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RESEARCH ARTICLE



Functions of OECD Water Governance Principles in assessing water governance practices: assessing the Dutch Flood Protection Programme

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ABSTRACT

The OECD Principles on Water Governance aim to contribute to good water governance. Learning and change through assessments are useful ways to strengthen water governance systems. This article presents a methodology for a learning assessment based on the OECD principles. The methodology has been applied to the Dutch Flood Protection Programme. The analysis revealed various functions of the OECD principles, from enhancing understanding to reforming the agenda, reflection and informed action. Recommendations are given on how the OECD principles can be used to come to meaningful action-oriented water governance assessments; they include contextualization, multiple methods, inclusiveness and periodic assessments.

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Enhancing the performance of water governance systems

The world is increasingly confronted with water crises. Soaring populations, expanding cities and growing economies not only put the world's water resources under pressure, but also magnify the impact of water-related disasters such as floods, droughts and contaminated water supplies (Asian Development Bank, 2016; United Nations World Water Assessment Programme, 2015). Recent examples are the floods in Southern India (2015, over 500 casualties, damage USD 3–15 billion), persistent droughts affecting Brazil's megacity São Paulo (2015, 20 million inhabitants), and the spread of cholera through contaminated water in West and Central Africa (2014–2015, over 90,000 reported cases, over 1600 casualties). Water disasters also have an impact in Europe. A recent evaluation of floods in Germany (2013, damage €6–8 billion) suggests that there is ample space for improvement in the governance system (Thieken et al., 2016). As water crises are affecting billions of people and their living environment, it is not surprising that water crises are topping the list of global risks with highest concern for the coming 10 years (World Economic Forum, 2016).

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Current water governance systems have thus far not been able to prevent these crises, and the challenges they should address will only magnify (Driessen, Hegger, Bakker, van Rijswijk, & Kundzewicz, 2016; Pahl-Wostl, 2009; World Water Assessment Programme, 2003). Water crises are therefore also referred to as water governance crises, as improvements in the performance of water governance systems are needed (World Water Assessment Programme, 2003). Much debate on what constitutes good water governance has been taking place in academic circles and the water community (Huitema et al., 2009; Lautze, De Silva, Giordano, & Sanford, 2011). Although these debates have clarified key dimensions of water governance, such as effectiveness, efficiency and legitimacy, they have not yet resulted in a comprehensive framework to evaluate and redesign water governance systems. As guidance, let alone consensus, was lacking on what constitutes good water governance, water governance principles were developed in 2015 by the OECD Water Governance Initiative,¹ an international multi-stakeholder network of members from the public, private and not-for-profit sectors (Akhmouch & Clavreul, 2016; OECD, 2015). These principles are an attempt to contribute to legitimate, effective and efficient water governance systems that can manage 'too much', 'too little' and 'too dirty' water in a sustainable and inclusive way. Such outcomes could be achieved when the principles are used in the design and implementation of robust water policies.

Although Water Governance Initiative working groups are making progress towards developing water governance indicators and collecting best practices, there remains a need to better understand how the principles could be applied in practice to generate recommendations for enhancing the legitimacy, effectiveness, efficiency and inclusiveness of existing water governance systems. A useful way to strengthen water governance systems is a process of reflexive learning and changing (Gupta et al., 2010; Hajer et al., 2015; Pahl-Wostl, 2009; Termeer et al., 2011). Reflexive learning combines learning and real-life action. Reflections on what has been learned are used to come to well-informed actions. It can provide insights about which elements of a governance system perform well and which should be improved (Ison, Röling, & Watson, 2007; van Rijswijk, Edelenbos, Hellegers, Kok, & Kuks, 2014). In addition, learning can help move actors out of the entrenched positions that may typify a suboptimal water governance system (Pahl-Wostl et al., 2007). Given the importance of learning for strengthening water governance systems, the aim of this article is to explore the practical value of the OECD Water Governance Principles for assessing water governance practices, and to present a method for applying them as a tool for reflexive learning. The method is illustrated through a case study of the Dutch Flood Protection Programme, a multi-billion-euro programme to prevent the Netherlands from being flooded. The article ends with reflection on how the principles could serve as instrument to enhance the performance of water governance systems.

Conceptual framework

The OECD Principles on Water Governance

There is a plethora of definitions of water governance (for an overview see Havekes et al., 2016; Lautze et al., 2011; Teisman, van Buuren, Edelenbos, & Warner, 2013). The OECD (2015) has defined water governance as 'the range of political, institutional and administrative rules, practices and processes (formal and informal) through which

decisions are taken and implemented, stakeholders articulate their interests and have their concerns considered, and decision-makers are held accountable in the management of water resources and the delivery of water services’.

The OECD Water Governance Principles are based on three pillars, derived from the multitude of water governance definitions: effectiveness, in terms of meeting policy goals and targets at different levels; efficiency, to ensure that benefits and welfare of sustainable water management are achieved through the lowest societal costs reasonably possible; and trust and engagement, as inclusiveness of stakeholders enhances public confidence, fairness and equity. As [Figure 1](#) shows, each pillar is represented by four principles.

Although the OECD principles are meant to contribute to tangible and outcome-oriented water governance policies, the different potential practical functions of these principles have not yet been explicitly formulated by the OECD (2015), except for some indications. But by closely following the discussion within the Water Governance Initiative, we can discern at least four such functions.

