

Chapter 9

Enabling multi-value approaches in water governance

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9.1 The increasing emphasis on bringing multiple perspectives into water governance

The 2030 Agenda for Sustainable Development emphasizes the integrated nature of development and the need to balance economic, social, and environmental considerations. This would require institutional reforms and innovative governance approaches that mitigate the trade-offs and maximize the synergies between the Sustainable Development Goals (SDGs) and their policy domains (Breuer et al., 2019; OECD, 2017c). There is an evolving understanding that a diverse set of values drives the economic and financial considerations in water-related decision-making (Schulz et al., 2018; Pahl-Wostl et al., 2020). Taking a much broader stance on values than what was advocated under the Dublin principles (ICWE, 1992); the High-Level Panel on Water (HLPW, 2018) encourages countries to “*Recognize and Embrace Water’s Multiple Values*” (the related Bellagio Principles are outlined in Box 1.6). Coupled with a recognition of water’s multiple values, there is also a call for more robust measurement and valuation methods to help resolve trade-offs (Garrick et al., 2017). This is broadly what this Chapter refers to as a transition to *multi-value approaches to water governance*.

The use of multi-value approaches to water governance entails acknowledging the role of values in driving key water resources management decisions as well as a call for active participation of a more diverse set of actors, thereby also incorporating a varied set of values into water governance. Incorporating the intrinsic or relational values of diverse groups to better inform and legitimize water and related land resources management decisions entails the direct participation of groups or interests that are often excluded from water-related decision-making. It may bring greater emphasis on ecological and environmental processes and refocus efforts on sharing water resource benefits – for present and future generations – rather than allocating water quantities for highest-value economic priorities.

9.2 Challenges in bringing multiple values to bear on water governance

This section points to a set of challenges in transitioning to a system of water governance that recognizes multiple values and the active participation of a varied set of actors. The first challenge relates to acknowledging that the governance of water is driven by a set of implicit or explicit values (Schulz et al., 2018). This entails recognizing that different interests and diverging perspectives inherent to the social, cultural, environmental, ecological and economic values integral to water drive diverse resource-related decisions. This does not only relate to ‘who is at the governance table,’ but also explicitly recognizes the worth of water to different groups in society. The second challenge relates to water valuation: the assessment or description of the value or worth of using water in different ways. However, water valuation is fraught not only with measurement issues, but also with a whole array of issues relating to what can – and should – be measured at all, and by whom. This then leads to the third challenge, which relates to the common disconnect between public decision-making processes and actions on the ground, including the risk of agendas being controlled by vested interests.

9.2.1 Bringing diverse voices and values into the discussion – The challenges of meaningful participation

The effective participation of a more diverse set of actors can greatly influence the outcome of water governance, including the generation and sharing of a greater set of benefits from the use of water. Despite the fact that participatory approaches are not new to the water sector (e.g. the Dublin Principles suggest “*full public consultation and involvement of users in the planning and implementation of water projects*” (ICWE, 1992, Principle 2)), the Agenda 2030 calls for renewed efforts to *inform* decision-making, and to *recognize and manage* trade-offs and potential conflicts between policy priorities in participatory and inclusive ways (OECD, 2016). In reality, individuals or groups from indigenous communities, women, and youth groups are often not included; not considered ‘relevant’, or for other reasons impeded from participating in relevant decision-making processes (Pahl-Wostl, 2020). Resolving the challenges of exclusion has been underscored in the HLPW *Outcome Document*, which calls for a transition with respect to the identification of, and roles for, ‘relevant’ stakeholders, including to “*identify and take into account the multiple and diverse values of water to different groups and interests in all decisions affecting water*” (HLPW, 2018, p. 17).

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Despite the best intentions to involve a diverse set of actors, it should be stressed that participation takes time. This time investment, which is a must for governance processes, might be incompatible with specific projects, policies, or national and local political timelines. Dialogue mechanisms need to already be established for any strategic 'co-governance' of a multiple values-based approach to water use and protection, if it is to go beyond donor-driven project lifecycles and actually enable longer-term 'governance' of projects and water uses, in specific locations and with specific stakeholders. On the other hand, projects are a means to finance development, and 'governance processes' may not provide the type of return that would motivate investment. Hence, participation – or governance for that matter – cannot be treated as a 'magic bullet' or quick solution. It does require both time and funding in order to take place.

Another obstacle for participation is that it must be continuously reinvented. Even though a successful consultation in one location can lend its 'approach' as a lesson learned to other locations, the potential training of stakeholders or facilitators, or the time needed for officials or managers to visit different sites and participate in processes, cannot be reduced, even if a certain approach has already been carried out successfully in other locations. Hence, there are few opportunities for economies of scale. In addition, participation – understood as 'co-ownership' or real influence – can challenge the status quo, in which vested interests can be important. There may be reasons to rush projects in ways to forgo discussion and full vetting of all parties, as participation might lead to projects not going ahead, even if the required financing is available.

