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Water Governance in Asia-Pacific



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Acronyms

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
BTI	Bhutan transparency international
COD	Chemical oxygen demand
CSO	Civil society organisation
IPCC	Intergovernmental Panel on Climate Change
IWRM	Integrated water resources management
KD	Key dimension
KWP	Karachi Water Partnership
LWUA	Local Water Utilities Administration
MRC	Mekong River Commission
MWCI	Manila Water Company Incorporated
MWSI	Maynilad Water Services Incorporated
MWSS	Metropolitan Waterworks and Sewerage System
NAWASA	National Waterworks and Sewerage Authority
NISA	National integrity system assessment
OECD	Organisation for Economic Cooperation and Development
PPM	Parts per million
PJT1	Jasa Tirta I Public Corporation
RO	Regulatory office
SDG	Sustainable Development Goal
UN	United Nations
UNDP	United Nations Development Programme
WASH	Water sanitation and hygiene

Executive Summary

The Asia-Pacific region has been hit hard by the COVID-19 pandemic, with 262 000 deaths as of March 2021, and a decrease in GDP by 4.3% in ASEAN and by 2.0% in Emerging Asia in 2020. The COVID-19 crisis represents the fifth serious downturn experienced by Emerging Asian economies since 1970 and some countries recorded unprecedented GDP decreases, such as Malaysia (-17.1), the Philippines (16.3%), Singapore (-13.2%) and Thailand (-12.1%). The pandemic acted as a magnifying glass on pressing water and sanitation challenges in Asia-Pacific countries, stressing and widening inequalities for 30 to 40% of households that do not have a dedicated place for washing hands with soap and water on premises.

Water security is a major challenge for the Asia-Pacific region. At present, 1.7 billion people lack access to basic sanitation in the region, with half countries having piped access rates lower than 50% and 80% of wastewater are discharged with little or no treatment. In addition, from 1995 to 2015, 2.3 billion people were affected by floods and 1.1 billion by droughts. According to the 2015 reporting of the United Nations Economic and Social Commission for Asia and the Pacific on the Sustainable Development Goal 6, water resources are under stress in the region with significant implications on livelihoods, whereas implementation of integrated water management plans are progressing unevenly.

If no action is taken, these challenges will exacerbate over time due to increased water demand tied to irrigation, economic growth, urbanisation, and rising per-capita domestic use. With an average economic growth rate of 6.1% in emerging Asia, regional water demand is expected to increase by 55% by 2050. Demographic trends – with a projected population increase of 750 million inhabitants between 2017 and 2050 – are also pushing water demand up with a need to double food production by the same date. With more than 60% of Asian and Pacific inhabitants living in cities by 2050, urbanisation will also generate specific challenges to ensure universal access to quality drinking water and sanitation services for all. Last but not least, 3.4 billion people could live in water-stressed areas in Asia by 2050 due to climate change. For instance, Central Asia is expected to become increasingly arid, with parts of Turkmenistan, Uzbekistan and Kazakhstan experiencing an acceleration of current patterns and human-induced desertification.

The *OECD Principles on Water Governance* argue that coping with current and future water challenges requires robust public policies targeting measurable objectives in predetermined timeframes at the appropriate scale and relying on a clear assignment of duties across responsible authorities and subject to regular monitoring and evaluation. Water governance can greatly contribute to the design and implementation of such policies, in a shared responsibility across the national, regional, basin and local levels but also in co-operation with civil society, businesses and the broader range of stakeholders who have an important role to play to reap the economic, social and environmental benefits of water security.

Building on a water governance survey across 48 countries in Asia-Pacific, this Policy Paper provides an assessment of the effectiveness, efficiency and inclusiveness of water governance in the region, assessing in particular institutional fragmentation, scale mismatch, policy coherence, capacity, data and information, funding, regulation, stakeholder engagement, integrity and transparency, as well as monitoring and evaluation. Regional findings from the OECD survey on water governance show that although water policy frameworks and coordination mechanisms are in place and considered to be functioning in most countries, important gaps remain in relation to capacity, data and information, regulatory frameworks and stakeholder engagement.

More specifically, key findings include:

- In all 48 countries, an overarching **water policy framework** is in place, which commonly refers to the human right to water and sanitation. The vast majority of countries (80%) set up river basin organisations to manage water at the appropriate scale. Many countries (40%) also provide a guaranteed minimum amount of water, and to a lower extent, some countries (20%) include provisions to protect indigenous and traditional rights.
- A large majority of countries (83%) have adopted **dedicated water policies**; with emphasis on water-related disasters being higher (79%) than water-sanitation-hygiene (65%) or water quality and preservation policies (58%). In general, these policies tend to clearly indicate goals to reach and duties of the involved water institutions (82%). However, in almost all countries (90%) these do not clearly indicate the resources needed to achieve the goals, thus generating unfunded mandates and hampering their implementation.
- Although dedicated **water services regulatory bodies** have been set up in nearly all countries of the region, no information could be found for one third of the surveyed countries regarding the definition of their mandate and powers in existing bylaws. This may create overlaps, competition or conflicting objectives between regulatory bodies, line-ministries and other water-related institutions thus jeopardizing the effectiveness of water policy implementation and outcomes.
- Significant **water management issues** remain due to a limited adoption of water policy instruments, with only 21% of the Asia – Pacific countries allocating or monitoring groundwater extractions. Furthermore, two thirds of the countries have not prioritized water allocation among users in case of scarcity or emergency. Economic instruments are also poorly implemented with abstraction and pollution charges being collected in approximately one third of the countries, and abstraction charges being more frequently implemented than pollution charges. Many countries lack such tools to drive behavioural change of water users and polluters towards greater internalisation of economic consequences of and payment for the costs of managing water resources and regulating activities that affect water availability and quality.
- The widespread absence of **water-related data and information** across a vast majority of countries – except the Advanced Economies – hinders the evidence-based decision making for water and sanitation services, water resource management as well as water-related disasters. Furthermore, in two-thirds of the Asia-Pacific countries, there are no formal requirements for evaluation and monitoring of dedicated water policies, which limits the capacity to assess the effectiveness of policies and potentially implement remedial actions.
- In many countries, the lack of information and **limited monitoring** are exacerbated by the lack of technical, staff and infrastructural capacity, resources and expertise to collect, analyse and interpret water data. This results in a low level of capital expenditure deriving from a low absorption rate of international grants and transfers due to a low capacity impeding the implementation of investment projects. The capacity gap observed is not restricted to the sub-national level but also affects national administration, as only one third of the countries in Asia -Pacific have adopted guidelines or standards for capacity building across authorities at all levels.
- **Transparency and integrity** also require improvement. Less than 20% of countries in Asia-Pacific have implemented relevant international conventions, or put in place anti-corruption mechanisms or needed tools to track budget transparency. The accountability gap is also hampering stakeholder engagement, which is generally rather low in the Asia-Pacific region where less than 1% of the countries (mainly Advanced Economies) have carried out a stakeholder mapping, and only one third of the surveyed countries have implemented formal or informal mechanisms to engage stakeholders on water-related topics.

1 Highlights from the Survey: state of play of water governance in Asia – Pacific

Water security is expected to be a major challenge for the Asia – Pacific region due to increased water demand tied to irrigation, economic growth, urbanisation, and rising per capita domestic use (IPCC, 2014^[1]). With an average economic growth rate of 6.1% in emerging Asia, economic development will induce a 55% increase in regional water demand by 2050 (OECD, 2018^[2]). Demographic trends are also pushing water demand up with a need to double food production by 2050 due a projected population increase of 750 million between 2017 and 2050 (United Nations Department of Economic and Social Affairs, Population Division, 2017^[3]). With more than 60% of Asian and Pacific inhabitants living in cities by 2050, urbanisation will generate specific challenges related to access to quality drinking water and sanitation services¹. Climate change is also exacerbating the pressure on water resources and 3.4 billion people could live in water stressed areas in Asia by 2050 (OECD, 2012^[4]). For instance, Central Asia is expected to become increasingly arid in the coming decades, especially in parts of Turkmenistan, Uzbekistan and Kazakhstan, which will accelerate existing water crisis and human-induced desertification. These megatrends will exacerbate water risks, which already affect billion of people and cost trillions of dollars².

Coping with current and future challenges requires robust public policies, targeting measurable objectives in pre-determined time schedules at the appropriate scale, relying on a clear assignment of duties across responsible authorities and subject to regular monitoring and evaluation. Water governance can greatly contribute to the design and implementation of such policies, in a shared responsibility across levels of government, civil society, business and the broader range of stakeholders who have an important role to play alongside policy makers to reap the economic, social and environmental benefits of good water governance.

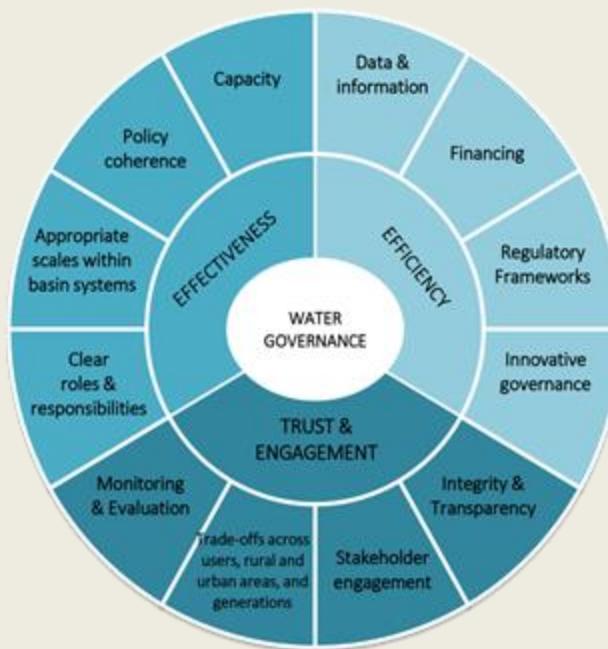
The *OECD Principles on Water Governance* (OECD, 2012^[5]) aim to enhance water governance systems that help manage “too much”, “too little” and “too polluted” water and foster universal access to drinking water and sanitation, in a sustainable, integrated and inclusive way, at an acceptable cost, and in a reasonable time frame. The Principles acknowledge that good governance is a means to an end to master complexity and managing trade-offs in a policy domain that is highly sensitive to fragmentation, silos, scale mismatch, negative externalities, monopolies and large capital-intensive investment. The Principles consider that governance is good if it can help to solve key water challenges, using a combination of bottom-up and top-down processes while fostering constructive state-society relations. It is bad if it generates undue transaction costs and does not respond to place-based needs.

The *OECD Principles on Water Governance* intend to contribute to tangible and outcome-oriented public policies, based on three mutually reinforcing and complementary dimensions of water governance (Box 1-1).

¹ More than half of the Asia-Pacific countries have piped access rates lower than 50%. 1.7 billion people lack access to basic sanitation and 80% of wastewater are discharged with little or no treatment.

² From 1995 to 2015, 2.3 billion people were affected by floods and 1.1 billion by droughts.

Box 1-1. The OECD Principles on Water Governance



Source: OECD (2015) OECD Water Governance Principles

1. Effectiveness relates to the contribution of governance to define clear sustainable water policy goals and targets at all levels of government, to implement those policy goals, and to meet expected targets.
2. Efficiency relates to the contribution of governance to maximise the benefits of sustainable water management and welfare at the least cost to society.
3. Trust and engagement relate to the contribution of governance to building public confidence and ensuring inclusiveness of stakeholders through democratic legitimacy and fairness for society at large.

Enhancing the effectiveness of water governance

- Principle 1. Clearly allocate and distinguish roles and responsibilities for water policy making, policy implementation, operational management and regulation, and foster co-ordination across these responsible authorities.
- Principle 2. Manage water at the appropriate scale(s) within integrated basin governance systems to reflect local conditions, and foster co-ordination between the different scales.
- Principle 3. Encourage policy coherence through effective cross-sectoral co-ordination, especially between policies for water and the environment, health, energy, agriculture, industry, spatial planning and land use.
- Principle 4. Adapt the level of capacity of responsible authorities to the complexity of water challenges to be met, and to the set of competencies required to carry out their duties.

Enhancing the efficiency of water governance

- Principle 5. Produce, update and share timely, consistent, comparable and policy-relevant water and water-related data and information, and use it to guide, assess and improve water policy.
- Principle 6. Ensure that governance arrangements help mobilise water finance and allocate financial resources in an efficient, transparent and timely manner.
- Principle 7. Ensure that sound water management regulatory frameworks are effectively implemented and enforced in pursuit of the public interest.
- Principle 8. Promote the adoption and implementation of innovative water governance practices across responsible authorities, levels of government and relevant stakeholders.

Enhancing trust and engagement in water governance

- Principle 9. Mainstream integrity and transparency practices across water policies, water institutions and water governance frameworks for greater accountability and trust in decision making.
- Principle 10. Promote stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation.
- Principle 11. Encourage water governance frameworks that help manage trade-offs across water users, rural and urban areas, and generations.
- Principle 12. Promote regular monitoring and evaluation of water policy and governance where appropriate, share the results with the public and make adjustments when needed.

Source: OECD (2012^[5]), OECD Principles on Water Governance

This section provides a regional analysis of the state of play of water governance in Asia-Pacific countries against the *OECD Principles on Water Governance*. Information is drawn from a questionnaire extended to 48 countries of Asia-Pacific to collect secondary data on water governance (Box 1-2).

Box 1-2. OECD Survey on Water Governance in Asia

Governance data were collected by a consultant in December 2019 and January 2020, for a total of 48 countries (data for Niue are missing) comprising 4 OECD countries and 44 non-OECD countries:

Afghanistan, Armenia, Australia, Azerbaijan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, People's Republic of China, Cook Islands, Fiji, Georgia, Hong Kong (China), India, Indonesia, Japan, Kazakhstan, Kiribati, Republic of Korea, Kyrgyz Republic, Lao People's Democratic Republic, Malaysia, Maldives, Marshall Islands, Federated States of Micronesia, Mongolia, Myanmar, Nauru, Nepal, New Zealand, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Sri Lanka, Taiwan/Taipei (China), Tajikistan, Thailand, Timor-Leste, Tonga, Turkmenistan, Tuvalu, Uzbekistan, Vanuatu, Viet Nam.

The survey on water governance comprises 46 questions, distributed into 12 sections, which were answered using secondary data and information obtained from a number of sources, including:

- Published reports and documents by international organisations, including the Asian Development Bank (ADB), World Bank (WB), Organisation for Economic Cooperation and Development (OECD), Food and Agricultural Organization of the United Nations (FAO), United Nations Development Programme (UNDP) and the International Water Management Institute (IWMI).
- Asian and Pacific country national government policies, strategies and legislation, when in English language.
- Published reports and peer reviewed research papers.
- Other grey literature.

Structure of the questionnaire:

- Section 1 Clear roles and responsibilities
- Section 2 Appropriate scales
- Section 3 Policy coherence
- Section 4 Capacity development
- Section 5 Data and information
- Section 6 Financing
- Section 7 Regulatory frameworks
- Section 8 Innovation
- Section 9 Integrity and transparency
- Section 10 Stakeholder engagement
- Section 11 Trade-offs
- Section 12 Monitoring and evaluation

The data from the survey were processed to (1) provide an overview of water governance characteristics in Asia, (2) provide quantified evidence regarding governance gaps, and (3) show the diversity of governance situations across the Asia-Pacific region.

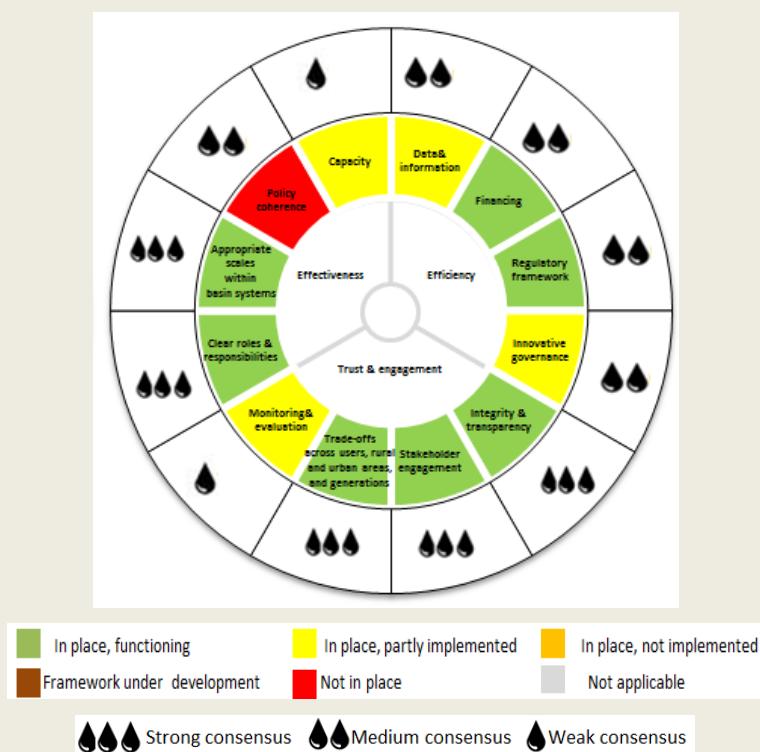
Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Building upon the OECD Water Governance Indicator Framework (Box 1-3), information was collected through the OECD survey, for each country and for each principle.

