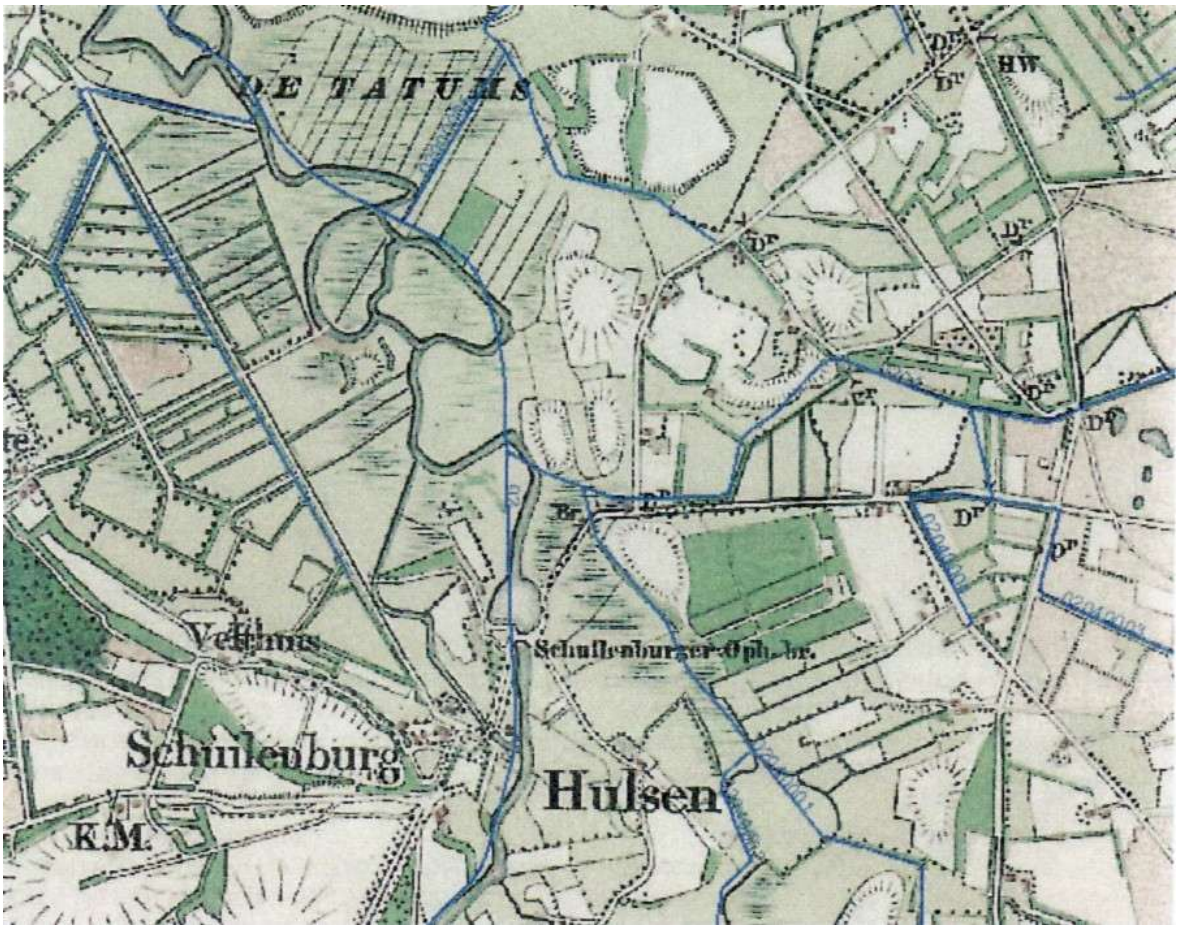

Figure 43: Changes seen in the Tatums area as compared to 1900. Present water courses are in blue.

Tatums did not begin as a real Regge restoration project. At the start, in line with the older perspectives on water management, the goals were seen as improving water quality by the sanitation of polluted river bed soils and by doing so also increasing the river capacity by making it deeper. Nevertheless, it developed into a Regge restoration project and was able to teach the project members a number of lessons that would be used later on. The first problem encountered was that there was a sand depot needed to temporarily store the sludge from the river bed. This was difficult to manage however they were able to work out a deal with an adjacent farmer who was unsatisfied with his lands and wanted to move to another Province to have more space to expand. The Waterboard was willing to contribute a fair renting price for the use of the grounds to store their sludge, however with that money and money from a nature development fund, the complete farm could be bought and the grounds used for a few years as storage.

Some of the ground could be then be used as part of an exchange for land near the Regge that could be used directly for the project. In addition to this, the state agency that buys lands on behalf of Dutch governments (DLG), held not only lands for exchange but also a farmhouse and sheds. These were considered (too) expensive to hold onto and thus they wanted to re-sell them as soon as possible. It was discovered that a local inhabitant wanted to start a goat farm and was interested in these lands and buildings since the stable was far better for that purpose than his own was. This man's old farm house near the Regge was then taken by someone for whom it was a better place to keep young cattle. Further, that farmer's old place was then taken by someone who trades and renovates motors from all over the world. These dynamics all started with the first buy out and led to people being relocated to areas where their surroundings were more appropriate for their individual interests and activities. The only thing that the project manager had to do was to keep closely in touch with what people in the area had as interests. Such interests are not seen as potential obstacles to be dealt with in a defensive manner, but as potential opportunities. That was a lesson well taken.

Figure 44: Recreational facilities in Tatums area
(Source: Ben Ordelmans)

The Municipality and Landscape Overijssel cooperated to add a bicycle path with a bridge over the Regge in the area. The path attracted many more recreational visitors, and the bridge also allowed a more convenient connection of two small villages across the Regge, contributing to the "basis" of good will among the nearby inhabitants, which then viewed the project with more interest and mildness. The increased numbers of visitors made one of the nearby farmers decide to start a tea-house with a tin museum which now provides the major source of income, and attracts coach buses full of senior citizens. The project team involves the tea house in occasional presentations of the project and even stimulates cooperation between the new activities, e.g. having visitors of the tea-house visiting the goat farm as well. The farmer with young cattle now has them grazing in the Regge plain meadows in accordance with Landscape Overijssel's guidelines. When the pastures became too large for his cattle as the project proceeded, he arranged for a colleague to fill the capacity. This chain reaction did not only enable the Waterboard and Landscape Overijssel to get all the grounds they needed, but also diversified the rural economy with recreation facilities, special farming with goats, having cattle grazing as maintenance for the nature instead of maximizing production, and offering space for a small workplace.

The area development of Eelen and Rhaan is a typical example where the chosen *strategy* is to select a voluntary institutional arena for the project. Tatums is a nice example of how knowledge of local circumstances and wishes of the various land owners and inhabitants involved can lead to a complex but rewarding win-win solution. The project actively supported the potential of using opportunities as they emerge. The enlargement of the issues included in the project goals was also encouraged as long as the voluntary outcomes of all of the land and other exchanges also included satisfying the actor's own interests. The process of satisfying other interests thus not only creates trust, but also creates chances to meet their own goals. The strategy of investing efforts into gathering such knowledge has been quite productive, though it should not be forgotten that part of that knowledge came during and in response to the ongoing consultations in the area. An i*nflexibility* that was encountered in Tatums project was the absolute protection of a rare species under the Habitat directive. Had such a species been discovered it could have stopped the whole nature development project even though it would ultimately create far better chances for biodiversity.

Chapter 7. Lower Regge Project Implementation

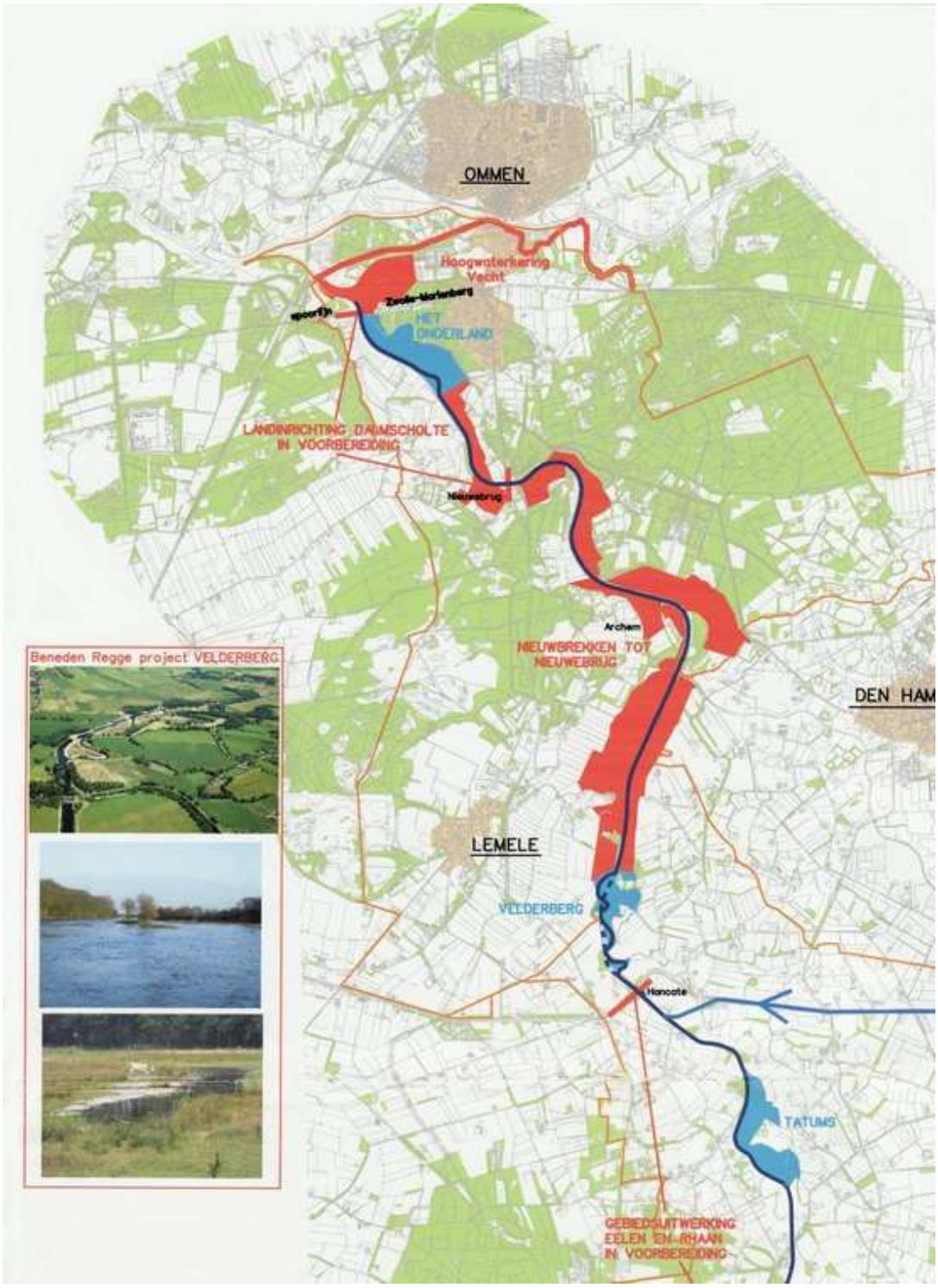

Figure 45: Lower Regge renaturalization projects
(Source: WRD)

Introduction

In this chapter we address the last portion of the Regge river. It can be seen quite clearly on Figure 46 below how the previous canalization was performed. The river now flows in large streamlined curves. While not clearly visible in the map or picture below, the municipal boundaries between Hellendoorn, Ommen and Twenterand actually twist around the river, revealing the old natural course of the river. Near Ommen the river flows as a tributary into the Vecht River.

Figure 46: Aerial picture of Velderberg area
(Source: Photo Holland)

Velderberg

Introduction

For the first time in 100 years, the water of the Regge flows through an old passage near Velderberg (literally: 'Velder mountain') close to the village of Hancate. In the beginning of 2006 the first part of the canalized Regge was dammed and the old meander was reconnected to the Regge. The dammed and canalized part was then slowly drained and transformed into a natural plain with ponds, which may regularly flood in the future. As an additional recreational feature a new walking bridge was added to the area.

Jan van Klompenburg, the project leader on behalf of the Waterboard, said that: "By restoring the old meanders in the Regge, space for water buffering, river dynamics and nature development is created. The adjacent nature area is allowed to flood which decreases the likelihood of water problems in built-up areas in the future." (source: Website Regge and Dinkel)

In the subsequent phases of the project a number of other meanders in the areas that are owned by the nature management organizations Nature Monuments and Landscape Overijssel were excavated and re-connected to the Regge. Hardened shorelines were also removed and relocated and new hiking and cycle paths were created. The project is co-sponsored by the EOGFL guarantee fund which is the EU agricultural subsidies fund which was in operation until 2007.

Figure 47: Velderberg in wintertime
(Source: Menno Huge)

Process and results

Velderberg served as a Regge renaturalization pilot project for the Waterboard. The area involved is mostly within the Municipality of Hellendoorn, but also enters Ommen due to the straightening of the river across the municipal boundary which still "meanders" as the Regge once did. The Municipality of Ommen's interest in this project was mainly restricted to the implementation of a cycling path, something which they were able to accomplish. The costs of this project to the Waterboard exceeded what was strictly necessary, however they considered it to be a good investment in developing public trust as well as an opportunity to learn how to approach these types of projects in the future. Various land reallocation ("ruilverkaveling") projects had been implemented around the nearby villages of Den Ham and Lemele and as a result a lot of ground had become new nature. Although these areas were still outside the direct Regge area, the nature organization that owned these lands (mostly Nature Monuments, and secondly by Landscape Overijssel) feared that the nutritious Regge waters would reach the area and disturb the improvement of the nature that was being supported there. Despite these concerns, the parties agreed to go

forward and the concerns proved to be ungrounded in that the nature area did not suffer from water quality issues and was able to become a part of the water system.

In terms of process, the Waterboard began by deciding that it wanted to communicate with the people at Nature Monuments that thought in terms of natural systems and their dynamics, as opposed to the people who they considered to be more concerned about for instance the isolated protection of a specific plant. Together they were able to develop a pilot that should prevent the disturbance of any nutritious mud accumulation and that developed into a trusting relationship.

Responses by the nature organizations of the resulting situation have been very positive. Mud did end up accumulating a bit at some places, but as there was a notable change towards systems thinking, people were more willing to overlook small reductions or changes in light of the benefits of the overall nature development.

The Waterboard was able to improve their rain models as a result of participation in this project. Their calculations about how the water system would respond after the intervention ended up being very different than what was experienced. The predictions for January 2007 showed water levels that were too high, and so this was something that they then had to fix. Upon restudy, they realised that the flood prevention capacity of a low dam in the system had been calculated much too optimistically. As a result, they chose to leave an old part of the Regge intact to be used as a sort of high water overflow option. This resulted in the necessary addition of a number of operations and tasks to the project.. The model calculation mistake did not affect the relationship between the actors, since the problem was regarded as an internal Waterboard issue which only affected their flood control goals and was able to be solved internally. Additionally, the Municipality of Hellendoorn was able to realize a desired bicycle path.

Figure 48: Velderberg in autumn
(Source: Remco Wolters)

The Velderberg pilot also taught the Waterboard a lesson in project management which they were able to use to their benefit in developing later projects. Before it was specified as a procedural requirement, the project group held "walk in meetings" during the afternoon and evening (e.g. 4-9 PM) where at any time at least two organizations were represented. This ensured that all of the neighbours in the surrounding area could receive specific attention to their questions and interests. This proved to be a much better way of contacting people than the standard evening presentation of the plans in a room filled with all of the interested parties together in which typically one or two highly critical and often distrustful people set the collective tone. In this setting, all of the questions and doubts from all of the people could be noted separately. Following this, they held "kitchen table conversations" at the houses of all the people that had serious issues to discuss what would and what not be possible by the project team in order to address their concerns. Specific issues such as concerns over how the water level on their grounds would change and whether they would need new access routes to get to their lands, etc. could be better addressed under this format.

Concluding observations

In addition to the water and nature *results* that have already been shown to be common to these restoration projects, this project generated various recreation facilities including a new walking bridge and new hiking and cycling paths. Important managerial lessons were learned by this early project that supported future development processes.

The careful selection of a communication point within another organization (1) was an important strategy used (actor constellation) as was the decision to employ openness (receptivity) when including other goals like nature and recreation (2). As this was one of the early projects, it was not yet obvious that this would be a successful strategy. Interesting special "results", were that they were able to learn how to improve the accuracy of the rain and water flow models, as well as that mud accumulation would in the end not harm the water quality in detached meanders that were part of the existing nature area. In fact in terms of strategies used, this experiment lead to cognitive changes and was important since the initial motivation of the nature organization was doubtful since their cognitions presented the project as a risk (*actor characteristics*). The pilot also lead to the build-up of mutual trust, which is an important resource since it interacts strongly with the cognitions and motivations involved. As everything was kept voluntary in this project and the Waterboard was able to cover most of the project costs, no specific regime *inflexibilities* were encountered in this project.

Intermediate area: Nieuwbrekken to Nieuwebrug

In between Velderberg and the next Regge project an important extension of the ecological main structure has to be realized. This area is partly included in the context of a land reconstruction project (Damscholte) and also lies partly outside of it (Nieuwbrekken to Nieuwebrug). The relevant stretches of the Regge are all within the Municipality of Ommen. While the general direction of renaturalization is clear and the Waterboard has already identified certain spots (though without clear demarcation) where they most likely will want to intervene, the more concrete project ideas are still quite premature in this. The area is thus currently one of preliminary research and decisions regarding how to invest in the necessary future resources. The general strategy is to buy a lot of ground where they can and stay open for opportunities for land exchange. More or less this is a form of blind investing, but with a reasonable

certainty that sooner or of later this will pay off as ultimately they want to have the right land at the right place when they are ready to proceed.

Figure 49: Nieuwbrekken area before renaturalization
(Source: Photo Holland)

The DLG (Dienst Landelijk Gebied – an agency of the ministry of Agriculture) plays a partnership role with the Waterboard in acquiring the necessary lands. In fact they are the agency that officially concludes the purchases and agreements on behalf of the Waterboard. The Waterboard chooses to be so active in this sort of "Monopoly game" because the priorities of the Province are changing and they can no longer buy land outside of where this will be directly used for the extension of the EHS (ecological main structure). The Waterboard considers the purchasing of land for agriculture that could be used in a pool of exchange to create the optimal land reallocation is an important instrument to support achieving their various goals. As a result of the Province's change in policy, the Waterboard now has to pre-invest much more in order to create a similar level of flexibility. This is so important because in some cases the only way they can achieve their goals (in a timely fashion) is to become a major player in the area through land ownership and the key ownership rights that come along with this. The public governance rights of the Waterboard as a government body are not considered to be sufficient enough to provide the necessary opportunities.

Officially, the area is considered to be an “area elaboration”, and thus has a rather informal and non-obligatory structure. The Municipality of Ommen would like to see a more binding approach since they regard the acquisition of enough land in the area to be quite difficult. The Municipality has 30 campgrounds of which one is located at a place alongside the Regge that they want to include as part of the project. Generally, the Municipality is against increases to the number of camping spaces as they feel that they already have enough. However they chose to make a compromise in this instance since by allowing the owner of this campsite to expand he agreed to allow them to turn the piece of land of interest into an area reserved for nature and water development. This was in fact a difficult decision to make since making special exceptions to one business owner could result in a reduction of trust between the Municipality and the other campsite owners. In fact no one complained in this case, but there was still an awareness that they should be prepared to deal with these sorts of concerns because the campsites do participate in normal market competition arenas.

When the Waterboard had the opportunity to purchase 10 ha land they quickly seized the opportunity. The property’s owner, Pauw, had at one point in the past erected a stable on these lands. This is important, as new regulations are generally very strict regarding the building of new structures in the rural area. However, on the basis of a separate regulation which permits building a new structure on rural land when another nearby structure is taken down (the so-called “red-for-red” regulation) they were able to help the Municipality of Ommen out in another deal. Ommen had committed to helping a fruit dealer arrange a place of business in the area, and through tearing down the old stable, this was made possible. So in a “pre-stadium” situation there are opportunities to establish good will and future coalitions between the various actors. The Waterboard is also working towards this kind of relationship with the Estate owners, Nature Monuments and other landowners in the area, through building frequent and close relationships. The Waterboard expects that projects will start in this area before 2013.

An important *strategy* in this case is the building of relations and trust (1) with relevant actors before the project actually starts (actor constellation, timing). The choice for a voluntary approach (arena) can also be seen as a strategy to improve the likelihood of trust and commitment (2). Another main strategy is the acquisition of lands (resources) and the associated ownership rights and position in the area. This serves to be able to exchange these lands in the future (3). In fact it is a sort of exchange between resources as money is exchanged for land. The reason for doing this is that land is not always for sale when and where you need it and time pressure will generally have an upward

pressure up prices. So when the chance occurred to buy 10 hectares of land, the opportunity was taken (timing).

As *inflexibilities* we observed the Province's decision (under central government pressure) to restrict buying land outside the direct area of the nature linkage zones. This implied that it would be able to play a far lesser role in the land exchange game that is seen as a requirement to be able to realize the project in this case. The so-called red-for-red regulation on the other hand can be seen as a deliberate attempt to soften some of the inflexibilities in Dutch spatial planning regulation. The regulation was used here in a strategy to provide compensation for resources and create goodwill as a motivator.

Onderland

Introduction

The Onderland plan was produced together by Staatsbosbeheer (the State forestry agency), a private owner of part of the area and the Waterboard and is part of the Municipality of Ommen. The construction took place in 2006. The main goal of the project is to create space for water and the reconstruction of a more natural Regge water system. The undertaken measures will allow flooding to occur one or three times a year. In extreme situations (such as occurred in October 1998) that are expected once or twice per century, a maximum of 400,000 cubic meters of water can be stored here. The goals are similar to the other projects: restoring natural meandering river courses and river dynamics, buffering water in the original outer banks area, partly by removing levees, and increasing the nature and landscape value.

Below we will describe the measures taken in some detail in order to show how and with what sort of issues in mind the renaturalization of these kinds of projects are designed. This is a translation of text provided from the Waterschap Regge en Dinkel website:

"The levee on the eastside is removed, the riverbed made somewhat narrower from 20 to 15 meters to increase the flow speed and produce more river dynamics to allow natural processes to then take over. The newly created stretches initially follow a natural pattern with very shallow marshy places and stretches with steep embankments developing at other places. The latter also provide good habitat for *Alcedo atthis* (king fisher) and *Riparia riparia* (sand martin).

The western side remained almost untouched. The former natural water levees (forest sides and dirt roads) will regain their flood protection role as much as possible. These levees were already high enough to prevent flooding for an area which extends outside of the project area. Where they are exceptionally not strong or high enough, they are enhanced to the necessary level within the scope of this project. To protect a few residential dwellings that are situated at too low of an elevation near an old meander and the forest fringe, extra measures are taken for protection. The measures are also designed so as to fit into the landscape with the appearance of a sort of river dune. Ecologically this creates good habitats for some rare plant species that belong to such river valleys, like Steenanjer and *Gallium verum* (Geel walstro). By making the Giehemer Church path somewhat higher this cycling path will also be able to improve flood protection.

