CONCEPT NOTE

Capacity Development for Water

The improved governance of water is critical to water security because of its crucial role in economic growth, social inclusion, and environmental sustainability.

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Acronyms

DAC	Development Assistance Committee
DfID	Department for International Development
ECDPM	European Centre for Development Policy Management
ECOSOC	United Nations Economic and Social Council
FAO	Food and Agriculture Organization
FCDO	Foreign, Commonwealth and Development Office
GEF	Global Environmental Fund
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GLAAS	Global Analysis and Assessment of Sanitation and Drinking Water
GTZ	German Technical Cooperation
GWEN	Global Water Education Network
HICD	Human and Institutional Capacity Development
IADB	Inter-American Development Bank
IPC	Infection prevention and control
ISO	International Organization for Standardization
JICA	Japan International Cooperation Agency
MOOC	Massive Open Online Courses
MSF	Multi-stakeholder forum
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental organization
NPSE	Nam Papa State-Owned Enterprise
OECD	Organization for Economic Co-operation and Development
SDG	Sustainable Development Goals
Sida	Swedish International Development Agency
SIWI	Stockholm International Water Institute
SNV	Stichting Nederlandse Vrijwilligers
UN	United Nations
UNDG	United Nations Development Group

UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Fund
UN-DESA	United Nations Department of Economic and Social Affairs
UN-IHE	IHE Delft Institute for Water Education
USAID	United States Agency for International Development
WASH	Water, sanitation and hygiene
WASH-BAT	WASH Bottleneck Analysis Tool
WBI	World Bank Institute
WHO	World Health Organization
WOP	Water Operators Partnerships
WWAP	World Water Assessment Programme

Foreword

Capacity development and education make a difference to development by increasing the efficiency and effectiveness of societies, organizations, and individuals. Assessing capacity development needs can help them to identify their strengths and weaknesses and develop strategies to improve their performance that ultimately will result in better water security by improving water resources management, water and sanitation services delivery, and water-related disaster risk reduction.

The improved governance of water is critical to water security because of its crucial role in economic growth, social inclusion, and environmental sustainability. Water security is seen as the reliable availability of an acceptable quantity and quality of water for health, livelihoods, and production, coupled with an acceptable level of water-related risks. Consequently, improved capacities to perform a range of water governance functions, such as regulation of services, allocation of water, financing, and coordination and cooperation across sectors and stakeholders will be even more critical to build social inclusion, economic development, and environmental resilience.

This report forms part of SIWI's work to offer a range of capacity development tools, services, and opportunities to low and middle-income countries around the world. It is also contributing to international agendas of accelerating SDG6 implementation, the Paris Climate Agreement, and the Sendai Framework on Disaster Risk reduction, through capacity development. The importance of capacity development for governance and improved water security was reaffirmed in the closing session of the UN Water Conference on 24 March 2023, by highlighting the Global Water Education Network to build capacity of institutions and people, especially to support developing countries, as a key game-changer. SIWI is a partner to this Global Water Education Network (GWEN), as a founding partner of the Capacity Development Alliance with UNESCO, IHE-Delft, and UNDP Cap-Net.

SIWI aims to strengthen water governance capacities among key water organizations by targeting key middle- and higher-level public and private sector water officials and decision-makers at international, national, and sub-national levels, including river basin organizations. It also leverages capacities from civil society, academia, media, and the private sector. A multi-stakeholder perspective and strong local ownership of capacity development strategies are critical, as effective policy implementation is about building trust and stakeholder coalitions for joint actions.

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1. What is capacity development?

The idea of "capacity building" began to develop in the 1970s in the United States of America, in reference to the need to improve the capacity of state and local governments to implement fiscal decentralization policies (Warner et al., 2017). It focused on improving the knowledge of individuals, and the exchange of knowledge between them. The concept shifted from the individual capacities to organizational capabilities in the 1980s and 1990s, and later incorporated the broader social environment (Bester, 2015). In the 1990s, capacity building was considered as a core element of aid and development agencies and understood as the most important output for development assistance (Venner, 2015; Zamfir, 2017).

In the water sector, the end of the International Drinking Water Supply and Sanitation Decade (1981–1990), acknowledged that the goals expected regarding improving access to water and sanitation services were not achieved. This failure was due to multiple reasons, including the focus on infrastructure, with very little attention to institutions, social behaviours, and environmental issues. It became clear that an integrated approach was needed to achieve sustainable results, shifting from the hardware to the software conception of the international agenda in the water sector (Mvulirwenande et al., 2017).

In 1991, the United Nations Development Programme (UNDP) and the then International Institute for Hydraulic and Environmental Engineering defined the concept of capacity building during the symposium 'A Strategy for Water Sector Capacity Building', as part of the development agenda. The symposium recognized the importance of the capacity building process for sustainable development at national, subregional, and local levels, consisting of three elements: a) an enabling environment with appropriate policy and legal frameworks; b) the institutional development, including community participation; and c) the human resources development and strengthening of managerial systems (IHE/UNDP, 1991; Alaerts et al., 1996). In 1993, the UNDP report on Rethinking Technical Cooperation – Reforms for Capacity Building in Africa (UNDP, 1993) analysed the models of supply-driven technical assistance and their limitations as an instrument for capacity building and emphasized the need to give more attention to non-personnel aspects of administration. Mvulirwenande et al. (2017) also highlighted the shifting focus from the promotion of reforms and funding activities with donor conditionalities to the promotion of governance.

Later, the term "capacity building" was increasingly replaced by the concept of "capacity development", as the development paradigm shifted to greater concern for local ownership, empowerment, and partnership in international interventions. In 2006, the Organization for Economic Co-operation and Development (OECD)

noted that "building" capacity implied a predefined design that overlooks existing local capacities, whereas "developing" is a process that "supports, facilitates, or catalyzes" capacities that already exist (OECD, 2006; Bester, 2015). Capacity development is believed to better express an approach that builds on existing skills and local knowledge, structures, and processes, driving a dynamic and flexible process of change, borne by local actors (Zamfir, 2017; UNDP, 2009b). Capacity development is understood as a long-term approach, which includes realistic and manageable activities to deal with complex scenarios (Alaerts et al., 2022).

In addition to activities focused on strengthening individual capacities and the development of human resources, there was increased attention on organizations and the importance of the broader social, economic, and political environment. The positive relationship between capacity development and knowledge sharing and knowledge transfer, resulting development of associated capabilities, has been also recognized (Lupton et al., 2017; Vlachos et al., 2019). However, many capacity development activities are still very much aimed at the individual level (e.g. training, refresher courses).

The consensus on the concept has evolved from narrow conceptualizations of capacity to an understanding that appreciates the systemic and multidimensional nature of capacity, focusing on the ability of human systems to perform, survive, and self-renew (Morgan, 2006; Lusthaus et al., 2002).

The concepts of capacity building and capacity development have been also part of several United Nations (UN) General Assembly resolutions, as an essential part of the operational activities of the UN at the country level, providing support to efforts to strengthen national capacities in the fields of, inter alia, policy and programme formulation, development management, planning, implementation, coordination, monitoring, and review (Bester, 2015). Furthermore, it is increasingly acknowledged that development cooperation projects are more likely to be successful in countries where there are internal reformers and when the need for countries to take care of their own development is emphasized, as stated in the Paris Declaration (2005), The Accra Agenda for Action (2008), and the Busan Partnership for Effective Development Cooperation (2011) (Mvulirwenande et al., 2017). Recently, capacity development has been seen as a key component of the implementation of Sustainable Development Goal (SDG) 6 (Ensure availability and sustainable management of water and sanitation for all), as highlighted in the SDG 6 Global Acceleration Framework as one of the key accelerators (UN-WATER, 2020), in the UN Water Conference held in New York in March 2023 (UN, 2023a), and the UNGA resolution in the follow-up of the UN 2023 Water Conference (UN, 2023b).