Box 1-3. OECD Water Governance Indicator Framework

The Water Governance Indicator Framework aims to appraise water governance systems using a traffic light system containing 36 indicators, 3 for each of the 12 Principles, and a checklist containing 106 questions on water governance. It is complemented by an Action Plan for discussion on future improvements. The Water Governance Indicator Framework is conceived as a self-assessment tool to collectively identify whether framework conditions are in place for each OECD Principle and if they are implemented and properly functioning based on a multi-stakeholder dialogue. The Water Governance Indicator Framework is intended to be applicable at different scales (city, basin, national or other) and for different water management functions (water resources, water services, water disasters) (Figure 1-1).

Figure 1-1 The OECD Water Governance Indicator Framework



Source: OECD (2018^[7]), Implementing the OECD Principles on Water Governance, Indicator Framework and Evolving Practices

For a number of governance questions, the survey reveals obvious data gaps, especially for capacity (principle 4), data and information (principle 5), regulatory frameworks (principle 7) and stakeholder engagement (principle 10). This result in itself highlights areas where public decisions and actions may be needed to enhance water governance. In addition, the following observations could be drawn from the results of the survey on water governance.

Overview of water governance in Asia-Pacific countries

- Table 1-1 summarises the level of implementation of governance policy frameworks, institutions and mechanisms in surveyed countries. For clarity and readability purposes, only the key governance data are displayed. Key findings, which are further elaborated in the subsequent sections of this paper, show that: Although an overarching water policy framework (principle 1) and coordination mechanisms across scales (principle 2) are in place and considered to be functioning in most countries, some important water governance gaps remain.
- Most countries have adopted dedicated water-related policies and horizontal cross-sectoral coordination mechanisms at national and/or sub-national levels (principle 3), but the implementation of water-related policies remains limited for a majority of countries due to human resources and funding gaps.
- Although dedicated water services regulatory bodies have been set up in nearly all countries of the region, no information could be found for one third of the surveyed countries regarding the clear definition of their mandate and powers in existing bylaws (principle 7).
- The limited uptake of water policy instruments to manage trade-offs (principles 7 and 11) and economic instruments to manage competing water resources demand (principle 6) is further hampering the implementation and efficiency of water policies.
- A lack of data and information (principle 5), a low level of monitoring and evaluation (principle 12), a capacity gap (principle 4), and a limited uptake of integrity practices and tools (principle 9) generate an important accountability gap which, in turn, hinders stakeholder engagement (principle 10).

Section 1 of this report will present the findings regarding the overarching water framework and the water policy coordination mechanisms that are in place in most countries, while section 2 will focus on the key governance gaps listed above. In a first attempt to show the positive impact of good water governance on water security, some preliminary observations linking governance questionnaire results and some key dimensions³ (KDs) scores are presented in section 3.

The implementation of each water governance principle has been appraised through a set of questions, and the results are expressed using a four-scale colour coding (Figure 1-2).

Figure 1-2. Four-scale colour coding to assess the level of implementation of each principle on water governance

In place, functioning	In place, partly implemented	Not in place	No data available
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In place, functioning: The governance dimension under investigation is complete and relevant in most aspects, no major concerns are noted.
In place, partly implemented: The governance dimension under investigation is in place, but the level of implementation is not complete due to human resources and funding gaps.

Not in place: The governance dimension under investigation does not exist.

No data available: No secondary data on the governance dimension under investigation could be found.

Source: OECD (2021)^[6] survey on water governance in Asia-Pacific

³ The Asia Water Development Outlook, spearheaded by the Asian Development Bank, monitors progress in - and issues affecting - water security in Asia through the calculation of a water security index comprising 5 Key Dimensions (KDs): rural household water security (KD1), economic water security (KD2), urban water security (KD3), environmental water security (KD4), water-related disaster security (KD5).

Table 1-1. Water governance characteristics in Asia – Pacific countries

	Central and West Asia										Advanced Economies				South Asia								
	Afghanistan	Armenia	Azerbaijan	Georgia	Kazakhstan	Kyrgyz Republic	Pakistan	Tajikistan	Turkmenistan	Uzbekistan	Australia	Brunei	Hong Kong, China	Japan	Republic of Korea	New Zealand	Singapore	Bangladesh	Bhutan	India	Maldives	Nepal	Sri Lanka
1. Roles & responsibilities																							
Water law and/or environmental law	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
2. Appropriate scales				Red	Grey	Grey	Green	Green	Green	Green											Red	Green	Green
Catchment-based organisations	Green	Green	Green	Red	Grey	Grey	Green	Green	Green	Green											Red	Green	Green
3. Policy coherence	Red	Orange	Green	Orange	Orange	Orange	Red	Orange	Orange	Orange		Red	Green	Orange	Orange	Green	Orange	Orange	Green	Green	Red	Orange	Red
Dedicated WASH policy	Red	Orange	Green	Orange	Orange	Orange	Red	Orange	Orange	Orange		Red	Green	Orange	Orange	Green	Orange	Orange	Green	Green	Red	Orange	Red
Dedicated policy for water-related disasters	Red	Orange	Green	Orange	Orange	Orange	Red	Orange	Orange	Orange		Red	Green	Orange	Orange	Green	Orange	Orange	Green	Green	Red	Orange	Red
Dedicated water quality and preservation policy	Red	Orange	Green	Orange	Orange	Orange	Red	Orange	Orange	Orange		Red	Green	Orange	Orange	Green	Orange	Orange	Green	Green	Red	Orange	Red
4. Capacity	Grey	Red	Grey	Red	Grey	Green	Green	Grey	Grey	Grey		Green	Green	Grey	Grey	Green	Green	Grey	Green	Green	Grey	Green	Green
Guidelines or standards for capacity building across authorities at all levels	Grey	Red	Grey	Red	Grey	Green	Green	Grey	Grey	Grey		Green	Green	Grey	Grey	Green	Green	Grey	Green	Green	Grey	Green	Green
Peer-to-peer dialogue platforms across river basin organisations	Grey	Grey	Grey	Grey	Grey	Green	Green	Grey	Grey	Grey		Green	Green	Grey	Grey	Green	Green	Grey	Green	Green	Grey	Green	Green
Networks of utilities and of basin organisations at national level	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green		Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
5. Data & information	Green	Green	Red	Green	Green	Green	Red	Green	Green	Red		Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green
WSS information system harmonised, integrated, standardised	Green	Green	Red	Green	Green	Green	Red	Green	Green	Red		Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green
IWRM information system harmonised, integrated, standardised	Green	Green	Red	Green	Green	Green	Red	Green	Green	Red		Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green
Risk management water information system harmonised, integrated, standardised	Green	Green	Red	Green	Green	Green	Red	Green	Green	Red		Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
6. Financing	Grey	Green	Green	Red	Grey	Green	Green	Grey	Grey	Green		Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Red
Abstraction charges	Grey	Green	Green	Red	Grey	Green	Green	Grey	Grey	Green		Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Red
Pollution charges	Grey	Green	Green	Red	Grey	Green	Green	Grey	Grey	Green		Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Red
7. Regulation frameworks	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green		Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Regulatory bodies subject to by laws or internal regulations clearly stating their mandate and powers	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green		Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Mechanisms to solve water-related disputes	Grey	Green	Green	Red	Grey	Green	Green	Red	Grey	Green		Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
9. Integrity & transparency	Red	Red	Red	Red	Grey	Red	Red	Red	Red	Red		Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Red	Red
Institutional anti-corruption plans, codes of conduct or integrity charters	Red	Red	Red	Red	Grey	Red	Red	Red	Red	Red		Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Red	Red
Evaluation tools to track budget transparency in water sector	Grey	Red	Red	Red	Grey	Red	Red	Red	Red	Red		Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Red	Red

10. Stakeholder engagement																		
Stakeholder mapping carried out																		
Formal and informal mechanisms to engage stakeholders																		
11. Tradeoffs																		
Prioritisation among water uses in case of scarcity/emergency																		
Groundwater extractions monitored and allocated																		
12. Monitoring and evaluation																		
Agreed-upon key performance indicators																		
Existing monitoring and reporting mechanisms																		

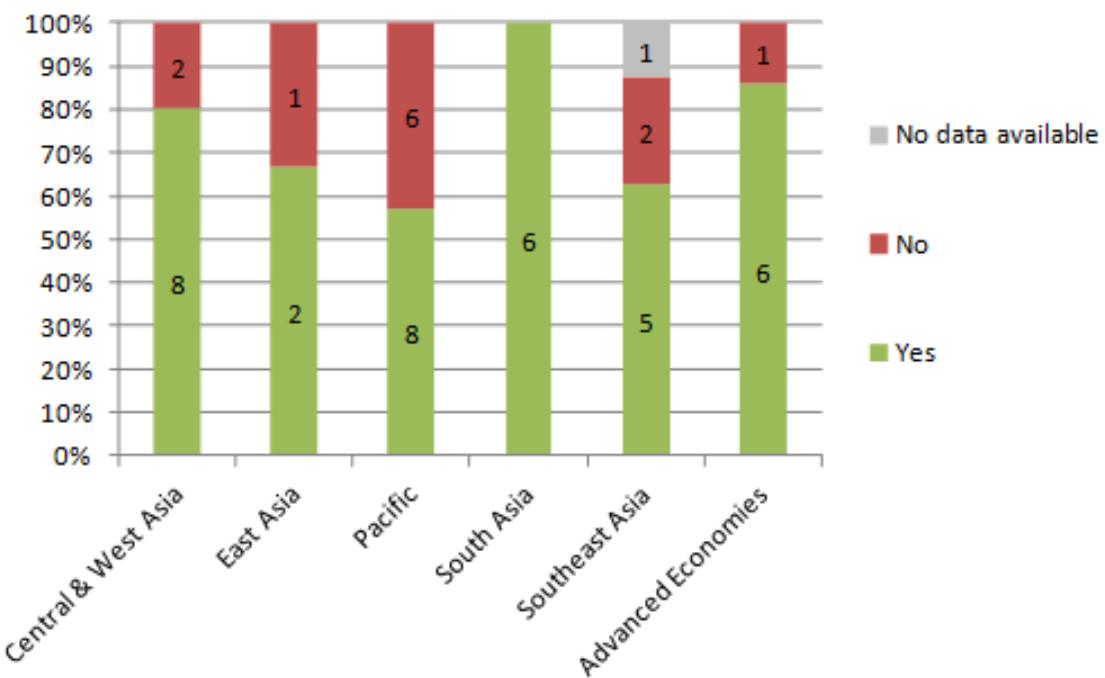
	Southeast Asia								East Asia			Pacific												
	Cambodia	Indonesia	Lao People's	Malaysia	Myanmar	Philippines	Thailand	Viet Nam	People's Republic	Mongolia	Taipei/Taiwan,	Cooks Islands	Fiji	Kiribati	Marshall Islands	Federated States of	Nauru	Palau	Papua New Guinea	Samoa	Solomon Islands	Timor-Leste	Tonga	Tuvalu
1. Roles & responsibilities	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	
Water law and/or environmental law	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	
2. Appropriate scales	Green	Green	Grey	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green
Catchment-based organisations	Green	Green	Grey	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green
3. Policy coherence	Red	Red	Red	Orange	Orange	Orange	Orange	Orange	Red	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Red	Orange	Red	Red	Red	Orange	Orange
Dedicated WASH policy	Red	Red	Red	Orange	Orange	Orange	Orange	Orange	Red	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Red	Orange	Red	Red	Red	Orange	Orange
Dedicated policy for water-related disasters	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange
Dedicated water quality and preservation policy	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
4. Capacity	Green	Grey	Red	Grey	Grey	Grey	Grey	Green	Red	Green	Grey	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green
Guidelines or standards for capacity building across authorities at all levels	Green	Grey	Red	Grey	Grey	Grey	Grey	Green	Red	Green	Grey	Green	Green	Green	Green	Red	Green	Green	Green	Green	Green	Green	Green	Green
Peer-to-peer dialogue platforms across river basin organisations	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Networks of utilities and of basin organisations at national level	Grey	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
5. Data & information	Red	Grey	Red	Grey	Red	Red	Grey	Grey	Green	Green	Grey	Green	Green	Green	Green	Red	Red	Red	Red	Green	Green	Green	Green	Green
WSS information system harmonised, integrated, standardised	Red	Grey	Red	Grey	Red	Red	Grey	Grey	Green	Green	Grey	Green	Green	Green	Green	Red	Red	Red	Red	Green	Green	Green	Green	Green
IWRM information system harmonised, integrated, standardised	Red	Grey	Red	Grey	Red	Red	Grey	Grey	Green	Green	Grey	Green	Green	Green	Green	Red	Red	Red	Red	Green	Green	Green	Green	Green
Risk management water information system harmonised, integrated, standardised	Grey	Grey	Red	Grey	Grey	Grey	Grey	Grey	Green	Green	Grey	Green	Green	Green	Green	Red	Red	Red	Red	Green	Green	Green	Green	Green

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

An overarching water policy framework in place in most countries

In all countries of the Asia – Pacific region, an environmental law is in place, while in three countries out of four a dedicated water law also exists. The majority of countries lacking a water law are located in the Pacific (Figure 1-3).

Figure 1-3. Share of countries having adopted a dedicated water law per geographic area, Asia – Pacific region

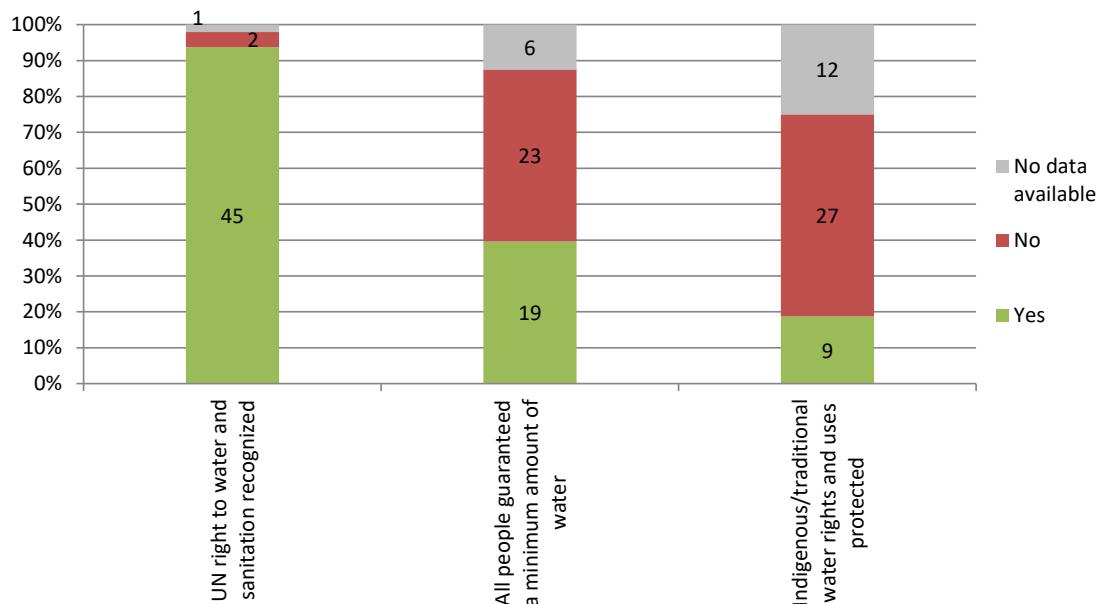


Note: 48 countries surveyed

Source: OECD (2021) survey on water governance in Asia-Pacific

Where they exist, water laws set the overarching principles for water policy making in each country. For instance, it can support overall consistency of regulation across the territory, set public service obligations or define key water management principles. With regard to standards for access to water and sanitation, in Asia – Pacific countries, the national overarching framework (whether it be a water law or the constitution) commonly mentions the human right to water and sanitation as recognised by the United Nations General Assembly on 28 July 2010 (Figure 1-4). On the contrary, a guaranteed minimum amount of water (40% of countries) or principles to protect indigenous/traditional rights (20% of countries) are much less commonly stated in legal overarching frameworks.

Figure 1-4. Share of countries having adopted water rights, provisions and resolutions, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Some water policy coordination mechanisms in place in most countries

The survey on water governance shows that 81% of countries in Asia – Pacific have set up River Basin Organisations. These organisations are important tools for co-ordinating water policy at the territorial level, across stakeholders and between levels of government. Indeed they can be useful to manage water at the appropriate scale through integrated basin governance to reflect local conditions and foster multi-level co-operation for the management of water resources; to encourage sound hydrological cycle management, and to promote adaptive and mitigation strategies (Box 1-4). As such, they can help manage water risks thus supporting and reinforcing water security.