Finally, it is important to mention that 'more' or 'better' participation with 'more actors' may still not resolve the complex array of challenges and competing interests inherent to water governance processes. Stakeholders with the best of intentions at moments can be deeply dissatisfied with the outcomes of multi-stakeholder processes to activate the necessary reforms, or when ideas proposed by vested interests may prevent lasting change. This implies that 'more participation' alone may not resolve the challenges described in this Chapter but must be embedded within a country's water policy, along with a wider basket of interventions that seek to strengthen multi-value governance processes in water resources management.

9.2.2 Balancing trade-offs when you cannot measure what you really treasure

Water valuation exercises have come to predominantly focus on quantifying a monetary value of water-related goods and services. Hellegers and Van Halsema (2019, p. 522) argue that *"as wider scopes and concerns on how water affects the well-being of society entered the fray of valorisation, it has become increasingly clear that decision-making should be more concerned with weighing [and reconciling] the trade-offs among the diverse values of water, rather than establishing one commensurate value. Valuation then should no longer be solely targeted at 'economic' value determination ..., but more towards offering a structured and transparent mechanism that supports a multi-stakeholder process"* to recognize, balance and address the trade-offs among diverse types of values. Water decision-making appears at the nexus of ethics, public policy, nature, values, beliefs and rationality (Priscoli, 2012).

Garrick et al. (2017) emphasize the importance of valuing water by going beyond what can be easily measured. Valuing water is difficult and contentious not only due to measurement issues but also because of what it represents: *"Disputes may arise regardless of the validity and precision of valuation methods, reflecting the inevitable trade-offs underlying water governance"* (p. 1004). The contribution of valuation or measurement for such inherent political deliberations can be seen to lie principally in how it can expose the diverse values attached to water, and the different ways such values may – or may not – be captured. This can also enable decision-makers to explicitly acknowledge which values are driving water governance decisions. This makes clear the need for multi-stakeholder participatory processes as an institutional strategy to support the recognition and inclusion of values and to activate governance mechanisms that manage water according to a broader set of values (e.g. representing social, cultural, economic and ecological values), which can facilitate inclusive and value-based water decision-making. As Hellegers and Van Halsema (2019, p. 521) point out, multi-stakeholder processes (as outlined in

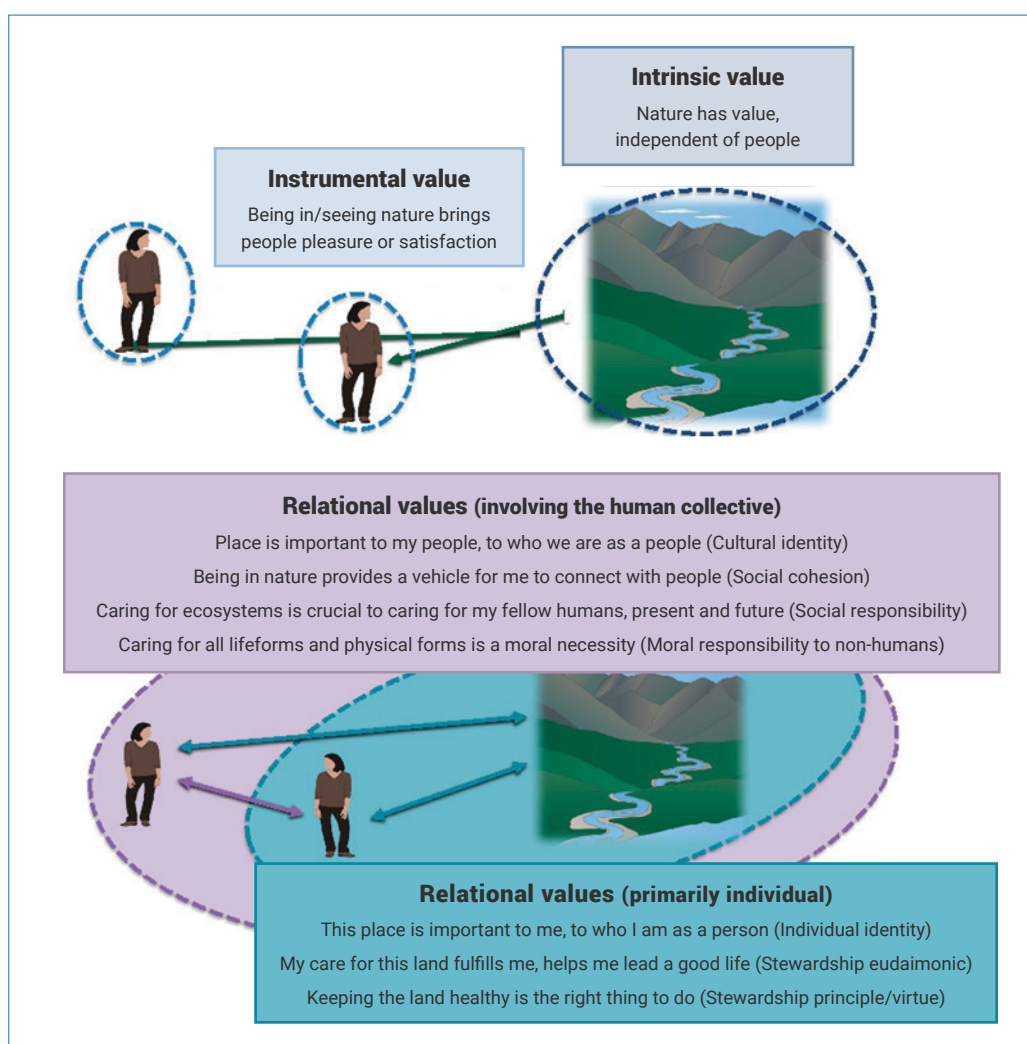
Section 9.3.1) can seek to include multiple values “to jointly reach a certain level of agreement on the management of water resources within the set priorities of [a country’s] development strategy”. However, beyond the relevance of multi-stakeholder processes, a key challenge is how to consider or measure diverse sets of values, often without a common denominator or metric (see Boxes 1.1 and 1.2, and Figure 1.3, where different types of ‘values’ are defined).