While originally often used synonymously with education and training, capacity development – along with the growing appreciation of the complexity of capacity

and its systemic nature – now entails a large toolkit of different types of interventions that aim to foster the knowledge base and the capacity of individuals and institutions by creating learning opportunities and assisting with the generation and acquisition of new knowledge (Wehn et al., 2013).

Capacity development may be understood differently by different individuals within an organization and even within the broad community of capacity development services providers. There are multiple perspectives and terminologies that may be employed when understanding and describing what the capacity of an organization is (USAID, 2022). Performance improvement and management, public sector and institutional reform, and change management are often used interchangeably with capacity development. Performance management is defined as a holistic approach to engage everyone in the organization in a collaborative and agile process, to improve staff members and their performance in line with the organization's objectives (UN, n.d). Change management is defined as the process of helping people understand the need for change, and to motivate them and build their capacities to take actions which result in sustained changes in behaviour (Hugues et al., 2017). In reference to public sector or institutional reform, it is the process to change institutions and the way they function – the underlying incentives and norms that shape behaviour in organizations and their capacities – rather than the formal organizational structures, rules, and processes. In 2006, The UN Economic and Social Council (ECOSOC) stated that public sector reform consists of deliberate changes to the structures and processes of public sector organizations with the objective of getting them to run better (Pollitt et al., 2000).

Considering the different definitions of capacity development (see Box 1), the most widely referenced for the water sector and development institutions can be described as the process through which individuals, organizations, and societies obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time (UNDP, 2008).

Box 1. Definitions of capacity development

Hilderbrand and Grindle	Improvements in the ability of public sector organizations, either singly or in cooperation with organizations, to perform appropriate tasks.
UNDP1	The process through which individuals, organizations, and societies obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time.
OECD DAC2	The process whereby people, organizations, and society as a whole unleash, strengthen, create, adapt, and maintain capacity over time. The ability of people, organizations, and society as a whole to manage their affairs successfully.
World Bank	A locally driven process of learning by leaders, coalitions, and other agents of change that brings about changes in socio-political, policy-related, and organizational factors to enhance local ownership for and the effectiveness and efficiency of efforts to achieve a development goal.
UNECA	The process through which individuals, groups, organizations, and societies deploy, adapt, strengthen, and maintain the capabilities to define, plan, and achieve their own development objectives on an inclusive, participatory, and sustainable basis.
USAID	Structured and integrated processes designed to identify root causes of performance gaps in host country partner institutions, address those gaps through a wide array of performance solutions in the context of all human performance factors, and enable cyclical processes of continuous performance improvement through the establishment of performance monitoring systems.

African Union	A process of enabling individuals, groups, organizations, institutions, and societies to sustainably define, articulate, engage, and actualize their vision or developmental goals building on their own resources and learning in the context of a pan-Africa paradigm.
GTZ	The process of strengthening the abilities or capacities of individuals, organizations and societies to make effective and efficient use of resources, in order to achieve their own goals on a sustainable basis.
JICA	The ongoing process of enhancing the problem-solving abilities of developing countries by taking into account all the factors at the individual, organizational, and societal levels.
SNV	Capacity is the ability of a human system to perform, sustain itself and self-renew.
UNICEF	Capacity development is about transformations that empower individuals, leaders, offices, divisions, and organizations. If an initiative does not lead to change that is generated, guided, and sustained by those whom it is meant to benefit, then it cannot be said to have enhanced capacity, even if it has served a valid organizational development purpose.

[1] WaterAid adopts the UNDP definition.

[2] The European Commission, Foreign, Commonwealth and Development Office (FCDO; formerly the Department for International Development (DfID)) European Centre for Development Policy Management (ECDPM) and Food and Agriculture Organization (FAO) adopt the OECD definition.

Source: Kacou et al. (2022), OECD (2011b), Rogers (2014), Ubels et al. (2010), UNDP (2009), UNDP (2008) and Zamfir (2017)

According to De Montalvo et al. (2013), during 2000–2010 an average of USD 3–5 billion annually have been dedicated by donor agencies to knowledge and capacity development activities in developing countries, as a) education, research, and innovation; b) the improvement of organization capabilities such as utilities, ministries, non-governmental organizations (NGOs) and community-based organizations, and, to a lesser degree, private sector organizations; c) working with communities and civil society, creating awareness and better governance; and d) sector-wide development (concerning, e.g. sector policies, legal frameworks, etc.).

Several initiatives have been developed since the 1990s to assess capacity needs of countries and institutions and to prepare strategies to strengthen those capacities. For example, in 1999 the Global Environmental Fund (GEF) Council and the UNDP approved a Capacity Building Initiative (GEF, 2003). In 2005, the United Nations Development Group (UNDG) established an Inter-Agency Task Team on Capacity Development to help redefine the role of UNDG members in capacity development and provide guidance in supporting national capacity development strategies (Bester, 2015). More recently, in 2021, the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the United Nations Department of Economic and Social Affairs (UN-DESA) have launched the UN-SDG6 Water Capacity Development Initiative, to respond to countries' specific capacity development needs by facilitating support from the United Nations system and other development partners at various levels of operation (UN-WATER, 2021).

2. Why is capacity development in water important?

Capacity development in the water sector – including the governance and management of water resources and water and sanitation services – has been an issue for decades, as explained above, and continues to be debated. According to the last UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) Report (2022), only one third of countries have more than 75 per cent of the human resources needed to carry out the key functions to deliver water, sanitation, and hygiene (WASH) services, and over 80 per cent of countries have an insufficient supply of trained professionals to meet the needs for management of on-site sanitation and small drinking water systems (WHO, 2022). It is estimated that only one in five water workers are women, according to research conducted by the World Bank (World Bank, 2019), and the proportion is even lower at managerial level.

Working with water management requires both technical and other skills; for example, it is also important to be able to understand and discuss social norms related to water and sanitation, manage participation for decision-making, provide spaces for accountability, negotiate and work with partners, and be able to continuously learn and adapt, in the face of climate change and other societal challenges. Furthermore, the skills needed depend on the type of job to be done, which will determine the type of strategy to follow in order to improve those skills. The Swedish International Development Agency (Sida), in its Manual for Capacity Development. Methods Document (Illes et al., 2005) represents this variety of skills in a "skills star", composed of learning skills, strategic skills, professional skills, functional skills, and relationship skills. Finally, individual skills do not automatically translate into better organizational performance. Knowledge integration and operationalization is a process that takes time but is often taken for granted (Mvulirwenande et al., 2013). Training does not have an impact until the knowledge or skills acquired by the trainees have been successfully applied to a specific work situation, which, in turn, results in a measurable improvement in performance (USAID, 2011). Further, new internal organizational processes need to be put in place to make these changes sustainable. Hence, a combination of capacity development support at individual, organizational, and sector level is required to improve outcomes, as discussed below.

3. Delivering on capacity development

3.1 Approaches to capacity development

The UN considers capacity development at three levels: individual (skills, motivation, experience, and knowledge that allow individuals to perform); organizational (internal structure, policies, and procedures that determine an organization's effectiveness); and the enabling environment (the broad social system that includes rules, laws, policies, and power relations). These three levels are interlinked, and the entry point for capacity development depends on the country context and the particular development issues to be addressed. Many other organizations adopt this understanding of levels, with some variations. For example, Sida has included five levels for which an analysis of capacity development needs should be made: a) environment/contextual factors; b) institutional frameworks; c) systems of organizations; d) organizations, units in an organization; and e) individual knowledge and professional skills (Illes et al., 2005).

