

Chapter 4. Trust and engagement in flood governance

This chapter looks at the Principles associated with trust and engagement of water governance. It highlights the importance of stakeholder engagement, integrity, transparency and accountability in decision making at several levels. It also points to what extent the governance systems can make trade-offs across water uses as well as the need for being able to monitor and evaluate progress made and where gaps are to be filled. It applies the Checklist and makes observations and analysis of Principles in relation to flood governance, it points to particular areas of improvement and finally it points to examples of ways forward. It uses a number of examples from the case studies to illustrate the importance of trust among stakeholders as one important element that can strengthen implementation of flood related policies and other measures.

The Principles 9 to 12 provide a foundation for understanding how trust and engagement between stakeholders help promote improved decision making. *Trust and engagement* in water relate to the contribution of governance to building public confidence and ensuring inclusiveness of stakeholders through democratic legitimacy and fairness in society at large.

The Principles 9 to 12 draw explicit attention to the role of transparency, integrity and accountability, for the quality of water decision making. They point to the importance of participatory decision making by promoting stakeholder engagement for inclusive decision making, as well as water governance frameworks should help manage trade-offs between different water uses. Finally, they also point to the need for consistent learning, regular monitoring and evaluation of water policies and governance frameworks for reform and adjustments whenever required.

How these principles play out have effects on flood governance. Opaque and non-transparent decision making can lead to weak implementation of flood related policies, rules, regulations and plans leading to inappropriate water and land uses that can help drive more severe impacts of floods. The exclusions of critical stakeholders can drive biased decision making disavouring certain groups that are likely to be hardest hit by flood events. Finally, regular monitoring and assessment of flood governance will assist detecting what works, inefficiencies and where improved levels of trust and engagement need to be in place for sound flood policies and their implementation.

Principle 9: Integrity and transparency

Box 4.1. OECD Principle 9: Sub-principles, Indicators and Flood Checklist

Principle 9. Mainstream integrity and transparency practices across water policies, water institutions and water governance frameworks for greater accountability and trust in decision-making, through:

- a) Promoting legal and institutional frameworks that hold decision-makers and stakeholders accountable, such as the right to information and independent authorities to investigate water related issues and law enforcement;
- b) Encouraging norms, codes of conduct or charters on integrity and transparency in national or local contexts and monitoring their implementation;
- c) Establishing clear accountability and control mechanisms for transparent water policy making and implementation ;
- d) Diagnosing and mapping on a regular basis existing or potential drivers of corruption and risks in all water-related institutions at different levels, including for public procurement; and
- e) Adopting multi-stakeholder approaches, dedicated tools and action plans to identify and address water integrity and transparency gaps (e.g. integrity scans/pacts, risk analysis, social witnesses)

Figure 4.1. OECD Indicators for Principle 9



Source: OECD (2018a), *Implementing the OECD Principles on Water Governance: Indicator Framework and Evolving Practices*, OECD Studies on Water, OECD Publishing, Paris, <https://doi.org/10.1787/9789264292659-en>.

Table 4.1. OECD Flood Checklist for Principle 1

	Checklist questions
Policy framework	In terms of integrity and transparency, where has the emphasis been put in your case study?
	When roles and responsibilities for flood management and risk reduction are delegated to dedicated public or private entities, are there contractual arrangements between organising and executive bodies?
	Are there provisions for transparency and integrity in national legislation?
	Are there provisions for whistle-blower protection in legal and institutional frameworks?
	Which legal and institutional frameworks that hold decision-makers and stakeholders accountable are in place in your case study?
Institutions	Are norms, codes of conduct or charters on integrity and transparency in national or local contexts in place and their implementation monitored?
	Are there requirements in place for regular financial disclosure of assets, income and interests?
	Are there independent authorities (not necessarily water-specific) and supreme audit institutions that can investigate water-related issues and ensure proper enforcement (e.g. policy effectiveness and procurement)?

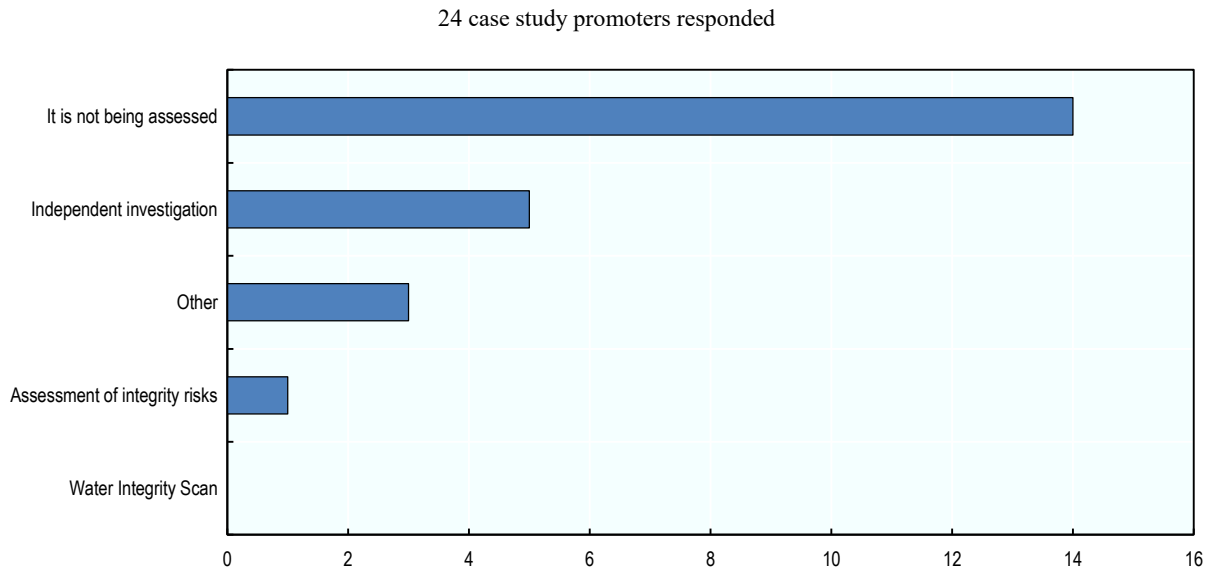
	Which accountability and control mechanisms for transparent flood-risk policy making and implementation are in place in your case study?
Instruments	Are corruption risks and actual corruption in the water sector (e.g. manipulation of knowledge and information, bribery, extortion) diagnosed?
	Are potential drivers of corruption and corruption risks regularly diagnosed and mapped in all institutions involved in flood management at different levels, especially<??>:
	In your case study, how are integrity and transparency gaps regularly identified and addressed?
Impacts	In your case study, how is the impact of corruption assessed in terms of environmental, social and economic costs?

