The OECD Water Governance Principles in Flood Risk Management Understanding Conflicts and Frictions in Dutch Flood Protection

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The OECD Water Governance Principles in Flood Risk Management

Understanding Conflicts and Frictions in Dutch Flood Protection

Nadine Keller, Barbara Tempels, and Thomas Hartmann

Abstract: The OECD Water Governance Principles provide a guideline for good water governance. However, these principles can conflict with each other when applied in practice. This contribution aims to understand which dilemmas arise and how such conflicts play out. It is explored in an in-depth case study on Dutch flood risk management in which conflicts between the principles emerge when applied to flood risk management practice. Interviews with water managers were used to collect data on which principles contradict each other and how these conflicts work out in practice. The study reveals that although the principles seem obvious, some principles indeed clash when applying them, while others do not lead to conflicts. Principles on efficiency, trust, and engagement have high potential for conflicts.

Keywords: conflicts, flood risk management, OECD, OECD principles on water governance, water governance

Water governance has attracted increasing attention as a policy concern in recent years (Woodhouse and Muller 2017). For example, the World Economic Forum (2021) identifies water crises as one of the top global risks in the last years. Floods are occurring with greater frequency and have become more damaging over the years. The associated rising costs have challenged traditional governance approaches that aim to provide full protection against floods (Bergsma 2016).

The OECD Water Governance Principles, developed by the OECD Water Governance Initiative, provide a framework to guide good governance, according to the OECD itself (OECD 2015). They are divided into 12 principles that intend to contribute to tangible and outcome-oriented public policies based on three mutually reinforcing and complementary dimensions of water governance: effectiveness, efficiency, and trust and engagement. The OECD Water Governance Principles aim to contribute to good water governance (Seijger et al. 2018) by catalyzing efforts for making good practices more visible, learning from

international experience, and setting reform processes into motion at all levels of government to facilitate change where and when needed (Akhmouch and Correia 2016). A lot of these principles are already taken into account in water governance systems or practice, despite the fact that people are not aware of the existence of the principles (Keller and Hartmann 2020).

However in practice, the principles also potentially contradict each other, as the principles are not perfectly in balance all the time. The framework does not explain how the principles relate to each other in practice. Little is known about potential conflicts between the principles and the trade-offs that emerge when applying the principles in practice.

To explore the relation between the OECD Water Governance Principles, we look at a case in the field of flood risk management (FRM), a field of water governance where conflicts emerge. We chose this field because megatrends, such as climate change, population growth and urbanization, have a high impact on the frequency and intensity of water-related events, such as floods. Population growth increases the likelihood and potential impact of floods since it puts pressure on sewer systems and encourages urban expansion into areas at high risk of flooding (OECD 2019). Also European countries face increasing flood risks because of urbanization, increase of exposure and damage potential, and the effects of climate change (Hegger et al. 2016). Global agendas are calling for the prevention of water-related disasters, including floods (OECD 2019). The urgency of the challenges calls for innovative practices to enhance water security and provide better services to citizens. Technical solutions are available; however, it is also important to ensure that the institutional frameworks are in place (Romano and Akhmouch 2019).

In FRM, stakeholder engagement is a core aspect (Thaler and Levin-Keitel 2016). On the one hand, stakeholder engagement provides better FRM: it is a way to reach more successful reach consensus in policy discussions. However, stakeholder engagement often ends in conflicts between political leaders and stakeholder groups (Thaler and Levin-Keitel 2016). Thus, to guide stakeholder engagement in FRM, governance is required. It is about finding ways to connect citizens with power structures more effectively (Hartmann and Spit 2015).

While floods were once viewed more as an external threat from nature, they are now pulled into the domain of human activity and constituted as governable by guiding conduct (Butler and Pidgeon 2011). This spatial turn puts FRM and water engineering "in an unknown arena

where project design does not take place in a top-down fashion, but many interests are involved in a consensual process of negotiation" (Roth and Warner 2007: 521). This spatial turn requires a much more integrated and comprehensive approach to water management. Integrative means that a catchment-wide consideration of flood issues also involves more stakeholders and more policy fields whose input needs to be balanced, negotiated, and integrated with water managers' current practices (Hartmann and Spit 2015).

In contrast to the flood defense dominated approach, efficiency and trust and engagement are also involved in FRM. Flood protection measures—especially but not only dikes—influence property values, the land becomes more profitable for uses that would not have been possible without a high design level (Tempels and Hartmann 2014). Providing flood protection means socially reinterpreting floods: they are no longer a force majeure—an act of God—but instead an issue of the welfare state (Barraqué 2014). However, FRM is becoming increasingly difficult (Thaler and Hartmann 2016). Not only is the likelihood of floods increasing (IPCC 2012), but, due to continuing settlement and the resulting higher degree of vulnerability in floodplains, it becomes more and more difficult to protect all properties along a river with the same standard—for economic and also for hydrological reasons (Fuchs 2009; Fuchs et al. 2015). This goes beyond the question of where to locate dikes and how high they need to be (Thaler and Hartmann 2016).

