ACCELERATING PROGRESS IN SDG-6 (CLEAN WATER AND SANITATION) IN SOUTH AND SOUTH-WEST ASIA SUBREGION

Dr Arvind Kumar

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For any further details, please contact:

Ms. Mikiko Tanaka, Director
South and South-West Asia Office (SSWA)
Economic and Social Commission for Asia and the Pacific (ESCAP)
C-2, Qutab Institutional Area, New Delhi-110016, India
Email: sswa.escap@un.org

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Foreword

The Development Papers Series of the Economic and Social Commission for Asia and the Pacific, Subregional Office for South and South-West Asia (ESCAP-SSWA) promotes and disseminates policy-relevant research on the development challenges facing South and South-West Asia (SSWA). It features policy research conducted at ESCAP-SSWA as well as by outside experts from within the subregion and beyond. The objective is to foster an informed debate on development policy challenges facing the subregion and share development experiences and best practices.

This paper is part of a series of thematic studies conducted by the ESCAP South and South-West Asia office, reviewing the status, progress, and challenges of achieving SDGs in the subregion in 2022-2023. SDG 6 aims to ensure the availability and sustainable management of water and sanitation for all, a fundamental right of all human beings. This paper provides readers with a comprehensive analysis of the current progress and ongoing challenges of this goal in the subregion.

Regional cooperation is essential to address all the present gaps and find durable solutions. Sharing knowledge will lead to a more prosperous situation in which clean water and sanitation can be provided to the entire population. Many water use and management challenges, such as water pollution, know no boundaries. Given the interconnection between SDGs, the challenges of SDG6 have spillovers on other goals, and the success toward achieving this goal will also benefit others, such as SDG 2, zero hunger, SDG 11, sustainable cities and communities, and SDG 14, life below water. This paper becomes important due to the 2025 HLPF theme, which includes SDG 14, as some of the issues in this paper are relevant to SDG 14, which will also be discussed in the South and South-West Asia SDG Forum in 2024.

South and South-West Asia has made significant progress, such as improving access to safe water. Nevertheless, considerable challenges still exist regarding water availability and quality. Improvements have been observed mostly in urban areas, while rural parts of the subregion are still behind. Data availability is another significant issue that needs to be addressed since, without conclusive data, policymakers are unable to fully locate the gaps and challenges and put effective water management policies in place.

Mikko Tanaka
Director of the South and South-West Asia Office
United Nations Economic and Social Commission for Asia and the Pacific

Clean Water and Sanitation (SDG 6) in South and South-West Asia Region

Dr. Arvind Kumar[1]

Abstract

The South and South-West Asia region has made considerable progress in improving economic and social welfare over the last decade. Water resources have contributed greatly to this transformation through measures such as water and sanitation hygiene (WASH), provision of basic services and agricultural expansion. Since the adoption of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs), progress has been made to elevate water issues at the national and regional level. However, access to sustainable water resources is increasingly threatened by several issues like pollution, growing populations, increasing water demands, and climate change. While there has been a substantial effort to increase aid to the least developed countries for water supply and sanitation, people throughout the subregion still lack access to safely managed drinking water and sanitation services. Despite progress in some components of SDG 6, such as the reduction of open defecation, overall development is not on track to achieve the specific target goals by 2030. Continuous water availability—both in sufficient quantity and adequate quality—is fundamental to the expansion of safe drinking water services. The most notable threat to progress of Goal 6 is water stress. In the effort to ensure food security for growing populations, the status of available freshwater resources has largely been neglected in some of the most consequential parts of the SSWA region. It's essential for the subregion to act to reverse negative trends for target 6.6, protect and restore water-related ecosystems. Regional cooperation can ensure moving towards the targets of Goal 6, especially target 6.5.2, transboundary water cooperation.