The individual level refers to the skills, experience, competence, and knowledge that allow each person to perform. Some of these are acquired formally, through education and training, while others come informally, through doing and observing. The organization level is the capacity of organizations to carry out coordinated actions to deliver organizational goals (DfID, 2013), and the internal structure, policies, and procedures that determine an organization's effectiveness. The Foreign, Commonwealth and Development Office (FCDO; formerly DfID) emphasizes the *institutional environment,* within which individuals and organizations operate to deliver specific tasks and mandates and which may support or constrain the organization's ability to carry out its functions. Institutions are the formal and informal "rules of the games" whereas organizations are the "players" influenced by these rules. According to UNDP, the *enabling environment* is the broad social system within which people and organizations function. It includes all the rules, laws, policies, power relations, and social norms that govern civic engagement. It is the enabling environment that sets the overall scope for capacity development (UNDP, 2009b). Similarly, for FAO the dimension of enabling environment relates to political commitment and vision; policy, legal, and economic frameworks; national public sector budget allocations and processes; governance and power structures; incentives; and social norms (FAO, 2010). The different levels are not "disconnected" or siloed, but heavily influence each other and work as a system: output of individuals greatly relies on the quality of the organizations in which they work; the effectiveness of organizations and networks of organizations is influenced by the enabling environment; the environment is affected by organizations and the relationships between them.

Hagelstee et al. (2021) emphasized three requisite types of capacities: technical (the capacity to perform the required technical activities); processual (capacity to both drive the project and organization, commonly referred to as functional capacity, and to facilitate capacity development processes); and contextual (capacity to understand the local context and the existing capacities and needs). According to the authors, these three overall types of capacities interact and are interdependent.

The African Union/New Partnership for Africa's Development (NEPAD) states that effective capacity development deals with the performance of the "full" system. Furthermore, capacity is considered at four levels – individual, groups, institutions, and society – and includes two types of capacity – the tangible (monitoring and evaluation, policy development, human resources capacity, financial capacity, and the organization's structure and mandates) and the intangible (leadership, ability to learn and adapt, innovation, accountability, etc.). The soft capacities normally receive less attention, but contribute most to underperformance (NEPAD, 2012).

The ECDPM 5Cs framework (capability to adapt and self-renew, capability to relate to external stakeholders, capability to act and commit, capability to achieve coherence, and capability to deliver on development objectives) focuses on organizations and their softer elements (Morgan, 2006). The approach advocates that there are no blueprints for capacity development and that the process tends to be more complex, nuanced, and unpredictable than is often assumed. Organizations are viewed as complex adaptive systems that are influenced and respond to contextual factors at local, national, and global levels.

The frameworks used by USAID and WaterAid focus on the identification of capacity gaps. Human and Institutional Capacity Development (HICD) is a USAID model designed to identify fundamental causes of performance gaps in partner institutions, address those gaps through a wide array of performance solutions in the context of all human performance factors, and enable cyclical processes of continuous performance improvement through the establishment of performance monitoring systems. Through an analysis of organizational performance based on six performance factors (at individual level: knowledge and skills, capacity, and motives; at enabling environment level: information, resources and tools, and incentives), HICD identifies performance gaps and introduces performance solutions to close those gaps. Appropriate performance solutions are designed depending on which of the six performance factors are the fundamental causes of the performance gap.

In Water Aid's *How to Guide Capacity Assessment for Regulators in WASH* (WaterAid, 2021), an Excel-based tool is used to identify capacity gaps, the reasons why those gaps exist, and the potential opportunities to overcome those gaps. The guide includes a performance assessment and baseline study. It also includes a capacity needs assessment of the regulator or department responsible for regulation.

The tool is developed for regulators or those public authorities responsible for applying and enforcing standards, criteria, rules, or requirements. According to this tool, the assessment should be carried out at three levels (the broader enabling environment, organizational capacity and performance, and the staff's capacity) to allow the organization to identify knowledge or information gaps, as well as strengths and weaknesses in technical and functional skills, to deliver on its mandate.

World Bank's *Water Utility Turnaround Framework: A Guide for Improving Performance,* aimed at enhancing water utilities' performance, focuses on a) strengthening the operational efficiency of the utility; b) improving the governing environment; and c) improving access to funding for water and sanitation services (Soppe et al., 2018). The framework provides water utilities with guidance on improving performance. It recognizes that poor performance can originate from internal factors as well as dysfunctional political economies, and proposes a systematic, coordinated, and prioritized approach to improve operational and managerial capacity. The framework can be applied to any utility, regardless of its overall maturity and current performance level, and extent of dysfunction in its political economy equilibrium. The framework includes several tools to facilitate the process, including, for example, a performance table that asses the utility's performance in each element/area mapped to the following levels: 1 (elementary), 2 (basic), 3 (good), 4 (well-performing), and 5 (world-class). Its results are graphically represented showing the utility's performance level in the five elements related to its operations and management.

3.2 Key elements for successful capacity development

Over the years, several organizations have extracted lessons on capacity development based on their experience. Several frameworks designed by organizations such as UNDP, FAO, World Bank, OECD, Sida, and DfID also highlight success factors that must be considered in the implementation of an effective capacity development initiative. Some out of these factors are:

1. **Commitment and local ownership.** The WaterAid capacity assessment for regulators (WaterAid, 2021) states that a key precondition for successful capacity development is ownership: the commitment, sense of responsibility, and active involvement or engagement of the individuals and organizations in the pursuit of specific objectives. In capacity development processes, identification of local, national, and organizational champions to catalyse change is crucial (FAO, 2010). The Sida Manual for Capacity Development also highlights ownership as being of decisive importance for capacity to be sustained, considering the dimensions of owning ideas and strategies, the development process, resources, and the result of the development process (Illes, 2005).

2. **Need- and demand-driven**. A capacity analysis to understand the need and demand should be prioritized before designing a capacity development programme. Support for capacity development should be demand-driven and designed with an understanding of the context and needs for technical assistance, training and research, twinning arrangement, or others (DfID, 2013). Capacity development initiatives for good water governance should be owned and controlled locally (Hope, 2012). Undertaking targeted needs assessment is another critical factor in the success of capacity development efforts (FAO, 2010).

3. **Participatory process**. To understand the context and early identification of demand for capacity development, it is important to focus on active engagement and involvement of different stakeholders through a participatory approach (WaterAid, 2021; FAO, 2010), including the participation of the target groups and change agents, who will receive the capacity development intervention, and who should be committed to change. Building and sustaining good relations among stakeholders is a prerequisite for capacity development processes (ECDPM, 2011). For instance, improved technical and functional capacities of organizations would require focus on strategic management functions, structures, and relationships (FAO, 2010).

4. **Local knowledge**. Capacity needs to be developed using existing local knowledge, structures, and processes. The external role can facilitate and trigger learning, innovation, and knowledge only, but integrating local knowledge will

be essential for a sustained development (UNDP, 2009b). Otoo et al. (2009) highlights that capacity development is a locally driven process of learning by leaders, coalitions and other agents of change that brings about changes in socio-political, policy-related, and organizational factors to enhance local ownership for and the effectiveness and efficiency of efforts to achieve a development goal.