The first can be seen as a (soft) strategy for policy coordination. The mere fact that the principles have been endorsed by 42 countries and over 140 major stakeholder groups makes them a common frame of reference, which can be used to fuel the debate

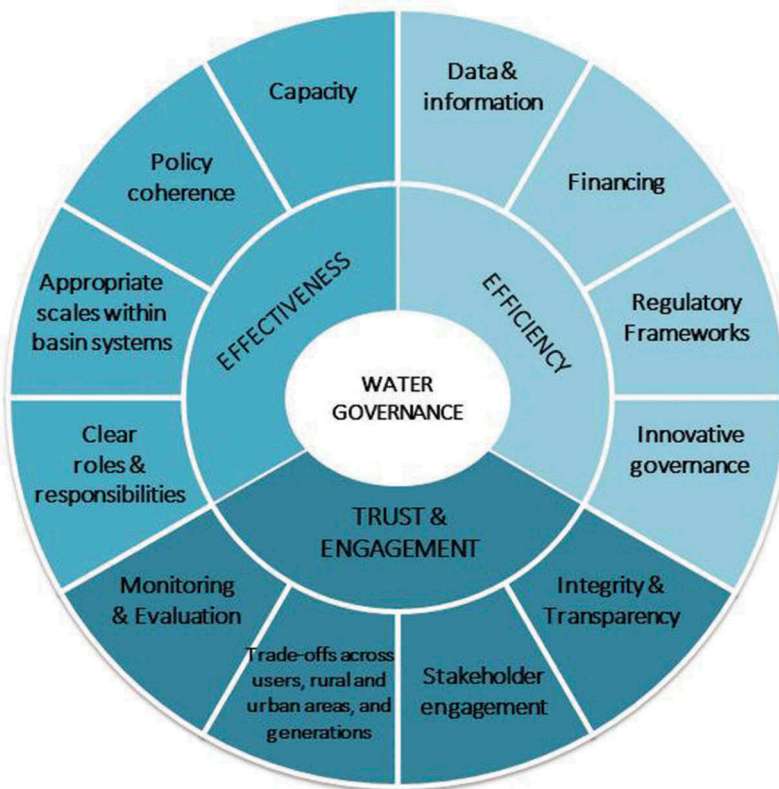


Figure 1. Summary of the OECD Principles on Water Governance (OECD, 2015).

over good water governance and to stimulate governments to strengthen their governance in this domain.

Second, within the OECD Water Governance Initiative, the principles are also used to collect and diffuse best practices for good water governance. These best practices highlight situations in which one or various principles are implemented in an exemplary way. They can thus serve as a source of inspiration for other countries to improve their water governance.

Third, the OECD Secretariat may use the principles in future reviews and recommendations for water governance systems in OECD countries, as well as in in-depth national multi-stakeholder policy dialogues such as those carried out for Mexico (2013), the Netherlands (2014), Jordan (2014), Tunisia (2014) and Brazil (2015). In these assessments the principles can be used as a yardstick to assess whether water governance systems fulfil all relevant functions properly. Moreover, they can be used to formulate recommendations to implement the principles further, when practices fall short.

The fourth function of the principles we distinguish builds on the above assessment function, and is to enhance learning and reflection among participants in water governance systems. When participants reflect on their practices and choices, a reflexive dialogue is initiated which could stimulate understanding, learning and change. This function thus far is the least developed and explored, so it is elaborated on in this article.

Functions of governance assessments

The functions of the principles presented above roughly reflect the more general functions of governance assessment frameworks as discussed in the policy and programme evaluation literature (Hill & Hupe, 2002; Royse, Thyer, & Padgett, 2010). In general, governance frameworks can be used in three different ways. First of all, they can have an auditing function. In that case, frameworks are used to check whether governance systems provide several functions and thus meet the criteria of an (independent, external) auditor (Davies, 1999). Audits can have a more technical orientation, e.g. 'ticking boxes' to find out whether specific functions are in place. They can also have a more qualitative logic, in which audits are used to say something more about how these functions perform. Audits can be conducted by peers (internal audits) or by external actors. In both forms, they are often used as a soft governance tool to enhance policy implementation and coordination.

One step further than the auditing function is the evaluative function of governance assessment frameworks, in which the framework is used to investigate the quality of governance systems or to report whether they have made sufficient progress in improving their functioning. This type of evaluation is often used to facilitate formal accountability procedures (Royse et al., 2010).

The third function of governance assessment frameworks is to enable and stimulate learning and reflection. In that case, frameworks are used to get more insight into the functioning of governance systems and to come to a more detailed analysis of their functionalities and dysfunctions. This information is not used to conclude about the system as such, but to start a dialogue about the question of how this information can be used as a basis for change and development (Edelenbos & van Buuren, 2005; van Rijswick et al., 2014). However, to become an effective instrument for learning, several

requirements have to be fulfilled. These will be elaborated in the next section on the functions and conditions of learning.

Reflexive learning in governance assessments

Learning can take different forms and may take place at the individual or organizational level. We acknowledge that several learning theories exist, such as transformative learning, and single-, double- and triple-loop learning (Argyris & Schön, 1978; Mezirow, 1995; Romme & Van Witteloostuijn, 1999). As explained, this article focuses on functions related to reflexive learning and change. On a very basic level, learning can have an instrumental function to acquire new knowledge or skills, for instance through communication with others (Mezirow, 1995). In addition, learning may lead to changes in attitude, behaviour and norms, as well as enhancing trust, respect and shared goals (Ison et al., 2007; Reed et al., 2010). Furthermore, reflection and collective action may be another function of learning when working together to improve environmental management (Keen, Brown, & Dyball, 2005). Lastly, a function of learning can be to enhance reform and change in the governance or water system when outcomes of learning result in significant changes in institutional and technical contexts (Pahl-Wostl et al., 2007).