Note: The full Checklist, including options for responses, can be found in Annex A.
Source: Authors' own research.

Observations

Corruption in the water sector can pose a significant risk to integrity, transparency and safety. In 2014, for example, the Mayor of Venice and 35 other people were arrested for allegedly siphoning off millions from the “Moses” flood prevention project. The Mayor was accused of having received illicit funds from the consortium behind the construction of the project, to fast-track the approval of contracts. Politicians used the funds for their electoral campaigns as well as for personal gain.

The lack of accountability and transparency in water policy is a symptom of governance deficiencies both in the private and public arenas. Insights from practice reveal that the risks and impacts of corruption in flood management are still rarely diagnosed and assessed (Figure 4.2). While some tools and action plans exist to map potential drivers and risks of corruption (e.g. integrity scans/pacts, risk analysis and social monitoring), their use is still anecdotal in flood governance. The majority of case studies collected acknowledge that institutions involved in flood governance do not conduct any diagnosis. For the same reason, there is little done to assess the impact of corruption in terms of environmental, social or economic costs. Only a few isolated case studies conduct independent investigations or integrity risk assessments.

Figure 4.2. How is the impact of corruption assessed in flood governance?

Note: Responses correspond to the number of case studies that ticked each possible answer in the Checklist. Respondents could tick more than one answer.

Source: Data from case studies on flood governance collected for the OECD project (October 2016).

Legal and institutional frameworks on flood governance put an emphasis on information to ensure accountability. The majority of case studies count on the right to information as the primary channel for holding decision makers and stakeholders accountable, and to ensure that flood-risk policy making is transparent. However, in some cases this is not enough. In Ethiopia, for example, there is a need for enforcement tools to guarantee compliance with existing principles of integrity and transparency. Multi-stakeholder approaches and social witnesses are also considered useful to identify and address integrity and accountability, as well as to build trust among partners. In Austria, to drive its decision-making processes the ICPDR has developed a set of rules of procedure that mainstream integrity and transparency practices, which range from the micro-organisational level to the international arena with fundamental treaties.

Many countries suffer an “accountability gap” when there is little public concern for water-related policy making, or where there is no monitoring and evaluation of water policy outcomes (OECD, 2011). In the Netherlands, communication to citizens about flood risks is low; partly because, under the law, the national and regional water authorities are responsible for dealing with water safety and because the country has not suffered any serious flooding since 1953. As a result, the population is not fully aware of the risk. This false sense of security and the choices of decision makers about flood management are rarely scrutinised or questioned (OECD, 2014b). After the OECD issued policy recommendations on the subject in 2014, various awareness-raising activities have been undertaken by the Dutch government, such as a “water week” twice a year, as well as a website¹ where citizens may enter their postal code to see whether they are at risk for flooding and what they should do if it does occur. This has helped to resolve some of the asymmetries of information and co-ordination issues. In addition, it is important to cite another stakeholder-related challenge affecting accountability. Given the drop in governments’ provision of public goods in recent decades, the private sector has taken on increasing importance as a strategic partner in flood management. This has transformed

traditional governance accountability (OECD, 2011), which at times fractured approaches to stakeholder engagement, undermining the mechanisms of mutual control for ensuring integrity.

Areas to improve

Various gaps exist, both in OECD and non-OECD countries, for ensuring integrity and transparency in flood management among different constituencies (OECD, 2011). These can have severe consequences. Corruption and bribery undermine the protection of citizens against floods and can take place at all stages of the flood-management cycle, from anticipation to recovery. Embezzlement and fraud can threaten the quality of flood-protection measures and put lives at risk. Contracting, permitting and licensing processes are particularly vulnerable. Bribes and collusion, for example, are common means of influencing design and procurement processes and can amount to grand corruption in large-scale infrastructure development (WIN, 2016). Moreover, another challenge can arise from the inclusion of private-sector stakeholders. The increasing importance of the private sector as a strategic partner for flood management was accompanied by the transformation of traditional governance accountability (OECD, 2011), which sometimes fractured stakeholder engagement approaches that undermined mutual control mechanisms for ensuring integrity.

In many countries, institutional dysfunction and opaque decision making undermine collective action for properly managing floods. Accountability in flood management tends to be predominantly limited to technical reporting and financial accounting to institutional superiors. Few mechanisms exist for holding flood-risk managers accountable to the public. A lack of transparency among actors regarding practices and operations can also be a barrier to institutional lesson-learning. The lessons learned from post-tsunami reconstruction in Indonesia, Malaysia or Pakistan are relevant, since flood response is vulnerable to corruption (see ADB, OECD and Transparency International, 2005).

Ways forward

Integrity and transparency need to be mainstreamed throughout governance approaches to flood management, and at all levels and sectors, to promote greater accountability, transparency and participation. Various aspects can be emphasised to help ensure that this happens (WIN, 2016):

- *More co-operation:* between the water sector, the anti-corruption sector, public finance institutions and the judiciary is needed, through joint investigations and information sharing or judicial assistance; between flood actors and public finance institutions; between water agencies, authorities involved in flood management and users, to support and build trust around the operations and maintenance processes;
- *More participation and multi-stakeholder decision making should be encouraged:* this can encourage awareness of citizens' rights to water and help build capacity for participation;
- *Information should be shared:* information on the quality and sustainability of flood-risk infrastructure and services could and should guide decisions;
- *Sources of funding should be included in the budget in a clear and transparent manner,* and funding and evaluation mechanisms should be aligned;

- *Comprehensive accountability mechanisms should be set up:* independent monitoring of activities by the media, governmental and non-governmental institutions, academic institutions and civil society holds flood-risk managers accountable. Mechanisms like procurement processes should be transparent, fair, non-discriminatory, accountable and verifiable.