Different communities (professional and non-professional, indigenous and non-indigenous groups, etc.) have diverse knowledge and value systems. Moreover, different stakeholders relate differently to water bodies, nature, the environment, as well as to other groups in society.

Some sets of values are less tangible and notably difficult to quantify or translate into monetary terms – which is a common methodology for comparing different sets of values. For example, indigenous peoples’ worldviews and values related to the environment can go beyond instrumental or intrinsic values.⁴⁰ Figure 9.1 below captures this as ‘relational’ [or place-based] values in relation to nature. Such moral and emotional links to water challenge the worldviews embedded in most standard approaches to measurement and valuation of water resources management.

Figure 9.1

Illustrating instrumental, intrinsic and relational values with respect to nature



Source: Chan et al. (2016, fig. 1, p. 1462). The Attribution Share-Alike 3.0 IGO (CC BY-SA 3.0 IGO) licence does not apply to this figure.

⁴⁰ Instrumental values refer to a matter that is important/has value because of the service or utility it provides, e.g. a washbasin for convenient handwashing. For instance, art or music can be instrumentally valuable because their value is dependent on and derives from the responses they evoke. Intrinsic values, on the other hand, refer to a matter that is important/has value or is valued by others for its own sake, regardless of whether it provides services or utility. Handwashing may be intrinsically valuable if it makes a person feel good, regardless of being healthy or clean. It may even have an intrinsic value for moral reasons – being the right thing to do. Further, intrinsic and instrumental values are fundamental in moral theory as well as conservation biology (see e.g. Justus et al., 2009)

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Balancing the representation of instrumental economic growth priorities with relational and/or intrinsic values may reinvigorate the national and subnational political dynamics

Other examples of these deeper attachments and long-standing relationships expressed as values can be found through ethics of care or stewardship that contribute to human well-being (Bennett et al., 2018; Jax et al., 2018). There are several definitions of relational values, but most capture *“the importance attributed to meaningful relations and responsibilities between humans and between humans and nature”* (Arias-Arévalo et al., 2017). As observed in Chan et al. (2016), relational values are not present in things but derivative of relationships and responsibilities to them. The recognition and use of ‘relational values’ are important for fostering pluralistic approaches that help bridge differing worldviews in relation to water bodies (Parsons and Fisher, 2019).

Balancing the representation of instrumental economic growth priorities with relational and/or intrinsic values may reinvigorate the national and subnational political dynamics. In practice, this is very complex, as there is no ‘optimal’ water allocation strategy that encompasses all the multiple values associated with water, as different value systems intersect and overlap (Hellegers and Leflaive, 2015). Indeed, the essence of water governance is about resolving trade-offs and conflicts in ways that create the most possible benefits and synergies, as such methodologies for grappling with multiple values and uncertainty are maturing (LeRoy Poff et al., 2015; see also Section 9.3 on pathways below).

Beyond challenges related to measurement methodologies, as described above; the next challenge resides in the implementation of an open, inclusive and balanced process for decision-making, which is discussed in the next section.