From the literature we can distil several conditions for facilitating learning processes. A first obvious one is that processes should be participatory, with multi-actor interactions (Pahl-Wostl et al., 2007). It is also suggested that the learning context should represent relational qualities such as trust, reciprocity and willingness for mutual understanding (Pahl-Wostl et al., 2007). Moreover, the context for learning has to be open and inclusive, with a diverse set of participants. Ideally, the participants should reflect the variety of perspectives and interests in the system (requisite variety) (Jessop, 2003). In fact, Bressers, Bressers, Kuks, and Larrue (2016) suggest that by involving potential critics a wider scope of the assessment can be secured. Furthermore, it is considered beneficial when a clear-cut issue is addressed and informal actor platforms are installed. In addition, the institutional setting should provide opportunities to learn and to change governance practices. Both can be achieved when powerful organizations acknowledge the need or importance for change and learning by monitoring (Sabel, 1994), and the institutional setting is stable, without being rigid and inflexible (Pahl-Wostl et al., 2007).

At the same time, governance assessments have to be authoritative and independent, and fit the (scientific) criteria of validity and reliability, which presupposes a certain degree of independence and distance. An important question is thus how to make an assessment that has both 'substantial' and 'processual' qualities. One way to combine both qualities is to use methodological triangulation: to use more independent methods for data collection (e.g. survey, interviews) as well as more participatory methods (e.g. round tables, focus groups). Another way is to distribute different roles between the experts involved: to distinguish between experts responsible for the investigation, and experts responsible for coaching and facilitating the learning process (Edelenbos & van Buuren, 2005). More generally, it is necessary to organize a continuous iteration between science and practice to enhance the validity and reliability of the results.

Research design

To explore the practical and reflexive value of the principles, we conducted a case study on the water governance of the Dutch Flood Protection Programme. After introducing this programme, this section presents the method of a learning assessment.

The Flood Protection Programme

The Netherlands is vulnerable to floods. More than half of the country is at risk of flooding, and potential consequences are severe, as about 9 million people live and work in this area, representing an estimated total flood damage risk of about 150 billion euros by 2050 (Kind, 2014). To protect the Netherlands from flooding, a sophisticated system of dikes, locks and storm-surge barriers has been constructed over the past centuries. This includes about 3800 km of primary flood defences protecting the land from flooding from the sea, rivers and big lakes (Figure 2). Technical safety standards for these flood defences have been set in national legislation (Water Act 2009, amended 2017). To maintain and reinforce this flood protection system, preventing the Dutch from being flooded, all flood defence structures are periodically assessed against these standards. After the first two assessments (in 2001 and 2006), two Flood Protection Programmes were undertaken. In these programmes the Dutch government was solely financially responsible for the execution of the programme. Reinforcement projects had to be plain, effective and robust (Seijger, Dewulf, Otter, & Van Tatenhove, 2013). Yet the reinforcement projects became increasingly expensive and construction works were delayed. Therefore several changes were made in the governance of the third and most recent Flood Protection Programme, launched in 2014.

This third Flood Protection Programme is the empirical research object of this article. The initial scope of this programme is the reinforcement of 748 km of primary flood defence structures. The programme has a budget of roughly €4 billion for 2014–2028, to be spent in projects across the country (see Figure 2 for projects up to 2022). The programme is an alliance of the regional water authorities and the national Ministry of Infrastructure and Environment. Key tasks of the programme are to implement new flood risk standards, distribute funds to the projects, monitor and report progress to the Ministry and Parliament, initiate applied research, disseminate knowledge, and build capacities of flood control professionals (e.g. risk-based strategies, project management). Although it provides a basis for (partly) financing the necessary flood defence measures, the programme does not take over the legal responsibility of the individual water authorities for meeting the required safety standards. Thus, the water authorities remain individually responsible for the implementation of the reinforcement projects (Jorissen, Kraaij, & Tromp, 2016; van Rijswick & Havekes, 2012).

With the start of the programme, several changes in the governance of flood protection were introduced (Jorissen et al., 2016):

- (1) Collaboration between national and regional water authorities was strengthened by forming an alliance. They have a shared responsibility for the

