MID-TERM REVIEW OF THE UN WATER ACTION DECADE: INPUT FROM THE ASIA PACIFIC CONSULTATION

I. BACKGROUND

On 20 December 2018 the General Assembly adopted the resolution on the “Midterm comprehensive review of the implementation of the International Decade for Action, ‘Water for Sustainable Development’ 2018-2028” (RES/73/226). The resolution calls for a Conference on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action to be convened in New York from 22 to 24 March 2023. The Conference shall be preceded by regional and global preparatory meetings, as appropriate, and informed by existing water-related meetings at the regional and global level.

The three main objectives of the UN Water International Decade for Action are to i) advance sustainable development through integrated management of water resources, ii) energize implementation of existing programmes and projects, and iii) mobilize action to achieve the 2030 Agenda including through enhancement of cooperation and partnerships.

The Asia-Pacific regional preparatory process is being facilitated by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). It includes a consultation process drawing on inputs by ESCAP member and associate member States and the members of UN-Water regional discussion group for Asia and the Pacific, set up and supported by UN-Water. UN-Water’s role, as a non-governmental group, is to provide coordination within the UN family to ‘deliver as one’ in response to water related challenges. The UN-Water regional discussion group was set up under the UN-Water Expert Group on Regional Level Coordination, established by UN-Water at its 30th Meeting (Rome, 2019). It comprises UN Water Members and Partners, as well as other non-profit international, regional or subregional organizations with i) specific regional expertise with a strong emphasis on water-related issues, and ii) an established regional presence, or extensive regional or subregional networks of members or partners.

This document is an input from Asia and the Pacific to the global midterm review. It aims to provide a substantive input to the global event, reflecting the diversity of views and experiences, as well as the diverse expansion of progresses, opportunities, and challenges, from the region. As such, it would not aim at capturing an agreed position from the region.

The document provides an overview of progress made in the Asia-Pacific Region against relevant Sustainable Development Goals (SDGs), namely SDG 6 - Clean Water and Sanitation - and other water-related global mandates. Further, the document is aligned with the priorities within the vision statement of the UN 2023 Water Conference “Our watershed moment: uniting the world for water”, which outlines that water is a fundamental part of all aspects of life. Water is inextricably linked to the three pillars of sustainable development, and it integrates social, cultural, economic, and political values. It is crosscutting and supports the achievement of many SDGs through close linkages with climate, energy, cities, the environment, food security, poverty, gender equality and health, amongst others. “With climate change profoundly affecting our economies, societies and environment, water is indeed the biggest deal breaker to achieve the internationally agreed water-related goals and targets,
including those contained in the 2030 Agenda for Sustainable Development” (UN-Water 2023 Conference, 2022).

Beyond the 2030 Agenda, the UN Water International Decade for Action also supports the intended outcomes of the UN Convention on Biological Diversity (CBD), the Paris Agreement/the Glasgow Climate Pact, the Sendai Framework for Disaster Risk Reduction, and the Addis Ababa Action Agenda. The proposed targets under the new post-2020 Global Biodiversity Framework, to be discussed during the Fifteenth Meeting of the Conference of the Parties to the Convention on Biological Diversity (COP15) reflect the need to reduce threats to loss of nature, and maintain and recover healthier ecosystems, including freshwater ecosystems, for achieving improved outcomes for biodiversity. The Paris Agreement’s aim to improve climate mitigation and adaptation strategies is supported by national, subnational, regional, and global efforts to improve water resource management, tackle water scarcity, and enhance resilience to prepare for the cascading climate crises in which water will become increasingly scarce and more variable. In turn this also supports the Sendai Framework for Disaster Risk Reduction through a better understanding of water risks. The Addis Ababa Action Agenda supports these initiatives through prioritising financial flows for national water policies.

This review looks at progress on the SDG 6 targets grouped thematically to determine regional progress and key challenges, as well as how well these advancements have supported the broader UN-Water Global Water Agenda, and how prepared the region is to accelerate progress to reach the 2030 goals. The regions’ ability to accelerate progress will also be measured against the SDG 6 accelerator framework, taking stock of the regions capacity to finance, track, inform, innovate, and govern the implementation of effective policies to tackle key water resource challenges.

II. INTRODUCTION

The Asia-Pacific region has made considerable progress in increasing its economic and social welfare over the last decade. Water resources have contributed greatly to this transformation through water and sanitation hygiene (WASH), provision of basic services, agricultural expansion, and ecosystem services. This was highlighted in the recent coronavirus-19 (COVID-19) pandemic where the implementation of best practice WASH measures was strategic in decreasing the communicability of COVID-19 through better hygiene practices (ESCAP, 2021). However, Asia and the Pacific is far from being on track to meet the SDG 6 Targets as set out in the 2030 Agenda for Sustainable Development, and sustainable water resources are increasingly under threat due to overuse and pollution, an increasing population, a changing climate, rapid urbanization, and transboundary conflicts of interest.

The Asia Pacific Water Agenda can be divided into five key clusters under the SDGs: water and sanitation (SDG 6.1 and 6.2), the state of water resources and freshwater ecosystems (SDGs 6.3, 6.4, 6.6 and 15.1), transboundary water management and integrated water resource management (IWRM) (SDG 6.5), climate and disaster risk reduction (SDGs 6.5, 1.5, 11.5, 13, the Sendai Framework and Paris Agreement), and water and peace (SDGs 6.5, 6.a, 6.b and 16). While these clusters are considered separately, they are deeply interconnected and underpin progress of one another and other SDGs.
For water and sanitation, there is a deep divide between urban, and rural and remote access to basic WASH services. While the region has made great progress in delivering WASH services to urban populations, rapid urbanization is putting urban water resources under pressure. Small and emerging cities often do not have the financial resources to provide water and sanitation services. In addition, some governments have not done enough to provide the appropriate infrastructure for water connectivity in rural and remote settings. This failure to deliver essential public services, mainly due to a lack of WASH data, is leading to blind policy making and negative outcomes for poverty (SDG 1) and health (SDG 3).

For the state of water resources and freshwater ecosystems, the region is home to only 36 percent of the world’s water resources, making its per capita water availability the lowest in the world (ESCAP, 2021). The region’s existing water scarcity is exacerbated by increasing water demand for food. The agricultural sector in Asia and the Pacific, particularly in South, East, and Southeast Asia, continues to grow, extracting record quantities of groundwater. Irrigated agriculture currently accounts for approximately 85 percent of extracted groundwater in most Asian countries (FAO, 2021). Over the coming decade, water over-withdrawal will likely intensify, as the population expands at a rate of 0.6 percent per annum (p.a.), adding 322 million people by 2030 (OECD/FAO, 2021). When populations grow, economic development is expected to increase, so does demand for water-intensive food production, as well as water consumption by industrialization. A consequence will be rising competition in demand for water, which intensifies existing pressures on water resources and increases inequality of access which can lead to conflicts over water, impacting those most vulnerable, notably internally displaced persons in the region. This challenge will be and is already magnified in transboundary context where downstream countries are vying for already dwindling key flows, making transboundary water management and IWRM increasingly critical for the region’s peace and security.

The region is one of the most disaster-prone in the world, making climate and disaster risk reduction a key priority for water resource management. As the global community continues to fall short of key emission targets under the Paris Agreement to slow global temperature rise, the Asia-Pacific region is expected to experience more frequent and intense droughts, floods, and cyclones, melting glaciers, earlier and shorter monsoons, more deadly heat waves, and disruption to groundwater recharge (ESCAP 2021, IPCC 2022). This is likely to hamper progress to achieving the SDG 6 targets (as well as associated SDGs) and roll back progress already made if adaptation and mitigation strategies are not swiftly implemented. Water is required for every single component of human life and underpins the sustainability of our communities and societies. With increasing scarcity, increasing climate variability, and increasing tensions over the finite resources at both national and regional scales, the conservation of water resources has never been more important to the peace and security of region. Cooperation of key stakeholders at the local, national, and regional level should continue to be a top priority for advancing the water agenda as real changes will require collective and coordinated actions among all stakeholders, making best use of existing key regional water initiatives and fora (See Annex 4).
Monitoring SDG 6 progress for the decade of action is challenging in the Asia-Pacific region due to persistent inadequacy of data, both at the baseline and at progress intervals. However, based on what is available today, in its current trajectory, the Asia-Pacific region is off-track to achieve any of the SDGs, as well as any of the SDG 6 targets (see Figure 1) (ESCAP, 2021). The region needs to (i) accelerate progress in four of the eight SDG 6 targets (SDG 6.1, 6.2, 6.5, 6.a), (ii) reverse its current trend for three of its targets (SDG 6.4, 6.6, 6.b), and (iii) one target lacks sufficient data to measure (SDG 6.3) (See Figure 1) (ESCAP, 2022). Despite good progress in some components of the goal, such as the reduction of open defecation, overall progress is slow. The biggest hurdle for the region is water stress, where the situation has significantly worsened since 2000 and is likely to continue to regress unless collective action is taken.

![Clean Water and Sanitation Diagram](#)

**Figure 1 SDG 6 Anticipated Progress of SDG 6 (ESCAP, 2022)**

**Goal 6 – Clean water and sanitation**

![Anticipated Progress by SDG 6 Indicators Diagram](#)

**Figure 2 Anticipated Progress by SDG 6 Indicators (ESCAP, 2022)**

Despite a substantial increase in aid to least developed countries (LDCs) for water supply and sanitation, the region must take action to reverse negative trends on water use efficiency and the protection and restoration of water-related ecosystems (ESCAP, 2022). A large population still lacks access to safely managed drinking water services and basic handwashing facilities, especially in rural areas. Progress towards those targets is too slow to achieve Goal 6 by 2030 (ESCAP, 2022).

In Southeast Asia, a reverse trend in clean water and sanitation occurred owing to increased water stress and the inability of countries to protect and restore water-related ecosystems.
In the Pacific while access to basic drinking water and sanitation are gradually improving, high fluctuations in permanent water areas is causing a regression in clean water and sanitation (Goal 6) (ESCAP, 2022). The persistent challenge of resource use inefficiency is reflected in the Asia Pacific regions performance on responsible consumption and production (Goals 12), every Asia-Pacific subregion has regressed on responsible consumption and production (Goal 12) (ESCAP, 2022).

To achieve the 2030 targets, the region needs to build greater capacity for participatory water and sanitation management and water accounting and allocation (ESCAP, 2021). As known, water is critical for sustainable development and the eradication of poverty and hunger. Water, energy, food security and nutrition are linked, and water is indispensable for human development, health, and well-being, and is a vital element in achieving the SDGs. The region has a daunting task to deliver the embraced goals and targets for the decade.

III. UN WATER ACTION DECADE AND GLOBAL AGENDAS

SDG 6 is strongly embedded in a number of global mandates. Each of the following Agendas identifies and recognizes water as a central component for enhancing climate adaptation, ensuring human health and well-being, and delivering essential public services. Efforts in realizing SDG 6 can therefore help realize the objectives of global mandates.