5. **Leadership**. Leaders are de facto change agents. Interventions supporting leadership create the space for change, foster acceptance of change, create the authority to pursue the change, and promote the development of capabilities to achieve the change (DfID, 2013). Leadership refers to both individual and group leadership (i.e. a government unit that takes the lead in pushing for public administration reform, or of large social movements that bring about change at the more systemic level) and both formal and informal leadership (UNDP, 2008). Domestic leadership is an important aspect of country-led change. Different leaders should be considered at different points in time, performing different functions. Not all (in fact, often many do not) have any formal authority over the relevant set of issues or problems (DfID, 2013).

6. **Innovation**. OECD refers to innovation capacity as the human, financial, and institutional resources and skills that can catalyse, implement, and advance cutting-edge, collaborative, long-term, and bottom-up problem solving (OECD, 2019). Innovation can increase the capacity to identify, develop, and apply new approaches. This means improving the capacity of existing public sector systems, and their governing mechanisms, rules, processes, norms, and other factors to foster innovation (Kaur et al., 2022); as well as promoting innovation in particular processes, such as data management, digitalization, human resource management, finance, policies, and planning.

7. **Learning and experience-sharing**. Successful approaches to capacity development include building knowledge networks, and dissemination of best practices and experiences. Learning from experience is necessary so that activities can be adapted accordingly (OECD, 2011b; Tropp, 2007). Along with sharing, the absorption of new knowledge is integrated into the organizational structure and processes, to ensure that knowledge and skills that have been transferred to a set of individuals become a norm in the organization and are not lost (FAO, n.d).

8. **Flexible and adaptable**. Linear methods of planning and implementing capacity interventions are often problematic, particularly in emergency and fragile settings. Adaptation to their complex and changing contexts may require the greater flexibility inherent in emergent or incremental approaches (OECD, 2011b). Capacity development should invest in the adaptive functions of an organization so that it can better meet unknown future challenges and opportunities. An organization's drive to achieve continuous improvement, by

adapting to new learning and a changing context, is an important factor in its success (USAID, 2022; Hagelsteen et al., 2021).

9. **Sustainability over speed.** Capacity development takes time and is normally at odds with the traditional project approach and related pressure to demonstrate progress to stakeholders and donors (UNDP, 2008). Adoption of medium- to long-term approaches is crucial to achieve sustainable outcomes (OECD, 2011b; FAO, 2010). It is critical to repeat the assessment process at regular intervals, as capacity development is a continuous process of assessing, analysing, developing, implementing, and evaluating (Hagelsteen et al., 2021; WaterAid, 2021).

10. **Sustainable partnerships.** Capacity development must be scaled up and structured with a longer-term perspective to support change and reform at policy and organizational levels building on iterative adaption (Alaerts et al., 2022). Long-term, sustainable partnerships are essential to support capacity development processes.

11. **Consider the context.** Capacity development processes depend on the socio-economic and political context of the countries where they take place. Thus, it is essential to continuously assess the specificities of needs and changes in a context to better tailor the support given (Carneiro et al., 2015). This is especially relevant in fragile contexts or countries with special characteristics in relation to water issues, such as small island developing states or landlocked countries.

3.3 Capacity development in fragile states

Fragile states can be defined in terms of capacity and political will (OECD, 2007). Weak governance from formal institutions, social and power divisions, and chronic humanitarian crisis, among other characteristics, can substantially impair their economic and social performance (UNDP, 2015; ILO, 2016). Fragile contexts have the furthest to go on capacity development; it will be especially challenging to accelerate progress in WASH service delivery. For example, achieving universal access to safely managed water services by 2030 will require a 23-fold increase in current rates of progress, against a global average of a 9-fold increase) (WHO/UNICEF, 2021). In this context, an in-depth analysis of the challenges in capacity development is key to its progress.

Capacity development in fragile and conflict-affected countries presents complex challenges and shares several similarities with interventions in countries where fragility is not a critical issue. Some of the similarities are the need to consider sustainability and reinforcement of endogenous capacity; a long time frame; change agents and champions, political will, and ownership; importance of adaptation of intervention templates; and a systems perspective to capture complexity and inter-connections. Differences lie in the pressure to restore services and security quickly; a short time frame; limited capacity to build on; often not simply rebuilding but creating new capacities; a small margin of error; and a 'hyper-politicized environment (Brinkerhoff, 2007).

In fragile situations the risk of doing harm to existing national capacity is considerable. In these contexts, there is a strong pressure to restore basic services quickly and ensure security, regain trust from the population, and avoid further crisis. At the same time, different groups within the population – ethnical, religious, political, occupational (e.g. farmers and herders) –might also feel marginalized if service provision does not benefit all, which can lead to unrest. Furthermore, there is typically a low presence of formal institutions throughout the territory and limited existing capacity to build on. Hence, there are multiple trade-offs for service delivery, summarized by Brinkerhoff (2010): state versus non-state service provision; services now versus institutional strengthening; immediate security versus long-term stability; technical quick fixes versus political realities; and reliance on external versus local actors. OECD highlights the importance of understanding the specific context in a country and developing a shared view between country partners and donors of the strategic response required in such context (Baser, 2011). The same trade-offs also apply for capacity development.

UNDP's Supporting capacity development in conflict and fragile contexts (UNDP, 2015) discusses the need for adaptive approaches in fragile contexts, suggesting: a) pursuing "light" and focused capacity assessment; b) balancing extraordinary needs with realistic agendas and sound prioritization; c) achieving sustainable results in knowledge sharing and skill development; d) effective exit strategies for incentive programmes (e.g. salary augmentation arrangements); and e) facilitating country ownership and long-term investment.

Work by SIWI and UNICEF (2020) on developing accountability in fragile states also emphasizes the need to understand the existing accountability framework, the political nature of service delivery in fragile contexts, and working proactively towards the re-establishment and strengthening of the national service delivery framework. In capacity development support, prevention is the most effective investment. Hence, it is crucial to ensure that the capacities for preparedness and emergency response are embedded in national development plans and priorities, supported by appropriate information systems.

Investing more in preparedness, conflict prevention, and building sector resilience, with a more long-term, risk-informed approach is required. For the actual response, the use of government financial systems should be a priority, as far as possible, as well as strengthening local capacities. However, this is often restricted by the pressure for quick results, limited availability of local partners, constraints for capacity development service providers to being actually able to work within controversial social and political contexts, and the reporting of use of funds through donor systems, among other factors.

4. Measuring capacity development results

Tools to evaluate capacity development have evolved over the years, moving from conventional results and logical frameworks (input-output-outcome-impact) to more complex methodologies. Previous research and logical frameworks have treated capacity development activities as causal linear relationships and have been criticized as an oversimplification of a much more complicated set of processes that include individuals, organizations, networks, and systems (Long, 2001). Conventional monitoring and evaluation systems have regularly failed to capture the impact of capacity development activities, preventing learning from the most effective interventions. New methodologies have been suggested to measure the results obtained (World Bank Institute, 2012).

The most recent concept of capacity development draws on systems thinking theory, where explicit inputs alone can never lead to outputs (as in a logical framework), and focuses on processes, patterns, and relationships that interact in complex ways (Mvulirwenanda et al., 2017).