Projects 2017 – 2022

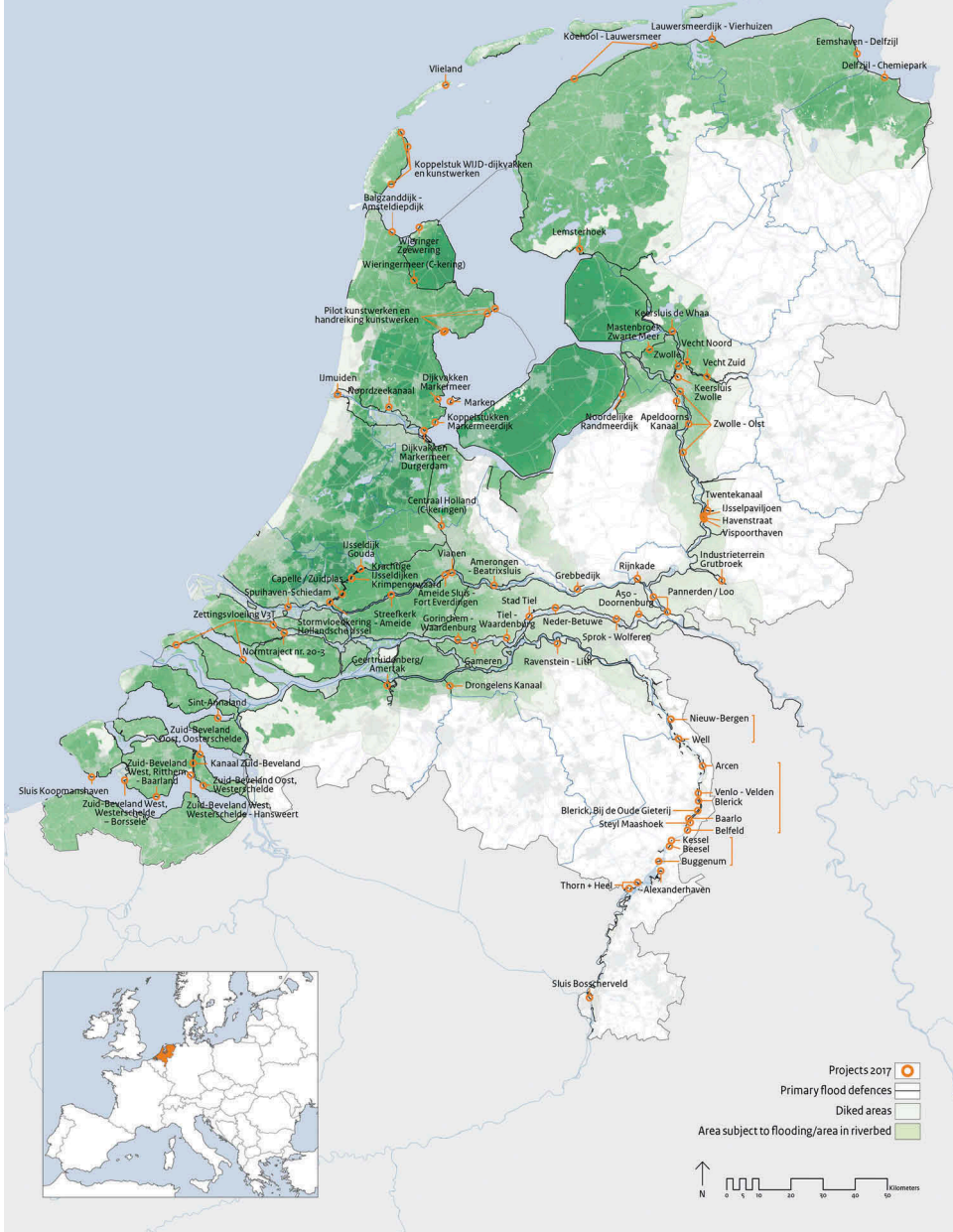


Figure 2. Projects programmed in the Dutch Flood Protection Programme, 2017–2022.

programme. For example, decision making takes place in a joint steering group, and issues that arise in multiple projects are addressed at the programme level.

- (2) Costs are shared more equally. In a dike-reinforcement project the national government pays 50%, the collective of regional water authorities 40%, and the responsible regional water authority 10%.
- (3) Projects are nationally prioritized in order of urgency (highest risk first). In the previous programmes this was not a criterion for the order of projects.
- (4) The programme is no longer static, but is revised annually to actively respond to new insights. Each year a plan for the next six years is made, including a 12-year outlook. There is no fixed deadline or budget for the programme, reflecting that flood protection is a continuous effort.
- (5) The programme has set ambitious targets. Compared to the previous Flood Protection Programme(s), the new programme aims to double the output of kilometres of dikes reinforced per year, and to reduce the average cost per kilometre by 30%.

Method

In line with the ‘substantial’ and ‘processual’ qualities in a learning assessment (mentioned earlier), our design included independent and more participatory methods for data collection. To maximize the learning and implementation potential of the assessment’s findings, in each step experts of the Flood Protection Programme were involved, while at the same time it was ensured that our independence was not compromised. As summarized in Table 1, the design comprises four steps (see the supplemental online material at <https://doi.org/10.1080/02508060.2018.1402607> for an overview of participants in the four steps). We recognize that the participants represent a narrow sample. Although this stimulated learning in a safe environment, it may have constrained the representativeness of the assessment outcomes. We further reflect on this limitation in the conclusions.

In Step 1, the scope of the assessment, the main activities, and the criteria for participant involvement were defined. Initially, it was agreed that the assessment would adopt a multilevel focus, including both the national Flood Protection Programme as a whole, plus one selected local dike-reinforcement project (as part of the programme). However, due to lack of response from the selected dike-reinforcement project in the initial steps of the assessment, we decided to exclusively assess the governance of the Flood Protection Programme.

In Step 2, a survey was distributed asking how the Flood Protection Programme performs in the light of the principles. We pre-tested a draft survey with six water governance experts, and their input was used in revising the survey into its final form.

Table 1. The learning assessment consists of four steps.

1. Problem definition	2. Assessment	3. External validation	4. Learning
<ul style="list-style-type: none"> ● Defining objectives, focus, key activities and respondents ● Desk study ● Coordination with programme 	<ul style="list-style-type: none"> ● Assessment of programme according to the OECD Water Governance Principles ● Assessment of the programme’s results (effectiveness, efficiency, legitimacy) ● Online survey ● Focus group 	<ul style="list-style-type: none"> ● External validation of the results of the assessment ● Desk study ● Expert interviews 	<ul style="list-style-type: none"> ● Systematic inventory of the lessons that can be drawn from the assessment ● Learning table with scientists and experts

In the survey, each principle was translated and operationalized for the case-study context, followed by the question of to what extent the principle was relevant to the programme and how the programme performed in the light of that principle. The supplemental online material contains a small sample of (translated) survey questions. The survey was exclusively distributed to 10 deliberately selected key professionals working in the Flood Protection Programme. We identified key professionals through judgement sampling. Participants were asked to respond to four to seven propositions per principle, tailored to the context of the Flood Protection Programme. In the final part of the survey, respondents were asked to reflect on the connections between the principles and the outcomes of effectiveness, efficiency, and trust and engagement for the programme.

