

Assessing the Governance Capacity of Water Management Arrangements

The case of the 'Bypass Kampen' Project in the Netherlands



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1. Introduction

Dike building, modification and canalization of riverbeds have been the primary methods of flood protection in the Netherlands since the 17th century (Edelenbos et al., 2013; Vis et al., 2003). However, dike reinforcement and other technical measures have met increasing societal resistance since the 1970s. Dikes were perceived to ruin the scenery and to harm the unique ecological, spatial and cultural values of the river scene (Edelenbos et al., 2013; Roth et al., 2006). Furthermore, the traditional method of resistance and control is obsolete according to many experts, given increased river discharge levels, rising sea levels and increasing variability due to climate change and the increased flood risk due to soil subsidence (Vis et al., 2003). In addition, the near-floods of 1993 and 1995 contributed to the belief that the continued heightening of dikes has its limits and comes with risks (the so-called “bath-tub” effect) and that a more adaptive approach is needed (Edelenbos et al., 2013; Roth et al., 2006). In the beginning of the 2000s, the new policy approach Space for the River emerged. It advocates more space for water to flow freely and the development of human society in a manner that accommodates the natural flow of the hydrological system instead of modifying the hydrological system in order to fit the built environment. Besides that, there is more attention towards combining flood safety with the improvement of economic, ecological and landscape values (Edelenbos et al., 2013; Programmadirectie Ruimte voor de Rivier, 2009). Thus, a paradigm shift has occurred in Dutch water management, from “fighting *against* the water” to “living *with* the water” and accommodating water within the built-up space.

1.1 Case description

The Space for the River programme consists of 39 projects along the main rivers and Meuse in the Netherlands. One of these is the IJsseldelta Zuid project, including the realization of a bypass near the City of Kampen. The bypass is a high water channel between the IJssel and the Drontermeer (see figure 1). Its main purpose is to enlarge the river discharge capacity of the IJssel, anticipating on the expected river discharge of the river Rhine of 18.000 m³/s at Lobith (De Gier and Van Rijswijk et al., 2011). It should provide a solution for the bottle neck in the river IJssel in the city centre of Kampen (H+N+S, 2013; Van Buuren et al., 2013). The bypass should lead to the lowering of the water level of the IJssel by 41 cm in Zwolle in case of high water levels (Royal Haskoning, 2013).

The initiative for this project was taken by the Province of Overijssel in 2004. The ambitions of the provincial and local authorities to develop the area for housing, led them to push forward the bypass as a more effective and cost-efficient alternative to the originally planned spatial reservation that blocked development in the area (see figure 2, left) (Edelenbos et al., 2013; Van Buuren et al., 2013). In line with the Space for the River philosophy, the project evolved into an integral plan combining flood defense with the development of housing, nature and recreation areas (Van Buuren et al., 2013). In addition, the bypass should provide space for shipping, several main roads and the railway Hanzelijn (Royal Haskoning, 2013).

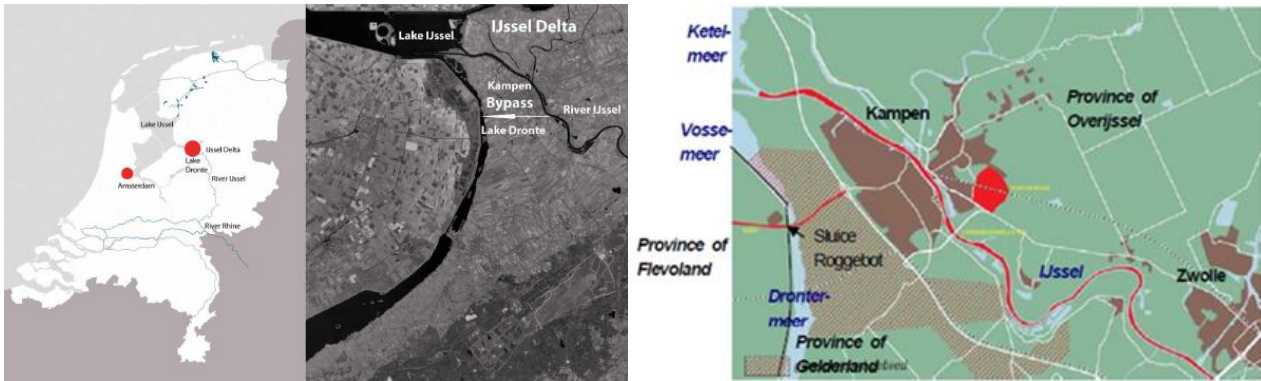


Figure 1 Right: Location of the Kampen bypass (Sokolewicz et al., 2011:142). Left: the originally by the Space for the River programme proposed measures of river bed dredging in the river IJssel (red line) and the spatial reservation for a future bypass (hatched area) (De Kort, 2009:104).

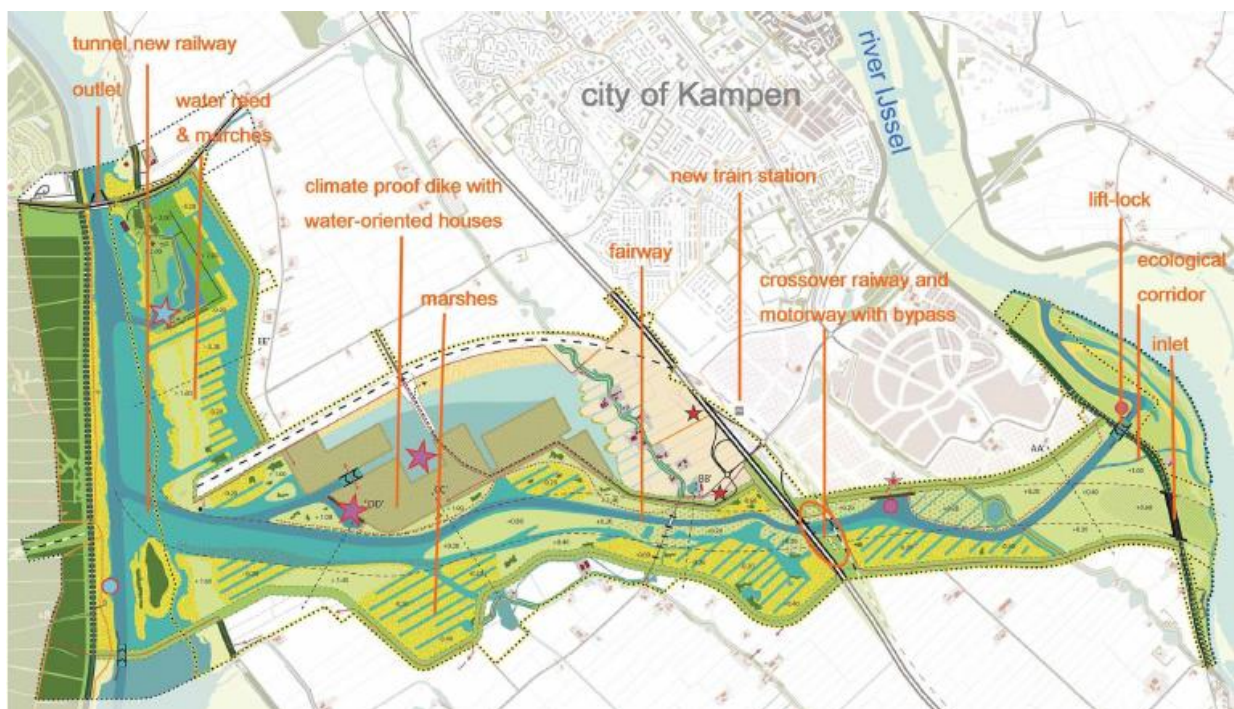


Figure 2: Design of the bypass Kampen project (Sokolewicz et al., 2011: 147)

1.2 Problem definition

The decision-making process around the Kampen bypass turned out to be controversial and has met several difficulties that caused serious delays. Especially the planned residential development in the area of Zwartendijk – an area of considerable natural beauty - and the design and location of the bypass remain highly controversial up until today (Edelenbos et al., 2013; Van Buuren et al., 2013). Both stakeholders and authorities had difficulties to agree on the preferred solution. Continuously, new questions were raised about the effectiveness of the bypass which obstructed the decision-making process (Edelenbos et al., 2013). In addition, the lack of financial resources led to the postponement of the completion of the necessary sluices to 2016, while the bypass should already be in place by then. The breached primary dike without the necessary substitutive measures is perceived as a serious risk by citizens (Van Buuren et al., 2013). All in all, the controversial debates and delays pose a serious risk to the successful implementation of the project and it is unsure whether the ultimate goal of protection against flooding will be achieved.