Principle 10: Stakeholder engagement

Box 4.2. OECD Principle 10: Sub-principles, Indicators and Flood Checklist

Principle 10. Promote stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation, through:

- a) Mapping public, private and non-profit actors who have a stake in the outcome or who are likely to be affected by water-related decisions, as well as their responsibilities, core motivations and interactions;
- b) Paying special attention to under-represented categories (youth, the poor, women, indigenous people, domestic users), newcomers (property developers, institutional investors) and other water-related stakeholders and institutions;
- c) Defining the line of decision-making and the expected use of stakeholders' inputs, and mitigating power imbalances and risks of consultation capture from over-represented or overly vocal categories, as well as between expert and non-expert voices;
- d) Encouraging capacity development of relevant stakeholders as well as accurate, timely and reliable information, as appropriate;
- e) Assessing the process and outcomes of stakeholder engagement to learn, adjust and improve accordingly, including the evaluation of costs and benefits of engagement processes;
- f) Promoting legal and institutional frameworks, organisational structures and responsible authorities that are conducive to stakeholder engagement, taking account of local circumstances, needs and capacities; and
- g) Customising the type and level of stakeholder engagement to the needs and keeping the process flexible to adapt to changing circumstances.

Figure 4.3. OECD Indicators for Principle 10



Source: OECD (2018a), *Implementing the OECD Principles on Water Governance: Indicator Framework and Evolving Practices*, OECD Studies on Water, OECD Publishing, Paris, <https://doi.org/10.1787/9789264292659-en>.

Table 4.2. OECD Flood Checklist for Principle 10

Checklist questions	
Policy framework	In your case study, who are the stakeholders involved in flood-related decision making?
	Which legal and institutional frameworks, organisational structures and responsible authorities conducive to stakeholder engagement are in place in your case study?
	Was a stakeholder mapping carried out to make sure that all those who have a stake in the outcome or who are likely to be affected are clearly identified, and their responsibilities, core motivations and interactions understood?
Institutions	Are the ultimate line of decision making, the objectives of stakeholder engagement and the expected use of input clearly defined?
	Which stakeholder engagement structures and/or mechanisms are in place in your case study, and at which stage of development?
	In your case study, at which scale are these efforts carried out?
Instruments	Are there mechanisms in place to engage with scientists in decision making?
	Which monitoring and evaluation mechanisms are in place to assess the process and outcomes of stakeholder engagement to learn, adjust and improve accordingly?
	Are stakeholder engagement mechanisms flexible to adapt to changing circumstances?
	Are there mechanisms or regular assessments of stakeholder engagement costs or obstacles at large?
	Is needed information for result-oriented stakeholder engagement shared?
Impacts	Do tailored communication strategies exist for relevant stakeholders, including the general public, regarding all aspects of flood management?
	In your case study, what are the main barriers to stakeholder engagement in flood management?

Note: The full Checklist, including options for responses, can be found in Annex A.

Source: Authors' own research.

Observations

Citizens are protagonists in flood governance, and it is essential that they be at the core of flood-management policies, but more can be done to encourage their participation. In England, local flood action groups have developed community flood emergency plans. Another example can be found in Belgium, where Vivaqua, the Belgian drinking water and sanitation service provider, has collaborated since 2013 with municipalities and citizens to develop a participatory flood-monitoring programme. This consists of carrying out “audits” of building conditions to take account of flood risks, and identifying practical measures to be taken to reduce the magnitude and frequency of floods. To date, a number of visits have taken place and successfully provided inhabitants with the information they requested for protecting their business against floods (OECD, 2015b). The case studies indicate that citizens and inhabitants of flood-prone areas are second to governments as the stakeholders most often involved in decision making on flood management. However, this observation should be qualified, as in several European countries (Netherlands, Belgium, Sweden, Poland, France and even England, which seems the most advanced in this respect) it was found that communicating risks to citizens is difficult and that citizens tend to adopt the attitude that “The government will take care of me” (Hegger et al., 2013). In the Netherlands and Poland, for example, citizens are strikingly uninformed about key water management functions, how they are performed and by whom, the regional water authorities they belong to and the basics of evacuation policy. Perception of water risks is equally low (KZGW 2012; OECD, 2014b). This can partly be explained by the fact that Dutch and Polish citizens are legally entitled to a certain degree of flood protection, either at the local or national level (CBOS, 2010). Similar attitudes were observed in England and Belgium, where flood management authorities only have permissive power, and citizens do not have an explicit constitutional right to flood protection.

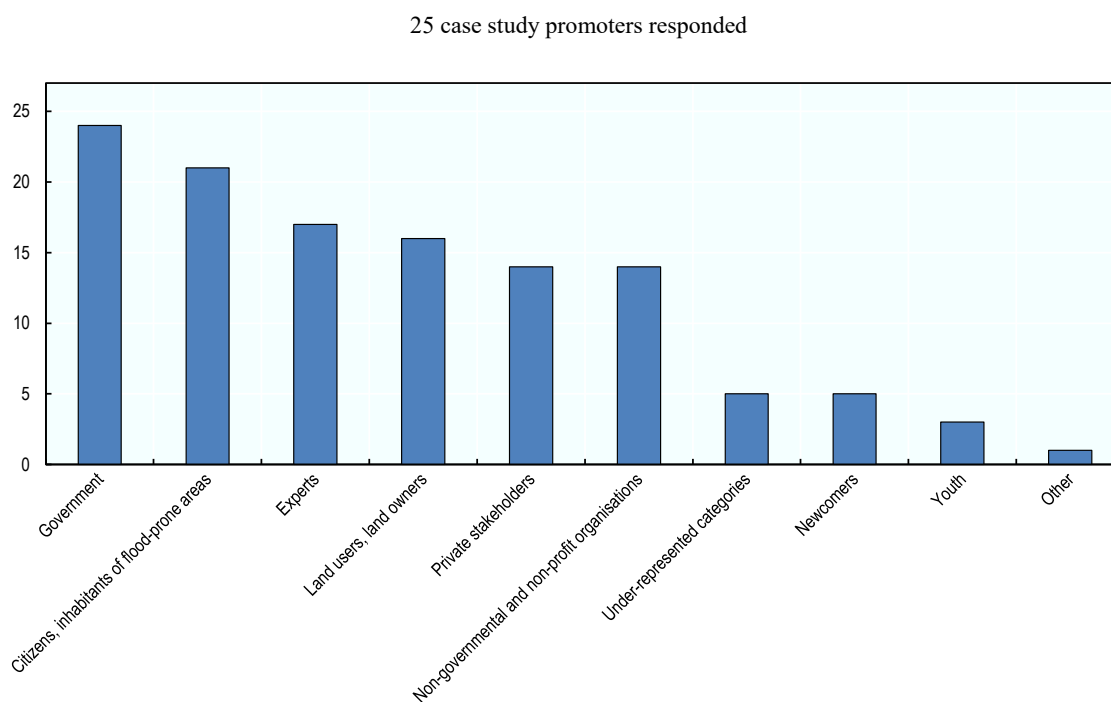
As risks of floods intensify, new players have gained interest and influence in flood governance. Property developers and landowners, amongst others, now play an important role, as spatial development generates long-term liabilities and financial implications in water management, such as compensation for the loss of nature values, green areas and water amenities. They can help seek out new sources of finance and to the development of non-technical solutions for managing floods. In Belgium, for instance, a new paradigm emerged in the 1990s that considers flood management as the shared concern of water managers and spatial planners, and which was institutionalised through the creation of a Co-ordination Committee on Integrated Water Policy in Flanders and the Interdepartmental Flood Group in Wallonia (Mees et al., 2016). In Italy, the Council of Ministers Presidential Decree of 28 May 2015 gave a legal and transparent framework to the allocation of functions and definition of procedures that have helped anticipate flood-related bottlenecks. Finally, the Kampen (Netherlands) experience, by engaging civil society, has helped bridge the capacity gap of the public administration to manage floods (OECD, 2018a).