The survey was completed by five (groups of) experts (a 50% response rate). We recognize that this is a small number of respondents, but given (1) the stature of the respondents and (2) the fact that the survey was merely intended as a first step in a much larger research design, we argue that the results are relevant input for subsequent steps. Next, the outcomes of the survey were discussed in a focus group with executives of four regional water authorities. The discussion in the focus group, with the unique property that participants could not only respond to the researcher's questions but also to react to each other, focused on the provisional results of the assessment of the programme.

In Step 3, we validated the results of the survey and focus group in semi-structured interviews that were audiotaped, transcribed or summarized, and subjected to qualitative analysis. Interviews were conducted with eight high-level experts, again selected by judgement sampling. These experts ranged from a professor in flood risk management to directors and governors in the national Ministry of Infrastructure and Environment, the National Delta Programme, a province, and regional water authorities, to represent all relevant stakes and perspectives within (the context of) the programme. In addition, preliminary results were reviewed from a legal perspective to assess how the preliminary findings related to legal and regulatory concepts, requirements and frameworks.

Steps 2 and 3 can clearly be seen as the 'investigative' part of the assessment, executed by experts with the explicit aim to come to an independent judgement of the programme and performance on the principles. Step 4, on the other hand, consisted of a 'learning table' session, which was organized to reflect on the main outcomes of the assessment, the practical value of the principles for water governance practitioners, and most importantly, to generate lessons on improving the water governance of the programme. In preparing the learning table, we prepared a memo which addressed the main insights and questions of participants in the assessment (per principle). The memo was sent in advance to 15 participants, who were a mix of directors of the Flood Protection Programme, the ministry, regional water authorities, and (independent) experts in water governance.

Results of learning assessment of the Flood Protection Programme

Survey and focus group

Overall, survey respondents agreed that the governance system of the Flood Protection Programme was effective and trustworthy (i.e. legitimate); they partly agreed on its

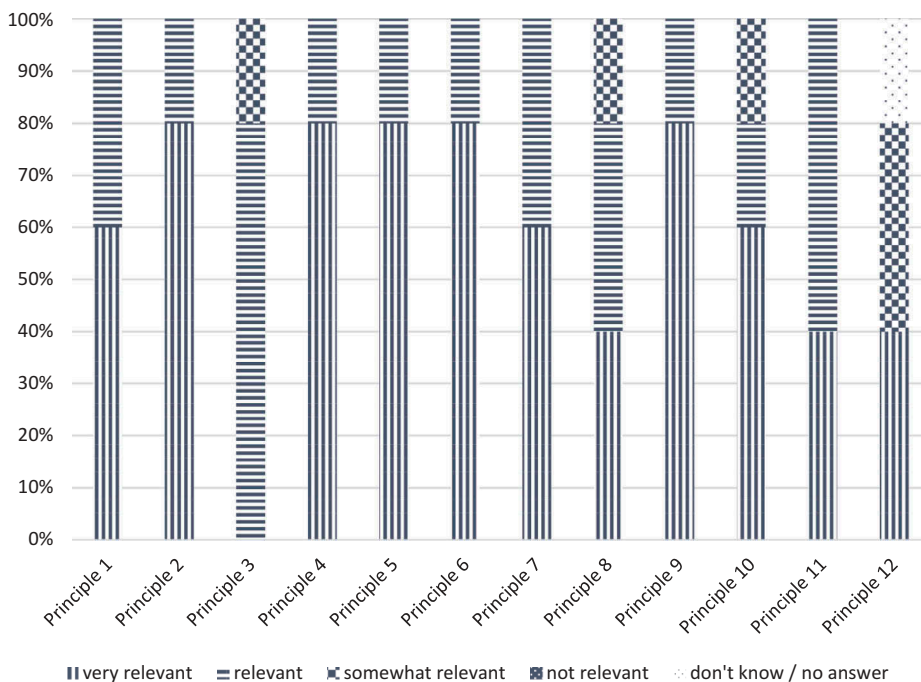


Figure 3. Survey scores on relevance of the 12 OECD principles to the Dutch Flood Protection Programme.

efficiency. **Figure 3** shows that respondents considered all the principles to be relevant or very relevant to the Flood Protection Programme. Principle 12 (monitoring and evaluation), showed the weakest score on relevance, but still 40% considered it very relevant and 40% partly relevant.

Figure 4 depicts the extent to which survey respondents considered the programme to be performing in accordance with the principles. There is quite some variance in the perceived performance of the programme. The data suggest that the programme achieves four principles well: Principles 6 (financing), 7 (regulatory frameworks), 8 (innovative governance), and 9 (integrity). The programme fairly achieves Principles 1 (clear roles) and 2 (appropriate scales). The programme partly achieves five principles: Principles 3 (policy coherence), 4 (capacity), 5 (data), 10 (stakeholder engagement), and 11 (trade-offs). Principle 12 (monitoring and evaluation) was considered partly achieved, but was also perceived by the respondents as difficult to assess. In sum, respondents considered that the programme has achieved six principles (1, 2, 6, 7, 8, 9), and partly achieved the other six (3, 4, 5, 10, 11, 12).