The OECD Water Governance Principles can be applied to FRM; however, the question is how to make such a governance framework useful in practice: how do we get from guidelines and high-level policies to work practice? Can the OECD Water Governance Principles function as a framework or strategy in FRM practice? There is literature about the OECD Water Governance Principles (Akhmouch and Correia 2016; Akhmouch et al. 2019; Romano and Akhmouch 2019). However, little has been, written about applying the principles in FRM, the conflicts that emerge when applying the principles, and how to deal with these conflicts.

This article tries to understand how the OECD Water Governance Principles are relevant in FRM. The principles can be in mutual conflict, and this article explores the conflicts that emerge between the principles when applied in practice to FRM. The research questions that will be examined in this article are as follows:

- How do the OECD Water Governance Principles relate to or collide with each other in FRM?
- How do the OECD Water Governance Principles relate to FRM?
- What conflicts emerge when applying the OECD Water Governance Principles in a flood resilience case?

To explore this research question, different flood protection projects will be analyzed. The focus for this research lies on flood protection in FRM because governance is a relatively new concept in FRM (Driessen et al. 2018). Current water governance systems have thus far not been able to prevent water crises like flooding (Seijger et al. 2018). Water crises, therefore, are also referred to as water governance crises, as improvements in the performance of water governance systems are needed (World Water Assessment Programme 2003). The OECD Water Governance Principles aim to contribute to good water governance (OECD 2015), which makes it interesting to explore how these principles work out in FRM practice.

This qualitative in-depth study uses Dutch FRM cases to examine how the OECD Water Governance Principles relate to each other in FRM and which conflicts emerge when this framework is being applied in practice. We explored these conflicts by producing a conflict matrix and in-depth interviews with 7 water managers of 10 flood protection projects.

The OECD Water Governance Principles and the Case of the Flood Protection Program in the Netherlands

The OECD Water Governance Principles provide a framework for understanding water governance systems, determining whether they are performing optimally, and helping to adjust them where necessary (OECD 2019). For the principles, see Figure 1 (OECD 2015). The OECD aims to help interested countries self-assess and improve the performance of their flood governance system with the OECD Water Governance Principles (OECD 2019).

While aiming to improve water governance, the OECD principles can conflict with each other when applied in water governance. In water management practice, possible conflicts between the principles can emerge.

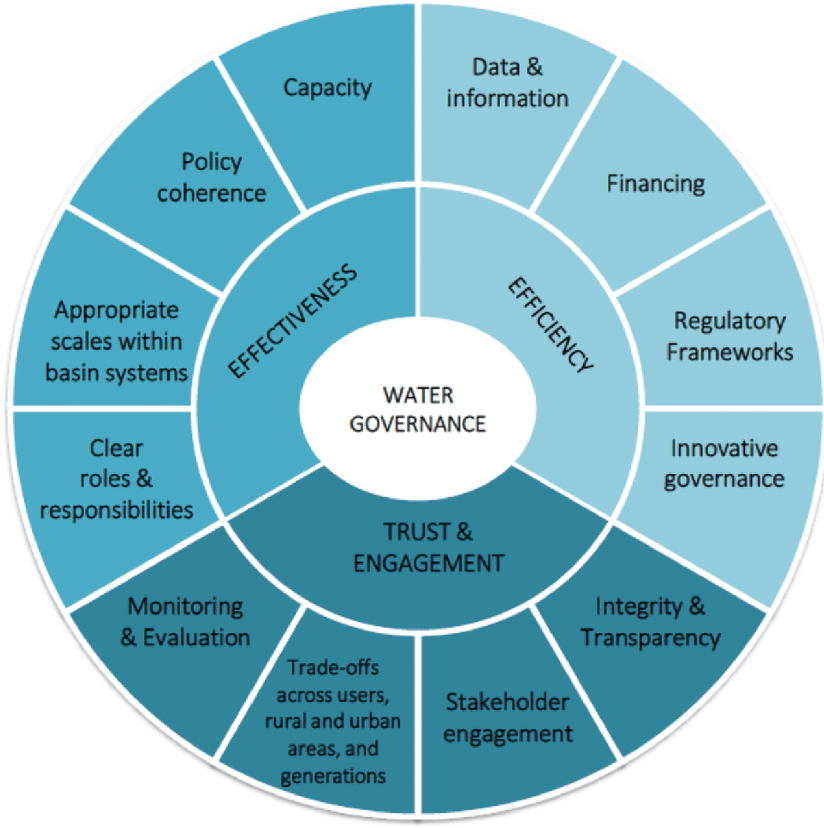

Figure 1 ■ OECD Water Governance Principles (OECD 2015)