Innovative stakeholder engagement mechanisms and tools for decision making are gaining traction in the water sector, thanks to technological advances and greater skill and openness in applying the tools for discussion. While “traditional” engagement tools that enhance collaboration across people, such as meetings/workshops, policy dialogues and river basin committees, are still largely used (as exemplified by the majority of case studies collected), new tools are emerging. Electronic participation (e-participation) can contribute to more responsive, cost-effective and inclusive flood governance. E-participation has been used to set up citizens’ observatories for flood management in the Netherlands and the United Kingdom, where it consisted in a variety of citizen groups (volunteers, elected citizens, citizen scientists and communities) and rested on a range of communication modes from

listening as a spectator to expressing and developing preferences on specific issues (Wehn et al., 2014). However, non-face-to-face communication may also have adverse negative impacts, such as biases or misunderstandings, which need to be taken into account.

Monitoring and evaluation mechanisms are increasingly being used to assess stakeholder engagement processes and their outcomes, to identify where weaknesses lie and improvement is needed. These include regular stakeholder meetings (as observed in 17 case studies), cost-benefit analysis (in 12 case studies), questionnaires and interviews. The case studies identify many other actors as key players in the making of flood-related decisions, including land users and landowners, experts/scientists and private actors such as water industries, water providers and insurance companies (Figure 4.4). In fact, in many instances, requirements for stakeholder engagement are part of flood-related projects (as observed in 18 case studies), organisational practices include multi-stakeholder forums (in 13 case studies), or river basin committees dealing with flood management include representatives of various stakeholders (11 cases).

Figure 4.4. Stakeholders involved in flood-related decision making



Note: Responses correspond to the number of case studies that ticked each possible answer in the Checklist. Respondents could tick more than one answer. “Under-represented” categories refer to youth, the poor, women, indigenous people, and domestic users; “newcomers” include property developers and institutional investors. *Source:* Data from case studies on flood governance collected for the OECD project (October 2016).

Areas to improve

- Stakeholder mapping is a useful instrument for assessing how effectively flood protection is being carried out. Diagnosing gaps and redundancies can help achieve synergies across policies and sectors, but adequate stakeholder engagement also means going beyond “who does what”. In other words, actors within and outside the flood domain need to be identified and engaged. For instance, residents can be

collaborative actors in flood mitigation and co-responders in flood response, particularly in rural areas. FRGAs should promote behavioural change and increased responsibilities among all stakeholders, including decision makers, youth, land users and landowners. Insurance systems can play a major role in this respect. There is a wide variety of approaches across countries to protecting households and businesses against the financial impacts of floods. In some countries, flood insurance arrangements have led to broad coverage of flood damage and losses although this is far from universal. Overall, a significant financial protection gap remains, which leaves households and businesses – and ultimately governments – exposed to substantial risk of financial losses (OECD, 2106b).

- In Germany, for instance, insurance companies, along with the German Flood Competence Centre, were involved in the development of a “Floodlabel” (*HochwasserPass*) for homes and buildings.² The Floodlabel system takes a long-term mitigation approach and aims to support and guide home and building owners worldwide in minimising the disruptive damage created by flooding. In a first step, Floodlabel helps the homeowner to detect the flood danger spots and weak points in and around the home. It then guides the homeowner in equipping the property for the best possible individual flood resilience, through achievable measures that are easy to apply.

Some players may dominate decision-making processes and/or “capture” the stakeholder engagement process. Hydraulic bureaucracies are a potential governance hazard for decision-making processes (Molle et al., 2009). In some countries, flood prevention and mitigation can be dominated by engineering firms, as they have the expertise to carry out flood studies, assess options and carry out cost-benefit analysis. This may result in unintended bias, given the skills required for these tasks. In some countries governments fund a variety of engineering options but do not fund mitigation measures, like elevating houses or relocation of properties at risk. Stricter building controls may be supported by one level of government but blocked by another. This suggests there is a need to secure the required financial and human resources at the appropriate levels to sustain the engagement process and avoid over-representation. Enabling co-decisions and co-production of policies will be crucial in allowing voices that typically are not heard to take more control and develop a sense of ownership over processes and outcomes.

In many cases, compensation is not an effective remedy for those asked to reduce the risk across the watershed while they experience increased flood risk in their property (Thieken et al., 2007). This is often rooted in bad measurement of the values and impacts of flood for different landowners and more broadly, stakeholders. For instance, neglecting behavioural components, such as the willingness to relocate, can result in different and confusing estimates of risks and impacts. Landowners’ diverging preferences and motivations for flood strategies reflect the heterogeneity of worldviews of the stakeholders involved. They might be motivated, for example, by a desire to maximise utility, by governance values or by a perceived responsibility for protection (Milman et al., 2017). Understanding motivations and interests is also fundamental for mapping all stakeholders who have a stake in the outcome or are likely to be affected, and thus for developing long-term strategies and plans.