River basin organisations can be set up following different arrangements which vary according to their missions and duties, to their endowment in terms of human and financial resources, etc. In most cases, they are formal legal bodies although less formal arrangements exist. They can encompass functions such as:

- Monitoring, controlling, and regulating;
- Planning and financing;
- Developing and managing.

Box 1-4. An example of coordination mechanism: the Mekong River Commission

The Mekong River Commission (MRC) is an inter-governmental organization established in 1995 that gathers water and environment ministries from Cambodia, Lao PDR, Thailand and Viet Nam. It aims at ensuring the efficient and mutually beneficial development of the Mekong River while minimising the potentially harmful effects on the people and the environment in the Lower Mekong Basin. It also acts as a regional knowledge hub on water resources management that helps to inform the decision-making process based on scientific evidence. The MRC looks across all sectors, including fisheries sustainability, identification of opportunities for agriculture, freedom of navigation, sustainable hydropower, flood management, preservation and conservation of important ecosystems. It also helps its member states face the future effects of more extreme floods, and prolonged drought and sea level rise associated with climate change. In providing its advice, the MRC aims at facilitating dialogue among governments, the private sector, and civil society.

Article 1 of the MRC Agreement calls for “cooperation in all fields of development, utilisation, management and conservation of water and related resources to optimise the multiple use and mutual benefits and minimise the harmful effects.” Article 2 charges the MRC with the responsibility of formulating a Basin Development Plan for “the development of the full potential of the Mekong River Basin waters” and ensure protection of the environment, natural resources, aquatic life and conditions, and ecological balance of the Mekong River Basin (Article 3). Article 4 recognises that any Basin Development Plan should be based on respect for sovereign equality and territorial integrity while Article 7 ensures the right of each country to develop projects, provided that they cause no harm to others.

Since 1996, China and Myanmar, the upstream countries of the Mekong River Basin, are Dialogue Partners of the MRC. The MRC is funded through contributions from the four Member Countries and development partners (country governments, development banks, and international organisations).

Source: The Mekong River Commission website, <http://www.mrcmekong.org/>

When there is a transboundary catchment (which is the case for 26 countries in the Asia –Pacific region), a transboundary agreement is often in place between riparian countries/territories, with the exception of three countries, Georgia (ongoing discussions), Timor-Leste and Indonesia. Transboundary agreements are a powerful coordination mechanism that helps enhancing riparian cooperation on the use of transboundary freshwater resources. They can effectively help avoid and diffuse water use conflicts thus reinforcing water security (Box 1-5).

Box 1-5. An example of transboundary agreement: the Indus Waters Treaty

The Indus Waters Treaty was signed in 1960 after nine years of negotiations between India and Pakistan with the help of the World Bank, which is also a signatory. The treaty gave the waters of the western rivers—the Indus, Jhelum, and Chenab—to Pakistan and those of the eastern rivers—the Ravi, Beas, and Sutlej—to India. It also provided for the funding and building of dams, link canals, barrages, and tube wells—notably the Tarbela Dam on the Indus River and the Mangla Dam on the Jhelum River. These helped provide water to Pakistan in the amounts that it had previously received from the rivers now assigned to India's exclusive use. Much of the financing was contributed by member countries of the World Bank.

Most disagreements and disputes have been settled via legal procedures, provided for within the framework of the treaty. The treaty is considered to be one of the most successful water sharing endeavours in the world today, even though analysts acknowledge the need to update certain technical specifications and expand the scope of the document to include climate change.

A significant challenge to the treaty occurred in 2017 when India and Pakistan disagreed about the construction of the Kishenganga (330 megawatts) and Ratle (850 megawatts) hydroelectric power plants by India. The two countries disagree over whether the technical design features of the two hydroelectric plants contravene the Treaty. Pakistan asked the World Bank to facilitate the setting up of a Court of Arbitration to look into its concerns about the designs of the two hydroelectric power projects. India asked for the appointment of a Neutral Expert for the same purpose. Both India and Pakistan stated that processing the requests regarding the Neutral Expert and Court of Arbitration simultaneously presented a substantial threat to the Treaty, since it risked contradictory outcomes and worked against the spirit of goodwill and friendship that underpins the Treaty. Talks related to the Kishenganga and Ratle hydroelectric power plants are ongoing.

Source: World Bank, <https://www.worldbank.org/en/region/sar/brief/fact-sheet-the-indus-waters-treaty-1960-and-the-world-bank>

Apart from River Basin Organisations and transboundary agreements, there are several other options for co-ordinating water policies across administrative and hydrological scales. Table 1-2 provides an overview of existing vertical and horizontal water policy co-ordination tools in OECD countries, ranging from “hard” (legal arrangements, contracts, etc.) to “soft” mechanisms (voluntary industry agreements, stakeholders’ information measures, consultations, etc.).

- Vertical co-ordination instruments across ministries, between levels of government and across local actors (both public and private) usually take the form of a multi-stakeholder platform for dialogue for integrated water policy at all levels or combining tools, funds and organisations. Such mechanisms are in place in 77% of the countries of the Asia-Pacific region. The majority of countries lacking these vertical mechanisms are located in the Pacific (Cook Islands, Fiji, Federated States of Micronesia, and Papua New Guinea) and South East Asia (Cambodia, People’s Democratic Republic of Lao, Malaysia, and Philippines).
- Horizontal coordination across water-related policies (such as health, energy, agriculture, land use, etc.) are in place in 79% of the countries of the Asia-Pacific region in the form of cross-sectoral groups, meetings, reviews, and research programmes. The majority of countries lacking these horizontal mechanisms are located in the Pacific (Cook Islands, Federated States of Micronesia, Papua New Guinea, Tonga, and Tuvalu) and South East Asia (Cambodia, People’s Democratic Republic of Lao, and Malaysia).

Table 1-2. A typology of vertical and horizontal co-ordination tools for water policy

Vertical co-ordination tool
Water agency or river basin organisation
Regulations for sharing roles between levels of government
Co-ordination agency or commission
Contractual arrangements
Financial transfers/funds
Performance indicators and experimentation at the territorial level
Shared databases and water information systems
Intermunicipal co-operation or specific bodies
Citizen engagement
Private sector participation

Horizontal co-ordination tool
Multisectoral conferences between central government actors and between sub-national players
Co-ordination group of experts
Inter-agency programmes
Inter-ministerial body or commission
Ad hoc high-level structure
Central agency
Line ministry with specific water prerogatives
Ministry of water (exclusively)

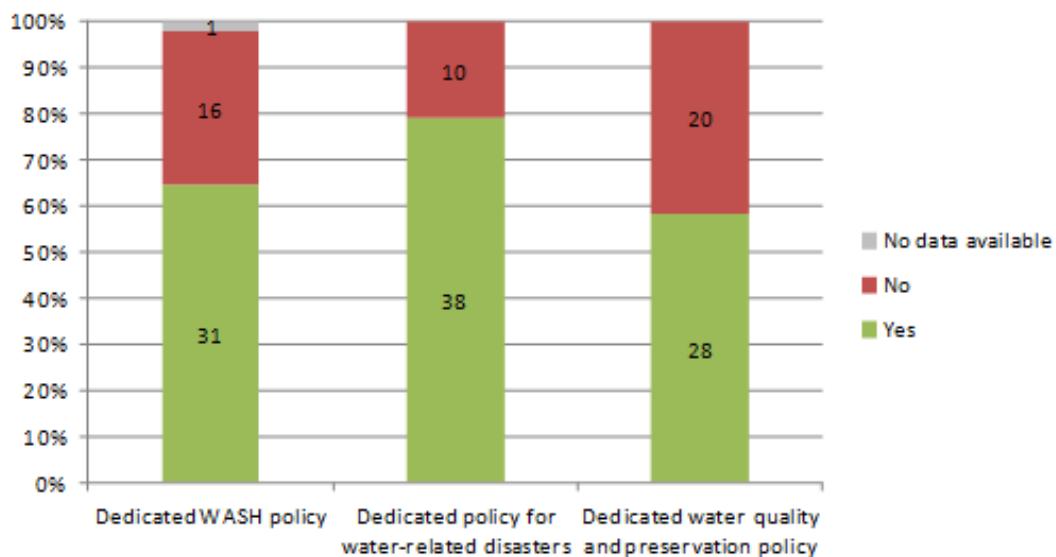
Source: OECD (2011^[8]) Water Governance in OECD Countries: A Multi-level Approach, <http://dx.doi.org/10.1787/9789264119284-en>

2 Key water governance gaps in Asia-Pacific

Limited implementation of water-related policies due to human resources and funding gaps

A majority of countries in Asia – Pacific have adopted dedicated water policies; with water-related disasters policies being more widely adopted (79% of the countries) than water-sanitation-hygiene (WASH) (65%) or water quality and preservation policies (58%) (Figure 2-1).

Figure 2-1. Share of countries having adopted dedicated water policies, Asia – Pacific region

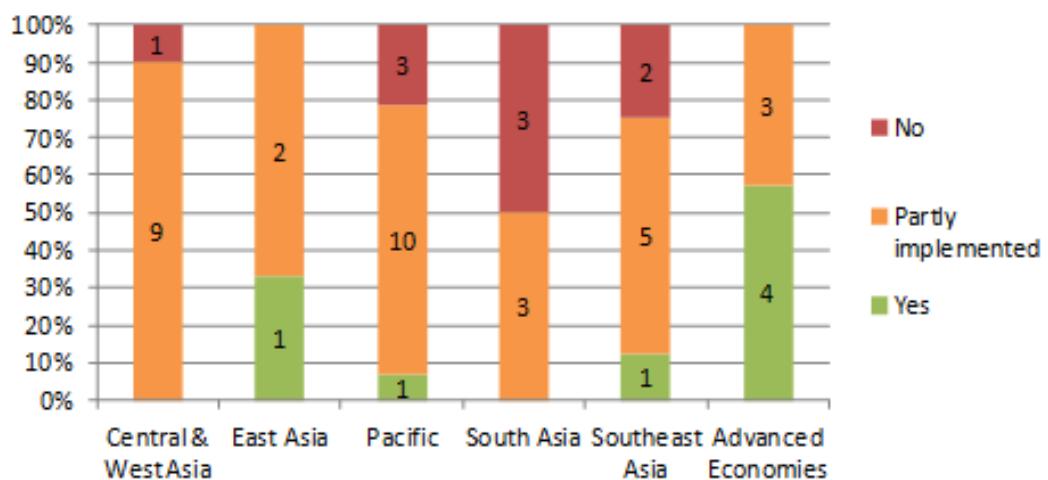


Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

In general, these dedicated water policies tend to clearly indicate goals to reach and duties of the involved water institutions. On the contrary, they do not clearly indicate the resources needed to achieve the goals, thus generating unfunded mandates and hampering their implementation. Dedicated water-related disasters policies are only partly implemented in a high number of countries in Central and West Asia (all countries), in the Pacific (all countries except Fiji), in South Asia (all countries) and in Southeast Asia (all countries except Thailand) despite the important exposure to water risks of these geographic areas (Figure 2-2).

Figure 2-2. Level of implementation of dedicated water-related disaster policy per geographic area, Asia – Pacific region

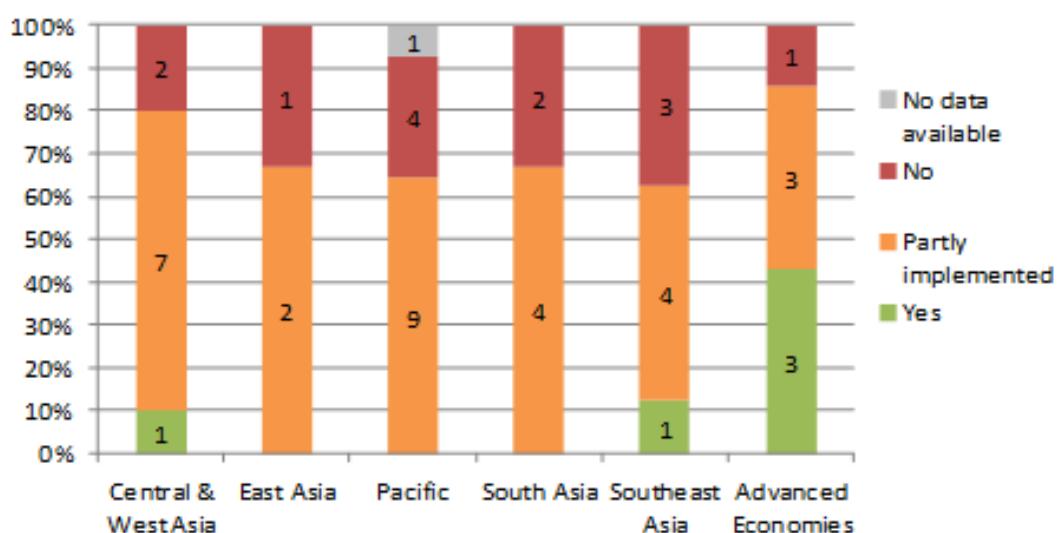


Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

The findings are similar regarding the level of implementation of dedicated WASH policies and water quality and preservation policies, with a limited level of implementation in almost all geographic areas (Figure 2-3 and Figure 2-4).

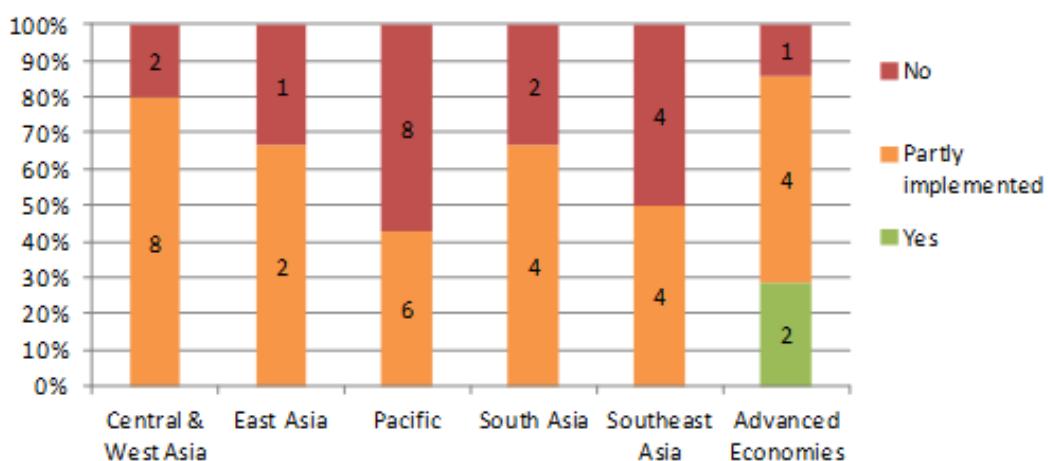
Figure 2-3. Level of implementation of dedicated WASH policy per geographic area, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Figure 2-4. Level of implementation of dedicated water quality and preservation policy per geographic area, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

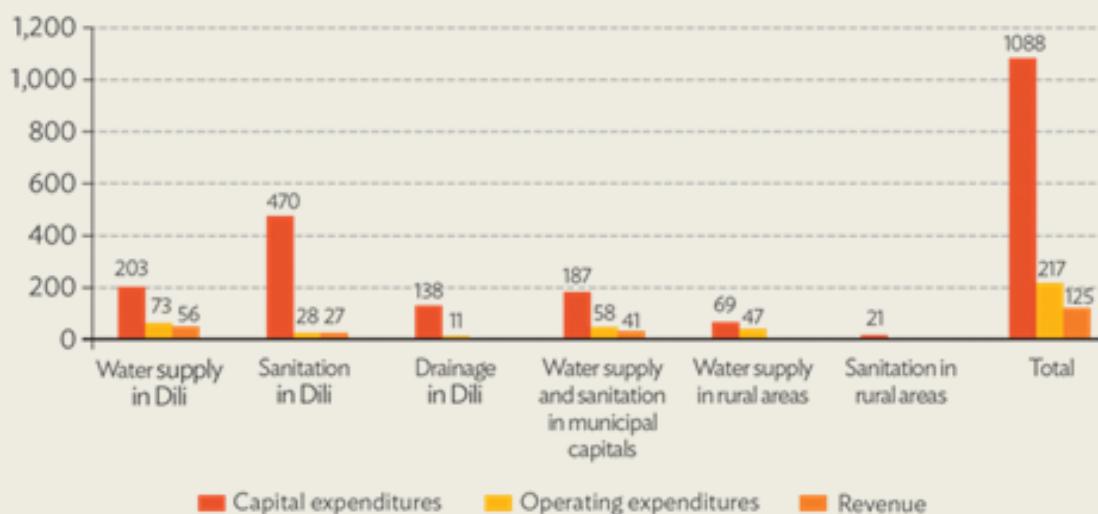
The lack of resources dedicated to water-related policies is illustrated by the investment gap observed between water and sanitation investment needs and actual capital expenditure. In the current context of COVID-19 pandemic, such a gap raises equity considerations since 300 million people in Asia-Pacific still lack access to safely managed drinking water, and 1.2 billion to adequate sanitation (UNICEF - World Health Organization, 2019^[9]). Poor access to water and sanitation disproportionately impacts vulnerable groups, who are particularly affected by the consequences of the pandemic and related shocks. The COVID-19 pandemic has emerged as a major short and medium-term risk for water security, directly as it threatens people's health but also indirectly due to the reduced availability of investment funds as a result of the economic recession, with associated long-term impacts. With 262 000 deaths as of March 2021 (OECD, 2021^[10]), and a decrease in GDP by 4.3% in ASEAN and by 2.0% in Emerging Asia in 2020, the COVID-19 crisis represents the fifth serious downturn experienced by Emerging Asian economies since 1970. Some countries recorded unprecedented GDP decreases, such as Malaysia (-17.1), the Philippines (16.3%), Singapore (-13.2%) and Thailand (-12.1%) (OECD, 2020^[11]). The pandemic acted as a magnifying glass on pressing water and sanitation challenges in Asia-Pacific countries, stressing and widening inequalities for 30 to 40% of households that do not have a dedicated place for washing hands with soap and water on premises. It has further reinforced the fundamental need for making water, sanitation and hygiene available to everyone, eliminating inequalities and leaving no-one behind, especially vulnerable groups.