9.2.3 From theory to practice: Navigating hidden agendas and vested interests

The third set of challenges involves some of the many obstacles in enabling and sustaining multi-value governance processes. If decision-makers fail to take people’s views into account – meaning to not only listen, but to actually reframe questions and answers – they have only wasted people’s time, and therefore the consultation loses credibility. In the worst case, consultation can turn into an unjust exercise that depoliticizes local development, or is ‘captured’ by economic or political elites (Cooke and Kothari, 2001; Gaynor, 2014; OECD, 2015b). An experience of India’s Swachh Bharat Mission highlights the need for robust consultation measures to include diverse groups and the potential hierarchies between them (Mukherjee, 2020).

The implementation process also risks running into problems of bureaucratic inertia. Disinterest, excessive regulation or rigid conformity to rules may compound with corruption. The Water Integrity Network (2016, p. 23) suggests that *“corruption and a lack of integrity threaten every area of life where power, money and prestige are at stake.”* Apart from derailing policy implementation, corruption also reinforces existing inequalities (Søreide, 2016) between broader groups in society, and the resources available to women and men (UNDP/ Huairou Commission, 2012). As suggested in the section below, transparency and the equal involvement of people of different gender identities and backgrounds may help break up networks of vested interests and hidden agendas.

As a result of these and other challenges, a multi-values driven governance approach does not only relate to water, but aims to engage with the whole social, cultural, economic and wider political system. Water governance needs to navigate explicit priority-setting at the political level along with the implicit prioritizations (values) carried out in practical policy implementation. This does not only involve public servants, but the whole society, including the private sector, civil society and other groups.

9.3 Pathways towards multi- value water governance processes

This section highlights some potential pathways for how nations can transition into multi-value governance. These pathways build on existing approaches such as Integrated Water Resources Management (IWRM). IWRM represents a plan-led, multi-scale catchment-based approach that integrates interests of diverse stakeholder groups operating at various political levels and policy sectors (Lubell and Edelenbos, 2013), which would be open or inclusive of any nexus or set of issues. IWRM is most often represented as cutting across water for people, food, nature, industry and other uses, and aims to encompass all social, economic and environmental considerations.⁴¹

The different pathways or approaches presented below aim to respond to many of the challenges highlighted in the previous section.

9.3.1 Strengthen multi-stakeholder processes that recognize and reconcile a comprehensive mix of values in water governance

The process of enabling a multi-value approach to water governance means recognizing that values ultimately drive water governance decisions, and actively incorporating a balance of cultural, spiritual, economic, environmental or social values into water resources management decisions within a specific policy context (Hellegers and Van Halsema, 2019). This may be achieved by activating decision-making processes that enable a wide array of stakeholders to express their values, with a view to reaching a certain level of agreement. Such processes can be considered to ‘co-create’ water management (see Hermans et al., 2006). Above all, strengthening [multi-stakeholder] water governance includes “giving ‘voice’ to communities that are historically underrepresented or ignored in decision-making processes” (Garrick et al. 2017, p. 1005). This section provides examples of where underrepresented groups or additional values are brought into water governance processes at different levels.

Since the early 2000s, there is a growing will and effort to make up for the historic exclusion of indigenous peoples’ interests in water and environmental management. This has led to the integration of perspectives and knowledge of indigenous peoples in water governance, most notably at the global level (IWGIA, 2019; Makey and Awatere, 2018). Incorporating the knowledge and beliefs of indigenous peoples into water governance implies foundational changes in the valuation of water, involving different cultural and social identities and institutions, separate from the mainstream or dominant society or culture (Awume et al., 2020). For instance, in New Zealand, the Integrated Kaipara Harbour Management Group connects Maori values alongside principles of ecosystem-based management. This involves values related to sustainable resource management (*kaitiakitanga*), respect (*manaakitanga*) and relationships (*whanaungatanga*) (Harmsworth et al., 2016). Box 9.1 illustrates another example of how governments are actively seeking to embed values of water from the perspective of indigenous communities into water governance processes.

In addition to indigenous communities, there are many groups whose voices are often not effectively incorporated into water management decisions. For instance, women usually provide most of the labour for securing household water needs but remain underrepresented in structures of formal water management (Thakar, 2019; World Bank, 2019). Efficiency gains can be realized by bringing women into water governance bodies at various levels (Mommen et al., 2017; Trivedi, 2018).⁴² A diversification of genders in governing bodies may also have knock-on effects like the opening-up of close-knit management communities and shine light on hidden agendas. Such additional transparency brought on by broader participation and mix among decision-makers can reduce corruption and mismanagement.

⁴¹ IWRM has been defined as “a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems” (GWP, 2000, p. 22).