Ways forward

Flood governance is not solely a government issue, since many other stakeholders play a role. Trust and public acceptance in policy choices governing flood management should rely on inclusiveness, bottom-up decision making and the capacity of policy makers to accommodate a broad range of often conflicting interests across the water chain and policy cycle. Governments now acknowledge that water policies, however well intentioned, require stakeholder engagement if they are to be implemented on the ground. This is also true for flood governance. The traditional role of governments as the single decision-making authority has in many instances been replaced by multi-level and polycentric governance. Furthermore, a critical test of trustworthy and legitimate flood management approaches is not just whether stakeholders are engaged, but whether they are also playing their part and have enough information to do so. Unbalanced power, interests and needs may be hard to align, and result in problems co-ordinating actions and strategies, since the interests of stakeholders are so different. The fragmentation of players with unclear and overlapping responsibilities can lead to a high degree of policy incoherence.

A critical step in moving forward is to address the awareness gap in flood protection, risks and costs. This involves increasing the awareness of risks to allow property owners, businesses and citizens to make informed choices, be better prepared and become more involved in flood management. Awareness can also mean informing local actors of what they are capable of doing and preparing for, to strengthen the resilience of a community. Awareness of the problem can also serve to increase the willingness to pay for services and the management of flood risks. Citizens often take them for granted and feel no responsibility for flood preparedness. Raising awareness can also help to increase the sense of responsibility, enabling local communities to play a greater role in planning and decision making, as well as in proposing alternative solutions. In addition to awareness-raising campaigns and public meetings as a two-way communication channel, risk maps on the Internet also help raise awareness, as do social media postings on Twitter (e.g. @epawater), Facebook, Instagram or YouTube, and such initiatives as the World Youth Parliament for Water network. The fact that many authorities do not have the capacity to guarantee preparedness is an entry point for public participation.

Participation of stakeholders throughout the policy cycle is deemed essential for informed and outcome-oriented FRMSs. Stakeholder engagement in flood management often relates to specific measures, like establishing flood-risk maps, but less to setting objectives and strategies. Even though evidence of the benefits of stakeholder engagement is becoming more robust, the time and resources needed to set up such engagement processes can be a deterrent. Discussions and trade-offs are needed to determine the objectives of the engagement process, the stakeholders to be engaged, the decisions to be made and the information to be collected, to strike a just balance between the resources available.

Principle 11: Trade-offs between users, places and generations

Box 4.3. OECD Principle 11: Sub-principles, Indicators and Flood Checklist

Principle 11. Encourage water governance frameworks that help manage trade-offs across water users, rural and urban areas, and generations, through:

- Promoting non-discriminatory participation in decision-making across people, especially vulnerable groups and people living in remote areas;
- Empowering local authorities and users to identify and address barriers to access quality water services and resources and promoting rural-urban co-operation including through greater partnership between water institutions and spatial planners;
- Promoting public debate on the risks and costs associated with too much, too little or too polluted water to raise awareness, build consensus on who pays for what, and contribute to better affordability and sustainability now and in the future; and
- Encouraging evidence-based assessment of the distributional consequences of water-related policies on citizens, water users and places to guide decision-making.

Figure 4.5. OECD Indicators for Principle 11



Source: OECD (2018a), *Implementing the OECD Principles on Water Governance: Indicator Framework and Evolving Practices*, OECD Studies on Water, OECD Publishing, Paris, <https://doi.org/10.1787/9789264292659-en>.

Table 4.3. OECD Flood Checklist for Principle 11

Checklist questions	
Policy framework	What are the main trade-offs linked to flood management in your case study? Are there formal provisions or legal frameworks encouraging equity across policies, rural and urban areas, and generations, etc.?
Institutions	Is there an Ombudsman or institution(s) (not necessarily water-specific) to protect vulnerable groups, mediating disputes and managing trade-offs when necessary?
Instruments	Which mechanisms are in place in your case study to ensure that the main trade-offs are addressed?
Impact	What are the distributional consequences of flood-risk management strategies on citizens and places in your case study?

Note: The full Checklist, including options for responses, can be found in Annex A.

Source: Authors' own research.

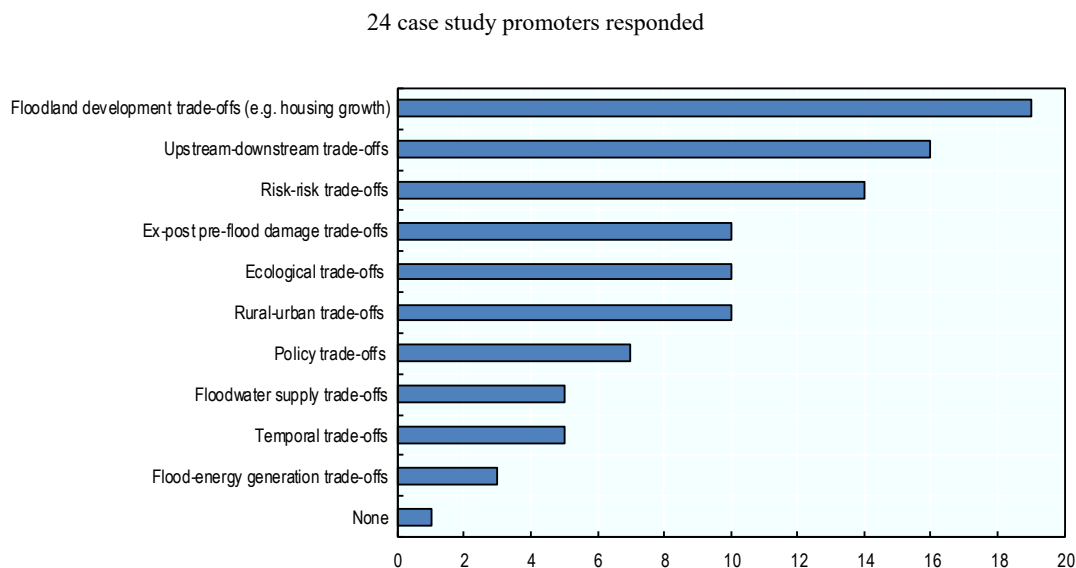
Observations

The governance of floods inherently generates trade-offs that need to be managed. A trade-off occurs when two opposing situations or qualities have to be balanced, which can sometimes result in accepting something bad in order to secure something good. The implementation of FRMSs at a certain time can imply that not all inhabitants of a country are equally protected against flood risks or that those who generate future liabilities do not always bear the related costs. Compromises and trade-offs are needed to correct imbalances in the distribution of flood-related costs and benefits, socially and geographically. The major trade-offs related to flood management are Figure 4.6