Several organizations have developed evaluation frameworks to measure capacity development activities and programmes. The World Bank Institute (WBI) developed the Capacity Development and Results Framework, focused on empowering local agents to change, to provide a systematic approach and a set of tools for development practitioners to design a capacity development strategy to monitor and adaptively manage their interventions and to evaluate their results (World Bank Institute, 2012). The UNDP Measuring Capacity framework (UNDP, 2010) offers a common language to define and measure capacity development results and a common framework to capture them at two levels. The first level, reflected in outcomes, involves capacities that enable an institution to perform effectively and efficiently, repeat good performance over time, and manage change and shocks. The second level, reflected in outputs, includes drivers of capacity: institutional arrangements and incentives; strategic leadership; the knowledge and skills of human resources; and public interface or accountability mechanisms. The OECD has also published several evaluations and papers on how to measure capacity development, offering lessons learned and specific tools to operationalize capacity development activities and achieve effective results (OECD, 2006).

All the approaches suggest the need to view capacity development systematically and with consideration of the complexity of its evaluation, as focusing on separate components of capacity is unlikely to provide a sound basis for successful strategies and interventions. Sustaining capacity involves multiple factors, the linkages among these factors, and the boundaries that distinguish them. Country politics impact how capacity development is conceived and implemented, and the agendas of the actors involved (Brinkerhoff et al., 2010). This is particularly relevant in fragile country contexts, where constraints for capacity development service providers, and lack of support (and even resistance) from those political complex systems may be common.

Operations with a focus on capacity development need to define an adequate upfront assessment of capacity and incorporate ways to monitor and evaluate results in the short-, medium-, and long-term. Evaluation frameworks demand tailored strategies to suit particular geographic and sectoral considerations and should be flexible enough to consider political factors that might influence the preconditions to initiating capacity development efforts (Thomas, 2006). To evaluate this type of systemic relationship, participatory and inclusive approaches are generally used, valuing the "best fit" over the "best practice", as one size does not fit all (UNDP, 2009b; OECD, 2006).

The outcomes and impacts of capacity development efforts are long term, and very difficult to capture, as impacts mostly depend on changes of beneficiaries, organizations, and external factors (Gunawardana et al., 2013). A capacity development intervention may need different and flexible approaches to adapt to uncertainties, particularly in the medium- and long-term, considering that some of the results could be intangible and not measurable quantitatively.

5. SIWI's approach to capacity development in water

5.1 Framework

SIWI's framework of determinants of organizational performance accounts for the complexity of the water environment where organizations operate. Four interconnected levels are described: from individual employees to the organizations, how these relate to other organizations within the water sector, how the water sector sits within the wider institutional framework, and the context of the country where it operates (structural context). The framework is shown in Figure 1, including the levels of capacity and the different determinants at each level. Within each level, we describe the key determinants for organizational performance. The determinants, described in section 5.2, are mostly taken from a public sector organization perspective, which represents most water sector stakeholders globally, such as ministries, basin organizations, regulators, and public water companies.

The prioritization of potential activities and tools at one or more levels of intervention should consider, as discussed above, the context, existing capacities, and roles within the organizations; and should have, as much as possible, a long term and systemic approach. Hence, the approach and interventions will depend on the focus and will require different levels of effort, investment, and time to deliver results. Figure 2 highlights different types of activities in relation to the levels of the framework. Examples of practical application at different levels are described in Boxes 2–6.

Together, Figure 1 and Figure 2 outline SIWI's approach to capacity development in water.

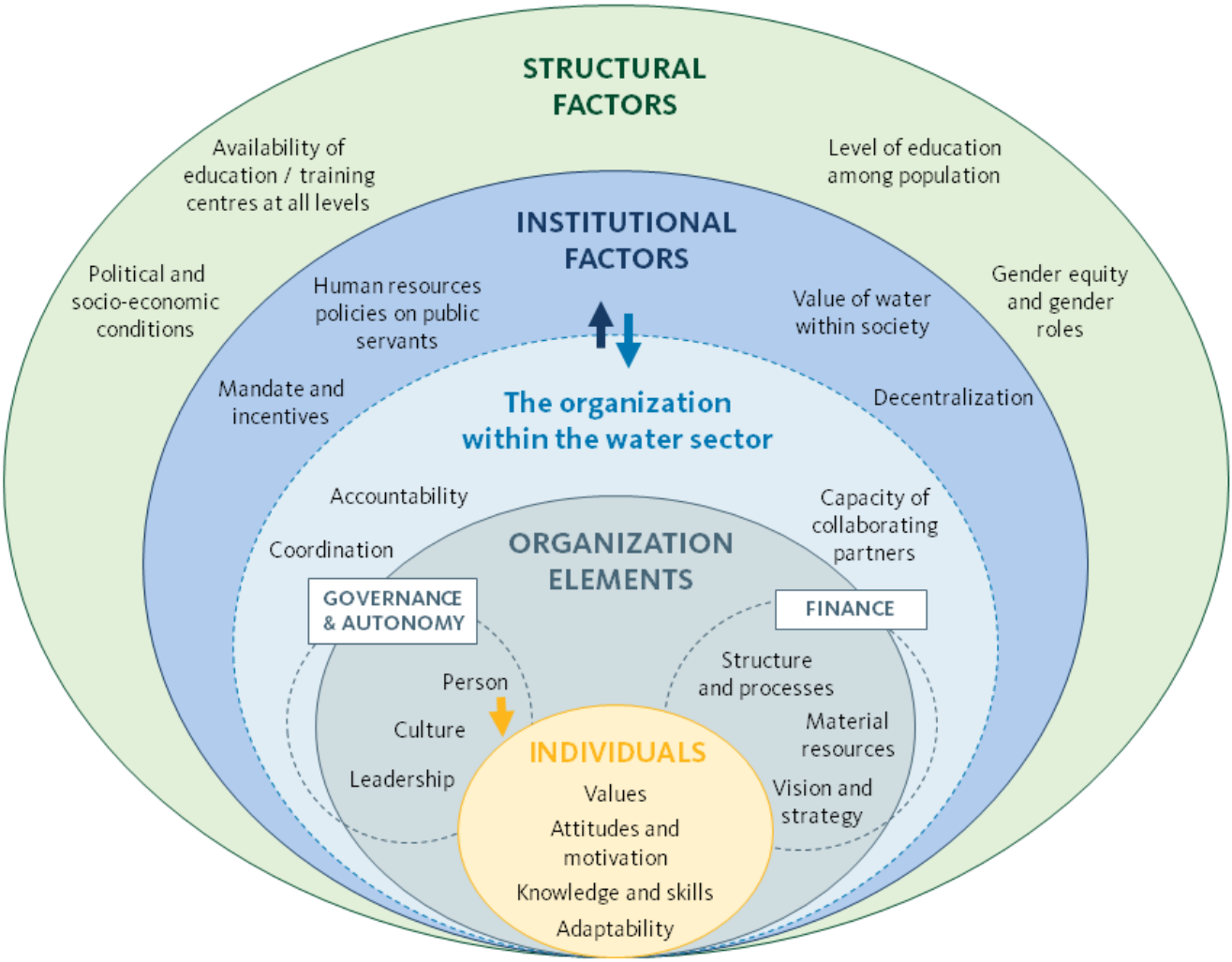
SIWI's approach also considers the capacity development principles that SIWI developed under the GO-WATER Programme[1]:

1. demand-driven approach and ownership of country partners;
2. alignment and coordination to sector priorities;
3. multi-stakeholder approach;
4. anchor in national conditions and capacities; and
5. peer-to-peer and applied learning.

These principles are aligned with the key elements for successful capacity development (see section 3.2).