The focus group participants agreed to a large extent with these survey results. More important, the focus group participants provided more insight into the effectiveness, efficiency and legitimacy scores of the survey. Despite their agreement with the survey results, they argued that, at this stage, definite conclusions on the effectiveness and efficiency of the programme were impossible to draw, as the programme has not yet resulted in the physical execution of dike-reinforcement projects. They moreover stressed that legitimacy may become a major issue under the Water Act, a new

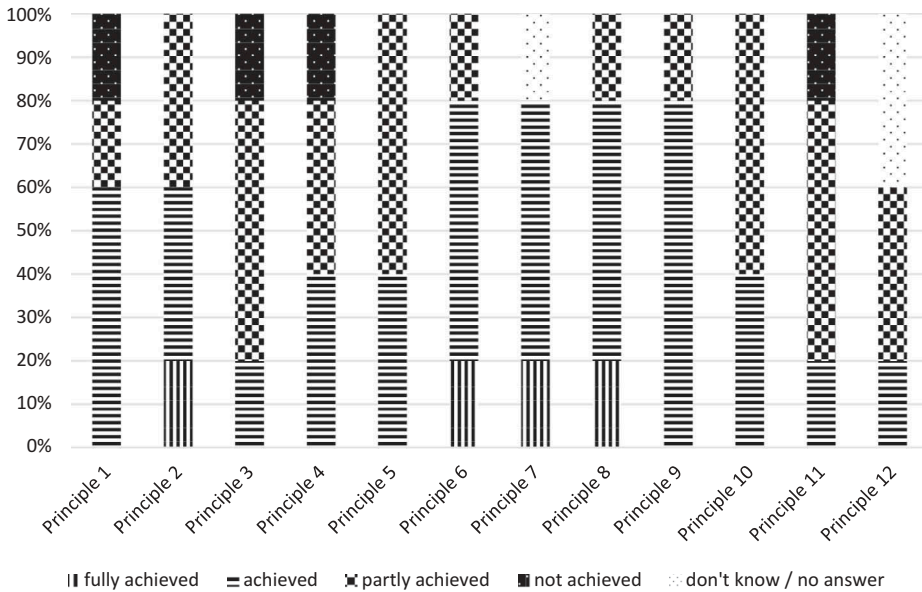


Figure 4. Survey scores on extent to which the Dutch Flood Protection Programme achieves the 12 OECD principles.

regulatory framework (explained below, under Principle 7). The participants shared concerns with five principles:

- *Principle 4, Capacity.* The capacity to implement the programme and to execute the dike-reinforcement projects is likely to become increasingly problematic, as the workload will grow, while too few qualified workers will be available.
- *Principle 5, data and information.* The data and information that regional water authorities submit to the Flood Protection Programme are not always consistent and comparable. As a result, it is difficult to compare the priority of different projects, which is an important starting point for the programme. It may also create instability for the programme, as the scope of projects is very changeable.
- *Principle 7, regulatory frameworks.* A new regulatory framework has recently been adopted in the Water Act, namely a risk-based approach, and highly complex security standards in Dutch flood risk management. This new framework complicates the task of the regional water authorities, because it is not yet clear what the consequences will be in terms of future required dike reinforcements.
- *Principle 8, innovative governance.* Good progress has been made in innovative governance, for instance by initiating specific research and pilot projects on innovative dike-reinforcement techniques that benefited several dike-reinforcement projects. However, this principle remains a major point of attention as innovative techniques should contribute to cost reduction and thus to efficiency, but have not yet proven effective.

- *Principle 9, integrity and transparency.* The programme is a multi-billion-euro programme based on a single fund that several parties contribute to. However, the programme's benefits for each party can vary widely. Respondents stress that integrity should therefore be a major point of attention throughout the programme's course. At the same time they acknowledge that this issue receives relatively little attention in the programme and in the Netherlands' policy debate in general.

Interviews

The interviewees agreed to a very large extent with the survey scores and concerns raised in the focus group. Nonetheless, some contrasting opinions were also voiced. For instance, in relation to Principle 1 (clear roles), an interviewee criticized the allocation of responsibilities between the national and regional water authorities. Although the programme is a joint effort of national and regional water authorities, for some parties the granting of subsidies appears to be merely the task of the national water agency (Rijkswaterstaat). In addition, in relation to Principle 3, some interviewees consider policy coherence, or the incorporation of additional interests and functions into dike-reinforcement projects, a responsibility of the programme, whereas other interviewees see it as an add-on, not a hard requirement. For instance, expansion of a harbour or new bike paths could be fitted into a dike-reinforcement project, thus serving the interests of local actors.

The validation of the survey, focus group and interview findings did not lead to major contrasting results. At the same time it must be acknowledged that perspectives differ on how the responsibilities are or should be allocated between the national and regional water authorities. There are also concerns about the clarity of the new regulatory framework for legal safety standards and the further integration of legislation concerning the living environment.

Learning table

At the start of the learning table session, the findings of the assessment (survey, focus group, interviews) were presented in combination with a set of questions for reflection and learning. These questions, summarized in Table 2, addressed the concerns and critical remarks made by participants in the focus group or during the interviews.

After discussing the main insights, discussions were held on topics related to six principles, resulting in a set of lessons to be learned, summarized below.

Principle 2, appropriate scales. At the national level, not all long-term objectives for flood risk management have been set clearly. This leads to uncertainty in the requirements for separate reinforcement projects. For instance, decisions on extra floodplain restorations or alterations in river bifurcations may affect water levels during floods at a greater scale than a single dike-reinforcement project, thus impacting the goals of separate reinforcement projects.