1. **The Convention on Biological Diversity** (CBD) entered into force in 1993, aims to promote the conservation of biological diversity as well as the sustainable use of its components, fairly and equitably. The zero draft of a new Post-2020 Global Biodiversity Framework is available and aims to guide action to conserve ecosystems and their essential services to people. The UN Water Action Decade efforts directly support the Post-2020 CBD framework in 3 out of 21 action-oriented targets for urgent action over the decade to 2030, including (i) **Target 2**: Ensure that at least 20 per cent of degraded freshwater, marine and terrestrial ecosystems are under restoration, ensuring connectivity among them and focusing on priority ecosystems; (ii) **Target 9**: Ensure benefits, including nutrition, food security, medicines, and livelihoods for people especially for the most vulnerable through sustainable management of wild terrestrial, freshwater and marine species, and protecting customary sustainable use by indigenous peoples and local communities; and (iii) **Target 11**: Maintain and enhance nature’s contributions to regulation of air quality, quality and quantity of water, and protection from hazards and extreme events for all people.

Further, the CBD’s programme of work on Inland Water Ecosystems calls for the establishment and maintenance of comprehensive, adequate, and representative systems to protect inland water ecosystems within the framework of integrated catchment/watershed/river basin management.

2. **The Paris Agreement**, adopted in 2015, sets out a global framework to limit global warming to 1.5/2°C above pre-industrial levels. The Agreement is especially relevant to water and sanitation given that climate change compounds existing challenges in efforts to achieve sustainable water resources due to changing water cycles. These changes increase the frequency of floods and surface runoffs and can potentially lead
to water contamination, limiting water access for humans and ecosystems. In their Nationally Determined Contributions (NDCs), most countries identify water as a central component of climate adaptation and some link water to the provision of sustainable energy (hydro-energy) (UNFCCC, 2021) (SIWI, 2017). Water plays an important role in the climate Agenda given that sound water management maintains security for agriculture, industries, and cities. While the text of Paris Agreement makes no direct reference to water, there are several key entry points for water-related issues in the Katowice climate package agreed to at COP24 that sets out the essential procedures and mechanisms that will make the Paris Agreement operational. For example, information related to climate change impacts and adaptation under Article 7 of the Paris Agreement, the Katowice climate package details that countries are required to report on plans, strategies, policies, priorities for coastal management, water, and agriculture. The information on financial support provided and mobilized under Article 9 of the Paris Agreement includes the water and sanitation sector (GIZ, 2020). Further, recently, the Subsidiary Body for Scientific and Technological Advice (SBSTA), one of the two Subsidiary Bodies under the UNFCCC responsible for guiding the implementation process at the technical level, requested that decision-makers prioritise select thematic areas, many of which are water-related, such as dealing with extreme events like flash floods and heavy precipitation as well as droughts, water scarcity, coastal areas, and mega deltas (SBSTA, 2019) (GIZ, 2020).

3. **The Addis Ababa Action Agenda (AAAA),** adopted in 2015, aims to further implement the 2030 Agenda through alignment of financial flows and policies. The agenda intends to deliver social protection and essential public services for all, establish a new forum to bridge the infrastructure gap, and encourage the participation of local communities in decisions affecting their communities, such as water and sanitation management. Specifically, **Article 12** of the AAAA prioritises delivering social protection and essential public services for all by setting nationally appropriate spending targets for quality investments in essential public services for all, including water and sanitation, consistent with national sustainable development strategies. Moreover, articles within the AAAA specifically reference water. For instance, **Article 14** prioritises establishing a new forum to bridge the infrastructure gap and investing in sustainable and resilient infrastructure, including water and sanitation for all; **Article 34** prioritises supporting cities and local authorities of developing countries, in implementing resilient and environmentally sound infrastructure, including water and sanitation, and encouraging the participation of local communities in decisions affecting their communities, such as in improving drinking water and sanitation management; and **Article 115** reinforces national efforts in capacity-building in developing countries in such areas as water and sanitation-related activities and programmes.

4. **The Sendai Framework on Disaster Risk Reduction,** adopted in 2015, sets out the overall objective to reduce disaster risk and losses in lives, livelihoods, and health. Specifically in relation to water, **Article 33c** promotes the resilience of new and existing critical infrastructure, including water to ensure that they remain safe, effective and operational during and after disasters in order to provide life-saving and essential services, and **Article 34e** supports the efforts of relevant United Nations entities to strengthen and implement global mechanisms on hydrometeorological issues in order
to raise awareness and improve understanding of water-related disaster risks and their impact on society, and advance strategies for disaster risk reduction upon the request of States (United Nations, 2015). The goals of the framework, as well as its link to water issues, is especially important for the region given that it is exposed and vulnerable to natural disasters (ESCAP, 2021).

5. **Declaration on Environmental Human Rights:** The United Nations Resolution, adopted by the Human Rights Council on 8 October 2021, for the first time, specifically states the human right to a clean, healthy, and sustainable environment. It recognises that sustainable development, in its three dimensions (social, economic and environmental), and the protection of the environment, including ecosystems, contribute to and promote human well-being and the enjoyment of human rights, including the right to life, to the enjoyment of the highest attainable standard of physical and mental health, to an adequate standard of living, to adequate food, to housing, to safe drinking water and sanitation and to participation in cultural life, for present and future generations (UNHRC, 2021). Further the resolution recognises that the impact of climate change, the unsustainable management and use of natural and water resources, the pollution of air, land and water, the unsound management of chemicals and waste, the resulting loss of biodiversity, equal voices in managing transboundary water resources, and the decline in services provided by ecosystems interfere with the enjoyment of a clean, healthy and sustainable environment, and that environmental damage has negative implications, both direct and indirect, for the effective enjoyment of all human rights (UNHRC, 2021).

6. **Convention on the Law of the Non-navigational Uses of International Watercourses:** The United Nations General Assembly adopted the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (UN Watercourses Convention) on 21 May 1997. The UN Watercourses Convention establishes a framework for the utilization, development, conservation, management, and protection of international watercourses, whilst promoting optimal and sustainable utilization thereof for present and future generations, and accounting for the special situation and needs of developing countries. The convention codifies the content of customary law, with a view to reduce the potential for interstate conflict over regulatory gaps and uncertainties. Further the convention addresses the increasing pressures on the quality and quantity of the waters of international watercourses, acknowledging that “the preservation and protection of those water resources are of great importance to all nations”, and seeks to strengthen the law in support of the goals and principles of the UN, in particular, international peace and security, and finally the need to better address, through written law, the fragmented system of basin/bilateral treaty practice.

7. **The Convention on the Protection and Use of Transboundary Watercourses and International Lakes:** The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) was adopted in Helsinki in 1992 and entered into force in 1996. The Convention is a unique legally binding instrument promoting the sustainable management of shared water resources, the implementation of the Sustainable Development Goals, the prevention of conflicts, and the promotion of peace and regional integration. The Water Convention requires
Parties to prevent, control and reduce transboundary impact, use transboundary waters in a reasonable and equitable way and ensure their sustainable management. Parties bordering the same transboundary waters must cooperate by entering into specific agreements and establishing joint bodies. As a framework agreement, the Convention does not replace bilateral and multilateral agreements for specific basins or aquifers; instead, it fosters their establishment and implementation, as well as further development. The Water Convention is a powerful tool to promote and operationalize target 6.5, which requests all countries to implement integrated water resources management, including through transboundary cooperation, as appropriate.

8. **SDG 6 interlinkages with other SDGs:** The 2030 Agenda for sustainable development recognizes the interconnectedness between the SDGs (UN-Water, 2016). SDG 6 and other SDGs are mutually reinforcing due to their dynamic interdependence (See Annex 1 and 2).

There are strong linkages between SDG 6 and the social dimension of sustainable development. For example, many goals are dependent on achieving SDG 6, including the Goals on No Poverty (SDG 1), Zero Hunger (SDG 2), Good Health and Well-Being (SDG 3), Quality Education (SDG 4), Gender Equality (SDG 5), Reduced Inequalities (SDG 10), and Peace, Justice, and Strong institutions (SDG 16). Addressing the human right to safe drinking water and sanitation as well as safe wastewater treatment (SDG 6.1, 6.2, 6.3), can help address multidimensional poverty and achieve universal access to health and education services. Adequate access to WASH facilities in schools can lead to the improvement of the health, attendance and welfare of students and teachers, and contribute to better educational outcomes. Overall, SDG 6 can reduce inequalities by ensuring essential water-related services are available to all, including marginal groups and vulnerable people.

There are also strong linkages between SDG 6 and the economic dimensions of sustainable development. A reliable supply of water is essential for many economic activities, including Decent Work and Economic Growth (SDG 8), Industry, Infrastructure, and Innovation (SDG 9), Sustainable Cities and Communities (SDG 11), Sustainable Consumption and Production (SDG 12), and Partnerships for the Goals (SDG 17). Water resource is a prerequisite for industry, and the reduction and reuse of wastewater generation can help mitigate the environmental impact of development by promoting environmentally sound technologies and industrial processes. To ensure sustainable economic growth, the SDGs must take into consideration water and sanitation services to avoid increased pollution, excessive use of resources and the degradation of ecosystems.

There are strong synergies between SDG 6 and the environmental dimension of sustainable development. SDG 6 targets provide protection from overuse, pollution, and other pressures, to ensure the health of biodiversity and ecosystems. Interlinkages between SDG 6 and the environment can be observed in the goals on Affordable and Clean Energy (SDG 7), Climate Action (SDG 13), Life Below Water (SDG 14), and Life on Land (SDG 15). For instance, addressing climate change supports the targets on water scarcity, water quality and ecosystems. Implementing IWRM mutually reinforces
targets on awareness-raising on climate change and integrating climate change and ecosystem values into development processes. In addition, safely treated wastewater prevents the further accumulation and transfer of pollutants, thus preserving biodiversity and ecosystems.

As demonstrated by COVID-19, Water and Health (SDG 3) are intrinsically connected as WASH is recognized as a primary method of disease prevention (Hall et al., 2020). Furthermore, ecosystem and biodiversity health impacts human health as anthropogenic impacts on biodiversity increases the risk of infectious diseases (OECD, 2020). Agricultural expansion, logging, and infrastructure development are the most common drivers of infectious disease emergence today, accounting for approximately one-third of all emerging disease events (OECD, 2020). Zoonoses – diseases transmitted from animal species to humans (such as COVID-19) – account for approximately 60 percent of all infectious diseases and 75 percent of emerging infectious diseases in humans (Gibb et al., 2020). With current development trends, environmental degradation, and the compounding impact of climate change, the prevalence of zoonotic diseases is likely to increase without adequate protections (ESCAP, 2021). From source-to-sea, the entire water system contributes to health outcomes and therefore must be more actively considered when planning for health interventions. It is worth noting here that while water is important for disease prevention, mismanaged water can also act as a vector for water borne diseases. Water scarcity, poor water quality, inadequate sanitation, pollution, and damaged ecosystems affect the health of people, societies, and their economies (ESCAP 2021).