1.3 Research aim and question

The aim of this paper is to gain more knowledge on what the main problems are that obstruct the decision-making process of the IJsseldelta Zuid project, and how these can be ameliorated. Poor governance of water resources poses a threat to political stability, economic growth, ecosystems, and human health and safety (Brouwer et al., 2012). Therefore, governments increasingly recognize the need to improve their water management in an effective, efficient and legitimate way (Brouwer et al., 2012). According to Brouwer et al. (2012), effectiveness, efficiency and legitimacy determine the successfulness of the governance process, or the water governance capacity of the involved actors to bring about the desired result. The assessment should point out the strengths and weaknesses of the policy process and possibilities for improvement. This paper thus addresses the following research questions:

In which ways can the water governance capacity of the IJsseldelta Zuid project be improved in terms of effectiveness, efficiency and legitimacy?

The water governance assessment framework of Brouwer et al. (2012) is used as a basis for the assessment, in combination with other literature from the fields of water system analysis, law, economics and political science. Now that the project approaches the implementation phase, it is mature enough to make a preliminary judgment. Moreover, the application of Brouwer et al.'s (2012) water governance assessment method to the Bypass Kampen case could provide valuable lessons for other water management projects as well.

1.4 Reading guide

The water governance assessment framework is further elaborated upon in Chapter 2. Chapter 3 goes into the assessment of the Kampen bypass project, using the indicators identified in Chapter 2. Chapter 4 provides a discussion and conclusion, in which the research questions are answered and a final judgment is given of the effectiveness, efficiency and legitimacy of the project.

2. Methods

The assessment method by Brouwer et al. (2012) was designed to analyze governance arrangements in the field of water management from an interdisciplinary perspective. The considered are broadly classified into three categories: content, organization and implementation. *Content* refers to knowledge about the considered water system and to values, principles and policy discourses (*Ibid.*). *Organizational* aspects include stakeholder participation, knowledge about the trade-off between social objectives and the attribution of responsibilities, authority and means, as well as the regulations and agreements that are in place (*Ibid.*). *Implementation* refers to the engineering and monitoring solutions employed, the possibilities to actually enforce the policy in practice, and the conflict prevention mechanisms in place (*Ibid.*). In the following section, the assessment framework by Brouwer et al. (2012) is extended with the concepts of legitimacy, effectiveness and efficiency. After all, before we can assess anything, it must first be determined what constitutes “good” governance. Subsequently, the individual building blocks (the independent variables) of the framework are described in greater detail. The chapter ends with a table that gives an overview of how each aspect of the framework is measured.

2.1 Dependent variables

The effect or performance of a policy programme or project can be measured at three different levels: output, outcome and impact (Biermann and Siebenhüner, 2009). The output is the actual activity, such as monitoring or conflict resolution (i.e. the independent variables). The outcome and impact levels measure the changes that occur in the process and the actors in it, and ultimately the changes in the final result. The ultimate impact in this case is the successfulness of the governance arrangement or the water governance capacity, which can be measured through the success criteria effectiveness, efficiency and legitimacy¹. These criteria are needed because it is too difficult to measure the impact level directly and because a point of reference is needed to which the case can be compared (Biermann and Siebenhüner, 2009). The variables of importance identified by Brouwer et al. (2012) influence the levels of effectiveness, efficiency and legitimacy, as is shown in figure 3. This figure depicts the adjusted version of the assessment framework of Brouwer et al. (2012), including the outcome and impact levels.

¹ One could think of more possible proxies for good governance, but these criteria are chosen because Brouwer et al. (2012) stressed the importance of improvement of these three and they are quite encompassing. Many evaluative criteria of good governance can relate to one of these three, for example transparency can be part of legitimacy.

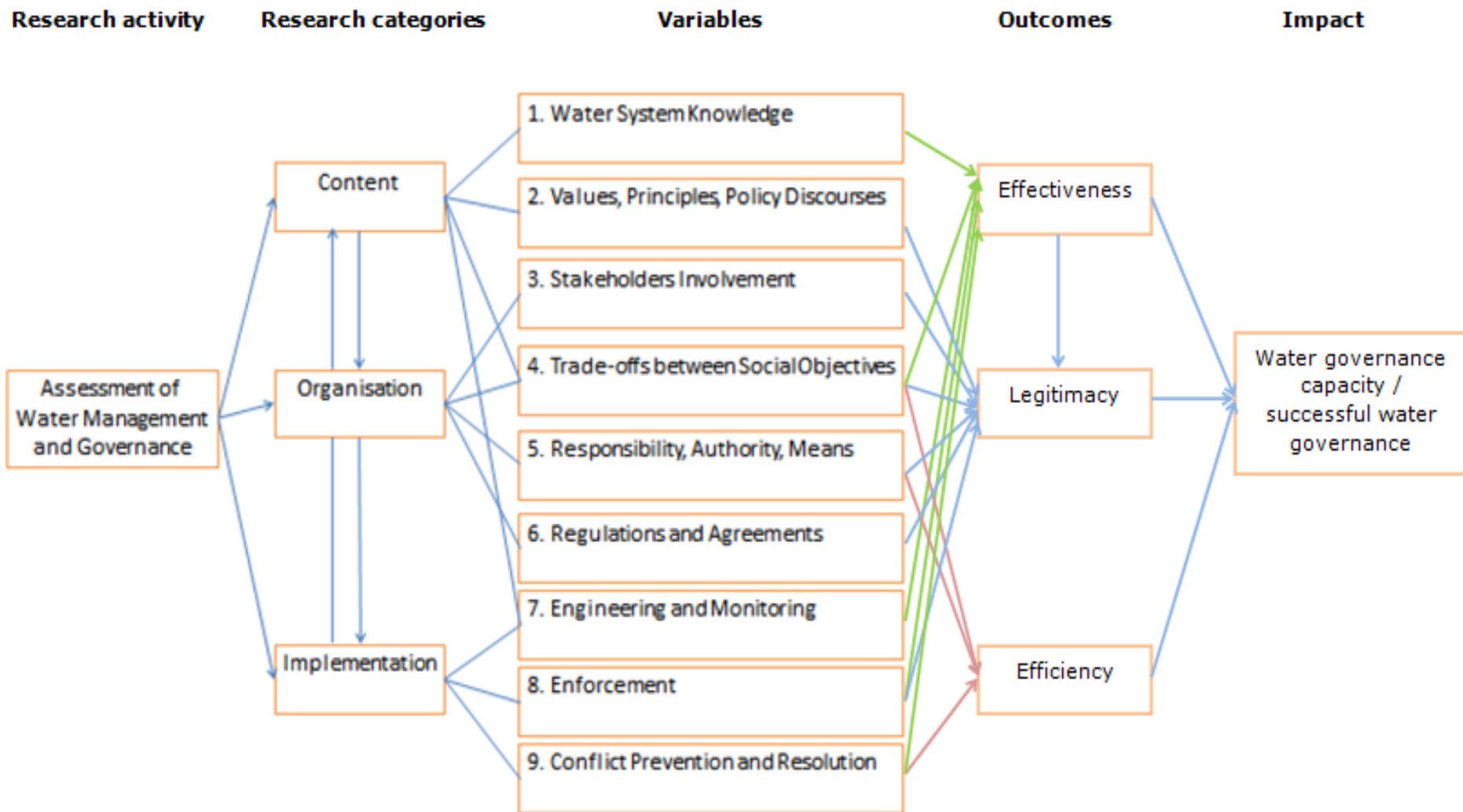


Figure 3: Adjusted version of the Water Governance Assessment Framework by Brouwer et al. (2012), extended with the outcome and impact levels

