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Water governance capacity: The art of dealing with a multiplicity of levels, sectors and domains

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This paper elaborates water issues as a problem of water governance capacity to face multiplicity of levels, sectors and domains. In order to do so, we will apply a complexity embracing theoretical approach, aiming to understand the interdependencies in the system that decline the effectiveness of one-sided top down interventions and urge for high quality interaction. Physical water systems as well as social systems dealing with water are considered to be complex and interconnected. The systems are compounded in the sense that there is no clear hierarchy and interconnected in the sense that the quality of the one can be heavily influenced by the other. The water systems touch upon other domains like agriculture, economic development, social development, ecology, health, etc. And along with these other physical system a variety of stakeholders, like industries, municipalities, farmers, recreational sector and environmental organizations comes along. All stakeholders do approach the problem and the possible solutions differently. In this paper we argue that complex nature of water governance processes call for the need for boundary spanning that leads to acting between domains, levels and sectors. Building up trustworthy relationships is crucial for gaining water governance capacity. We recommend a complexity embracing approach that focuses on boundary crossing capacities and capabilities.

1. Introduction: Water issues and the governance of multiplicity

In this contribution, we frame the problems of water pollution, water shortage/ supply and water surplus and flooding as challenges of governance capacity. The actions of water authorities needed and the ability to implement these acquired actions will take place in a broader water governance system. With others we are raising the question to what extent this system is able to generate the governance capacity needed to prevent the global water crisis (UNESCO, 2006; OECD, 2012).

We can safely assume that in most contexts some organizations are officially responsible for the actions needed to avoid water crisis. These water authorities, however, are embedded in a broader system of organizations and groups. These 'others' are also trying to achieve their ambitions, even though these do not have to be in line with the ambition to prevent any water crisis. It is this broader system that does fascinate us. The following question is guideline for our contribution: *What are important characteristics of governance systems in which water authorities are embedded and what are the conse-*

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quences of these characteristics for government's actions in water governance systems? What are key challenges to generate the collective action needed to prevent water crisis?

Our main argument in this article is that avoiding water crisis is a challenge characterized by multiplicity. Many actors from different sectors, scales and domains with various and often conflicting views, values and interests take part in the water governance system (Teisman, van Buuren, & Gerrits, 2009). The focus of analysis tends to be on water authorities, their actions and the inherent problems of the water system. It however is a narrow focus leaving out a variety of actors that heavily influence the effectiveness of water management and government. If we assume that dealing with water effectively does go beyond the boundaries of the water sector, it implies that other functionalities like agriculture, mining and housing have to be taken into account.

Water in its many forms (enough freshwater, providing safety against flooding, etc.) can be seen as the government's responsibility. The focus on government and government's actions, however, tends to underestimate the importance of the actions of the non-government domains of market and society. Often these actions only come into sight as the cause for problems that urges governments to take actions or as the cause for implementation problems when governments are acting. This is a part of reality, but not the whole reality. Government actions can also disturb existing self-organizing capacities of society and private sector. Our preliminary assumption, therefore, is that careful understanding and consideration of multiplicity does help to reach effective, efficient and legitimate actions. We will go deeper into the question what multiplicity means for analyzing and understanding of water governance capacity.

We will argue that existing approaches of the water crisis are underestimating the multiplicity of governance systems. Multiplicity implies that the efficiency and effectiveness of actions depend on the broader set of mutually reinforcing collective action they are embedded in. (cf. Biswas, 2004; Folke et al., 2007; Teisman & Edelenbos, 2011). Multiplicity results from a societal modernization process towards complexity (Beck, Giddens, & Lash, 1994; Jervis, 1997). This modernization will urge researchers to apply approaches able to indicate and understand the complexity that has emerged during the last decades. Understanding complexity is understanding how actors deal with increasing interdependencies in the complex system of water-related collective action. A variety of studies indicates that exactly this aspect explains the efficiency, legitimacy and effectiveness of government actions and interventions (Kickert, Klijn, & Koppenjan, 1997).

In a complexity approach, the effects of interventions in water governance systems are guided by how other actors deal with interventions more than by the internal rationality of the intervention. A water governance system, going beyond the boundaries of levels, functions and domains, is a compounded and messy whole (Teisman & Edelenbos, 2011). Actions of each of the parts will influence the efficiency, legitimacy and effectiveness of other parts, while nobody is in charge to coordinate all the actions (Crosby & Bryson, 2005). We aim to increase our understanding of these complex systems.

In Section 2, we will present the results of our desk study on the concept of multiplicity. We conducted literature research in the field of integrated water management,

governance networks, multi-level governance, and complex governance systems to develop our line of argumentation in this article. We use some examples to illustrate our line of thought.