While the above has demonstrated the nature some of the social, economic, and environmental interdependences of the SDG’s dimensions it is important to remember that each goal contains all three dimensions (social, economic, and environmental). The nature of SDG 6’s interconnectedness reinforces the need to prioritise and accelerate progress in the Asia Pacific Region to the benefit of not only SDG 6 but SDGs that are dependent on and reinforces SDG 6 progress. (See Annex 1) (ESCAP, 2021).

IV. CHALLENGES FOR THE ASIA PACIFIC REGION

1. Water and sanitation (SDG 6.1 and 6.2)

Expanding access to water and sanitation has been a priority goal for the Asia-Pacific region over the past two decades. This has been exemplified by impressive results in increasing access to drinking water and WASH services. Between 1990 and 2015 the number of people using improved drinking water supply (SDG 6.1) increased by 20 percent in South and Southwest Asia and by 19 percent in Southeast Asia (ESCAP Statistical Database). Today, an estimated 92 percent of the population have access to basic drinking water and only 1 percent of the population’s drinking water is sourced from surface water (ESCAP, 2020).

Since 2000 an estimated 900 million people across the Asia-Pacific region have gained access to improved water, sanitation, and hygiene (WASH) (SDG 6.2). This increase in access to
WASH services has been consistent across the Asia-Pacific region except for the Pacific where pervasive challenges still exist. In East and Southeast Asia, access to WASH services increased to 60 percent in 2021 from 21 percent in 2000 (UN-Water, 2020). This 40 percent increase represents benefiting over 500 million people (WHO, UNICEF, 2021). In Central and South Asia, access to WASH services increased to 47 percent in 2021 from 13 percent in 2000 (UN-Water, 2020). However, in the Pacific, 63 percent of the population have either limited or no access to WASH services (WHO, UNICEF, 2020). This reality is most prevalent in schools where 83 per cent of children have limited or no access to WASH services (WHO, UNICEF, 2020).

Accelerating urbanization means that about 2.5 billion people or more than half of the region’s population, will be living in urban areas by 2030. The region is home to about 563 million urban slum dwellers, challenging municipalities’ abilities to provide basic services (ADB, 2020). Further, the rapid growth of urban centres and peri-urban areas, along with climate change impacts, creates significant challenges for the provision of water, wastewater, and stormwater infrastructure (ADB, 2020). In this light, concepts such as circular economy are important as combining the challenges in water supply and sanitation might offer possibilities to solve both problems conjunctively, e.g., by direct and indirect potable wastewater recycling and reuse (ADB, 2020). However, challenges for urban drainage remain persistent across the region calling for better investment in urban infrastructure.

The divide between rural and remote settings to urban settings in water and sanitation remains substantial. For example, regional access to safe and affordable drinking water is still a challenge in rural and remote areas where globally eight out of ten people live without access to a freshwater resource (UN-Water, 2019). Further, the proportion of population with basic hygiene services in urban and rural settings in Afghanistan in 2020 was 65 percent and 30 percent, respectively, 64 and 57 percent in Bangladesh, and 83 and 60 percent in India, this discrepancy is leading to persistent challenges in rural areas in relation to faecal sludge, this is both a health hazard and an environmental hazard. Water connectivity is the leading challenge for rural and remote populations, and the same can be said for the Pacific, this problem is expected to get worse with population growth, as population growth will likely leave to increasingly scarcer water sources in rural and remote settings (IWA, 2021).

Focus on women in WASH has increased over the past two decades with increasing availability of gender-disaggregated data and the recognition of the vital role women have in community water management. However, far less work has been done on women in water resource management. Improving gender-disaggregated data on SDG 6 would allow to better direct efforts in water resource management to address their specific role and the impacts that water has on women and girls.
2. The state of water resources and freshwater ecosystems (SDGs 6.3, 6.4, 6.6 and 15.1)

The most critical issue facing water resources and freshwater ecosystems in the Asia-Pacific region today is increasing water scarcity (SDG 6.4). Water scarcity occurs when demand for water exceeds available supply, and typically occurs in arid contexts where rainfall is low and rivers flow from distant sources, or during the dry season of more humid monsoon climates. While water scarcity has long been pervasive in arid countries such as Pakistan, India, and north and western China, water scarcity is starting to impact countries that have typically been considered water-plenty in South and Southeast Asia.

A recent report from the OECD placed Asia’s irrigation-dependent food baskets in Northwest India and North China as two of the world’s top three hotspots in terms of water-related risks to food production (OECD, 2017). Ten countries in the Asia-Pacific region fall under the category of high baseline water stress or extremely high baseline water stress. High water stress countries include Uzbekistan, Afghanistan, Turkey, Armenia, Kyrgyzstan, and Nepal. Extremely high water stress countries include Iran, India, Pakistan, and Turkmenistan. While there is wide scientific recognition of increasing water scarcity, data on water withdrawals in the Asia-Pacific region is extremely limited as most water abstraction is not monitored. However, it is estimated that irrigated agriculture currently accounts for 85 percent of abstracted groundwater in most Asian countries (FAO, 2018). This level of extraction is likely
to increase as water extraction is primarily driven by population growth, as population growth drives demand for food.

Data on wastewater management (SDG 6.3) is also very limited, making it hard for the region to measure progress. However, there is wide recognition that water quality is degrading due to increasing water scarcity, droughts and flood, urban populations, industrialisation, and economic activity. Since the 1990s, water pollution has worsened in most rivers in the region. Land-based plastic pollution, severe pathogens and other hazardous chemicals affect river stretches in Asia, and the number of rural and remote inhabitants whose health is at risk by encountering polluted surface water ranges up to 134 million. They further gravely impact oceans, marine biodiversity, and ecosystems, while degrading coastal areas (UN-Water 2021). Among the most vulnerable groups are indigenous groups, women, and children. It is projected that 70 to 80 percent of untreated urban wastewater is discharged into freshwater reservoirs and oceans each year, leaving our water systems open to organic pollutants and other hazardous chemicals (UN-Water 2021). In response, localized solutions towards wastewater management are emerging at the technical and policy levels in South and Southeast Asia, for example, decentralized wastewater treatment systems. However, some countries in Central Asia, South Asia, Southeast Asia, and the Pacific barely reach 10 percent of wastewater flows safely treated, presenting obvious challenges for reaching the 2030 target (UN-Habitat, WHO, 2021). There are enormous economic stakes involved in the effective management of wastewater. The WWDR estimates that for every USD $1 spent on sanitation, society benefits by an estimated USD $5.5 (UNESCO, 2017). Further, wastewater management has the capacity provide relief to water security programmes and act as an alternate water source for agriculture. Countries leading the way in improving wastewater treatment in Asia include Singapore, South Korea, Japan, and Malaysia, where domestic wastewater flows safely treated reach 100 percent, 99.4 percent, 97.8 percent, and 87.8 percent, respectively (UN-Water, 2020).

The management of water scarcity and wastewater will have a lasting impact on the regions land, fresh water, and ocean ecosystems and will support the proposed targets under the new post-2020 Global Biodiversity Framework to be discussed during the CBD COP15. Namely, the post-2020 targets aim to restore ecosystems (CBD Target 2), reduce pollution (CBD Target 7), improve water and air quality and quantity, and enhance ecosystem resilience from hazards and extreme events (CBD Target 11). However, despite its importance, there is very limited data on the change of water-related ecosystems over time in the Asia-Pacific region. The relationship between water and ecosystems is both complex and critical, the health of water resources determine the health of its ecosystems, and the health of the ecosystem determines water supply and quality, making SDG 6 and SDG 15 deeply interlinked (SDG 15.1). Moreover, ecosystems guard against water-related hazards and disasters, for example, wetlands play a critical role in surface, subsurface and ground water storage, and reducing the risk of flooding. They also help capture, process and dilute pollutants. Similarly, vegetation, such as grasslands and forests, support the healthy functioning of watersheds. Ensuring the conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystems, in particular, forests, wetlands, mountains, and drylands, and their services, will ensure the long-term health and availability of sustainable water resources (CBD, 2018).
The key challenge for the region going forward is managing and prioritising quality water resources for both human and ecosystem use against the backdrop of increasing water scarcity. This challenge requires the prioritization of uses by economic, social, and environmental value. However, to achieve this, greater efforts are required to establish conclusive data or formal water accounts detailing water withdrawal and its uses. Currently, this is lacking and has become a growing concern as without comprehensive data, policy makers are unable to approach water resource policies with adequate information. More efforts need to be made to establish water accounts, as without a comprehensive understanding of water uses, water management approaches that allocate water such as IWRM are increasingly challenging to implement.

3. Transboundary water management and IWRM (SDG 6.5)

Improvements towards the implementation of IWRM (SDG 6.5) have been seen across the Asia-Pacific region. In 2021 the Global Water Partnership reported on the region’s IWRM implementation, noting 13 countries with high or very high-level of implementation, 19 at medium-high, 21 at medium-low, and 5 at low (GWP and UNEP-DHI, 2021). However, despite the implementation of IWRM strategies, water management challenges remain high due to limited adoption of water policy instruments. For example, only 21 percent of countries in the region allocate or monitor groundwater extractions, however even the best efforts are not made at national scales or covering all key river basins (OECD, 2021). Further, in two-thirds of countries in the region, 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 (OECD, 2021).

Challenges for implementing IWRM are magnified in the transboundary (river basins and aquifers) context due to the politically and geopolitically complex nature of shared water resources. This complexity is also compounded by increasing water scarcity and climate impacts (i.e., including but not limited to floods and droughts), exacerbating existing conflicts where, for example along river basins, upstream needs compromise downstream outcomes.
Asia is home to 57 transboundary river basins, which account for 39 percent of the continent’s land surface. Of these river basins only 10 are covered by basin-wide agreements, 15 river basins partially covered by basin agreements, and 32 river basins not covered by any basin agreement (UNEP, 2002). For Central, East, South and Southeast Asia combined, only 6 countries out of 15 have 90 percent or more of their basin areas covered by operational arrangements (UN-Water, 2021). This is a concern, as currently, 780 million people in South and Southeast Asia are dependent on transboundary rivers (Pearson, 2020).

Historically, transboundary aquifers have received less political attention than transboundary rivers, due to their hidden, diverse nature, and the difficulty in conducting hydrological investigations across international borders (Lee, 2018). As a result, there are significant gaps in water policy and agreements for transboundary aquifers. A global inventory of transboundary aquifers identified 129 shared aquifers in Asia, measuring approximately 9 million km², covering about 20% of the entire region (Lee, 2018). Uzbekistan shares the most transboundary aquifers basins (total number: 31), followed by China (21), Russia (21), Tajikistan (15), Kyrgyzstan (14), Kazakhstan (14), Mongolia (14), Azerbaijan (13), and Iran (10) (See Figure 5) (Lee, 2018).