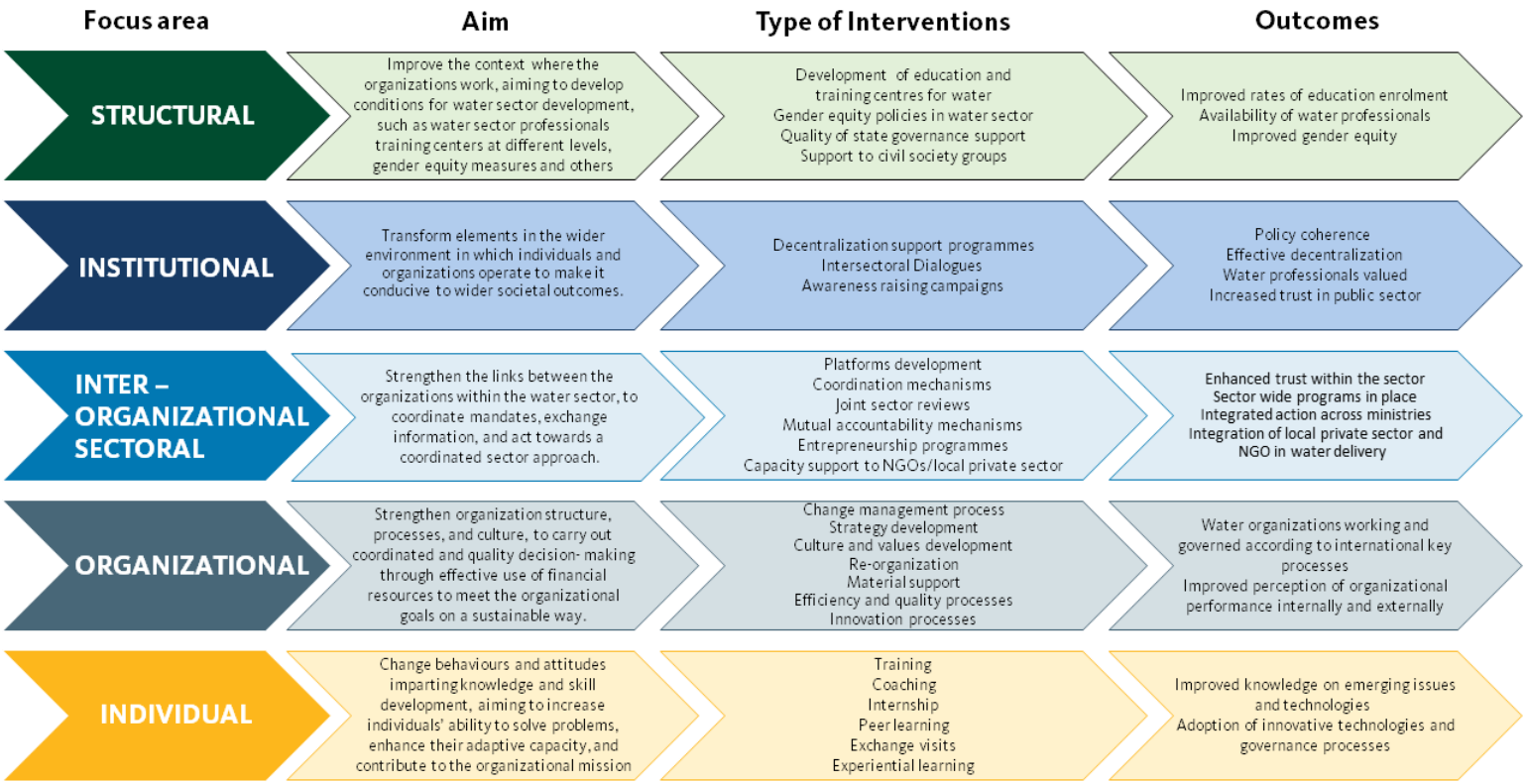
[1] The GO-WATER Programme, or Building Governance Capacity for Improved Water Security, financed by Sida and implemented between 2021 and 2023 (SIWI, 2021), aimed to reduce poverty and inequality by improving water security and resilience.

Figure 1. Interconnected levels of capacity development within the water sector



Source: Authors' own elaboration.

Figure 2. Aims and types of intervention, and potential outcomes for focus area



Source: Authors' own elaboration, based on Asian Development Bank (2014), DfID (2013), FAO (2010), OECD (2006), UNDP (2010), Wateraid (2021), World Bank Institute (2012).

Determinants of performance for the water sector

The various interconnected levels and the determinants for performance proposed in Figure 1 are the following:

INDIVIDUALS

Any organization is composed of a base of individuals. The performance of individuals within an organization is determined by the following:

- **Values.** Understood as the individual beliefs that motivate people to act one way or another and guide their behaviour. In particular, when values of the individual are aligned with the purpose of the organization they work for, a higher degree of commitment and motivation can be expected, and vice versa.
- **Attitude and motivation.** Attitude is understood as the overall relationship of the individual to their work. Within this determinant we include the willingness to collaborate, the openness to give and receive feedback, politeness, and friendliness in the interaction. A negative attitude will influence how the individual relates to others, the capacity to cooperate, and to work in teams. Attitude is also connected to motivation, understood as engagement at work. This is influenced by tangible measures, such as a competitive pay rate, an adequate work environment, human resources policies and conditions, and work-life balance, as well as by less tangible elements, such as the inspiration and appreciation that the person receives from colleagues and leaders, and having meaningful work, as well as the personal aspirations of the individual.
- **Knowledge and skills**. Under this determinant we include the understanding and capacity to apply the main concepts, theories, methodologies, and processes related to the domain of work (also named as professional skills); the ability to perform functional and managerial tasks (e.g. budgeting, planning, reporting, etc.), and the ability to establish and keep relationships both internally and with external partners (relational skills).
- **Adaptability**. Described as the ability and willingness to perform different tasks, the flexibility to take on unplanned tasks, and the capacity to change priorities in the short term. This also includes the ability to learn and apply new concepts and ideas. This determinant is particularly important in scenarios of unpredictability and shocks.

Box 2. Capacity development activities targeted at individuals

The activities that specifically target individuals are often focused on improving knowledge and skills, such as training courses providing new knowledge. These are sometimes complemented with activities that put the new knowledge into practice, including coaching and mentoring through a certain process or period. These also cover soft skills such as negotiation, or communication skills.

Often, exchange or twinning programmes are developed for more constant support (see Water Operators Partnerships, WOP), which can also cover organizational elements (UN-HABITAT, n.d). Exchange visits are performed with a dual purpose of learning, but also to foster motivation among the staff. Massive Open Online Courses (MOOC) have been a successful capacity development mechanism to improve the knowledge and skills of individuals (Mayfield, 2017). For example, SIWI together with the German Development Cooperation (GIZ) and UNDP – CapNet launched MOOCs on infection prevention and control (IPC) targeted to improve the capacity of school heads, teachers, and other school personnel to understand better about IPC in schools.

The courses focused on the relevance of IPC to school operations and the implementation of IPC measures, including improved safe water, sanitation, and hygiene for schools, to build resilience capacity to health crises such as the Covid-19 pandemic. The course was implemented in several countries, including Cambodia, Malawi, and the Philippines. In the Philippines, the only country where full data is available, over 55,000 teachers and school personnel have completed the course, with 79.3 per cent rating it as “Excellent”.

Another example is the free online course on “Water: Addressing the Global Water Crisis”, developed by SIWI with other water organizations and the United Nations SDG Academy (SDG Academy, 2023). It includes content on water and sanitation services, the role of ecosystems, the impact of climate change, the role of water for food and energy production, and cooperation on transboundary water. In just the first three days after its launch, more than 4,000 people had enrolled on the online course.