In Section 3, we will elaborate the boundaries between parts of the multiple water governance system. We indicate that in the process of modernization the boundaries have become more overlapping and blurring. This will have consequences: boundary crossing and spanning will become crucial requisites for developing governance capacity.

In Section 4, we elaborate the existing understanding of boundary judgments and boundary crossing and boundary spanning. In the literature and applied studies, two important explanations for the ability to boundary crossing come forward: gaining legitimacy for actions in a broader system and trust building.

In Section 5, we elaborate the ideas of gaining legitimacy and developing trustworthy boundary-crossing relationships in complex systems.

2. The multiplicitous nature of water governance systems

2.1. From a primarily focus on government's action to games of interaction

Multiplicity is to be considered an side effect of modernization (Beck, 1992). The main driver behind the process of modernization is specialization (Edelenbos & Teisman, 2011). When units decide to specialize, they increase labor productivity, efficiency, profits and wealth (Moss Kanter, 1983). We assume that specialization will remain an important modernization principle.

Specialization generates interdependency and generated needs for coordination and integration (Simon & March, 1958; Morgan, 1986). An on-going evolution of mutual interdependency seems to be a main characteristic of modern societies, where nobody is in charge (Crosby & Bryson, 2005). This evolution challenges the idea of government as a central task organization responsible for water and introduces the idea of governance.

Well-known examples are the Dutch Water Boards; The (currently) 26 regional Water Authorities form a fourth layer of government, along with national government, provinces and municipalities. '*Without the continuous operation and maintenance of the many dikes, locks, pumping stations, flood barriers, canals and ditches, the safety of more than nine million Dutch would be jeopardized. This is precisely what the regional water authorities do*.' (Havekes, Koster & Uijterlinde, 2011: 10). Water authorities are institutions with tasks exclusively in the water domain. Their boundaries are determined by hydraulic factors: subcatchment basins, dike rings and pumping and storage areas. The total Dutch government expenditure on water tasks in 2008 was 5.4 billion euros. Out of this, 2.5 billion was spent by regional water authorities. An average household paid 547 euros for its water conveniences, consisting of 189 for drinking water (based on actual use), and 144 on sewerage charges, 214 on regional water authority taxes. The Water Boards Act of 2008 defines the boards as public bodies, allowed to make decisions that are binding for citizens. This act fits in with the European Water Framework Directive. The Water Act of December 2009 facilitates integrated water governance.

Governance relates to the broad system of governing (Koppenjan & Klijn, 2004). It includes the scope on governments, but does not focus on a single government. The following definitions of water governance are used:

1. Water Governance refers to the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society. (Global Water Partnership, 2003)
2. Governance covers the manner in which allocative and regulatory politics are exercised in the management of resources (natural, economic, and social) and broadly embraces the formal and informal institutions by which authority is exercised. (Global Water Partnership, 2003: 7)

In governance systems, a variety of water authorities may be active. In the Netherlands, for example, water boards are responsible for water systems, but municipalities for sewerage and water companies for the provision of drinking water. Regional authorities play certain roles too especially in coordinating water with regional development. Furthermore, national government is responsible for the national water system, for example flood risk management. Finally, there are several water-oriented supranational entities. The EU and international river basin committees play an important role, for example regarding water quality. The quality of coordination and cooperation between these governments generates an important part of the governance capacity.

The water government system is not restricted to water authorities only. Water is interrelated with other fields of government actions, such as agriculture, mining, environmental affairs and urban and regional planning (Lubell & Lippert, 2011). To catch the interrelatedness the concept 'integrated water management' is used here (Biswas, 2004; Margerum, 1999).

There is not much knowledge available on the interrelatedness of fields and there are not many professionals trained in working on the boundaries of domains. Many experts are educated as specialists in well-defined fields. The *deepening* of understanding of water issues is important. We however have to consider the possibility that this hinders the necessary *broadening* or *synchronization* of the issue to other domains and interests in the governance system (Teisman & Edelenbos, 2011). '*Specialization is often at the expense of widening, meeting, sharing*' (Baets, 2002: 24), and becomes an obstacle to finding a balanced solution to the water issue and crisis.

The concept of water governance focuses on integration and synchronization of interests (Born & Sonzogni, 1995) generating three new objects of analysis and gaining governance capacity:

1. Interactions between a variety of actors;
2. Abilities to establish effective interactions between levels, functions and domains;
3. Joint interest generated out of a set of self-interests and joint action from a variety of separated actions.