In Asia transboundary aquifers experience high AQSI (AQSI; defined as groundwater exploitation rate divided by aquifer recharge). Notably, over 50% of Asia’s aquifers report high AQSI rates. For example, transboundary aquifers in Western Asia (AS125–131, 140, 143 etc.) are extremely over-exploited due to growing human activities, as a result the AQSI has increased more than 250% over the last 50 years (Lee, 2018). In Southeast Asia, the increasing over-exploitation of groundwater abstraction in the Mekong Delta (AS89) region has resulted in continuous depletion of groundwater resources and related environmental issues such as land subsidence (Lee, 2018). However, despite this growing threat, most countries in the Asia-Pacific region do not have legal and institutional instruments to regulate the use of groundwater resources and only limited bilateral agreements exist for transboundary aquifers.
As a result, there are few legal instruments to address transboundary aquifers and their sustainable management at the regional or international level (Lee, 2018). Similarly, most countries in Asia have also shown a substantial lack of water policies for dealing with internationally shared groundwater resources (Lee, 2018).

The leading concern for transboundary water management is the coordination and consideration of multiple and competing uses of water resources across borders and between river basin flows, from agriculture, cities, industry, energy production, and the environment. Peaceful arbitration and fair allocation between these users are increasingly difficult as demand is increasingly outweighing supply. This competition calls for innovative approaches to water management and political cooperation between countries on technical and policy levels to create an environment of cooperation on regulatory, institutional, financial, technological, infrastructure, and knowledge management policies for shared water resources. The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) and The Convention on the Law of the Non-navigational Uses of International Watercourses (Watercourses Convention) offer a solid basis upon which to revise or negotiate new agreements between countries.

However, it has been demonstrated by UN-Water that the Asia-Pacific region has experienced the highest increase in response rate between the 2017 and 2020 monitoring exercises for indicator 6.5.2 “Proportion of transboundary basin area with an operational arrangement for water cooperation” (UN-Water 2021). Both the number of countries reporting and the number of countries with a final indicator value have increased significantly. The overall indicator value is now available for 10 countries compared with two in 2017 (UN-Water 2021). In 2017, river and lake basin data were only available for six countries within the region, whereas 2017–2020 combined data are now available for 15 countries. These combined data show that while there has been progress there is still a considerable number of countries where operational arrangements are lacking (UN-Water 2021).

Finally, beyond the technical components of governing transboundary water resources, is the shared cost of disasters, especially those of hydro-meteorological nature that are linked with river and ocean basins, climate, weather, and agro-ecosystems. Several large-scale floods over the past 10 years have been transboundary, flowing across countries that share basins of rivers such as the Amu Darya, Amur, Brahmaputra-Meghna, Ganges, Indus, Mekong, Salween, and Yenisey. It has been shown that flooding in the Mekong River basin can affect downstream riparian countries in Cambodia, Lao People’s Democratic Republic, Thailand, and Viet Nam. As climate change continues to impact weather patterns and lead to more frequent and intense events, transboundary cooperation will become increasingly important.

4. Water, climate, and disaster risk reduction (SDGs 6.5, 1.5, 11.5, 13, and other disaster-related targets; link to Sendai Framework and Paris Agreement)

According to the World Meteorological Organization, water related hazards have dominated disasters in the past 50 years (WMO, 2021), calling for greater attention to evaluating water risk at the catchment and basin level. In Asia, between 1970 and 2019, 3,454 disasters were
recorded amounting to 975,622 lives lost and USD 1.2 trillion in reported economic damages.\(^1\) Asia accounts for nearly one-third (31\%) of weather-, climate- and water-related disasters reported globally (WMO, 2021). Most of these disasters are associated with floods (45 percent) and storms (36 percent). Storms have the highest impact on life, causing 72\% of the lives lost, while floods lead to the greatest economic losses (57 percent) (WMO, 2021).

During same period (1970-2019), the Southwest Pacific\(^2\) recorded 1,407 disasters, 65,391 deaths, and USD 163.7 billion in economic losses (WMO, 2021). Most of these disasters were associated with storms (45 percent) and floods (39 percent). Economic losses were evenly distributed among four hazard types: storms (46 percent), floods (24 percent), drought (17 percent) and wildfire (13 percent).

<table>
<thead>
<tr>
<th>(a) Disaster type</th>
<th>Year</th>
<th>Country</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Storm (Bhola)</td>
<td>1970</td>
<td>Bangladesh</td>
<td>300 000</td>
</tr>
<tr>
<td>2 Storm (Gorky)</td>
<td>1991</td>
<td>Bangladesh</td>
<td>138 866</td>
</tr>
<tr>
<td>3 Storm (Nargis)</td>
<td>2008</td>
<td>Myanmar</td>
<td>138 366</td>
</tr>
<tr>
<td>4 Flood</td>
<td>1974</td>
<td>Bangladesh</td>
<td>28 700</td>
</tr>
<tr>
<td>5 Flood</td>
<td>1975</td>
<td>China</td>
<td>20 000</td>
</tr>
<tr>
<td>6 Storm (TC)</td>
<td>1985</td>
<td>Bangladesh</td>
<td>15 000</td>
</tr>
<tr>
<td>7 Storm (TC)</td>
<td>1977</td>
<td>India</td>
<td>14 204</td>
</tr>
<tr>
<td>8 Storm (058)</td>
<td>1999</td>
<td>India</td>
<td>9 843</td>
</tr>
<tr>
<td>9 Storm (TC)</td>
<td>1971</td>
<td>India</td>
<td>9 658</td>
</tr>
<tr>
<td>10 Flood</td>
<td>1980</td>
<td>China</td>
<td>6 200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(b) Disaster type</th>
<th>Year</th>
<th>Country</th>
<th>Economic losses (in US$ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Flood</td>
<td>1998</td>
<td>China</td>
<td>47.02</td>
</tr>
<tr>
<td>2 Flood</td>
<td>2011</td>
<td>Thailand</td>
<td>44.45</td>
</tr>
<tr>
<td>3 Flood</td>
<td>1995</td>
<td>Democratic People's Republic of Korea</td>
<td>25.17</td>
</tr>
<tr>
<td>4 Extreme temperature</td>
<td>2008</td>
<td>China</td>
<td>25.06</td>
</tr>
<tr>
<td>5 Drought</td>
<td>1994</td>
<td>China</td>
<td>23.72</td>
</tr>
<tr>
<td>6 Flood</td>
<td>2016</td>
<td>China</td>
<td>22.92</td>
</tr>
<tr>
<td>7 Flood</td>
<td>2010</td>
<td>China</td>
<td>21.10</td>
</tr>
<tr>
<td>8 Flood</td>
<td>1996</td>
<td>China</td>
<td>20.52</td>
</tr>
<tr>
<td>9 Storm (Mireille)</td>
<td>1991</td>
<td>Japan</td>
<td>18.76</td>
</tr>
<tr>
<td>10 Flood</td>
<td>2014</td>
<td>India</td>
<td>16.90</td>
</tr>
</tbody>
</table>

Figure 6 Top 10 disasters in Asia ranked according to (a) reported deaths and (b) economic losses (1970–2019). TC indicates disasters caused by tropical cyclones.

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\(^1\) WMO Region II (Asia): Afghanistan, Bangladesh, Bhutan, Cambodia, China, DPRK, Hong Kong (China), India, Islamic Republic of Iran, Iraq, Japan, Kazakhstan, Kumai, Kyrgyzstan, Lao People's Democratic Republic, Macao (China), Maldives, Mongolia, Myanmar, Nepal, Oman, Pakistan, Qatar, Republic of Korea, Russian Federation, Saudi Arabia, Sri Lanka, Taiwan (Province of China), Tajikistan, Thailand, Turkmenistan, United Arab Emirates, Uzbekistan, Viet Nam, Yemen

\(^2\) WMO Region V (South-West Pacific): American Samoa (United States), Australia, Brunei Darussalam, Cook Islands, Fiji, French Polynesia (France), Guam (United States), Indonesia, Kiribati, Malaysia, Marshall Islands, Federated States of Micronesia, New Caledonia (France), New Zealand, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Timor-Leste, Tokelau, Tonga, Tuvalu, Hawaii (United States), Vanuatu, Wallis, and Futuna Islands (France).
Of all the countries that experienced a disaster, 91 percent occurred in developing economies (WMO, 2021). This further highlights the need to focus efforts on building the resilience of the poor and those in vulnerable situations, to reduce their exposure and vulnerability to climate-related extreme events and other economic, social, and environmental shocks and disasters (SDG 1.5), alongside buffering the most vulnerable from direct economic losses caused by disasters (SDG 11.5).

It is worth noting in figure 7 the discrepancy between economic losses and loss of life due to disasters, while Australia experienced the 7 out of 10 top economic losses, the Philippines and Indonesia reported the highest loss of life, highlighting inherent inequalities in the ability to cope with the impact of natural disasters.

Floods in Asia and the Pacific have been most frequent and quite devastating both in terms of the fatalities and economic losses. Ten out of the top 15 countries in the world with the most people and economies exposed to annual river floods are in the Asia-Pacific region. They are, by order of population exposed to flood risk, India, Bangladesh, China, Viet Nam, Pakistan, Indonesia, Myanmar, Afghanistan, Thailand, and Cambodia (See Figure 8).

<table>
<thead>
<tr>
<th>(a) Disaster type</th>
<th>Year</th>
<th>Country</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Storm (Haiyan)</td>
<td>2013</td>
<td>Philippines</td>
<td>7,354</td>
</tr>
<tr>
<td>2 Storm (Theima)</td>
<td>1991</td>
<td>Philippines</td>
<td>5,956</td>
</tr>
<tr>
<td>3 Storm (Bopha)</td>
<td>2012</td>
<td>Philippines</td>
<td>1,901</td>
</tr>
<tr>
<td>4 Storm</td>
<td>1973</td>
<td>Indonesia</td>
<td>1,690</td>
</tr>
<tr>
<td>5 Storm (Winnie)</td>
<td>2004</td>
<td>Philippines</td>
<td>1,619</td>
</tr>
<tr>
<td>6 Storm (Joan &amp; Kate)</td>
<td>1970</td>
<td>Philippines</td>
<td>1,551</td>
</tr>
<tr>
<td>7 Storm (Wasu)</td>
<td>2011</td>
<td>Philippines</td>
<td>1,439</td>
</tr>
<tr>
<td>8 Storm (Ike)</td>
<td>1984</td>
<td>Philippines</td>
<td>1,399</td>
</tr>
<tr>
<td>9 Storm (Durian)</td>
<td>2006</td>
<td>Philippines</td>
<td>1,399</td>
</tr>
<tr>
<td>10 Landslide</td>
<td>2006</td>
<td>Philippines</td>
<td>1,126</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(b) Disaster type</th>
<th>Year</th>
<th>Country</th>
<th>Economic losses (in US$ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Drought</td>
<td>1981</td>
<td>Australia</td>
<td>18.85</td>
</tr>
<tr>
<td>2 Wildfire</td>
<td>1997</td>
<td>Indonesia</td>
<td>12.74</td>
</tr>
<tr>
<td>3 Storm (Iniki)</td>
<td>2013</td>
<td>Philippines</td>
<td>10.74</td>
</tr>
<tr>
<td>4 Flood</td>
<td>2010</td>
<td>Australia</td>
<td>8.56</td>
</tr>
<tr>
<td>5 Storm (Tracy)</td>
<td>1974</td>
<td>Australia</td>
<td>4.15</td>
</tr>
<tr>
<td>6 Storm (Alby)</td>
<td>1978</td>
<td>Australia</td>
<td>3.92</td>
</tr>
<tr>
<td>7 Flood</td>
<td>2013</td>
<td>Indonesia</td>
<td>3.22</td>
</tr>
<tr>
<td>8* Drought</td>
<td>2002</td>
<td>Australia</td>
<td>2.84</td>
</tr>
<tr>
<td>8* Storm</td>
<td>2011</td>
<td>Australia</td>
<td>2.84</td>
</tr>
<tr>
<td>10 Storm</td>
<td>2017</td>
<td>Australia</td>
<td>2.76</td>
</tr>
</tbody>
</table>