Principle 3, policy coherence. Generating and maintaining policy coherence is the responsibility of the regional water authorities, who oversee their own dike-

Table 2. Questions formulated for participants in the learning table to stimulate reflection and learning.

OECD Water Governance Principle	Questions
(1) Roles and responsibilities	How to keep the alliance of national and regional water authorities operational? Are responsibilities rightly allocated between national and regional water authorities?
(2) Appropriate scales	How to organize commitment at the regional level to define strategies at the appropriate scale?
(3) Policy coherence	How to come to a structural integration with other policy and land-use functions in dike-reinforcement projects? Should the Flood Protection Programme take more initiative to seek connections with spatial planning?
(4) Capacity	How to prevent capacity shortages? Through more collaboration between regional water authorities, or by carefully planning large, complex projects over time?
(5) Data and information	Is it useful and needed to better organize the flow of data and information from regional water authorities to the Flood Protection Programme?
(6) Financing	Are more and improved financial incentives needed to increase the efficiency of the Flood Protection Programme?
(7) Regulatory frameworks	How to make the complex new regulatory framework of risk-based calculations practically applicable? How to help each other?
(8) Innovative governance	How can the regional water authorities be facilitated to increasingly develop and apply innovative techniques?
(9) Integrity and transparency	Should more attention be paid to risks of corruption (especially in relation to constructors)?
(10) Stakeholder engagement	To what extent are people in society satisfied with the way they can participate in the Flood Protection Programme? Are expectations fulfilled, and do the provisions for participation meet the expectations of stakeholders?
(11) Equity	To what extent is the Flood Protection Programme only responsible for execution of previous (political) decisions, or should trade-offs and equity issues between areas and users be questioned?
(12) Monitoring and evaluation	Which changes in the governance system of the Flood Protection Programme would be useful, and which experiences/examples may be a source of inspiration?

reinforcement projects in their context. When a (regional) project team tries to come to a more integrative project, the Flood Protection Programme does offer extra time to make and shape a dike reinforcement project in which interests of multiple local organizations are integrated. Regional executives have a crucial role in that respect, as they should seek (and know of) opportunities for collaboration with other local organizations and interests.

Principle 4, capacity. In the learning table session, the capacity shortages of regional water authorities were considered more severe than discussed so far in the assessment. The authorities lack the personnel with the necessary competences for complex projects. People with a background in contract management, project management or geo-engineering are especially needed. Sharing capacity between regional water authorities (e.g. pooling of employees) is regarded a fruitful strategy. Also, the recognition of technology in the water sector should increase, both in the water authorities and in relevant educational institutions.

Principle 8, innovative governance. To achieve the Flood Protection Programme's ambitions for cost reduction, the programme is highly dependent on a large-scale application of innovative techniques and approaches in dike reinforcement. To achieve this, four aspects were deemed crucial: continuance of the collaboration in the alliance between national and regional water authorities; upscaling of

innovations from potential technologies to agreed-on technologies with high potential for cost reduction, which will then be subsidized; sharing of best-case practices that reduced costs or enabled rapid progress in a project; and collaboration with private constructors.

Principle 9, integrity and transparency. This topic deserves much more attention in the Flood Protection Programme than it has received so far. More attention should be devoted to integrity and transparency to ensure that the water sector is as secure as possible against corruption and fraud. Possible risks of corruption should be mapped in the context of the Flood Protection Programme, for instance in the development and application of innovative technologies in which private companies are involved early on, before projects and technologies are tendered.

Principle 10, stakeholder engagement. The Flood Protection Programme has recently been reformed (as explained in the first half of the paper). This was done in close collaboration between the ministry, the National Water Agency (Rijkswaterstaat) and the regional water authorities. However, stakeholders from outside the flood protection community, such as provinces and universities and other knowledge institutes, could be involved more, to obtain their feedback on the setup and decisions made by the Flood Protection Programme.

Functions and conditions for a practical learning assessment

The case analysis showed that the learning assessment of the Flood Protection Programme had practical value, as the learning table session generated six relevant and practical lessons to enhance the programme's governance system. As Table 3 shows, the principles in relation to which lessons were learned did not surface in each step of the learning assessment. Not only does this illuminate the challenging nature of assessing practices within water governance systems, it also confirms the relevance of applying a variety of methods in the learning assessment. The survey allowed participants to give their opinion on all principles; the focus group enabled collective discussion of the meaning of the principles and the performance of the programme; and the interviews provided a 'safe environment' for professionals to

Table 3. Principles highlighted in the assessment to improve the performance of the Dutch Flood Protection Programme, either because they were partly achieved (survey), or because participants shared concerns (focus group, interviews) and lessons for improvement were drawn (learning table).

OECD Water Governance Principles	1	2	3	4	5	6	7	8	9	10	11	12
Survey												
Focus group												
Interviews												
Learning table												

voice their concerns. The learning table session provided a platform for synthesis and learning on coping with key water governance challenges.

The OECD Water Governance Principles had multiple functions throughout the learning assessment. First, the principles enable discussions of the water governance system and enhance understanding of the systems' functioning. As exemplified by discussions of policy coherence during the interviews and the learning table, the principles can help identify differing perspectives on what a governance system can or cannot, should or should not do. Second, the principles highlight a broad spectrum of requirements for good water governance and are thus helpful in identifying 'hidden' risks and challenges that are currently not on the agenda of directors in the Flood Protection Programme, as has been illustrated by outcomes about integrity in the survey and the learning table session. Third, the principles can stimulate reflection on actual governance challenges, as joint discussion thereof can be helpful to identify, specify and prioritize key challenges. For instance, the issue of capacity appears to be more urgent than expected, and the seriousness of successful innovative governance for efficient governance of the programme was rediscussed during the learning table session. Lastly, the fourth function is informed action to respond to the challenges revealed by the governance assessment. Although capacity had already received major attention in the programme, the assessment reconfirmed the severity of the programme's limited capacity and the need to put more effort into sharing knowledge between organizations and persons, and cooperating with universities and universities of applied science to interest future employees.