The OECD (2019: 17) states that "conventional approaches are a prerequisite for sound flood management, but they need to be integrated in more comprehensive multi-level governance approaches." The Netherlands, where coordination across government levels and stakeholders allows for more effective longer-term planning, has started to set up its proactive strategies and solutions for climate change (Jorissen et al. 2016). This is called the Dutch Flood Protection Program (*Hoogwaterbeschermingsprogramma*). As a part of the Flood Protection Program, the different regional and local water managers need to reinforce some of the dikes in their control area.

Research Methods

The aim of this research is to understand how the OECD Water Governance Principles are applied to Dutch FRM cases and how conflicts between the principles emerge. Data is collected by interviewing several FRM project managers at Hoogheemraadschap Hollands Noorderkwartier (HHNK). These project managers are the experts in this case. The interviews were conducted in Dutch.

At this moment, HHNK is executing several flood management projects. Some of them just started, and some of them finished already. Projects that are still running are project Markermeerdijken and the project of Waddenzeedijken Texel. HHNK offers a suitable case for this research because FRM is one of the main tasks of this local water authority (HHNK 2018: 3).

For this research 7 project managers of 10 FRM projects at the local water authority HHNK have been interviewed with semi-structured interviews. Project managers of the following flood protection projects have been interviewed:

- Den Oever
- Den Oever-Den Helder
- Waddenzeedijken Texel
- Prins Hendrikzanddijk
- Kunstwerken
- Katwoude
- Gouwzee & Buiten IJ
- Durgerdam
- Noordzeekanaal
- Wieringermeerkering

In the first part of the interviews, we explained the OECD principles on water governance to the interviewees. To explain the principles in an objective way, the principles were printed on cards with explanation provided by the OECD itself. Also the background document of the OECD (OECD 2015) was used during the interviews when an interviewee needed more context. During the interviews, the participants were asked to sort the principles from most important to least important for their project management role in their view during the project. This question led to an overview of how people in FRM practice use the principles and also reveals their core values: which principles are of

most importance to their projects? This sorting of the principles constituted input for exploring conflicts between the principles. After this part, the following question was asked: which principle do they actually apply the most in their tasks as project managers of their FRM projects? This can show an interesting result because it is not always the case that the principles that are most important in their opinion are also the ones that they apply the most. The answers to these two questions offer an in-depth perspective on how project managers of FRM projects apply and use the principles in their projects.

The second part of the interview reveals conflicts between the principles and how to cope with these conflicts. This part emphasizes how conflicts between the principles are being experienced by the project managers. Answers to these questions offer an in-depth perspective on how the OECD principles are being balanced in FRM. In the interview transcriptions, the 12 principles were color coded.

The transcripts were analyzed based on the grounded theory (Strauss and Corbin 1990). The aim of the grounded theory is to develop theories from empirical analysis and to provide explanations for phenomena (Flick 2018). Grounded theory (GT) is a research approach in which data collection and analysis take place simultaneously (Thornberg and Charmaz 2014). GT is used through studying how participants approach the OECD Water Governance Principles and the conflicts between them.

The findings are then presented in a conflict matrix (Figure 2). In this matrix, the most dominant conflicts are shown. It is possible there are more conflicts in flood protection practice than are presented in this matrix. In the results, we focus on the most dominant conflicts. Principle numbers are mentioned in Figure 1 and indicated in the text between brackets. In the remainder of this article, references to several OECD principles on water governance are made. The OECD (2015) definitions of the principles are used.

Results: Application of OECD Principles in FRM Projects

The participants on the whole demonstrated that they divide the principles into different sections: boundary conditions, communication and stakeholder management, and secondary principles. Boundary conditions are the principles that are most important for the project. Without these principles, the project cannot exist. The communication and stakeholder management category is about communicating and dealing

with all kind of stakeholders who have something to do with your dike reinforcement project. The secondary principles are principles that are important; however, a project does not need these principles to exist.