Figure 7 Top 10 disasters in the South-West Pacific ranked according to reported (a) deaths and (b) economic losses (1970–2019)
Asia-Pacific Disaster Report 2019 indicates a substantial increase in flood losses with the problems becoming worse by 2030. China, India, Bangladesh, and Pakistan will experience losses two to three times greater than in the reference year of 2010. Under the severe scenario, India will be the country worst affected, with nearly $50 billion annual losses, followed by China, Bangladesh, and Pakistan. While flooding can be considered by country, in fact much of the excess water spreads across the region’s major river basins and over national frontiers. Under the moderate and severe climate change scenarios, the transboundary flood losses will be 2 to 6 times greater in the Ganga-Brahmaputra and Meghna basin; 1.5 to 5 times more in the Indus basin; 1.2 to 2 times more in the Mekong basin; and 1.1 to 1.5 times more in the Amur basin.

The human impact of disasters is enormous, 30.7 million people were newly displaced by disasters in 2020, over three times more than those displaced because of conflict and violence (IDMC, 2021). Weather-related events were responsible for 98 per cent of all disaster displacement recorded during 2020 (IDMC, 2021). Most of new displacements globally were recorded in East Asia and the Pacific (12.1 million new displacements), while South Asia recorded 9.2 million (IDMC, 2021). Besides disaster-related displacement, anticipated changes in water availability and prolonged water insecurity resulting from climatic impacts are expected to influence broader mobility patterns in the future. Studies from Bangladesh, Maldives and Nepal have identified water stress as one of the key driving factors of migration in those countries (IDMC, 2021).

Under IWRM for disaster risk reduction, there has been a regional focus on adopting dedicated water policies with emphasis on water-related disasters, WASH, and water quality and preservation policies (OECD, 2021). An impressive 83 percent of Asia-Pacific countries have adopted dedicated policies with, with 79 percent of countries highlighting an emphasis on water-related disasters. Disaster policies that focus on WASH reached approximately 65 percent, and water quality and preservation policies at about 58 percent (OECD, 2021). However, in most countries (90 percent) these policies do not clearly indicate the resources
needed to achieve the goals, which has resulted in unfunded mandates, hampering implementation (OECD, 2021).

While it has been acknowledged that population growth is the key driver of water scarcity and degrading water quality, climate change is expected to exacerbate these challenges, and is already so. Aside from the devastation of climate hazards that result in the loss of human life and livelihood-threatening economic losses, climate change also brings additional challenges to the sustainability of freshwater resources. For example, sea level rise combined with overextraction of groundwater is leading to salinization of coastal aquifers and land subsidence.

Threats to water resources due to climate change are most pronounced in the Pacific where there are fewer freshwater resources, and more vulnerable ecosystems. Increasing evidence indicates that future climate and environmental changes in the Pacific will result in greater variability and uncertainty in both the availability of freshwater and optimal conditions for food production (IPCC, 2021). Overall, the Pacific is expected to experience more rainfall, however the current limited freshwater availability will decline, largely attributed to salt-water intrusion from sea-level rise, coupled with a 1 in 2 chance of drought conditions (IPCC 2021). While the Pacific Islands have made great strides in developing adaptation techniques such as experimenting with salt and drought tolerant crops, revegetating coastlines with native salt-tolerant plants, revitalizing traditional wells, and implementing climate-smart development plans, there is still much work to be done to ensure the Pacific Islands a water secure future (McLeod, 2019).

While there are national efforts to reduce disaster risks and threats under the Paris Agreement through increasing mitigation and adaptation efforts under National Determined Contributions (NDCs), the current ambition level of the NDCs is not sufficient to achieve the envisaged objective of reducing greenhouse gases (GHG) emissions (UNESCAP, 2021). As such, the region needs to prepare for increasing number of climate-related extreme weather events. Additionally, most water treaties and agreements do not account for current climate change and disaster related challenges, thus requiring adaptation strategies to climate-proof all past water agreements and treaties. Within this context, policy actions to support efforts under the Sendai Framework need to be prioritised, notably efforts to (i) understand disaster risk for different national contexts, (ii) strengthen disaster risk governance, (iii) invest in disaster risk reduction for resilience, and (iv) enhance disaster preparedness for effective response and to ‘Build Back Better’ in post-disaster contexts. National governments need to strengthen disaster response, including increasing financial commitments and improving national systems to monitor and collect necessary data for assessing risk. Matching financial commitments is a key issue here, The World bank estimates that developing economies would need to invest between 0.046% and 0.52% of their GDP in flood and coastal protection annually by 2030 in the East and South Asia and Pacific regions, respectively to build resilience against disasters, however it is predicted national budget will fall short.

Solutions such as nature-based solutions designed to protect, sustainably manage, and restore natural or modified ecosystems and address societal challenges effectively and adaptively are of the best approaches currently being trialled in the Asia-Pacific region to address climate change and disaster risk reduction. Nature-based solutions are key to
ecosystem-based adaptation. Mangroves, for example, reduce the impact of tropical cyclones, storm surges, coastal flooding, and erosion. Without mangrove cover, total disaster-induced losses increase substantially, by $11 billion in India, $2.25 billion in Bangladesh and $0.18 billion in Pakistan (ESCAP, 2021). Nature-based solutions include but are not limited to green infrastructure, payment for ecosystem services (for example, to farmers in exchange for the protection of catchments), and sustainable urban drainage systems (ADB, 2020). Further, approaches that restore the natural environment such as the de-channelizing rivers or reducing concrete surfaces can serve as nature-based solutions that decrease transmission losses for groundwater recharge and reduce flood risk. Nature-based solutions can be a cost-efficient complement to grey infrastructure, contributing to building resilience to water-related disasters and providing environmental, social, and economic co-benefits (ADB, 2020).

Nature-based solutions are recognized as an effective, globally scalable approach for long-term and cost-efficient climate regulation for both mitigation and adaptation purposes as these approaches simultaneously provide human wellbeing and biodiversity benefits (UNESCAP, 2021). However, these projects require further scaling and uptake to effectively minimize the impacts of the climate change and associated disasters in the future, and currently efforts are mostly limited to national and local scales (UNESCAP, 2021). More importantly, new water infrastructure should be designed to remain effective and operational during and after disasters to provide life-saving and essential services as set out in the Sendai Framework.

5. Water and peace (SDGs 6.5, 6.a, 6.b and 16)

The depletion and quality degradation of water resources know no borders, threatening life, ecosystems, food security, productivity and economic activities across borders and oceans (van Vliet et al., 2017). Governance of water resources is vital not only to sustain livelihoods, agriculture, and development but also to secure regional and international stability. More importantly, shared governance that involves multiple stakeholders and facilitates the promotion of just, peaceful, and inclusive societies (SDG 16) are required to ensure cooperation in the Asia-Pacific region.

The consequence of water and peace is most obvious in a transboundary context. Implications of deficient transboundary water management are wide ranging, and they are often associated with profound hydrological changes due to upstream water infrastructure developments such as dams for irrigation or hydropower, creating downstream adverse impacts on agriculture, cropping, biodiversity, erosion, fisheries, and water quality (salinisation), and ultimately conflicts between upstream and downstream users (Zarfl et al., 2019). These impacts have long been known to instigate conflicts over water resources, and in some cases have devastating effects, for example in the Aral Sea, Mekong, and Salween Rivers, where diverted water resources upstream decimated entire livelihoods, ecosystems, and economies downstream.

To generate greater peace and cooperation in the region, more efforts towards transboundary water resource management need to be taken. The Global Environment Facility (GEF) currently leads these efforts, mobilising over USD 1.3 billion every 4 years to assist countries in addressing transboundary water cooperation. However, programming is still faced with systemic political challenges.
Despite this reality, currently over 80 percent of countries in the Asia-Pacific region have established river basin organisations to manage water at some scale, however only 20 percent of those countries include provisions to protect indigenous and traditional rights (OECD, 2021). Further, less than 1 percent of countries have carried out stakeholder mapping and only one-third of countries surveyed by the OECD in 2021 have implemented formal or informal mechanisms to engage stakeholders on water-related topics (OECD, 2021). This is a clear shortcoming in the region, and more efforts are required to implement effective collaboration among stakeholders.

Overseas development assistance (ODA) as a pathway for cooperation has seen a steady uptick over the last decade. For Central and South Asia, the amount of water-and sanitation-related official development assistance that is part of a government-coordinated spending plan (disbursement) reached USD 1620 million in 2019. In East and Southeast Asia and the West Pacific, it reached USD 1188 million and 979 million, respectively (UN-Water, 2019 and WHO, 2019). However, exact financial data on implementation spending in the water and sanitation sector is limited due to poor financial reporting and limited collaboration with authorities including a lack of disaggregation of projects into separate subsectors. To better promote the benefits of regional financial collaboration improved data on financial flows is required to improve trust between countries and better understand and prioritise investment flows.

V. PROGRESS ON THE UN WATER ACTION DECADE THROUGH THE LENS OF THE SDG ACCELERATION FRAMEWORK

Key drivers for accelerating SDG 6 are set out in UN-Water’s SDG 6 Acceleration Framework. This framework outlines a set of guiding principles that espouse; prioritizing the vulnerable, ensuring inclusivity, integrating conflict sensitivity, unleashing female, and youth potential, planning for resilience, and designing and implementing transformations based on scientific evidence. The framework uses three action pillars, (1) Engage: engaging closer with UN agencies, governments, and civil society; (2) Align: improving ways of working and coordination with key stakeholders; and (3) Accelerate: key drivers that are understood to improve and support country progress.
The five accelerators as defined by the framework are as follows; Financing: optimized financing is essential to get resources behind country plans; Data and information: data and information targets resources and measures progress; Capacity development: a better-skilled workforce improves service levels and increases job creation and retention in the water sector; Innovation: new, smart practices and technologies will improve water and sanitation resources management and service delivery; and Governance: collaboration across boundaries and sectors will make SDG 6 everyone’s business.