2.1.1 Effectiveness

There are many definitions of effectiveness, with the most common ones using concepts such as rule compliance, behavioural and environmental changes and goal attainment (Biermann and Siebenhüner, 2009; Young, 1994). Brouwer et al. (2012) stress that it is the goal of every water system to reach the agreed upon service level, i.e. to fulfil the societal, environmental, and economic objectives of the governance arrangement in place. Therefore, we used goal attainment as a proxy for effectiveness. The bypass is primarily intended to reduce flood risk. This means that in the second year, the likelihood of floods should be reduced to $1/2000^2$. In order to achieve this, the water level in Zwolle has to drop by 41 cm (Schuwer and Van der Knaap, 2008). In addition, the project should achieve the secondary goal of the Space for the River programme, which is to improve the spatial quality compared to the current situation and to the spatial quality that would be obtained with other measures such as river bed dredging (Schuwer and Van der Knaap). Whether the goals of the project are attained (or can be reasonably expected to be achieved) depends on the performance of the variables 'Water system knowledge', 'Engineering and monitoring', 'Trade-offs between social objectives', 'Enforcement' and 'Conflict prevention and resolution'. These variables determine whether the content of the policy process is of a high enough quality, whether the organization of the project leaves room for all actors to achieve their goals, and whether the implementation of the project is secured by enforcing agreements and regulations and by reducing the occurrence of disruptive conflicts that put the completion of the project in danger.

2.1.2 Efficiency

Decision-makers often face resource allocation problems (Rossi et al., 2004). In other words, there are seldom enough resources (e.g. time, skill, capital) available to realize all projects that are sought to have a beneficial effect. It is therefore necessary to prioritize certain projects over others. In order to be able to do so, it is not enough to simply estimate the size of the project effect. The effect has also to be related to the estimated costs of the project. Established methods to do so are cost-benefit analysis and cost-effectiveness analysis. These analyses have to question whether the project achieves the goals with the lowest possible costs and whether there are cheaper measures that achieve the same (or an even better) result. The criterion 'Efficiency' is determined based on the performance on the variables 'Trade-offs between social objectives', 'Responsibility, authority and means' and 'Conflict prevention and resolution'. These variables determine the cost-benefit ratio of the project, how much money and other resources stakeholders have to participate in the project, how the financing for the project is collected and whether conflicts that cause delays and additional expenses are avoided.

2.1.3 Legitimacy

Legitimacy can be understood as the acceptance of authority and the justification of political power (Biermann & Gupta, 2011; Schouten & Glasbergen, 2011). According to Mees et al. (forthcoming), legitimacy in water management can be achieved by including all relevant stakeholders in the

² Due to its location, Kampen is at risk of both floods from the river IJssel and of storm-induced floods from the lake IJssel. Therefore, the safety standard for this area is set at $1 / 2.000$ per year (the probability of one flood occurring every 2.000 years) instead of the usual norm of $1 / 1.250$ per year (Sokolewicz et al., 2011). The capacity norm is a river discharge of $2.550 \text{ m}^3/\text{s}$. The maximum damage caused by flooding of the IJssel Delta, in which the City of Kampen is situated, is estimated at 2 billion euro (Sokolewicz et al., 2011).

decision-making process (Adger et al., 2009), by ensuring an open and transparent deliberation process (Habermas, 1979) and by setting up effective policies which satisfy the expectations of the target group (Lemos & Agrawal, 2006). These three sources of legitimacy can be conceptualized as input legitimacy, throughput legitimacy, and output legitimacy (Scharpf, 1970; Schmidt, 2012). For the purpose of this analysis, we will use the results of Brouwer et al.'s (2012) assessment method as a proxy, especially those from the criteria 'Stakeholder participation' (input legitimacy), 'Regulations and agreements' and 'Responsibility, authority and means' (throughput legitimacy) and the results of the effectiveness assessment (output legitimacy). However, attention is also paid to the variables 'Values, principles and policy discourses' to check whether all different values and norms are included, and 'Trade-offs between social objectives' and 'Enforcement', in order to ensure equitability and justice.

2.2 Independent variables

The independent variables are measured using several indicators that are derived from Brouwer et al. (2012) and additional literature from the fields of water system knowledge, law, economics, and political and policy science. For each indicator, an ideal reference situation is determined to which the case is compared. The assessment results in a score given for each indicator which reflects the performance of the indicator (1 = bad, 2 = mediocre/ok, 3 = good) compared to the reference situation. Every score above 2 is regarded as a strength and every score below 2 is regarded as a weakness. The arithmetic mean is used to determine the end score for each variable. Based on this, an educated guess is made about the effectiveness, the efficiency, and the legitimacy of the project.

2.2.1 Water System Knowledge

The water system is defined as the combination of natural physical resources (such as rivers, rainfalls, seas, lakes) and man-made infrastructure (such as canals, pumping stations, reservoirs, and flood defenses) (Brouwer et al., 2012:5). Knowledge of the water system therefore refers to insights into the functioning of the natural ecosystems but also to the knowledge about the properties of the physical infrastructure. Moreover, the properties of both natural and physical systems and their interaction with each other have to be evaluated in light of the societal function the water system is supposed to fulfil (Brouwer et al., 2012). To complicate things even further, these systems are in a constant flux. Therefore, sufficient knowledge about natural, technical and social aspects of the water system is needed, including knowledge about their inter-relations and their variability. Furthermore, reliable methods and data have to be used, and (potential) knowledge gaps and uncertainties must be dealt with in an appropriate way. According to Raadgever et al. (2011), there are four types of uncertainty management strategies, i.e. ignoring uncertainty, knowledge generation, interaction (with stakeholders), and coping. The larger the potential consequences of doing nothing, the more desirable the strategies of interaction and coping will be. Underlying this logic is the precautionary principle which states that "when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully understood" (Kriebel et al., 2001:871). Finally, Hoppe (1996) states that problems in which there is a high level of consensus on knowledge (structured or moderately structured problems) are the easiest to solve.

2.2.2 Values, principles and policy discourses

Empirical studies demonstrated that how individuals perceive and construct their environment can be a crucial factor in explaining the outcome of collective action problems (Ellingson, 1995). This is especially the case in environmental issues which are abstract ideas, constructs to which individuals attach a wide variety of meanings (Hajer & Versteeg, 2005). Discourses are specific ensembles of story lines, values, and principles that a coalition of actors adheres to. They act as lenses through which actors view the world and the problem in a specific way and which guides their actions (Brouwer et al., 2012; Hajer, 1995; Runhaar, 2009; Weible et al., 2009). Stakeholders try to gain acceptance of their framing of a policy issue and the way it has to be dealt with, which can result in a conflict between opposing discourse coalitions (Durning, 1995; Sabatier and Jenkins-Smith, 1999; Weible et al., 2009; Flyvbjerg, 1998). When assessing water governance arrangements, it is therefore of importance to consider the broader and more specific values held by members of a society, the management principles underlying a water system, and the discourses surrounding the problem at hand (Brouwer et al., 2012).