⁴² This ‘efficiency argument’ speaks for the *instrumental* value of involving women more equally in water management. Yet, there is also an *intrinsic* value relating to the moral imperative of equal involvement or influence of women and men in decision-making.

Box 9.1 The National Water Initiative in Australia

In Australia, Commonwealth and State government agencies have aimed to move beyond a resource exploitation focus and towards acknowledging different values and interests in water governance. This is of importance to indigenous Australians whose interests in water were only formally recognized in 2004 with The National Water Initiative (National Water Commission, 2004; Bark et al., 2012).

The National Water Initiative directs all signatories to provide for indigenous access to water resources by: (i) ensuring inclusion of indigenous representation in water planning where possible; (ii) taking account of existing Native Title rights to water in the catchment area; (iii) allocating water to Native Title holders.¹ As long as the indigenous interests are 'non-consumptive' and 'non-commercial', they do not require a water allocation (see Maclean et al., 2014).

Indigenous Australians have developed governance activities to blend their knowledge with their contemporary conservation and land management knowledge and training, enabling them to engage in water planning and management on their traditional lands (Maclean et al., 2014). Further, partnerships between Aboriginal groups and social researchers to document their water values, knowledge and interests has been shown to have multiple benefits. First, these partnerships record valuable traditional ecological knowledge and related values. Second, they can also articulate indigenous interests in ways that make them accessible to scientists and planners, while most importantly, remaining true to the relevant worldview. Indigenous groups can use social research tools to directly communicate their water knowledge, values and interests to government agencies and to build the necessary relationships to maintain a meaningful dialogue.

Source: Based on Maclean et al. (2015, pp. 142–144).

¹ Native Title is "a right to access and take water for the purposes of satisfying personal, domestic, social, cultural, religious, spiritual or non commercial communal needs, including the observance of traditional laws and customs, including a right to teach the physical and spiritual attributes of places and areas of importance on or in the land and waters" (O'Donnell, 2011, p. 11; see also Jackson and Langton, 2012).

Next, mobilizing youth networks into water governance can be construed as a way of integrating future generations' rights into water governance. The vibrant youth movement 'Fridays for Future' has had a major influence on environmental policy through massive and consistent mobilizations, constituting a critical force for global change (Braw, 2019). Youth movements have also been engaged in the management of water scarcity in the Mediterranean (Pedrero et al., 2018). Such voices and perspectives greatly influence the values – and the time perspective – that are considered in water decision-making.

At the international level, the challenge is to bring states, international agencies, bodies of the United Nations (UN), civil society and academia together. The Global High-Level Panel on Water and Peace (2017) urges states to adhere to and implement International Water Law, and thus calls for wide accession by states to the 1997 Watercourses Convention and the 1992 Water Convention hosted by the United Nations Economic Commission for Europe (UNECE). The panel also recommends intensified work on supplemental instruments to these two United Nations global water conventions, including 'soft law instruments' such as guidelines and procedures that facilitate water cooperation. The Working Group on Integrated Water Resources Management promotes technical and political dialogues on water governance, e.g. with respect to water allocation, hydropower development and irrigation. Such work draws on the values and benefits outlined in Table 9.1.

Finally, the integration of human rights principles represents an attempt to broaden stakeholder processes, through yet another angle, towards more equitable water governance processes and outcomes. The human rights-based approach (HRBA) focuses on those who are the most marginalized, excluded or discriminated against, but not with an eye to the 'basic needs' of 'beneficiaries,' but rather to 'fulfil the rights' of people (UNFPA, n.d.). The human rights to water and sanitation do not only refer to the contents of universal and adequate access to water and sanitation, but also to the procedural right of influencing the ways in which these services are being provided.

Table 9.1
The benefits of
transboundary water
management

Benefit type	Related values	Description of benefits
Type 1: the benefits from improved water availability	Consumptive direct use values	Benefits arising from cooperation can address water scarcity issues and result in improved water security and efficient water allocation among sectors (supply augmentation – demand management)
Type 2: the benefits from improved water quality	All use values depending on water quality	Improved quality for outdoor recreation, avoided treatment costs, avoided sedimentation costs, avoided health risks
Type 3: the benefits from watershed or the quality of water ecosystems	Indirect use values, option values, non-use values	Improved biodiversity, improved flood control, improved storm protection, avoided or reduced costs of desertification, improved groundwater recharge, etc.
Type 4: the benefits from improved regional security and integration	Secondary benefits	Avoided or reduced costs resulting from conflicts, improved trade relations and regional integration

Source: OECD
(2015a, Table 3, p. 9), based on
Sadoff and Grey (2003).