ORGANIZATION ELEMENTS

Like all organizations, water institutions and companies are made up of people. These organizations have a structure in place, where people interact in a certain way, through what are typically called the cultural dimensions of an organization. The determinants to consider in the performance of a public organization are:

Structural dimensions

Those that constitute the architecture of the organization, typically formally codified through different sets of written documents. These are:

- **Structure and processes.** An organizational structure is a system that outlines how staff is organized and activities are directed in order to achieve the goals of an organization. The structure determines how people are placed within the organization, their roles and responsibilities, as well as the information flows and the decision-making within the organization. A process is a series of actions that produce something or that lead to a particular result. The organization achieves its goals through a series of interrelated processes. The design and implementation of these processes are key for the efficiency of the organization. Key processes within an organization include strategic and management processes (planning, financial, budgeting, research and development, decision-making), operational processes (procurement, monitoring, evaluation and learning, customer services) and support processes (human resources, administration, communication, maintenance).
- **Vision and strategy**. The vision of an organization can be defined as a statement that shows the organization's aspirations for the future. It can also be understood as the purpose of the organization. It serves to guide and motivate all members of the organizations towards the same direction. A strategy provides a more detailed plan, typically with objectives and means, to advance towards the vision. A strategy aims to guide organizational activities and resources to meet the identified objectives.
- **Finance**. Refers to the available financial resources for the organization to use. It includes the volume of funds available, but also its predictability (stability over long term), and composition – whether it is dependent on a single source or diverse sources of funding, and how it can be diversified, if needed. This determinant sits partially outside the organization itself, as it the public organizations might be given budget limits or restrictions from other parts of the public administration.
- **Material resources.** By material resources we refer to the infrastructure, equipment, materials, and software that the organization can use to carry out their mission.

Cultural dimensions

These dimensions speak to how the organization works to deliver on their mission, including the daily communication, decision-making, participation, and interaction among its members. These elements require a higher degree of understanding of the organization to be transformed. These are also often called soft elements or org-ware (Garret et al., 2018).

- **Governance and autonomy.** The mechanisms set up to take strategic decisions and control the performance of the organization from outside are typically referred to as governance mechanisms. This also includes the level of autonomy or protection of the entity from pressures of other actors (SIWI/UNICEF/WHO/IADB, 2021). Within this determinant, we include the nomination of the top management and the accountability and control procedures for the organization. This determinant sits partially outside the organization itself, as it is typically decided by a different body within the public administration and might also include the legislative power.
- **Leadership**. Leadership is defined as the act of directing and managing a project, group of people, or an organization. At the highest level, leadership has been defined as consisting of three main elements:

  a) instilling a sense of purpose, creating a common vision and goal;

  b) aligning efforts and resources; and

  c) unleashing the motivation, talent, and creativity of individuals and organizations (Gunawardana et al., 2013).

  However, in modern organizations, leadership is not solely the responsibility of those who reside at the higher levels of the hierarchy. Rather, it is an activity in which anyone who is interested in the success of an organization can take part, also described as self-leadership. Champions are often mentioned as key determinants of change processes within the organizations, and do not always need to be at the highest level.
- **Culture**. Organizational culture includes an organization's expectations, experiences, and philosophy, as well as the values that guide members' behaviour. Culture is based on shared attitudes, beliefs, customs, and written and unwritten rules that have been developed over time and are considered valid. Within these, there are management and communication styles, teamwork procedures, degree of consultation, deliberation, and the organization's wider involvement in decision-making and quality control, among others.
- **Personnel.** People within the organization are the main performers of its activities. The knowledge, skills, attitudes, adaptability, motivation, and values are determinants of their performance, as explained above.

Box 3. Capacity development activities targeted at organizations

Capacity development activities are often labelled as change management processes (UNDG, 2018). They can be targeted at more structural dimensions, such as strategy development, re-structuring of the organization, redefinition of processes, efficiency improvement, or accreditation (e.g. International Organization for Standardization (ISO) programmes). For example, under UNDP-SIWI's Goal WASH programme, water utilities in Cambodia, Laos, and Vietnam were trained on the ISO standards related to social responsibility and quality management systems, along with water integrity trainings.

As a result of this process, the Nam Papa State-Owned Enterprise (NPSE) Attapeu water utility in southeastern Laos has been awarded an ISO certification for quality management systems, ISO 9001:2015 (UNDP-SIWI Water Governance Facility, 2017). The World Bank's Water Utility Turnaround Framework is another approach targeted to enhance capacity development at organizational level.

Through its implementations, water utilities were able to take high-leverage actions taken during their turnaround, such as improved metering, comprehensive management information systems, expanding supply capacity, and increasing sewerage coverage and wastewater treatment capacity, among others (Soppe et al., 2018).

Capacity development at this level can also cover cultural dimensions, such as leadership development, definition of internal values and cultures, improvement or internal cohesion, and communication. They typically require commitment at the highest level of the organization, and a continued process over time (probably not less than a year). Approval of certain changes at the organizational level of public organizations might need the endorsement of relevant ministries or even legislative power.

INSTITUTIONAL FACTORS

Organizations operate within a network of stakeholders: citizens, partners, civil society, and other institutions. In this regard, we distinguish two sublevels: first, the organization within the water sector – meaning the group of stakeholders that are part of or are affected by the ultimate mandate of the organization (e.g. delivery of water and sanitation services); second, at a higher level, the water sector sits within a wider institutional framework. The determinants on each level are described below:

The organization within the water sector

- **Coordination (formal and informal). Coordination** is understood as the set of mechanisms, instruments, and platforms that ensure multilevel, multisectoral, and multi-stakeholder cooperation among actors. Coordination requires information sharing, dialogue and collaborative decision-making; it consists of a set of formal and informal mechanisms (Jiménez et al 2020). The degree of coordination among institutions that operate in the same "sector" (e.g. organizations dealing with water issues), can vary greatly. At the extreme, when organizations do not speak to each other but work on similar issues, overlapping and duplication of activities might occur- which hinder effectiveness of each of the organizations involved.
- **Capacity of collaborating partners**. Any organization needs others to fulfil their mandate; research studies, supplies, technical assistance by experts, introduction of new processes might be needed. Hence the capacity of other stakeholders within the water sector, such as other governmental departments, local private sector, academia, and others affects the ability of an organization to perform its duties.
- **Accountability**. Accountability refers to the principle whereby elected officials and those that have a responsibility account for their actions and answer to those they serve. It includes the dimensions or responsibility, answerability, and enforcement (UNDP-SIWI Water Governance Facility and UNICEF, 2015). At the organization level, it refers to how the organization presents and justifies their decisions and performance to others, and the mechanisms in place allowing stakeholders to demand information or redress, correct any misconduct, or reward performance. From a capacity development perspective, in the WASH area the focus is on the interface between public service providers and their clients, or service providers and oversight bodies. More specifically, accountability is about the willingness and abilities of public institutions to put in place systems and mechanisms to engage citizen groups, and capture and utilize their feedback, as well as the capacities of the latter to make use of such platforms. In the water resources management arena, accountability aims to create trust between organizations deciding on and implementing a common socio-economic and environmental development roadmap.

Box 4. Capacity development activities targeted at improving connection within the water sector

These activities are often focused on the development of different formal and coordination mechanisms. Within the formal sphere, these would include inter-ministerial coordination mechanisms, sector-wide approaches, joint sector reviews, or donor coordination groups. With a higher degree of informality, there are platforms and networks combining government, non-government, donors, and other stakeholders. Ethiopia's One WASH National Programme's components on programme management and capacity development focused on creating a learning ground through sector coordination forums, conducting joint technical reviews, and undertaking research, studies, and surveys, all contributing to a better way to achieving results.