Values such as human rights, equity, dignity, justice, trust, solidarity and self-determination critically depend on the historical, cultural, normative and political views held by a society (Brouwer et al., 2012:6). Norms (social rules) and principles (e.g. the precautionary principle) are more specific guides for action. Finding legitimate solutions to water management problems is more likely if there is consensus in society about fundamental values, norms and principles (Brouwer et al., 2012; Hoppe, 1996). In addition, cooperation is established more easily when the problem is framed as a joint problem and its solution is perceived in similar terms by all actors and when there is a shared sense of urgency to cooperate (Wiering et al., 2010). When there is no prospect for shared or connected values, norms, principles and problem perceptions, the ability to negotiate deals which are acceptable for all parties is required (Termeer, et al., 2011).

2.2.3 Stakeholder Involvement

One of the central concepts in the governance literature is the notion of a general trend towards more integrative and participative form of societal steering (Driessen et al., 2012). This trend has also been observed in water-related issues, where participation is perceived by many as a prerequisite for effective and adaptive governance arrangements (Huiteima et al., 2009; Pahl-Wostl et al., 2007). However, some authors who are more critical of public participation argue that participation can also have a negative impact, for instance when re-enforcing already existing power relations (Singh, 2006). In order to distinguish between different qualities of participation, Brouwer et al. (2012) differentiate between the width and the depth of participation, together forming the strength of stakeholder involvement (cf. Berry et al., 1993). When assessing the stakeholder involvement of a specific water governance arrangement, it is thus important to consider whether all relevant stakeholders are involved and the degree to which they are able to influence the outcome of the policy process.

2.2.4 Trade-offs between social objectives

It is the nature of collective action problems that it is often impossible to satisfy all interests of all stakeholders involved. The policy process is thus shaped instead by bargaining and trade-offs between different social objectives such as economic efficiency or sustainability. Often, however, it is not clear to the parties involved which social objectives are guiding the policy process which might

lead to conflict between the actors involved and inability to agree upon a commonly accepted service level. Ideally, there are formal and informal rules, regulations and procedures in place which guide the decision-making process. Trade-offs between social objectives therefore assesses the degree to which service level decisions are based on informed decisions about the involved trade-offs and (re-)allocation mechanisms (Brouwer et al., 2012). More specifically, it is going to be assessed whether the stakeholders share a common vision of what should be achieved ('Agreement on social objectives'), whether alternatives to the bypass are considered ('Consideration of alternatives'), whether the ratio between associated costs and benefits is reasonable ('Cost benefit ratio') and lastly, who gains and who loses from the project ('Redistributional effects').

2.2.5 Responsibility, authority and means

For water governance arrangements to be effective, it is beneficial if it is clear to all parties involved who is responsible for which tasks. In addition, it is important that those that are responsible are also capable of fulfilling their responsibilities. Responsibilities are often conceptualized in the form of property rights which indicate who is allowed to use or withdraw from a resource and who is in charge of protecting the resource. It can be distinguished between the four traditional property regimes of private property, common property, public property, and no property (Gardner et al., 1990). Furthermore, authority refers to the capacity of the public domain to restrict said property rights, the capacity to guide the policy process and the capacity to establish the costs of the agreed-upon water policy (Brouwer et al., 2012). Finally, means assesses whether sufficient resources and participative capacity are at disposal in order to reach the envisaged service level (Ibid.). In water management, financing is usually done by invoking either the solidarity principle (all taxpayers pay) or the profit principle (those who profit from the measure pay) (Ibid.). Equitable and adequate financing is based on shared values and increases the effectiveness and efficiency of water management (Brouwer et al., 2012). 'Participatory capacity' refers to whether all stakeholders interested in contributing to project development have the knowledge, time and resources to produce valuable input in a timely and structured manner. Lack of sufficient participatory capacity is a known problem in water-issues which might seriously endanger attempts to move towards more adaptive and participatory forms of governance (Song et al., 2011).

2.2.6 Regulations and agreements

Regulations and agreements are the translation of the agreed-upon service level decisions into formal rules, regulations, agreements and procedures. They can shape the water system significantly and are crucial in connecting policy content and policy implementation. The 'Appropriateness' of the regulations and agreements in place must be judged in light of the actual circumstances, the legal tradition, the governmental organization, the parties involved, the values and principles held by the actors involved, the relevant and local water system characteristics, the actual water problem that has to be solved and the intention of the parties involved (Brouwer et al., 2012).

The regulations in place can be judged from a legal perspective according to whether they are in conformity with the rule of law ('Legality') (van Buuren et al., 2013), whether they offer 'Legal certainty' (van Rijswijk & Salet, 2012) and whether they are agreed upon at the most appropriate governance level ('Subsidiarity') (Ederveen et al., 2008).

2.2.7 Engineering and monitoring

The water system is shaped to a great extent by its physical infrastructure. Water infrastructure is usually capital intense and designed to function for decades which increases path dependency and creates the problem of lock-ins (Pahl-Wostl et al., 2008). In case of a newly agreed-upon service level agreement, it needs to be determined whether the existing physical infrastructure is able to provide these service levels and if this is not the case, what needs to be improved and how to improve the existing physical infrastructure. Economic instruments such as cost-benefit analyses play an important role in deciding which physical solutions are to be preferred (Brouwer et al., 2012). In addition, it is important to assess whether the water system meets the agreed-upon service level requirements. Therefore, constant monitoring needs to be conducted. Subsequently, the course of action should be adjusted when it appears from the information acquired through monitoring that this is necessary (Cosens and Williams, 2012; Keessen and Van Rijswijk, 2011).

2.2.8 Enforcement

For rules and agreements to be effective in changing the behaviour of the target group, it is crucial that they are enforceable. Without enforcement, it is unlikely that the target group will comply with the newly set policies. “A lack of enforcement will hamper the effectiveness of water management and governance and may in the end lead to conflicts and decreasing legitimacy” (Brouwer et al., 2012:14). It is assumed that clear rules and agreements which are based on shared values are easier to enforce and that it is beneficial if the responsible authority (usually either public or private) has the necessary capacity to do so. In addition, it is important that stakeholders who want to protect their interests and want to know who is accountable for achieving the goals set, are able to enforce regulations and agreements (Brouwer et al., 2012). Enforcement therefore refers to the degree to which regulations and agreements are enforceable by either public or private parties and the degree to which remedies are available (Ibid.).

2.2.9 Conflict prevention and resolution

There are many successful examples of successful cooperation in water-related issues. In fact, water management was one of the first issue areas in which international cooperation ensued (Wolf, 1998). However, water-related issues can also lead to severe conflicts since upstream uses may have repercussions for possible downstream uses and competing claims over shared water may increasingly lead to disputes (Dombrowsky, 2007). Conflicts can lead to inefficient water management, resulting in extra costs and delays (Wolf, 2007). Therefore, conflicts should ideally be prevented and if conflict does occur, alternative dispute settlements (other than the court) are preferred to settle conflicts in a peaceful and effective manner (Brouwer et al., 2012; Driessen and Van Rijswijk, 2011). Devising mutually accepted rules and procedures that prescribe how to handle conflicts can also help to reduce (the consequences of) disputes (Brouwer et al., 2012).