Boundary Conditions

The principles that interviewees regard as "boundary conditions" are: clear roles and responsibilities (1); capacity (4); and financing (6). The majority of participants agreed with the statement that these three principles are necessary because, as project manager, you need these principles to start and execute your FRM project. It has to be clear what purpose your project serves and who has which responsibility. However, some interviewees also stated that capacity (4) and financing (6) are principles that can easily be arranged. One interviewee stated that financing (6) is a smaller risk. He clarified that FRM projects are accountable for the subsidy they receive. If the project manager explains the project properly, they will receive money anyway. Another interviewee commented: "Capacity is important; it is a top risk in FRM projects. However, you can always hire capacity." Another participant stated that financing (6) is becoming important when you don't have any financing as a stakeholder. This participant stated:

> People or organizations who don't have any financing sometimes have a very strong opinion about your project. It is important to set those people in a specific position where they don't have much influence on your project. When you don't have any money, your responsibilities in a project will decrease.

Although it is not always expressed explicitly, there seems to be a bias toward giving more weight to stakeholders with a stronger financial position in a process. These strong positions point to a strong tension between the academic trend of participation, on the one side, and the financial bias on the project level, on the other side.

Also data and information (5) and regulatory frameworks (7) are seen as important conditions for executing FRM projects. Interviewees stated that they have to execute their FRM project within the legal regulatory frameworks. This is where the regulatory frameworks (7) come in. And eventually you will need data and information (5) to make good choices. Participants also indicated that, in the Netherlands, strict guidelines apply to FRM projects. That is the basis of the project scope. The framework for FRM is sober, robust, and efficient.

Several interviewees stated that integrity and transparency (9) are crucial for FRM projects. They stated that HHNK is a governmental

organization and that, as a governmental organization, you should be able to justify everything and communicate openly. However, only one participant indicated that: "Of course, integrity and transparency is important. It is important not to be corrupt. However, corruption is very rare in the world, so in my opinion it is not that important."

Communication and Stakeholder Management

Another section of principles that interviewees defined is about communication and stakeholder management. Stakeholder engagement (10), trade-offs across users (11), monitoring and evaluation (12), and policy coherence (3) are matters of stakeholder management. Also clear roles and responsibilities (1) was named in the context of stakeholder management and communication. One of the interviewees stated the following:

> Clear roles and responsibilities and policy coherence is about communication and stakeholder management. It is about coordination between sectors. Policy coherence is about communication between departments within HHNK and bringing together organizations and parties, so you can make an informed decision on the best solution for your project. Clear roles and responsibilities is about communication within your own team. Who has which responsibility?

Trust and engagement are important for FRM. One of the participants stated that trust and engagement are of crucial importance in stakeholder engagement (10). This participant indicated that the project team decides together with stakeholders what kind of information—data and information (5)—is of importance for this FRM project. This is called Joint Fact Finding (Medema 2019).

Secondary Principles

The last group of principles that most participants defined is about principles that are seen as not crucial to execute a FRM project. For example, it was often mentioned that the principle of monitoring and evaluation (12) is considered very important, but that it is used too little and that innovative governance (8) is not really seen as important.

The majority of participants agreed with the statement that "innovative governance or innovations is something you try to achieve with your project. It's not that if you don't, you won't be able to run your project." Innovative governance is seen as a consequence. Innovations

are used when there is need for innovations. Interviewees stated that innovative governance and innovations are important. However, interviewees also noticed that, in practice, people don't pay that much attention to using innovative governance in their FRM projects:

> Innovations are important at national level. If you want to achieve the goal of the HWBP of faster, better and cheaper dike reinforcements, you have to work on innovations. On product and process level. However, if you just look at what I need to execute a dike reinforcement project, I do not necessarily need innovations.

Another principle that was often placed in this category by the participants is monitoring and evaluation (12). While all participants see monitoring and evaluation (12) as an important principle, almost all participants agree that "we don't act enough on the results." It is something that projects "just" do. Participants state that, normally, monitoring and evaluation take place at the end of a project. However they also argue that monitoring and evaluation can be very useful at the start of a project so that you don't make the same mistakes: "When you first start with a FRM project, you would actually want to look at any other project that resembles this. The funny thing is that this almost never happens."

One of the interviewees summarized: "In my opinion monitoring and evaluation is essential to start with. If you don't arrange stakeholder management, trade-offs across users, data and information and monitoring and evaluation properly, it is hard to organize the rest of the principles in a proper way in your project. In the past we just executed a project. However these days it doesn't work that way. People don't longer accept it when a government doesn't involve stakeholders and monitors and evaluate their project with these stakeholders."

Conflicts between the OECD Principles in FRM Projects

FRM projects are always subject to conflicting demands, so conflicts between the OECD Water Governance Principles emerge in almost every FRM project. One of the interviewees stated: "I can imagine a conflict between every one of the principles. There is always tension between them. It is not without reason that there are 12 of them in a circle. The trick is to mix them, so that all 12 can come into their own." In general, the interviewees responded consistently to this question. Some conflicts were mentioned multiple times, while other conflicts

weren't mentioned at all. The conflict matrix (Figure 2) shows the conflicts that were mentioned most frequently and were considered as most important by the interviewees. In this article, we do not discuss all mentioned conflicts. We discuss the conflicts that were mentioned most by the interviewees. We also describe some less mentioned but very interesting conflicts that were pointed out by the interviewees.