A multi-stakeholder forum (MSF) was established to increase the awareness and understanding of the development partners and stakeholders by reviewing the sector development and achievements. The MSF improved coordination towards achieving a common goal between water resources and WASH stakeholders (UNICEF, 2018). In Suriname, after a capacity development workshop implemented by SIWI and UNICEF using the WASH Bottleneck Analysis Tool (WASH-BAT), stakeholders were able to identify the existing intersectoral coordination gaps and to develop actions to establish a multi-stakeholder coordination platform for the water sector.

The core objective of the platform was to work cooperatively to improve the health and prosperity of the population of Suriname through ensuring the availability and sustainable management of water and sanitation services: to improve planning and policy development through information exchange between relevant, synchronizing policies and action plans, and joint monitoring of developments, identification, and possible threats to water resources.

The organization within the wider institutional set-up

- **Mandates and incentives.** Mandates entail the definition of roles of the different institutions in the public sector to perform certain actions. Lack of clarity and overlapping mandates often hinder the performance of public institutions, as these can lead to competition, mistrust, and fragmented information collection, among others. Often overlapping can also occur among different levels of government (local, regional, national). Incentives are external elements that encourage a person or organization to act in a certain way. Important organizational incentives to continuously develop are incentives to

cooperate openly with others, to innovate, and to increase efficiency; however, many public organizations might not be incentivized for this. Sometimes, narrow mandates and control mechanisms focused on the processes rather than on the performance hinder these incentives.

- **National human resource policy on public servants.** This entails the aspects of staff recruitment, remuneration, promotion, and development within the public service. This might affect the performance either positively or negatively. For example, where education levels do not match the requirements of the post, or the remuneration is too low compared to the private sector, the public organizations might struggle to retain talented and motivated staff.
- **The value of water (and its professionals) within society.** This determines the willingness of individuals to join their professional career. The value of the sector and its professionals within society is part of social norms that evolve over time. A society that values water will also value the professionals that deal with it. As an example, well-respected professions worldwide today include medical doctors and scientists (Smith et al., 2021)
- **Decentralization.** The degree of devolution of responsibilities at different levels of government has an influence on the mandates and roles of organizations. Often, roles are transferred but are not matched with sufficient human and organizational capacities, at least in the short term. In addition, different service delivery models will require different capacities. Sometimes new models are decided (e.g. private sector participation), but the shift of capacities needed from the public sector (from management to regulation) is not put in place.

Box 5. Capacity development activities targeted at improving the wider enabling environment

Capacity development activities are often focused on the wider government reforms beyond the water sector, as well as social norms change. Within the wider sector reforms, support to decentralization, public finance management and fiscal policies, or state modernization can be mentioned. These programmes are often long term (10 years or more), and are implemented through ministries such as finance, local government, or planning.

Jensen (2019), highlighting the case of water sector policy reform in Manila, in the Philippines, and Malaysia, states that along with developing operational efficiency it is equally important to address the wider factors that influence policy design and implementation, such as the political capacity gaps. Other examples include the Uganda National Water and Sewerage Corporation (Mugisha et al., 2007); and legislative, institutional,

and managerial reforms that were aimed at creating good enabling environments to drive performance of water supply and sewerage services (WSS) operations in Kampala, Nairobi, and Dar es Salaam (Mugisha & Brown, 2010).

Changing social norms around the value of water and water professionals in society requires a combination of sustained awareness campaigns, media, and religious influence, and profiling the importance of good water management for society. For instance, enhancing irrigation water management in Australia through social learning and deliberative dialogue platforms between farmers, water managers, and policy-makers (Nikkels et al., 2019). In Indonesia, a 20-year long capacity development programme for irrigation sector reform contributed towards developing the institutional capacity of both the local governments and farmers. The process led to increased political and budgetary power in local governments and society, making them also accountable for service delivery (Alaerts, 2020).

STRUCTURAL FACTORS

The organizations sit in a wider context, which we call structural factors. For a public organization, there are elements that affect its performance:

- **Level of primary, secondary, and tertiary education among population.** A lower level of general education in the country will increase the demand for individuals with higher education; this can make it difficult to recruit and retain for a public institution, as international private companies might be in better position to attract them.
- **Political and socio-economic conditions.** For example, low living standards, limited connectivity, remoteness, lack of access to good quality basic services such as health or education, or security issues hinder the willingness of qualified staff to move to remote areas. Similarly, security aspects, excessive prices, and limited housing options in some cities might not be attractive for professionals. These aspects will influence the capacity of an organization to deploy staff in certain areas, and thus, its performance.
- **Availability of higher education/training centres.** Sometimes, insufficient higher education and training centres mean that qualified staff need to be trained abroad, or be brought from other countries, with the associated costs and challenges to retain staff in the organization.

- **Gender equity and gender roles**. The overall level of gender equity and the gender roles in the society might limit the level of integration of women in the work force, which will hinder the performance of the organization.

While these aspects will evolve over time, it takes significant time to change them substantially; that is why we include them as structural elements.

Box 6. Capacity development activities targeted at improving the structural elements

Within these spheres, the support to education at all levels, from primary to university, is essential, as well as technical and professional training centres. Efforts to improve living standards and conditions are in many countries a priority, including better quality of health, education, job opportunities, and improved security.

Over the years, traditional education systems have evolved to more integrated approaches. In a study on assessing the role of sustainable development in the education and early career of water and environmental engineers in Finland, Vehmaa et al. (2018), highlight that while traditional ("hard") engineering skills are still needed and valued in the professional field, "softer" aspects such as sustainability development are equally important. There is also donor support to expand research and knowledge. For example, the Sanitation and Hygiene Applied Research for Equity (SHARE) Research Programme consortium, funded by DfID, aimed at contributing to global health research and the skill development of researchers to understand and explore pathways to achieve universal access to effective, sustainable, and equitable sanitation and hygiene (Torondel et al., 2019).

Several countries also focus on formal and non-formal technical vocational education and training (TVET) as a priority area for education development and to foster inclusive growth. At the global level, the UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training guides TVET educators and practitioners in emerging skills development demanded by different sectors; for example, in mechanical or electrical engineering, water management, wastewater, and renewable energy. It plays a key role in bridging this skills gap and in meeting new labour market demands through its network of over 280 UNEVOC Centres across UNESCO Member States.

Gender equity within society forms part of society-wide efforts, which are also promoted at international level worldwide. Efforts to understand and promote gender equality in water professionals are underway from many

institutions (World Bank, Interamerican Development Bank, Asian Development Bank, among others). The UNESCO World Water Assessment Programme (WWAP) Toolkit on Sex-disaggregated Water Data has been developed with this objective, which outlines gender-responsive indicators for water assessment, monitoring, and reporting.

In 2020, findings from a study led by the National Institute of Water from Argentina, with the support of the National Argentinean Office of Hydraulic Infrastructure and UNESCO WWAP, resulted in incorporation of gender responsive indicators and sex-disaggregated data in water and sanitation surveys conducted by the National WASH office to further inform policies (Imburgia et al., 2020).

The World Hydrological Cycle Observing System (WHYCOS) programme of World Meteorological Organization (WMO) is dedicated to strengthening hydrological observation activities, training, and capacity building, including assessment of the institutional and legal status of data provider organizations, and reinforcing international cooperation and promoting the free exchange of data in the field of hydrology (WMO, n.d.).

6. Conclusion

This document, along with SIWI's Capacity Development Step by Step Methodology, aims to support stakeholders to acknowledge the complexity and develop more systematic work on capacity development in water, through various types of capacity development plans and the organizational mechanisms that can support them.

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