Tussen wetten en weten: de rol van kennis in waterbeheer in transitie

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Summary

This study results from a research project about the role of knowledge and knowledge development in periods of transition. The aim of the project is to conceptualize the role of knowledge within the socio-technical dynamics of such periods.
A transition has been occurring in Dutch water management. This transition is extensively analyzed in the literature at the level of Rijkswaterstaat; a Dutch governmental organization that is responsible for water works of national importance. However, also on the regional level a transition has occurred in Dutch water management. Water Boards play a pivotal role here.
The case studies in this book revolve around the way in which governmental and non-governmental actors have adapted to changing societal demands regarding water management. The central argument of this book is that the knowledge intensive methods they have developed to adapt to these changing demands have been put into play and have partly been inspired by these Boards’ strategies to enhance their democratic legitimacy.

In the introduction I discuss the question what we can learn from recent developments in regional water management regarding the role of knowledge in processes of transition. The last four decades of water management in the Netherlands can be characterized as a period of great change. The role of knowledge in these changes is conceptualized in this study via the theory of policy arrangements. This conceptual framework consists of four dimensions: rules, actors, resources and discourses. This framework has been used heuristically in this study. The role of knowledge in periods of transition is conceptualized here through discussing the changes on these dimensions and their interplay.
In the first chapter I discuss the debates about the democratic legitimacy of Water Boards since the beginning of the nineteenth century. The debates are discussed from four different perspectives. I distinguish a debate on the level of national government, the debate among political scientists, the development of the perspective of a representative environmental organization and the debate as it has been perceived by Water Boards themselves.
The second chapter discusses the historical backgrounds of the Water Boards central to the case studies. The Rijnland District Water Control Board (from now on: Rijnland) came into existence as a result of initiatives to organize water management as a matter of regional interest. These initiatives already existed in the thirteenth century. The Water Board Regge en Dinkel (from now on: Regge en Dinkel) has been established at the end of the nineteenth century. Its establishment resulted from a joint initiative of the central government and local land owners. By improving the water infrastructure
and its management, it aimed to create new economic opportunities in the region, that, until then, regularly experienced problems due to flooding.

The first and second chapters serve as prologues for the argument that will be developed in chapters three through seven. From the 1970s onwards, Water Boards had to legitimize their way of water management in a different way. Changes on the level of actor configurations, changing resources and rules and changes on the discursive level interact here. In the development of a different way of legitimizing their way of water management, changing contents and kinds of knowledge operationalized in water management as well as a changing knowledge infrastructure play a crucial part.

In these chapters I discuss two longitudinal case studies that cover a period of thirty years, from about 1970 to 2000. Each chapter discusses changes on the level of the content and organization of knowledge on the one side and changes in water policy and practices on the other. I conclude each chapter with a discussion of the way in which these changes relate to each other.

Chapter three treats the institutionalization of the distinction between fundamental and applied research. The emphasis is on the development of research on the quality of surface water and on land engineering. Researchers in both domains had to position themselves strategically in the discursive spectrum of fundamental versus applied scientific research. Although several actors advocated the positioning of research on water quality in the applied sphere, this research eventually was institutionally located as fundamental science. In the after World War II-period, land engineers benefited greatly from subsidies from the central government. In return, they discursively and institutionally located their discipline under the heading of applied science. In the beginning of the nineteen sixties, dissatisfaction arose among land engineers because this meant that some subjects that were deemed to be of a more fundamental nature were systematically neglected.