- *Upstream-downstream trade-offs:* the construction of dikes, drainage systems or floodplain enlargements in upstream areas can have both negative and positive downstream effects. In Austria for example, the area downstream from the Aist catchment is highly vulnerable, since it is shaped by varying conditions like economic and social development and administrative/political differences. The upstream municipalities tend to be economically weaker than the small towns downstream, where there is a larger industrial sector and thus more job opportunities (Seher et al., 2018). The opposite is also true, as retention areas that have been created upstream can have effects downstream.
- *Risk-risk trade-offs:* A risk-risk trade-off occurs when interventions to reduce one risk increase other risks. This may influence policy choices, such as in Turkey or Japan, where governments have to decide whether to prioritise water-related and seismic risks. It may also influence other water risks. For example, in many places, climate change generates droughts at some periods of the year and floods at others, requiring flood-drought trade-offs.
- *Ex-post – pre-flood damage trade-offs:* Floods can cause *ex-post* damage, but measures to prevent floods from happening can also cause losses and damages for small groups of people (in pre-flood damage), for example when houses are located on dike construction sites.
- *Ecological trade-offs:* Sea-level rise in coastal areas often means that a choice has to be made between managing retreat, in order to maintain the area of offshore mudflats, or protecting the existing onshore ecosystems. Retention measures have positive effects both on reducing flood hazard/risk and the environment (e.g. dike

shifting). Flood-risk management strategies therefore need to balance trade-offs and incorporate green intervention strategies.

- *Rural-urban trade-offs*: Flooding may generate greater damages in cities. Higher population densities and greater levels of stormwater runoff due to the increase in impermeable surfaces can affect greater numbers of people (OECD, 2013a). Areas that are more significant economically are often afforded greater levels of protection. The draft plan for the mitigation of hydrogeological risk in Italian metropolitan and urban areas, for instance, is intended to protect the large numbers of people exposed to floods. Both these aspects can result in imbalances between cities and rural areas. It is essential for FRGAs to ensure that rural areas are not only used as floodplains and forced to bear the costs of FRMSs designed to protect cities.
- *Policy trade-offs*: as highlighted in Principle 3, other policy areas regarding housing or transport, for instance, may have positive or negative impacts on flood management. Conflicting policies can be expressed in the form of an objective gap. Cross-sectoral co-ordination is required to find a balance between competing land uses.
- *Temporal trade-offs*: Decision-making tools that discount the future can be problematic, as they may lead to short-term solutions and quick fixes. Development planning often resorts to short-term solutions. In selecting structural solutions, decision makers do not necessarily look at the long-term impact, such as the degradation of ecosystem services, natural resource or environmental assets, and increased flood risk. Strengthening inter-generational linkages is one among other possible options for addressing temporal trade-offs. The Water and Waste Services Regulation Authority in Portugal (*Entidade Reguladora dos Serviços de Águas e Resíduos* or ENSAR) manages trade-offs across generations, with tariff policies and service provision practices defined by the regulator.

Figure 4.6. Main trade-offs linked to flood management

Note: Responses correspond to the number of case studies that ticked each possible answer in the Checklist. Respondents could tick more than one answer.

Source: Data from case studies on flood governance collected for the OECD project (October 2016).

Areas to improve

The trade-offs mentioned above indicate a number of multi-level governance gaps – e.g. in accountability, objectives, administrative issues and policy – which suggest several areas for improvement. First, due to the complex nature of the trade-offs involved in flood management, the relative benefits and costs of FRMSs are often controversial (OECD, 2013a). Second, compensation is generally monetary, and the effect on the ecosystem is not taken into account. Many benefits and costs do not necessarily have a market value, something that is particularly true in dealing with water-related disasters, which can lead to irreversible and disastrous outcomes. Third, different stakeholders may have different views on justice. This often conflicts with the egalitarian principle that requires that flood-risk management strategies should target the most vulnerable people. Is a higher risk acceptable in some locations to compensate for possible damages? And what if citizens can freely choose to live in a flood-prone area: should they be protected at the same level as people who choose to live in a naturally safer area? Decisions tend to be top-down; public administrations have a central role in the decision-making process, while local stakeholders are generally excluded. For instance, in Germany, the National Flood Protection Programme addresses upstream-downstream conflict by incorporating the principle of solidarity to finance measures in a catchment. The national government set up a fund to carry out flood protection measures and compensate costs between these parties (Thaler and Hartmann, 2016). To tackle these challenges, integrated FRMSs are required, to encourage the participation of multiple stakeholders. If they are properly involved in public debate and empowered to identify and address barriers to sound flood management measures and resources, stakeholders can modify their behaviour and discuss justice issues.

This situation calls for a thorough assessment of the distributional consequences of flood-related policies on citizens and places. Such consequences may require certain stakeholders to bear the costs of flood management rather than other actors (e.g. property developers).

They may also require upstream water users to bear the costs of infrastructure investments, or leave poor and marginalised populations increasingly vulnerable to floods. A FRMS implemented in one area should not burden another area with problems. In France, a win-win approach was adopted for the action programme for flood prevention of the Alsace-Moselle, in order to maximise benefits and outcomes. An equitable division of benefits and costs of flood governance approaches should be shared, while ensuring an acceptable and minimum safety level for all. The poorest people are often unable to afford insurance, or do not have the resources to recover their lifestyle and livelihood easily after a flood event. In the United Kingdom, many homeowners used to have great difficulty obtaining affordable insurance if their households were at high risk and/or had previously been flooded. To address this issue, the government has introduced Flood Re, a reinsurance scheme designed to keep premiums affordable, and funded by a levy on all insurance premiums. However, no help is provided for those who cannot afford insurance or to flood-proof their homes. Tackling such issues of injustice was one of the reasons for establishing the EU Floods Directive.