The old meander in the area of Onderland was in the past a part of the meandering Regge. It is still visibly present, but is now isolated from the river. Over the years highly valuable natural areas with rare vegetation and good water quality have developed here. This good water quality is partly caused by percolation (a sort of well) originating from the more highly elevated wooded area to the north. The soils of the meander will be cleaned where necessary and some parts that have filled up with mud and sand in the past are to be dug out and restored. The old meander remains disconnected from the Regge and the surplus water that was discharged to the Regge is not discharged to the water buffering area. A meadow that is enclosed by the meander is stripped from its top layer to make it less nutrient rich and create chances for rare vegetation.

The rest of the area gets its original relief back, which is in accordance with the characteristics of a river valley area and will be apt for temporal water buffering. Eventually the Onderland area will form a dynamic and resilient river system. The area gives water the required space and creates sufficient chances for the development of nature" (website Waterboard Regge and Dinkel 2011). Of the approximate 40 ha of land, all but some 3 ha are meant for retention area. The 3 ha is an area near the vacation bungalows that is now protected by a higher strip of land with a very slight slope. Yearly flooding is expected and it will have a storage capacity of about 150.000 m2 of water. In extreme cases, all of the 37 ha will be flooded with 1 meter of water depth (2 meters is possible in some areas), temporarily storing some 400.000 m2 of water.

Figure 50: "Lakenvelder" cows grazing in Onderland area
(Source: Teun van Reeuwijk)

There are still a number of places within the area where agricultural land has not been purchased. One existing farm occupies about 17-18 ha of the total 40 ha of the project area. This previous dairy farmer wanted to stop active farming and has accepted blue and green payments as support for doing so. For the "blue service" of allowing the use of his area for retention, he received a one-time payment of about 100.000 Euros. For the switch of his lands from agriculture to nature he receives the price difference of the value of ground for these two purposes over a thirty year period, about 550,000 Euros. Apart from this he receives yearly allowances for the maintenance activities he performs (beheersvergoeding). The green service program was first implemented by the national government, but is now done by the Province. The total project costs are estimated at 1.2 million Euros. This includes 12 ha of land bought for the completion of the EHS by the state agency. The costs for the Waterboard were around 800,000 Euro, including the 100,000 Euros for the blue service payments. The 1.2 million is exclusive of the 550,000 Euros for the green service payments, which is transferred as an allowance over a 30 year period. Of the 12 ha bought, one field was previously crop land (corn), and the other was meadow land. The (fertilizer enriched) corn land was not stripped of its top soil, because that would have created too much sand and would have been too costly to remove from the area. It is grazed extensively now and will gradually loose its high fertilizer content. One land exchange changed the

location of a pony meadow from a place where the water levels would become higher to an area at a somewhat higher elevation.

Process and results

This project was able to come about because the Waterboard had the knowledge that a farmer (by the name of Blikman) in one of the areas desired for flood water retention wanted to quit farming. The State Forestry Agency also had grounds in the area that they were prepared to have used for water retention and they added to this by the purchase of additional grounds of other private owners in the area. The Regge has been mostly left as it was in this area, except for a bend that the Waterboard added to the river. Most importantly they removed a levee which would allow the area on that side to be flooded at during high water levels.

Blikman's farm had not been used very heavily in recent times and so the Waterboard felt that it would be a good place for additional water storage. In fact the farmer was already receiving payments from the Ministry of Agriculture, Nature and Food Safety for allowing and helping nature to develop there ("agrarisch natuurbeheer") In addition to this, the Waterboard provided him with a payment for using the land as water storage when necessary. These payments were provided under the "green and blue service" programs respectively. In the Regge valley area this is the only time in which the "blue service payment" option has been made use of so far. The farmer received a "lump sum" payment from the Waterboard whereas the ministry pays its contribution every six years, with the amount depending on the quality of nature development in the area.

It is also important to note that it is unknown whether or not the farmer would have received the same amount from the Waterboard if the payment would have been determined under the current schemes because the standards have been changed. Under the slightly older system, a flood every 100 years was considered the maximum to be expected, and thus surpassing this risk was grounds for compensation. Currently for built up constructions on agricultural land the flooding expectation is still 1 time per 100 years, but for nature it is 1 per 10 and for crop fields it is 1 in 25 years.

The Municipality of Ommen also has a plan for Green Service payments although there is some discussion about what an individual or group can be expected to do on their own and what to let others do in terms of nature development. There is a landscape development plan for the "white" areas (areas where most of the rural people live and that is made up of mainly farms

and not significantly apt for rare nature) which are not already the responsibility of others. The Municipality chooses to concentrate its stimuli to protecting landscape issues in these areas.

The provincial "red-for-red" legislation, which allows new buildings to be constructed in the rural area in exchange for removing old unused buildings such as sheds and stables, was not yet implemented in the Municipality of Ommen and thus played no role in this case. In March 2010 the first red for red agreement was to go to the City Council, however due to the strong personal connection between the Board of the Mayor and Aldermen and the citizens, the Council was generally reluctant to oppose them. According to some observers there is room within this new legislation for local interests to bias the implementation of the spatial planning in a manner that contrasts the overall goals of the Province. It is easier to say no to citizen requests from the perspective of the Province than it is for the local aldermen. In light of this new avenue, the Province should keep a good overview of the implementation of spatial planning otherwise this could happen more often (as it has happened in other areas) and lead to undesirable and unforeseen changes in land use over the long run.

From the perspective of the Municipality of Ommen their role in the process in this case area was not a very good one, but one from which they have learned a lot. When in 2005, the Waterboard came to the Municipality to begin project discussions, the Municipality was sympathetic to the plans and was interested particularly in the nature aspects to be developed. The landowner was interested in turning over some land and making a profit, and so his lands and that of the State Forestry agency were taken into the project. This project was also a good fit because of the EHS goals of the Province in the area. It is a very beautiful place and they could certainly see improvement opportunities. Despite this, the project was only initiated due to the interest of the Waterboard and its efforts.

The role of the Municipality in the planning process was as such, limited to their facilitation of the plans from the Waterboard. Although the nature goals of the Province are also reflected in the plans, they were not really involved in the process themselves since their concerns were mainly just in its final completion. The Province is generally happy to enable others to implement the plans that it sets for the EHS. The DLG is generally concerned with whether or not the plan has the right type of nature included within it.

The Municipality of Ommen has a lot of natural area and as such there are two points of view in the community and in its politics: 1) we have enough, maybe

even restricting our development, so we are not going to make a lot of efforts towards creating new nature 2) that the large availability of nature is something to capitalize on and improve in order to increase even further the tourism aspects. Nevertheless, a limited role for the Municipality is common since the Municipality simply doesn't have the staff or expertise to really get involved in the discussions.

Two main issues arose in this case. First of all the municipal land use plan for the rural area was very old. They could thus not respond to the request of the Waterboard to allow a provisional shortcut to the land use plan change procedure and so the full procedure had to be followed. This includes lots of formal steps such as designing a new plan, getting the approval of local politicians, the Province and eventually the courts considering that appeals will likely be made. Municipalities are supposed to make a new municipal land use plan (bestemmingsplan) for the non-built-up area every 10 years, though this might not even be often enough to keep up with changes. The plan in place at the time that the Waterboard approached the Municipality in 2005 was from 1984, and at that time no one had ever heard of Regge restoration projects, so there was no way to make this project fit into it.

Realizing that making a new rural land use plan could not be postponed any longer the Municipality worked hard to create a new one that made full use of the flexibilities that can be brought into such plans nowadays even though they are legally binding on a plot level, so in principle very restrictive. The new style of municipal land use plans can have two kinds of maps. The first kind of map has general designations – for example agriculture (A), nature (N), etc., that are legally binding. There is an arrangement that creates the possibility to allow deviations from the plan (under "article 19"), though even these procedures are quite elaborate and involve several decisions that could attract appeals. However in a new style plan it is also possible to have a second layer where it can be made explicit for some or all of the area which land use changes are acceptable, for instance turning agricultural plots into new nature. When the plan goes through its elaborate approval procedure that layer is also considered and implies that once the plan is set, the ways in which you can change within these areas are included. This also enables short cuts to be made without Article 19 (which are formal exemptions for changing the plan from the Province) and which are even shorter since Article 19 still requires a formal exemption. With these flexible layers, you provide for even more flexibility and a shorter cut without greatly increasing the fear of negative developments. Only a decision of the municipal mayor and aldermen, agreed to by the city council, is enough for allowing such changes of land use in individual cases. This kind of multi-layered plans are now quite normal in

the Regge area. The Provincial living environment vision acts as a framework guiding their contents and as a base to be evaluated against when the Province must approve it. For the Regge restoration projects this implies that the required land use changes are now accommodated for in the land use plan.

As a second major problem there was an instance where some local landowners made a court appeal against the Onderland project. This was one of the rare instances of conflict. In the period during which the Regge was being modified, a number of homeowners have built new houses (recreation) quite near to the shores and so it was not possible to reverse the Regge directly back to the previous situation. A new plan was necessary in this case that would improve the nature of the river but also enable these houses to stay. The homeowners had made an official appeal to the plans, though the argumentation used was varied. Some claimed that the plan wouldn't help to make the area safer; especially not the direct surroundings of the retention area where the appellants had recreation bungalows. To support this statement, they hired their own experts from Delft University. The Municipality was however confident that they would win against these complaints (except when procedural mistakes would prove to be crucial of course), because all of the national and Waterboard white papers regarding the room for the river, Regge vision, etc. and the science on which they were based were supportive and these counter arguments were considered to be outside of the generally agreed upon understanding. The court ruled that although the experts disagreed, the Waterboard had sufficient ground based on the majority of science to assume that the general interest was served by the project and rejected the appeal. The resulting schedule was not harmed extensively by these issues since the actual land owners were in favour of the project and so the concerns/complaints of the others had less traction against the project, only about 1-2 years.

Figure 51: Onderland area in use for water buffering
(Source: Photo Holland)

The Municipality assessed that the appellants' main problem was that they were afraid that their nice outlook over the area would be harmed by a new embankment. The legal objections such as that the project would not protect them were considered to be by the interviewee only excuses used to try prevent the project because of aesthetic reasons. There was no compensation offered to the concerned party, the Waterboard did however alter the plan a bit to help appease their concerns. Upon visiting the area it was noticed that indeed there was very little visual impact on the houses which in fact had a wide view over the renaturalized area. The parties were eventually successful at meeting both the needs of the Waterboard and the citizens.

Also there was an exemption needed from the Flora and Fauna Law, this was entirely managed through the Waterboard and is was not seen as a "problem" in this case. It appears from the letter of exemption that it was relatively easy to work with this law. If it was Natura 2000, in the Netherlands translated into the Nature Protection law, it would have been much more difficult to move forwards. It is considered as especially difficult because no one really knows how to deal with it. As a consequence of this, the courts tend to ask for additional information and studies to be sure that no "substantial harm" is done to the ecological balance. In the Flora and Fauna Law, you only have to

take care of certain specified species of animals or plant. However when it is a designated Natura 2000 area you have to deal with the integrity of an ecosystem and how to measure the effects of the project on the habitat as a whole is extremely complicated. There was even difficulty in dealing with the uncertainty of Natura 2000 areas for example in a project where everyone knew that water and nature would on balance improve. Project initiators are required to do a lot of research and when this is done, the civil servants are afraid to say yes or no. Often they say "yes, but maybe", and it is very rare that the response is as simple as a yes or no. There is a strong focus on judicial significance, as each appeal easily makes it to the highest administrative court (Council of State - Raad van State). In this case however, the area was not designated a Natura 2000 area, and thus the Waterboard was able to ask and get permission to "possibly" affect one plant (groundling) and one animal (loach) species with the warning that if they would come across a ring snake (grass snake) that they would have to stop all works and ask for an additional exemption for that species.

Figure 52: Relocated pony meadow behind holiday homes in Onderland
(Source: Hans Bressers)

Apart from the land use plan not being suitable and the development of the court case, the Municipality has one issue of regret in the Onderland project. There are lots of recreation and tourism opportunities in the other areas, however in Onderland they have hardly any. The project actually diminished the future possibility for creating walking paths; this happened because they

forgot to ask the Waterboard to include it and so it was neglected. They feel there are lots of possibilities for recreation in the area (bicycling, boating, etc), so to be more aware of their interests in the future they have tried to make a plan that highlights the various goals for recreation and nature (and where they should and should not be combined).

Concluding observations

The *results* of the project are quite varied. Natural meanders were restored, improving drainage and buffering and allowing for more water percolation from a wooded area to the North. Levees were removed which enabled natural flooding in one area and the creation of river dunes to protect low lying houses (initially recreational). Landscape development plans (initiated as a result of landowners' opposition) affected the placement of embankments for flood protection. Elsewhere a cycling path was altered to function as water barrier. Agricultural land was turned into nature – providing green and blue services for which fees were paid. All of this also increased the habitat for rare and protected plant species and made the area apt to be a part of the EHS, connecting it to relatively large natural lands. While the availability of walking paths was somewhat diminished, opportunities still exist for cycling and boating.

In terms of the *actor characteristics* involved the situation in the Onderland case is a bit more complicated than in most of the previous cases. The Municipality was more neutral (divided) than positive, even though in the end they cooperated well. On the other hand the farmer and land owner was in this case not the most difficult to manage, but on the contrary a driving force. Real opposition came from some of the neighbouring inhabitants (owners of secondary homes) that are most likely to have feared intrusions on their view, but brought the case to court (this case exhibited the only occasion that this resource was used in the Regge renaturalization up until now) with an argument that challenged the value of retention areas as such. A cognitive clash is discernable in this case as the secondary home owners saw the project in isolation rather than as part of a renaturalization of the whole river, showing a different spatial "boundary judgment". In terms of resources they hired scientists to support their claim against the general opinion among water engineers that more space for rivers is an unavoidable and/or efficient measure against flood risks. Another resource issue was the lacking of an up-to-date rural spatial plan, which first had to be developed before the Municipality could act. Furthermore the Municipality sees itself forced to set priorities due to its lack of human resource capacity and wants to concentrate

its attention onto the "white" areas which other layers of government do not target in their policies. This partially explains its rather inactive participation in the actor constellation.

Compensation (1) as a *strategy* was observed in the use of the green and blue service payments to the farmer involved. This is as yet the only example of PES (Payments for Environmental Services) along the Regge, even though the instrument is often seen as being of major future importance. In the meanwhile the governance context has changed in such a way that the standards for the degree of risk that should be compensated have been reduced. Under the new scheme the farmer in this case would probably not have been entitled to a "blue service" compensation payment. Another strategy was the timely stepping into the "window of opportunity" (2) when it was discovered that the farmer in the area wanted to quit. A rather interesting strategy by the Waterboard was to deal with the opposition of the neighbours, not by being responsive to their official complaints, but instead to the objections that they presumed to lay behind them, and adapting their plans in such a way that the view from the secondary homes would be improved rather than hindered (3).

Inflexibilities were found in the spatial planning regulations that required a new local spatial plan to be developed before any permission for the project could be given. In the Netherlands local spatial plans have direct legal regulatory impact and deviations without extensive procedures are in principle forbidden. In a way this urge to update the rural plan was also a blessing contribution to the level of flexibility, since the new plan, like that of other municipalities, has a remarkable flexibility arrangement built-in. Under the layer of the present situation another layer of acceptable changes is included, which are mostly changes from agricultural to nature designations. The present layer as well as the acceptable changes layer are approved in the extensive procedure including approval from various boards and councils and with formal complaint and objection opportunities by citizens. After this approval, changes to increase nature in the allotted areas require only the approval of the city council. In this case permission was required under the Flora and Fauna Law to work in an area were rare species might be present. While in this case the conditional permission was relatively easily obtained, the interviewees made clear that such would not have been the case when the area involved would have been protected as a Natura 2000 area and permission under the Nature Protection Act would have been necessary. While there is still much uncertainty at the court level about the EU regulations involved they tend to require extensive studies to be done before anything is permitted.

Intermediate area: downstream area flowing into the Vecht River

This final stretch of the Regge is again a Landinrichting related project, named Dalmscholte. Progress is slow here as many farmers are quite reluctant to sell their grounds. Further downstream, the Regge comes close to the Vecht River. The estate of "Landgoed Het Laar" is in this area, a castle estate which is nearly entirely owned by the Municipality of Ommen. The estate area could hold as much as one-and-a-half to two meters of water for water retention. The Waterboard is currently doing some research about whether the old trees located there could survive such occasional flooding.

The Waterboard is also responsible for the high water levee that is located alongside the south bank of the Vecht. They consider it to be too low and although they need to make it higher, the works are still in the preparatory stage. The Municipality of Ommen has become involved in this project because they have a city center development plan in which they plan to replace a bridge over the Vecht River. The bridge is rather narrow and this forces the water level to go up at peak flows. The Municipality would like to make a deal with the Waterboard that would allow for the easing of the requirements for raising the levee if they would increase the width of the bridge and hence reduce the effects on the water level. The Municipality then proposes that the Waterboard could invest the money gained by this as a contribution to the new, wider bridge.

At this point, the Regge jurisdiction ends. Along the Vecht the provincial program Space for the Vecht (Ruimte voor de Vecht) guides any development and management actions, which includes the Province, 3 Waterboards and 5 municipalities. In general the Municipality of Ommen focuses more of its attention on the Vecht than on the Regge. As such, they tend to work with their neighbours to their east and west and not those to the south. A bus trip was once organised with the Municipality of Hellendoorn staff along the Regge, and it was noticeable that they hardly knew the people from the other Municipality. Since then, they have begun to realize that they should also pay attention to the Regge to ensure that chances to realize their wishes will be taken when possible.

While in this area the same *strategy* of (1) choosing to get involved in a process that is already starting on the basis of other policies (here land

reallocation – arena choice) it did not seem to work out here to speed up the process. Coincidences, such as a farmer passing away without a successor, thus remain essential for the progress. An interesting exchange of resources is proposed between the Municipality and the Waterboard in the form of cost sharing for the constructing of a new bridge in such a way that it also solves some of the Waterboards' issues, by lowering the peak level retention needs.

Chapter 8. Process Setting, Strategies, Receptivity and Regime Flexibility

Introduction

In this chapter we will deal with some general observations on the Regge renaturalization projects which are not specifically applicable to any given sub-case but are considered as being more common practice or contributing to a guiding principle. Special attention is paid to the receptivity of the Waterboard in this chapter, as it does not vary significantly across projects but more so over time as is reflected through the learning process. This more general examination also pays attention to actors that are relatively less active participants in specific projects, but do have an important role regarding the renaturalization as a whole. This applies to the Province as it concentrates efforts on the amount of nature realized for the EHS, the farmers' organization LTO for its general role underlying farmers' behaviour and the Landscape Overijssel nature organisation because it is involved in the development of projects and in many cases becomes the manager of the new nature area.

Governance setting: Extent and coherence

The Regge renaturalization projects typically have a wide array of policies and actors that are drawn into the singular projects. This obviously increases the *extent* of the governance aspects that are relevant for the project. It is not however only the number of water related goals included outside of retention capacity that increases (e.g. health of the aquatic ecosystem, water quality, etc.). Nature development and protection, spatial planning (creating close links with the municipalities), land reconsolidation projects and other policies that are relevant for agriculture, rural economic development, recreation and tourism (e.g. tea house, zomp boats, hiking and cycling), incorporation of town extensions and companies (e.g. Nijverdal) and new infrastructure (road, bridges, cycle and hiking paths), cultural history (e.g. archaeology, estate houses, water mill, zomp boats), sports fishery, environmental education (like displays with explanation alongside the projects), art and culture (Diepenheim) and issues of waterboard taxation and the investment multiplier (estimated at 1.3 by Van der Veen & Kalfagianni 2006) of the projects.

Of the five elements of governance that were identified in Chapter 4, we first deal with how this extension of the relevant governance fields relates to the problem definitions and goal ambitions within the project(s). The momentum of the project creates a process behaving similar to that of a slipstream, pulling additional actors in behind it in relation to their extended involvement. Also the projects demonstrate a tendency to include all actors that are relevant in any stage of the projects almost directly from the start (Interactive Implementation – Geldof 2004). These are often actors that have a high likelihood of inclusion due to procedures such as the change of land use plans, or are also involved in some way in the implementation or development of water and nature policies. The extension of policy fields and thus governance fields as a result of these multifunctional projects increase the scope of the people involved. This relates to the various scales and levels of governance. Each of the water and nature policies already has components that range from the EU to the very local level which results in the level of extent of the projects being nearly complete in terms of levels. However one could state that the active involvement diminishes rapidly going up from the local and regional (Waterboard) level. Including the perspectives and goals of so many policies also implies that the projects need to reconcile themselves with, but also take advantage of the various instruments and resources that come with them. The "multiplicity" of these various elements of governance is already a justified characteristic for singular policy fields. When different policy fields are combined as in the case of river renaturalizations, the complexity is as such even greater. We choose to label this area where traditionally separated regimes meet and overlap in response to multifunctional projects as an "inter-regime" (De Boer and Bressers 2010).

The increase of complexity which results from incorporating various policies typically decreases the *coherence* of the regime – that is of course unless deliberate action is taken to guard the level of coherence (Bressers and Kuks 2006: 241-243). At the higher levels of the regime such coherence is relatively low. The various policies are only partially connected through white papers on for instance space, water and nature. The policy documents aim to be coherent with one another but still are predominantly having their own perspectives with respect to the different Ministries who must take the lead. A good example of this occurring at lower levels is recently developed Provincial Living Environment Vision (2009). While the Regge Vision has played a very important role in creating openness towards other fields, it still is predominantly a water policy document. The different policies at the national level also create a separation of instruments and responsibilities and resources for implementation, which are not always well adapted to one another. In fact we have observed that in the sequence of EU, national government and further

provincial implementation of EU subsidy schemes that a certain re-fragmentation has taken place. On the other hand, per sector there are important attempts to establish inter level coherences, for instance with the National Administrative Agreement on Water (mostly on water retention capacity). All in all we can conclude that the inter-policy coherence of the governance regime is mediocre. Given that this hasn't prevented the extraordinary degree of coherence experienced within the projects themselves demonstrates its "bottom up" character.

Actor characteristics:

Most parties' motivations, cognitions and resources fit generally well with renaturalization

A large number of the projects in the Regge restoration involve agricultural lands which are subjected to the same issues related to the high demand for all land in general in a dense country like the Netherlands. Thus it is necessary to try to combine different goals as often as possible in order to maximize the value of uses coming from this limited resource. In the Regge area they are most frequently trying to combine water goals and the development of nature areas.