Regulatory Frameworks (7) and Innovative Governance (8)

One of the most dominant conflicts between the principles in FRM projects is the conflict between regulatory frameworks and innovative governance. According to the laws, a dike improvement must be sober and efficient, an innovation often only costs more time and money.

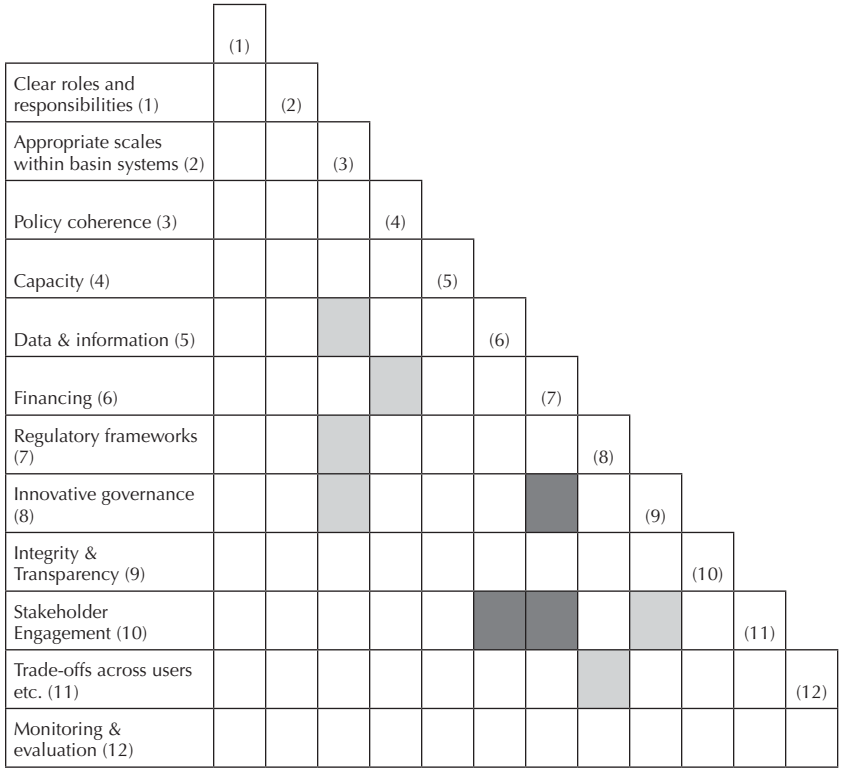

Figure 2 ■ Conflicts between the OECD principles in FRM projects.

White = no conflict mentioned, light gray = medium conflict (mentioned by multiple interviewees), dark gray = strong conflict (mentioned by the majority of the interviewees). To see the conflicts, follow the horizontal and vertical line of the same principle.

The conflict that emerges is that in the Netherlands, FRM projects like flood protection projects have to work according to the HWBP program. Projects have to perform according to the HWBP regulatory framework; otherwise, these projects will not receive any subsidy. The regulatory framework of the Flood Protection Program states that dike reinforcements should be executed in a sober and efficient way. When introducing innovations or innovative governance to a project, this is not always sober or efficient. Multiple interviewees made statement similar to this: "Regulatory frameworks offer security; innovations offer insecurity. Do I want to surrender part of my security for a possible chance in the future?"

As mentioned by the interviewees, innovations are not a precondition for the proper execution of a project, but it can sometimes make your process more difficult. On the other side, innovations can help your project by offering a smarter, more efficient solution. For example, in the FRM project Markermeerdijken, many innovations are being adopted. "It's raining innovations; however, not everybody sees them.… Though, not every innovation simplifies a project." The interviewee used an example.

> In the Oeverdijk project, the team chose a 'sandy solution' in a lake system. This innovation offers a solution for the flood risk problem and also offers the opportunity to retain cultural history. According to the regulatory framework of the HWBP, the financing (6) of a project can't contain maintenance, so this solution produces a lot of discussion, because maintenance is not in the regulatory framework. However, this solution is the best one to enable water safety and contain cultural history. Thus, the regulatory framework is sometimes an obstacle to the implementation of innovations.