Ways forward

The trade-offs generated by flood governance must be better assessed and addressed through, for instance, public debate, stakeholder consultation, and cost-benefit or multi-criteria decision analyses. In Bulgaria, a participatory approach was adopted to resolve the complexity of trade-offs. The design of a drought and flood management strategy in the Upper Iskar Basin implied the involvement of a wide range of regional stakeholders, including government ministers, private companies, NGOs, local council members, national experts and local residents (Daniell et al., 2011). Inter-municipal co-operation in Austria is an example of effective flood alleviation and planning co-ordination across places (upstream and downstream) based on a catchment-wide approach. The case of Aist also shed light on the primary role of land-use planning, which is considered as a necessary formal instrument to ensure binding land use regulations that integrate flood management, as well as coherence across sectoral policies (Seher et al., 2018). Furthermore, the share of costs for flood protection measures could be improved by expanding the sources of funding to other parties, making possible more flood protection measures, bridging the financial gap and enhancing engagement of non-state actors and local authorities in flood management discussions. In England, approximately 25% of the projects are funded by other parties (Thaler et al., 2016).

Principle 12: Monitoring and evaluation

Box 4.4. OECD Principle 12: Sub-principles, Indicators and Flood Checklist

Principle 12. Promote regular monitoring and evaluation of water policy and governance where appropriate, share the results with the public and make adjustments when needed, through:

- a) Promoting dedicated institutions for monitoring and evaluation that are endowed with sufficient capacity, the appropriate degree of independence and resources and the necessary instruments;
- b) Developing reliable monitoring and reporting mechanisms to guide decision making effectively;
- c) Assessing to what extent water policy fulfils the intended outcomes and whether water governance frameworks are fit for purpose; and
- d) Encouraging timely and transparent sharing of the evaluation results and adapting strategies as new information becomes available.

Figure 4.7. OECD Indicators for Principle 12



Source: OECD (2018a), *Implementing the OECD Principles on Water Governance: Indicator Framework and Evolving Practices*, OECD Studies on Water, OECD Publishing, Paris. <https://doi.org/10.1787/9789264292659-en>.

Table 4.4. OECD Flood Checklist for Principle 12

	Checklist questions
	What, in respect to flood-risk management strategies and flood-risk governance arrangements, is monitored and evaluated?
Policy framework	Are there policy frameworks in place promoting regular monitoring and evaluation of flood policy and governance?
	Are there provisions or incentives for monitoring by civil society?
	Are the results of the monitoring and evaluation process shared with the wider public?
Institutions	Who monitors and evaluates flood-risk management strategies and flood-risk governance arrangements in your case study?
	Are there financial resources available to train civil society organisations in project monitoring?
	Which monitoring and reporting mechanisms effectively guiding decision making are in place in your case study?
Instruments	In your case study, do reviews of flood-risk management plans include: Are there agreed-upon performance indicators?
	In your case study, how are the monitoring and evaluation results shared?
Impacts	What are the main challenges to robust monitoring and evaluation in your case study?

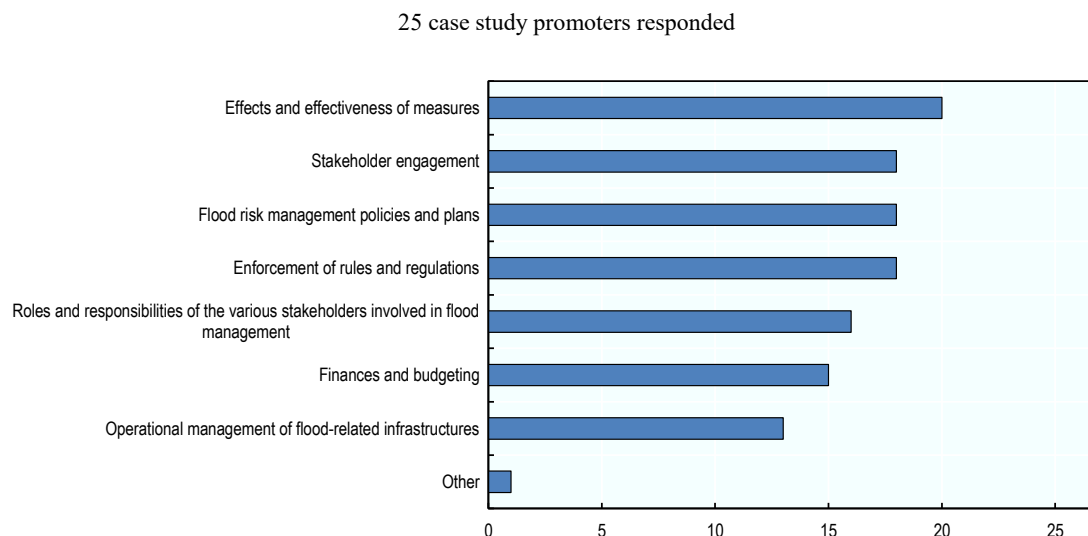
Note: The full Checklist, including options for responses, can be found in Annex A.

Source: Authors' own research.

Observations

Insights from case studies highlight that FRGAs' evaluation often includes checking the effects and effectiveness of flood-risk management measures (as in 20 case studies), the enforcement of rules and regulations, the implementation of flood-risk management policies and plans, and compliance with stakeholder engagement requirements (as seen in 18 cases (Figure 4.8).

Reviews of flood-risk management plans typically cover any changes or updates since the publication of the previous versions of the plans (as observed in 15 case studies collected); the assessment of the progress made towards the achievements of objectives (in 14 case studies); the description of any additional measures taken since the previous version of the plans (in 11 cases); and/or the rationale for any measures foreseen in earlier version of the plans which have not been implemented (in 10 cases).

Figure 4.8. What is monitored and evaluated in flood-risk management strategies

Note: Responses correspond to the number of case studies that ticked each possible answer in the Checklist. Respondents could tick more than one answer.

Source: Data from case studies on flood governance collected for the OECD project (October 2016).