Despite the interest of the farmers' organization LTO in protecting agricultural land, it is in some ways in favour of expropriation since it guarantees a fair price for the land and ensures that the farmers are able to continue their business elsewhere. This is not considered to be an overlapping of goals but it does alter the position of the land owner to be better in line with the desired functions of the area. The risk of starting to use such legal instruments might however be that it encourages a undesirable behaviour to arise in farm owners; if they know that their land will likely be purchased eventually through this instrument then they are influenced to hold off selling until a higher amount of money is offered. Of course it is also desirable from a societal perspective to enable farmers to continue their business in appropriate locations. It is often a better strategy to cooperate with the farming community than to fight with them as battles can lead to a much worse situation. Real cooperation requires them to think along with the projects and to influence them in that way, not just from the perspective of trying to minimise their losses and increase their benefit. For the farmers and their organization the continuous decrease in arable land is a major concern, nationwide. The proportion of this caused by renaturalization is however very small compared to the chunks of arable land taken away by urban,

infrastructure and industrial expansion. The loss of farmland is expected to increase, however the best places for nature are not often the best places for modern agriculture and so nature development is less likely to harm agriculture as compared to other land use developments.

Figure 53: Kingfisher with pike in its mouth
(Source: Bas Worm)

According to Landscape Overijssel multifunctional farming has become more difficult in the context of developing and managing a given area. Earlier it was possible to either separate or combine functions. Modern agriculture has become so intensive, that combining functions is no longer really feasible, so the functions have to be separated on an area basis. This is not necessarily true on the scale of an individual farm, for instance under circumstances where Landscape Overijssel has dealt with farmers that actively combine recreation and care-taking functions as essentially belonging to the natural zone. According to Landscape Overijssel such cooperation with farmers is very normal in the Regge valley. It is important to remember however, that this concept of the natural zone is different from “real” nature. For example, there is a large patch of open land belonging to Landscape Overijssel where a normal farmer grazes his cows subject to the times and amounts that they decide. This is more landscape management than real nature. Nevertheless in terms of the social interaction process one can say that farmers who have

chosen to become multifunctional in their business mostly include themselves in the ranks of the government and nature organizations as proponents of renaturalization, and defect from the ranks of farmers that want to continue with world market oriented large scale farming.

The position of the Landscape Overijssel, is that small scale, mixed function farmers can be a very good thing for nature, but it does not form a solid base for management. If this was however the case, then it is felt that they should be considered to be actors on the side of landscape and nature conservation. There is a step by step progression towards this becoming a more common occurrence. Certainly recreation will be an important economic driver in the areas with high natural and ecological landscape value.

Though ownership of the lands is not necessary, it often results in the areas that are intended to be used for the development of nature. For example when grounds along the Regge are defined as designated for new nature this means that their future is not agriculture any more, even while no coercion will be exerted to change the actual use of the land. The price of the land is reduced as a result (about a third of the price) when it is designated in this way due to the regulations that are now associated with the new function (no intensive grazing for example), and so it matters less who the owner of the land is. There are however no mechanisms which can force them to change the intensity of their farming activities in the EHS policies as such. In the local land use plan it is designated as agrarian land, and only when it is sold does the land designation change to “nature area”. Most farmers consider themselves to be entrepreneurs who are interested in using the land for their own purposes and in their own manner and as a result the compensation options of green and blue service payments are not often taken advantage of. Most farmers would prefer to sell and continue elsewhere as opposed to altering their practices to meet the requirements of these payment schemes.
The Waterboard’s internal interests are mainly related to storing water when there is too much of it. They prefer to cooperate in this effort with Landscape Overijssel since the interests they have are quite similar, in the sense that realization of the goals of the one, makes realization of the goals of the other easier, not more difficult. Cooperating with Landscape Overijssel and having them take on the role of area manager after the completion of the project works thus in the best interest of the Waterboard whether they own the land or not.

Another stumbling point in these processes can be the different perceptions (cognitions) of the different parties regarding the desired future land use. Historically, farmers have perceived themselves as being the best landscape

managers, however in modern times they operate more like businessman and so this is no longer the case. Landscape Overijssel thinks that even now they would prefer to further canalize the Regge as there has been an inclination by the agricultural sector to bring nature under their control. Although much of the present landscape has over the centuries been developed by farming, in the new sphere of modern business, only if landscape and nature values were more economically valuable for the farmers themselves then they would be left intact. In the Provincial vision normal agricultural areas are labelled as areas for "the beauty of modern agriculture" which has evoked some distrust of the Provinces intentions from the environmental and nature oriented communities. Landscape Overijssel's experience is that some farmers still distance themselves from the other actors in the rural area, but that the nature groups are further along in accepting that they can benefit and work with each other. Talking is seen as one of mechanisms – the only one in fact – which can overcome this clash of fundamentally different "readings of reality".

According to the Landscape Overijssel spokesman the general public becomes involved in the process particularly when there are changes to be seen in the land uses. Lots of public interest has been present in the few projects that have until now been completed. As a result of the successful projects, a feeling has developed amongst the citizens that the river is alive again which highlights for them what possibilities there are for other improvements. Ten years ago the Regge was generally considered as a stream that served as a waste removal role and as a result was not adequate for swimming, visiting or fishing. There was lots of participation in the planning process which was valued greatly by the people involved. They have until this time only partially completed a number of the projects so the results of the overall project are not final, particularly in terms of ecological benefit.

Even while the motivations of all the parties are not really contradictory, they are also not the same, and so issues can easily arise. All parties have had to invest many resources, not only financially but also in terms of policy resources like rights, prestige, time and effort, etc. The strategies employed are crucial to make the most of the setting include (among others aspects) influencing the rules in operation of the "action arena" (as it is often referred to by Ostrom; Ostrom 1999: 42-44). One aspect is to form connections between organizations at the right level and at the right time. Typically, the first contacts are at the civil servant level, which also enables the actors to find the "right" counterpart in the other organization; in the case of the bridges in the Groene Mal for example they were able to find supportive ecologists in the State Public Works Agency. Having the right contacts in place who are sympathetic to the issue can help by reporting on what kinds of proposals

would be in line with their organization's capabilities and interests or even think along on how to form and frame such proposals. An important strategy related to this was avoiding entering into discussions involving political administrators when there is not already ample reason to expect that they will be supportive. "Success has many fathers" and the project leader can support the strength of the team by ensuring that the appropriate credit is given to all of the members involved. Failure on the other hand has typically only one scapegoat. A similar strategy of preparation holds when a political administrator such as an alderman needs to defend the project in his council. In the case for instance where a decision is required regarding approving a municipal investment involving various sources of financial support, one should be reasonably convinced that the rest of the money that is required can be obtained from the other parties and subsidy schemes.

Concluding remarks

An essential feature observed in all of the Regge projects is the coupling of several goals stemming from various policies and stakeholder's interests. This can in fact be very productive because competing claims for land use need not always be mutually exclusive. Through the inclusion of these multiple policies, multiple arenas and actor constellations and multiple governance contexts also need to be joined together in what we can label as an "inter-regime". When the goals are similar (more or less the same), overlapping (partly the same), mutually reinforcing (achieving the one helps achieving the other) or even unrelated important synergies can be discovered. The nature organization for instance accepts that the main project priorities are often related to water, landscape and recreation development, since they are confident that nature development will follow as a result of improvements in the other three. When the development of these synergistic projects also includes some trade off and compromises the resulting package as a whole can end up being better for everyone. Accomplishing this without falling into the traps that prevent achieving the best outcome is the key point in moving towards a successful project.

Strategies: Avoiding competition games

In all Regge projects the Waterboard makes strong use of direct personal communication, which they regard as essential to preventing future issues. They promote the slogan of: "two days of drinking coffee in kitchens and living rooms is better than two years of dealing with legal consequences". This also

reduces the risk of spending months in litigation and halting the project. It is thus felt that, using the most direct options for communication as possible is the most productive strategy for cooperating with private landowners and inhabitants. The importance that the Waterboard places on this aspect was exhibited through its choice to have research performed about the people involved in one of the projects regarding how they experienced the program, the communication process and their level of participation.

With respect to institutional stakeholders there is a similar way of ensuring everyone gathers at the table even when interests are perceived as being different. It can be that their positions are not really in opposition but that they are only dissimilar and so partnership has not been an obvious pathway forward. Creating the right atmosphere in which the actors do not begrudge gains for the others, and where the atmosphere is one where getting everyone's goals achieved to the greatest extent possible, is then a good strategy. Persistent communication and approaching each other as equals is the preferred method of undertaking these projects. It is believed that it works best when parties really attempt to do their best in helping to achieve each other's interests. This creates upwards spirals of trust and in the end leads to higher rewards for all parties involved.

The development of a team atmosphere was one way in which they were able to accomplish these synergistic activities. An interesting example of how this was experienced externally was when an alderman of the Municipality of Hellendoorn was unsure whether someone that had been contacting landowners was working for the Municipality or for the Waterboard. The project team saw this as a major compliment to their efforts at building a cohesive team mentality. The reverse situation was also experienced where the Waterboard staff was considered as "one of us" by the Municipality staff that were involved. When actors feel themselves to be and appear to be primarily members of the project team more so than representatives from their individual organizations it allows them to see the interests of the project as their own. This adds greatly to the likelihood of an optimal project design for all of the parties involved.

The determination of the actions or setting that leads to the development of this sort of "cooperative-game" situation and the avoidance of competition is an important task. In the Netherlands there have been examples which did develop into the sort of competition situation that is actively avoided in the Regge projects. In this way they still see the process as a sort of game but more so where one can only benefit or win at the expense or detriment of the other players (parties). Even when the game is played in a fair way, this

preconception influences the likelihood of achieving a well-integrated arrangement or agreement. “Who is getting what and who gets the most” becomes the central question. The question that must be asked is “how do you get the people to adopt this other frame of mind which revolves around joint project development?” Integrated project teams are thought to be of key importance in the process. The art is in finding the right and most important players to make up the team. Various parties and their goals will always need to be met however it is most important to discuss them and work them out in the project team.

It was noted by one interviewee that the Waterboard is regarded as having a high capacity for implementation and that this is beneficial to the success of the chosen process measures. Categorizing the efforts as “projects” could suggest a strict adherence to planning and coordination, but that doesn’t reflect the reality. They actually adhere more to the matters of “timing, tone, tempo, toneel” (toneel = stage, or: choice of the arena; attempt to reduce the feeling of competition). Tools other than money are also available, which is of course important when addressing various needs. For instance, efforts put into winning trust can be pursued through consciously accepting a slightly disadvantageous outcome that however is generous to the partners in the first round of planning or negotiation.

The Waterboard repeatedly coming into contact and working with the same parties on various projects, such as Landscape Overijssel and the Municipality of Hellendoorn, eases their cooperation in future projects. Participants already know each other, have built up trust with one another and they have also learned important information about each other and their organizations. Learning also occurs in the sense that they have learned what to do differently in their successive involvements with the project members. This makes it easier to find the right people to talk to and can also make certain processes less formal (and thus more efficient). An example of this would be where an official of the Waterboard would feel more comfortable contacting an alderman of the Municipality directly by phone to discuss a possible partnership as opposed to going through various administrative channels.

These high levels of well-established cooperation can also be extended to other relationships. In the Municipality of Ommen there was an atmosphere in the beginning of: “If you want to do something then just apply for a permit.” Collaboration has been improving as a result of the Waterboard’s general strategy to build up as much contact as possible with all external actors active in the area. A specific strategy in developing this was to organize a bus tour along the Regge. Instead of having only the Waterboard staff, civil servants

and the alderman from Ommen, they also arranged that the civil servants and alderman from Hellendoorn (who had a long established and very close collaboration and enthusiasm for the Regge projects) would join the tour. This may very well have helped to open up the minds in Ommen to the potential of participating further and with more interest in the overall Regge restoration project.

All actors involved, such as the Waterboard, the Landscape Overijssel, the Province and the municipalities have learned that it is important not to entrench yourself in the beginning behind your own goals since such positioning strongly hinders one's ability to participate fully in the process. When relocating a bicycle path 50 meters would help to realize the goals of one of the other parties it would in fact be counterproductive to stick too strongly to one's own interests. This is indeed a well-known story related to the surplus value of package deals, which are more easily discovered when parties trust each other in the negotiations or discussions which take place particularly at the start of the project. Trust is thus seen as crucial to the process. One case where the importance of trust can be clearly seen occurred between the Municipality and the Province when a mistake was made that resulted in an excessive subsidy payment that was received by the Municipality. Instead of keeping the extra funds, the Municipality mentioned the "problem" twice in order to get it corrected. Despite "losing" 15,000 Euros worth of extra subsidy it was believed that the increase in trust that was developed was crucial to the relationship.

Figure 54: High water near Regge River in summer 2010
(Source: Remco Wolters)

Overview of observed external strategies

In the treatment of the separate subcases in the three previous chapters a wealth of strategies have already been mentioned that are used to prepare and modify the direct context of the process, including the actor characteristics of the actors involved, to increase the likelihood of productive processes. As expected, these were all related to the actor constellation, the institutional arena and indirectly or directly to the actor characteristics of the actors involved. Also proactive, responsive and reactive use of such strategies could be discerned. Some of these strategies worked in various, multiple and indirect ways, though eventually through all of the identified points of action. As an example of this we refer to the figure in which the various strategies used in the case of Diepenheim are illustrated (see Figure 29). It is thus clear that it is not always useful to try to categorize the strategies used into separate boxes connected to the various points of action where they can exert their influence.

Some of the external strategies that are not only observed in the Diepenheim case, but also in the other subprojects of the Regge River renaturalization are presented in the following paragraphs. They are in fact not really separate, but clearly reinforce each other's efficacy.

Openness to synergies with other policies' and actors' goals and interests

The wealth of combinations of goals and interests that are observed in these projects is presented as a strategy as such. Openness to synergies is not only a way to make the most efficient use of public money from various sources, and of scarce space in a dense country. It is also a way to increase the likelihood of achieving actor constellations with supportive characteristics for the progress of the process.

The management of relations

This strategy relates to the building of relationships and trust with other relevant actors before the project begins (actor constellation, timing). Often there is a choice of institutional arena, an option that exists because there are different legal and voluntary possibilities for framing e.g. river renaturalization sub-projects. Sometimes it's better to refrain from institutional settings that provide legal coercion options, because they are hard to use and will only cause widespread resistance.
The choice for a voluntary approach (arena) can thus also be seen as a strategy to improve the likelihood of development of sufficient trust and commitment.

Blurring the boundaries of the process phases

In many examples we saw the involvement of some actors at the very beginning that would otherwise typically only appear at later phases of the process (actor constellation, timing). This occurred by asking landowners in the area and neighbouring citizens very early on in the process what their wishes for the development of the area were. What was very important in a number of the projects was the early involvement of Landscape Overijssel (or other nature organizations that would end up managing the project area). The traditional distinctions between the various phases of the process are deliberately blurred through this process. While this can increase complexity when done in an extreme manner, it can also prevent situations in which the later involvement of new actors blocks the process or provides other unpleasant surprises. One way to reduce the additional complexity is by dividing the project into smaller geographical sub-projects. This is exactly

what we observed to have happened in the Regge renaturalization process (De Boer & Bressers 2011).

Surfing the waves

The Waterboard also found that on a number of occasions it was not optimal to start a project on its own, but to wait and to latch onto an existing initiative or Area Development project/plan (arena, actor constellation). Thus not the Waterboard, but for instance the Municipality would be the main director of the process. This can have disadvantages under adversarial conditions, but has mainly advantages for the Waterboard when the goals are in accordance with one another.

Seizing opportunities when they arise

There are also good examples of where the timing was used advantageously: opportunities that would support the broader renaturalization vision were taken as soon as they occurred. Actions that would enable the project to move forward with quick wins were taken in order to build momentum, leaving issues related to tougher areas for a later time when more resources are available.

Learning to build trust

Trust is also of key importance in the relationships between the members of project teams. Learning from past projects plays an important role: who to ask (or not), how to build trust, how to build informal contact. Likewise, good cooperation can be presented as a positive example to support the development of relationships desired in the future. More generally, conceding on some issues can be used as a calculated risk to help to build a level of shared trust that will have returns later on.

Knowing your context

Proactive information gathering can result in acquiring information on municipal plans, which when received early enough can in turn enable cooperation on further studies that can be used to help inform decision makers. Getting acquainted with local knowledge can improve the projects as it is generally very useful to be aware of various types of opportunities. Chances to create goodwill in ways that can be included into the project without much difficulty (cognitions) are then made more likely.

Seeking alignment of the characteristics of the other actors

Through thoughtful and early communication it is possible to understand the motivations of the people involved and can make it possible to influence them. A rather interesting strategy practiced by the Waterboard related to this was to deal with the opposition of some neighbours, not by being responsive to their official complaints, but rather instead to the objections that they presumed to lay behind them. As such they adapted the controversial plans in such a way that the concerns of the inhabitants regarding their loss of view of the river were removed. Following the first negative court decision of their initial appeal, the proponents accepted the decision without pushing the case up to a higher court level. This was actually the only case in in the Regge Renaturalization projects in which a legal objection was brought to court. This is considered as very successful since in the Netherlands court cases regarding land use changes are quite common. Actively investigating the interests of groups in the community is also done in order to increase resources in an innovative way through access to "community funding".

Direct personal communication

It is very important is to have as much direct personal communication with stakeholders as possible. Often talking with farmers and neighbours is the only way to overcome clashes of fundamentally different "readings of reality" (cognitions). Open consultation is also key when dealing with institutional stakeholders. It is also important to be creative in a way that aims to be able to support each other's interests and thus creates an upward spiral which eventually results in the development of other valuable resources, such as trust. Consequently it is not just a matter of communicating, but also of being open and moreover really trying to advance others' interests whenever they are or can be made sufficiently compatible with one's own.

Strengthening your position in advance

Purchasing land in the time preceding project development in order to hold a private landowner resource position in the area is also often used as a strategy. Sometimes this is a matter of stepping into a "window of opportunity" at the right time such as when a farmer decides to quit farming and is willing to sell their land. In several ways this kind of resource can be put into use during later phases of the process; the land itself can be used for the project, although it can also be exchanged for other lands which are needed for the project. Buying land before a project has been developed is of course an investment, but it also has the benefit of avoiding both resistance and possible price

pressures compared to buying when a project needs to be realized at a particular spot.

Green and Blue Service Payments

Compensation as a strategy to influence motivations through transferring resources (not including land purchasing) was observed in the use of the Green and Blue Service Payments to an involved farmer. This is as yet the only example of PES (Payments for Environmental Services) along the Regge River, even though the instrument itself is often seen as of major future importance.

Receptivity: Internal backing for representative action in a multi-stakeholder setting

What can be often tricky when working in project teams is that decisions need to be prepared about all kinds of issues, sometimes including who will pay for what, while in reality such decisions need support internally and in the cases of Waterboards and Municipalities must be approved at the board and then the council level before they can be officially agreed to externally. The degrees of freedom and trust on the basis of which the representatives may operate is an important factor in these situations. This also has to do with the strength of the board members and how they are positioned in their organizations: their perception of their own influence, how they show leadership and how convincing they can be towards their own councils.

There are large differences between how different Waterboards handle internal communication functions. The Waterboard of Regge en Dinkel allows and often encourages for example informal discussions and direct communication across hierarchical and civil servant–administrator lines, whereas others have significant measures in place which make internal communications very formal. An example of this was given where communication between the officials and the board may only take place through the secretary (the director of the civil servant staff).

This in turn is regarded by the Waterboard interviewees as a manner of dealing with risk management and is related to how well an organisation is prepared to deal with risks. Unavoidably there will be mistakes made and failures will occur. When this is not accepted at all levels in an organization, when the officials are very narrowly restricted or when taking an entrepreneurial risk taking is made impossible, then you simply cannot get

things done in an efficient way in complex multi-stakeholder settings such as the Regge restoration projects. If the necessary room to manoeuvre is not available then even beginning such a project will be troublesome. In a very strict procedural and hierarchical organization where everything happens according to procedure, it is difficult to achieve much. As a result, these kinds of projects appear to be nearly impossible to accomplish.

Similarly: if you desire to first fully plan a project and then seek approval for works along an entire section of the Regge River and only thereafter begin with implementation in order to avoid risks, the chances of success are very small. This is a risk that is experienced to develop often with undertaking the traditional formal land reconsolidation projects. The result can be that the project is delayed for such a long time that by the time that the project is finished, its basic assumptions and vision are already outdated. In the case of the Enter and Rijssen projects the Waterboard believes that they have passed the stage of such risks.

There is another concern that when Waterboard, Provincial or Municipal councils and boards are renewed after elections and the priorities change as a result, this can also slow down or stop projects. The newly elected National government may also make cuts to municipal funding which would result in money not being available which was at one time earmarked for these projects. As a project team member there is often not much influence available to manage the political aspects that affect the project. This of course also pertains to the macro-economic situation.

Figure 55: Regge "wildlife"
(Source: Hans Bressers)

This is still relevant for the Waterboard as they attempt to create the necessary flexibility for future renaturalization projects not only by "relation management" but also by for instance investing a lot of money in buying land without knowing exactly what they will do with it. Some fractions of the council which are generally very critical with respect to expenditures and consequently tax levels will tend not be in favour of this kind of spending. Whether the other fractions will agree depends on the degree to which the board can convince them of the importance of acting in this pre-emptive manner. The stakes become more clear in terms of the importance as project developers consult increasingly often with the board. By doing so, the board members can better assess the risk of not being able to have their plans accepted by the council. At the board level (within the Water Board) there is generally a reasonable degree of consensus. There may of course in some cases be diverse opinions, however the board acts as a collegial administration, and hence comes forward as having a common voice.

In the case of the Waterboard as well as for the other actors involved the internal organization and relationships are often crucial for providing the capacity to act adaptively in a complex and dynamic setting. In the central Municipality of Hellendoorn the aldermen regularly visit the municipal

officers, not only at official meetings, but also informally. This has been normal practice over the years and is thus not dependent on the present composition of the municipal board. This is not however the case in all municipalities or Waterboards. This regular contact enables the officers to keep the alderman informed about complex processes and on the other hand to get a good "feeling' for what the politically responsible administrators want and what they would and would not accept. In other words: both explicitly and implicitly it gives the officers a sense of direction and degree of freedom in pursuing specific plans when they are in regular contact with officers and administrators from other organizations. Compared to a more hierarchical model in which all contacts between the civil servants and the political leadership are funnelled via one or a few key persons or procedures, this greatly improves the dynamic capacity for action in multi-stakeholder settings and improves the motivation of the civil servants themselves as well. The mutual understanding that develops and the lessons that are learned can be quite subtle: i.e. "it is better not to use these words to describe what we want right now because our council has not yet dealt with the matter and they shouldn't hear about it from outside", "when you contact your colleague administrator please tell him that we are largely following advice from his own officer in this", and so on. In a sense the administrator not only uses the officers as key chess pieces, but also and even more often the other way around. This is not contradictory to their status as long as the administrator recognizes that this is an effective way to achieve the desired results.

If the officer is still uncertain about their degree of freedom to strike a deal, they first "shop at home", which means that they need to consult and get advanced approval for participating in various actions. Nevertheless, officers sometimes go far beyond what they had before considered their agreed upon degrees of freedom in order to strike a deal or make good use of a temporarily open "window of opportunity" which they do not want to miss. By doing so, this is indeed a form of risk taking behaviour regardless of how good the relationship between the administrators and the officers is. They are generally confident that they have enough support to make such mistakes when it is clear that their proactive behaviour is producing substantial benefits. Furthermore the officer should always have one or two reserve plans in their possession in case the expected internal support does not emerge or the results prove disappointing. An organization that is internally fully devoted to control is considered unable to perform adaptively in this kind of a dynamic setting.