2.2.10 Operationalization table

Variable	Indicator	Reference condition (ideal situation)	Source
Water system knowledge	Level of knowledge	A high level of knowledge, i.e. sufficient, detailed, accurate and complete (as far as possible) knowledge about the natural, technical and social aspects of the water system as needed to be able to deliver the required service level of societal functions	Brouwer et al. (2012)
	Methods and data	Reliable methods and data and sufficient data being available to understand how the water system works and to make predictions.	Brouwer et al. (2012), Rossi et al. (2006)
	Handling of uncertainty	Appropriate response (ignoring, knowledge generation, interaction or coping) in relation to the severity of the uncertainty (related to the possible consequences), with the precautionary principle as a guideline.	Brouwer et al. (2012); Raadgever et al. (2011)
	Level of consensus on knowledge	A high level of agreement on the causes and consequences of the problem and of alternative solutions	Hoppe (1996); Underdal (2002)
Values, principles, discourses	Shared values, norms and principles	The involved actors have a shared set of values, norms and principles (ideas about what is important and 'good')	Brouwer et al. (2012); Hoppe (1996)
	Joint problem framing	The problem and its solution are perceived in similar terms by all actors and it is perceived to be a problem for everyone which can only be solved through cooperation	Wiering et al. (2010)
	Negotiation	Ability to negotiate a deal despite differences in values, norms and discourses	Temeer et al. (2011)
Stakeholder Involvement	Width of participation	All relevant stakeholders are involved	Berry et al. (1993); Neuvel and Van der Knaap (2008)
	Depth of participation	Stakeholders have the possibility to contribute to alter the policy outcome	
Trade-Offs between Social Objectives	Agreement on social objectives	Shareholders share a common vision of what should be achieved	De Kort (2009); Bryson (2004); Olsen & Eadie (1982); Wiering et al. (2010)
	Consideration of alternatives	Alternatives to achieve the objective are considered and compared in an open and fair way.	
	Cost benefit ratio	The benefits of the project potentially compensate for the costs. The costs and benefits are equally divided among social groups.	Rossi et al. (2004)
	Redistributional effects	Redistribution effects resulting in an unfair burden for some social groups are compensated for.	Rossi et al. (2004)

Responsibility, Authority & Means	Clear property rights regime	Stakeholders are aware of who has which rights and duties	Gardner et al. (1990);
	Public authority to change property rights regime	The public domain has the capacity to alter the existing property rights regime if required	Campbell & Lindberg (1990)
	Cost-recovery principle	The cost-recovery principle in place is suited to recover the costs and considered to be fair and equitable.	Evans (1992)
	Participative Capacity	Stakeholders have the capacity to contribute to participatory processes	Rubin & Rubin (2009)
Regulations & Agreements	Legality	Regulatory framework is in accordance with the rule of law	Van Buuren et al. (2013)
	Legal certainty	Regulatory framework is concise with regard to the imposed rights and obligations	Van Rijswijk & Salet (2012)
	Subsidiarity	Decision-making takes place at the most appropriate level	Ederveen et al. (2008)
	Appropriateness	High level of fit between regulations and the local circumstances, the legal tradition, the governmental organisation, the involved stakeholders and their values, and characteristics of the water system in place.	Brouwer et al. (2013)
Engineering and monitoring	Monitoring and feedback mechanisms	There are mechanisms in place that track the development of the water system and the broader influencing environment, and that report on the consequences of interventions	Brouwer et al. (2012); Keesen & Van Rijswijk (2012)
	Adaptive response	The involved actors respond to monitoring and feedback mechanisms and change their course of action when necessary	Cosens & Williams (2012); Keesen & Van Rijswijk
Enforcement	Enforceability of regulations	There are clear substantive norms and standards as well as clear process norms and standards that are precise enough to enforce them in court	Brouwer et al. (2012)
	Enforceability of agreements	Agreements are enforceable in court or through other enforcement mechanisms (e.g. supervisory mechanisms) for both public and private parties	
Conflict prevention and resolution	Conflict prevention	Conflict prevention is facilitated first and foremost.	Brouwer et al. (2012); Wolf (2007)
	Conflict resolution	There are conflict resolution mechanisms in place in case conflict does occur. Alternative dispute settlement than the court (e.g. participation, mediation, arbitration) is preferable when possible (this avoids delays)	Driessen & Van Rijswijk (s.a.); Brouwer et al. (2012)
	Procedures	Stakeholders have formulated in advance mutually accepted rules and procedures that prescribe how to handle conflicts	Brouwer et al. (2012)

Table 1: Operationalisation

3. Analysis

3.1 Water system knowledge

The level of knowledge is fairly high in the case of the IJsseldelta Zuid project. Especially the waterboard and the national water authority Rijkswaterstaat have a substantial amount of knowledge about the natural and technical aspects of the water system. Hydrological models and data bases such as the *HoogWaterInformatiesysteem (HIS)* are used to calculate flood chances and the potential damage in different areas (Ebregt et al., 2005; Eijgenraam, 2005). The *Blokkendoos* is an often used database which includes data on investment costs, water level and land use changes and other effects of the different measures of the Space for the River programme and of measures to dikes (Ebregt et al., 2005; Eijgenraam, 2005). However, some knowledge gaps and uncertainties remain.

For example, the effects of the project on morphological and hydrological processes is not always clear, such as what effect river bed dredging will have on erosion, the groundwater levels and spreading of pollution, and resulting consequences for societal functions like agriculture, nature and drinking water abstraction (Province of Overijssel, 2011). Climate change and its effects on future river discharges is also an uncertainty which can only partly be reduced by scenarios and models. According to the stakeholders of the IJsseldelta Zuid project, the social and political trends (e.g. demographic trends, changes in political commitment due to elections) and political decisions (e.g. discussions about the upgrading of the safety norms in line with the Delta Commission report and the idea to raise the water level of the IJssel lake with 1,5 m) are the most uncertain (De Kort, 2009; CPB, 2009). The authorities in the IJsseldelta Zuid project responded to these uncertainties with the strategies of knowledge generation and coping. Since 2008, a continuous risk analysis is carried out and deliberating on risks has become a structural item on the project agenda (De Kort, 2009). These strategies are appropriate, since floods have serious consequences. However, it would have been desirable to use the strategy of interaction (i.e. discussing risks with stakeholders) because serious debates between governments and other stakeholders arose about the reliability of knowledge.

First of all, there is a debate on the validity of flood risk calculations and the safety of the bypass. From an evaluative study of the Dutch Central Planning Agency (CPB, 2009) appeared that the bypass is not sufficient in view of the new safety norms (a flood risk of 1/2.000 per year). Furthermore, the bypass divides dike ring 11 (in which Kampen is situated) in compartments, which results in higher and faster rising water levels in case of a dike breach (CPB, 2009). Due to this, the resulting material damage could increase with a factor of 2 to 3 and the number of victims with a factor of 2 to 5 (CPB, 2009). Subsequently, the citizens group *Zwartendijk* successfully launched the concept of the 'bathtub' to mobilize public resistance against the project (Edelenbos et al., 2012; Werkgroep Zwartendijk, 2009). The project organization organized an expert meeting and called for an update of the safety calculations, but was not able to take along the existing doubts (Edelenbos et al., 2012). A second controversial debate was about the prognoses for the additional amount of housing needed in the area. The public authorities assumed that Kampen would have 60.000 residents in 2030 and that, combined with regional demand, 4.000 to 6.000 additional houses would need to be built. Local interest groups think this is way too much. They used more nuanced calculations than the public authorities did, concluding that only 2.500 or less additional houses would be needed (Edelenbos et al., 2012; Nagelmaeker, 2011). Thus, the uncertainties about prognoses and data have led to a low level of consensus on knowledge between stakeholders.