JEL Codes(s): I32, L97, N15, O20, P18, Q53, R

Keywords: SDG progress, South and South-West Asia, SDG-6, Clean Water, Water Management, Water Stress, Hygiene

[1]Dr Arvind Kumar is the president of India Water Foundation, an NGO working on SDGs established in India in 2008, which is a member of SANS. The paper was drafted under the guidance of Mr. Rajan S. Ratna, Deputy Head and Senior Economic Affairs Officer, ESCAP-SSWA, and the supervision and review of Ms. Leila Salarpour Goodarzi, Associate Economic Affairs Officer, ESCAP-SSWA. The paper benefitted from the research and input of Ms. Mariya Krupach, Economic Affairs Intern, ESCAP-SSWA, and comments of Mr. Matthew Amalitinga Abagna, Economic Affairs Intern, ESCAP-SSWA. Mr. Simon Salvi, Economic Affairs Intern, ESCAP-SSWA, has supported the formatting of the paper. The views expressed in this paper are those of the authors and do not necessarily reflect the views of the United Nations Secretariat.

1. Introduction

Access to clean water and sanitation specified under Sustainable Development Gaol 6 (SDG 6) is critical to sustainable development and should be considered as a human right by all nations. They are essential to improving nutrition, preventing disease and enabling health care, as well as ensuring the functioning of schools, workplaces, political institutions, and the full participation of women, girls and marginalized groups in society. SDG 6, however, goes far beyond water and sanitation services and covers the entire water cycle. Aside from domestic purposes, water is needed across all sectors of society to produce food, energy, goods and services. These uses also generate wastewater, which, if not properly managed, can spread diseases and introduce excess nutrients and hazardous substances into groundwater, rivers, lakes, and oceans.

Healthy ecosystems safeguard the quantity and quality of freshwater, as well as overall resilience to human- and environmentally-induced changes. There are several challenges which are impacting the requisite progress of SDG6. Water is a critical factor in managing risks related to famine, disease epidemics, migration and inequalities within and between countries, political instability and natural disasters. With limited water resources, it is essential to balance the water requirements of society, the economy and the environment. Given most of the world's water resources are shared between two or more countries, the development and management of water resources have an impact across transboundary basins, making cooperation essential. All SDGs are interlinked. As a goal concerning the lifeblood of society and the planet, progress towards the eight SDG 6 targets has catalytic effects across the entire 2030 Agenda[2].

While it is undeniable that the countries of this subregion have made progress in improving access to fresh water, these nations still struggle with a range of issues related to water availability and quality. Climate change has led to rising sea levels, increasing temperatures, and changes in precipitation patterns. Changes in the Earth's climate system can lead to changes in weather patterns, such as increased frequency and intensity of extreme weather events like droughts, floods, and heat waves. Climate change leads to more frequent and intense extreme weather events, such as floods, drought, tropical cyclones, heat waves as well as sand and dust storms. These events significantly impact human health, ecosystems, and the economy. For example, heat waves can lead to heat-related illnesses and deaths, while droughts can cause crop failures and water shortages, and floods can damage infrastructure and lead to the spread of waterborne diseases.

Despite the fact that the SSWA subregion's countries have made progress on some SDG targets, the majority of this success has been concentrated in urban areas, and there is little data available on the progress of these targets in rural areas. Much work remains to be done to achieve all the targets identified under SDG 6. The key challenge for the region moving forward is managing and

[2] UN-Water (2016). *Water and sanitation interlinkages across the 2030 Agenda for Sustainable Development*.