In many countries, this lack of financial resources is compounded by a lack of human resources, which prevents the timely and efficient implementation of investment projects (Box 2-1). These financial and human resources gaps hamper, in turn, the effective implementation of dedicated water policies in a vast majority of countries. In addition, the absence of monitoring or evaluation culture and tools in most countries prevents their capacity to regularly assess the progress and backlogs of water policies implementation, and set up corrective actions whenever necessary.

Box 2-1. Funding gap in Timor-Leste

Total expenditure required to meet both the targets as set out in Timor-Leste Strategic Development Plan 2011-2030 and the SDG 6 have been estimated to US \$1.3 Billion for the period 2018-2030 (ADB, 2018). This estimate includes both investments and operational expenditure (Figure 2-5).

Figure 2-5. Total expenditure needs (US \$), 2018-2030, Timor-Leste

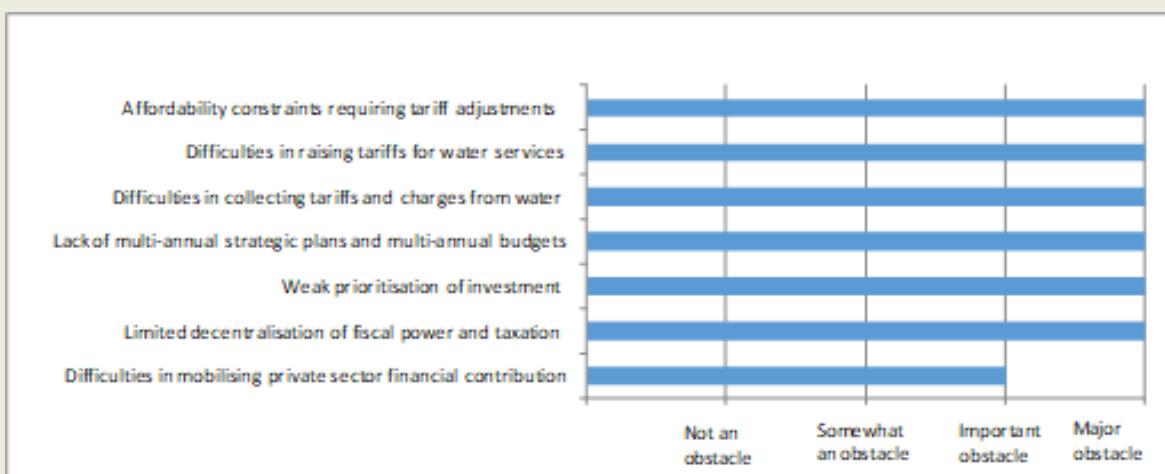


Source: ADB (2018^[12]). Water Supply and Sanitation Services Investment Plan, Policies, and Institutional Reform 2018–2030. Unpublished.

The identified funding gap is three-fold. Firstly, there is a low level of capital expenditure deriving from a low absorption of international funds and transfers due to a technical capacity gap impeding the implementation of investment projects. Improving public procurement and tendering capacities, contract management processes, as well as competencies to design, manage and implement investment projects through the entire value chain would help bridge this gap. In addition, finalising the approval of a National Strategy for the water sector and of an associated detailed action plan would allow operationalising the implementation of investment programs. Setting up annual reporting on actual spending and a dedicated accounting system for water spending would also facilitate the implementation of multi-annual strategic plans and budgets, as well as regular financial audits.

Secondly, there is also a low level of operating cost coverage. This is due to strong affordability constraints in a country where 42% of the population live below poverty line (Figure 2-6). This is also due to low/no user fee collection inducing unstable and insufficient revenues for the water sector. As a result WSS systems lack funding to ensure proper maintenance. This situation is jeopardising the sustainability of existing assets and generates difficulties to maintain actual coverage rates, not to mention the achievement of the Strategic Development Plan 2011-2030 and the SDG 6.

Figure 2-6. Key funding related obstacles, Timor-Leste



Thirdly, there is presently no funding scheme in place to collect water abstraction charges and/or effluent discharge fees. These economic instruments are key tools to fund a long-term water resource management policy. This could be put in place at national or district level.

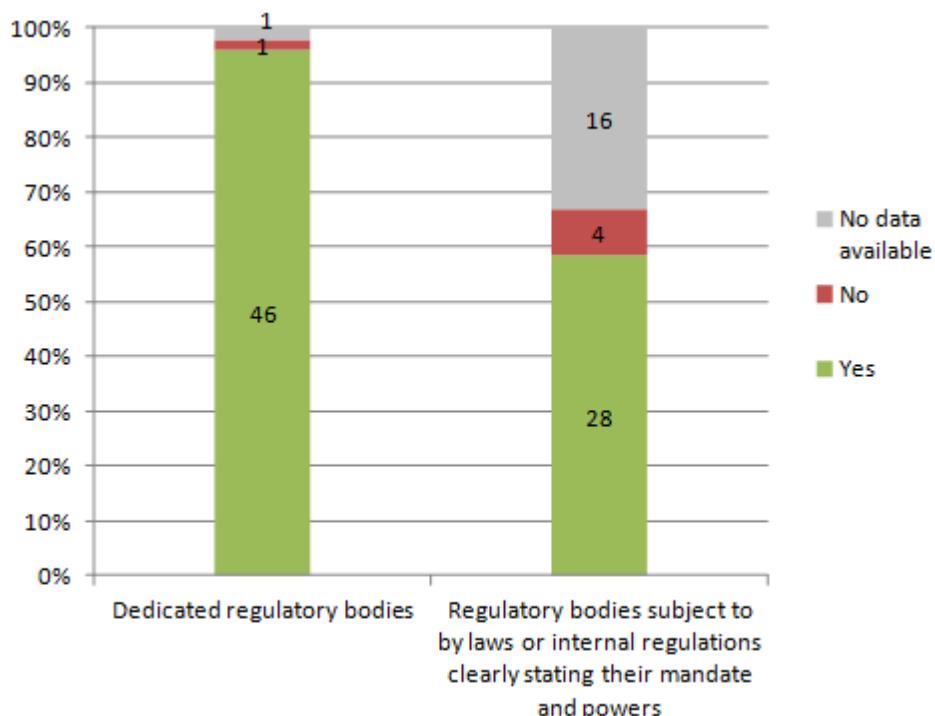
As stated by OECD Water Governance Principle 6, it is key for the sector to carry out sector reviews and strategic financial planning to assess short, medium and long term investment and operational needs and take measures to help ensure availability and sustainability of funding for both water resource management and water supply and sanitation provision. In addition, operational efficiency improvement can be a powerful leverage to reach financial viability.

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific; ADB (2018^[12]). Water Supply and Sanitation Services Investment Plan, Policies, and Institutional Reform 2018–2030. Unpublished

Limited effectiveness of regulatory frameworks: a focus on water services

Although dedicated water services regulatory bodies have been set up in nearly all countries of the Asia-Pacific region, no information could be found for one third of the surveyed countries regarding the definition of their mandate and powers in existing bylaws (Figure 2-7). This is more specifically the case for the Pacific countries (Cook Islands, Fiji, Marshall Islands, Palau, Nauru, Tonga, and Tuvalu). The success of the regulator in undertaking its functions is dependent on the breadth and depth of the powers granted by legislation and other defining texts and practices. A lack of clarity on regulators' prerogatives may create overlaps, competition or conflicting objectives with line-ministries and other water-related institutions, and put in jeopardy the effectiveness of water policy.

Figure 2-7. Share of countries having set-up a dedicated regulatory body/agency and clarified their mandate/powers, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

According to the OECD Best Practice Principles for the Governance of Regulators, “an effective regulator must have clear objectives, with clear and linked functions and the mechanisms to co-ordinate with other relevant bodies to achieve the desired regulator outcomes.” In particular, this suggests the need for:

1. Clear co-ordination mechanisms with other bodies (non-government and other levels of government) where this will assist in meeting their common objectives to reduce overlap and regulatory burden.
2. A founding legislation or other government tools to clarify the roles of the regulatory body so that the purpose of the regulator and the objectives of the regulatory scheme are clear to the regulator’s staff, regulated entities and citizens.

There is a large spectrum of regulatory functions routinely performed in relation to water services. Regulation of water services is not only about tariff regulation, it involves other functions, such as the monitoring of standards for access to and quality of services, the establishment of efficiency incentives, collection of information and monitoring of performance, and the organisation of users’ participation. In order to take stock of these various functions and support policy making in this area, the OECD has developed a typology of regulatory functions. They are of a different nature, some purely economic, some environmental and others embracing social issues, such as equity, affordability, universal coverage (Table 2-1).

Table 2-1. Typology of regulatory functions for water and sanitation services

Type of regulatory functions	Definition
Tariff regulation	Establishing a tariff methodology and/or setting and updating prices or supervising the tariff setting process, determining tariffs by consumer group, establishing caps on revenues or rate of return on investment.
Quality standards for drinking water	Setting quality standards for drinking water and/or monitoring compliance.
Quality standards for wastewater treatment	Setting quality standards for wastewater treatment and wastewater discharges and/or monitoring compliance.
Defining public service obligations/social regulation	Setting public service obligations (including requirements on access to services) and performance requirements for operators.
Defining technical/industry and service standards	Developing the standards that underpin the technical modalities and level of service delivery.
Setting incentives for efficient use of water resources	Establishing incentives or specific schemes to promote efficient water resource use.
Setting incentives for efficient investment	Establishing incentives or specific schemes to promote efficient investment.
Promoting innovative technologies	Establishing incentives or specific schemes to promote innovative technologies.
Promoting demand management	Establishing incentives or specific schemes to promote reduced water demands.
Analysing water utilities' investment/business plans	In some cases, the regulator may be asked to approve the business plan or the investment plan of utilities.
Information and data gathering	Collecting data from operators, undertaking market research to identify trends and potential risks.
Monitoring of service delivery performance	Monitoring of the performance of water services against a set of targets or of performance indicators. This can involve benchmarking water utilities.
Licensing of water operators	Granting or approving licences for the operation of water systems.
Supervision of contracts with utilities/private actors	The obligations granted by the public authorities to a specific utility may be detailed in a specific contract (it is usually the case when a private actor is brought in). The regulator may be tasked with the supervision of the contract.
Supervising utilities' financing activities	Monitoring the financial schemes of water utilities (e.g. bond issuance, equity investments).
Carrying management audits on utilities	Auditing and /or approving the business plans of utilities.
Customer engagement	Consulting with customers on regulatory issues; communicating regulatory decisions to the public.
Consumer protection and dispute resolution	Handling consumer complaints about regulated entities.
Advice and advocacy	Providing advice for policy making and project implementation; identifying opportunities for reforms, encouraging improvements to the regulatory framework.

Source: OECD (2015^[13]), The Governance of Water Regulators, <https://doi.org/10.1787/9789264231092-en>.

These regulatory functions do not necessarily have to be fulfilled by a single institution however, they need to be clearly spelt out and allocated to avoid overlaps and incoherence. They also need to be clearly differentiated from the roles of other authorities and bodies, such as the policy roles of government or the role in service provision of utilities (public or private) (Box 2-2).

Box 2-2. The Metropolitan Waterworks and Sewerage Systems Regulatory Office, Manila, the Philippines

In 1972, the Philippines Government turned the National Waterworks and Sewerage Authority (NAWASA) into the Metropolitan Waterworks and Sewerage System (MWSS). From a national agency, attending to water needs of the entire Philippines, the MWSS was tasked to provide water to Metro Manila and surroundings. Despite many efforts through the years, the MWSS hardly managed to satisfy the needs of its customers. As a result, the Government introduced urgent and significant measures for water resources conservation and water supply and management improvement.

Many laws were promulgated with a view to addressing the water crisis, among which the National Water Crisis Act of 1995 (RA #8041). This law states the need for the government to adopt urgent and effective measures to address the nationwide water crisis which adversely affects the health and well-being of the population, food production and industrialization process. It was followed by the enactment of Executive Order No. 286 which affected the reorganization of the MWSS and Local Water Utilities Administration (LWUA), and in March 1996, Executive Order No. 311 was implemented to encourage private sector participation in the management of MWSS. In 1997, two concession contracts were awarded; one to the Maynilad Water Services Inc. (MWSI) for the West Zone and one to the Manila Water Company, Inc. (MWCI) for the East Zone.

The MWSS Regulatory Office (RO) was created in August 1997 as a contract monitoring body with its legal basis in the contract document. The RO is managed by a collegial body composed of five members headed by the Director or Chief Regulator who has over-all responsibility for the operation of the office. Other members are the heads of the Technical Regulation area, Customer Service Regulation area, Financial Regulation area and Administration and Legal Affairs area.

Any action or decision by the RO on substantive matters affecting the Concession Agreement requires at least a majority vote of three members. The Chief Regulator chairs the RO meeting and holds final approval over the hiring and dismissal of all RO professional staff. The Chief Regulator also acts as the RO principal spokesperson.

RO is mandated to monitor the compliance of concessionaires with their contractual obligations. Among its many functions, RO reviews, monitors and enforces rates and service standards to customers; arranges and reports regular independent audits on the performance of the Concessionaires; and monitors the infrastructure assets.

Source: Metropolitan Waterworks and Sewerage Systems Regulatory Office website, <http://ro.mwss.gov.ph/>

The core functions of the majority of water regulators can be structured around 4 areas:

- Economic regulation (tariff setting and review of utilities' investment plans);
- Data collection and performance monitoring related to water services;
- Analysis of water utilities' investments/business plans; and
- Customer engagement and protection.

By contrast, activities related to quality standards for drinking water or for wastewater treatment are for the majority of water regulators outside of the scope of their responsibilities as they usually fall within the remit of ministries of health or environmental protection agencies/ministries. Where the regulator has a role, it is generally in relation to the enforcement of the quality standards.

Limited uptake of water policy instruments to manage trade-offs

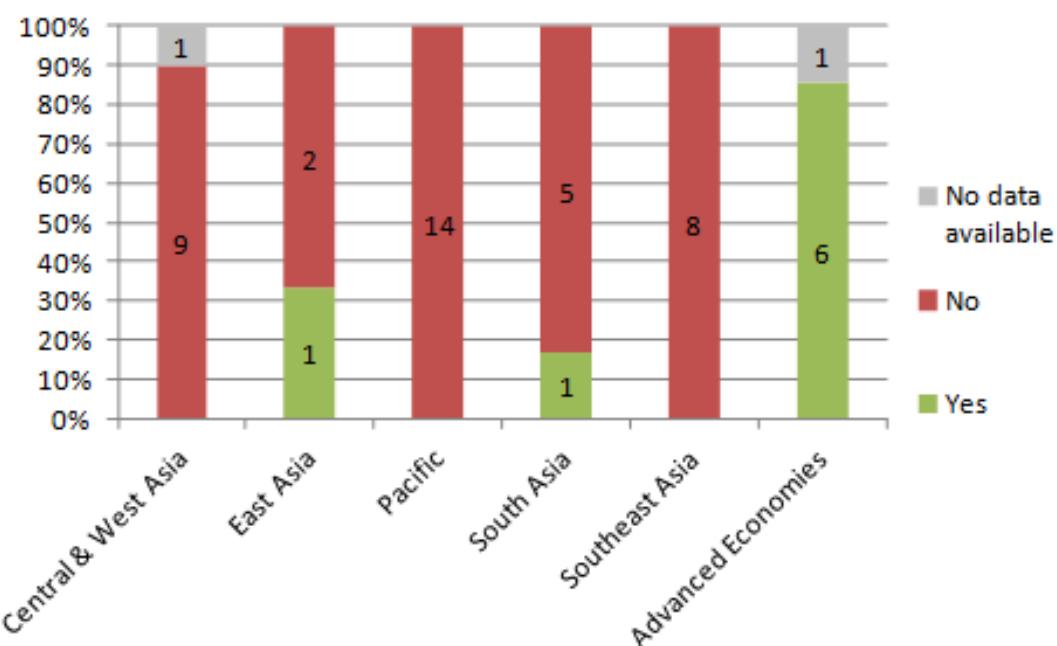
A minority of countries are allocating and monitoring groundwater extractions

Despite the existence of water coordination mechanisms in most Asia – Pacific countries (see section 1), significant water management issues remain. Indeed, in 2018, the UN highlighted the urgency of improving IWRM in Asia (OECD, 2011^[14]). Globally, 60% of countries are at risk of using water resources with negative environmental, social, and ultimately economic consequences unless IWRM implementation is significantly improved, in particular in Central Asia and South Asia (where nearly 90% of IWRM implementation is considered medium-low or worse) and in East and Southeast Asia (around 62% of IWRM implementation is considered medium-low or worse).