Overview of observed internal strategies

The receptivity of an organization is very dependent on not only the quality of its members, but also its internal organization and culture. Generally: to play a successful adaptive role in these complex and dynamic processes, actors need an organizational philosophy that is oriented towards external cooperation. This includes building relationships with and interacting with potentially relevant actors even when no immediate issue is calling for attention (strategic networking).

Project teams

Receptivity can also be a characteristic of the project team in which representatives of several organizations cooperate. It is important to make strong project teams with well-chosen people from different organizations who can develop a shared feeling of loyalty to the project. The members should feel that they are part of a team working towards a common product or goal, as opposed to being concerned with "winning a game". Creating such teams can be regarded a proactive strategy towards overcoming future unexpected obstacles.

Representatives and home organization

Some degree of freedom and backing for representatives in their external communications with other actors is shown to be essential. This includes having the freedom to deviate from the "normal" linear process of planning – realization – operation. Enabling entrepreneurial risk taking is supportive for successful development, including stretching the recognized degrees of freedom (for instance seizing an opportunity as it occurs, and making use of a "window of opportunity").

Project managers and board members

To make these projects work it is very important that within an organization there is direct informal communication between civil servants and board members and vice versa. This improves the opportunities of including more staff from the organization in the various sub-processes (and hence enabling them to support each other's actions). It also mutually creates good knowledge of the conditions of the process and the leeway that the board allows. In a receptive organization the civil servants are considerate in terms of misusing or overusing the board members. They consciously invite the administrators

to become involved only when it is felt that there is a good chance of success. One interviewee repeated the phrase: “success has many fathers, failure often has just one scapegoat”. Similarly they will only ask them to propose a project plan to the council if they are confident that they are able find the necessary additional resources that are required on top of the budget that has been asked for.

Board and council

In order to deliver the necessary support for such adaptive strategies, the board and the civil servants need the political backing of the council. “Higher” authorities should not focus too heavily on the details related to costs and instead recognize the potential gains from adaptive management. Of course, for all of these issues concerning leeway and control there is an optimum level, which needs to be determined case-wise and regularly reassessed based on previous experiences.

Learning while doing

Lastly a learning process will result from just being open and alert to coincidental and occasional opportunities, to actively looking for them, and further to ultimately assessing the situation and the other actors to look for possibilities to create new opportunities. This involves making good use of the important element of timing.

Governance setting revisited: Adaptive water management and external regime flexibility

After the development of the Regge Vision in 1998, implementation was not “planned” in the manner of a singular project. If developed in that way, its scale would have been beyond the capacity of any organization in the Netherlands. Instead they chose to leave ample room for coincidences and the creation and seizing of opportunities. The Waterboard learned through this process which opportunities were available in the various areas, often due to their participation in past projects. They began through taking coincidental opportunities and then proceeding to determine what further opportunities there were by searching systematically for more ideal projects in terms of their goals. The projects then began to develop through searching for ideas, plans and goals of others that might produce promising dynamics and allow for opportunities for final goal achievement.

To make full use of such chances, the Waterboard likes to, when possible, hold the ownership of at least part of these areas or have it be in the hands of nature oriented projects partners, such as the various nature organizations. This makes operating within the project easier as opposed to when ownership is dispersed over many private owners. The nature organizations, the Province and often the Municipality are interested in more or less the same outcome in terms of the project as the Waterboard, and so a new project of this sort is often easily created.

What are the barriers to efficient implementation and how can they be dealt with? First and foremost, it is important to acquire land or at least the permission to use the lands in the area. Here the project implementation is tied to the property and use rights of the land owners. Prior to the project development, the grounds are often owned by farmers and there is as such significant economic capital contained in the ground. When farmers leave their grounds, they generally expect to be provided with the possibility to continue farming at another location. These spaces are however quite hard to find in the Netherlands. Patience is thus an important part of achieving these goals: waiting for chances such as a farmer to stop his business while still ensuring that the overall goals (and timelines) are kept in mind. One strategy employed was to increase the size of the project by including additional players into the process. This increase in complexity is seen to increase the chances of being able to find opportunities for different kinds of appropriate activities to include into project designs.

Difficulties also arise in matching the budget times to the project times. This is generally an issue with normal annual government budgets, though it is especially problematic when for instance subsidy grants from European programmes require specific beginning and end dates for project realization. There is often an additional concern that the money will be taken away if these targets cannot be realized. For straightforward and simple projects that have a clear beginning and end target available the budget can be relatively easily and appropriately scheduled. With more complex projects with a high dependency on the willingness of actors to cooperate, the opportunities are not often present in the beginning to be able to include them and develop them in the planning. When you have no land to use for example, the project can not officially begin. Patience is seen here again as being important, otherwise the project team might be forced to pay too much for the land. There is also the risk that the following time in which a new farmer is targeted, they will expect a similar agreement. Organizing the surrounding environment (arena) to

increase the ability to produce and use opportunities to proceed has been a successful tactic for the Waterboard.

One way that the Waterboard attempts to achieve this situation is through the purchasing of land without the intention of using it for the creation of nature, but instead as a means for exchange. This creates a stronger resource position from the perspective of the initiator for an essential resource that has only a limited ability to be interchanged with other resources such as legal rights and money. The Waterboard, the Province and some nature organizations like Nature Monuments are able to perform such actions. The widespread nature organization Landscape Overijssel however cannot since they are not a particularly well-funded group. The DLG (Agency for the Rural Area) of the Ministry for Agriculture, Nature and Food Safety could benefit from operating this way as they would still be acquiring ownership of lands they don't use directly but as a reservoir of resources to be exchanged to enable rural development.

There is some uncertainty associated with the political situation in times of overall budget cuts and in terms of dealing with the fact that the 2018 deadline to complete the Ecological Main Structure (EHS) will not be reached given the current trajectory. In the face of budget cuts the Province will have only a few options (1) provide more money to the projects; unlikely since there is not enough money available to purchase all desired lands unless they decide to use their financial reserves for such a purpose, (2) adjust the timeline, or (3) adjust the goals. A policy uncertainty related to the delayed pace being kept in attaining the 2018 goal is that the present policy against using expropriation is not as stable and certain as people seem to think. It is however more expensive to expropriate which does make it quite unlikely in times of budget cuts. Due to the recession, there are increasing opportunities to buy farms at reduced prices, however there is of course also less money to do so.

Figure 56: Evening over Regge River
(Source: Koen Bleumink)

Under increased financial concerns and scrutiny, as well as pressure from the National government, the Province has decided to no longer purchase pieces of land to use as bargaining chips. Instead they will only purchase land when they can use them directly in the area where they are most needed for nature protection and completing the EHS. As a result it is very difficult for the project teams to do the land exchanges described earlier and thus it could take extra time and money to complete some of the projects. This reduced flexibility in terms of land acquisition actually makes things more difficult in terms of completing the EHS on time. In terms of implementing policies and regulations from above our provincial interviewee remarked: "It is always a big struggle – I have worked a long time doing this, and it is getting more complicated, there are more regulations and it is difficult to find a way in it – you see this in every policy field".

The only policy plans that the Province considers to be necessary to reconcile actively within the Regge restoration projects are the EHS, the Water Framework Directive and Natura 2000. When inflexibilities in the regime are concerned, interviewees often referred to Natura 2000, which is implemented in the Dutch context in the form of the Nature Protection Law. The precise nature of how Natura 2000 is supposed to be implemented is however still not completely clear. The areas themselves are defined but the management plans are not yet clearly set and so there are still many questions about how the

surrounding areas will be affected. When an area is designated as a "Habitat area" the legal framework becomes complicated and actions which could harm the significant aspects of the area can be restricted, regardless of other potential improvements which they could enable. The major difficulty here is the uncertainty about the term significant which is used in the regulation, which is very difficult to define in terms of the necessary habitat. Government officials are in the process of trying to clarify this and implicitly make decisions though it has tended to result in the development of lists of things that are 'probably' significant. Practically, it is up to the Province to determine what they think is significant and in the case that someone disagrees with this, litigation can be sought. The final decision is thus often with the courts. Since a precise understanding of what is significant is still absent, a typical court response is an order to assess whether or not possible relevant aspects have been studied and if not, then to require further study ("ever more science" as a response to uncertainty – compare Arentsen, Bressers and O'Toole 2000).

In comparison, these problems do not occur regarding the implementation of the EHS. The EHS is less strictly regulated than the Natura 2000 which makes its implementation appear to be occurring more smoothly. In terms of the relationship between the EHS nature development and the implementation of the WFD there is some discussion about where the most importance should be placed. There are certain developments which are good for nature but perhaps not as good for 'purely' natural water management. For instance making the Regge fully natural would imply that it is allowed to dry up occasionally, which would destroy all of the water loving nature that has now developed there. While they are also still unclear about a number of requirements under the WFD, the Province is still undergoing discussions with and between the Waterboard, themselves and the European decision makers.

In the Netherlands it is seen as important and to some degree self-evident to transfer agricultural land to nature, as opposed to the German perspective which is more so based on the protection of current nature areas. Initially, the Regge restoration projects were part of a natural connection plan to Germany, however this was changed and the project perspective now ends in Twente (despite the existence of forested areas which lie on the other side of the German border). The German authorities and nature groups are beginning discussions about developing a similar planning activity to that of the EHS. These discussion will necessarily take a long time and hence it is not wise for the Dutch plans to wait for them to develop further in order to act in a coordinated fashion. International negotiations are taking place with Germany regarding the implementation of the European joint border projects. This brings to light the different capabilities and views from the different

situations, since the Netherlands is focused on making new nature and the Germans are focused on nature protection. There are also differences between the different Provinces on the German side, because they have separate governments with different priorities.

Are there any connections in these projects made to the EU Common Agricultural Policy (CAP)? The new policy framework has not yet been implemented, but it has already been announced and changes continue to be discussed. The recently altered requirements for receiving supplements from CAP programs will likely increase the chances that some farmers who choose to perform "full gas" (highly intensive) farming and who are not comfortable switching to providing more natural services to eventually stop since they will no longer be eligible to get the subsidies. In that sense it could certainly contribute to and facilitate adaptive implementation and the other way around adaptive implementation might be the best way to make optimal use of these opportunities that are generated by the CAP reform. The Province would welcome this in the Regge restoration area; however there are some areas (outside the restoration area) where they would prefer that they continue to use intensive farming. These areas are defined in the Province's 2009 Living Environment Vision (Omgevingsvisie).

From the perspective of the Waterboard, there are some aspects of the regime which can provide restrictions or facilitate this sort of adaptive management which is responsive to uncertainties and changing realities. What are the effects of the regulations and policy instruments from the higher government levels on the flexibility experienced and adaptiveness possible? Some issues mentioned by the Waterboard which they have come across in the Regge renaturalization projects are mentioned in the following paragraphs.

The Dutch *Flora and Fauna Law* places restrictions on the timing of works in the development/project areas. During realization this can imply that things cannot be done in the most convenient periods (due to the mating or birthing habits of particular species), but this generally does not result in much more than causing delays.

The *Archaeology regulation* (Treaty of Malta) is being more seriously implemented in the last 5 years. It implies that extensive research must first be performed everywhere where there is a chance of an archaeologically valuable aspect being discovered and if necessary careful excavation must take place. The interviewees claimed that this sometimes leads to delays and costs that aren't understood by the population and other stakeholders. In the Regge valley there may indeed be a lot of archaeological value though little is known

regarding this. Following this regulation fully can have a negative impact on their reputation in that the people see them as not being efficient in their project implementation, even though they are simply following legal obligations.

Another issue which has an effect on the political decision making, trust of partners, is affected by *policy changes desired from upper government levels*. For example when the Province decided (under pressure of the national government) that they would no longer purchase land other than the land they need in the area where nature will be developed as part of the Ecological Main Structure, the Province withdrew from its previous way of operating together with the Waterboard. This previous process was considered as investing in future flexibility to enable adaptive behaviour in these complex projects. Thus now the Province is (forced to be) only concerned with its own interests, and hence no longer delivering its contribution to generating a flexible resource basis though exchangeable land ownership. The Waterboard is in a sense losing partners that had previously had a very strong interest in these projects and played an important role for them in the integrated teams. The provincial interviewee believed that the greatest decrease in flexibility was in this new limitation in the ability to purchase land as they used to as well as the lack of clarity now given on which lands they should continue to work on at the Province. In the eyes of the interviewee, the Water Board is very good and practical in working around these issues. They are able to function better in this way than the Province can as for example was demonstrated in their successful actions in the Breakthrough project (see Bressers, Hanegraaff and Lulofs 2010).

Furthermore, there is a general tendency in management to increase *"accountability"* which easily develops into a re-fragmentation of interests, an exaggerated need for statistics and number crunching. For instance, a new subsidy scheme which is developed for these kinds of projects is the ILG (Investeringsbudget Landelijk Gebied). In this scheme there are separate PMJP goals, quantitative goals for each separate aspect of interest in the project (PMJP is the provincial multi-annual programme). What this results in is that each partner becomes more concerned with their achieving their own portions of the project and that they need to see their results exhibited in a form which can be measured. This can be the death of integral projects where one should not be aggressively striving to attain one's own goals but be creative to achieve an optimal mix for all partners. It sounds good to say that projects are being made more "accountable", but in fact if done in this way it can force partners to pursue only their own goals resulting in much more rigid boundaries and in fact imposes huge barriers onto such projects. The ILG

program is paid for by the Ministries of LNV (agriculture and nature), VROM (environment and spatial planning) and a small contribution is provided by the public works agency Rijkswaterstaat. Nevertheless the new dividing lines between the various goals were mostly not issued by the national government, but at the provincial level. The previous POP SGB[6] subsidies, where more concerned with achieving integral objectives. Now, all partners in a project have their own portions to take care of – water, nature, buffering needs, and specified number of new meters of walking paths, etc. If a project does not fulfill all these objectives separately, for instance buffering capacity, while it delivers at some of these goals much more, then it is regarded as a failure. In fact it contradicts with the very idea of integrated and multi-functional land use projects, because it takes an unrealistic top down perspective to policy implementation. Not only the Waterboard, but also municipalities recognize this problem. The Province itself agrees that the accountability requirements are increasing towards target completion, but they are not aware of how this affects the Regge restoration.

In fact the Regge restoration projects have the advantage here that they started before these new hindrances and thus key players have already learned to know, respect and trust each other. The new complexities of separate subsidies and accountability goals are cleverly circumvented by making agreements on "who does what" that enable each partner to only spend money for purposes that they are allowed to, while still maintaining the joint project perspective. In the past the Waterboard could co-finance a stretch of bicycle path at the area where they were working, but this is no longer the case. They now need to let the Municipality pay for it and then compensate this with some action that otherwise the Municipality would have done on their account yet is also defendable as being placed on the Waterboard's budget. For long standing multi-actor project teams it becomes much more complicated this way, but it is seen to be possible. However new situations that arise where new people are coming together might never reach such a level of coherence due to the disincentives that the separate money streams provide to them.

There are also time pressures due to subsidy deadlines. Timeliness is also important in terms of internal deadlines for project cost subsidies requiring the start or finish of projects to occur before a certain date, which can cause "all or nothing" situations for partner organizations, i.e. real "deadlines" and so they can't risk their projects going over time. In the past, constructers have been paid in advance to circumvent such times pressures, although nowadays

[6] Subsidies from the European Platteland Ontwikkeling Programma as implemented by Subsidiëring Gebiedsgericht Beleid" (EU rural development programme through subsidizing area-centered policy)

such actions more strictly restricted. Sometimes this can be for the good, but again this is seen here to decrease the necessary flexibility to enable such complex projects.

To what extent are flexibilities or inflexibilities created by the Water Framework Directive? At the Water Board of Regge and Dinkel they basically have translated the WFD into to (a) management of the buffer strips alongside the water and (b) providing fish passages. They consider for the time being that by doing this the ecological goals will be attained. They have designated the Regge as a water body of the "mid–level modified", in terms of artificiality and thus ecological ambition. Implementing it strictly according to the WFD means that in the short run they only have to maintain the shores 5 meters on each side of the river. The WFD doesn't refer at all to the creation of water buffering capacity. The 5 meters of natural conditions that are required are easily surpassed with the present renaturalization ambitions so they feel as though they are already meeting and exceeding the requirements of the directive. Making the dams in the river passable by fish is however considered to likely pose a problem for them.

There are no issues foreseen that endanger their ability to meet the quality requirements (industry, etc.) at points along the Regge. There is still some uncertainty as to whether or not they are interpreting the WFD correctly. They do not know for instance what kinds of plants and animals might be required to accommodate to according to the EU at some point in time later. As for the ecology implications, the most effective measure would probably be to remove all of the dams from the river that now retain a certain minimal water level even in dry periods. The single most important river characteristic for ecology might be that the river always flows however. This would have tremendous impacts on both human use and water life. The Waterboard is still struggling with this issue. If the dams are removed then the area-related functions for nature areas and agriculture for instance cannot be fulfilled anymore, because more often extreme dry and wet periods will be experienced. In the meanwhile, they have an ecological monitoring plan made for the Regge. At the moment, the "mid-level modified" designation doesn't pose very ambitious new goals, but it is uncertain how much extra time this will grant them, since ultimately all water is intended to be revived to having its fully natural qualities.

Concluding remarks

In the various cases and also in the more general descriptions of the Regge renaturalization process various forms of regime inflexibility which led to

problems for adaptive management were identified. Of the five elements of governance the "responsibilities and resources for implementation" and to a somewhat lesser degree the "strategies and instruments" have the most direct impact on the implementation process. It is thus not surprising that the mentioned inflexibilities are mostly connected to these elements. Sometimes European or other international policies are at the roots of these issues, though this always occurs through the layer of national interpretation which operates a go-between the international and the local. This makes it hard – and often incorrect – to attribute the inflexibility solely to any given policy or program at the international level.

There has been a strong pressure exerted by the central government (and the Province) to pursue strictly voluntary implementation measures even when this would be seen to lead to encroachment upon the 2018 timeline. The WILG law and its option for forced exchange (as long as the farmer is not worse off) is therefore hardly used. On the other hand, it is widely recognized that the use of expropriation can result in inactive partners (often farmers). So it is questionable whether this factual restriction of legal resources of implementers really changes what they would have done otherwise in most cases.

Patience is often needed because financial and legal resources are insufficient to realize the projects at short notice, however time is sometimes restricted by subsidy requirements which do not match complex and opportunity seeking project timelines. Strategies such as prepaying builders or using other similar ways to soften the impact of such deadlines is no longer allowed, which increases the sharpness of these requirements. Multiple subsidies with such deadlines can make the financial foundation of a project look like a house made out of playing cards where if one card falls, the others come quickly after it.

Several other inflexibilities were experienced that the stakeholder either had to cope with or that were effectively restricting the scope of the multifunctionality optimization process that is inherent in river renaturalization projects.

It is a significant resource restriction that the Province is no longer permitted to buy land outside of designated project areas for the purpose of land exchange (the Province decided this but under national pressure).

At the level of European policy implementation Natura 2000 and Habitat are Bird Directives are translated nationally into the Nature Protection Law, though they are often mentioned as being inflexible as coming directly from Brussels. Most of the inflexibility occurs as a result of uncertainty about their precise requirements. The fallacy of "ever more science" being needed as way out of that uncertainty is seen to be at play here. This happens at various levels, including the courts, and results in the

potential to create large delays. In the meanwhile it is feared that large areas under their regulations are "locked", implying that no development is possible there, not even when on balance such development would be beneficial for nature and biodiversity. Such uncertainty could also occur if the WFD was taken literally in its implementation. As for now it is presumed not to be the case because the consequences of an extreme interpretation would be too intense in their consequences (i.e. letting the Regge run dry in summer, destroying all of the present nature development).

The Archaeology regulations (Treaty of Malta) can also put works on hold for a longer time which only adds to the requirements of the other regulations and their deadlines and is not at all understood by the local stakeholders that become concerned and frustrated when they see public works falling idle.

German connections to the EHS are lagging since the German policies continue to be much more conservationist and less nature development oriented. The Dutch policies are more in line with EU policies (which is not coincidental as they were initially inspired by the Dutch structure). As a result the ecological highways will likely end at the German border, which is not good for the priority this policy gets on the Dutch side since there is less value given to working on a discontinued passageway. As seen from the Dutch side this international context is very difficult to influence and thus quite inflexible.

Lastly there is a general tendency in various regulations to increase so-called "accountability" in such a way that it fixes the expectations of several requirements in a quantitative manner that are unlikely able to all be realized when done separately, which forces their respective implementers to compete rather than optimizing. These new division lines between the goals did not stem from the EU or national levels but were mostly included at the provincial level. They can destroy the integration of projects through an unrealistic top-down perspective. On the basis of the mutual relations, trust and past learning experiences (improving the receptivity of the project teams) some parts of the Regge restoration have somewhat of an advantage in dealing with these unrealistic demands. This in turn shows the importance of not disturbing the naturally existing fabrics of relationships and expertise.

Results: Stitching patchwork together

The results of the Regge renaturalization projects can also be viewed in terms of rivalries regarding resource use and in terms of their contribution to or depletion of the relevant "capitals": natural, manmade, social and human (see chapter 4, Knoepfel 2010 and Ekins, Dresner and Dahlström 2008).

Rivalries

In order to understand the rivalries in the use of the land and water one needs to discern the very local project area and the wider public debate. The fact that in all of the projects only voluntary local arrangements were used almost guarantees by definition that new rivalries were minimized. In a few cases though rivalries could be discerned, such as the issue of the public entrance in the Veldkamp area. However in many other aspects rivalries were in fact decreased through the development and implementation of the project. The agricultural use of land collided with the pathways for nature, the narrowly confined riverbed collided with the water buffering capacity, the neglected appearance of the river valley collided with the needs of modern recreation, etc. Many rivalries were solved or eased by the projects as they were realized.

In the wider public debate other issues were also drawn into consideration. From the perspective of the agrarian sector the gradual decrease of surface devoted to agricultural land in the Netherlands is experienced as a rivalry with other uses, regardless of whether or not the individual farmers involved were fully compensated or made in some way better off by the compensation they received. On the other hand many nature friendly and recreation oriented citizens took the gradual improvement of the landscape more or less for granted amidst many developments still ongoing that actually disrupt other parts of the landscape.. While this landscape improvement attitude has not been part of an ardent public debate, the agrarian sentiment is one of the core reasons why the political dynamics of 2010 enabled them to get hold of important political positions in the cabinet and its programme. As a result certain members of the cabinet have tried (and are still trying) to have the twenty year old national ecological network policies dismantled.

Capitals

What are the consequences of the above in terms of contribution to or depletion of the relevant natural, manmade, social and human capitals (compare Imesch 2010: 42)?