Innovative Governance (8) and Financing (6)

Because the regulatory framework states that dike reinforcements have to be executed in a sober and efficient way, innovations and innovative governance also conflict with financing. Innovations are often seen as expensive, and there is not always money to invest in innovations. Interviewees mentioned that, in their projects, they want to work in an innovative way and give innovations a chance to be part of their dike reinforcement project. However, as they see it, applying innovations often costs more time and money than using the regular or standard solutions for dike reinforcement projects. Sometimes innovations can be very interesting; however, the extra time and financing required to apply innovations is not always made available by the local water authorities and the Flood Protection Program, because often it is not

100 percent sure if the innovative solution will exactly work as planned. As one interviewee states:

> Innovative governance often leads to tense situations, especially with the water manager. The project team has to convince the water manager that the innovations works. However, this is often not that easy because most of the time there aren't any calculation rules or guidelines yet. Or it just is not demonstrable yet.

Stakeholder Management: Financing (6) and Stakeholder Engagement (10)

Another conflict mentioned is the conflict between financing and stakeholder engagement. It is impossible to meet all the requirements and desires of the stakeholders financially, so there will always be some tension between these two principles. One of the interviewees stated:

> I think these principles conflict because when someone says, "I want this, I will pay for it and I will organize it," there is no conflict. However, that almost never happens. Often stakeholders want something while they don't have any money. Sometimes they start to rely on their regulatory frameworks in such situations. And let me tell you this: it always starts to get interesting when a stakeholder wants something, however somebody else should pay for it.

Sometimes interviewees added other conflicting principles, such as trade-offs across users (11), clear roles and responsibilities (1), and the regulatory frameworks principle (7), to this conflict: "Stakeholders and trade-offs with regard to regulations often create tension. Stakeholders often want something. Most of the time we have to say no, because what someone wishes or wants often does not fit within the subsidy system."

One of the interviewees stated that sometimes it is hard to find the balance between financing and stakeholder management. She said the following:

> Sometimes an extensive consultation session with stakeholders is needed; however, the regulatory framework states that the process must be sober and efficient, so there are not always financial recourses available to support these kind of processes. However, in the end, a dike reinforcement project will run much smoother when stakeholders feel heard.

Another element of the conflict between the regulatory framework principle and stakeholder engagement (10) and trade-offs across users (11) mentioned by one of the interviewees is the concept of linkage op-

portunities. Linkage opportunities are about connecting opportunities and creating smart combinations with stakeholder ideas, for example:

> Sometimes a stakeholder has a wish to make a small change to the project or execute the project in a slightly different way. However, this often is not sober and efficient as is prescribed by the Flood Protection Program. However, sober and efficient is not always the cheapest solution. Solving the problem in a slightly different way can be very efficient when it contributes to stakeholders interests without it being a linkage opportunity.

Stakeholder engagement (10) and trade-offs across users (11) are principles about users and people alongside the dike. Respondents indicate that stakeholders often have a lot of wishes and demands. Often as a project manager, they intend to listen to these stakeholders and try to create linkages. However project managers often have to deal with precedential effects. Policy then makes it difficult to proceed with linkage opportunities.

> Transparency and stakeholder engagement also often conflict. Sometimes governmental organizations will not share information with stakeholders. By keeping information from stakeholders you create distrust. In principle, citizens are always allowed to contribute ideas. There is a Social Participation Code that you have to work with as organization. If you look at how transparency and stakeholder engagement conflict, you see different movements in the Netherlands.

Coping with conflicts between the principles often starts with providing insight in the elements that cause the conflict. For example, when a conflict emerges between stakeholder management and financing (6) and regulatory frameworks (7), it is important to clarify if it is about a wish or a requirement by talking to the stakeholders. Communicating with stakeholders helps provide insight in possible solutions. Interviewees mentioned that coping with conflicts is like coping with different interests. One interviewee stated: "People often only care about their own interest' however, sometimes it is not possible to get your interests fulfilled for a 100 percent."

Stakeholder Engagement (10) and Regulatory Frameworks (7)

A strong conflict that was mentioned by multiple interviewees is the conflict between stakeholder engagement (10) and regulatory frameworks (7). One of the interviewees explained: "Regulatory frameworks is about sober, robust and efficient. On the other side, stakeholder

engagement (10) is about wishes from stakeholders. It is always kind of a gray area if these wishes are sober, robust, and efficient."

The conflict arises when sober, robust, and efficient evoke resistance among stakeholders and public support diminishes. The key is to find the optimum between sober, robust, and efficient and stakeholder wishes. Another interviewee stated that the regulatory framework is increasingly being questioned by stakeholders (10). An important question is if the valid regulatory frameworks are still sufficient.