Findings from the survey on water governance show that in 79% of the Asia – Pacific countries, there is no policy instrument to allocate or monitor groundwater extractions. This is particularly the case in the Pacific, South East Asia, Central and West where no country allocates nor monitors groundwater while, in South Asia, one only country (Bhutan) allocates and monitors groundwater (Figure 2-8).

The OECD Environmental Outlook to 2050 highlights that water resources are already over-used or over-allocated in many places. Groundwater in many parts of the world is becoming increasingly degraded due to the impact of pollutants. In Japan and Korea, nutrient surplus per hectare of agricultural land have already reached high levels (OECD, 2012^[4]) It is also being exploited faster than it can be replenished as between 1960 and 2000, the rate of groundwater depletion more than doubled (OECD, 2012^[4]). In addition, the more general absence of monitoring and evaluation systems is preventing any proper long-term management of water resources. In Asia-Pacific, the limited adoption of water policy instrument to manage groundwater represents a major threat to water security in these countries, since in cities such as Bangkok or Manila, for instance, groundwater sources are threatened due to over withdrawals with aquifer levels falling by 20 to 50 metres. Moreover, water stress is expected to increase in Central Asia, and in countries such as Bangladesh, China, India, Indonesia and Pakistan, the lack of conjunctive management of surface and groundwater sources, together with insufficient cross-sectoral coordination between agriculture, energy, and drinking water supply are also resulting in over-abstraction of groundwater sources. In India, about 90% of the groundwater extracted is used for irrigation. Agricultural use of groundwater has been supported by supply-driven policies that provide farmers free or heavily subsidized grid electricity and pumps (Dubash, 2007^[15]) (Shah, 2014^[16]) (Zaveri, 2016^[17]). This has contributed to an unfolding water crisis (Biswas, 2017^[18]) leading to the depletion of groundwater sources (World Bank, 2010^[19]). In 2016, the Asian Water Development Outlook (Asian Development Bank, 2016^[20]) already spotted that more than a third of the world's irrigated area was served by groundwater, of which nearly 70% in Asia, with China, India and Pakistan ranked as the biggest consumers. Moreover, of the world's 15 biggest abstractors of groundwater, seven are located in the Asia – Pacific region, with China, India and Pakistan potentially accounting for 86% of total groundwater abstraction in the region by 2050. This is a major concern for water security as a large share of population living in these areas will face a severe water scarcity.

Figure 2-8. Share of countries allocating and monitoring groundwater extractions per geographic area, Asia – Pacific region



Note: 48 countries surveyed

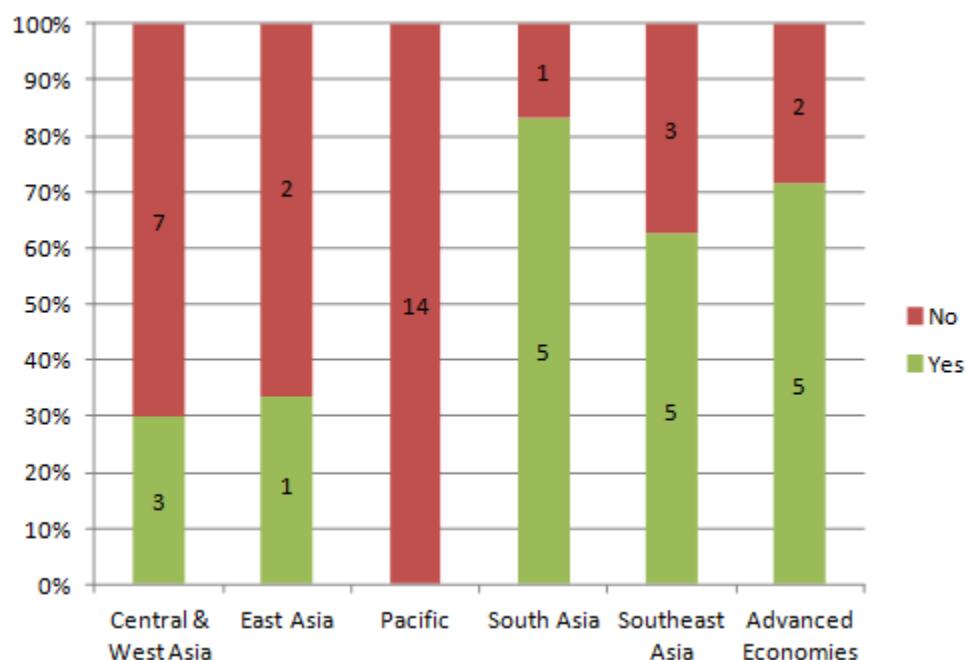
Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

A minority of countries have set up water allocation regimes

The predominant absence of water allocation regimes also represents a major concern for water security in the Asia-Pacific region. The term “water allocation regime” is used to describe the process and tools involved in sharing water resources amongst different water users. This includes establishing water resource plans that define the availability of water and granting water permits to individual water users. It also includes allocating water resources over the long term, as well as seasonal adjustments to the amount of water available to different users, and the allocation of both surface waters and groundwater. Several tools exist for translating allocation principles into concrete water management. They include water management plans, water permits, collective entitlements, and enforcement and monitoring tools.

The survey on water governance revealed that two thirds of the Asia – Pacific countries have not set up a prioritization of water allocation among users in case of scarcity or emergency (Figure 2-9). This is mostly observed in the Pacific, Central & West Asia (where only Armenia, Azerbaijan, and Pakistan have set up priority water allocation regime) and East Asia (only China has set up priority water allocation regime) where the risk of “too little water” is most vivid, thus jeopardising further water security.

Figure 2-9. Share of countries prioritising water uses in case of scarcity/emergency per geographic area, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Despite the absence of water allocation regime in two-thirds of the Asia – Pacific countries, it should however be noted that half of them have set up mechanisms to solve water-related conflicts. Hence if an ex-ante water regime policy is not commonly in place in the region, an ex-post mechanism has been adopted in a majority of countries.

Limited use of economic instrument to manage water resources

In addition to policy instruments, economic instruments can also play a critical role in managing water risks at least cost for the community (Table 2-2).

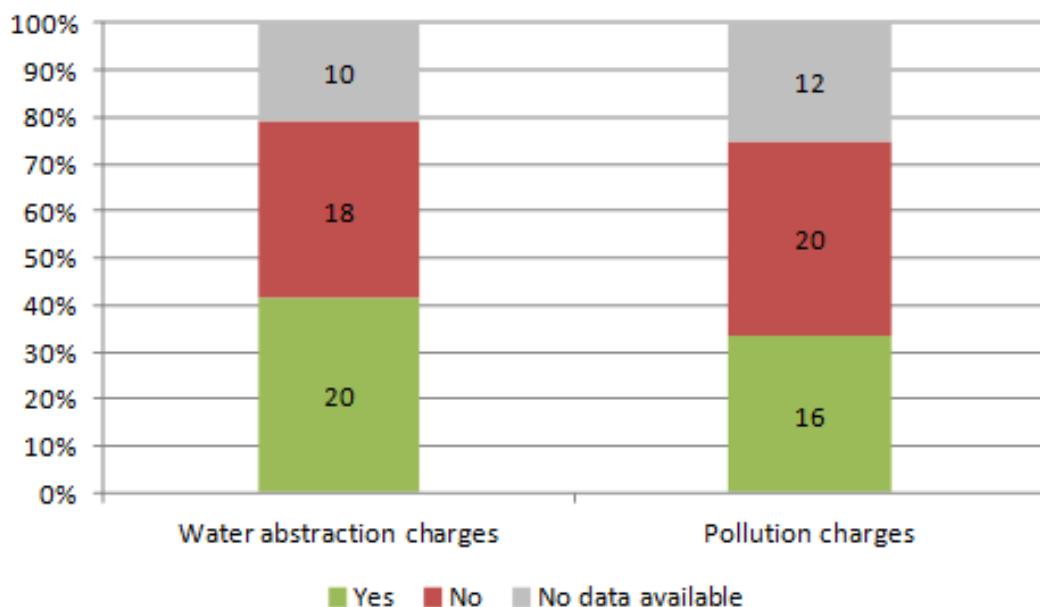
Table 2-2. An inventory of economic instruments for water management

Type of economic instrument	Advantage of use
Marginal social cost pricing, incorporating the scarcity value of water (a combination of user tariffs and abstraction charges)	Signals the optimal time to invest in water infrastructure so that supply is augmented efficiently Reduces demand for water during periods of scarcity
International and regional water markets	Allows trade of water from areas of surplus to increase the water supply in areas of scarcity Allows trade of water from low to high value uses creating incentives to use water efficiently and reduce demand
Buy-backs of water use rights	Secures water for environmental flows and offsets economic losses
Emission permit trading for point and nonpoint pollution	Allows pollution to be reduced from the lowest cost sources
Emission taxes and pollution charges	Creates ongoing incentive for all sources to reduce pollution
Insurance schemes	When premium reflect risks level, insurance schemes can reduce the exposure of economic assets to (flood) risks and provide incentives to locate in low-risk areas

Source: OECD (2012^[21]), A Framework for Financing Water Resources Management, <https://doi.org/10.1787/9789264279820-en>

Among possible economic instruments, water abstraction and pollution charges are the most widespread in OECD countries. They act as pricing instruments that partially reflect some of the costs associated with using or polluting water. These charges can be used to fund the costs of managing water resources and regulating activities that impact upon water availability and quality. The general principle for setting water/pollution charges is to reflect the externalities that water abstraction or pollution by one user causes to third parties and the environment. However, this task requires an important capacity to produce, update and share consistent and comparable data and information on the state of environment and resources, and to carry out technical and socio-economic assessments. These capacity and data requirements are a real challenge for most countries in the region. This can partly explain why the survey on water governance shows that abstraction and pollution charges are only collected in approximately one third of the countries in Asia – Pacific, with abstraction charges being implemented in slightly more countries than pollution charges (Figure 2-10). In addition, it should be noted that there are no water trading schemes in place in the region – except in Australia and New Zealand (Box 2-3) – nor payment for ecosystem services schemes.

Figure 2-10. Share of countries having adopted abstraction and pollution charges, Asia – Pacific region

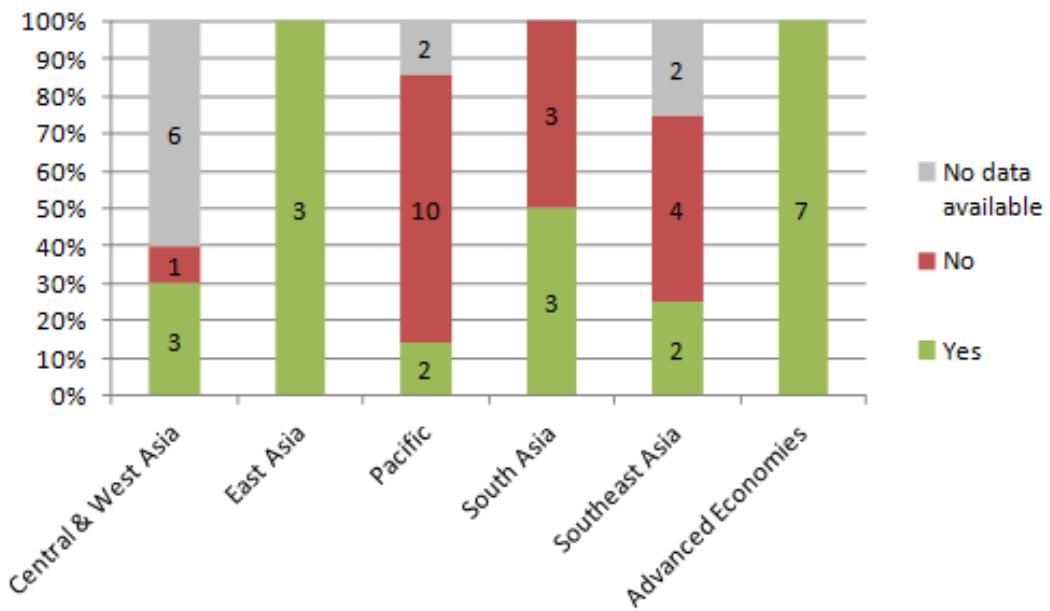


Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Abstraction and pollution charges are most absent in the Pacific countries (except Kiribati, which has adopted both types of instruments, and Vanuatu which has adopted abstraction charges), and in Southeast Asia (Philippines has adopted both charges – but their implementation is weak - while Viet Nam has adopted abstraction charges) (Figure 2-11 and Figure 2-12). On the contrary, all advanced economies (Australia, Brunei Darussalam, Hong Kong – China, Japan, Republic of Korea, New Zealand, and Singapore) have adopted both abstraction and pollution charges, while all countries from East Asia (People's Republic of China, Mongolia, and Taiwan – China) have adopted abstraction charges.

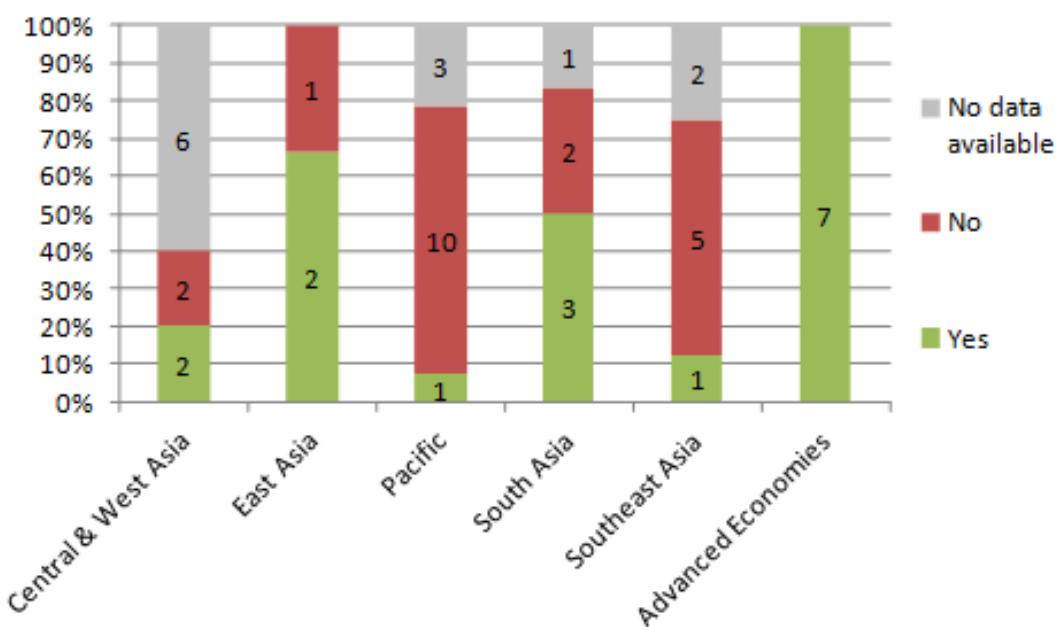
Figure 2-11. Share of countries having adopted abstraction charges per geographic area, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Figure 2-12. Share of countries having adopted pollution charges per geographic area, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Box 2-3. Water quality trading in New Zealand

To date, market-based instruments to address water pollution in OECD countries have been limited (primarily to point-point sources), but there is growing interest in their use. The Lake Taupō nitrogen market, New Zealand, is the first diffuse source nitrogen pollution market in the world, enabled by a national computer model to cap nitrogen emissions at the catchment scale and allocate discharge allowances to individual farmers for trading (OECD, 2017). The target was to reduce manageable nitrogen emissions to 20% below current recorded levels, to restore water quality and clarity to 2001 levels by 2080.

The Waikato Regional Council, Taupō District Council and Ngati Tuwharetoa (the local iwi) implemented an innovative diffuse water quality trading project, comprising three components: i) a cap on nitrogen emission levels within the Lake Taupō catchment by OVERSEER®; ii) establishment of the Taupō nitrogen market; and iii) formation of the Lake Taupō Protection Trust to fund the initiative. The costs were to be spread across local, regional and national communities; the independent Lake Taupō Protection Trust was established in 2007 to use public funds (NZD 79.2 million) to buy back allocated nitrogen allowances to retire land and to reduce the economic and social impacts of the nitrogen cap. The trading scheme was also complemented by the New Zealand Emissions Trading Scheme, which came into force during the early stages of the project and advancing the achievement of nitrogen reductions; the promotion of forestry land-use change from pasture to forestry not only surrendered nitrogen discharge allocations and, but also received carbon sequestration credits for a time.