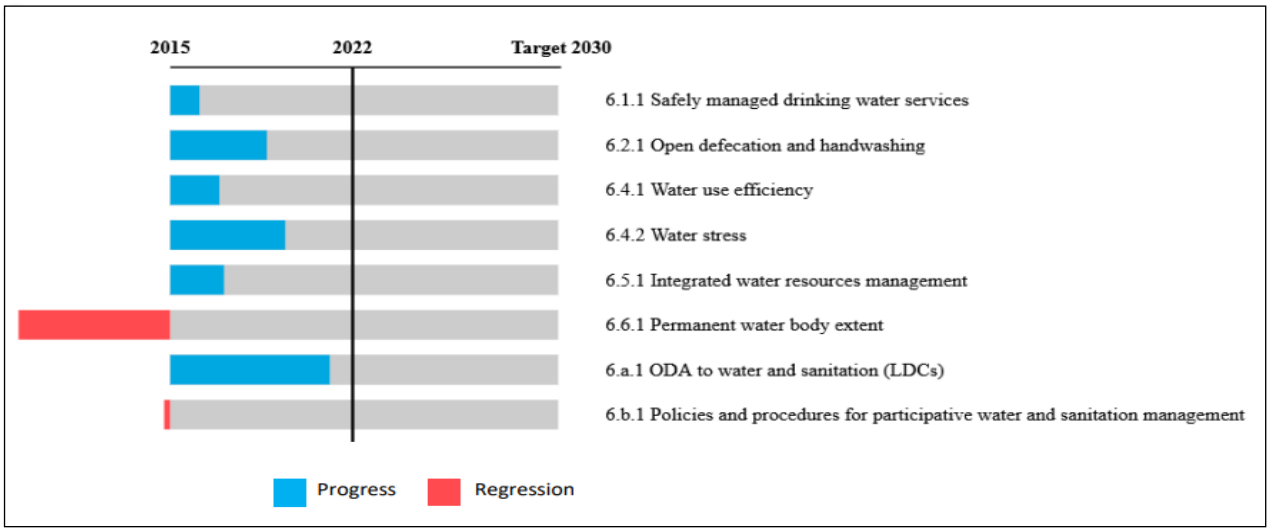
prioritizing quality water resources for both human and ecosystem use against the backdrop of increasing water scarcity and direct competition between different sectors. This challenge requires careful prioritization of uses based on economic, social and environmental values. However, greater efforts are required to establish conclusive data or formal water accounts detailing water withdrawal and its use. Currently, this data lack has become a growing concern, as policymakers are unable to effectively develop water resource policies without comprehensive data. Increased efforts are required to establish water accounts, as rational and equitable water allocation is hard to implement without a comprehensive understanding of water balance.

To accelerate progress on delivery of SDG 6 and reverse the current regression on some targets, there are some recommended actions for priority consideration. Increased funding, especially for water accounting, WASH, wastewater management, disaster risk reduction, and support for regional collaboration, are among these priorities. In addition, improving data collection and sharing of what underpins water accounting, moving towards informed sustainable management and use of water resources, increasing access to safely managed drinking water and sanitation services, promoting transparent allocation of water, improving water quality and groundwater status, and helping model potential future scenarios are essential toward accelerating goal 6 agenda. A better-skilled workforce improves service levels and increases job creation and retention in the water sector. New, smart practices and technologies will improve water and sanitation resources management and service delivery. Collaboration across boundaries and sectors will make SDG 6 everyone’s concern and business. Improving governance and cooperation through inclusive multi-stakeholder approaches and developing a shared vision from local to transboundary levels for water and wastewater management within and across basins are also critical.

2. General Overview of SDG 6 in SSWA

Sustainable Development Goal 6 (SDG 6) was added to the United Nations' Agenda 2030 because of the fact that having access to clean water and adequate sanitation is a fundamental human right and necessary for achieving sustainable development. Many other SDGs, such as eradicating poverty and hunger (SDG 1 and 2), enhancing health and well-being (SDG 3), advancing gender equality (SDG 5) and ensuring sustainable cities and communities (SDG 11), depend on access to clean water and sanitation. At the current rates of progress, in 2030, 1.6 billion people will lack access to safely managed drinking water services, and 2.8 billion people will lack safely managed sanitation services. This is likely to have a significant impact on public health, education, and economic growth, particularly in low-income countries; therefore, SDG 6 is included in Agenda 2030 as a commitment to ensuring that everyone, everywhere has access to clean water and sanitation[3].