This insight has emerged from studies showing that the (re)actions of others heavily influences the effects of actions taken by any actor in a governance system. It is

from these experiences that the interest in (formal and informal) networks has emerged (Castells, 2000) and network approaches have gained popularity (Koppenjan & Klijn, 2004). Network approaches focus on mutual interdependency and multiplicity.

A next step in thinking about governance and governance capacity appears in recent applications of complexity theory into the domain of governance (Hooghe & Marks, 2003; Teisman, van Buuren, & Gerrits, 2009; Edelenbos, Steijn, & Klijn, 2010). Complexity thinking emphasizes that boundary judgments influences the quality of interactions between parts of a system. Governance capacity increases with the ability to cross and span boundaries. "*The challenge lies in matching multilevel governance systems, often characterized by fragmented organizational and institutional structures and compartmentalized and sectorized decision-making processes, with ecosystems characterized by complex interactions in time and space*" (Olsson et al., 2007).

In the next section, we will elaborate the boundaries between levels, functionalities and domains. Here we will find the barriers preventing effective joint action.

3. The dimensions of multiplicity: Multifunctional, multilevel and public private

A process of water governance will go across a variety of subsystem boundaries. The effectiveness of such a process will be influences by what happens on these boundaries. Will the process be blocked, transformed, or adopted and taken further? Before we will be able to answer this question, we first have to focus on the boundaries themselves. We will identify boundaries and the demands for boundary crossing.

Governments, including water institutions, are by no means authorities in understanding and dealing with boundaries (Morgan, 1986). They take care of a single issue. From this core-business, they start to create boundaries: 'this side of the boundary is my domain of responsibility, the other side is not'. In the process of modernization, however, the outside world has become hard to neglect. This goes for other functions, other levels and other domains.

At the same time it seems that crossing boundaries between functionalities as crucial element of generating governance capacity is neglected. Officials from both sides of the boundary argue that integration and boundary crossing is important, but once in actions this intention is easily forgotten. If the proposition of the strength of monofunctional action and the weakness of integration of functions stands, what then does this imply for the challenges of integration? What is it that prevents organizations, authorized to take care of one functional task, investing in boundary crossing with other tasks?

Multilevel governance is a second challenge. That also has important implications. It means that the option, to search for an optimal scale for action (river-basin organizations), no longer is the only and perhaps neither the most effective alternative (cf. Imperial, 1999). Neither does it seems to work to choose for a top-down nor a bottom-up process. Even there we see mutual dependency.

A patchwork of institutions at various overlapping levels results from the process of modernization (Schlager & Blomquist, 2000). The challenge is to create interactions

between levels in which each level has added value to the decision making and management of water systems and in which the actions of each level in order to implement this added value become part of an effective chain of action. The question however is what kinds of no-go areas and non-cooperation exist between levels, preventing the actors on these levels from becoming and valuable part of a chain of action?

Multiple domains are a third challenge of water governance. There is a public domain, but also a private one. Much effort is put in the dividing these two worlds. Jacobs (1992) describes them as two moral systems: the "trade syndrome" (private) and "guards' syndrome" (government) (Hospers; www.preservenet.com/theory/JaneJacobs). The trade syndrome is about commercial values like efficiency, competition, innovation and keeping to agreements. The guards' syndrome, relevant to public servants like water authorities, is about obedience, hierarchy, loyalty and feelings of honor. The development of society depends on traders and guards, but despite their interdependence, the two domains need to be strictly separated. If they mingle, these "monstrous mixtures" will harm society. (Hospers; www.preservenet.com/theory/JaneJacobs.)

In line with these insights, the majority of management attempts aim to define what can be produced publicly and what privately and then separate both worlds. This desire is 'alive and kicking'. If, however, we look more closely to how societies deal with water there often emerges a less clear distinction between the two domains (see illustration below). Desires to develop public-private partnerships are also 'alive and kicking'. We will elaborate the need for separation and cooperation at the same time in search for the desired governance capacity.

Illustration of public-private cooperation: the *terps* (mounds) plan Overdiep Polder (Edelenbos, Roth, & Winnubst, 2012).

Located in Noord-Brabant Province, the Overdiep polder covers 550 hectares, with a floodplain of 180 hectares. It is enclosed by the Bergsche Maas and the Oude Maasje, which form part of the Meuse basin in the Netherlands. In the 1970s technical interventions made the polder suitable for permanent occupation, year-round agriculture and livestock farming. In 2003 the polder housed 94 inhabitants, 17 farms, a marina, and a military training site. Most farms are dairy farms with between 25 and 40 hectares of land (partly owned, partly in leasehold) and between 30 and 100 cows.