The policy package has been fully implemented. It is providing the flexibility for land to move to its highest value and best use, and still meet the overall nitrogen load reduction targets. The use of the model OVERSEER® is essential to the cap-and-trade programme, providing incentives for farmers to reduce nitrogen emissions. The Lake Taupō Protection Trust has permanently retired 20% of the original nitrogen discharge allowances. New lower-nitrogen ventures are emerging in the catchment, such as growing olives, farming dairy sheep, and producing and marketing “sustainable” beef. The environmental certainty enables development of added-value products with credible green branding. It also generated positive environmental impacts, particularly carbon sequestration, from the reforestation of more than 5 000 ha of land to pine plantations.

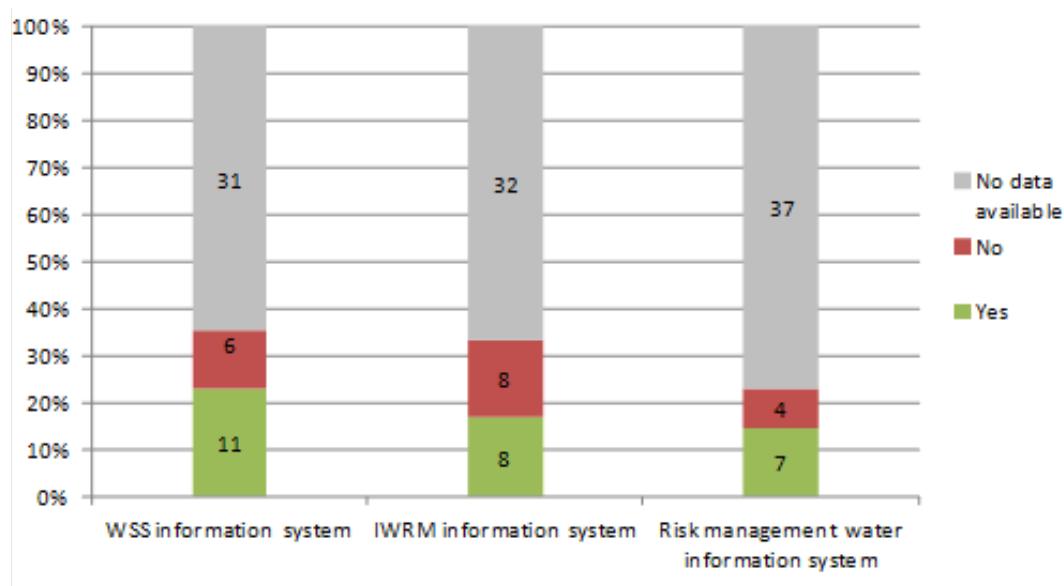
Source: OECD (2017^[22]), Diffuse Pollution, Degraded Waters: Emerging Policy Solutions, <http://dx.doi.org/10.1787/9789264269064-en>.

The absence or low enforcement of economic instruments to manage water resources can represent a threat for water security in the Asia-Pacific region. Indeed, many countries lack such tools to drive behavioural change of water users and polluters towards greater internalisation of economic consequences of and payment for the costs of managing water resources and regulating activities that affect water availability and quality. In Japan, water pricing arrangements basically do not reflect water scarcity. Instead, a legal and authoritative instrument such as use restriction is implemented during episodes of scarcity to co-ordinate water use among stakeholders (OECD, 2015^[23]). However, abstraction charges vary according to each prefecture and related ordinance, some of which have in place local water conservation taxes (e.g. Kanagawa-ken, Okayama-ken, Tottori-ken, Akita-ken, Kumamoto-ken, Yamaguchi-ken, Shimane-ken, Toyama-ken, among 47 prefectures) (OECD, 2018^[7]). This tax is set to cover environmental costs, mainly cost generated from groundwater abstraction and pollution.

Patchy and insufficient data and monitoring

The survey on water governance reveals the widespread absence of water-related data and information across most of the Asia-Pacific region – except the Advanced economies (Australia, Hong Kong – China, Japan, Republic of Korea, New Zealand). This lack of data affects water and sanitation services, water resource management as well as water-related disaster information systems (Figure 2-13). In addition, the findings from the survey on water governance show that a large share of information could not be found (“No data available”) which confirms that water-related data is either missing or not readily available to the public. This result in itself highlights the crucial need for public actions to enhance water-related data production and disclosure.

Figure 2-13. Share of countries having set-up water-related information systems, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Missing and patchy information remains a prominent obstacle to effective water policy implementation in most countries surveyed. In particular, adequate information generation and sharing among relevant actors as well as the scattering and fragmentation of water and environmental data are important bottlenecks across ministries, agencies and levels of government involved in water policy. In addition, several data-related challenges inhibit integrated water policies (including dispersion of water-related data, data redundancy and inconsistency, data reliability and quality, data compatibility, etc.) (Box 2-4).

Box 2-4. Segmentation and asymmetries of water-related information in Karnataka, India

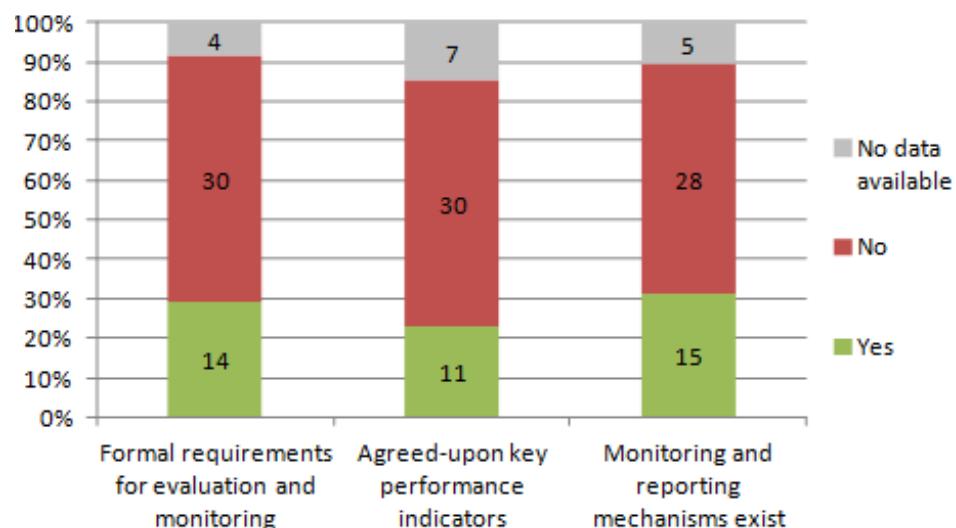
Despite the significant efforts made by the State of Karnataka in data collection, the monitoring systems appear quite inadequate in comparison with the scale of the State territory and the complexity of water flow and use. Stream flows are being measured in less than 40 locations (apart from a similar number of locations monitored by the Central Water Commission). The equivalent of one well per 200 km² is being monitored. Groundwater extraction and water quality monitoring are limited, while that of aquatic ecosystems is non-existent. Most data is not available in real-time and are not publicly accessible or published. In addition, water-related data are dispersed among a wide range of sources. There are no less than 7 entities⁴ in charge of collecting/producing water-related data in Karnataka. This creates various issues including data redundancy and inconsistency, data reliability and quality, data compatibility, etc. An integrated and harmonized database of water-related data on rainfall, geology, surface water and ground water quantity and accuracy, water extraction and use, irrigated area, etc. would help overcome these issues, better inform policy makers, and move away from silo approach. Streamlining State level institutions in charge of data production into a dedicated State Water Resources Data and Information Centre could be considered. This would help reduce the segmentation and asymmetries of information among water stakeholders.

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

The lack of data and information is hindering water policy evaluation and monitoring. It is striking to note that in two-thirds of the Asia – Pacific countries, there are no formal requirements for evaluation and monitoring (Figure 2-14) (only Solomon Islands in the Pacific, Bhutan in South Asia, Azerbaijan and Armenia in Central and West Asia, and Indonesia, Malaysia and Viet Nam in Southeast Asia have implemented such requirements). This means that the implementation of dedicated water policies is in fact hardly ever monitored. The absence of periodical review and scrutiny of water policies is preventing the assessment of policies effectiveness and potentially from implementing remedial actions when policies are not delivering intended outcomes. This situation may aggravate further water security especially when policies are being partly implemented as stated in the previous section.

⁴ Karnataka State Natural Disaster Monitoring Centre, Karnataka Engineering Research Station, Karnataka Pollution Control Board, Water Resources Development Organisation, Water User Associations, Water User Cooperative Society, Integrated Water Resource Management Steering Committee.

Figure 2-14. Share of countries having set-up water-related monitoring practices, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Data and information gaps also prevent governments from taking water policy decisions based on updated and reliable evidence. The OECD (2016) found that in some important cities of the ASEAN-5 countries (Bangkok, Iskandar Malaysia, Bandung, Hai Phong, Cebu), basic indicators such as water consumption, sources of water supply for households and industries, share of households equipped with well-maintained septic tanks, quality of rivers and other water bodies, or quality of drainage infrastructure, were missing. Technology could help bridge these data gaps, but require an enabling environment to be implemented. For instance, if there is no effective co-ordination and experience sharing among organisations and agencies producing water-related data in national governments but also across levels of government, the data collected will not be timely, consistent, or comparable, and can finally result in being policy irrelevant. A possible solution to overcome these issues could be to seek inspiration from existing, standardised, and well-maintained database (Box 2-5).

Box 2-5. The International Benchmarking Network, an example of standardised database on water and wastewater utilities' performance

The International Benchmarking Network for Water and Sanitation Utilities (IBNET) is an initiative to encourage water and sanitation utilities to compile and share a set of core cost and performance indicators, and thus meet the needs of the various stakeholders. It sets forth a common set of data definitions; a minimum set of core indicators, and provides software to allow easy data collection and calculation of the indicators, while it also provides resources to analyse data and present results. Sharing of results is critical to successful performance comparisons (benchmarking).

The objective of IBNET is to support access to comparative information that will help to promote best practice among water supply and sanitation providers worldwide and eventually will provide consumers with access to high quality, and affordable water supply and sanitation services. By providing access to comparative information key stakeholders will get the information to do their jobs better:

- Utility managers and employees can identify areas for improvement, adopt realistic targets and—not least—convince authorities of the need for change;
- Governments can monitor and adjust sector policies and programs;
- Regulators can ensure that customers get value, and providers have incentives to perform;
- Customer groups and NGOs can exercise “voice” in an informed way;
- International aid agencies and advisers can identify what works, advise their clients accordingly and back the advice with convincing “before-after” and “with-without” stories;
- Private investors can identify viable markets and opportunities for creating value.

Utility stakeholders routinely search for information about the performance of their utility, and that of comparator organizations, both nationally and internationally. Unfortunately such information is not routinely available – not because of a lack of interest, but more because of a lack of a common framework within which to communicate and share the information effectively.

Selection of appropriate cost and performance indicators will depend on the situation facing each utility, as well as the target audience for the information. Policymakers are looking for highly aggregated information, while utility managers want to see detailed information.

The indicators in the IBNET Toolkit are presented under a number of headings. They are considered a minimum (core) set and were developed after discussions with a wide range of water professionals. Likely availability of data was a critical factor in the selection of indicators.

The “Core Water Supply and Wastewater Indicator Categories” include service coverage, quality of service, water consumption and production, billing and collections, non-revenue water, financial performance, metering practices, assets, pipe network performance, affordability of service, cost and staffing, and process indicators.

The set will not, and is not intended to, fulfil the needs of all the stakeholders in all water and sanitation utilities. Such comprehensive measurement sets would list many pages of indicators, data items, and their associated definitions. Most utilities will, however, benefit from knowing how they perform in each of these core ratios, how their ratios are moving over time, and how they compare with their peers—nationally and internationally.

It is expected that each utility will enhance this core set by adding its own utility-specific indicators. Such indicators might consider additional manpower, cost, financial, or quality of service or poverty issues, which are of particular relevance to the utility and its stakeholders.

Source: IBNet website, <https://www.ib-net.org/>

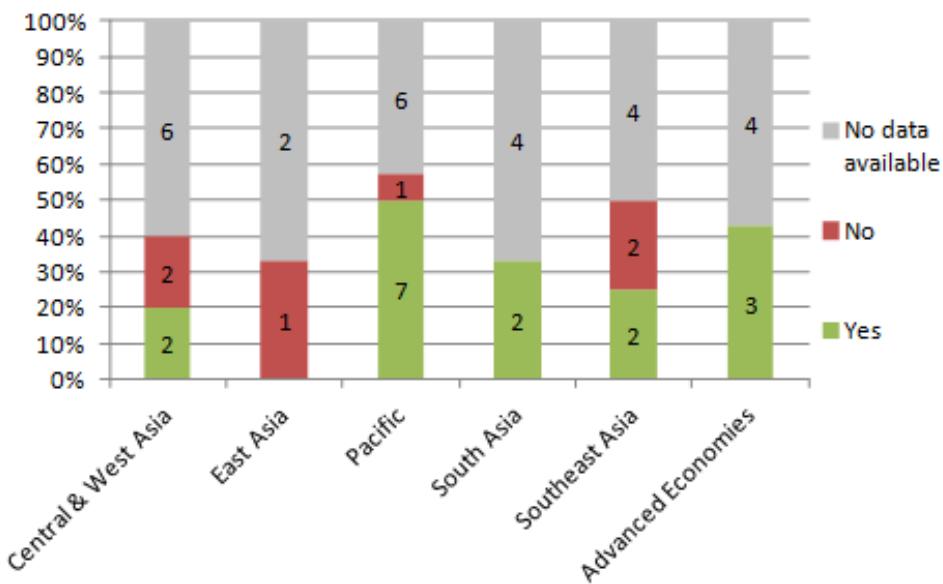
In Kyrgyzstan, improving data collection for rural water services has enabled better informed policy discussions and budgeting decisions from national sources and international development partners. In 2016, the National Statistic Committee, in collaboration with relevant ministries for water policies in Kyrgyzstan and the UNDP GoAL WaSH, developed and implemented a water services reporting form for rural areas that will be used on an annual basis. The form produces timely, comparable and coherent data. It has helped to adjust the Action Plan of the National Strategy of Drinking Water Supply and Sanitation. Based on the data reported for 2016, and the needs revealed, the national budget for rural drinking water supply increased from approximately USD 1.17 million in 2016 to USD 3.0 million in 2017. At the same time, thanks to the reliable information provided, support from development partners is expected to reach up to USD 70 million by 2023 (OECD, 2018^[7]).

An important capacity gap

In many countries, the lack of information and limited monitoring are exacerbated by the lack of capacity, resources and expertise to collect, analyse and interpret water data. This lack of capacity refers not only to the technical knowledge and expertise (in terms of planning, rule-making, project management, finance, budgeting, enforcement risk management and evaluation), but also to the lack of staff and time as well as obsolete infrastructure. It includes, for instance, low capacity in public procurement, tendering and contract management processes, as well as the lack of skilled staff able to design, manage and implement investment projects. Such a capacity gap can result in a low level of capital expenditure deriving from a low absorption rate of international grants and transfers due to weakened implementation of investment projects.

However, the capacity gap observed is not restricted to the sub-national level but applies to all levels of government. Indeed the survey on water governance underlines that only one third of the countries in Asia – Pacific have adopted guidelines or standards for capacity building across authorities at all levels; mainly in Advanced economies (Australia, Japan, New Zealand, Republic of Korea) and in countries of the Pacific (Fiji, Kiribati, Marshal Islands, Naura, Samoa, Solomon Islands, and Vanuatu) (Figure 2-15). In addition, the survey results show that a large share of information regarding capacity building could not be found (“No data available”) which confirms that either capacity building guidelines are missing or that they are not readily available to the public. This result in itself highlights the crucial need for public actions to enhance, and communicate on, capacity building of water-related institutions.