Figure 1: 2022 SDG progress at indicator level

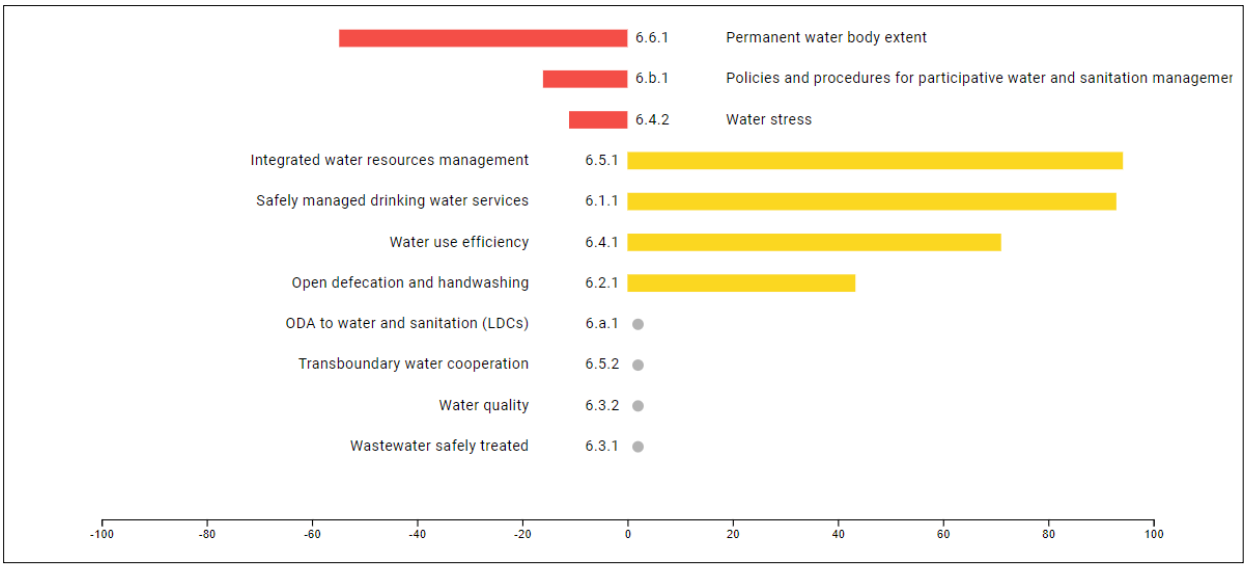


Source: ESCAP (2022)

As important economic sectors like agriculture and energy are heavily reliant on a consistent supply of fresh water, SDG 6 on clean water and sanitation is thought to be especially crucial. SDG 6 is one of the goals in the SSWA subregion that is making the least progress, aside from SDGs 11, 12, and 13, which have seen a regression in progress since 2015.

[3] UN (2022). *The Sustainable Development Goals Report 2022*

Figure 2: SSWA sub-goal gaps in SDG 6



Source: ESCAP (2022) SDG Data Portal

While it is undeniable that the countries of this subregion have made progress in improving access to fresh water, these nations still struggle with a range of issues related to water availability and quality. Progress assessments of major indicators of SDG 6 in the SSWA region are presented in Figure 1 and 2. Figure 1. Specifically, Figure 1 illustrates whether there has been progress or regression from 2015 to 2022, compared to the 2030 overall goal, while Figure 2 shows the on-going gaps in terms of SDG 6.

From 2015-2020, progress has been made also in terms of disparity in access to safely managed services between rural and urban areas. According to ESCAP, in 2020, 52% of the rural population had access to safely managed drinking water services (target 6.1.1), and 48% had access to safely managed sanitation services[4] (target 6.2.1 a). Despite this, further improvements are needed. Additionally, according to target 6.4.2, the total freshwater withdrawal in this subregion accounts for one-fourth of the total renewable water per year, and according to target 6.5.1, 100% of integrated water resource management (IWRM) is being implemented. According to target 6.6.1, only 1% of the permanent water area of lakes and rivers has changed, but the mangrove areas in this subregion have remained unchanged. According to target 6.a.1, the least developed countries (LDCs) in this subregion have received official development assistance (ODA) worth US$ 2019 million for water and sanitation projects between 2015 and 2022. In this subregion, target 6.b.1 implementation appears to be going well.