The fourth chapter recapitulates the discussion that arose in the second half of the seventies on the usefulness of installing a technical device to combat eutrophication in the district of Rijnland. The Water Board hired a researcher that had to investigate the possibilities to remove phosphates from sewage water, and the usefulness of installing these techniques in sewage water treatment plants. The researcher was trained as a biologist and had followed several courses at the Limnological Institute, which was one of the main players in fundamental research on water quality. She concluded that nitrate and thus not phosphate had to be one of the main causes of eutrophication in the district of Rijnland. Her conclusions were heavily debated both in the popular media as well as in professional magazines. The impression arose that Rijnland invested a large sum of money in technical devices that did not really help to improve the quality of surface water. Rijnland could better invest in means to combat the high levels of nitrate in surface water.
Rijnland deemed it to be politically impossible to do so. The cause of the high levels of nitrate was mainly the use of artificial manure by farmers. The Board of Rijnland mainly consisted of representatives of the well-organized agricultural lobby. To oblige them to diminish the use of artificial manure was politically and societally unthinkable. The interests of the agricultural lobby were discursively too closely related still to the perception of the common national interest. Rijnland therefore chose for a way to combat eutrophication that it could autonomously bring into practice, without damaging the interests of farmers in the area. It started three experiments to remove phosphates from sewage water. The effects would be monitored in the upcoming years. However, the authority of fundamental science upon which Rijnland had wanted to base its decision had proven to be more limited than the Board had expected. The consensus among scientists appeared more fragile and was steered by a mixture of theoretical and pragmatic arguments.

In the second part of chapter four, I discuss how desiccation as a potential problem was insufficiently recognized. In the third chapter, I elaborated on one part of an explanation for this. In this chapter, the organizational culture and practices of Regge en Dinkel itself are discussed; as the second part of an explanation for this denial of desiccation as a potential problem. Firstly, employees of the several governments that were responsible for water management in the region knew each other very well, and often personally as well. They also stayed with their employers for a long time. Therefore, many issues about which discussion may arise were solved via informal contact between these employees. This way of working did not contribute to the transparency of the decision-making process by the Water Board. Also, only the interests of the agricultural and industrial sector were secured. The plans for digging a new channel did not lead to research on the possible effects of this channel in terms of desiccation.

Chapter five elaborates on how hydrobiologists came to adopt a particular method to assess the quality of surface water biologically. This method was mainly based on ecosystem ecology. First, the international discussion on the meaning of the concept saprobity for hydrobiologists and limnologists is discussed here. The eventual choice of Dutch hydrobiologists to base their method for assessing surface water quality on ecosystem ecology was not mainly inspired by theoretical considerations, but by pragmatic ones. The practical experience with basic methods to assess surface water based on such a theoretical background, which meant in practice a mostly quantitatively inspired way of assessing the quality of water, was already present at Rijnland – where experience with qualitatively inspired typology of surface waters was not. Such experience was also hard to attain in a short time span. This episode illustrates firstly how discursive distinctions as the institutionalized difference between applied and fundamental research subtly steers the decisions of scientists. Hydrobiologists, who felt they were taken less seriously than their colleagues in limnology due to the fact that limnology had a more fundamental ring to it, longed to
be heard and be taken seriously by policy makers. Secondly, this episode shows that their considerations were influenced by the practical demands of Rijnland, and not so much by theoretical assumptions.

Chapter six starts with a discussion of the background of the complaint of environmental scientists towards the criteria of what is called ‘science’. The current criteria for calling a particular piece of work ‘scientific’ did not sufficiently guarantee the design of solutions for environmental problems. Environmental scientists argued that regular science was focusing too much on theoretical discussions instead of on actual problems and the relevance of its research subjects. Key words in the discourse developed by environmental scientists were ‘interdisciplinarity’ and ‘relevance’.

Due to their activist reputation, environmental scientists were viewed with great suspicion by policy makers. Nonetheless these scientists were keen on proving their point regarding the current state of science in general and the value of their approach based on interdisciplinarity and relevance. They were actively searching for case studies to prove their point. More or less coincidentally, they stumbled upon the plan of Regge and Dinkel to channelize a particular creek, the Bornse Beek. A group of students in environmental scientists drew up an alternative plan in which the approach of environmental science prominently comes to the fore. In terms of the contents of this plan, they based their proposal on ideas from the field of landscape ecology.