The polder had been designated a 'search area' for river widening interventions on government maps in the late 1990s. When an article in a regional newspaper alerted the residents that the polder was a candidate for water retention, most of them were initially against. Farmers feared protracted uncertainty about the future of the polder, negatively influencing their enterprises. Some, however, saw new opportunities for combining the public interest with their private interest, an economically viable future for their farms. They recognized the public need for water storage, and realized that legal procedures would bring even more uncertainty. The residents decided to negotiate, and asked the province to play an active role in planning the future of their polder. They formed the Overdiep Polder Interest Group (*Vereniging Belangengroep Overdiepse Polder*) to represent their interests in bargaining with the government.

From 2000 the residents developed their own plan: the *terps* plan. A *terp* (mound) is a human-made elevation in the landscape, historically used to protect settlements from flooding before dikes took care of the demand for protection. The oldest terps are over 2000 years old. The Overdiep polder *terps* plan is a residents' initiative for the spatial redesign of their polder to make temporary floodwater storage during peak discharge possible. A first draft was developed with farmer organization ZLTO, and elaborated with the help of the province and water experts. Terps and a dike protecting the polder's southern perimeter will prepare the area for temporary water storage during an estimated 1:25 (once in 25-year) flood. These will ensure that the polder will continue to have an agricultural function. The northern dike will be lowered and a water inlet and outlet constructed, allowing water from the river Meuse to flow through the polder. The principal project goal could thus be realized: reducing the flood peak level in the Meuse by 30 cm.

3.1. The boundaries between functional policy areas revisited

An important pitfall for professionals in the water domain is that they purely concentrate on their own domain and their own ambitions. Incentive structures often stimulate dedication to a task, not integration with outside functionalities. '*What complex systems do is break down complex tasks into simple ones, deal with them as simple problems, and then aggregate these solutions back together. Such a process, common to bureaucracy, assumes that aspect of problems can be treated in isolation from each other without endangering the overall solution.*' (Ferlie, Lynn, & Pollitt, 2005: 63)

For a long period, the advantages of a task division were substantial and the problems of coordination deemed acceptable. This also was the case with the water domain in the Netherlands. The national water management authority, Rijkswaterstaat, and the regional water boards were able to manage their own functionality at a high level of performance. Their authority was, not really disputed. Especially flood protection was an aim, heavily supported by the Dutch citizens. The famous Delta works illustrate the achievements of a well-focused functional approach creating a high level of flood protection (Van Buuren, Edelenbos, & Klijn, 2010).

At the same time, this example indicated the emerging of a new governance environment. The criticism leveled at the Dutch Delta works nowadays is that other functionalities, such as the ecological quality of the dammed-up sea arms, were not taken into account, creating all kinds of problems for recreating and fresh water supply. Solving problems in highly developed societies has transformed into 'dealing with issues'. Governing and managing issues is not the same as solving a problem. In a problem-solving orientation, it is important to focus on a key problem, to define this problem as clear as possible and then deduce the criteria that solutions do have to meet. The problem-solving approach is well developed in the water sector in the Netherlands.

Modern times, asking for an integrated issue approach, are creating new challenges for governance capacities. At the same time, however, each organization wants to control the process of integration (Teisman & Edelenbos, 2011). They tend to bring in a

broader set of information about surrounding policy areas and try to make clear that this information is taken into account in their policy and implementation strategy. The organization has become open in terms of accessing external information. It however tends to stay closed with respect to decision-making. The top of the organization seeks to keep control. This is understandable from the hierarchical perspective and from the idea of the primacy of politics of a council or parliament (Koppenjan & Klijn, 2004). At the same time, this approach is inflexible after internal decisions are taken.

Recently, new approaches emerged, focusing on mutual adjustment between functional areas of public policies. This means that decision-making no longer takes place in the heart of each of the participating organizations, but shift towards the boundaries of the domains, where representatives of different functionalities meet and develop joint programs and projects (see illustration in box below).

Illustration Room for the River project Noordwaard (Van Buuren, Edelenbos, & Klijn, 2010).

After the high waters of 1993 and 1995, the Dutch national government determined to implement the necessary dike reinforcements as quickly as possible. However, in 2000, the Cabinet decided that the main rivers (Waal, Rhine and Meuse) needed more space in order to be able to meet the requirements of higher discharges in the future. This decision was the starting-point for the development of the programme "Room for the River", which ambition was to combine water safety with spatial quality. The Noordwaard is one of the measures that came out of this national decision-making procedure. In the beginning of the project, the objective of water safety was emphasized, but the programmatic approach soon came into play, emphasizing cooperation between various actors (representatives of local, regional, national governments, farmers, citizens, private companies, developers, etc.). In this cooperative and interactive approach, various interests and functionalities of the area were included in the integral plan, like agriculture, housing, regeneration of natural values, recreation and economic development and flood safety.