3.2 Values, principles and policy discourses

Table 2 shows the different actors involved in the IJsseldelta Zuid project and their differing goals, proposed solutions and strategies. These are reflections of their policy discourses, i.e. what the actors think is important and how one should achieve the desired result. The public authorities and other stakeholders do not perceive the problem and its solution in similar terms. Currently, most public authorities agree on the need to increase the river discharge capacity, however, side goals differ. While regional and local government mainly see the project as a way to avoid the originally planned spatial reservation, the water board is primarily concerned with flood safety and low maintenance costs (see table) and therefore desires a closed bypass instead of an open, dynamic one combined with shipping and recreation (as is desired by the regional and local governments) (De Kort, 2009). Initially, the municipality of Kampen had a negative attitude towards the IJsseldelta Zuid project, because it expected that the bypass would hamper the planned house-building programme (De Kort, 2009; Schuwer and Van der Knaap, 2008). Later on, the point of view of the municipality changed, partly because of a new city council (Schuwer and Van der Knaap, 2008). It took almost 3 years for the public authorities to agree on the need to do something about the undesirable situation and to sign an intention agreement in which they committed to the project (De Kort, 2009). The public authorities are highly dependent on each other for reaching their flood protection and spatial development goals, contributing to a shared urgency to cooperate (De Kort, 2009).

While flood safety is also a theme among citizens, local stakeholders do not think the bypass will contribute to this at all. This measure does not only conflict with local views on water management³, but also with views on the desired current and future land use (Neuvel and Van der Knaap, 2010). The local stakeholders highly value the openness and natural and cultural values of the City of Kampen and surroundings (Structuurvisie Kampen, 2030). The planned residential area in Zwartendijk does not fit in this view. Especially the agricultural organization LTO (which also has a strong influence in the water board in which many farmers are situated), the citizen organizations Zwartendijk and Bye Bye bypass, and nature conservationists adhere to these values and actively protest against the bypass (Edelenbos et al., 2012). Because all actors approach the problem and project solution from their own view, collective action and negotiation become more difficult (Edelenbos et al., 2012).

³ See the concerns about the safety of the bypass in the previous section “Water system knowledge”.

Actor	Goal	Solution	Strategy
LTO (farmer organisation)	Conservation of agriculture, no cutting of agriculture land by the bypass or housing development	Bypass with a provision against salt water intrusion and groundwater problems	Critical cooperation: attendance of the project group, claiming conditions for the quality of agricultural land
Water board (Groot Salland)	Good sustainable water storage, little maintenance costs	Bypass with an own watermark, no open connection with the lake and no dynamic watermark (more maintenance)	Critical cooperation: joining the steering and project group but also using informal strategies to influence the project
Province of Overijssel	Realization of flood safety norms, realization of residential area nearby the bypass	Bypass with a combination with residential area, nature development, recreation area	Director of the process, through program management keeping as many actors as possible on board
Rijkswaterstaat (central agency)	Realization of flood safety for the long run, climate proof development	Navigable bypass, connection between river and lake	Attendance of the project group, reactive, testing on flood safety
Municipality of Kampen	Future residential development of the city, optimization of various spatial functions in area	Bypass in combination with new housing, recreation	Project group, steering group, close cooperation with the province
Citizen organization "Zwartendijk"	Keeping natural area open, no development of residential area	No blue bypass, but a green bypass, nature area	Many strategies: protest, lobby, media tactics, joining the focus group
Association of regional interests (citizens in the area)	Bypass must not intersect (barrier) the two communities in the area	A bypass on a different location, closer to Kampen	Critical cooperation: developing a new alternative (the 6th scenario) of the bypass on a different location
Nature organization (NGO)	Conservation of the natural and environmental values in the area	No blue bypass, green bypass, no recreational area, keeping area for nature	Joining the focus group, informal channels to politic, lobby
Central department of Environment and Housing	Realizing spatial quality, regional development	A blue bypass with a nice residential area to live in (high-quality living)	Subsidizing the project as a showcase for spatial quality and regional development

Table 2: Differences in goals, solutions and strategies between actors (Edelenbos, 2007:37)

3.3 Stakeholder Participation

The participatory processes of the IJsseldelta Zuid project can be divided into two phases: before and after the re-design. In the early stages of the project, government agencies were naturally the most important actors. The focus lied on organizing cooperation between government agencies (Edelenbos et al., 2013) and involved consultancies such as DHV. This close expert cycle developed the initial plan of the bypass and five alternatives (Ibid.). At this stage, participation was restricted to information meetings. At one of these meetings, fierce opposition to the plan became visible (Ibid.); Stakeholder groups such as the citizen initiative "Friends of Zwartendijk" formed and engaged in conflict with other actors such as the farmer's union LTO (Ibid.). The project also attracted the attention of citizens from the nearby village of Noordeinde in the province of Flevoland who found out about the plans by accident and felt ignored (Grijzen, 2008). There was reasonable concern that

a massive physical intervention such as the construction of a bypass might have serious repercussions for adjacent areas as well. In May 2004, a local newspaper addressed the issue and titled that Noordeinde is in danger to become buried alive (Ibid.). The issue was picked up a few days later both by national newspapers and TV channels. This resulted in high media attention and pressure for the decision-makers to improve the participatory processes. In response to the apparent conflicts which could not easily be resolved by occasional information meetings, a re-design of the participation process was introduced (Ibid.) which included a wider range of stakeholders. There are also signs that the re-designed process led to changes in plans. For instance, the location of the bypass was moved in order to minimize the impact on Noordeinde's water system. A second change of plans regarding the location of the bypass occurred in 2007 due to protest by inhabitants from Kamperveen (a village which directly borders South Kampen) who feared that the bypass would act as a physical barrier between them and the city (Edelenbos et al., 2013).

To conclude, in the early stages of the project both width and depth of stakeholder participation were low. The process could be described as a close expert process with occasional information meetings. The initial plans were met by surprisingly fierce opposition and in response a re-design was developed which shows clear signs of genuine attempts to turn opposition into constructive participation (Grijzen, 2008). However, the bypass remains a highly controversial topic (Edelenbos et al., 2013) as demonstrated by the fact that in the year 2011 over 5,000 out of the roughly 50,000 inhabitants of Kampen signed a petition against the construction of the bypass and 9,000 signatures were collected against the development of the residential area Zwartendijk (Edelenbos et al., 2013; Nagelmaeker, 2011). It furthermore seems likely that the shortcomings of the initial participation process raised suspicion among stakeholders and contributed to the intense opposition project planners face. For these reason both the width and the depth of participation is rated to be only mediocre even though there were attempts to address difficulties and to take citizen input into account.

3.4 Trade-Offs between social Objectives

The IJsseldelta Zuid project aims at achieving a multitude of objectives due to its integrative nature. Besides flood protection, other important spatial development objectives that are thought to be achieved by the project are upgrading the train connection between Lelystad, Kampen and Zwolle (the so-called Hanze railway), constructing new houses in order to attract affluent inhabitants to the city, upgrading the road around Kampen, protecting the environment by linking the areas to the National Ecological Network (Ecologische Hoofdstructuur) and creating recreational opportunities next to the water (De Kort, 2009). As shown in table 2, different groups of stakeholders try to achieve different things based on their interests. For instance, the farmer organization LTO is mainly concerned with preserving land for agricultural use (to avoid relocation), while the municipality seems to favor residential development over other objectives (for economic growth). It thus seems that the stakeholders do not share a common vision of what objectives should be achieved by the bypass project. It is furthermore evident that 'redistributional effects' were not considered in a systematic manner by project planners. It is striking that stakeholders from the nearby village of Noordeinde were not invited to participate in the early phases of the project which demonstrates that redistributional effects or externalities were not considered in a system manner by public officials. The evaluation is a bit more positive with regard to the two indicators 'consideration of alternatives' and 'cost-benefit analysis'. During the consultation project, city officials developed six alternative ways which were drafted for public discussion (Grijzen, 2008). This consultation was aided

by a commissioned cost-benefit analysis of the bypass and its alternatives. It turned out that while alternatives such as a smaller and dynamic bypass would be less costly they would also only offer a lesser degree of flood protection (De Kort, 2009). Therefore, it was decided to continue with the bypass as planned, albeit on a slightly different location.