1. Finance

a. Due to the recent COVID-19 pandemic, the global economy slowed substantially with a global real GDP contraction of 3.4 percent in 2020 (OECD). Unfortunately, this contraction occurred during a time when governments faced additional and increased public costs to manage the impacts of COVID-19. It is likely that other costs to recover the economy will take precedence over water and sanitation funding in the near future (UNESCAP, 2021).

b. While financial disbursements for water and sanitation have increased over the last decade, financial reporting in the Asia Pacific region against water and sanitation implementation spending is limited.

c. While many countries in the region have implemented new and robust water policies and mandates, in many contexts appropriate financial commitments have not accompanied said policies, inhibiting the ability to fully implement new water policies and mandates.

2. Data and information

a. There is a serious need to strengthen the regional capacity for data collection for SDG 6, all activities create data and information, however, many targets are lacking enough data to adequately monitor progress (See figure 10). This gap demonstrates a lack of data and knowledge management frameworks to adequately monitor progress.

![Figure 10 Percentage of Data availability in the Asia-Pacific region for all SDG 6 global indicators (ESCAP, 2021)](image-url)
b. Many countries in Asia and the Pacific have not established unified water quality standards. In some countries different institutions are responsible for monitoring surface water quality and groundwater quality, which complicates data sharing between the institutions and reporting for the SDG 6 indicators.

c. Water accounting and allocation underpins best practice of IWRM. However, no country in the Asia or the Pacific region (aside from Australia) systematically carries out water accounting, which is fundamental to the establishment of effective, transparent, and enforceable water allocation systems.

d. Gender-disaggregated data on Water and Sanitation is quite robust, however, gender-disaggregated data in water resource management remains underdeveloped.

3. Capacity Development

a. WASH capacity is high across the Asia-Pacific region, especially in urban areas where WASH management is quite advanced. However, in the Pacific and rural and remote areas of mainland Asia, capacities are still lacking. While this deficit is due to the associated hardships of living in rural and remote areas, more could be done by local governments to enhance capacities in water and sanitation management at the community level. The sector is still not in a place where it is able to meet the many challenges ahead including urbanization, epidemics/pandemics, climate change, accelerated demographic pressure, and technological risk.

b. IWRM capacity is also high across the Asia-Pacific region. However, institutional strength to monitor, evaluate, prioritize, and allocate water use is very low due to the absence of systematic water accounting.

4. Innovation

a. The clear challenges for innovation in water and sanitation are connectivity and water availability in rural and remote areas. However, during the COVID-19 pandemic advances in technology and the uptake of emerging innovations have had significant impacts on the water sector and SDG 6. Emerging technologies such as ‘digital twins’ for water infrastructure, artificial intelligence, drone monitoring, in addition to simpler technologies such as real-time smart water meters present an opportunity to create responsive and efficient water systems that can maximize service availability. For instance, increased digitization during COVID-19 and the availability of ‘big data’ allowed WASH professionals to coordinate responses and resources at a greater scale and efficacy than ever before. The challenge for the future will be to harness these crisis-induced efforts and transform them into long-term solutions.

b. Despite these innovations, the range of contexts and levels of digital readiness has exposed a stark ‘digital divide’ across the Asia-Pacific. Inequitable access to water
among citizens, and variable technical capacity and resources among service providers and policy makers highlight the need for a greater focus on inclusive and low-cost solutions. Similarly, where advanced technologies may be applicable for large-scale urban systems, it remains important to consider rural and remote communities and informal settlements. In these settings it is often not technological innovation that will have the most impact but structural and financial changes that are required to improve accessibility.

5. Governance

a. Competition on water use between sectors (e.g., agriculture, industry, energy, human consumption) as well as between rapidly growing cities and nearby agricultural areas is increasing and is bound to generate conflict if not appropriately managed. Difficult decisions and trade-offs between competing sectors and water users will require holistic and participatory interventions to ensure these are minimized or avoided. Promoting multi-stakeholder partnerships as a governance model to ensure all water actors are involved at all levels in its sustainable management is of critical importance to address such a scarce and vital resource as water and achieve SDG 6. Further, water governance needs to be strengthened at all levels, including local/city, sub-regional, national, and regional levels, and across all sectors of water management. Governments can take advantage of existing regional water initiatives and fora (see annex 4) or create new platforms for facilitating the involvement of civil society, private sector, and the boarder range of stakeholders, including water utilities as employers, workers, and their representatives.

b. Water Governance beyond water resource management will need to be scaled up across the region namely a focus on clear regulator frameworks, corporate governance for service providers and other policy requirements needed to ensure sustainable, affordable, and reliable water and sanitation services.

VI. RECOMMENDATIONS TO ACCELERATE PROGRESS ON SDG 6 AND ON THE UN WATER ACTION DECADE IN ASIA AND THE PACIFIC

1. Governance and cooperation

a. To increase stakeholder engagement for greater participation, transparency, accountability, which are critical barriers or challenges to sustainable improvements in water and sanitation services, additional efforts in communication and advocacy of pressing issues, as well as in ensuring access to information in the water sector, need to be targeted to improve trust and engagement with public institutions and policy processes.

b. To ensure holistic and inclusive national water policies, collaboration and effective stakeholder engagement should be a key national priority, including transboundary
management and cooperation with indigenous peoples, local communities, and other marginalised groups. Greater emphasis on stakeholder mapping is required.

### Inclusive stakeholder engagement and protection of indigenous and traditional rights in the Cook Islands

The Cook Islands established a state-owned enterprise (SOE) to manage water (called 'To Tatou Vai' - Our Water) that consists of landowner committees for each of the 12 water catchments on the main island of Rarotonga. The committees represent landowners and their rights to manage their land, but with the purpose of ensuring the protection of water quality & supply. This is established by law under the To Tatou Vai Act 2021.

### Community-led/community-based source sustainability initiatives for water in India

In India, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) focuses on employment guarantee to unemployed persons ready to engage in unskilled work. The Ministry of Rural Development, India says, "Over the last five years, MGNREGA has become the main force that is driving water conservation efforts all across rural India." The scheme has now evolved from being merely a mitigator of rural distress into focused campaign to raise rural incomes through Natural Resource Management (NRM) works. In 2014, the amendment to MGNREGA Schedule-I was done which mandates that at least 60% expenditure will be on agriculture and allied activities was done. Consequently, a list of permissible works under the Act now has nearly 75% activities that directly improve the water security and water conservation efforts."

C. Transboundary and regional cooperation should be a shared vision for the Asia-Pacific region to ensure peace and security for all, including transboundary water resources management and efforts to adapt to and mitigate climate change and ensure adequate disaster risk prevention and emergency response. The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) and The Convention on the Law of the Non-navigational Uses of International Watercourses (Watercourses Convention) offer a solid basis upon which to revise or negotiate new agreements between countries.

D. Multi-stakeholder partnerships are crucial for building political support and encouraging investment in water and sanitation, and national efforts to improve cooperation should be prioritized to accelerate SDG 6 outcomes.

E. Greater monitoring and evaluation of dedicated water policies is required to better understand the effectiveness of policies and potentially implement remedial actions. Further, increased mechanisms for accountability for the implementation of water policies should be a top priority.
f. Promoting action through multi-stakeholder platforms, agreements, and partnerships should be prioritised to ensure recommendations made by eminent bodies, such as the High-Level Panel on Water, pertaining to the implementation of water-related Goals, are pursued to the greatest extent possible.

2. Policy Coherence

a. To accelerate water management initiatives, greater policy coherence at the national and subnational level between ministries and key stakeholders is required to effectively manage water resources while considering key priorities and uses. Key stakeholders include those in agriculture, planning, urban and rural/remote development, climate, environment, and disaster risk reduction. Further, the right policy incentives and tools for accountability must be structured while continuing to strengthen institutions (government, civil society, and private sector) to promote transparency, participation, effectiveness, efficiency, and accountability to accelerate water management initiatives.

b. Advocate for synergies with climate goals when accelerating the uptake of investment in water resources to ensure mutually beneficial outcomes, as climate, water, and health are intrinsically linked.

c. Across the water agenda there is strong evidence of regional efforts to improve knowledge and develop guidelines through the steady uptick in IWRM implementation. However, financing mechanisms are needed to improve implementation of policies and integrated monitoring of progress of these policies is required to better understand the effectiveness of different policy approaches.

d. Strengthening communication, dialogues, and collaborative platforms to facilitate implementation of the water-related Goals should be prioritised to promote coherence between stakeholders for key policy interventions, making use of existing regional water initiatives and fora (See Annex 4).

3. Data and innovation

a. Collection, accessibility, and use of water and sanitation data needs to be improved - not only to better understand SDG 6 progress, but also to improve planning and policy development. Effective use of data can improve water security and access to WASH services, as well as transparency, participation, and accountability in the delivery of those services. Further, national capacity building efforts in water and sanitation data for monitoring should be a critical first step.

b. To improve government’s ability to effectively monitor progress of SDG 6, data needs to be increasingly collected at sub-national level and from multiple sources including both country-derived data and geospatial data to produce the most comprehensive results.
c. In order to address gaps in water quality data, it is important to have reliable focal points at relevant national institutions to improve collaboration on data sharing between institutions at the national level. Specific gaps should be prioritized through identification of reliable focal points and improved coordination and data sharing at the national level. These data gaps include water quality, IWRM, and monitoring of ecosystem services.

d. Integrated water resource management and data monitoring of ecosystem services shall better support Target 6.6. and strengthen the protection and restoration of water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes.

e. Data for water related disaster risk assessment and planning of structural and non-structural measures need to be developed or improved across the entire region to enable evidence-based policy implementation and better understanding of water-related disaster risk in the region.

f. In order to support countries’ reporting on joint progress for water-related agendas, improving interoperability and data sharing across countries and efforts would streamline data collection and improve the ease of data use. Further, to tackle risks and accelerate progress towards water-related SDGs, knowledge sharing on best practices and innovation are needed to enhance south-south learning.

g. COVID-19 pandemic has presented the WASH sector with new ‘big data’ innovations to assist practitioners to better monitor service delivery. These innovations, such as remote data collection, new forecasting approaches, and unprecedented data sharing, need to be harnessed to facilitate long-term improvements of water and sanitation delivery.

4. Institutional Strengthening and Sector Professionalization

a. Strengthen the capacity of institutions beyond technical know-how. Sector institutions need to be capable of developing and implementing policies, market incentives, and country-led processes. Strong institutions require capacity building beyond technical expertise including clear roles and responsibilities, properly trained and empowered staff, and access to policy-relevant information.

b. Wastewater remains an under tapped resource in the Asia-Pacific region. With some countries barely reaching 10 percent of wastewater treated. Greater capacity in wastewater management is required to accelerate SDG 6, alongside improved data collection of existing wastewater flows.