It is clear that from the realm of manmade capitals a considerable amount of money has been invested. In the short term this is considered mostly to be a form of depletion. On the other hand, research shows that the returns on this kind of investment are quite substantial and in fact are estimated to have a multiplier of 1.3 for the regional economy (Van der Veen & Kalfagianni 2006, Vikolainen, Coenen & Lulofs 2008).

From the realm of human capital, many skills and competences were involved. This is a kind of resource use that might be temporarily devoted to this purpose rather than to others, but doesn't get depleted by it. On the contrary, one can maintain that its use in the process has led to substantial learning processes and thus to both an individual and organizational increase in the level of this capital.

In terms of natural capital agricultural land has been transformed into nature and water areas and in some cases both. While this is substantial in terms of the project, some interviewees claimed that as compared to the agricultural land that is forgone due to new residential districts, industrial parks and infrastructure, the lands lost in these projects are marginal agricultural lands, as they are generally quite wet given their position next to a river and thus only useable with restrictions. They also point to the fact that the loss of agricultural land for these other purposes is much more substantial in size, and thus much more threatening for this natural resource's capacity to be able to provide enough products for the future.

Apart from these depletions of capitals a vast number of contributions can be discerned.

In the realm of natural capitals, the projects have brought important benefits for new land uses, landscape, water and biodiversity.

The manmade capitals have brought indirect financial returns, recreational facilities like teahouses and sometimes infrastructure like bridges and cycle paths.

Social capital is increased through making the area by and large much more equally accessible to the public. These natural areas can provide a sense of pride and thus cohesion to local municipalities, such as Hellendoorn which sees part of its identity in the naturalness of its area. They support aspects of cultural history through examples such as the zomp boats in Goor and the Diepenheim castles and mill. With the growing cooperation between the relevant organisations they help create new consensus oriented institutional fabrics.

In terms of human capital we previously mentioned the learning processes and the increase in the skill levels of many people involved. Furthermore a healthy ecosystem and attractive landscape belong to the natural resources that provide many goods and services upon which human health in turn depends on. In any case many peoples' well-being is served by the quality of nature and landscape and the joy of experiencing this.

Realizing a vision

The Regge renaturalization projects began with a general perspective: to turn the Regge valley again into a dynamic river system. This perspective was elaborated in a document, the "Regge Vision" of 1998. The implementation of this vision was not a classic top down implementation process, but very much a piecemeal learning process where coincidence and "emergence" of issues and solutions could play a large role. Almost from the very beginning a Landscape Architects' bureau was involved to provide their expertise on disciplines such as landscape, ecology, management and technology. They have also experienced the process as one big learning process in which the several smaller subprojects were not only parts of the realization the whole, but also lessons to be incorporated into the next projects. Gradually they viewed it more and more as part of their task to better connect the projects to the renaturalization as a whole and they also felt better capable of doing so as the process moved forward. In addition to the key subjects of water and nature, issues of economic interests such as recreation are receiving increased attention. The projects are becoming less about only removing agriculture and developing new nature and more about working from the bottom/local level to include as many of the various interests as possible while still producing an as natural and functioning stream valley as they can. Consequently, while the day to day work of the stakeholders in the various projects could lead them to try and optimise only based on the interests visible in the separate projects, it is important that an inspiring vision for the whole of the renaturalization process is not forgotten in the implementation.

After having accomplished so many things along the Regge the discussion among all partners has turned to dealing with where the remaining gaps are, how they can plan to fill these in and which parties are able to contribute what. The idea of an ecological pathway structure being included in both national and provincial policies has been very helpful, since it involves ultimately the whole of the Regge, and produces a co-driver for similar changes. However the close collaboration with the Province on this is not evolving very well. What is additionally troublesome is that the Province may be experiencing concerns that the Waterboard could try to take over the direction in this field. This is denied to be the case by the Waterboard interviewees.

Recently the atmosphere has become even slightly more tense as in the wake of the economic crisis, debate is occurring around the huge budget cuts for all Dutch governments. This has even led to debates on "bestuurlijke drukte" ("administrative congestion") and then posing the question whether either the

Provinces or the Waterboards should be abolished. The Waterboards suggested a further merge and accumulation of all tasks related somehow to water with them. The Provinces disagreed completely, afraid in these times of any further hollowing out of their task jurisdiction portfolio. This struggle for competencies and even existence hinders the smooth cooperation that has led to so much productive teamwork in the past.

From the perspective of Landscape Overijssel the Regge restoration has until now not yet realized its full ecological and landscape potential. The small programs and projects were essential to get the ball rolling (even though they took a great deal of effort) because there was in fact no other way to do it. The larger general program framework enables these small successes to be spread. The EHS is scheduled for completion in 2018. The Province themselves became involved in the implementation of this with the "Tatums" project 15 years ago. Velderberg, the very first Regge restoration project set a good example and made clear that the restoration interests were possible. As more beautiful and interesting landscapes are completed, it is helping to open up the minds not only of the public but also of the municipalities to the possibilities.

The Reggevisie has given a good name to the Waterboard of Regge and Dinkel as being an ally to nature, whereas before they had had a bad reputation for installing typically traditional water projects. They have experienced good results already in terms of water quality improvement in the Regge. Without the Waterboards the Province would be the only responsible government-like body for renaturalization implementation. They do not however really have the means, experience and knowledge that the Waterboard does have. As the Waterboard of Regge and Dinkel is one of the more progressive Waterboards in the Netherlands, the others look to it as an example, which certainly bodes well for their future development.

As of September 2011 the status of the Regge renaturalization projects is as follows: of the 52 kilometers belonging to the Regge River, projects covering 11 kilometers have been entirely realized. For another 30 kilometers projects and plans in various forms and stages are underway. Only for some 7 to 8 kilometers there is as yet no activity planned at all.

In a time where the country is finding itself making difficult decisions on both economic and environmental issues, there is a danger that these projects will be undervalued compared to more traditional methods. This could enable more intensive development to occur which is perceived to have stronger short term economic benefits (and reduced state costs). Our findings suggest however that the new approach to flooding management, project

development and implementation has many advantages in this densely populated country that should not be underestimated. Spinoff economic benefits and increased quality of life and environment are strong benefits of this approach. The future will only tell whether the creativity of the actors in these projects will prove to be able to cope with the recent difficulties imposed due to the changes at the national level.

Chapter 9. Reflections and Lessons: Contextual Water Management

Introduction

Being a delta country, the Netherlands' has understandable concerns regarding the increasing frequency of high and low water situations as a result of climate change. This has warranted a drastic change of approach to water, land and nature management through a strategy that uses nature's resilience to provide for both human and natural environmental needs. The subject of our study was the planned multi-functionality, increasing space for river beds and connection of natural areas that are at the heart of efforts in the Dutch rural areas. The resulting projects were able to be designed in an integrated fashion that increases their compatibility with habitat and water quality and quantity goals from the National and European levels. Recreation, agriculture, nature and flood management were expected to combine quite well as partners under the Regge River Restoration Projects.

To enable this, project managers are also expected to need to apply adaptive strategies which in turn require appropriate governance regimes to provide the proper stimuli. This was the basic hypothesis with which we started our study. In this concluding chapter we will wrap up the findings and arrive at our final conclusions.

Reflections

In this section we will highlight some reflections from the perspective of the theoretical framework used in this research on the practical issues related to the implementation process.

Looking from the bottom up

We approached the task of learning more about the governance regime by starting with the real life processes that take place and beginning our reasoning from there ("backward mapping" – Elmore 1980). This led us to use the results as the beginning point from which to describe the process as seen when paying attention to the motivations, cognitions and resources of actors. Further, we examined how these actor characteristics were addresses and accommodated but also how they changed over time and ultimately what regime elements hampered this process. This approach enabled a realistic and

practical study of the relevant regime elements. In order to further validate the reliability of these findings we used our conceptual model to assess what impacts an explaining variable (e.g. a strategy used) would likely have, through what pathway, on the affected variable. The presence of such intermediate and characteristic side phenomena were found to be mentioned in documents, interviews or observed in practice. While in the three case chapters we use mostly the first approach, in the previous and present chapter we present our conclusions from the second perspective.

Settings and strategies

Generally the implementation settings, which consist of the constellation of actors and their characteristics, resulted in amazingly productive projects in terms of improvements in nature, water and landscape quality and quantity, as well as providing more flood safety. Nevertheless we saw that these projects require great patience in order to await the right timing, prudence in minimizing the risks of entering into settings that escalate towards conflict, preparation of the setting in advance to enable the opening up of other actors' motivations, cognitions and resources and accommodation and perseverance in overcoming continuously arising issues. Special attention is paid here to the relationship between public priorities and private property and use rights. Typically the project managers "settle" for entirely voluntary agreements, in order to prevent the lack of cooperation and conflict that are associated with projects that make use of expropriation threats. Most of the strategies used could be labelled as forms of boundary spanning.

Receptivity and dilemmas

For many of the actors it was not self-evident from the start of the projects that they would need to use the resulting strategies. They were not trained in advance to think and behave in this way though they were able to learn rather quickly as the clear benefits of doing so were being realised. Internal strategies enlarged the receptivity of both the individuals and the organizations and thus enabled them to better handle these challenges. This includes that they became more aware of the dilemma's that often evolve from the use of external strategies Many of these options do not have a "the more the better" character, and thus must be carefully dosed in time and place.

Extent: Opening up

In terms of the extent of the regime the Regge renaturalization combines an extraordinary wealth of sector or problem based perceptions: water quantity,

water quality, nature protection, nature development, agriculture, landscape, spatial planning, recreation and tourism and related economic developments, infrastructure, environmental education, cultural history, and even art perspectives and goals play roles in these projects. Obviously this also has impacts on the number of levels and scales involved, actors involved, responsibilities, as well as the instruments that are available for use and that must also be taken into consideration for implementation. Actually the resources for implementation are often the starting point for the extension of the scope of the projects, since no sector alone can fully support the funding of such projects while with sufficient creativity the various goals can often be combined.

Coherence: Integrating governance or integrating implementation?

Obviously the existence of such a wide extent poses a challenge in terms of the level of coherence of the regime. The projects are not seen to have withered away due to excessive fragmentation, so is there a sufficient level of coherence established? This is not seen to a great degree in the relationship between the various levels and scales. Although there have been various attempts to relate the levels, for instance in the implementation of the Water Framework Directive, in the National Administrative Agreement on Water Buffering Capacity in the light of climate change, and in the stepwise delegation of the creation of an ecological highway structure and robust linkage zones. The problem is that such inter-level coherence, which also affects goals, instruments and responsibilities and resources like funding, is for the most part established based on the separate sectors. This has as a consequence that the coherence has to be constructed at a regional planning and local implementation level. Although this has been generally very successful in the Regge renaturalization projects, it leads to potential vulnerabilities in terms of intensity and flexibility.

Intensity: The risk of coherence merely at the regional level

Following the empirical research period a 20 year old nature policy was suddenly denounced, thus making the intensity of the regime for this pillar of the projects collapse nearly completely. This policy pursued the creation of ecological linkage zones between the scattered Dutch natural areas, allowing species to migrate freely through changing climate zones and had been the inspiration for a similar European Union policy. At the beginning of 2011 is was not yet clear how serious the long term consequences would be. As a result of this departure however in the short run it can be seen that a substantial part of the financial resources for projects like the Regge

renaturalization will suddenly be withdrawn. One particular consequence is that the projects as they were originally conceived are considered by some to now be too far out of the scope of what they have to accomplish. If a new government were to resume the policy in the future, the current halt put on many of the ongoing agreements will likely have caused severe and long lasting damage to the project preparation. Agreements will likely need to start all over and the fabric of trust by the farmers involved is at risk of being harmed for a longer period of time after this experience. From the national government's perspective they have simply made a different choice in parts of the overall national nature policy. From the perspective of these projects, this intervention into the current system is damaging a complex inter-policy cooperation process in which not only financial, but also an enormous amount of non-financial resources of many actors has been invested over the last decade.

Flexibility: The key to adaptive and contextual management

In many of the projects discussed in this book we have given examples of inflexibilities in the governance regime that were identified and experienced by the practitioners working on the realization of the projects. Regardless, we could still conclude that overall the degree of flexibility of the regime was quite reasonable during most of the period under study. On the other hand we did see a gradual increase of experienced inflexibilities that are seemingly related to the desire to control the projects' outcomes. This is perhaps occurring in an attempt to safeguard the various sectoral goals, a typical reflex which is fundamentally based on distrust and top-down thinking. On the other hand this can also be attributed to the gradual increase in the fragmentation of the upper and middle levels of governance. The synergies achieved by the project groups in many of the projects that are realized are however only conceivable when there is ample leeway in dealing with separate objectives to optimize the shared results. The Groene Mal project (green mould) which is based on an administrative agreement designed to overcome the spatial planning restrictions that are posed by "red moulds" is a good example of how regime flexibility can be increased by the use of bottom-up strategies. However, as with the coherence-intensity issue above, this may as well be a vulnerable solution.

Lessons: Contextual Water Management

Having gained the insights from this careful examination of the Regge renaturalization process, we choose to use this final chapter of the book to

address some lessons that might be drawn from the experiences with this project and applied more generally to other multi-purpose water projects. We'll do so by combining the findings from this study and some similar studies within the structure of Contextual Interaction Theory and the Waterboard of Regge and Dinkel's guiding corporate concept of Contextual Water Management.

Contextual Water Management (Kuks 2005) starts by acknowledging that water is not a sector that can be set apart from others and dealt with in isolation. As much as water is influencing many aspects of human society and natural life, it is influenced in return by them. Good water management is therefore necessarily integrated water management. The various uses and users, their needs, as well as the impact of their actions all need to be taken into account. This implies that water management cannot operate in isolation of other relevant policy fields. Water management needs to take the developments in other policies into account and the other way around. When this interaction between water management, human activities and policies is not well guided, it will likely result in a continuous struggle in the implementation of water policies. Often implementation projects that require scarce resources such as space and funding will come to a halt when the mutual dependency between the various policies and activities at stake is not recognized and incorporated.

The research reported on in this book showed that this need not always be the case. While the natural characteristics of the water system do impose a specific context of which its management needs to reckon with, there is room to balance the "optimum" solutions across the purely water management goals as well as the other interests that are involved in the projects. The social context is no less important than the natural context of the water system's characteristics. It is a source of demand for water-related goods and services and is as well a source of burden to the waters, as is acknowledged in many integrated water management concepts. The social context is possibly even more important for the problem-solving side of the system. Management is by no means a deed only of a manager. As we have seen in this book it's in fact a complex multi-actor process. Interacting with the social context in the implementation of water policy is inevitable. As a result, contextual variation of solutions is normal and blue print planning, fixing details in advance of the interaction process is a recipe for failure.

Multi-purpose Regge renaturalization: Exception or rule?

How general is the picture that we paint in this book about water management projects as complex and dynamic interaction processes? Is the multi-purpose character of these projects exceptional in the Netherlands? In a related study (Van Tilburg, Bressers and Coenen 2009) we investigated among others to what extent this multi-functionality of water management projects was an exception or the rule. A survey was sent out to all members of the 26 Waterboards' elected councils and boards in the Netherlands (with a response rate of 190 out of 900). These administrators can be divided into members of the so-called General Board (comparable to city councillors – 148 in the sample) and members of the Daily Boards (comparable to city aldermen and mayor – 42 in the sample). The distribution however of their answers was hardly different and for that reason they are handled together below. Another survey was sent out to all of the identified Waterboard civil servants that were working either in projects or in relevant policymaking fields (with a response rate of 81 out of 135). Both the aspect of the respondents' boundary judgments and the aspect of their real experience were included in the survey. Deliberately, a wide array of sectors was proposed to prevent a researchers' pre-selection that could easily be too restrictive. To further prevent impacting the answers, the sequence in which the items were presented in the survey was random.

Relevance

In the table below the relevance for inclusion assigned to various policy fields is shown. The results show a remarkable array of sector issues that were deemed as relevant to be included in what can also be viewed as water management projects. The Waterboard civil servants and the administrators hold very similar boundary judgements. In general the civil servants are somewhat more outspoken in both their positive and negative reactions regarding the various sectors mentioned than were the councillors and board members. A majority from both groups of respondents deemed the listed sectors (1-12) as being highly or at least mostly relevant to be included in water projects. Approximately half felt that environmental education was mostly or highly relevant. However environmental education receives quite low scores for being highly relevant, thus it is more seen as a side-goal than a serious ambition. Tax policy is deemed to be more relevant by the councillors (who decide on the Waterboard tax rates) than by the civil servants.

The general idea of combining goals from various policies with water management projects is thus very generally supported. Vast majorities of both political governors and officials see several sectors as apt for this. For them water projects are certainly not just about water! Spatial planning is regarded as being even more relevant (or inevitable) than coupling of the projects with other than the initial water goals. Several sectors that are important for agriculture, like integrated area programmes, land reconstruction and to a somewhat lesser extent rural development also scored quite high.

The increasing importance of nature for the work of the Waterboards is not only demonstrated via the nature aspects that are already incorporated into integrated area programmes and land reconstruction, but also by the high scores given for nature development, nature protection and environmental protection. Rural development, as well as recreation, tourism and economic development are goals that address the economic vitality of the area. They were as well deemed as being mostly relevant for inclusion in water projects. It is furthermore quite striking that even less obvious sectors like cultural history, (sports) fishery and environmental education still are seen as relevant. Only in the cases of minority integration policy and crime safety did a majority believe that there was simply “no” relevance for water projects.

	Highly +++		Mostly ++	Somewhat +	Not 0
1. Spatial planning	62	(61)	28	9	1
2. Other water goals	53	(63)	35	13	0
3. Integrated area policy	49	(63)	40	11	0
4. Land reconstruction	45	(74)	35	18	3
5. Nature development	33	(62)	35	28	4
6. Environmental protection	28	(20)	35	32	6
7. Nature protection	28	(55)	34	34	4
8. Rural development	26	(49)	44	22	8
9. Recreation and tourism	25	(19)	46	28	1
10. Economic development	22	(19)	48	25	4
11. City planning	22	(40)	44	21	13
12. Cultural history	17	(9)	39	38	5
13. Tax policy	18	(3)	23	26	33
14. Fishery	14	(7)	39	37	10
15. Food safety	11	(0)	25	34	30
16. Environmental education	9	(11)	42	30	20
17. Big city policy	8	(5)	22	34	37
18. Mobility and transport	6	(0)	16	46	32
19. Research and education	4	(6)	24	51	22
20. Health and sports	4	(6)	19	34	43
21. Labour	4	(0)	16	45	35
22. Trade and investments	4	(0)	17	35	45
23. Art and culture	1	(3)	11	44	43
24. Minority integration policy	1	(2)	7	18	75
25. Crime safety	1	(0)	4	22	73

Table 2: Which policy sectors and goals do Waterboard councillors and board members deem relevant for coupling with water management projects? Between brackets: scores for "highly relevant" from the civil servants (in %)
(Sequence determined by percentage "highly relevant" – because of rounding not always 100%)

Experience

A high degree of openness towards the inclusion of other sectors into water management projects and including water management goals into projects that are initially driven by other goals has been shown to occur through the survey results. Is this coupling of multiple policies in single projects actually experienced in practice in the Netherlands? The table below shows the actual degree of experience of Waterboard councillors and board members with such couplings in their projects. It shows that the respondents have indeed already had quite broad experiences with these inter-sectoral couplings.

	Often +++		Sometimes ++	Once +	Never 0
1 (1). Spatial planning	52	(63)	33	7	7
2 (5). Nature development	50	(62)	29	13	7
3 (3). Integrated area policy	49	(59)	34	10	7
4 (4). Land reconstruction	47	(62)	31	11	11
5 (2). Other water goals	45	(58)	37	11	8
6 (7). Nature protection	38	(54)	37	15	10
7 (9). Recreation and tourism	35	(30)	42	18	6
8 (6). Environmental protection	30	(31)	40	17	13
9 (8). Rural development	26	(47)	42	14	18
10 (10). Economic development	20	(17)	37	24	19
11 (12). Cultural history	18	(19)	44	25	14
12 (13). Tax policy	18	(4)	21	17	44
13 (11). City planning	16	(37)	38	25	21
14 (16). Environmental education	9	(7)	42	30	20
15 (14). Fishery	9	(11)	38	31	22
16 (17). Big city programmes	7	(6)	18	20	55
17 (18). Mobility and transport	5	(4)	19	29	48
18 (15). Food safety	5	(1)	18	29	48
19 (21). Labour	5	(0)	17	22	56
20 (19). Research and education	4	(5)	23	39	34
21 (22). Trade and investments	2	(0)	18	21	59
22 (23). Art and culture	2	(1)	17	35	46
23 (20). Health and sports	2	(4)	17	23	58
24 (24). Integration policy	1	(1)	9	7	83
25 (25). Crime safety	0	(0)	8	11	81

Table 3: What kind of couplings with water management projects have the administrators really experienced? Between brackets:scores for "often" from the civil servants (in %)
(Sequence determined by percentage "often" – numbering between brackets is the sequence of "highly relevant")

Not only do the respondents regard the coupling of other policy sectors to water projects as relevant, it thus is also seen to take place widely. There are certainly even various examples recognised with the less obvious sectors. There are some differences however since although many of the councillors see the issue as relevant; the inclusion of nature development is even more obvious in reality. Half of the administrators claim that they have "often" experienced this while only one third sees it as being "very relevant". With the civil servants this difference is absent as nature development relevancy too has a very score (62%). The pressure being put on the Provincial governments to realize the National Ecological Network may be having an effect here. Nature protection and recreation and tourism were also sectors which the respondents had given higher scores to having actually experienced coupling with them, than they felt them as being relevant.

Generally, there is a strong correlation between the degree in which a sector is seen as relevant for inclusion and the degree to which this has been experienced. Of course the causality can be occurring in both ways in this relationship: 1) what one has experienced as being successfully included will be regarded as more relevant and the other way around, 2) what one sees as relevant will be more accepted to become realized. At an individual level these relationships also exist. They may however be less strong than expected. Per sector they vary from .335 to .754 (all in Spearman's Rho – all significant). This means that there certainly is a relationship between experience and relevancy and vice versa, but only to a certain degree (which by the way also shows that the respondents have been able to distinguish the two sets of questions well and have answered thoughtfully). Generally the correlations are stronger with sectors with which there is not so much experience. Relatively low correlations (less than .400) were found with nature protection, environmental education and cultural history. Relative high ones (more than .700) were only found with tax policy and trade & investments. We also calculated the general openness towards inclusion of other goals and the general level of experience of the Waterboard administrators. Those two variables were correlated at .603 with one another, which is considered a clear correlation, but it is not so strong that it would suggest that one is in fact measuring the same (or a similar) phenomenon twice. Similar calculations with the civil servants produced the same result: a correlation of .617 in this case.

A rotated factor analysis of the answers of the administrators on the relevance of sectors creates two main factors. These two factors are deemed highly relevant due to having eigenvalues of 5.7 and 3.3. The other factors have eigenvalues of less than 1.5. Eigenvalues represent the amount of variance accounted for by each factor and are used to determine the number of factors to work with. The first factor loads high respectively on nature development, nature protection, environmental protection, spatial planning, other water goals, cultural history, recreation and tourism, environmental education and integrated area programmes. We propose that "green" be used as the most appropriate label for this factor. Factor 2 loads mostly on labour, trade and investments, mobility and transport, food security, health and sports, tax policy, economic development and urban development. This factor, then is best labelled as "economy". It is important to remember that this is about the relevance of inclusion in water projects. Of course it could be that this is related to administrators' political stances on the "green-grey" dimension, but that has not been investigated further. Interestingly, the correlation between the two factors is not negative, but slightly positive (Spearman's Rho .201).