[4] ESCAP (2023a)

Table 1: Progress assessment of SDG 6 in the SSWA subregion

Indicator (short name)	Goal 6	Target (rate)
Safely managed drinking water services	6.1.1 population using safely managed drinking water % of the population (by urbanization)	100
Open defecation and hand washing	6.2.1a Population practicing open defecation, % of the population (by urbanization) 6.2.1b Population with basic hand washing facilities on premises and using safely managed sanitation services, % of population (by urbanization)	0 100
Water use efficiency	6.4.1 Water use efficiency, US $/m^3	(2.9) *
Water stress	6.4.2 Total freshwater withdrawal, % of total renewable water per annum.	25
Integrated water resource management	6.5.1 Degree of integrated water resource management implemented, %	100
Permanent water body extent	6.6.1 Area change, % * Lakes and rivers' permanent water area change * Mangrove area change	 1 0
ODA to water and sanitation, (LDCs)**	6.a.1 ODA to water and sanitation (in LDCs), US $ 2019 million	(2)
Policies and procedures for participative water and sanitation management	6.b.1 Countries with procedures in law or policy for participation by service users/communities in planning programme: rural drinking water supply, Water resources planning and management 10= clearly defined; 5=not clearly defined; 0=N/A Countries with users/communities participating in planning Programmes in rural drinking water supply, water resources Planning and management, 3=high; 2=moderate, 1=low; 0=N/A.	10 3

Source: ESCAP (United Nations-Economic and Social Commission for Asia and the Pacific). (2023). Asia and the Pacific SDG Progress Report, championing sustainability despite adversities. Bangkok, Thailand: The ESCAP Publication Office: 45-46.

* The rates in parenthesis are utilized as a multiplier of the indicator level in the year 2015 for calculating the target value.

Notes: The table contains the list of indicators of SDG 6 that have been used in the analysis, along with respective target values and sources of data. Indicators available in the Global SDG Indicators Database are marked with 'SDG' in the source column.

Regarding stress level, the higher the number, the higher the water stress level, and the goal is to bring the number down. Countries should move to a value below 25% in order to exit a water water-stress situation.

Climate change has led to rising sea levels, increasing temperatures, and changes in precipitation patterns. Changes in the Earth's climate system can lead to changes in weather patterns, such as increased frequency and intensity of extreme weather events like droughts, floods, and heat waves. Climate change leads to more frequent and intense extreme weather events, such as floods, drought, tropical cyclones, heatwaves, and sand and dust storms. These events significantly impact human health, ecosystems, and the economy. For example, heat waves can lead to heat-related illnesses and deaths, while droughts can cause crop failures and water shortages; floods can damage infrastructure and lead to the spread of waterborne diseases. Despite the fact that the SSWA subregion's countries have made progress on some SDG targets, the majority of this success has been concentrated in urban areas, and there is little data available on the progress of these targets in the subregion's rural areas, much work remains to be done in order to achieve SDG 6 (SDG index and dashboard, 2023).

3. Emerging Trends

The target-wise progress of SDG 6 in the SSWA subregion, disaggregated by countries, is summed up in Table 2 and makes some emerging trends discernible. A visual representation is provided in Figure 3.