3.5 Responsibility, Authority & Means

In the Netherlands, responsibilities are often divided among a diverse set of government bodies (De Kort, 2009). This is also the case in the Bypass Kampen project, where several government agencies from different levels of government are involved. Despite the complexity of the situation, no signs of an unclear division of responsibilities could be found. On the contrary, authorities drafted an intention agreement which clearly indicates who is responsible for which task (van Buuren et al., 2013). It appears that the responsible authorities also have the authority to change existing PR-regimes, as demonstrated by the original plan to reserve the area for spatial development (Edelenbos et al., 2013). Financing is done by invoking the solidarity principle, meaning that taxpayer's money is used to finance the project. Whereas the bulk of the costs of constructing the bypass is paid for by Rijkswaterstaat, the city of Kampen contributes to residential development. This approach is in line with the expectations of Dutch society, where public involvement (and financing) of large infrastructural projects for flood protection has a long tradition (De Kort, 2009). Lastly, it appears that stakeholders are capable to participate in the decision-making process. This might be explained by the local nature of the project which makes it easier and less costly for stakeholders to comprehend the project details. To conclude, a positive rating is attributed to all four indicators. The distribution of responsibilities, authority and means is one of the stronger points of the project.

3.6 Regulations & Agreements

According to Dutch Water Law, an integrated legal procedure has to be used by authorities which want to construct or modify water works (van Rijswijk & Havekes, 2012). The procedure describes, among other things, how participatory processes should be set up and under which conditions citizens have the possibilities to challenge decisions in front of a court. However, this procedure became obligatory only recently. When the IJsseldelta Zuid project was developed using this procedure was still optional. In order to save costs, public officials first favored to not use the integrated procedure but instead obtain individual permits for each aspect of the project. However, a commissioned report revealed that this would have significantly diminished the possibilities of affected citizens to go to court (van Buuren et al., 2013). Therefore, the suggested and appropriate procedure was used in the end. Hence, "from a legal point of view, it can be concluded that most of the formal procedures followed do serve legitimate decision-making" (van Buuren et al., 2013:8). This also applies to 'Legal certainty' and 'Subsidiarity'. No indication of serious violation of these principles could be found in the literature. The project can also be described as more or less appropriate, even though the plan to de-construct the dikes before the bypass is completed might be at odds with Dutch sentiment which "dictates that flood risk safety should not be compromised" (van Buuren et al., 2013:8). To conclude, despite plans to proceed otherwise, the appropriate procedures were followed eventually which resulted in a high degree of legal legality. Therefore, 'legality', 'Legal certainty' and 'Subsidiarity' are rated to be good and 'appropriateness' to be mediocre.

3.7 Engineering and monitoring

There are various monitoring and feedback mechanisms in place, such as regular progress reports, Strategic and Environmental Impact Assessments (SEAs and EIAs) and the structural risk assessments mentioned in the section 'Water system knowledge' (De Kort, 2009). The progress reports focused on possible barriers to the project and contained management plans on finances, organisation, time, information and quality (De Kort, 2009). The public authorities did respond to this information. Identifying strategic issues based on the risk assessments became a structural task. For each strategic issue controlling measures are developed, and for each controlling measure a person is responsible (De Kort, 2009). However, the identification of strategic issues is limited to legal procedures and no external stakeholder analysis has been conducted to identify all important stakeholders and possible conflicting interests and values (De Kort, 2009). Moreover, the public authorities did not always adapt in an appropriate or adequate way to feedback. For example, public authorities responded too late to signs of a low regional demand and slowing population growth, and therefore did not adjust their housing plans (Werkgroep Zwartendijk, 2011). In 2012, the municipality of Kampen acknowledged for the first time that only 200 instead of 300 additional houses per year are required (Werkgroep Zwartendijk, 2011). Due to a lack of demand, the municipality has difficulties with selling the houses.

3.8 Enforcement

For flood safety, there are sufficiently clear substantive and procedural norms that can be enforced by anyone who has a stake. The Water Act determined the safety norms per dike ring that have to be maintained (Annexes I and IA) – in the case of Kampen 1 / 2.000 per year - , and other standards related to for example the stability of the flood defence structure (s. 2.2(1) Water Act) and Water level orders specifying the water levels that have to be maintained (s. 5.2 Water Act). In theory, one could hold water authorities and municipalities accountable for their duty of care. This norm determines that actions must be performed in such a way that there are no adverse consequences for the safety of people and the ecological status of the area (Van Rijswijk and Havekes, 2012). The competent authority (i.e. the water board) is responsible for the flood prevention capacity of the flood defence structure (Van Rijswijk and Havekes, 2012). Compensation can be awarded in case of liability for lawful acts (e.g. when the competent authority breaches the dike) or in case of disasters (e.g. a flood), when damage ought not, or not entirely, to be at the expense of the person seeking compensation (Van Rijswijk and Havekes, 2012). Furthermore, stakeholders can appeal to other formal decisions which are part of the IJsseldelta Zuid project, such as the adjustment of the municipal spatial plan (*bestemmingsplan*).

Appeals against implementation decisions are in principle possible in two instances, but when coordination under the project plan procedure (s. 5.4 Water Act) is used appeal is possible only in one instance (the Administrative Jurisdiction Division of the Council of State) (Van Rijswijk and Havekes, 2012). The stakeholders did not make much use of the possibility to go to court, but more of informal ways to resist, such as demonstrations and petitions (Neuvel and Van der Knaap, 2010; Schuwer and Van der Knaap, 2008). A possible explanation could be that the regional and local governments initially avoided the coordination procedure of the Water Act and applied for different permits under different laws with different competent authorities for financial reasons (see section 'Regulations and agreements') (Van Buuren et al., 2013). This fragmented approach greatly reduced transparency, thereby limiting the possibilities of public participation and enforcement (Van Buuren et al., 2013).

The national, regional and local governments made some agreements about the division of mandates, financial contribution and general commitment to the project. An example is the intention agreement which the involved public authorities signed in January 2007 (De Kort, 2009). Although the character of such an agreement is not on the similar level of a formal decision, it does have legal implications and parties can hold each other accountable for breaking it.

3.9 Conflict prevention and resolution

As mentioned before, the proposed bypass resulted in conflicts with local stakeholders that are affected by the bypass. These conflicts are about the different interests (e.g. farmers do not want to relocate), the different views on the desired land use (based on differing values such as nature conservation) and the knowledge on which the ideas were based (Neuvel and Van der Knaap, 2010). Conflicts with regard to interest could probably not have been prevented entirely, but the severity of conflicts about views and knowledge could have been reduced when the stakeholders would have been involved in an earlier stage. However, the public authorities did respond in an appropriate way to the conflicts by inviting the stakeholders to develop their own scenario (see section 'Stakeholder involvement'). The stakeholders did not formulate in advance mutually accepted rules and procedures that prescribe how to handle conflicts.