3.2. The boundaries between levels of governments revisited

The multilevel approach touches upon the distinction between pluralist and monist conceptions of politics and between bottom-up and top-down explanations of decision-making (Bache & Flinders, 2004). Marks (1992) introduced the concept of multilevel governance and defined it as "a system of continuous negotiation among nested governments at several territorial tiers" (Marks, 1993: 392). He describes how supranational, national, regional, and local governments are enmeshed in territorially overarching policy networks (Marks, 1993: 402).

Governance networks are social relations among mutually dependent actors, constituted around joint action programs or projects (Koppenjan & Klijn, 2004). For program development, relations among actors are crucial. They have to emerge; otherwise, there will be no joint program. In order to redeem the opportunities of interdependen-

cies intensive and enduring interactions between actors have to be created and sustained (Alter & Hage, 1993).

Marks & Hooghe (2004) distinguish two types of multi-level governance. Multi-level governance type 1 echoes federalist thought, conceiving the dispersion of authority as being limited to a limited number of non-overlapping jurisdictional boundaries at a limited number of levels. In this view, authority is relatively stable and analysis focuses on governments rather than on joint policies. Multi-level governance type 2 presents governance as "a complex, fluid, patchwork of innumerable, overlapping jurisdictions".

Multilevel governance indicates that actors operate "at best as *primus inter pares* in network. This will challenge the idea of each level of being immediate holders of sovereign authority in a single hierarchical command structure" (Jessop, 2002: 123). State involvement becomes less hierarchical, centralized, and directive in nature. Regional and local actors contribute knowledge, money, legitimacy and organizational capacities to the process of joint program decision-making and implementation.

Forms of networking, cooperation and negotiation still take place in the shadow of hierarchy (Jessop, 2004: 65). Each level has to redefine its added value in a multilevel program development and implementation game. Teisman and Edelenbos (2011: 104–105) has coined this "the double process of mutual adjustment". Multilevel governance involves tangled hierarchies and complex interdependence (Jessop, 2002, 2004). Mutual adjustment is traditionally based on the idea that two or more people or organizations gain an understanding of the fact that they need (the resources of) other people and organizations to reach their goals and that they are unable to force them to hand over these resources. Multilevel governance needs to emphasize the importance of mutual adjustment and at the same time has to take into account the ongoing desire for hierarchy and control (Teisman & Edelenbos, 2011).

Coordination and cooperation take place when bottom-up organizing units comply with rules, procedures and policies developed by people and organizations higher in the system. In this perspective, integration is a double process of mutual adjustment, first in a horizontal relationship and secondly in an asymmetric relationship. "*The key issue for a research agenda into this new form of statehood becomes the manner and extent to which the multiplying levels, arenas, and regimes of politics, policy making, and policy implementation, can be endowed with a certain apparatus and operational unity horizontally and vertically; and how this affects the overall operation of politics and the legitimacy of the new political arrangements*" Jessop (2004: 66).

Processes, programs and institutions can emerge between levels and create new spheres of authority (Adger, Brown, & Tompkins, 2005). This will challenge institutional design and development. In the 20th century, the nation state was assumed the appropriate level for planning and policy-making. Since the 1970s, this trend has gone into a two-sided reverse. Supra national networks like the EU emerged, while a variety of national tasks were decentralized (again) to local levels, because the national level was not as appropriate as though in the beginning. At the same time there seems to be

doubt about whether these supra and subnational levels are optimal. The concept of localization, as a combination of globalization and the importance of the local, indicates a systemic doubt.

The idea of an optimal level seems to be outdated. Multiplicity seems to become the dominant characteristic of issues, including water. Some scientists are talking about the 'hollowing out' and demising state (Milward & Provan, 2000: 362). Indeed, governance processes do cross multiple jurisdictions and cannot be understood as a state monopoly (Teisman & Edelenbos, 2011). The crucial evolution is towards in interdependent state, still having unique assets like legislation and taxation rights. The unique assets however will have to get effectiveness in interaction patterns with a variety of other action levels. Dealing with water issues urges for a multilevel governance approach (Hooghe & Marks, 2003; Bache & Flinders, 2004). Multilevel structures and processes contribute to the desired governance capacity. They can address issues at multi scales and nurture diversity for dynamic responses in the face of uncertainty and ambiguity (Olsson et al., 2007). Governance processes located on one level will have less variety of responses to the compounded water issues than multilevel governance structures have (Ostrom, 2005; Imperial, 1999).