Several conditions were present during the learning assessment, stimulating these four functions to come to full bloom. First, the principles were translated to the context of the Flood Protection Programme in each step of the assessment. The translation helped make the principles meaningful to the participants of the survey, focus group, interviews and learning table. Second, the assessment was undertaken in a period without major policy debates or controversies that could politicize the process and outcomes of the assessment. The absence of political pressure created a safe environment in which people could more openly discuss the strengths and weaknesses of the Flood Protection Programme's water governance. Third, a diversity of stakeholders was involved in the interviews and the learning table. They mostly represented the interests and insights of the water authorities, but these were supplemented by a provincial governor and water governance academics. Through involvement of these key stakeholders, the interests and perspectives of those parties that constitute the water governance system were involved in the assessment.

Implications and conclusions

The aim of this article was to explore the practical value of the OECD Water Governance Principles in assessing water governance practices, through developing a learning assessment that generates lessons to enhance the performance of water governance systems. This article revealed how the principles had practical value in generating lessons to strengthen the effectiveness, efficiency and legitimacy of the Dutch Flood Protection Programme. In addition, the assessment revealed functions of the OECD Water Governance Principles in enabling and stimulating learning to strengthen a

water governance system. These functions are (1) to enhance understanding of the water governance system, (2) to reform the agenda, (3) to reflect and set priorities, and (4) to inform action. These functions cover to a large extent the ones discussed in the theoretical section on reflexive learning in governance assessments, except for changes in attitude and governance systems (Ison et al., 2007; Pahl-Wostl et al., 2007). Real changes in attitude and governance systems have not been observed, as the research project ended after the learning table. Therefore, the learning assessment has mainly pointed out to key parties involved in the programme what they consider the most important water governance challenges, and how these could be addressed. But this includes recommendations for a change in attitude or the governance system. As most of the learning functions were in place, it can be concluded that the OECD Water Governance Principles can be used as an effective instrument to contribute to good water governance.

Reflection

Although this article advances the understanding of how to apply the principles in a meaningful water governance assessment, there are some limitations in the way the learning assessment was conducted. The assessment had primarily an internal focus, which involved key actors in the specific water governance system of the Flood Protection Programme. This resulted in a learning assessment that was conducted in a safe, depoliticized environment, but also in a narrow dialogue within one epistemic community, which shares core beliefs, policies and claims to authoritative knowledge (Haas, 1992). Except for one provincial governor, critical voices from outside the flood protection community were not involved. This limited variety in stakeholder involvement reduces the empirical value of the assessment outcomes. If people from outside the Dutch flood protection community were involved (e.g. community representatives, NGOs, municipalities, private parties), a more representative assessment of the programme would have been conducted. Such a more inclusive assessment would be in line with the bottom-up and inclusive decision making advocated by the OECD (2015) and the suggestion of Bressers et al. (2016) to involve potential critics in water governance assessments. Critical outsiders should thus be involved through interviews or focus groups to reflect on assessment outcomes, and when possible participate in learning tables. If the latter is not possible, it is the responsibility of the assessment team to present critical outsiders' views in the learning table. Though the reflexive assessment generated six lessons learned, it was not possible to assess how these lessons will be incorporated in the governance system. Thus, it could not be determined whether learning was transformed into action. This would require a post-evaluation or another assessment in 3–5 years with involvement from a broader variety of stakeholders.

The OECD principles can become an effective instrument to enhance policy coordination and can contribute to good water governance. However, to realize their full potential the principles should not be used as merely an (internal or external) auditing tool. It is very important to find ways to contextualize the principles each time they are applied, to focus on actual practices instead of assessing governance structures, and to make them relevant to people in the water governance system to be assessed. Furthermore, it is essential that the principles are not only used to gather information

to be able to give a judgment, but that this information is deliberately used to get new issues on the agenda, to clarify ambiguities, to facilitate frame reflection and social learning, and to spur action. Our method can be seen as a first step towards using the principles in such a way. In addition, periodic assessment is needed to move beyond the one-off learning events, also adhering to notions of social learning being situated in wider social units beyond the persons directly involved in an assessment (Reed et al., 2010).

The potential applicability of the OECD Water Governance Principles and water governance assessments is enormous. With the rise of water management institutions in the 1700s–1900s under the scientific paradigm of water management (Hassan, 2011), monitoring water in all its aspects has received much attention, because ‘you cannot manage what you do not measure’. Yet in recent decades a new insight emerged: that many water-related problems are problems of governance. To build on that new insight, it can be argued, water governance assessments should receive more attention worldwide, as evaluation and learning about the performance of water governance systems can enhance countries’ capacity to cope with current or upcoming water crises. Globally operating intergovernmental organizations (e.g. the UN World Water Assessment Programme, the Global Water Partnership, the OECD) could set the agenda for reflexive, action-informed water governance assessments.

Note

1. The OECD Water Governance Initiative is a policy forum where public, private and not-for-profit organizations meet in support of better governance for the water sector. The 140-plus members reflect the diversity of organizations that are concerned with water governance, ranging from national governments and other water authorities (regional, local, river basins) to international organizations, NGOs, financial institutions, research institutes and universities.

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