9.3.2 Include benefit-sharing into water governance decisions

In water resources management, explicit benefit-sharing to enhance the productivity of shared water resources has been advocated as an alternative to water allocation by water volume (Sadoff and Grey, 2003; 2005). Sadoff and Grey (2003) argued that by refocusing from the sharing of *water* (quantities) to the sharing of *benefits* that may be derived from the use of water, a zero-sum game of water-sharing is being replaced by a positive-sum game. “[F]ocusing on the benefits derived from the use of water in a river basin, rather than the physical water itself, is another way to broaden the perspective of basin planners” (p. 396). Benefit-sharing yields far greater scope for mutually beneficial and sustainable arrangements among different stakeholders (Yu, 2008). The goods and services (benefits to which values may be attached) include hydropower, flood regulation, irrigated agriculture or improved navigation. Benefits may be non-economic, like improved environmental stewardship, regional integration or even political gains, and go well beyond monetary compensations. As highlighted in the previous section, Table 9.1, benefits also extend to regional integration, trade and reduced conflict. The case of the Senegal River basin (Box 9.2) offers insights into how benefit-sharing approaches have been tried on a transboundary scale in Africa.

Benefit-sharing can also enable enhanced poverty reduction. Yet, as discussed in the box above, in order to realize such gains, the mix of actors that benefit and those involved in determining the benefit-sharing is critical. As benefits can be measured through values, benefit-sharing is an example how to integrate a diverse set of values into water governance within and between nations.

Although most discussions on benefit-sharing relate to the transboundary scale (see Section 8.2.2), the original concept offers a framework to resolve the rising competition for water between urban and rural, domestic, industrial, and agricultural uses (Garrrick et al., 2019). Benefit-sharing may even be seen as an application of the systems perspective – going well beyond the water liquid itself – and the need to grapple with different interests, represented by the various benefits (and their values) accruing to different actors or stakeholders.

9.3.3 Focus on systems to go beyond narrow sectoral interventions

A systems-based approach to water involves multi-scale policy and planning to integrate water allocation incentives into wider sectoral processes of institutional reform and infrastructure development. This requires an understanding of behavioural responses, which can amplify or undermine such actions (Garrick et al., 2020b). Therefore, priorities for water governance and the appropriate level of management depend greatly on the scale at which the problem appears (Kjellén, 2018). Water governance processes may gain from 'breaking siloes' to address global, regional and/or local issues.

A systems approach that integrates multiple values across multiple scales into water governance calls for: (i) understanding the *interconnections* between hydrological, administrative, economic, political, social, and ecological/environmental systems and the underlying values embedded within these systems; (ii) identifying the *risks*, shocks or stressors faced by people and/or the ecosystem or production systems; (iii) developing *scenarios* or *models* to understand trends, responses, issues and impacts (involving actors from various sectors as described in Section 9.3.1); (iv) co-designing the type and mix of *actions* to be taken based on agreement among representatives of a diverse set of values; and (v) testing, learning

Box 9.2 Benefit-sharing and cost allocation in the Senegal River basin

The Senegal River, the second longest river in western Africa, flows through Guinea, Mali, Senegal and Mauritania to the Atlantic Ocean. Between the 1960s and the 1980s, the basin area suffered severe aridity, leading to famine and severe degradation of the natural resources base, enormous losses in agriculture and ecology, and problems of groundwater recession and saltwater intrusion. It was in this context, in 1972, that the Organisation pour la mise en valeur du fleuve Sénégal (OMVS), the Senegal River Basin Organization, was established comprising Mali, Mauritania, and Senegal. The OMVS hoped to a) promote food self-sufficiency in the basin, b) reduce economic vulnerability to climatic fluctuations and external factors, c) accelerate economic development, and d) secure and improve the incomes of basin populations through benefits-sharing and cooperation among the three riparian countries.

In order to govern and manage the Senegal River, a framework was needed to allocate benefits and costs in a way that would be satisfactory to all member states, so a methodology was developed to allocate joint costs across services (hydropower, navigation, and irrigation) and member states. In a traditional single-country multi-purpose investment, cost allocation is typically accomplished by comparing the benefits to the costs of the various project services. Multi-country approaches are far more complex as the benefits to be gained from the river differ from country to country. For Mali, gaining navigable access to the Atlantic Ocean and power production were of primary interest. For Mauritania and Senegal, developing irrigation and to a lesser degree power production (except for the cities) was of primary interest.

Thus, to estimate the hydropower, irrigation and navigation benefits derived from two reservoirs that were to be built on the Senegal river, a cost allocation was made based on the benefits that member states could gain from irrigation, power generation and shipping, allocating cost percentages for Mali, Mauritania and Senegal as 35.3%, 22.6% and 42.1%, respectively.

In the early 1970s, this was a unique and innovative approach for river basin projects. At that time, preparing a comprehensive environmental and social assessment for a major project was not common practice.