This indicates that administrators that are relatively open to include green sectors seem to be slightly more - and thus not less - open to also include economic sectors. The underlying dimension is that some administrators are just more open towards inclusion of any other policy sector goals in water management projects than other administrators.

Conclusion

All things considered, this analysis showed that complex water management projects like the Regge renaturalization studied in this book are by no means exceptions, at least not in the Netherlands. One could reasonably suppose that this might be also true for other areas where high density or spatial pressures are seen. While structural and wider contexts in other countries will differ to some degree, it supports the assumption that lessons learned in projects like the Regge renaturalization can provide some value to many other situations, at least enough value to seriously consider their merits in more or less similar contexts. This holds true for instance for the external and internal strategies and the relevant characteristics of the governance regime that are illustrated in Chapter 8 and reflected upon in the beginning of this Chapter. It also is relevant for the innovative corporate guiding concept of the Waterboard of Regge and Dinkel, the Contextual Water Management approach. It provides an orienting vision for its staff and is clearly reflected in the way the Waterboard has operated in the "Regge Natural" renaturalization processes described in this book. At the same time, learning from the experiences in the Regge renaturalization processes and some other projects in the Waterboard area (Bressers, Hanegraaff & Lulofs 2010) and reflecting upon them, have clearly contributed to this approach.

Consequently, in the next section we can present the Contextual Water Management approach, reformulated on the basis of the results of this study and in the format of the Contextual Interaction Theory. It forms the conclusion of our study and a vision that can be used to guide practitioners in as far as they recognize themselves as working in similar projects and similar contexts.

Contextual Water Management & Contextual Interaction Theory

The approach of Contextual Water Management (Kuks 2005) can be closely linked to the overview model of Contextual Interaction Theory as shown below. It is rooted in the observation that until the 1980's water management

was mostly sectoral by nature and integration of water management was mostly integration of functions and measures in the water system. This Integrated Water Management (IWM) approach could be labelled internal integration. In the following two decennia (the 80s and 90s) a development took place in many European countries towards having a more open view on the relations of the water body with other aspects of natural and human uses, for instance its role in the support of natural ecosystems in the river basin area and its role for recreation and tourism (Bressers & Kuks 2008: 175). This Integrated Water Resource Management (IWRM) approach is itself a form of external integration with issues other than just water. The real implication of the widened scope however is not taken therein. This implication is namely that this kind of externally integrated water management cannot remain one-sided: a kind of optimization process in which the water manager simply considers additional issues before deciding what the best "policy & management response" would be, as in the well-known DPSIR model of the European Environment Agency. From 2000 onwards however, the period of the Regge renaturalization process, water managers have started to realize that the logic of the integration implies that the incorporation of water goals into the various policies that affect or are affected by the water system of all partners involved is actually essential.

"Water is part of the environment, as well as the social context and as such many other interests in addition to water should be taken into account. When water managers do not reckon with them, then water goals become unfeasible. So water management needs the involvement of other stakeholders. All of these various stakeholders have their own values attached to water, including socio-economical, esthetical, cultural, and even ethical values that need to be brought into the scope of the activities. Therefore water goals should be developed in interaction with partners in the environment and society at large, not just by the water managing organization. The balance between the values and interests of these partners and the urges of the water system should be continuously sought, in a permanent cooperative interaction, aiming at synergies. As a consequence the water goals cannot be implemented in a similar way across the board. The different contexts urge differentiation. Within practical limits, there should be space for variation. This of course makes the outcomes on paper less "certain" from the onset and one could even claim that the "optimal" water system will never be attained this way. In fact it's the best, maybe even the only, way to realize as much of each and as many of the water goals as possible" (Kuks 2005).

This actually turns water management from a modelling, decision making and management process into a multi-actor interactive policy process. Despite the

undeniable value of well-informed measurement and water system model calculations, it is essentially a "social interaction process" in which taking the different contexts into account is crucial for its success. A clear majority of Dutch water managers realize this: When judging a project proposal Waterboard administrators regard knowledge of other involved actors, practical experience, water system knowledge, and experiential knowledge of the local circumstances as most important, and only by a large margin thereafter technical, natural science and procedural knowledge (Bressers, Coenen & Van Tilburg 2009). This makes the tenets of the Contextual Interaction Theory appropriate to organize and describe the main guidelines of Contextual Water Management.

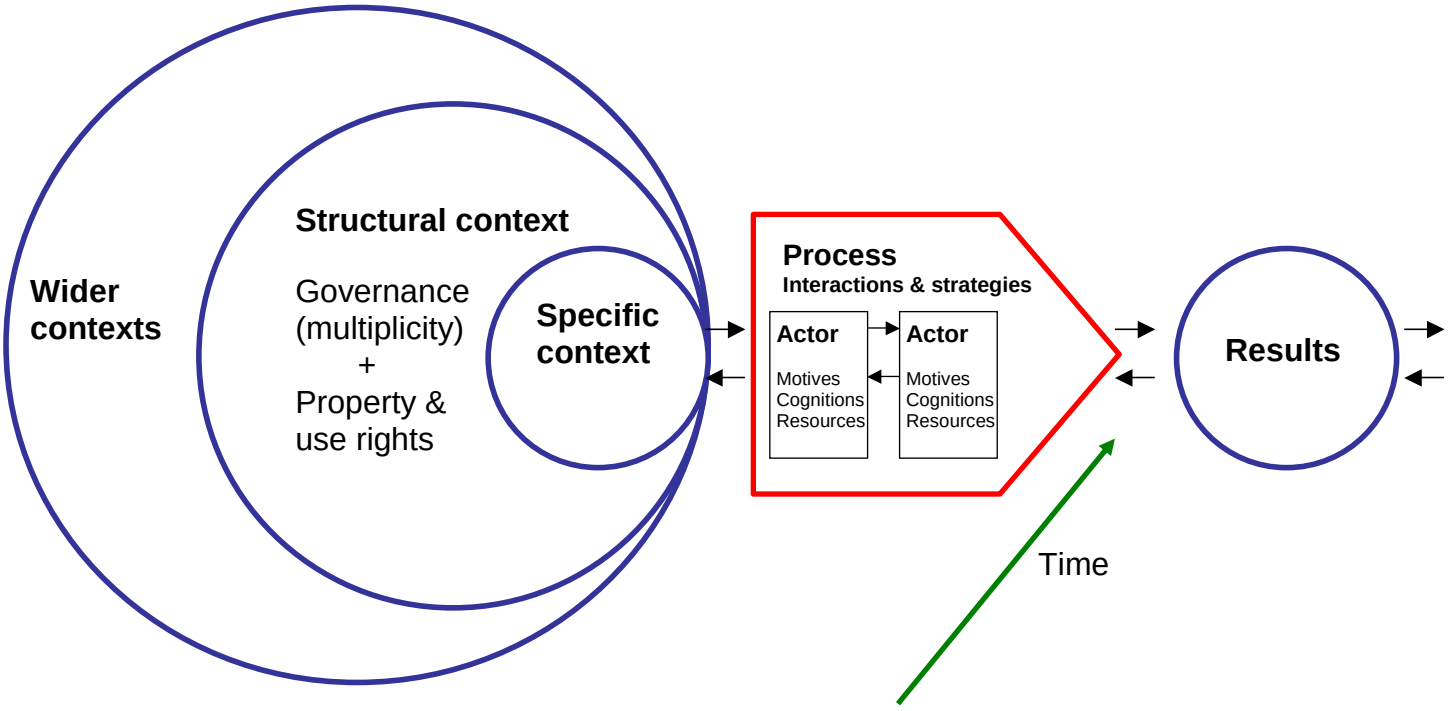

Figure 57: Contextual Interaction Theory model overview

1. Results and contexts:

Optimizing a joint set of values

As we have shown in figure 24, when considering a longer time perspective the prospective and later partially realized *results* colour the subject and thus the nature of the process. In fact these prospective and partially realised results form part of the context, and an important one since they are linked to

questions such as: which governance regimes apply to this project and which of them are the most restricting or the most rewarding for our purposes? And: who could or should be drawn in as partners in the actor constellation? We have seen in the Regge renaturalization processes that there was hardly any restriction to the number of sectors that the project managers were open to including in the project as long as some promising synergy with water and nature goals could be expected. Acknowledging the necessary dependency on others makes it more obvious why it is worthwhile to seek ways in which the project could be a joint effort aimed at realizing important benefits for all those involved. On the other hand, it is also important that there is some framework or vision that gives perspective to the core interests of the project. In this case the Regge Vision developed by the Waterboard, the national agency for rural areas (DLG) and the Province of Overijssel provided such a framework. While it did not impose narrow boundary judgments upon the Waterboard and other partners, it was clear from the onset that a more natural Regge River and river plain were at the core of their chosen perspective. Combining an inspirational guiding vision with the space for very adaptive implementation was shown to provide the best conditions for making optimal use of scarce space and funds.

2. Processes:

Interacting process phases and manageable scales of operation

In the classical project planning and implementation perspective (which is far from abolished in practice and theory) there is a sequence of phases through which each project goes: planning, design, realization, maintenance. Each of these phases can certainly be subdivided further (refer to figure 17). However, in a complex and dynamic context, all such phases no longer create clarity and organization, but in fact produce substantial risks. The transitions from one phase to another can be compared to a relay race, in which the baton always has some chance of falling and under more stressful conditions, this chance is even greater. The reality is considered as being far worse than in this metaphor as in complex and dynamic water management projects there is no guarantee that the next runner or team is eager to accept the baton as it is presented to them, or is even willing to accept it at all. Geldof (2004) speaks about “cold welds” that are inherently fragile and thus promotes the blurring of boundaries between project phases by involving actors that normally would enter the scene in the later phases and calls this “interactive implementation”.

The additional complexity that this produces must be channelled somewhere. We were able to quite clearly observe how this was handled in the Regge River

renaturalization process. It involved not trying to implement the whole project everywhere and at once, but breaking it down in a multiplicity of smaller (sometimes very small) sub-projects. These sub-projects can then be dealt with both in parallel and in sequence. In this way the actual work is captured in units with a manageable scale of space and time. The arenas, actors and resources can remain reasonably simple per sub-project, even though inputs from all of the different sides are included. This is not only meant in terms of geographical scales, but also turns the time dimension into an ally. It enables learning while doing, of which we have encountered several examples in the description of the Regge renaturalization processes. It enables the promotional use of intermediate areas which are good examples of successful projects in order to convince landowners and citizens in other places that it is worthwhile to participate and cooperate.

3. Interactions to deal with motivations, cognitions and resources:

A well-considered adaptive and generally open style of interaction

In the implementation process most of the efforts are aimed at seeking alignment of the cognitions, motivations and resources of the actors involved with the goals of the projects and vice versa. As the typical situation is not one of overwhelming power on the side of one of the participants, the interactions in the process should be strongly considered when trying to make a supportive setting of actors and their characteristics. It is important to combine clear playing ground limitations for each actor with the openness to include options for synergy and creativity to find or even create such options. This requires generally an open, participative, and in any case communicative approach that is inclusive towards the social environment of other actors and that is supports learning from each other. It is of crucial importance to learn the characteristics of the other actors well and to monitor whether anywhere or at some point in time productive settings of motivations, cognitions and resources of actors arise (Bressers 2004). It is equally important to show not only openness, but also reliability and determination during the entire process (Bressers & Lulofs 2010: 200-203). The Regge renaturalization projects that were described in this book show many examples of this combination of openness and determination, not only from the side of the Waterboard, but also regularly from the side of the municipalities involved. This varies from “going for the gold” in the town of Goor to working consistently from the perspective of a green municipality in Hellendoorn.

4. Dynamic strategies:

A balancing act between fixing options and keeping them open

As we have seen, projects like the Regge renaturalization are not only complex by nature but also time consuming, regardless of how they are managed. In a democratic society where funds and space are scarce it is beyond the capacity of any regional government to realize them overnight. As stated under Part 2 of this section, this is not always negative. In fact the time dimension can be turned into an ally. This does not only hold for the direct learning process of the actors involved. All kind of aspects of the specific case context, such as the actor constellation and the institutional arena can be modified through the application of careful strategies (and are actually bound to change as an emergent result of the complexity of relevant actions in the absence of such deliberate strategies). In this research we identified a great number of external strategies which were not only used to make the most of existing situations, but also aimed at improving the setting at a later point in time. The sequential nature of the line-up of sub-projects also creates ample space for improving network relations in the actor constellation as well as trust building. Clever actors may even acknowledge this option beforehand and invest pro-actively in building such relationships, as we have seen the Waterboard doing in some of the cases of land reconstruction projects.

When the necessary time is provided, learning while doing can also make use of the frames of reference of the actors involved. Parting from a purely functional approach to water management requires very different skills and attitudes from the people in the various organisations. The Province was at first quite reluctant to become any more deeply involved past their role as a promoter of the ecological network. They provided support for this and only later realized that they were forgoing a guiding role in what essentially had become an integrated area development process. When they re-defined their frame of reference in such way, they held the cognition that this was indeed also part of their responsibility.

For the Waterboard officials, working along the lines of headings 1 and 2 in this section inevitably implies accepting a degree of uncertainty (Evers 2011). To what degree do they have the courage to enter into an open implementation trajectory without knowing beforehand what exactly will evolve from it? Objectively, the uncertainty may not in fact be larger with this approach. Many implementation processes are bound to fail, get stuck at some stage or only proceed after substantial alterations of the initial plans have been made along the way towards completion. Contextual Water Management doesn't really increase the uncertainties; it brings them into the process at an

earlier stage instead of hiding them as long as possible. Culturally, this is related to being able to accept that inevitably one will have to deal with uncertainties, or at least unforeseen complications or complexity. This dealing with uncertainties requires a continuous balancing act between stability and adaptiveness. Fixing partial decisions that have been agreed upon with the partners in order to create clarity and a basis for action is just as important as leaving them open and flexible to maintain the necessary space to include new attractive options and reconcile plans with the potential opponents. This is precisely the sort of dilemma that is faced in practice. Good water management and implementation in general is not only a matter of obeying certain "dos and don'ts", but also involves the careful balancing between too much and too little, too early and too late. Thus, the dilemmas of adaptive management in implementation situations are generally: when, how and how much? When the strategies that are identified in this study are concerned, it is almost never a situation where a "the more the better" attitude is appropriate.

5. Actor receptivity:

Craftsmanship and team spirit for effective organizations

The analysis in this book has illustrated the importance of consensual project teams being able to perform all of these adaptive strategies in a sometimes less than flexible governance context. This is however not only an issue at the project level. At the organizational level and the level of individual people involved, like the Waterboard project managers, it requires that the orientation towards external cooperation is valued and supported. In the previous chapters we identified a variety of prerequisites and internal strategies to increase the organizational receptivity. We see also that at the individual level there are enthusiastic people that can remain supportive for their organization's mission while also be adaptive enough to realize the benefits of being involved and participating in playing a cooperative game (cf. Scharpf 1997). Such constellations become far more common when there is open communication among the participants. Additionally important is a strong focus on collaboration, communication and networking. It goes without saying that such an organizational development is highly dependent on the willingness of the organization's leadership to facilitate it and to provide the staff with sufficient leeway and trust.

Support for the continuous learning processes of the staff is also very important. This does not only imply taking courses as a wealth of practical knowledge is built up during the involvement in the projects. It involves first of all stimulating the exchange of views and practical experiences among

colleagues, both within the organization and with colleagues of other organizations. It basically serves to stimulate that all staff members become "reflexive practitioners" (Schön 1983). As Contextual Water Management is not only a matter ascribing to "dos and don'ts", but to a large extent is a matter of careful judgment in what could be labelled informed dilemmas, mutual learning of each other's experiences creates not only sharper insights but also a team spirit with a joint set of possible actions and outcomes.

In this process the interaction between practitioners and researchers can play a stimulating role. The Waterboard of Regge and Dinkel regularly welcomes workshops with researchers to discuss their options and strategies in interaction with research results and insights from the field of policy and governance studies. Both civil servants and administrators of the Waterboard and occasionally participants from other waterboards participate in these workshops. One workshop that is particularly relevant here was held in February 2008 and entitled "*Complex water projects: External and internal dilemmas"* at the Waterboard of Regge and Dinkel, and included representatives from the neighbouring Waterboard of Rijn and IJssel (Bressers, Hanegraaff & Lulofs 2008b). In the workshop discussions were held separately with three groups: elected administrators, project managers, and policy advising civil servants, followed by a plenary meeting in which the views were exchanged. The Regge renaturalization projects were among the portfolio of work for the people involved. They discussed several "dilemmas" when dealing with this kind of multi-purpose complex water projects and the actors involved. Below we will include some of the answers that the various groups in the workshop gave to these issues.

Contextual Water Management as a balancing act

The analysis provided in this book provides some guidance, however such lessons are never absolute in their transferability. Contextual Water Management implies always reckoning with the context and thus not only following dos and don'ts but always also dealing with the impending dilemmas: always balancing the guidelines against their exaggeration.

1. Optimizing a joint set of values

One of the issues that is important to consider when deciding how far to stretch the inclusion of other sectors into a given project is when to contact potential partners: should talks begin at the stage where an early draft is

available or when a fully detailed plan has been prepared? All participant groups in the workshop were inclined to start the process with the development of a sketch. The administrators were much more inclined to this however than were the civil servants. It was even stated that "sometimes you need to start the discussion with partners from a blank sheet of paper, first inventorying the problems of the area as seen by all partners and then building ideas from projects on that basis". Project managers and other civil servants noted that with such a sketch, citizens and others may not understand what the core idea of the development is and might expect more influence than could be granted. They also stated that more clarity is needed to convince sponsors to join at this stage. In fact all of these issues fall into place when one sees it as a developing process. While at the very start and with trusted partners a very open problem analysis could be a good idea, later and with other partners more clarity is needed.

Another issue is that of declaring that "win-win" solutions will be striven for with the other sectoral goals and partners. Does it create cooperation, or perhaps expectations that are too high and thus disappointments? The approach of Contextual Water Management to this commonly understood dilemma would be to start "shopping" among the interests of other partners so that the issue of promising synergies where they are hard to realize is avoided as much as possible. Administrators stress that it is important to avoid both big losers and big winners, since both will at generally return at a later stage. Project managers showed a bit more reluctance in this area: they prefer to use words like creating "plusses" or "getting things done at lower costs", precisely to avoid expectations that later cannot be met.

Generally it is important not to dismiss the essential water goals in the beginning of the process, yet on the other hand acknowledging that "standing firm" on them probably won't provide the desired results. The idea of "giving in" is generally not considered to be involving the core goals, but instead the side-goals. Even those however should not be given up too easily, since a better chance to realize them may not occur again. Sometimes waiting for a better chance in the future is indeed a wise thing to do, as we observed in our study. In this case, keeping it on the agenda and not forgetting about it in later projects or discussions is essential.

2. Interacting process phases and manageable scales of operation

Is it better to start on the ground implementation when and where possible or is it better to wait for the full scale plan to be agreed upon? In fact, this was

hardly seen as a dilemma at the workshop since all agreed that the first is better. The preferred option of cutting the large project into smaller pieces and working forward in a piecemeal fashion is generally accepted as inevitable and helpful. In the Regge renaturalization projects we have also clearly observed this to be the case and it becomes hard to imagine how such a large project could otherwise be realized. The unavoidable uncertainty regarding whether or not that in the worst case the project as a whole cannot be realized due to disappointing financial and other support should be accepted, but not without precaution. One of the issues referred to in this respect is that the Waterboard leadership should guard its own financial capacity to take over the burden to finalize the projects in a sensible way and to communicate closely with the project managers on what the size of their leeway actually is. Successful project management is thus an entrepreneurial task inclusive of the courage and precaution that are necessarily involved with it.

Ensuring that the scale and complexity of the process remains manageable is also an issue when weighing the luring prospects of coupling extra sector goals into a project (with resources, actors and rules involved) or being restrictive because of the human and financial capacity of the organization. An issue arises in that while the total project load of the waterboard as measured in yearly investments has always served as a measurement for project management load, and only has grown at a slow pace, the complexity of the projects has increased much more significantly. As a consequence the issue of capacity needs regular consideration.

3. A well-considered adaptive and generally open style of interaction

To what extent it is better to consult with others on a one to one basis or in network meetings? All participants agreed that both are necessary. The flexibility of one to one contacts is needed help prepare the draft agreements. When this is done to excess however the process becomes too chaotic and distrust may evolve. One of the risks involved here is that the threshold for confidential exchange of information during one to one sessions is very low, and this can ultimately harm the trust relationship with those who have been not been included. The project managers at the workshop also pointed to the risk that the partner does not communicate the agreement well to their own organization and that they then will not comply with it. So, timely general meetings to establish a general understanding of what has been agreed upon by all parties involved are also necessary.

Another issue is the basic question of whether or not the waterboard should strive to start or keep the project under its own direction or to have others take the lead. It is not always self-evident to try to keep the maximum amount of power in these arrangements. Sometimes having other organizations in the lead role will provoke less resistance, provide better access to external subsidies or have bigger interests and even investments in the project. This matter has to be considered on a case by case basis. There is an example of a separate large scale water project, the so-called "Breakthrough" (Bressers, Hanegraaff & Lulofs 2010) in which the project was started by the Waterboard, then taken over by the Province after it had become the main sponsor due to the accompanying nature development. Ultimately, the project was practically left under the management of the Waterboard project manager. The feasibility of this strategy is also a matter of having good relations and trust in the other organization and its project managers. The participants in the workshop remarked that the increased capacity of waterboards to guide such large projects increasingly leads other organizations to suggest that the waterboard should direct a project, even if the water aspect is not the dominant one.

There is also a balance needed between responding to the actual developments in the case situation and continuing to move forward for the interests of the long term perspective. Even though the risk of getting too occupied with short term chances is recognized, these two perspectives should not be mutually exclusive. When the long term vision is kept firmly in mind, taking opportunities wherever they occur is a core part of adaptive management as we have seen it in the Regge renaturalization processes.

4. Balancing between fixing options and keeping them open

To what extent is it better to make agreements with others informal and flexible or formal and fixed? The project managers believed that the importance of formalization increases when there is some differences perceived between the interests of the civil servant and administrators from the Waterboard involved. Formalization in that case prevents the administrator from defecting from the agreements when there are new political considerations. Similarly, in the time frame when elections are approaching formalizations create a clear record of the status of the project and helps to get commitment of possible new administrators. Lastly formalization is important when the size of the interests involved increases as often happens as the project development process proceeds. Other civil servants appreciated informal agreements as a means of keeping some

flexibility on both sides and as a way of expressing trust in their partners. They also mentioned the necessity to keep in close contact with the administrators to continuously weigh the development of the various pros and cons. The administrators think that even oral agreements should be viewed as real agreements, but also prefer to note any consensus on important issues clearly, even when it's nothing more formal than a meeting note. Sometimes one gets confronted with situations that make it difficult to keep an agreement, though in such a case one should return for further consultation to the partners of the agreement as opposed to simply breaking it. As a potential example they mentioned the agreements that forsake any form of forced expropriation.

