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## Designing institutions for water management

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### Abstract

Most water management problems are multi-level and multi-actor problems characterized by a high degree of substantive and strategic uncertainty. For social scientists it is an interesting question which institutions are needed for solving these problems. In this paper it is argued that new practices of network governance (interactive, participatory or open planning processes) are a promising alternative to state power, but that more research is needed on sources of network governance failure. Based on observations made of the room for the river policy process, it is concluded that we are in need of an intelligent combination of strategies of network governance and state power for solving our water management problems.

### Introduction

'Institutions matter' is a famous statement by the Nobel prize winner for economics North. Institutions are, in the widest sense, rules. They can either be formal, such as Acts and the Dutch 'House of Thorbecke', or informal, such as the Dutch consensus decision making culture. Anyone who has ever participated in an international research or policy project may have experienced why institutions matter (Meijerink, 1999).

Institutions often show considerable inertia. Nevertheless, some institutions can be purposefully designed (De Bruijn et al., 2002). We may for example decide on the introduction of a market for water services or a 'watertoets' for decision making on land-use policies (Wiering & de Rooij, 2004). In this paper we address the issue of institutional design for solving wicked water management problems.

### Wicked water management problems

Most water management problems are wicked problems. Characteristic to these problems are that multiple governmental and non-governmental parties at multiple levels of government are involved in problem solving. These parties generally have different problem perceptions and policy preferences. Moreover, resources needed for problem solving, such as

legal, financial and political resources, are distributed amongst them. Finally, wicked policy problems are characterized by uncertainty (Koppenjan & Klijn, 2004). The 'Room for the River' issue, for example, is characterized by both substantive (river discharges expected) and strategic uncertainty (e.g. about strategic behavior of regional and local parties).

### Markets, hierarchies and networks for water management

It is useful to think about the institutions needed for solving such wicked water management problems. Basically we can draw on three types of institutions: markets, hierarchies and networks (Thompson et al., 1991). Markets are very good at providing private goods. We might think about possibilities for organizing a market for drinking water supply, sewerage and/or waste water treatment, though we should be extremely careful with that, and it is necessary to protect public values, such as water quality or equal access to water services. For the provision of public goods, such as dikes, or common goods, such as clean water resources, there is a serious risk of *market failure*. In these cases markets do either produce negative externalities, such as water use or pollution to the detriment of others, or free riders, i.e. parties that do not pay for a good or service, but nevertheless enjoy its benefits.

Because of these market failures government plays an active role in water resources management in most countries. In the past decades, however, the water sector has experienced that state power or hierarchy is not very successful in solving wicked problems either. Stakeholders that feel they are worse off with newly developed policies as compared to the status quo often try to frustrate policy implementation successfully. Hierarchy invokes strategic behavior, and in policy controversies scientific research is often used strategically. Rather than a disinterested search for truth, the policy process, then, is characterized by partisan use of research results and reports. The river dike strengthening controversy of the eighties is a clear example of such a 'dialogue of the deaf'

(Sabatier & Jenkins-Smith, 1993), and therefore of *government failure*.

For these wicked policy problems network governance (or interactive decision making) is a promising alternative, mainly as it aims at conditioning a joint learning process. We may distinguish between processes of substantive, strategic and institutional learning (Koppenjan & Klijn, 2004). Substantive learning is learning about cause-effect relationships, policy alternatives and impacts of these alternatives. Strategic learning refers to learning about the perceptions and preferences of others, and the need to take into account these other parties' perspectives by developing more cooperative strategies. Finally, institutional learning refers to the development of shared norms and expectations, and the development of a culture of trust. The processes of deliberation and negotiation aimed at the preparation of a regional advice in the Dutch Room for the Rivers project are an interesting example of such learning. The parties involved learned about the many policy alternatives, the many possible combinations and their impacts. They, however, also learned about possibilities to combine different policy objectives in multi-purpose plans, and by that to address different problems at the same time. In spite of these substantive and strategic learning processes, the relationship between some parties remained rather tense, and a culture of trust has hardly developed. Among other things, this may be explained by the rather coercive strategies the Dutch national government has used in the controversy over the designation of emergency flooding areas (Meijerink, 2004).

### Network governance failure

As more experiences have been gained with the new practices of network management now, policy scientists have begun to address the sources of *network management failure*. In spite of the rather positive observations made of the Room for the Rivers policy process so far, it should also be noted that there has been a permanent risk that problems and costs are passed on to other parties or levels of government. This particularly concerns parties' willingness to take policy measures for the benefit of areas and parties situated more downstream. Moreover, not in all cases it will be possible to reach a consensus or

negotiated agreement. In the end, we may well need state power to solve these dilemmas of network governance.

Hierarchy or state power should neither be used to simply impose policies nor should interactive policy making be used to create public support for policies that already have been decided upon. Hierarchy, however, may be used fruitfully to create a sense of urgency, which implies that deliberations and negotiations take place within the 'shadow of hierarchy': if parties will not be able to reach an agreement, central government will have to take a decision in the end. Finally, state power may be used to impose conditions that safeguard coordination at higher levels of scale. The safety objectives for the Dutch rivers imposed by the Dutch national government are a good example of that.

### Conclusions

Whilst policy scientists have given ample attention to sources of market failure and government failure since long, they have only just begun to address sources of network governance failure. From recent experiences with network governance in Dutch river management we may learn that strategies of network governance have been rather successful so far, but that there are some dilemmas of network governance as well, and that we may well need state power to solve these dilemmas.

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