3.10 Assessment results

Variable	Indicator	Performance	Score	End score
Water system knowledge	Level of knowledge	Knowledge is sufficient, detailed and fairly accurate but some knowledge gaps and uncertainties remain	2	1.5
	Methods and data	There is great discussion on the reliability of flood calculation models and prognoses for housing need	1	
	Handling of uncertainty	Appropriate uncertainty management strategies are used: knowledge generation and coping. However, the strategy of interaction would also have been beneficial in this case	2	
	Level of consensus on knowledge	The level of consensus on knowledge is low. Actors mainly criticize each other's assumptions and their sources of knowledge generation.	1	
Values, principles, discourses	Shared values, norms and principles	Public authorities and stakeholders do not share the same values, norms and principles. Also among public authorities are some differences in value orientations	1	1.67
	Joint problem framing	The public authorities have more or less a joint problem definition (besides different value orientations). There is a shared sense of urgency to cooperate. Stakeholders primarily do not agree with the proposed solution.	2	
	Negotiation	Negotiation between public authorities and stakeholders has occurred (in the development of a 6 th scenario, see section 'Stakeholder involvement'), but is difficult due to the differences in values and problem framing	2	
Stakeholder Involvement	Width of participation	Important stakeholders were ignored in the beginning of the process which led to hostile opposition. Improvement after re-design.	1	1.5
	Depth of participation	Closed expert-cycle in the beginning; participation limited to informational meetings. However, there are also signs that citizen input led to change in plans of the bypass location.	2	

Trade-Offs between Social Objectives	Agreement on social objectives	No common vision of what should be achieved by the project. Different stakeholders favour different objectives.	1	2
	Consideration of alternatives	Several alternatives to the bypass were developed and drafted for discussion.	3	
	Cost benefit ratio	Thorough cost-benefit analyses were written about the bypass and its alternatives.	3	
	Redistributional effects	Impact on neighbouring villages/provinces was considered adequately.	1	
Responsibility, Authority & Means	Clear property rights regime	Distribution of rights and duties clear.	3	3
	Public authority to change property rights regime	Public authority has the power to change PR-regime if deemed necessary.	3	
	Cost-recovery principle	Solidarity principle is suited and in line with societal values.	3	
	Participative Capacity	Stakeholders have the resources and capabilities to participate.	3	
Regulations & Agreements	Legality	The appropriate legal procedure was used after a controversial debate, resulting in a high level of legality.	3	2.75
	Legal certainty	The appropriate legal procedure was used after a controversial debate, resulting in a high level of legal certainty.	3	
	Subsidiarity	Multi-level governance; Decision-making takes place at the most appropriate level of government.	3	
	Appropriateness	Largely fit contextual factors but reduced safety norms during construction phase at odds with Dutch sentiment.	2	
Engineering and monitoring	Monitoring and feedback mechanisms	There are sufficient monitoring and feedback mechanisms in place.	3	2.5
	Adaptive response	The public authorities respond to the feedback, but sometimes too late or not in an appropriate way. In addition, the focus on legal procedures is a limited approach which does not make full use of the available information	2	
Enforcement	Enforceability of regulations	There are sufficiently clear substantive and procedural standards and norms about flood safety that can be enforced in court by both public and private parties. However, the possibilities to go to court were significantly limited by the public authorities that used a fragmented approach instead of the coordinated project plan procedure	2	2
	Enforceability of agreements	Agreements are enforceable, but not to the same extent as formal decisions. Besides the court, no other enforcement mechanisms (e.g. supervisory	2	

		mechanisms) have been found.		
Conflict prevention and resolution	Conflict prevention	Conflict prevention has not been facilitated due to the late identification and involvement of stakeholders with (potentially) conflicting interests	1	1.67
	Conflict resolution	There are conflict resolution mechanisms in place. The public authorities used the alternative dispute settlement method of 'participation' (i.e. let the stakeholders develop a 6 th scenario)	3	
	Procedures	Stakeholders did not formulate in advance mutually accepted rules and procedures that prescribe how to handle conflicts	1	

4. Discussion and conclusions

4.1 Conclusion

The analysis revealed the strengths and the weaknesses of the Ijsseldelta Zuid project. Three variables showed an especially strong performance. First, the division of responsibilities between public authorities is clearly elaborated, something which cannot be taken for granted in such a complex and integrated project. Second, the regulations and agreements are in accordance with the rule of law and citizens have ample opportunity to challenge decisions in front of a court. Third, there are sufficient monitoring and feedback mechanisms in place and public authorities try to respond in a fast and adaptive manner. However, there are also several points of concern which might explain the intense opposition project planners faced. To begin with, there is not enough knowledge about the water system and the potential impact of the bypass. This has increased uncertainty and suspicion among locals. Of great concern is also the fact that the involved stakeholders did not agree on a common vision of what should be achieved by the project which might seriously hamper the successfulness of the project. The participation processes which could be used to bridge the differences between participants were furthermore not sufficient, especially in the early phases of the project. And lastly, while authorities set up conflict resolution mechanisms, less attention is paid to conflict prevention measures.

But what does this mean for the effectiveness, efficiency and legitimacy of the Ijsseldelta Zuid project? Calculating the arithmetic mean of the indicators used as a proxy to estimate these three variables leads to the following values: 1.934/3 (effectiveness), 2.22/3 (efficiency), and 2.2/3 (legitimacy). The water governance capacity of the Ijsseldelta Zuid project must therefore be judged to be mediocre. It is not terrible but there certainly is room for improvement. In order to identify possibilities for improvement, it is worthwhile to have a look at the scores of the individual indicators. It becomes apparent that, assuming our operationalization is correct, increasing the available knowledge about the water system and paying more attention to conflict prevention would greatly help to better the effectiveness and legitimacy of the Ijsseldelta Zuid project. With regard to legitimacy, it is striking that throughput legitimacy (as measured by 'Regulations & Agreements' and 'Responsibility, Authority & Means') is very high while input legitimacy ('Participation') and output legitimacy ('Effectiveness') are low, or respectively mediocre. However, weighting the different

sources of legitimacy is a normative task which we will leave up to the reader. But to those who associate democracy with bottom-up decision-making and participation, the project will probably appear to be less legitimate than to those who put more emphasis on procedural elements such as adherences to the rule of law and possibilities to challenge decision in front of a court.

But how could the governance capacity of the IJsseldelta Zuid project be improved? Given that the project is quite advanced already it will probably be difficult to solve all the project's problems. However, if the project would be started from scratch, treating it as the unstructured problem it is by involving a greater number of stakeholders in an open process of deliberation already in the beginning of the project would greatly help to avoid conflicts. Furthermore, as long as there remains considerable uncertainty about the characteristics of the water system and the likely impact of physical intervention such as the bypass, project planner should focus on generating more knowledge, e.g. by commissioning a study of the water system's characteristics, in order to be better able to estimate the consequences of their actions and to be able to engage in constructive dialogue with concerned stakeholders.

4.2 Discussion

The water governance assessment framework by Brouwer et al. (2012) could be further improved when the following aspects are taken into account. Between some building blocks of the framework a certain level of overlap exists. To avoid double counting of effects, these overlaps must be eliminated (i.e. each variable should measure something different). In addition, the framework could be enriched by making use of governance literature that is more mature and more elaborate on what constitutes good governance. Some elements of the framework are not sufficiently operationalized yet. In our view, the water assessment framework by Brouwer et al. (2012) is a valuable tool when used as a framework. That is, it should guide the direction of analysis to certain themes that are important, while more specific theories and models are used to fill the gaps and to determine an ideal reference situation against which the project can be scored. Finally, we feel that the role of contextual factors is a bit underplayed in the framework. It is important to estimate the potential effect of exogenous variables in order to be able to explain to what extent the effect on effectiveness, efficiency and legitimacy is actually caused by the project itself (Rossi et al., 2004). For example, the goals can be achieved even though the governance process is flawed because of external factors (political trends and critical events such as floods can increase urgency and spur action, foreign policy can solve part of the problem, etc.).

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