Figure 2-15. Share of countries having set-up guidelines or standards for capacity building across authorities at all levels, per geographic areas, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

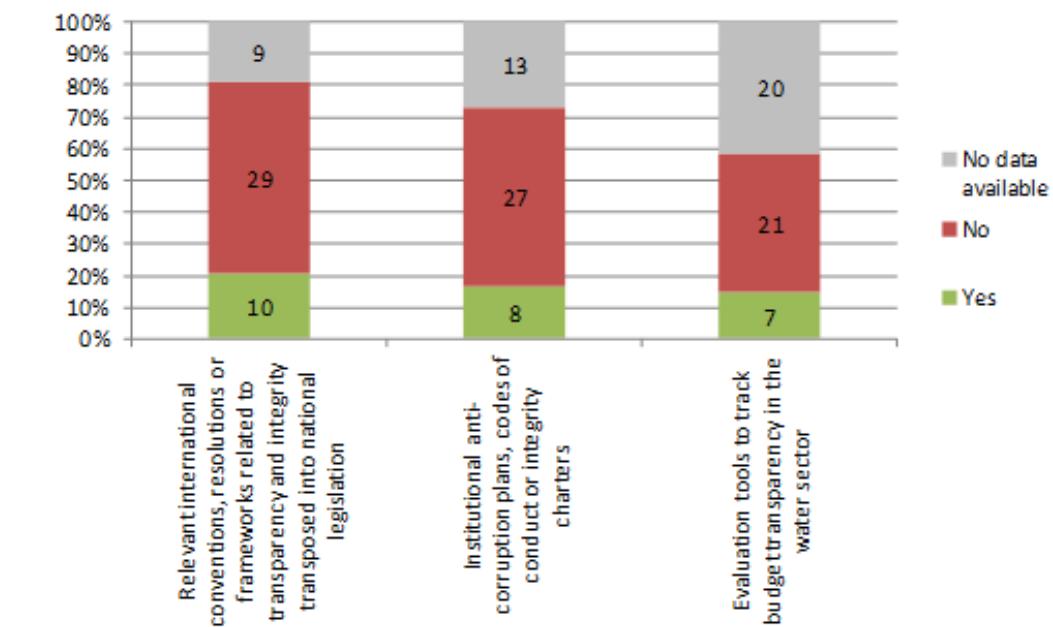
As a result, enhancing capacities in many countries of the Asia-Pacific region for both water resources and water services management is much needed as a precondition for an effective governance of water policy. Often, policy makers tend to focus on the construction and maintenance of water networks, thus seeking primarily a “technical” response to water challenges. This has proved to be insufficient to cope with climate change, enhance water risk management (floods, droughts, pollution) and address cross-border issues in the Asia-Pacific region. Institutional strengthening and capacity-building at all levels is crucial for effective water policies. For instance, such capacity building is a prerequisite for effective channeling of financial resources to make investment projects happen, or to prioritise investments according to their cost-benefit for the society, as well as to implement utility efficiency turnaround.

Limited uptake of integrity practices and tools

In addition to capacity enhancement, transparency and integrity also require improvement. The survey on water governance underlines a low level of implementation of integrity tools. Less than 20% of countries in Asia – Pacific (Armenia, Australia, Hong Kong – China, Japan, New Zealand, Singapore, Bhutan, India, Indonesia, Thailand, Taiwan – China, and Vanuatu) have implemented relevant international conventions, institutional anti-corruption plans, or tools to track budget transparency (Figure 2-16). This low level of adoption of integrity tools can be a major threat to water security as investments can be discouraged by widespread corruption practices, despite considerable needs. This can, for instance, prevent the increase in water and sanitation coverage thus hindering the potential for economic development, health and hygiene improvement, or ecosystems preservation. Public procurement represents on average 13% to 20% of world GDP. Global expenditure in procurement is estimated at nearly USD 9.5 trillion throughout the world (OECD, 2015^[24]) and, according to the UN Office on Drugs and Crime, 10% to 25% of a public contract’s overall value may be lost due to corruption (OECD, 2015^[25]). According to the UN Global Programme Against Corruption, corruption emphasizes water scarcity threat by undermining government institutions, increasing the gap between rich and poor, and fostering illicit behaviours which in turn

threatens social and political stability and triggers violence. Whereas the magnitude of corruption varies substantially between countries and across water sub-sectors, the World Bank has assessed that 20% to 40% of the water sector finances are being lost to dishonest practices (World Bank, 2006^[26]).

Figure 2-16. Share of countries having adopted integrity and transparency tools and mechanisms, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Mainstreaming integrity and transparency practices across water policies, institutions and governance frameworks is key for greater accountability and trust in decision-making, and for effective implementation of water policies (Box 2-6). For example, in Indonesia, the Jasa Tirta I Public Corporation (PJT1) has used norms and codes to mainstream integrity and transparency practices in its activities. Established in 1990, the PJT1 is a state-owned legally independent organisation that manages five river basins. The PJT1 has become a model of integrity for other Indonesian river basins and beyond. The PJT1 started mainstreaming integrity practices into its day-to-day activities back in 2002, when the corporation adopted the Indonesia Financial Accounting Standards and started submitting on a regular basis accountability reports to the Ministry of State Owned Enterprises. The PJT1 then implemented good corporate governance practices such as codes of conduct, integrity pacts and whistle-blowing mechanisms. Moreover, all employees must sign the corporation's integrity pact (OECD, 2018^[7]).

Box 2-6. Bhutan Transparency Initiative

In April 2013, a group of volunteers joined forces to found Bhutan Transparency Initiative (BTI) and establish a reference institution to put corruption under the spotlight by increasing transparency, integrity and accountability in Bhutan through the provision of policy-oriented research, development of training tools and facilitation of policy dialogue. The organization was granted the status of civil society organisation (CSO) in November 2014. In order to increase transparency and strengthen accountability, BTI sources and utilizes expertise from around the world to develop tools and conduct a specific and in-depth assessment, research and studies in key areas. Such activities include, for instance, the National Integrity System Assessment (NISA) or the Youth Integrity Survey. The compilation of the findings of existing studies on corruption-related issues are translated into recommendations to reinforce policy changes or stimulate further debate on corruption issues.

BTI works closely with other relevant stakeholders including the National Anti-Corruption Commission, CSOs, media and other professional research institutes to foster public acceptance, partnerships, and ownership of the findings from the above mentioned studies and research.

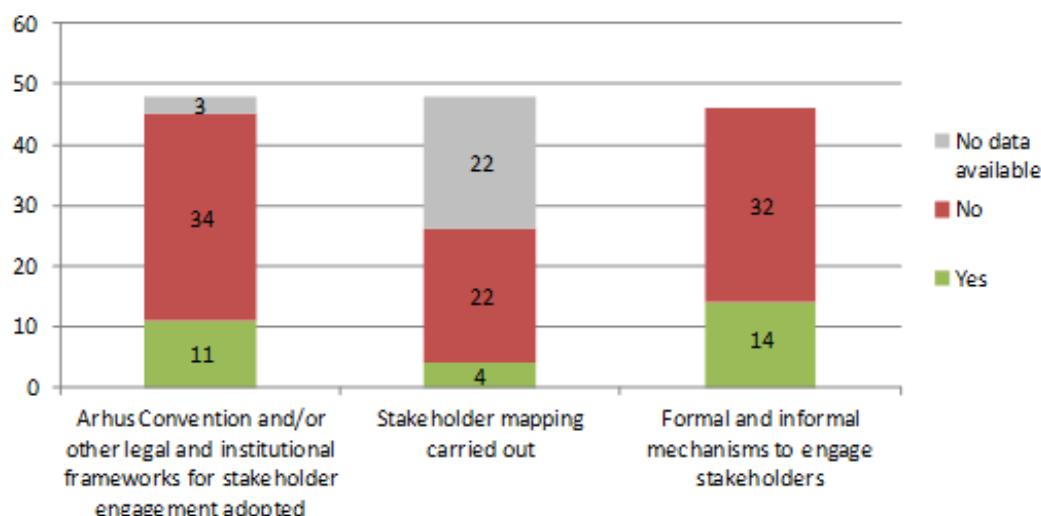
BTI plays a role of Resource Centre for supplying relevant anti-corruption tools and materials to all relevant stakeholders. It looks into best practices, and models from other countries in the region and around the world with regard to effective tools used to fight corruption and promotes their adoption in Bhutan.

Source: Bhutan Transparency Initiative website, <http://bhutantransparency.org/>

Limited stakeholder engagement

The data and information gap described above is also hampering stakeholder engagement, which is rather low in the Asia – Pacific region. For instance, less than 1% of the countries (mainly Advanced Economies: Australia, New Zealand, Republic of Korea,) have carried out a stakeholder mapping (Figure 2-17). Such a mapping allows to clearly identify public, private and non-profit actors who have a stake in the outcome or who are likely to be affected by water-related decisions, as well as their responsibilities, core motivations and interactions. This mapping can be considered as a first step to guide and build effective and outcome-oriented stakeholder engagement processes.

Figure 2-17. Number of countries having set up stakeholder engagement mechanisms, Asia – Pacific region



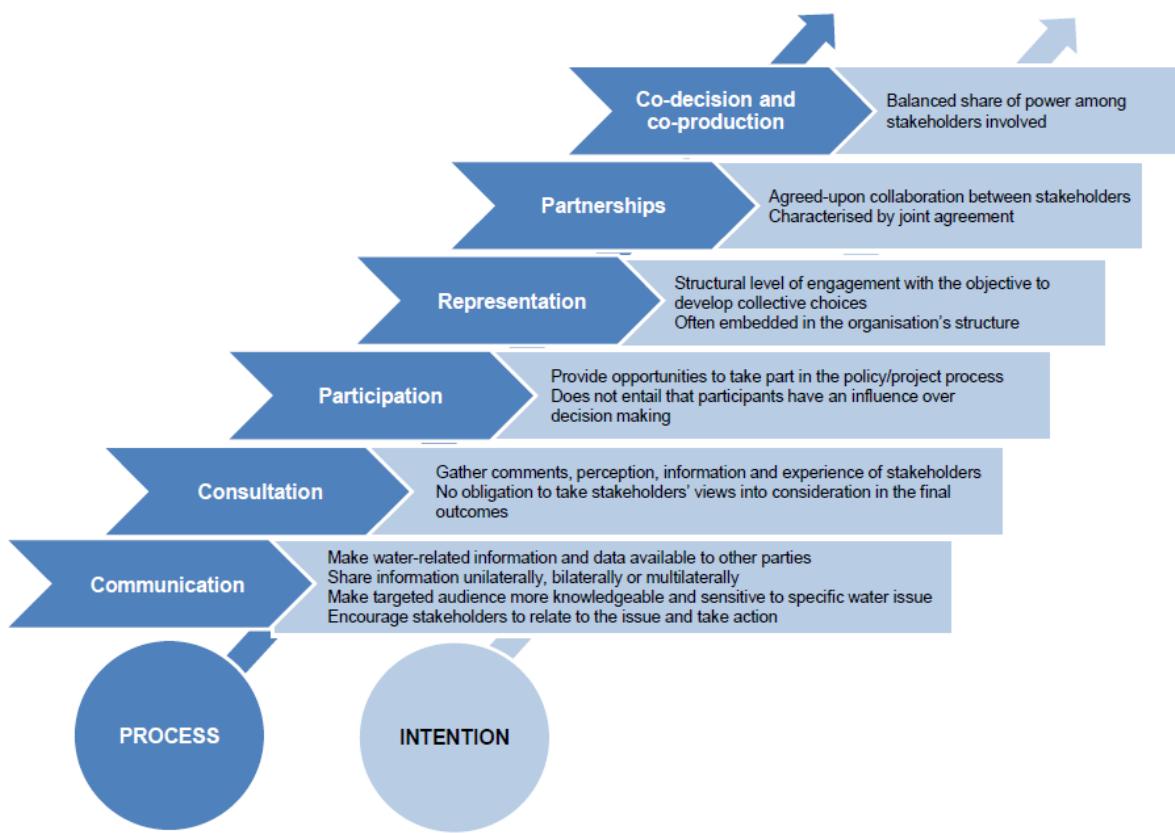
Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Furthermore, only one third of the surveyed countries have implemented formal or informal mechanisms to engage on water-related topics with stakeholders. These include Armenia, Turkmenistan, Australia, Japan, New Zealand, Singapore, Bhutan, India, Nepal, Indonesia, Malaysia, Philippines, Mongolia, and Taiwan - China.

Despite the fact that 81% of the Asia – Pacific countries have set up river basin organisations, it is quite striking to note that only 27% of these countries have set-up peer-to-peer dialogue platforms across river basin organisations or network of river basin organisations, namely Kazakhstan, Australia, Japan Republic of Korea, New Zealand, Bangladesh, Nepal, Sri Lanka, Cambodia, Indonesia, Mongolia, and Viet Nam. When these engagement mechanisms don't exist, countries are not reaping the full benefits of having set-up these multi-stakeholder and multi-level coordination mechanisms which can be used to promote engagement. These results show a clear need to develop further stakeholder engagement in water decision making. To do so, various processes of engagement can be used, depending on the intention pursued. The first level of possible stakeholder engagement is communication, which intends primarily to share information and raise awareness but implies that engagement is mostly passive, i.e. stakeholders are provided with information related to a water policy or project but not necessarily with the opportunity to influence final decisions. The levels of engagement can be incremental, up to co-production and co-decision, which correspond to more intensive decision making where stakeholders exercise direct authority over the decisions taken. Stakeholder engagement is therefore a multi-faceted exercise with various progressive levels that imply different forms and intensity of stakeholder engagement (Figure 2-18). For instance, in Karachi (Pakistan), stakeholder engagement, through a partnership arrangement, has led to more effective implementation of water services policies and projects. The Karachi Water Partnership (KWP), formally launched in April 2007, brings government, private sector and civil society together. The core value of the KWP is that improving water services in the city is a shared responsibility across all stakeholder groups. During 2007-13, the KWP signed seven Memoranda of Understanding with local institutions for the implementation of water services projects (OECD, 2018^[7]).

Figure 2-18. Levels of stakeholder engagement



Source: OECD (2015[23]), Stakeholder Engagement for Inclusive Water Governance, <https://doi.org/10.1787/9789264231122-en>.

Way forward: key improvement areas and priority actions in Asia-Pacific

Building upon the results of the survey on water governance in Asia-Pacific, key areas and priority actions for governance improvement have been identified for each geographic sub-region (Table 2-3).

Table 2-3. Key improvement areas and priority actions to bridge governance gaps in Asia - Pacific

Geographic sub-region ⁵	Improvement area	Suggested priority actions
Central and West Asia (Afghanistan, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Pakistan, Tajikistan, Turkmenistan, Uzbekistan)	Stakeholder engagement	<ul style="list-style-type: none"> - Map public, private and non-profit actors who have a stake in the outcome or who are likely to be affected by water-related decisions, as well as their responsibilities, core motivations and interactions - Customise the type and level of stakeholder engagement to the needs and keep the process flexible to adapt to changing circumstances
	Integrity	<ul style="list-style-type: none"> - Promote legal and institutional frameworks that hold decision-makers and stakeholders accountable, such as the right to information and independent authorities to investigate water related issues and law enforcement - Encourage norms, codes of conduct or charters on integrity and transparency in national or local contexts and monitoring their implementation
	Trade-offs	<ul style="list-style-type: none"> - Promote public debate on the risks and costs associated with too much, too little or too polluted water to raise awareness, build consensus on who pays for what, and contribute to better affordability and sustainability now and in the future - Encourage evidence-based assessment of the distributional consequences of water-related policies on citizens, water users and places to guide decision-making
Advanced economies (Australia, Brunei Darussalam, Hong Kong – China, Japan, Republic of Korea, New Zealand, Singapore)	Policy coherence	<ul style="list-style-type: none"> - Identify, assess and address the barriers to policy coherence from practices, policies and regulations within and beyond the water sector, using monitoring, reporting and reviews
	Monitoring & evaluation	<ul style="list-style-type: none"> - Promote dedicated institutions for monitoring and evaluation that are endowed with sufficient capacity, appropriate degree of independence and resources as well as the necessary instruments - Assess to what extent water policy fulfils the intended outcomes
	Stakeholder engagement	<ul style="list-style-type: none"> - Map public, private and non-profit actors who have a stake in the outcome or who are likely to be affected by water-related decisions, as well as their responsibilities, core motivations and interactions - Customise the type and level of stakeholder engagement to the needs and keep the process flexible to adapt to changing circumstances
South Asia (Bangladesh, Bhutan, India, Maldives, Nepal, Sri Lanka)	Policy coherence	<ul style="list-style-type: none"> - Identify, assess and address the barriers to policy coherence from practices, policies and regulations within and beyond the water sector, using monitoring, reporting and reviews
	Trade-offs	<ul style="list-style-type: none"> - Promote public debate on the risks and costs associated with too much, too little or too polluted water to raise awareness, build consensus on who pays for what, and contribute to better affordability and sustainability now and in the future - Encourage evidence-based assessment of the distributional consequences of water-related policies on citizens, water users and places to guide decision-making
	Monitoring & evaluation	<ul style="list-style-type: none"> - Promote dedicated institutions for monitoring and evaluation that are endowed with sufficient capacity, appropriate degree of independence and resources as well as the necessary instruments - Assess to what extent water policy fulfils the intended outcomes
Southeast Asia (Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar)	Policy coherence	<ul style="list-style-type: none"> - Identify, assess and address the barriers to policy coherence from practices, policies and regulations within and beyond the water sector, using monitoring, reporting and reviews
	Integrity	<ul style="list-style-type: none"> - Promote legal and institutional frameworks that hold decision-makers and stakeholders accountable, such as the right to information and independent authorities to investigate water related issues and law enforcement

⁵ These geographic sub-regions correspond to the Asian Water Development Outlook publication geographic sub-regions.