NEWater: wastewater as a resource in Singapore

In 2003, after more than three decades of research and innovation, PUB, Singapore’s water agency, closed the water loop by turning used water into a resource. Taking treated used water from the water reclamation plants, PUB further treats the effluent using advanced membrane technologies and ultraviolet
disinfection to produce ultra-clean, high-grade reclaimed water called NEWater. Due to its ultra clean nature, NEWater is highly valued by the industry and is primarily supplied to non-domestic sectors such as wafer fabrication parks, industrial estates, and commercial buildings for industrial and air-conditioning cooling purposes. During dry periods, NEWater is also added to local reservoirs to augment the drinking water supply.

c. In order to improve the monitoring, evaluation, and prioritization of water use, national water accounting and allocation capacities will be crucial for building government capacity to prioritize water resources between competing sectors and in transboundary contexts.

d. In order to improve the WASH capacity, the sector needs to improve technical capacities to respond to new and emerging challenges associated with climate change and disasters. Capacity building should focus on improved skills and delivery mechanisms for WASH programming in challenging contexts.

5. Gender

a. To accelerate the visibility of women under SDG 6, greater attention needs to be paid to the role of women beyond WASH, turning focus to the role of women in water resource management. While data on gender has substantially improved in the WASH sector, further efforts are required in the agricultural and water resource management sectors to enable the systematic empowerment of women.

6. Finance

a. To overcome funding shortages due to economic retractions in the public sector, it will be important to engage more effectively with regional and national development banks or climate financing facilities to take advantage of concession lending opportunities to build financial resilience for the water and sanitation sector. Further, it would benefit the sector convene private financial institutions, government financial institutions and the respective central banks to work together through specific policies to incentivize facilitation of financing in water and sanitation and others.

b. Emphasis on more detailed sector disaggregated financial reporting within and between countries (ODA) will facilitate greater trust for regional cooperation and enhance the allocation and prioritisation of financial flows.

c. Financing for rural and remote communities and improving social protection to support the objectives of the Sendai Framework should be a leading priority for resource mobilisation as rural and remote communities still fall behind urban communities under most SDG 6 targets.

d. To improve policy implementation in support of the Addis Ababa Framework, increasing financial commitments for new policies should be a priority, namely where it is most lacking in disaster risk reduction.
e. Financial commitments that meet efforts required to implement new policies such as improved wastewater management need to be prioritized in the policy formulation process to ensure policy success.

7. Integrated approaches to water, the SDGs, and other water-related agendas

a. National efforts should focus on improving healthy water-related ecosystems including natural and constructed wetlands, to provide pollution control (from wastewater, runoff, and plastics) and support resilience through flood and drought protection to support agricultural productivity and increase the reliability of both the quality and quantity of freshwater resources for multiple uses.

Groundwater management and ecosystem restoration in Timor Leste

In recent years, the NGO PERMATIL has pioneered the restoration of community springs in Timor-Leste. According to traditional practice, upland communities established and maintained reservoirs and water retention structures at elevations above the community itself, using local vegetation and materials. Infiltration would feed springs below, with maintenance ensured through community knowledge of the association between reservoirs and springs. Through the efforts of PERMATIL and partners in government, academia and participating communities, this practice is now being re-introduced, linked to traditional knowledge of water, biodiversity, and land management. With climate change bringing more severe dry seasons, ensuring year-round water supply has become a matter of urgency. Reservoirs have now been (re)established in more than 70 locations through peer-to-peer learning. The practice is under consideration as a potential UNESCO Ecohydrology demonstration site.

b. Building on existing IWRM efforts, the region needs to focus efforts on ensuring the protection and restoration of water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers, and lakes, as ecosystems are critical to the health of water resources.

c. Scaling regional and subregional cooperation strategies that integrate water-related disasters, its adaptation and resilience pathways as well as associated health perspectives, to complement national efforts to implement the Sendai Framework for Disaster Risk Reduction 2015-2030.

d. Support policy-driven research that seeks to understand the human health impacts of ecosystem alteration to better inform decision-making in the land-use planning, environmental conservation, and public health policy realms.

e. Institutionalize or streamline priorities on water through dedicated national water and sanitation roadmaps or ongoing national programs (for example, conditional cash transfer programs to include sustainable access to safe water as a condition to graduate from the program); or link to financial inclusion national strategy to include access to finance to access water.
f. Actively consider ecosystem health when planning for health interventions by strengthening cross sector collaboration from a range of different sectors, such as public health, animal health, plant health and the environment to effectively detect, respond to, and prevent health threats.

g. Water-related disasters, water scarcity and water pollution are being further exacerbated by urbanization, population growth, drought, and other extreme weather events. The conservation and sustainable use of water resources need to be a key consideration when planning climate adaptation and mitigation strategies.

h. It is increasingly recognized that global water challenges resulting from the adverse impacts of climate change are amongst the diverse drivers of human mobility. It is therefore important to integrate migration concerns in water policies, and vice versa, taking into account (i) environmental migration driven by water insecurity; and (ii) increasing pressure on water resources due to migration.”

i. Nature-based solutions such as green infrastructure and sustainable urban drainage systems should be more actively considered for new infrastructure development in urban, rural, and remote settings. Further, national governments should consider public-private partnerships for new infrastructure developments and market incentives to ensure increasing uptake of nature-based solutions.

Public-private partnerships for water supply management in Lao PDR

In order to enhance Public-Private Partnerships, UN-Habitat in Lao PDR and partners facilitated the establishment of the Water Supply Public Private Partnership Consortium (WSPPC) mechanism together with the Nam Papa State-Owned Enterprise (NPSE) staff in Sekong and Attapeu. Guidelines for provincial Water Supply Public Private Partnership Consortium (WSPPPC) were produced, setting expectations and standards for the consortium members. These were drafted to clearly define roles and responsibilities and enhance the capacity and mutual understanding among its members, in order to properly manage the multi-stakeholder platform while ensuring the quality-of-service delivery.

j. New water infrastructure should be designed to remain effective and operational during and after disasters to provide life-saving and essential services as set out in the Sendai Framework.
k. Wastewater is a critical component of integrated water resources management and is an opportunity for an affordable and sustainable source of water, energy, nutrients (e.g., phosphorous) and other recoverable by-products. To accelerate progress of Target 6.3, government investments and increased technical capacity of wastewater management are required, alongside improved data collection of existing wastewater flows.

l. To support all the recommendations of the UN-Water Mid-term review, enhanced scientific cooperation in water research, resources management, education, and capacity-building through access to knowledge should be systematically prioritised to promote and enable the exchange of good practices and environmentally sound technology transfer between all stakeholders.

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**Water-energy-waste nexus in Singapore**

PUB and the National Environment Agency (NEA) are currently constructing Tuas Nexus, Singapore’s first integrated solid waste and used water reclamation facility. Tuas Water Reclamation Plant (WRP) will be co-located with the Tuas Integrated Waste Management Facility (IWMF), a waste-to-energy plant, to form Tuas Nexus. Integrating Tuas WRP and IWMF will result in land savings of up to 2.6 hectares and carbon savings of more than 200,000 tonnes of CO2 annually. By employing the latest technologies, Tuas Nexus will be able to harness synergies of water-energy-waste nexus from used water and solid waste. For example, food waste at IWMF can be co-digested with used water sludge at Tuas WRP. The co-digestion of food waste and used water sludge will increase biogas production by 40%, compared to biogas yield from the treatment of used water sludge alone. The biogas produced will then be combusted at IWMF to improve the overall plant thermal efficiency and boost electricity generation. This allows Tuas Nexus to be energy self-sufficient. In addition, excess electricity produced can be exported to the grid to meet Singapore’s energy needs. Tuas Nexus is set to be completed in phases from 2025.
Annex 1: Visualization map of the interlinkages between SDG 6 and other SDG targets

Figure 11 Visualization map of the interlinkages between SDG 6 and other SDG targets (ESCAP, 2020)

<table>
<thead>
<tr>
<th>Social dimension of sustainable development</th>
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<tbody>
<tr>
<td><strong>SDG 1</strong></td>
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<tr>
<td>SDG 6 reduces inequalities by ensuring essential services are available to all, including marginal groups and vulnerable people. Providing access to WASH can reduce monetary and non-monetary poverty.</td>
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<tr>
<td><strong>SDG 2</strong></td>
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<tr>
<td>SDG 6 targets are interlinked with agricultural productivity, sustainable and resilient agricultural practices and ending hunger. An adequate and reliable water resource is a prerequisite for the production of food.</td>
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<tr>
<td><strong>SDG 3</strong></td>
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<tr>
<td>Safe drinking water and adequate sanitation and hygiene are fundamental to protecting health, and directly contribute to achieving SDG 3. WASH-related disease affects vulnerable communities.</td>
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<td><strong>SDG 4</strong></td>
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<tr>
<td>Improving access to WASH facilities in schools can improve the health, attendance and welfare of students and teachers, and contribute to better educational outcomes.</td>
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<td><strong>SDG 5</strong></td>
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<tr>
<td>Women are the caretakers of domestic water. The lives of women and girls can be improved by good WASH services, since they reduce the time spent collecting water from distant sources.</td>
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<tr>
<td><strong>SDG 10</strong></td>
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<tr>
<td>Improvements in access to safe drinking water supply, water, sanitation and hygiene services in homes, healthcare facilities, workplace and schools are essential for overcoming inequalities.</td>
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<tr>
<td><strong>SDG 16</strong></td>
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<tr>
<td>Integrated water resource management approaches can promote coherent policies and the rule of law, public access to information, institutional capacity, and inclusive, participatory, and representative decision-making at all levels.</td>
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<th>Economic dimension of sustainable development</th>
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<tr>
<td><strong>SDG 8</strong></td>
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<tr>
<td>The provision of water-related services, such as water supply, sewerage and waste management, ecosystem restoration and IWRM support an enabling environment for the creation and maintenance of decent jobs.</td>
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<tr>
<td><strong>SDG 9</strong></td>
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<tr>
<td>A reliable water resource is a prerequisite for industry. The reduction and reuse of wastewater generation can help mitigate the environmental impact of development by promoting environmentally sound technologies and industrial processes.</td>
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<tr>
<td><strong>SDG 11</strong></td>
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<tr>
<td>Cities and human settlements provide basic services to their inhabitants, including drinking water and sanitation. Cities are increasingly playing a role in the management of water ecosystems.</td>
</tr>
<tr>
<td><strong>SDG 12</strong></td>
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<tr>
<td>Water is an integral part of consumption and production cycles of food, energy, goods, and services. Managing these processes sustainably is important in protecting the quantity and quality of water resources.</td>
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<tr>
<td><strong>SDG 17</strong></td>
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<tr>
<td>The MoI SDG is key to success of the 2030 Agenda, and includes partnerships, finance, technology, capacity-building, data acquisition and monitoring, and governance, all essential for SDG 6 achievement.</td>
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<th>Environmental dimension of sustainable development</th>
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<td>SDG 7</td>
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<td>SDG 13</td>
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<td>SDG 14</td>
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<td>SDG 15</td>
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### Annex 3: Notable Regional and sub-regional Water Agreements