5. Craftsmanship and team spirit for effective organizations

Many issues need balancing as well within the organisation. Should the management give a generous mandate to the project manager or should they be held accountable to specific target criteria? Project managers want to be accountable, but only on main issues and with the option to change them in good consultation with the administrators. The administrators fully agree and emphasize that some project managers have a better "political antenna" than others and can in these cases be given more leeway. Generally they use a 10% rule of thumb with which they mean that in terms of costs, results or time some leeway should be given to make playing a productive role in a complex game possible for the project manager.

The next item to address is whether or not to use only one person as an ambassador to other organizations (for clarity and uniformity) or to use multiple people (for effectiveness). Generally the consensus was that there should be at least two in most cases, the project manager and one of the administrators. This way, they can play at least two "roles" in the evolving process. In a well-functioning organization, the project manager can consult and even use the administrator to address any external issues, rather than having the administrator act only to hierarchically steer the activities of the project manager. A solution based on hierarchical involvement would be counterproductive for the effectiveness of the organization. The administrators of Regge and Dinkel themselves stated that: "first the project manager or other civil servants involved will try to make an agreement, then the administrator of the project in portfolio will, and then if success is still absent or needs confirmation, only then should the president of the Waterboard come into play". Within the Waterboard of Regge and Dinkel the administrators govern as a team and share responsibilities even though there are separate portfolios of domain. To increase resilience the portfolios are not

given to single administrators but instead to teams of two. Thus there is always a possible replacement available when urgent action is needed.

A related issue is whether or not coordinating between parts of one's own organization should be done in an informal, direct and flexible way or with agreed upon procedures and reporting requirements. In the Regge renaturalization cases we have seen the virtues of regular direct communication and if necessary easy access to the administrators by project managers and civil servants. In the workshop the two Waterboards involved had very different procedures for internal communication. The Waterboard of Regge and Dinkel has regular meetings between the project manager and the administrator with the option of contacting them more frequently if necessary. The board has a weekly meeting in which all issues of the various projects are considered. In the other waterboard direct communication was far more rare.

In as far as deciding upon how to deal with such complex projects, all of the issues discussed above and how they are weighted by practitioners are not just interesting in themselves. Moreover, they demonstrate that adaptive water management in the Contextual Water Management approach is not just a matter of following a list of dos and don'ts but often it is advisable to be very conscious and aware of how to position oneself on a variety of dilemma dimensions.

Conclusion

This book has reviewed the case of the Regge River Renaturalization process according to an analytical framework that integrates a wealth of approaches to policy implementation. First an overview was given of the most interesting aspects of the policies that are combined in these multi-functional projects. Looking towards the actors, the analysis showed a remarkable variety of strategies of practitioners to cope with many different environments. The overlapping of project goals, open communication and adapting to different opportunities are seen as being key aspects of successful stream restoration projects taking place in a complex and dynamic context. The study also found that having both flexible and coherent governance regimes enables projects to meet local requirements and work towards a sustainable situation by synergetic win-win situations, constructive and cooperative planning and implementation and the development of a high level of trust. The research illustrates and concludes that natural system resilience is dependent on such factors that provide "governance system resilience". The study includes many

lessons for practitioners on how to make optimal use of the opportunities given – or to create new ones. These lessons are not however intended to be a recipe book that can be followed without consideration. On the contrary, they require very reflexive practitioners to handle them and can be most briefly summarized like this:

Contextual Water Management is a balancing act.

References

Allison, Graham T. (1971), *Essence of decision: Explaining the Cuban missile crisis*, Boston: Little, Brown and Company.

Andersson, Krister P., and Elinor Ostrom (2008), Analyzing decentralized resources regimes from a polycentric perspective, in: *Policy Sciences*, Vol. 41, pp. 71-93.

Arentsen, Maarten J., Hans Th.A. Bressers & Laurence J. O'Toole, Jr. (2000), Institutional and policy responses to uncertainty in environmental policy: A comparison of Dutch and US styles, in: Rosenbaum, Walter A. & Hans Th.A. Bressers (Eds.), *Uncertainty and environmental policy*, Symposium, in: *Policy Studies Journal*, Vol. 28, No. 3, 2000, pp. 597-611.

Axelrod, Robert (Ed.) (1976), *Structure of decision: The cognitive maps of political elites*, Princeton: Princeton University Press.

Bandura, A. (1986), *Social Foundations of Thought and Action: A Social Cognitive Theory*, Englewood Cliffs, N.J.: Prentice Hall.

Baumgartner, Frank R., & Bryan D. Jones (1993), *Agendas and instability in American politics*, Chicago: University of Chicago Press.

Berman, P. (1978), The study of macro- and micro-implementation, in: *Public Policy*, Vol. 26, pp. 157-184.

Björk, Peder, & Hans Johansson (2000), *Towards a governance theory: A state-centric approach*, paper IPSA Quebec.

Bieleman, Jan (2008), *Boeren in Nederland: Geschiedenis van de landbouw 1500-2000*, Amsterdam: Boom.

Black, Julia (2008), Constructing and contesting legitimacy and accountability in polycentric regulatory regimes, in: *Regulation and Governance*, Vol. 2, pp. 137-164.

Blomquist, William, and Edella Schlager (1999), *Watershed management from the ground up: political science and the explanation of regional governance arrangements*, Paper 1999 Annual Meeting of the American Political Science Association, September 2-5, Atlanta.

Boer, Cheryl de, and Hans Bressers (2010), *New rurality: The Netherlands country screening*, Report New Rurality project ANR-08-STRA-09, Enschede: University of Twente, pp. 1-137.

Boer, Cheryl de, and Hans Bressers (2010), "Inter-regime" effects on local stream restoration projects, paper presented at the ISEE conference on "*Sustainability in a time of crisis*", Oldenburg-Bremen, August 22-25, 2010.

Boer, Cheryl de, and Hans Bressers (2011), New strategies for implementing locally integrated stream restoration projects, paper presented at the Resilience Conference 2011, *Resilience, Innovation, and Sustainability: Navigating the Complexities of Global Change*, 2nd Science & Policy conference, Tempe Arizona USA, March 11-16, pp. 1-33.

Boer, Dorien de, and Stefan Schorn (2008), *Lowland stream valley landscapes of the 21st century*, Wageningen: Wageningen University.

Bogaert, D. and J. Gersie (2006), High noon in the Low Countries: recent nature policy dynamics in the Netherlands and Flanders. In: B. Arts and P. Leroy, Editors, Institutional Dynamics in Environmental Governance, *Environment & Policy* 47, Springer, Dordrecht, the Netherlands, pp. 115–138.

Bol, Nancy van der, Jurian Edelenbos and Geert Teisman (2009), *Managing earth system complexity: On the edge of project, line and program management*, Paper Conference on the Human Dimensions of Global Environmental Change,

Amsterdam, December 2009.

Bressers, Hans (1983), *Beleidseffectiviteit en waterkwaliteitsbeleid*, Enschede: Universiteit Twente.

Bressers, Hans, en Pieter Jan Klok (1988), Fundamental for a theory of policy instruments, in: *International Journal of Social Economics*, Vol. 15, No. ¾, pp. 22-41.

Bressers, Hans, Laurence J. O'Toole, Jr. and Jeremy Richardson (1995), Networks as models of analysis, in Hans Bressers, Laurence J. O'Toole, Jr. and Jeremy Richardson (Eds.), *Networks for water policy: A comparative perspective*, London: Frank Cass, pp. 1-23.

Bressers, Hans, and Arthur Ringeling (1995), Policy implementation, in: Walter Kickert and Frans van Vught (Eds.), *Public policy and administration sciences in the Netherlands*, London: Prentice Hall / Harvester Wheatsheaf, pp. 125-146.

Bressers, Hans (1998), The choice of policy instruments in policy networks, in: B. Guy Peters and Frans van Nispen (Eds.), *Public policy instruments*, Cheltenham: Edward Elgar, pp. 85-105.

Bressers, Hans, Stefan Kuks and Josee Ligteringen (1998), Participation at the local level in the context of environmental governance, in: Frans Coenen, Dave Huitema and Laurence J. O'Toole (Eds.), *Participation and the quality of environmental decision making*, Dordrecht: Kluwer, pp. 47-60.

Bressers, Hans, and Laurence J. O'Toole (1998), Jr., The selection of policy instruments: A network-based perspective, in: *Journal of Public Policy*, Vol. 18, No. 3, pp. 213-239.

Bressers, Hans, and Walter Rosenbaum (2000), Innovation, learning and environmental policy: Overcoming "a plague of uncertainties", in: *Policy Studies Journal,* Vol. 28, No. 3, pp. 523-539.

Bressers, Hans, and Walter Rosenbaum (2003), Social scales, sustainability, and governance: An introduction, in: Hans Bressers and Walter Rosenbaum (Eds.), *Achieving sustainable development: The challenge of governance across social scales*, Westport, Connecticut: Praeger, pp. 3-24.

Bressers, Hans and Stefan Kuks (2003), What does "governance" mean? From conception to elaboration, in: Hans Bressers and Walter Rosenbaum (Eds.), *Achieving sustainable development: The challenge of governance across social scales*, Westport, Connecticut: Praeger, pp. 65-88.

Bressers, Hans (2004), Implementing sustainable development: how to know what works, where, when and how, in: William M. Lafferty (Ed.), *Governance for sustainable development: The challenge of adapting form to function*, Cheltenham, Northampton MA: Edward Elgar, pp. 284-318.

Bressers, Hans and Stefan Kuks (Eds.) (2004), *Integrated governance and water basin management: Conditions for regime change and sustainability*, Dordrecht-Boston-London: Kluwer Academic Publishers.

Bressers, Hans, Doris Fuchs, and Stefan Kuks (2004), Institutional resource regimes and sustainability, in: Hans Bressers and Stefan Kuks (Eds.*)* (2004)*, Integrated governance and water basin management*, Dordrecht-Boston-London: Kluwer Academic Publishers: pp. 23-58.

Bressers, Hans & Laurence J. O'Toole, Jr. (2005), Instrument selection and implementation in a networked context, in: Pearl Eliades, Margaret M. Hill, and Michael Howlett, *Designing government: From instruments to governance,* Montreal & Kingston, London Ithaca: McGill-Queen's University, pp. 132-153.

Bressers, Hans, and Stefan Kuks (2006), Water basin regimes in Europe and institutional conditions for their sustainability, in: Velma I. Grover (Ed.), *Water: Global common and global problems*, Enfield NH USA: Science Publishers, pp. 235-268.

Bressers, Hans, and Stefan Kuks (2008), Institutional sustainability – integrated regimes for

river basin management: What helps them grow and do they work? , in: Alexandra Dehnhardt & Ulrich Petschow (Eds.), *Sustainability in river basins: A question of governance*, Munich: Oekom, pp. 163-184.

Bressers, Hans, Simone Hanegraaff and Kris Lulofs (2008a), Space for water in physical planning, Report to EU FP6 ISBP project, Enschede: University of Twente, pp. 1-69.

Bressers, Hans, Simone Hanegraaff and Kris Lulofs (2008b), *Complexe Waterprojecten: Externe en Interne Dilemma's (Complex water projects: External and internal dilemmas),* Workshop report, Enschede: University of Twente, pp. 1-14.

Bressers, Hans (2009), From public administration to policy networks: Contextual interaction analysis, in: Stéphane Narath and Frédéric Varone (Eds.), *Rediscovering public law and public administration in comparative policy analysis*: a tribute to Peter Knoepfel, Lausanne: Presses polytechniques, pp. 123-142.

Bressers, Hans and Kris Lulofs (2009), Explaining the impact of the 1991 and the 2000 firework blasts in the Netherlands by the core of five policy change models, in: Giliberto Capano and Michael Howlett (Eds.), *European and North American Policy Change: Drivers and dynamics,* Milton Park, New York: Routledge/ECPR, pp. 15-42.

Bressers, Hans, Theo de Bruijn & Kris Lulofs (2009), Environmental negotiated agreements in the Netherlands, in: *Environmental Politics*, Vol. 18, No. 1, pp. 58-77.

Bressers, Hans, Frans Coenen & Mirjam van Tilburg (2009), *Kennisgebruik in het regionale waterbeheer (Use of knowledge in regional water management)*, report for Aquaterra Nederland, Gouda: Leven met Water.

Bressers, Hans and Kris Lulofs (2010), Analysis of boundary judgments in complex interaction processes, in: Hans Bressers and Kris Lulofs (Eds.), pp. 17-32.

Bressers, Hans, Simone Hanegraaff and Kris Lulofs (2010), Building a new river and boundary spanning governance, in: Hans Bressers and Kris Lulofs (Eds.), pp. 88-113.

Bressers, Hans and Kris Lulofs (Eds.) (2010), *Governance and complexity in water management: Creating cooperation through boundary spanning strategies*, Cheltenham: Edward Elgar.

Bressers, Nanny (2011), *Co-Creating Innovation: A Systemic Learning Evaluation of Knowledge and Innovation Programmes*, Rotterdam: EUR.

Brils, J.M., Dieperink, C., Driessen, P.P.J., Raadgever, G.T., Smit, A.A.H., Coenen, F. & Tilburg, M. van (2009). *Verbetering van kennisgebruik in regionaal waterbeheer,* Eindrapportage van het Leven met Water project "Aquaterra Nederland". Utrecht: Leven met Water, Aquaterra Nederland.

Brynard, P. (2005), Policy implementation: Lessons for service delivery, in*: Journal of Public Administration*, Vol. 40, No. 4.1, pp. 649-664.

Bromley, Daniel W. (1991), *Environment and Economy. Property Rights and Public Policy*, Oxford UK /Cambridge USA: Blackwell.

Buuren, Arwin van (2006*), Competente besluitvorming*, Rotterdam: Erasmus University.

Cammen, Hans van der, & Len de Klerk (2003, 3rd edition 2008), *Ruimtelijke ordening: Van grachtengordel tot Vinex-wijk*, Houten: het Spectrum.

Constanza, R., B. Low, E. Ostrom and J. Wilson (2001), *Institutions, ecosystems and sustainability*, New York: Lewis.

Cook, T. D., & Campbell, D. T. (1979), *Quasi-experimentation. Design & Analysis Issues for Field Settings*. Boston, USA: Houghton Mifflin.

Costejà Florensa, Meritxell (2003), *Institutional dynamics: First steps toward developing a logic sequence for studying institutional change*, Paper conference of Workshop in Political Theory and Policy Analysis, Bloomington Indiana, December 13-15.

Davis, and J.P. Lester (eds.) (1989), *Environmental politics and policy: theories and evidence*. Durham NC, London: Duke University Press.

DeLeon, Peter, and Danielle Varda, Toward a theory of collaborative policy networks: Identifying structural tendencies, in: *Policy Studies Journal*, Vol. 37, No. 1, pp. 59-74.

Deltacommissie (Delta Committee) (2008), *Samen werken met water* (Working together with water), Final Report.

Dente, Bruno, Paolo Fareri and Josee Ligteringen (1998), A theoretical framework for case study analysis, in: Bruno Dente, Paolo Fareri & Josee Ligteringen (Eds.), *The waste and the backyard*, Dordrecht: Kluwer, pp. 197-223.

Driessen, Peter (2005), *Sturen op kwaliteit*, inaugural speech, Utrecht: University of Utrecht.

Dror, Yezekel (1971), *Design for policy sciences*, New York: Elsevier.

Dryzek, John S. (1987), *Rational ecology: Environment and political economy*, Oxford: Basil Blackwell.

Dryzek, J.S. (1997), *The Politics of the Earth: Environmental Discourses*, Oxford: Oxford University Press.

Dutch government (2004), *Agenda voor een vitaal platteland* (Agenda for a Vital Countryside).

Easton, David (Ed.) (1965a), *A framework for political analysis*, Englewood Cliffs, NJ.

Easton, David (1965b), *A systems analysis of political life*, New York, London, Sydney.

Eisenhardt, K. M. (1989), Building theories from case study research, in: *The Academy of Management Review*, 14(4), 532-550.

Elmore, Richard F., (1980), Backward mapping: Implementation research and policy decisions, in: *Political Science Quarterly*, Vol. 94, No. 4, pp. 601-616.

Ekins, P., S. Dresner and K. Dahlström (2008), The four-capital method of sustainable development evaluation, in: *European Environment* 18.

Evers, Jaap (2011), *Werk in uitvoering: De toepassing van Interactieve Uitvoering in de praktijk*, Enschede: Universiteit Twente.

Figuères, Caroline, Johan Rockström and Cecilia Tortajada, Conclusion: The way forward, in: Caroline Figuères, Johan Rockström and Cecilia Tortajada (Eds.), *Rethinking water management: innovative approaches to contemporary issues*, London: Earthscan, pp. 228-236.

Fischer, Frank (1995), *Evaluating Public Policy*, Chicago: Nelson Hall.

Fisher, Frank, & John Forrester (Ed.) (1993), *The argumentative turn in policy analysis and planning*, Durham: Duke University Press.

Fuchs, Doris A. (2003), *An institutional basis for environmental stewardship: The structure and quality of property rights*, Dordrecht: Kluwer.

Gatersleben, B. and C. Vlek (1998), Household consumption, quality of life, and environmental impacts: A psychological perspective and empirical study, in K.J. Noorman and T.S. Uiterkamp (eds), *Green Households? Domestic Consumers, Environment and Sustainability*, London: Earthscan, pp. 141-183.

Geldof, Govert D. (2004), *Omgaan met complexiteit bij integral waterbeheer: Op weg naar interactieve uitvoering*, Deventer: Tauw.

Gerber Jean-David, Peter Knoepfel, Stéphane Nahrath, Frédéric Varone (2008), Institutional Resource Regimes: Towards sustainability through the combination of property-rights theory and policy analysis, in: *Ecological Economics*, 2008

Gerring, J. (2007), *Case Study Research: Principles and Practices*. New York: Cambridge University Press.

Gerrits, Lasse (2008), *The gentle art of coevolution*, Rotterdam: EUR.

Goggin, Malcolm L. (1986), The 'too few cases/too many variables' problem in implementation research, in: *Political Research Quarterly*, Vol. 39, No.2, pp. 328-347.

Goggin, M.L., A. O.M. Bowman, J.P. Lester and L.J. O'Toole, Jr. (1990), *Implementation theory and practice: Toward a third generation*, Glenfield Ill. USA: Scott, Foresman.

Grimberg, B.F.J., J.Th.A. Bressers, P-J. Klok & A.E. Steenge (1989), *Schadevergoeding als stimuleringsinstrument (Compensation as an incentive instrument)*, Enschede: University of Twente.

Hardy, Scott, and Tomas Koontz, Rules for collaboration: institutional analysis of group membership and levels of action in watershed partnerships, in: *Policy Studies Journal*, Vol. 37, No. 3, pp. 393-414.

Havekes, Herman, Martin Koster, Wijnand Dekking, Cathelijn Peters, Rafaël Lazaroms, Rob Uijterlinde and Ron Walkier (2010), *Water Governance: The Dutch regional water authority model*, The Hague: Unie van Waterschappen.

Heller, Maya (2009), *Insights of policy instruments in integrated river basin management from the Dutch practice for the Swiss context: A comparative study of policy instruments in the sub-catchments Regge (NL) and Birs (CH)*, Dübendorf: EAWAG.

Hermans, Leon M. (2005), *Actor analysis for water resources management*, Delft: Eburon.

Hill, Michael, and Peter Hupe (2002), *Implementing public policy*, London: Sage.

Hjern, Benny (1982). Implementation research— the link gone missing, in: *Journal of Public Policy*, Vol. 2, No. 3, pp. 301-308.

Hjern, B., and C. Hull (1982), Helping small firms grow, in: *European Journal of Political Research*, Vol. 10, pp. 187-198.

Hogwood, B.W. & B. Guy Peters (1983), *Policy Dynamics*. Brighton: Wheatsheaf Books.

Hommes, Saskia (2008), *Conquering complexity: Dealing with uncertainty and ambiguity in water management*, Enschede: University of Twente.

Howlett, Michael, and Ben Cashore (2007), *The dependent variable problem in assessing policy change: Re-conceptualizing the orthodox understanding of policy dynamics*, paper ECPR Joint Sessions, May 7-12, Helsinki, Finland.

Howlett, Michael (2011), *Designing public policies: Principles and instruments*, London: Routledge.

Huitema, Dave (2002), *Regge river basin*, case study Euwareness project, published on Euwareness website: www.euwareness.nl

Huitema, Dave, and Stefan Kuks (2004), Harbouring water in a crowded European delta, in: Hans Bressers and Stefan Kuks (Eds.), *Integrated Governance and water basin management: Conditions for regime change and sustainability*, Dordrecht: Kluwer Academic, pp. 59-98.

Huitema, Dave, and Sander Meijerink (2009), Policy dynamics in Dutch water management: analysing the contribution of policy entrepreneurs to policy change, in: Dave Huitema & Sander Meijerink (Eds.), *Water policy entrepreneurs*, Cheltenham: Edward Elgar, pp. 349-370.

Imesch, Johan (2010), *Les arrangements locaux et la durabilité de nouvelles activités rurales: le cas de la renaturalization de la Haute-Seymaz dans le canton de Genève*, Report New Rurality project ANR-08-STRA-09, Lausanne: Idheap.

Jänicke, Martin (1997), The political system's capacity for environmental policy, in: M. Jänicke and H. Weidner (eds.), *National environmental policies: A comparative study of capacity-building*, Berlin: Springer, pp. 1-24.

Jansen, Stefan, Irene Immink, Adriaan Slob and Jos Brils (2007), *Resilience and water management: A literature review*, Report Aquaterra project: Utrecht: TNO.

Janson, Judy (2009), *The impact of the interaction process on activities in the rural area: A comparison between the cases 'Boven Regge' and 'Azelerbeek' in the Netherlands*, master thesis Public Administration, Enschede: University of Twente.

Jeffrey, P., and R.A.F. Seaton (2003/4), A conceptual model of 'receptivity' applied to the design and deployment of water policy mechanisms, in: *Environmental Sciences*, 2003/2004, Vol. 1, No. 3, pp. 277-300.

Jochim, Ashley E., and Peter J. May (2010), Beyond subsystems: policy regimes and governance, in: Policy Studies journal, Vol. 38, pp. 303-327.

Jones, Michael D., and Hank C. Jenkins-Smith (2009), Trans-subsystem dynamics: Policy topography, mass opinion, and policy change, in: *Policy Studies Journal*, Vol. 37, pp. 37-58.

Jordan, Andrew (2000), *The politics of multi-level environmental governance: Subsidiarity and the EU environmental policy*, paper IPSA Quebec.

Juuti, Petri S., and Tapio S. Katko (Eds.)(2005), *Water, time and European cities*, Tampere: Tampere University of Technology.