Philippines, Thailand, Viet Nam)		- Encourage norms, codes of conduct or charters on integrity and transparency in national or local contexts and monitoring their implementation
	Stakeholder engagement	<ul style="list-style-type: none"> - Map public, private and non-profit actors who have a stake in the outcome or who are likely to be affected by water-related decisions, as well as their responsibilities, core motivations and interactions - Customise the type and level of stakeholder engagement to the needs and keep the process flexible to adapt to changing circumstances
East Asia (People's Republic of China, Mongolia, Taipei/Taiwan - China)	Policy coherence	<ul style="list-style-type: none"> - Identify, assess and address the barriers to policy coherence from practices, policies and regulations within and beyond the water sector, using monitoring, reporting and reviews
	Trade-offs	<ul style="list-style-type: none"> - Promote public debate on the risks and costs associated with too much, too little or too polluted water to raise awareness, build consensus on who pays for what, and contribute to better affordability and sustainability now and in the future - Encourage evidence-based assessment of the distributional consequences of water-related policies on citizens, water users and places to guide decision-making
	Stakeholder engagement	<ul style="list-style-type: none"> - Map public, private and non-profit actors who have a stake in the outcome or who are likely to be affected by water-related decisions, as well as their responsibilities, core motivations and interactions - Customise the type and level of stakeholder engagement to the needs and keep the process flexible to adapt to changing circumstances
Pacific (Cook Islands, Fiji, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu, Vanuatu)	Financing	<ul style="list-style-type: none"> - Promote governance arrangements that help water institutions across levels of government raise the necessary revenues to meet their mandates - Carry out sector reviews and strategic financial planning to assess short, medium and long term investment and operational needs and take measures to help ensure availability and sustainability of such finance
	Trade-offs	<ul style="list-style-type: none"> - Promote public debate on the risks and costs associated with too much, too little or too polluted water to raise awareness, build consensus on who pays for what, and contribute to better affordability and sustainability now and in the future - Encourage evidence-based assessment of the distributional consequences of water-related policies on citizens, water users and places to guide decision-making
	Monitoring & evaluation	<ul style="list-style-type: none"> - Promote dedicated institutions for monitoring and evaluation that are endowed with sufficient capacity, appropriate degree of independence and resources as well as the necessary instruments - Assess to what extent water policy fulfils the intended outcomes

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

3 Linking water governance with water security outcomes: preliminary observations from the Survey

The *OECD Principles on Water Governance* consider good governance is a means to an end. As such, water governance can help manage water risks and thus contribute to improve water security. In an attempt to highlight the contribution of water governance to water security in the Asia-Pacific region, a few observations were drawn from the governance questionnaire and the five key dimensions (KDs) scores. The Asia Water Development Outlook, spearheaded by the Asian Development Bank, monitors progress in - and issues affecting - water security in Asia through the calculation of a water security index comprising 5 key dimensions: rural household water security (KD1), economic water security (KD2), urban water security (KD3), environmental water security (KD4), water-related disaster security (KD5). Some links between the adoption and implementation of some principles on water governance, and high scores in some of the key dimensions of water security were identified (Table 3-1). These observations on the positive impact of good governance over water security remain at a very preliminary stage. Currently, the OECD Water Governance Initiative is working on the development of a methodology to measure the impacts and results of good governance on water management and socio-economic related outcomes. This measurement could ultimately help determine if and how governance plays a role in achieving the desired water management and socio-economic outcomes.

Table 3-1. Overview of the links between OECD principles on water governance and key dimensions of water security, Asia-Pacific region

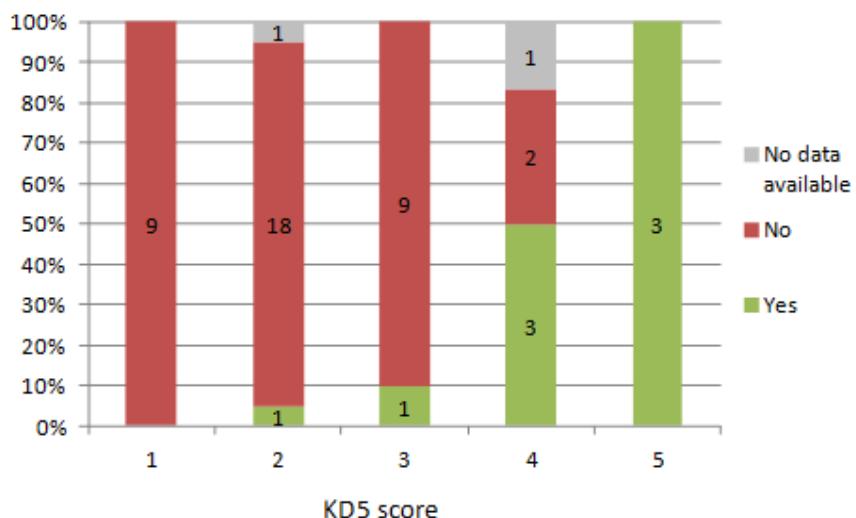
OECD Principle on Water Governance		Key Dimension (KD)	Link description
Principle 11	Encourage water governance frameworks that help manage trade-offs across water users, rural and urban areas, and generations	KD 5 - Water-related Disaster Resilience	Countries displaying the highest score for KD5 have all adopted both groundwater extractions allocation and monitoring schemes, and a water allocation regime
		KD 1 – Rural water Security	Half of the countries displaying the highest score for KD1 have implemented groundwater extractions allocation and monitoring schemes
Principle 6	Ensure that governance arrangements help mobilise water finance and allocate financial resources in an efficient, transparent and timely manner	KD 3 – Urban water Security	Countries displaying the highest score for KD3 have all implemented both abstraction and pollution charges
Principle 12	Promote regular monitoring and evaluation of water policy and governance where appropriate, share the results with the public and make adjustments when needed	KD 3 – Urban water Security	A large majority of countries displaying high security for KD3 have adopted key performance indicators to assess and monitor water and sanitation services performance.

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific Managing trade-offs is associated with a higher water-related disaster resilience and a higher rural water security

Managing trade-offs is associated with a higher water-related disaster resilience and a higher rural water security

Countries displaying the highest security score for water-related disaster resilience (KD5) have all adopted both groundwater extractions allocation and monitoring schemes (Figure 3-1), and a water allocation regime (Figure 3-2). In a recent study gathering examples of evolving governance practices (OECD, 2018^[7]), the OECD has analysed how good governance can positively impact water risk management. Similar results were found regarding a positive impact of governance on risk reduction of water-related disasters.

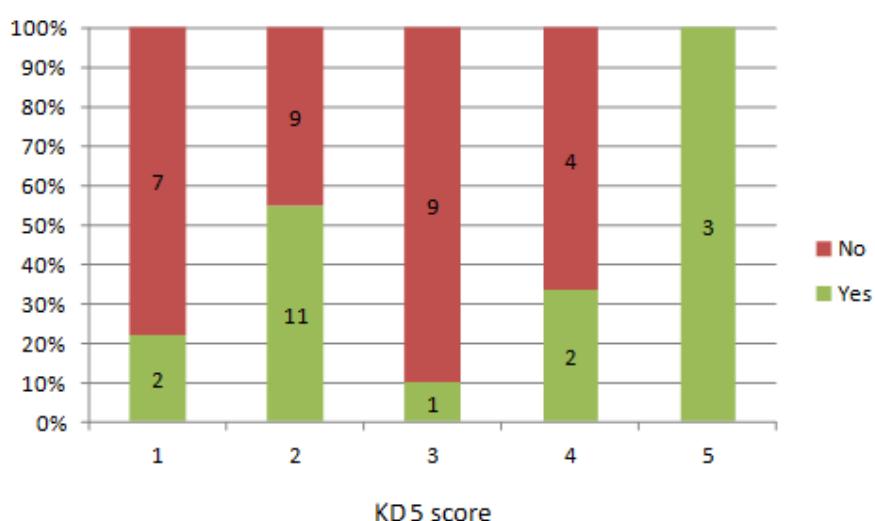
Figure 3-1. Share of countries allocating and monitoring groundwater extractions according to water-related disaster resilience (KD5) scores, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Figure 3-2. Share of countries prioritising water allocation among uses according to water-related disaster resilience (KD5) scores, Asia – Pacific region

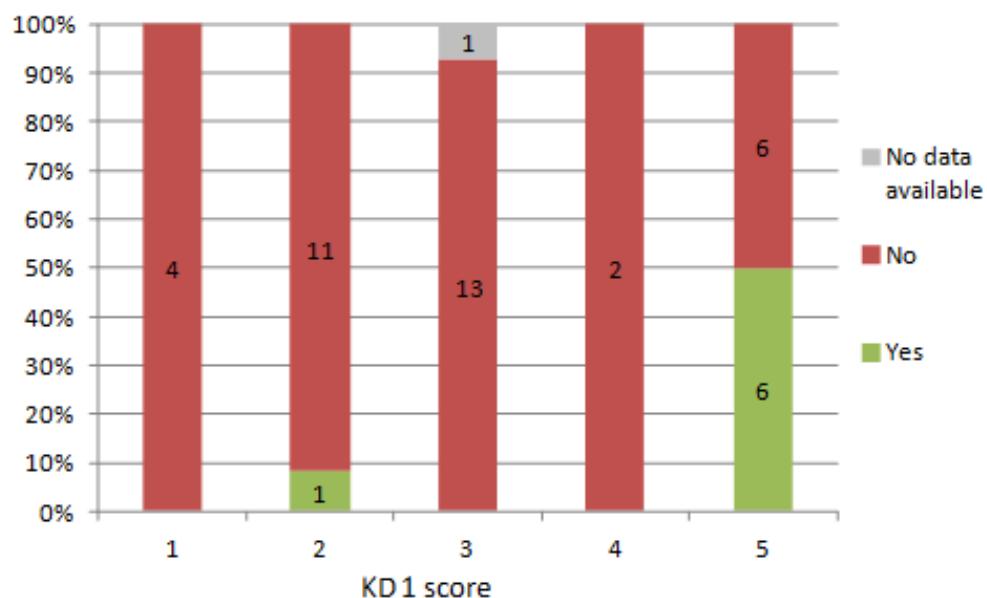


Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Half of the countries displaying the highest security score for rural water security (KD1) have implemented groundwater extractions allocation and monitoring schemes, unlike almost all other countries (Figure 3-3). Water allocation regime is a means to manage the risk of shortage and to adjudicate between competing uses. When setting up water allocation regimes, reference flows should involve consideration of non-consumptive water demands, including environmental flows which indicate the flow regime required to sustain ecosystem services at the required level. The importance of environmental flows is now widely recognised, and failure to provide adequate environmental flows can lead to increased water risks.

Figure 3-3. Share of countries allocating and monitoring groundwater extractions according to rural water security (KD1) scores, Asia – Pacific region



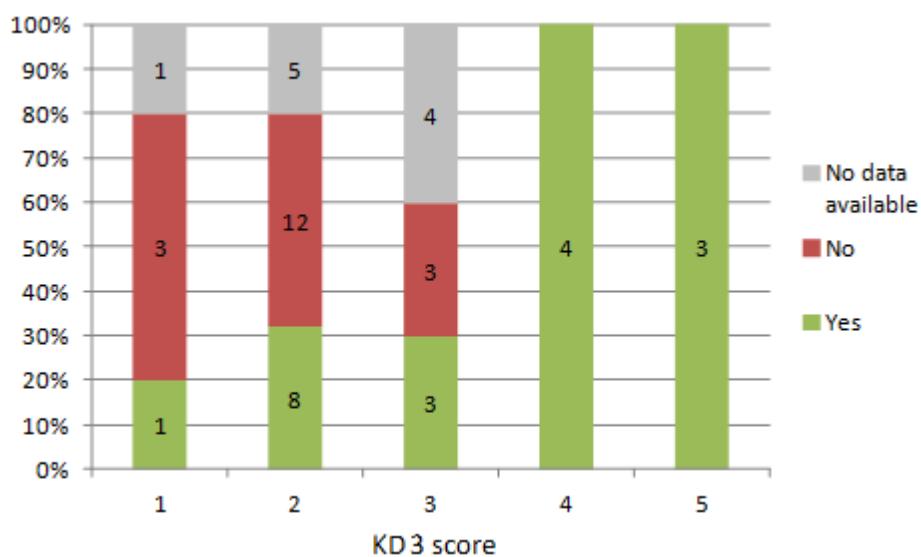
Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Adopting mechanisms to mobilise water finance is associated with a higher urban water security

Countries displaying the highest security score for urban water security (KD3) have all implemented both abstraction and pollution charges (Figure 3-4 and Figure 3-5). Abstraction and pollution charges are based on the user-pays and polluter-pays principles which purpose is to make abstraction/pollution a costly activity and either influence behaviour to reduce abstraction/pollution, or generate revenues to alleviate abstraction/pollution and compensate for social costs. As such, these economic instruments can help reduce water security risks.

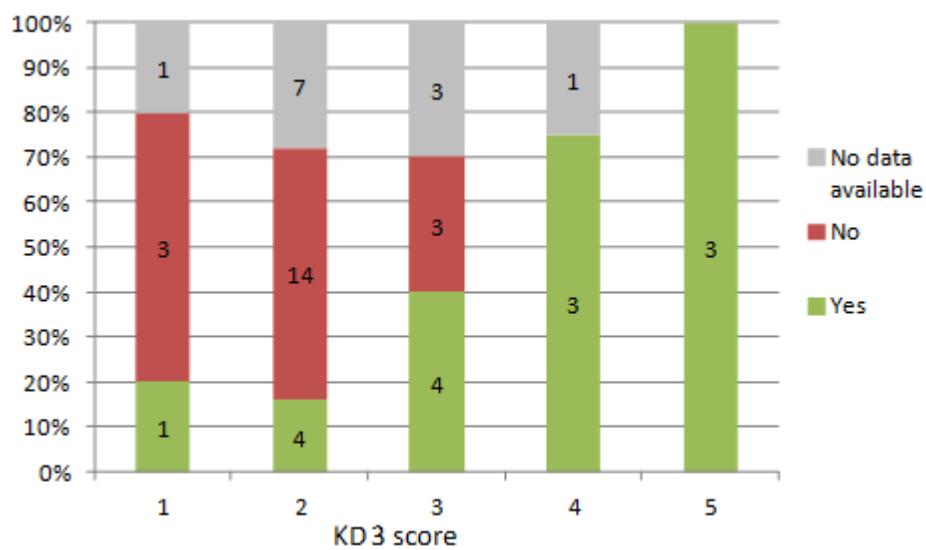
Figure 3-4. Share of countries having adopted abstraction charges according to urban water security (KD3) scores, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Figure 3-5. Share of countries having adopted pollution charges according to urban water security (KD3) scores, Asia – Pacific region



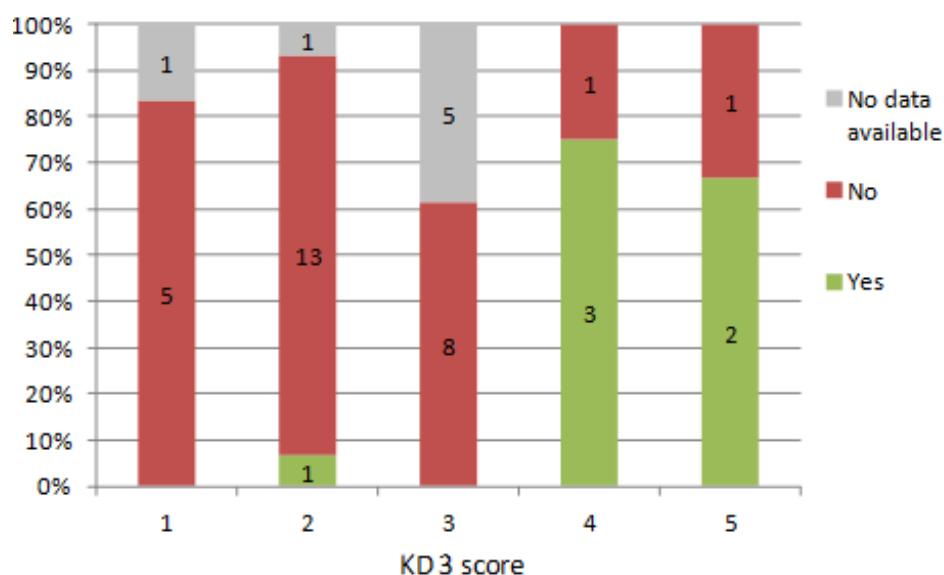
Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

Implementing monitoring and evaluation of water and sanitation services performance is associated with a higher urban water security

A large majority of countries displaying high security scores for urban water security (KD3) have adopted key performance indicators to assess and monitor water and sanitation services performance (Figure 3-6). Performance indicators are commonly used in the water and sanitation sector around the world as steering and managing tools to measure change and assess performance against a specific goal or target. Within a water risk reduction context, these indicators can be used, for instance, to evaluate and monitor progress in terms of water and sanitation coverage, drinking water quality, pollution control, or water service continuity. As such, they can effectively contribute to monitoring water security improvement.

Figure 3-6. Share of countries having adopted key performance indicators for water and sanitation services according to urban water security (KD3) scores, Asia – Pacific region



Note: 48 countries surveyed

Source: OECD (2021^[6]) survey on water governance in Asia-Pacific

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