At first, Regge en Dinkel did not take the plan very seriously. Only when within the organization of the Board the dissatisfaction with the current way of working and the relation with other governmental organizations arose, a group of employees developed an interest in the plan. They were keen on using it as a ‘governmental technology’ in order to reorganize the internal organization of the Board as well as the relations with other governmental organizations. These employees also saw the plan as a possibility to shape a new public image of Water Board Regge en Dinkel. Its organizational profile should now be characterized as a ‘green’ Water Board, with attention to environmental aspects of water management.

Ecologists working for the Water Board were given full freedom to experiment with an ‘ecosystem-friendly’ way of improving the situation around the Bornse Beek. Within their experiments, emphasis was laid on the possibility to integrate the diverse interests of residents of the area had in the management of the creek. This also conveniently fitted into a new national policy paradigm which was introduced in 1985 and which proposed a new ‘integrated’ way of managing water. Thus, the wish of a couple of employees of Regge en Dinkel catalyzed the adoption of a new way of managing water and reorganizing the formerly informal relations between the several governments with a responsibility in water management in the region. The new way of working was conveniently fitted into the new policy paradigm of integrated water management, which meant that Regge en Dinkel was given a royal subsidy from the national government for realizing a new situation around the Bornse Beek, based on the approach developed by environmental scientists. Thus, these scientists steadily gained
recognition of water managers for their approach. However, academic recognition was never fully achieved.

The case studies discussed in the last chapter empirically show that the Water Boards central to these case studies developed a new organizational self-consciousness. This self-consciousness was based on their newly developed (access to) knowledge on environmental issues in relation to water management. They actively promote the image that Water Boards harbor the development of knowledge of environmental issues in water management; whereas competing powers as provinces do not possess such specialized knowledge.

The case studies discussed concern the design of a ‘Vision’ for the river de Regge and its surrounding areas in the western part of the area under control of the Water Board, and a new way of managing surface water levels by Rijnland. From this new self-consciousness based on their newly attained knowledge of environmental matters they argued that they renewed their democratic legitimacy as well. The ‘interests’ related to environmental issues are closely linked to the interests of urban residents. Since 1992, residents of urban areas could also vote for the composition of their representatives in the boards of Water Boards. Thus, Water Boards assumed that they had now broadened their base for decision-making. Not only industrial and agricultural interests were now officially represented within the board, but also the interests deemed to be important for urban residents. The chapters four to seven however prove that the definitions of environmental issues in water management are not steered by the interests of urban people, but mostly by decisions of particular groups of scientists. These decisions are themselves steered by considerations which may be characterized as being political ones. Together with the low turnout in the category in which urban people may vote raises the question if the democratic legitimacy of Water Boards is indeed enhanced via the broadening of their scope towards environmental issues in the last three to four decades. Nature interests in water management are largely a construction of experts in the field of environmental issues in relation to water. These experts base their considerations on factors such as available subsidies for research and the wishes of board members of Water Boards.

Conclusions from this research projects may be drawn on three different levels. The first level is the historiographical one. The changing language of water managers is not uncritically adopted, but is taken as one of the starting points for research. The discursive dimension of policy arrangements prominently features in this book. Although this study is largely historical in nature, it is in this sense different from the frequently appearing historical works on the development of water management in the Netherlands.

Secondly, I have analyzed the role of knowledge in transitions by taking into account the contents of knowledge. The episodes discussed show the political nature of the substantive choices made by scientists. These are often not mainly based on theoretical, but on an amalgamation of other considerations. Discursive distinctions and, coupled to
these, subsidy structures for financing research for example play a role in these considerations. Also, experience with a certain method that is already present or easily attainable may also figure in these considerations. A focus on the content of debates that are held within particular scientific fields shows how these choices, which often have consequences in terms of regional and national policy making, are made. Thus, taking the contents of knowledge as a starting point for research may help to better understand the role of knowledge in policy making.

Thirdly it has been argued that within periods of transition, discussions on the democratic legitimacy of such transitions are closely connected to issues regarding knowledge development. In addition to this, the character of knowledge changes during such periods. Reflexivity within the paradigms is generally enhanced in such periods. Water managers react upon ‘feedback’ from the water systems on the way they formerly used to manage polders, creeks, ditches and rivers.