Kampa, Eleftheria, and Wenke Hansen (2004), *Heavily modified water bodies: Synthesis of 34 case studies in Europe*, Berlin: Springer.

Kampa, Eleftheria (2007), *Integrated institutional water regimes: Realisation in Greece*, Berlin: Logos.

Kampa, Eleftheria, and Hans Bressers (2008), Evolution of the Greek national regime for water resources, in: *Water Policy*, Vol. 10, pp. 481-500.

Kickert, Walter J.M. (1997), Public governance in the Netherlands: An alternative to Anglo-American 'managerialism', in: *Public Administration*, Vol. 75, Winter 1997, pp. 731-752.

Kingdon, John (1995), *Agendas, alternatives and public policies*, New York: Harper Collins (1st ed. 1984).

Kiser, Larry, & Elinor Ostrom (1982), The three worlds of action, in: Elinor Ostrom (Ed.), *Strategies of political inquiry*, Beverly Hills: Sage, pp. 179-222.

Kissling-Näf, Ingrid, and Stefan Kuks (Eds.) (2004), *The evolution of national water regimes in Europe: Transitions in water rights and water policies*, Dordrecht: Kluwer.

Klok, Pieter Jan (1995), A classification of instruments for environmental policy, in: Bruno Dente (Ed.), *Environmental policy in search of new instruments*, Dordrecht: Kluwer, pp. 21-36.

Kooiman, Jan (1993), Findings, speculations and recommendations, in: Jan Kooiman (ed.), *Modern governance: New government – society interactions*, London etc.: Sage, pp. 249-262.

Koppenjan, Joop, and Erik-Hans Klijn, *Managing uncertainties in networks: A network approach to problem solving and decision-making*, Milton Park UK, New York USA: Routledge.

Knoepfel, Peter, and Rita Imhof (1991), *Ökologische Vernetzung versus Rechtstaatliche Handlungsmaximen*, Lausanne: IDHEAP.

Knoepfel, Peter, Ingrid Kissling-Näf, Frédéric Varone (2001), Institutionelle regime für natürliche ressourcen, Basel: Helbing & Lichtenhahn.

Knoepfel, Peter, Ingrid Kissling-Näf, Frédéric Varone, (eds.) (2003), *Institutionelle Ressourcenregime in Aktion / Régimes institutionnels de ressources naturelles en*

action, Basel, Genf, München, Helbing & Lichtenhahn.

Knoepfel, Peter, and Stéphane Nahrath (2005), *Sustainable management of natural resources: From traditional environmental protection policies towards institutional natural resource regimes (INRR)*, Chavannes-Lausanne: Idheap.

Knoepfel, Peter, Stéphane Nahrath, Frédéric Varone (2007), Institutional Regimes for Natural Resources: An Innovative Theoretical Framework for Sustainability", in Peter Knoepfel, *Environmental Policy Analyses: Learning from the Past for the Future - 25 Years of Research*, Berlin, Springer, pp. 455-506.

Knoepfel, Peter (2010), *Conceptual framework, hypotheses and protocol*, Report to the New Rurality project, Lausanne: IDHEAP.

Kolen, Jan, & Ton Lemaire (1999), *Landschap in meervoud: Perspectieven op het Nederlandse landschap in de 20ste/21ste eeuw*, Utrecht: Jan van Arkel.

Koppenjan, Joop, Mirjam Kars and Haiko van der Voort (2009), Vertical politics in horizontal policy networks: Framework setting as coupling arrangement, in: *Policy Studies Journal*, Vol. 37, No. 4, pp. 769-792.

Kotzebue, J. R., Bressers, H. T. A., & Yousif, C. (2010). Spatial misfits in a multi-level renewable energy policy implementation process on the Small Island State of Malta. *Energy Policy, 38*(10), 5967-5976

Kuks, Stefan (2002). *The Evolution of the National water regime in the Netherlands*, Euwareness country study, Enschede: University of Twente, published on Euwareness website: www.euwareness.nl

Kuks, Stefan (2004a). *Water governance and institutional change*, Enschede: University of Twente.

Kuks, Stefan (2004b). Comparative review and analysis of regime changes in Europe, in: Ingrid Kissling-Näf, Ingrid, and Stefan Kuks (Eds.) (2004), *The evolution of national water regimes in Europe*, Dordrecht: Kluwer, pp. 329-368.

Kuks, Stefan (2005). *Contextueel waterbeheer (Contextual watermanagement*), Presentation with PowerPoint for the IPO, the Association of Dutch Provinces, Ellecom, June 16, 2005.

Lafferty, William M. (2002), *From environmental protection to sustainable development: Environmental policy integration as a challenge for applied science*, Inaugural lecture, Enschede: University of Twente.

Leussen, Wim van (2011), *Leven met water: Waterbeheer in Nederland volgens de stroomgebiedbenadering in een tijd van klimaatverandering*, Enschede: University of Twente.

Ligteringen, Josee (1999), *The feasibility of Dutch environmental policy instruments*, Enschede: University of Twente.

Low, B., E. Ostrom, C. Simon, and J. Wilson (2003), Redundancy and diversity: Do they influence optimal management?, in: F. Berkes, J. Colding and C. Folke (Eds.), *Navigating social-ecological systems*, Cambridge UK: Cambridge University, pp. 83-105.

Lulofs, Kris, and Frans Coenen (2007), Cross border cooperation on water quality in the Vecht river basin, in: J. Verwijmeren and M. Wiering (Eds.), *Many rivers to cross: Cross border co-operation in river management*, Delft: Eburon, pp. 71-93.

Lundin, Martin (2007), Explaining cooperation: How resource interdependence, goal congruence, and trust affect joint actions in policy implementation, in: *Journal of Public Administration Research and Theory*, Vol. 17, No.4, pp. 651-672.

Lundqvist, Lennart (2001), A green fist in a velvet glove: The ecological state and sustainable development, in: *Environmental Values*, pp. 455-472.

Lynn, Laurence E., Jr., Carolyn J. Heinrich & Carolyn J. Hill (2000-a), *The empirical study of*

governance: Theories, models and methods, Washington DC: Georgetown University Press.

Lynn, Laurence E., Jr., Carolyn J. Heinrich & Carolyn J. Hill (2000-b), Studying governance and public management: Challenges and prospects, in: *Journal of Public Administration and Theory*, Vol. 10, April 2000, pp. 233-261.

Mackie, J.L. (1974), *The cement of the universe*, Oxford.

March, James G., & Johan P. Olson (1995), *Democratic governance*, New York, London: The free press.

Marks, Gary, Fritz W. Scharpf, Phillippe C. Schmitter, Wolfgang Streck (1996), *Governance in the European Union*, London, Thousand Oaks, New Delhi: Sage.

May, Peter J. (2007), Regulatory regimes and accountability, in: *Regulation and Governance*, Vol. 1, pp. 8-26.

Mazmanian, Daniel A., and Paul A. Sabatier (1983), *Implementation and Public Policy*. Glenview, Illinois: Scott, Foresman.

McLean, Stuart (2009), Stories and cosmogonies: Imagining creativity beyond "Nature" and "Culture", in: *Cultural Anthropology*, Vol. 24, No. 2, pp. 213-245.

Milbrath, Lester W. (1993), The world is relearning its story about how the world works, in: Sheldon Kamieniecki (Ed.), *Environmental politics in the international arena*, Albany: SUNY.

Medenblik, Johan, Bertus de Graaff and Christina Oosterhoff (2008), Meanderende Regge, in: *H2O*, 21, 2008, pp. 14-16.

Miles, Matthew B., & A. Michael Huberman (1984), *Qualitative data analysis: A sourcebook of new methods*, Beverly Hills: Sage.

Minang, Peter A. (2007), *Implementing global environmental policy at local level: Community carbon forestry perspectives in Cameroon*, Enschede: ITC.

Ministry of LNV (2005), *Nature conservation in the Netherlands*, The Hague: Dutch government.

Mohr, Lawrence B. (1995), *Impact analysis for program evaluation*, 2nd. ed., Thousand Oaks: Sage.

OECD (2008), *Environmental Performance of Agriculture at a Glance*, Paris: OECD.

Ostrom, Elinor (1990), *Governing the commons: The evolution of institutions for collective action*, New York: Cambridge University Press.

Ostrom, Elinor (1999), Institutional rational choice: An assessment of the institutional analysis and development framework, in: Paul Sabatier (Ed.), *Theories of the policy process*, Boulder: Westview press, pp. 35-71.

Ostrom, Elinor (2005), *Understanding institutional diversity*, Princeton NJ: Princeton University.

O'Toole Jr., Laurence J. (1986), Policy recommendations for multi-actor implementation: An assessment of the field, in: *Journal of Public Policy*, Vol. 6, No. 2, pp. 181-210.

O'Toole Jr., Laurence J. (2000), Research on policy implementation: Assessment and prospects, *Journal of Public Administration and Theory*, Vol. 10, April 2000, pp. 263-288.

O'Toole Jr., Laurence J. (2004a), The theory-practice issue in policy implementation research, in: *Public Administration Review*, Vol. 62, No. 6, pp. 491-503.

O'Toole Jr., Laurence J. (2004b), Implementation theory and the challenge of sustainable development, in: William Lafferty (Eds.), *Governance for sustainable development*, Cheltenham UK: Edward Elgar, pp. 32-60.

Owens, Katharine (2008), *Understanding how actors influence policy implementation: A comparative study of wetland restorations in New Jersey, Oregon, The*

Netherlands and Finland, PhD thesis, Enschede: University of Twente.

Owens, Katharine (2010), The Dutch land use re-ordering process as a multi-stakeholder management strategy, in: Hans Bressers and Kris Lulofs (Eds.), *Governance and complexity in water management: Creating cooperation through boundary spanning strategies*, Cheltenham: Edward Elgar, 2010, pp. 114-134.

Pahl-Wostl, Claudia (2004), *The implications of complexity for integrated resources management*, Keynote paper International Environmental Modeling and Software Society Congress, Osnabrück, June 2004.

Pahl-Wostl, Claudia, and Matt Hare (2004), Processes of social learning in integrated resources management, in: *Journal of Community & Applied Social Psychology*, Vol. 14, pp. 193-206.

Pater, Ben de, & Hans Renes, De landschappelijke transformatie van Nederland sinds 1850: "Plaatsloze" landschappen in een geMcDonaldiseerde wereld?, in: Jan Kolen & Ton Lemaire (Eds. 1999), *Landschap in meervoud: Perspectieven op het Nederlandse landschap in de 20ste/21ste eeuw*, Utrecht: Jan van Arkel.

Patton, Michael Quinn (1980), *Qualitative evaluation methods*, Beverly Hills: Sage.

Peters, B. Guy, & John Pierre (1998), Governance without government? Rethinking public administration, in: *Journal of Public Administration and Theory*, Vol. 18, April 1998, pp. 223-243.

Pires, Roberto R.C. (2011), Beyond the fear of discretion: Flexibility, performance, and accountability in the management of regulatory bureaucracies, in: *Regulation and Governance*, Vol. 5, pp. 43-69.

Planbureau voor de Leefomgeving (2010), *Balans van de Leefomgeving 2010*, Den Haag/Bilthoven: Planbureau voor de Leefomgeving.

Pressman, J.L., and A. Wildavsky (1973), *Implementation*, Berkeley: University of California.

Projectteam Evaluatie Nationaal Bestuursakkoord Water (2006), *Evaluatie Nationaal Bestuursakkoord Water*, Rotterdam: LBOW.

Province of Overijssel (2008), *Ontwerp Omgevingsvisie Overijssel: Waterbijlage* (Draft Living Environment Vision Overijssel, with Water Annex), November 18, 2008.

Raadgever, G.T., Smit, A.A.H., Dieperink, C., Driessen, P.P.J. & Rijswick, H.F.M.W. van (2009). *Omgaan met onzekerheden bij de regionale implementatie van de Kaderrichtlijn Water*. Deelonderzoek 2 van Universiteit Utrecht in het project "Aquaterra Nederland". Gouda: Leven met water, Aquaterra Nederland.

Rhodes, R.A.W. (2000), Governance and public administration, in: Jon Pierre (Ed.), *Debating governance*, Oxford: Oxford University.

Rose, Richard (Ed.) (1980), *Challenge to governance: Studies in overloaded polities*, Beverly Hills / London: Sage.

Rose, Richard (1993), *Lesson-drawing in public policy: A guide to learning across time and space*, Chatham NJ: Chatham House.

Rosenau, James N. (2000), *The governance of fragmentation: Neither a world republic nor a global interstate system*, paper IPSA Quebec.

Sabatier, Paul (1988), An Advocacy Coalition framework of policy change and the role of policy-oriented learning therein, in: *Policy Sciences*, Vol. 21, fall, pp. 129-168.

Sabatier, Paul A. (1991), Toward better theories of the policy process, in: *Political Science and Politics*, June 1991, pp. 147-156.

Sabatier, Paul A. (1999), The need for better theories, in: Paul A. Sabatier (Ed.), *Theories of the policy process*, Boulder: Westview, pp. 3-17.

Sabatier, Paul A. & Hank C. Jenkins-Smith (1993), *Policy change and learning: An advocacy*

coalition approach, Boulder: Westview.

Sabatier, Paul A., and Hank C. Jenkins-Smith (1999), The advocacy coalition framework: an assessment, in: Paul A. Sabatier (Ed.), *Theories of the policy process*, Boulder: Westview Press, pp. 117-168.

Saetren, Harald (2005), Facts and myths about research on public policy implementation: Out-of-fashion, allegedly dead, but still very much alive and relevant, in: *Policy Studies Journal*, Vol. 33, No. 4, pp. 559-582

Schaap, Sybe (2010), *Klimaat en overstroming: Een verleidelijk verband*, inaugural speech: Delft: Technical University of Delft.

Scharpf, Fritz W. (1997), *Games real actors play: Actor-centered institutionalism in policy research*, Boulder: Westview.

Scharpf, Fritz W. (1997), Introduction: The problem solving capacity of multi-level governance, in: *Journal of European Public Policy*, Vol. 4, No. 4, pp. 520-538.

Schön, Donald A. (1983), *The reflective practitioner: How professionals think in action*, New York: Basic Books.

Schön, Donald A., & Martin Rein (1994), *Frame reflection: Toward the resolution of intractable policy controversies*, New York: Basic Books.

Schwarz, Michiel, & Michael Thompson (1990), *Divided we stand: redefining politics, technology and social choice*, New York: Harvester Wheatsheaf.

Scriven, Michael (1976), Maximizing the power of causal investigations: The modus operandi methods, in: Gene V. Glass (Ed.), *Evaluation Studies Review Annual*, Vol.1, Beverly Hills/London: Sage, pp. 101-119.

Slangen, L.H.G. et al. (2008), *Natuur en landschap van rijk naar provincie; delegatie door Investeringsbudget Landelijk Gebied*, WOT-rapport 67, Wageningen WOT Natuur en Milieu.

Smit, A.A.H., Dieperink, C., Driessen, P.P.J. & Rijswick, H.F.M.W. van (2008). *Een onmogelijke opgave? Een onderzoek naar de wijze waarop waterschappen invulling geven aan de regionale wateropgaven en de spanningen die zich daarbij voordoen*. Deelonderzoek 1 Kaderrichtlijn Water en Natura 2000. Gouda: Leven met water, Aquaterra Nederland.

Smith, Andy (1997), Studying multi-level governance, in: *Public Administration*, Vol. 75, winter, pp. 711-729.

Spratt, Kai (2009), *Policy implementation barriers analysis: Conceptual framework and pilot test in three countries*, Washington DC: Futures Group.

Teisman, Geert R. (2000), Models for research into decision-making processes: On phases, streams and decision-making rounds, in: *Public Administration*, Vol. 78, No. 4, pp. 937-956.

Teisman, Geert, Lasse Gerrits, Arwin van Buuren (2009), An introduction to understanding and managing complex process systems, in: Geert Teisman, Lasse Gerrits, Arwin van Buuren (Eds.), *Managing complex governance systems*, New York: Routledge, pp. 1-16.

Termeer, Katrien (2001), Hoe je een boer aan het lachen krijgt: van sturing naar configuratiemanagement, in: Tineke Abma en Roel in 't Veld (Eds.), *Handboek Beleidswetenschap*, Amsterdam: Boom, pp. 366-374.

Termeer, Katrien (2007), *Vital differences: On public leadership and societal innovation*, English translation of inaugural speech, Wageningen: Wageningen University.

Thompson, Michael, Richard Ellis & Aaron Wildavsky (1990), *Cultural theory*, Boulder: Westview Press.

Tilburg, Mirjam van, Hans Bressers & Frans Coenen (2009), *"Boundary judgments" van waterschapsbestuurders en ambtelijke medewerkers en hun invloed op de rol van*

kennis, Enschede: University of Twente.

Tacq, Jaques (1984), *Causaliteit in sociologisch onderzoek*, Deventer: Van Loghum Slaterus.

Torenvliet, R. (1996), *Besluiten in uitvoering*, Amsterdam: Thesis publishers.

True, J.L., B.D. Jones and F.R. Baumgartner (1999), Punctuated equilibrium theory: Explaining stability and change in American policy making, in: Paul. A. Sabatier (Ed.), *Theories of the policy process*, Boulder: Westview Press, pp. 97-115.

Turnhout, Esther (2009), The rise and fall of a policy: Policy succession and the attempted termination of ecological corridors policy in the Netherlands, in: *Policy Sciences*, Vol. 42, pp. 57-72.

Vangen, Siv, and Chris Huxham (2003), Enacting leadership for collaborative advantage: Dilemmas of ideology and pragmatism in the activities of partnership managers, in: *British Journal of Management*, Vol. 14, pp. 61-76.

Veen, Anne van der, & Agni Kalfagianni (2006), *Evaluatie van de economische impact van het Waterschap Regge en Dinkel op de regionale economie van het Oosten van het land*, Enschede: University of Twente.

Veen, Errol van (2004), *Zicht op handhaving*, Enschede: University of Twente.

Verschuren, P., & Doorewaard, H. (1999), *Designing a research project*, Utrecht: Lemma.

Vikolainen, Vera, Frans Coenen & Kris Lulofs (2008), *Baten van waterbeheer voor regionale innovatie en regionale economie*, report to KDI, Knowledge Creation for Sustainable Innovation, Enschede: University of Twente.

Vinke-de Kruijf, Joanne (2010), *The Application of the Contextual Interaction Theory*, Enschede: University of Twente, unpublished manuscript.

Vinke-de Kruijf, Joanne, Stefan Kuks and Denie Augustijn (2010), *Governing change: experiences from two water sectors in a transition country*, Paper NIG Annual Working Conference Netherlands Institute of Government.

Walle, Steven van der, and Merel Vogelaar (2010), *Emergence and public administration: A literature review*, Rotterdam: EUR.

Waters Robichau, Robbie, and Laurence E. Lynn, Jr. (2009), The implementation of public policy: Still the missing link, in*: Policy Studies Journal*, Vol. 37, No. 1, pp. 21-36.

Wave magazine (2009), Climate-proofing the river Regge's catchment area: Regge and Dinkel takes a pro-active attitude, in *Wave magazine*, 2009, nr. 1, p. 12.

Wiering, Mark, and Irene Immink (2006), When water management meets spatial planning: a policy-arrangements perspective, in: *Environment and Planning C: Government and Policy*, Vol. 24, pp. 423-438.

Wildavsky, Aaron (1982), The three cultures, in: *Public Interest*, 69: 45-58.

Williams, P. (2002), The competent boundary spanner, in: *Public Administration*, Vol. 80, No.1, pp. 103-124.

Winder, Nick (2007), Innovation and metastability: A systems model, in: *Ecology and society*, Vol. 12, No. 2: 28 (online).

Woltjer, Johan, and Niels Al (2007), Integrating Water Management and Spatial Planning Strategies Based on the Dutch Experience, in: *Journal of the American Planning Association,* Vol. 73, No. 2, pp. 211 - 222.

Yin, R. K. (2003a). *Applications of case study research* (2 ed.). Thousand Oaks, California: Sage.

Yin, R. K. (2003b). Case *study research: Design and methods* (3rd ed. Vol. 5). Thousand Oaks, California: Sage.

Young, Oran R. (1994), *International governance: Protecting the environment in a stateless society*, Ithaca, London: Cornell university press.

Zahariadis, Nikolaos (1999), Ambiguity, time, and multiple streams, in: Paul A. Sabatier (Ed.), *Theories of the policy process*, Boulder: Westview, pp. 73-93.

About the authors

Cheryl de Boer (1978) holds a Bachelor of Engineering and Management and a Master of Engineering and Public Policy both from McMaster University in Hamilton, Canada. She has worked both as an engineer with Siemens Canada, as a research assistant on transboundary water governance at McMaster University and as a public servant dealing with stormwater management for the City of Hamilton. Since 2008 she has been working as a researcher at CSTM (see below). She combines several research projects with the writing of a PhD focusing on international water policy comparisons between North America and the EU. Her research focuses on the different characteristics of regimes that enable local level stream restoration projects to be successful in contributing to a sustainable water resource. She is involved in the New Rurality research project which is a major international study into multifunctional land use and its effects on the sustainability of rural land development. While in Hamilton, she was also vice president of the Bay Area Restoration Council, a local non-profit organisation formed in 1991 and tasked with restoring and protecting Hamilton Harbour and its watershed.

Dr. Hans Bressers (1953) is a professor of Policy Studies and Environmental Policy at the University of Twente in the Netherlands and founder of CSTM. Furthermore he has been a long standing (vice-) chairman of advisory committees to the Dutch Minister for the Environment and has been chairman of the Dutch social science association for environmental and energy research. He has also been a member of the Scientific Committee for the European Declaration for a New Water Culture, and other watermanagement-related scientific committees. Currently he is inter alia an independent scientific member of the Commission on Sustainable Development of the Dutch Social-Economic Council (SER). His award-winning dissertation on Dutch water quality management (1983) was followed by over three hundred publications on policy instruments, networks, implementation, and evaluation, mostly applied on environmental policies, such as water policy. He has been researcher and project leader of numerous externally funded projects, including several projects funded by EU research frameworks, the Dutch national science foundation, ministries, provinces, and water authorities.

CSTM - Twente Centre for Studies in Technology and Sustainable Development - University of Twente (Netherlands)
CSTM is a department of the University of Twente in the Netherlands. This university is one of the three technical universities of the Netherlands. Nevertheless it also has a very substantial social science program to which the School of Management and Governance belongs and in which CSTM resides. CSTM was founded in 1988 and employs a group of about 35 multi-disciplinary policy analysts, including some engineers, who study the universities' strategic research orientation "Sustainable Water, Energy and Spatial Governance". In the most recent (2009) official external research evaluation CSTM's research got the very rare top score for excellency in all four criteria: quality, productivity, viability and relevance. Next to numerous domestically funded research projects, like in the national research programmes "Living with water" and "Building with Nature", CSTM has participated in many European Union funded projects. In many projects close cooperation with stakeholders and potential users of the results takes place.

CSTM has a strong preference for collaborative projects with other research institutes, both domestically and internationally. Welcome to our CSTM website: www.utwente.nl/cstm