3.3. Boundaries between domains of public and private domains

The dispersion of authority is not limited to functionalities and levels over governments. It is overarching also non-state actors (Bache & Flinders, 2004: 22). It concerns NGOs and (organized) citizens. Participatory and stakeholder involvement are part of the governance system and its capacity. Interactive decision-making and participation are important (Leach & Pelkey, 2001; Rinaudo & Garin, 2005; Petts & Brooks, 2006). Governments for pragmatic reasons can involve stakeholders. Involvement can prevent them from time-consuming litigation procedures. Participation is also a resource for gaining legitimacy of processes (Edelenbos & Klijn, 2006; Van Buuren, Klijn, & Edelenbos, 2012). Gaining legitimacy is crucial in multiple governance systems.

Participation and interactive policy-making emerge in water-related program development all over the world, labeled as citizen's panels, charters and interactive decision-making (Edelenbos, Steijn, & Klijn, 2010). Beside the pragmatic reasons of easing the veto power of societal actors, improving the quality of decisions, using tacit information and solutions and bridging the perceived growing cleavage between citizens and elected politicians are drivers for interaction across the public and private domains (Sørensen & Torfing, 2007; Leach & Pelkey, 2001; MacPherson, 1979; Scharpf, 1999).

Governance also implies coordination through markets and public private partnerships. In water governance, there has been a shift from an emphasis on governments to private provision. Water governance relates to property regimes (Miranda, Hordijk, & Torres Molina, 2011). Mostly these regimes are mixed. Therefore, even despite the warning of Jacobs and others, public private partnerships emerge in water governance.

Public private partnerships (PPP) are sustainable, but temporary cooperation between public and private actors, who, from their own interests and perspectives, develop mutual products and/or services, and who share risks, costs, and benefits (Edelenbos & Teisman, 2008).

3.4. Addressing boundaries in multiple water governance systems

We can conclude that boundaries exist between levels, functionalities and domains. In governments, there are strong internal and collective drivers to make distinctions between levels, functionalities and domains. The science of organizing is still based on the decomposition and coordination thesis of Nobel Prize winner Simon: divide the whole of tasks into parts and make an organization responsible for specific task performance. The relations between the parts can be managed by some coordination from the top.

From our elaboration, we concluded that water governance is about interactions and boundary crossing. Due to the absence of an optimal scale for performing actions of water management, governance is about multilevel interaction. There is no optimal functional division. Many of the problems of water management have to be solved in or jointly with other policy areas. There is no optimal and stable division of tasks between the public and the private domains. Boundary crossing in water management does become an important governing activity (Bressers & Lulofs, 2010; Warner, Lulofs, & Bressers, 2010; Teisman & Edelenbos, 2011). The next section elaborates boundary crossing.

4. Boundary spanning activities: Crossing levels, domains and sectors

Boundary spanning and crossing activities differ control and command. Boundary crossing assumes that the other system is functioning primarily on self-organization. It is not controlled and cannot be commanded. Secondly, This self-organizing capacity is not rejected. Self-organizing systems, small groups, chains or networks, can cope with change, vulnerability and uncertainty (Ostrom, 2005).

Self-organizing capacity can and often will be based on self-interest. Self-interest is the basic source of energy to act. It becomes a problem when the self-interest is not combined with joint or common interest. Water authorities do have to confront the self-organizing systems with the challenge to combine their self-interest with the common interest of flood protection or water supply. The authorities however need to do this in such a way that a new joint interest, not known in advance is searched. Joint interest is the successful combination of common and self-interest. Theoretically, this can be reached by high quality interactions and boundary crossing capacities. In daily practice, however there is a lack of boundary crossing activities. The search for joint interest does not start and results cannot be achieved (Teisman & Edelenbos, 2011).

About patchworks and boundary spanners Governance capacity is less about creating a single (unitary) institutional structure to enforce integration of interests and more about developing institutionally rich, multiple environments (Imperial, 1999). A single organizational structure at the watershed or river basin level does not work because the right structure at the right scale cannot be established (Schlager & Blomquist, 2000: 3). 'Patchworks' of self-organizing institutions seem to be more feasible and desirable because these are able to reorganize without much disturbance, according to the necessary tasks and challenges (Ostrom, 2005; Folke et al., 2007).

In patchworks of processes, boundary spanners are important. Boundary spanners are specialist in crossing structures and merging (self-) interests into joint interest. They focus on the process of simultaneous up- and downscaling between local, regional, (trans) national levels. If a joint language emerges interconnecting interests, perspectives and meanings, boundary spanning is successful and governance capacity increases.