The experience of the OMVS stands out compared to other river basins around the world where the dialogue among riparian members is often entrenched in discussions over water allocations, instead of focusing on the benefits derived from diverse uses of the river among various members. This vision of benefit-sharing was integral to the discussions among the nations of Mali, Mauritania and Senegal, and helped to reaffirm that *"regional cooperation was an absolute necessity since all would benefit in ways that none could accomplish alone"*. The commitment among the three countries to these principles of benefits sharing was codified through the establishment of legal conventions and a remarkable degree of supra-national executive authority vested in the OMVS. Moreover, the greatest demonstration of solidarity on benefit-sharing is espoused in the early OMVS goals, which state that *"the benefits and aims for development would supersede political boundaries and be intended for all of society living in the Senegal River Basin"*.

Source: Adapted from Yu (2008, pp. 12–26).

Box 9.3 Nexus approaches

The conceptual framework articulated as Integrated Water Resources Management (IWRM) arguably pursues the integrated and coordinated management of water and land as a means of balancing different water uses, while meeting social and ecological needs and promoting economic development. However, by explicitly focusing on water, there is a risk of overfocus on water-related development goals, thereby reinforcing traditional sectoral approaches.

A common nexus approach to water considers the different dimensions of water, energy, food and the environment and recognizes the interdependencies of different resource uses to develop sustainably in order to strike a balance between the different goals, interests and needs of people and the environment. It explicitly addresses complex interactions and feedback between human and natural systems. Nexus interactions are about how resource systems are used and managed, describing interdependencies (depending on each other), constraints (imposing conditions or trade-offs) and synergies (mutually reinforcing or having shared benefits).

Going beyond many IWRM approaches, a nexus approach considers interactions taking place within the context of globally relevant drivers, such as demographic changes, urbanization, industrial development, agricultural modernization, international and regional trade, markets and prices, technological advancements, diversification and changes of diets, and climate change, as well as more context-specific drivers, like governance structures and processes, and cultural and societal beliefs and behaviours. These drivers often have a strong impact on the resource base, causing environmental degradation and resource scarcity, but they also affect and are affected by different social, economic and environmental goals and interests.

A recurring criticism of the nexus approach is that it adds relatively little to already existing integrated approaches to resources management such as IWRM, if IWRM is implemented properly and holistically.

Source: Adapted from FAO (2014c, pp. 6–9).

and *adapting*.⁴³ As pointed out by Garrick et al. (2019), periodic reviews should be built into the process to avoid crisis-driven responses. The importance of such analyses to take cognizance of systemic linkages of water decisions across sectors have been emphasized in the Dutch-supported Valuing Water Initiative (VWI), which builds coalitions to foster dialogue with diverse groups around trade-offs and competing interests in Colombia, Ethiopia, the Netherlands, Peru, and Zambia (VWI, 2020).⁴⁴

Although IWRM is seen as a 'systems approach' to water management designed to enable a sequenced, inclusive and institutional approach that responds to contextual realities in order to achieve water security (GWP 2009; Schenk et al., 2009; Villarroel Walker et al., 2012), in practice it has been criticized as 'too water-centric' in its approach to managing water resources (Giordano and Shah, 2014). IWRM has often not fully considered important social, economic and environmental linkages across other sectors of an economy (Hoff, 2011; Roidt and Avellán, 2019). For this reason, different 'nexus' approaches have emerged as complementary frameworks, aiming to more explicitly account for certain interdependencies and linkages beyond the water sector (see Box 9.3).

Among these complementary 'nexus' approaches one may include nexuses of 'water and health,' 'source-to-sea'/'ridge-to-reef', or for example, 'ecosystem-based approaches' (EBA). EBA and the greater consideration of ecological interdependencies have been brought forward along with the increasing recognition of the global crises of climate change and the crossing of 'planetary boundaries' (UNDP, 2020).

⁴³ Put differently, a systems approach that integrates multiple values into water governance may consider the following elements: a) define the boundaries of the system; b) stress the system; c) model the scenarios, d) co-design the approach, and; e) learn, test and adapt the approach.

⁴⁴ For more information on the VWI, see: www.government.nl/topics/water-management/valuing-water-initiative.

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In recent calls for enhancing climate resilience in water governance and management, it is suggested to systematically consider uncertainty and risk and build resilience into water-related decision-making

9.3.4 Integrating ecological and environmental values into climate-resilient water management

In recent calls for enhancing climate resilience in water governance and management, it is suggested to systematically consider uncertainty and risk, and to build resilience into water-related decision-making (Timboe et al., 2019). One of the major issues is to identify what values (and for whom) are associated with climate change (the risks and costs of diverse climatological shocks to societies, economies, as well as ecological health) and whether underrepresented ecological and environmental values can be better integrated into water governance to enable climate resilient water management.