#### Central Asia

<table>
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<tr>
<th>Agreement</th>
<th>Description</th>
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<tbody>
<tr>
<td>Almaty Agreement (1992)</td>
<td>• Agreements regulating water allocation in the region (Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, Turkmenistan, and the Republic of Uzbekistan).</td>
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<td></td>
<td>• Created legal framework for regional water cooperation through joint management of water distribution established Interstate Commission for Water Coordination (ICWC) to deal with issues related to regulation, rational use, and protection of water resources from interstate sources.</td>
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<tr>
<td>Agreement on Aral Sea (1993)</td>
<td>• Republic of Kazakhstan, Republic of Kyrgyzstan, Republic of Tajikistan, Turkmenistan, and Republic of Uzbekistan made a step further with this Agreement establishing joint Central Asian water-use mechanism through developing the Interstate Council for the Aral Sea basin and the Commission on the Socio-Economic development, Scientific, Technical and Environmental cooperation, and by subordinating ICWC to the new organization.</td>
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<td>Recognized common objectives:</td>
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<td>- Ensuring rational usage of the limited land and water resources of the Aral Sea basin to ensure the necessary social and economic development and well-being of their people.</td>
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<td></td>
<td>- Maintaining the required water quality in the rivers, reservoirs, and springs, preventing the release into these bodies industrial and urban waste waters, polluted and mineralized collector and drainage waters.</td>
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<td>- Regulating the system and enhancing the discipline of water usage in the basin and working out the required interstate legal and regulatory acts that will provide for the application, for the region, of unified principles of indemnifying for damages.</td>
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<td></td>
<td>- Improving the sanitary and medico-biological living conditions, especially for the sea zone residents, and addressing the urgent problem of a clean drinking water supply for the region.</td>
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<td></td>
<td>- Working out and implementing the coordinated social and economic development strategy that would meet the requirements of environmental safety for the people in the region.</td>
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<tr>
<td>Intergovernmental agreement on water/energy resources in the Syr Darya River basin</td>
<td>• Agreement underlined a coordinated order of water and energy resources use in the Syr Darya River basin, which is a prerequisite for further social-economic development of the countries and human welfare. Although technical in nature, it concerns the most significant conflict of interest, water, and energy exchange between Contract parties. It does not contain positive principles, such as cooperation and</td>
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good neighborliness, or, for instance, the obligation to comply with the agreed procedure for water use.

| Framework Convention for the Protection of the Environment for Sustainable Development in Central Asia (2006) | • Provides the legal basis for long-term cooperation between Central Asian States to ensure the effective protection of the environment for sustainable development in Central Asia, including the improvement of ecological environment, rational use of natural resources, as well as reduce and prevent transboundary environmental damage through the harmonization and coordination of environmental policies and actions of the Contracting Parties and by establishing reciprocal rights and responsibilities.  
• Established an independent institutional mechanism, a periodical Conference of the Parties, and a permanent Secretariat, headed by the Executive Secretary, as well as other subsidiary bodies. It also provides for the establishment of a separate financial body in charge of the financial mechanism of the Convention, including collection, management, and disbursement of financial resources. |

South and Southeast Asia

| Ganges Water Sharing Treaty (1996) | • Treaty between India and Bangladesh for a period of 30 years that marked a major footstep towards the conclusion of a longstanding conflict over sharing of the Ganges water.  
• The flow at Farakka Barrage would be shared based on a unique sharing formula between India and Bangladesh during the dry season (January–May), further divided into fifteen 10-day cycles. |

| 1995 Mekong Agreement | Establishes the goals, objectives, and underlying principles by which the four Member Countries (Cambodia, Lao PDR, Thailand, Viet Nam) intend to cooperate. They are summarized as follows:  
• To cooperate in all fields of sustainable development, use, management and conservation of water and related resources of the Mekong River Basin, in a manner that optimizes multiple uses and benefits of water and related resources in the Mekong River Basin including irrigation, hydropower, navigation, flood control, fisheries, timber floating, recreation and tourism (Article 1).  
• To promote the sustainable development of the basin’s full potential and prevent wasteful use, with an emphasis on joint and/or basin-wide development projects and programmed (Article 2).  
• To protect the environment, natural resources, aquatic life and conditions, and ecological balance of the Mekong River Basin and minimize pollution and other harmful effects (Articles 3 and 7-10).  
• To utilize the waters of the Mekong River system in a reasonable and equitable manner (Articles 4-6). |

| Lancang-Mekong Cooperation | • China-led initiative for the cooperation on the Lancang-Mekong River including all riparian countries: Cambodia, China, Laos, Myanmar, Thailand, and Viet Nam |
| Mechanism (2016) | • While mechanism of cooperation has multiple areas, water is one of them. |
Annex 4: Notable Regional Water Initiatives and Fora

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Asia Pacific Water Scarcity Programme (WSP)</strong></td>
<td>Launched in 2021, the WSP is led by the FAO Regional Office for Asia and the Pacific. The WSP aims to bring agricultural water use to within sustainable limits and prepare the sector for a productive future with less water. The WSP is assessing the scope of water scarcity in the region, evaluating effective management response options (primarily water accounting and allocation), supporting improvements in governance, and assisting partner countries to implement adaptive management in the agricultural water sector using appropriate and newly developed tools and methodologies for water accounting and allocation. The WSP is also establishing a Regional Cooperative Platform to enable countries to share solutions and experiences, in addition to ensuring national engagement at the highest political level.</td>
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<tr>
<td><strong>UNESCO IHP</strong></td>
<td>The UNESCO Intergovernmental Hydrological Programme (IHP)'s Regional Steering Committee for Asia and the Pacific (RSC) brings together representatives of the UNESCO Water Family from across Asia and the Pacific for identification of joint priorities, research collaboration, capacity development and networking. Celebrating its 30th anniversary in 2023, the RSC is among the longest-standing water science networks in the region, with participation by IHP National Committees, water-related UNESCO Centres, and university chairs. The RSC has issued multiple joint research and data-sharing publications, including the Catalogue of Rivers series and the current Catalogue of Hydrologic Analysis of which two volumes have been published and a third is in preparation.</td>
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<tr>
<td><strong>South Asia Water Initiative (SAWI)</strong></td>
<td>The South Asia Water Initiative (SAWI) was a multi-donor trust fund supported by the United Kingdom, Australia, and Norway, and administered by the World Bank. SAWI closed in June 2021 after more than a decade of work to increase regional cooperation in managing major Himalayan River systems and building climate resilience. SAWI worked in the Indus, Ganges, and Brahmaputra River basins and in the Sundarbans wetlands, shared by Bangladesh</td>
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and India. Together, SAWI activities spanned seven countries: Afghanistan, Bangladesh, Bhutan, China, India, Nepal, and Pakistan.

| Water and Sanitation Program's (WSP) Economics of Sanitation Initiative (ESI) | Launched in 2007 with a WASH study from Southeast Asia, which found that the economic costs of poor sanitation and hygiene amounted to over USD 9.2 billion a year (2005 prices) in Cambodia, Indonesia, Lao PDR, the Philippines, and Vietnam. The ground-breaking study was the first of its kind to attribute dollar amounts to a country's losses from poor sanitation. The report sparked public awareness and Government action in several countries. The ESI initiative was born as a response by WSP to address major gaps in evidence among developing countries on the economic impacts of sanitation. |
| Mekong Integrated Water Resources Management Project (M-IWRMP) | The M-IWRMP assisted Member Countries through a three-tiered approach, combining regional (basin-wide), transboundary, and national level approaches:  
- Regional component advanced the application of the MRC Procedures and their technical guidelines and developed a package of modeling tools for basin-scale water utilization.  
- Transboundary components focused on bi- and multilateral cooperation between the MRC Member Countries and cross-country projects that were facilitated through the MRC Secretariat.  
- Five joint bilateral projects were developed under this component to address transboundary issues in the management of water and related resources for sustainable development through the IWRM approaches.  
- National components supported each Member Country to improve governance mechanisms and build technical capacity to carry out coordinated planning and utilization of water within the national boundaries. |
| ESCAP APFSD | The Asia-Pacific Forum on Sustainable Development (APFSD) is an annual and inclusive intergovernmental forum and a regional platform for supporting countries, in particular those with special needs, in the implementation of the 2030 Agenda for Sustainable Development while |
| **UN Water Expert Group on Regional Level Coordination** | Serving as a regional preparatory meeting to the high-level political forum.

The Forum provides a regional perspective on the implementation of the 2030 Agenda by identifying regional trends and consolidating and sharing best practices and lessons learned. The Forum takes into consideration the contributions of United Nations system bodies (at the regional level), other regional and sub regional organizations, and relevant stakeholders. The APFSD also supports follow-up and review of progress on the 2030 Agenda at the regional level. |
| **Asia Water Council** | **The Expert Group on Regional Level Coordination aims to provide a platform for discussing and pursuing regional-level coordination and collaboration on cross-cutting issues being addressed by UN-Water. In doing so, it aims to provide a regular mechanism for the exchange of regional information, knowledge and experience and the coordination of regional-level activities on water, sanitation and water-related issues that are being jointly pursued by UN-Water Members and Partners. It also aims to provide an avenue through which UN-Water can interact with regional-level collaborative arrangements established by the United Nations Secretariat.** |

**AWC aims to achieve sustainable growth in Asia with smart water by applying smart technologies to all types of water use, including Integrated Water Resources Management (IWRM) to conserve nature, and enhance water security by reducing water risks such as floods and droughts.**

AWC believes that the SDG6 is the key factor to achieve all the 17 SDGs considering the cross-cutting nature of water across climate change, poverty, gender, child education, economic growth, and urbanization issues. Therefore, AWC works to develop evidence-based water policy, providing technical assistance and capacity building program, promoting research and discussion carrying out water projects and building solid networks where diverse water-
related stakeholders can participate. As AWC dedicates to ensure water security in Asia where the largest population suffer from open defecation, water-borne diseases, lack of water access and sanitation facilities will contribute to access the universal achievement of the SDG 6 as well

| World Irrigation Forum | The World Irrigation Forum (WIF) aims to bring together all the stakeholders involved in irrigation of multi-disciplines and all scales, including the policy makers, experts, research institutions, non-governmental organizations, and farmers. It provides a platform for the world irrigation community and interested development professionals to find solutions to problems plaguing the irrigated agriculture, in time of depleting freshwater resources as a result of global warming and climate change. |
| Asia Pacific Water Forum | The Asia-Pacific Water Forum (APWF) is an independent and not-for-profit network organization. The objective is to raise the priority of tackling water security issues highlighted in the development agenda in the Asia-Pacific region in order to improve people's livelihoods and the environment. We work collaboratively with a wide variety of water-related organizations in the region to build capacity and enhance cooperation, while boosting investment at the regional level and beyond. The Japan Water Forum has maintained a role as the Secretariat of the APWF ever since its launch. |
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