Policy Coherence: Data and Information (5) and Policy Coherence (3)

The policy coherence principle also conflicts with other principles in flood protection projects. A conflict that is becoming more and more important with the introduction of the Planning and Environmental Law is the conflict between the principle of data and information and some other principles like monitoring and evaluation (12) and policy coherence. The Planning and Environmental Law is a new environmental act in the Netherlands. With the Planning and Environmental Law, the Dutch government wants to simplify and merge the rules for spatial development (Rijksoverheid n.d.).

To properly introduce the Planning and Environmental Law, in the coming years governmental organizations have to exchange data with each other to meet the requirements of this law. This means that (IT) systems of many different governmental organizations have to connect to work properly. At the moment, this is not the case, stated one of the interviewees. That the implementation of the Planning and Environmental Law is a complex process is also apparent from the fact that the introduction of the environmental law has already been postponed a number of times (Mors and Plas 2020; Verdaas 2020)

Because of this, a conflict arises between the data and information principle and policy coherence. Coordination between different sectors is becoming more and more important; however, much remains to be done to bring sectors and governmental organizations together. Interviewees also mentioned that monitoring and evaluation (12) are not always performed properly.

> What happens very often is that we have a lot of ideas and create the most beautiful projects, however we never do monitoring and evaluation in a proper way. This conflicts with data and information, because what data and information can you trust? See for example the nitrogen discussion: what information is right?

Policy Coherence (3) and Regulatory Frameworks (7)

Policy coherence conflicts not only with data and information (5) but also with regulatory frameworks. Interviewees mentioned that sometimes existing policies are not always coherent with the existing regulatory frameworks. They indicated that thinking out of the box always causes a conflict between these two principles. Interviewees notice that most people are focused on sectoral thinking and working, which do not contribute to an integrated solution. For example, different people work at the policy department of the local water authority than at the project department. One of the interviewees stated that these departments do not always understand each other and that it's really fascinating to see this happen.

> Policy coherence is a source of conflict. For example with innovations. Often, a local water authority has policy to keep dike reinforcement projects as simple and sober as possible, following the HWBP regulatory framework. However, the local water authority also states that "the dike belongs to everyone." This does not relate to the customization that you sometimes need for FRM projects.

Additional Conflicts

Capacity (4), clear roles and responsibilities (1), and data and information (5) are also mentioned as conflicting in a FRM project. The reason for this is that some FRM projects take a long time to complete. An interviewee stated the following:

> This causes changes in the project team. Stakeholders see new faces all the time. This makes a connection with the monitoring and evaluation. Often stakeholders know exactly what has been discussed and decided in the process. They use this information sometimes against new project team members. So it is really important to keep your monitoring and evaluation up to date.

While the principles financing (6) and capacity (4) are seen as boundary conditions for FRM projects by the participants, these principles can also conflict. Sometimes you don't have enough money for the capacity you need to execute your project in a proper way.

Conclusion

This research offers insight into how the OECD Water Governance Principles relate to each other when applied to FRM practice and what conflicts emerge between the principles. This article explored how the principles relate to each other in FRM and how conflicts between the principles emerge in a case study through in-depth interviews with 7 project managers of 10 dike reinforcement projects at a local water authority in the Netherlands.

Participants stated that trust and engagement are very important in their work. If there is no trust and engagement, it is more difficult to work in an effective and efficient way. However, by applying the principles in FRM, different conflicts between the principles emerge. All project managers could name at least one conflict. All interviewees acknowledged that tension between the principles exist and that it's impossible to apply the principles in perfect balance.

The principles were divided into three categories by the participants: boundary conditions, communication and stakeholder management, and secondary principles. Principles in the boundary conditions section are crucial for a FRM project. Participants stated that it is not possible to execute a project when you do not have arranged for these principles. Stakeholder engagement is also seen as important. Interviewees allocated principles to a communication and stakeholder management category.

The secondary principle category exists of principles that are seen as less important or not crucial to execute a FRM project. Principles that were allocated to this category are, for example, monitoring and evaluation and innovative governance. Monitoring and evaluation is considered an important principle, but participants agreed that it is being used too little and therefore considered less important. Innovative governance is not seen as important because a project can be executed without innovative governance. It is noticeable that these categories defined by the participants are different than the three themes of the OECD Water Governance Principles (effectiveness, efficiency, and trust and engagement). Participants in this research ranked the principles according to how important they are for their work instead of considering how effective or efficient the principles are.

The research has also shown that when applying the principles to FRM practice, some conflicts between the principles emerge. It is interesting that conflicts do not arise between all principles. There is

no clash between all goals, but apparently there are specific principles that clash in this case.