The European Union (EU) has pioneered ways to embed ecological and environmental values into water management, as an EBA has been integrated into the EU's biodiversity strategy, the EU's 7th Environment Action Programme and the EU's Water Framework Directive (WFD). The WFD focuses on the ecological perspective, having as its main objective to attain a good ecological status of water resources (European Parliament/Council of the European Union, 2000). To achieve this objective, the EU supports the following: a) implementation mechanisms that focus on the assessment of water resources and of pressures, b) participatory processes, and cost-benefit considerations in support of watershed decision-making, c) the development of River Basin Management Plans (European Commission, 2019a; Grizzetti et al., 2016), and d), mapping, assessment and accounting of ecosystems and their services, both in biophysical and monetary terms (Maes et al., 2018).

Next, ecosystem frameworks may be a viable approach to identify and integrate ecosystem and environmental values into water governance (see Chapter 2). These policies are contributing to preserving and restoring Europe's natural capital by integrating ecosystems and their services into decision-making (European Commission, 2019b). Outside Europe, the use of ecosystem services-based approaches highlighting the multiple values of water-dependent ecosystems have gained momentum also in Costa Rica, Ecuador and Mexico (Engels et al., 2008).

More broadly, a climate-resilient water management approach would go beyond IWRM, as it would not only aim to manage natural resources by adapting to global climate-driven changes, but also ensure to go beyond 'business-as-usual'; include redundancy,⁴⁵ flexibility, and adaptability; and specifically aim to reduce the vulnerability of poor communities (James et al., 2018).

9.4 Conclusions

This chapter has highlighted both challenges and pathways for transitioning towards multi-value and multi-stakeholder water governance processes. Such governance approaches emphasize the multiple perspectives that need to be incorporated into decision-making processes, and not only for the sake of improving decisions and outcomes. The inclusion of multiple values and perspectives is also a moral imperative that provides legitimacy to decision-making and subsequent policy implementation.

Water management processes tend to include only a limited number of stakeholders, and to focus narrowly on exploitation of water resources to prioritize economic objectives. Such technocratic or narrow water management approaches have been critiqued on both social and environmental grounds. Water managers and decision-makers need to reach out beyond 'the water sector' not only to reach those sectors and industries that implicitly decide over land and

⁴⁵ "Redundancy refers to spare capacity purposely created within systems so that they can accommodate disruption, extreme pressures or surges in demand" (The Rockefeller Foundation/Arup, 2014, p. 5). It is achieved when multiple functions, elements or components provide the "same, similar, or backup functions" (Ahern, 2011, p. 342), providing resilience by way of "saving from failure."



The most important way to achieve the multi-value approach remains participation to allow new and underrepresented groups into the process

water use in the course of running their businesses, but also to include communities that have historically been excluded from natural resource governance and water management. This broadening of interests to incorporate multiple values into a decision-making process adds complexity to the formal process. It may also run into resistance from vested interests as conflicting demands or worldviews relating to how water and land should be used or protected are brought to the table.

Opportunities for overcoming these differences and attempts to find mutually supportive solutions to highly complex water management decisions include the active incorporation of a values lens into governance processes. The most important way to achieve the multi-value approach remains participation, as highlighted above, to allow new and underrepresented groups into the process. The HRBAs to development affirm the imperative of involving all concerned in an effective way. But beyond this, the way in which the issues are framed can make a great difference: foremost, by broadening the perspective from the water as such, and seeing resources as a means to achieve many other things. Such 'benefit-sharing' approaches can lead to a more rational and mutually beneficial sharing and use of water, as a means to higher-level goals.

Also, it is imperative that all stakeholders see and understand the interlinkages. The approaches and pathways discussed in this chapter all build on a systems perspective – including ecosystems-based, nexus and climate-resilient approaches to water management. Again, this may help stakeholders find new and mutually beneficial ways to cooperate on preserving or developing values even with a broader time horizon, i.e. longer-term sustainability.

While the chapter has provided a glimpse into the benefits associated with multi-value water governance approaches, there are also great challenges. Active transitions towards inclusive, multi-values approaches to water management that balance ecological, social, economic/financial and other key concerns (many of which are often underrepresented in major water-related decisions) also break with vested interests and the status quo. Even if decision-making can achieve an equitable and inclusive process, it is imperative that financing and policy implementation follow suit. Governments, the private sector and civil society can gain by engaging from a values perspective in future development projects and governance processes. By balancing environmental, social, cultural, economic and other priorities, and systematically integrating the interdependencies and trade-offs between goals and decisions, inclusive multi-value and multi-stakeholder approaches stand to improve water governance.