In theories on boundary spanning 'connecting' is important (Williams, 2002; Leifer & Delbecq, 1978; Tushman & Scanlan, 1981). Actors should be facilitated in understanding the meaning of issues on either side of the boundary (Tushman & Scanlan, 1981). They select issues on one side and convey these to the other side of boundaries. Boundary-spanners perform facilitative leadership different from command and control (Agranoff & McGuire, 2001). This leadership requires the ability to hold networks together, balancing interests and perspectives, and enabling self-organization (Uhl-Bien, Marion, & McKelvey, 2007).

5. The importance of legitimacy and trustworthy relationships; Focusing on soft requirements for developing water governance capacity

This section elaborates two requirements for those who want to cross boundaries: a) gaining legitimacy to cross boundaries and b) gaining trust between parties involved, respect for primary interests of others and the conviction that joint action effectively helps to realize primary interests.

5.1. The need for legitimizing cross-boundary interaction

Boundary crossing in a water governance system will hardly be undisputed. Some will argue that a multi-level approach will not meet the requirements of accountability and transparency. Others will argue that boundary crossing is undemocratic. Peters and Pierre argue that "the absence of distinct legal frameworks and the reliance on sometimes quite informal negotiations between different institutional levels could well be a 'Faustian Bargain' where actors only see the attractions of the deal and choose to ignore the darker consequences of the arrangement" (Pierre & Guy Peters, 2000: 76).

Therefore, one concern with boundary crossing is democratic legitimacy (Pierre, 2000; Sørensen & Torfing, 2007). Despite a growing body of research, extensive empir-

ical analyses of the democratic anchorage of multilevel governance processes are scarce (Sørensen & Torfing, 2007). Multiple systems are 'a-constitutional': they are "neither the result of intentional design by political principals nor 'constituted' in a legal sense through statute or administrative regulations" (Mathur & Skelcher, 2007: 229). Boundary spanning overarching existing democratic institutions can conflict with notions of transparency in the institutions (Sørensen & Torfing, 2007; Wagenaar, 2007).

This means that democratic legitimacy is important. Various scholars argue that networks have democratic potential. It gives citizens, civil society organizations and businesses room for engagement (Sørensen & Torfing, 2007). Successful boundary spanners are internally and externally embedded (Williams, 2002). They are able to gather and transfer information beyond the boundaries of subsystems. The combination of internal linkages (in their own unit or organization) and external linkages (with other units or other organizations) makes up their perceived competence and determines their boundary role status and legitimacy (Tushman & Scanlan, 1981: 84, 94, 96).

5.2. Trust building as a precious requisite

A second condition for developing and maintaining multiple governance processes is trust building (Folke et al., 2007; Olsson et al., 2007). Trust building is an important element of governance capacity.

Edelenbos and Klijn (2007: 320) define trust as "a *stable positive expectation that actor A has (or predicts he has) of the intentions and motives of actor B in refraining from opportunistic behavior, even if the opportunity arises*". Trust building has different manifestations. Some characteristics are undisputed: vulnerability, risk, and expectations (Edelenbos & Klijn, 2007). Trusting another actor means that one is willing to accept an open and more vulnerable position. One expects the other actor to refrain from opportunistic behavior even if the opportunity for it arises. Getting trust starts with giving trust, without having any guarantee that the other party will indeed act as expected (Deakin & Michie, 1997). Trust building starts with the expectation that the other will take their as well as your interest into account (Rousseau et al., 1998; Nooteboom, 2002). Edelenos and Klijn (2007) present four aspects that indicate trust building (Table 1).

Boundary spanners are effective when they understand the social constructions of others and can define issues in relations to several values and interests (Leifer & Delbecq, 1978). Frequent and recurring interaction with actors with different organizational backgrounds gives them the opportunity to empathize with and respect other values and perspectives (Child, Faulkner, & Tallman, 2005). People from a variety of organizational, professional and social backgrounds assemble to pursue mutually beneficial agendas. This requires an investment in time to forge an effective relationship and a readiness to visualize reality from the perspective of others. Boundary spanners know how to build relationships between actors in order to realize collaborative efforts.

Table 1
Conceptualizing trust (Edelenbos & Klijn, 2007).

Aspects	Description
1. Agreement trust	The parties in this project generally live up to the agreements made with each other.
2. Benefit of the doubt	The parties in this project give one another the benefit of the doubt.
3. Reliability	The parties in this project keep in mind the intentions of the other parties.
4. Absence of opportunistic behavior	Parties do not use the contributions of other actors for their own advantage.
5. Goodwill trust	Parties in this project can assume that the intentions of the other parties are basically good.