Monitoring frameworks can also draw on indicators at different levels, such as the EU Floods Directive monitoring system (e.g. the Floods Directive Scoreboard, the EU Court of Justice ruling for non-compliance), national supervision (e.g. flood safety standards) or municipal assessments (e.g. on risks and costs of flood events in land-use planning). This raises questions as to how monitoring and evaluation results can be fed back into the flood-management process in an iterative manner and at appropriate intervals delays and formats. For example, in France, local strategies and action programmes on territories exposed to floods were approved in 2016, in accordance with their related Flood Risk Management Plans. However, these monitoring and approval processes can at times be hampered by time mismatches, and some local strategies cannot be included in Flood Risk Management Plans because they cannot be finalised by the time these plans are to be issued.

Monitoring and evaluation is a responsibility that must be shared between different authorities and stakeholders. Insights from the case studies show that river basin organisations, citizens, experts (e.g. scientists, knowledge institutes specialised in flood management) and private actors (e.g. auditing and consultancy firms) are involved alongside national authorities in monitoring and assessing FRMSs. Monitoring of how flood-management policies are being carried out can provide information for policy makers, investors and citizens regarding public investment and public spending. This holds true provided that the data collected is shared with all interested stakeholders, for instance through closed-door (e.g. within river basin organisations) or public meetings, ICTs or traditional media, as noted in the case studies. Such data can also inform the effects and effectiveness of implemented or planned measures on the reduction of risk (e.g. the geographical information system, or GIS-Tool of the ICPR in the case of the Rhine transboundary basin). In Poland, Belgium (Flanders), France³ and England for instance, the government is using cost-benefit analyses to increase the efficiency of flood governance approaches (Hegger et al., 2013).

Areas to improve

As flood-related policies or programmes may not work or new risks and information may arise, timely evaluation and analysis are needed to figure out whether a given FRMS is still fit for purpose. Assessing flood-risk governance arrangements includes evaluating their effectiveness, efficiency and inclusiveness. It also consists of reviewing flood management plans and accounting for the progress made towards the achievement of the stated objectives. Evaluation can provide useful insights into why some flood protection measures may be highly efficient in one basin, but not necessarily in another, or to understand why some comparisons over time are not always possible. In all, evaluation can provide the evidence base for guiding decision making and planning with tangible data and information, and for identifying which flood governance models are most cost-effective and replicable.

Indicators can help address information and accountability gaps. The OECD has recently launched an indicator framework that can be useful to assess the diversity of flood dimensions and serve as a self-assessment tool to track and measure them, although it must also be accompanied by other evaluations (OECD, 2018b). The goal of the framework is also to help identify flaws and to trigger action to bridge any of the seven governance gaps. For example, in Scotland, the difficulties encountered in processing and assessing data were rooted in a lack of adequate technical and human capacity. There is common agreement that many countries have fallen behind in developing data production and sharing. This is why the 2030 Agenda has prioritised regular, integrated monitoring, opening a window of opportunity to encourage action at all levels, to unlock funding and to use SDGs indicators to ensure accountability and transparency.

Ways forward

Consolidating the information base and the monitoring framework involves implementing the appropriate mechanisms to collect information and to consolidate key performance indicators agreed upon by all the stakeholders concerned. Such mechanisms include reviews of previous flood events or of flood-risk management plans, strategic meetings, or occasionally, online reporting platforms, as observed in the case studies. Since various stakeholders may have diverse values and frame the topic differently, monitoring and evaluation frameworks need to be adapted to them. For instance, simple indicators may be needed which can be used to consult non-specialists, like citizens, on FRMSs. On the other hand, indicators that are more detailed may be used when collaborating with academia and researchers on the monitoring and evaluation of FRMSs. Monitoring and evaluation need to be sufficiently generic to allow comparisons to be made across FRMSs, but they also need to adapt to the requirements, needs and resources of each specific case. It is a challenge to develop information about the effectiveness and efficiency of new FRMSs – e.g. spatial planning and awareness raising – and to be able to compare costs and benefits across strategies, measures and instruments.

Monitoring and assessment can be a milestone for effective governance across multiple scales, policies and authorities. They cut across all the OECD governance principles and can be distinguished according to what and when they measure: input, process, output, outcome, and impact (UNDP, 2013). Tracking performance indicators and sharing databases and information systems can be a useful means to co-ordinate vertically and horizontally. In transboundary contexts, as in China, India and Bangladesh, monitoring and sharing hydrological data of the river during monsoon season (even though collection is still limited and irregular) in the highly vulnerable Brahmaputra basin can be extremely

helpful for India and Bangladesh in planning and co-ordinating strategies and policies. Nonetheless, it has provoked a strong dependence that can only partially be resolved by countries building their own capacity to monitor hydrological data. The case of Eddleston in Scotland illustrates a mechanism that can encourage co-ordination across people, using adequate stakeholder engagement for effectively reporting and monitoring to guide decision making. Co-evaluation is also a powerful means of allowing for the participation of multiple sectors. Moreover, cost-benefit analyses should put strong emphasis on stakeholder engagement to make sure that the interests of all the actors, including those who are under-represented, are respected and that an adequate distribution of flood-related impacts, benefits and compensation across people, and places, is ensured. It is no longer possible to rely on monetary measures in this respect. It will be key for integrating ecosystem services and for considering how individual values can shape the perception of benefits.

Notes

¹ www.overstroomik.nl.

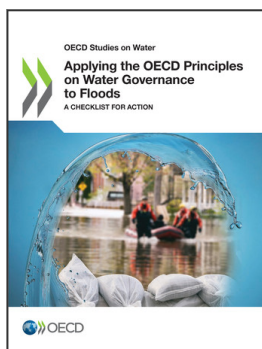
² For further information, see www.hochwasser-pass.de.

³ For more information, see: www.developpement-durable.gouv.fr/Analyse-multicriteres-des-projets.html; http://www.developpement-durable.gouv.fr/IMG/pdf/Annexes_techniques_V7_CC_ACB_PAPI-2.pdf; <http://www.eau-mer-fleuves.cerema.fr/cout-des-protections-contre-les-a1313.html>.

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From:

Applying the OECD Principles on Water Governance to Floods

A Checklist for Action

Access the complete publication at:

<https://doi.org/10.1787/d5098392-en>

Please cite this chapter as:

OECD (2019), “Trust and engagement in flood governance”, in *Applying the OECD Principles on Water Governance to Floods: A Checklist for Action*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/1c16371e-en>

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