One of the most dominant conflicts that was mentioned is the conflict between regulatory frameworks and innovative governance. According to the law, a dike improvement must be sober and efficient, and innovative governance often only costs time and money. This makes it hard to apply or balance both principles in a flood protection project. Because the regulatory framework is leading, innovative governance does not always get a chance in flood protection projects. Beside this conflict, innovative governance also conflicts with financing. Innovations are often seen as expensive, and there is not always money to invest in innovations. Besides, it is not often 100 percent sure if the innovative solution will exactly work as planned. Because of this, it is hard to find financial recourses to bring innovations or innovative governance into a FRM project.

Another interesting conflict that is now becoming more and more important with the introduction of the Planning and Environmental Law is the conflict between policy coherence and data and information. To properly introduce the Planning and Environmental Law in the coming years, governmental organizations have to exchange data with each other to meet the requirements of this law. This means that (IT) systems of many different governmental organizations have to connect to work properly, which is not an easy job according to participants. Coordination between different sectors is becoming more important; however, much remains to be done to bring sectors and governmental organizations together.

Besides offering in-depth insight, this article also contributes to reducing the gap between science and practice. Often frameworks like the OECD Water Governance Principles are not known in practice, or it is not clear how to apply these kind of abstract frameworks (Keller and Hartmann 2020). This research shows how the principles relate to each other in FRM and how the principles are seen by project managers of FRM projects in practice. The research also confirms that principles are often already taken into account in water management practice (Keller and Hartmann 2020). Also in this case, project managers use almost all of the principles in their flood protection projects. In the end, the OECD Water Governance Principles can function as a framework in FRM practice. The principles enable project managers to pay attention to different aspects and eventually bring projects to a higher level.

Discussion

The findings of this research provide in-depth insight in conflicts that emerge between the principles when they are applied in flood protection projects. An interesting question is, what does this say about the OECD Water Governance Principles? To what extent are these principles valuable in FRM? Some of the principles are already being applied unconsciously; however, other principles conflict with each other.

Besides, what do these findings say about flood risk governance and FRM projects? FRM projects are often very complex. Choices and considerations depend on the concrete context while the principles operate more on an abstract level (Keller and Hartmann 2020). Not all principles are seen as equally important, and conflicts between principles emerge. When in conflict, trade-offs are made and less important principles are depreciated. The innovative governance principle (8) is a strong example of this. This research was executed in a Dutch context. However, choices of project managers can be different in other (geographical) contexts. It is important to do some further research on this subject. At this point, it seems that project managers make intuitive choices on what principles are important in their projects. However, this has to become a more well-considered choice based on policy.

There is not a ready-made solution to solve all the emerging conflicts between the principles. Some conflicts turn out to be easily resolved. For example multiple interviewees mentioned that conflicts between principles where finance (6) is included in practice are not really that much of a conflict. The main reason for this is that dike reinforcement projects are always financed by governmental money. Also, some degree of conflict between the principles might be productive, so these do not need to be resolved. One of the interviewees stated: "When all principles would go well together, there would be no discussion at all." Conflicts between the principles lead to useful discussions. Making the trade-offs that occur in these situations explicit and subject to discussion among the stakeholders might be a productive way forward.

The finding that the innovative governance principle is in conflict with financing and regulatory frameworks is extraordinary. Innovative governance is often at odds with the financial requirements coming from FRM projects. Interviewees stated that innovations can sometimes make the project implementation process more expensive and difficult; therefore, it is not always attractive to use innovations in FRM projects.

This research is also about how certain information works through many different governance layers. We also studied this in a previous paper (Keller and Hartmann 2020). Also in this article the interviewees represent a certain governance level. An interesting question is if this influences their interpretation of the OECD principles on water governance. In future investigations, it might be interesting to investigate multi-level governance and its implications for the results.

This research is a case study of how the principles work in a country with an excellent track record of water management (OECD 2014). As such, the results reflect the institutional, cultural, and political context in the Netherlands. For example, in this research project managers said that corruption is very rare when discussing the integrity and transparency principle. However, the opposite is often heard in other geographical contexts (Bastemeijer et al. 2012). Further research is needed to investigate which conflicts arise in different contexts in order to further reflect on the policy implications of these findings.

The aim of this contribution is to investigate how these principles work out in practice and how to make such a framework useful in practice. As is stated in Keller and Hartmann (2020: 5), the OECD principles on water governance are in practice often seen as something abstract: "to make the OECD Principles on Water Governance relevant for the local scale of water governance, there is a need for a contextual and tailored translation of the principles." This article is not meant as policy advice but to see how frictions arise. An interesting subject for further research is learning how abstract information is translated to practice. This is still an open question. What choices do water managers make when they are confronted with conflicts between the principles? How do they decide which principle is most important in which situation? An open question is not only to understand these conflicts and frictions in FRM but also to learn how to cope with these emerging conflicts in FRM cases in practice, policy, and science.

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