Emphatic ability and feeling for what is relevant for the other side of the boundary are important skills for building trust. Boundary crossers are 'active listeners': open to be influenced by views of other people, in search for shared meanings and common language, view and interests (Williams, 2002). Hornby (1993: 160) argues that reciprocity and mutual understanding contributes to trust building. When expectations are met, trusting attitudes are reinforced (Williams, 2002: 112).

6. Conclusion and reflection

In this contribution, we have elaborated the phenomenon of water governance. Water issues are dealt with in governance systems, characterized by multiplicity. This multiplicity needs to be understood and handled in order to gain governance capacity. We summarize our main theoretical exploration in a number of coherent conclusions.

Conclusion 1: In water governance systems multiplicity is the main characteristic Water touches upon other values and concerns like economic development, nature development, ecology, agriculture, mining, settlement and industry. These functionalities are having impact on the water system and the effects of the actions of water authorities. This stresses the multiplicitous nature of water governance. Simple water problems can best be solved in the water domain. More wicked and complex water issues however have to be dealt with in a way that meets the demands of complexity. We have indicated that this will be an approach of multiplicity.

Conclusion II: Multi-functionality is a first element of multiplicity The first element of multiplicity is multi-functionality. The manifestations of this multiplicity are interrelated policy sectors, including agriculture, settlement development and mining. Integrated approaches are needed, and neglected at the same time. Governments are bureaucracies, aiming to fulfill its core-business (this is where we are responsible for) but also in pro-

cesses that have to lead to decision-making in the heart and top of the organization. For this reason professionals tend to pay much attention to this core and neglect the boundary crossing activities to other subsystems. Even if they dare to cross boundaries and generate joint results, they must work hard to defend these at their home organizations which they represent and which are positioned more at a distance from the cross-boundary networks.

Conclusion III: Multilevel governance is a second element of multiplicity Where several water authorities still try to find the most optimal scale to deal with the system the feel responsible for, it becomes clear from the multiple perspective we have elaborated that there is no optimum scale available. River basin approaches are valuable in their attempt to deal with the 'whole water system'. At the same time this system is embedded in large systems and consists of smaller systems with self-organizing capacities that cannot be controlled one-sided by a water authority. It is crucial to find mutual processes of level synchronization. The essence of synchronization is found in the combination of top-down and bottom-up processing and the search for the added value of each level and the joint value of cooperation.

Conclusion IV: Public-private partnership and participation are a third element Multiplicity implies boundary crossing between public and private domains (companies and non-state actors, like citizens, NGOs, farmers, etc.). Building up public private alliances is important in acting upon water crisis in an adequate way. Results in water governance system result from interplay between the two domains that often leads to unplanned and coincidental interconnection. At the same time, mixing two different domains is dangerous and will require connection and disconnection at the same time. Further exploration is needed about how to combine these two contrasting requirements.

Conclusion V: The challenge of governance capacity building in governance systems It is not so much the action of unitary water authorities as the quality of interaction that will generate governance capacity. Water governance is about achieving effective interaction and connection between levels, functions and domains, rather than about selection the optimum level, function demarcation and domain separation. Interaction is required for generating governance capacities. The primarily focus on water is needed and dangerous at the same time. Getting grip and control over other domains is often neither possible nor effective. Paying attention to and putting substantial effort in building up effective and legitimate boundary crossing interactions seems to be a more fruitful path to governance capacity.

Conclusion VI: Boundary spanning, legitimacy and trust building If one accepts the assumption of 'nobody in charge', the most effective way to increase governance capacity is by investments in the quality of interaction across (institutional and organizational) boundaries which are the result of specialization and development of expertise. We indi-

cate that 'patchworks' of self-organizing, polycentric institutions on and beyond existing organizational structures are indispensable in building up governance capacity. Boundary spanning is important for the desired integrated approach and need two requisites: legitimacy and trustworthiness. While individual boundary spanners can be considered the source for increased water governance capacity, we have also indicated that the ability of organizations such as water authorities to accept and stimulate the existence of 'strange' boundary crossers is the explanation why boundary spanning can occur. In these systems much is about trust.

Reflection In this contribution, we have argued that water governance capacity depends on the recognition that water takes place in a governance framework that takes the multiplicitous nature of water issues and crises seriously. We tried to build a theoretical framework in which multiplicity takes a prominent position and leads subjects like boundary crossing activities and in turn to high quality cross-institutional interaction. In this framework and approach governance capacity can be understood and improved by a well elaborated identification of stakeholders needed, the acceptance of their self-organizing capacities and investments in trans-boundary agency and trust building.

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