Table 2: Progress on SDG 6 targets in SSWA subregion

SDG 6 targets	6.1.1, proportion of population using safe water	6.2.1a, proportion of population using safely managed sanitation services	6.2.1b, proportion of population using a hand-washing facility	6.3.1, proportion of domestic and industrial wastewater flows safely treated	6.3.2, proportion of bodies of water with good ambient water quality	6.4.1 ($/m^3), water use efficiency	6.4.2, water stress level	6.5.1, degree of integrated water resources management	6.5.2, proportion of transboundary basin area with an operational arrangement for water cooperation	6.6.1, change in the extent of water-related ecosystems over time	6.a.1, in million USD, amount of water and sanitation-related official development assistance	6.b.1, participation of local communities in water and sanitation management
Afghanistan	30	--	48	--	--	1	55	12	--	11	79	+
Bangladesh	59	31	62	18	--	7	6	58	--	25	284	+
Bhutan	73	51	93	40	--	6	1	33	--	12	11	+
India	--	52	76	21	--	3	66	45	--	22	420	+
Iran (Islamic Republic of)	94	--	--	25	--	4	81	40	--	43	3	+
Maldives	--	--	96	--	--	--	17	42	--	--	26	+
Nepal	16	51	64	39	--	3	8	37	--	17	185	--
Pakistan	51	--	85	38	--	2	116	56	--	33	196	+
Sri Lanka	47	--	85	--	--	6	91	47	--	--	133	+
Türkiye	--	79	--	65	--	14	46	72	--	40	63	--

Source: UN-Water (2023a).

Note: The data on maximum indicators is from 2022 for some, it is from 2019 as mentioned on the UN Water SDG6 data portal. All the data is expressed in percentages, except for targets 6.4.1, 6.a.1 and 6.b.1.

"--" is used when data is not available for the country.

"+" for 6.b.1 indicates that the country has positive users/community participation in law or policy.

With regards to the proportion of the population that had access to safely managed drinking water services, in terms of improved water source which is located on premises, available when needed, and free from contaminations (target 6.1.1), data of the SSWA subregion shows large-scale variations in the target, which is measured in terms of population using overall safely managed services. For instance, in 2020, Iran had recorded the highest percentage of population in the subregion, with a value of 94%; similarly, in Bangladesh, Bhutan, and Pakistan, the bulk of population had access to this service. Although, some countries were off the mark: most notably, Nepal, with an abysmal low of 16%, followed by Afghanistan, at 30%. Regarding India, Maldives and Türkiye, the data collected focues on the provision of at least basic services. In 2020, they all reported to be well performing at meeting the least basic services standards, with values close to 100%. In the case of India, the percentage of population was 93%, for Maldives 99%, and for Türkiye 97%.

Target 6.2.1 is identified by two targets. In terms of target 6.2.1a, safely managed sanitation services, facilities that are not shared with other households, and places where excreta are safely disposed of, subregionmassive variations between and among the subregional countries have been shown. Some countries reported the prevalence of open defecation, albeit by a very marginal proportion of the total population. It's interesting to note some level of discrepancies in the data as India reported to be an open-defecation-free country under the Swachh Bharat Mission[5], but UN SDG 6 data shows otherwise. Among the reported data, almost all the countries outlined at least basic sanitation services with a valore hand-washing facility at home (target 6.2.1b), with a percentage of the population varying from the lowest values of 48% in the case of Afghanistan, to the highest of 96% for Maldives.

Progress on target 6.3 is not uniform in this subregion, with all countries having taken measures in consonance with the objectives of target 6.3, while there is no data available for Afghanistan, Maldives and Sri Lanka.

On target 6.4, there is available information in the UN SDG 6 database. However, looking at the country approaches to this target, no uniform pattern of adoption of Integrated Water Resources Management (IWRM) principles emerges from the VNRs of the member countries of the SSWA subregion even though the implementation of IWRM principles is reported by almost all countries. In addition to the population challenge and problem of water stress, we face the issue of water efficiency (SDG indicator 6.4.1) i.e. the use of water by people and the economy, which has been measured in USD/m^3; wherein all of the nations in the region are performing to an insignificant level, best performing being Türkiye and the lowest being Afghanistan, probably because of extremist and radical reign.

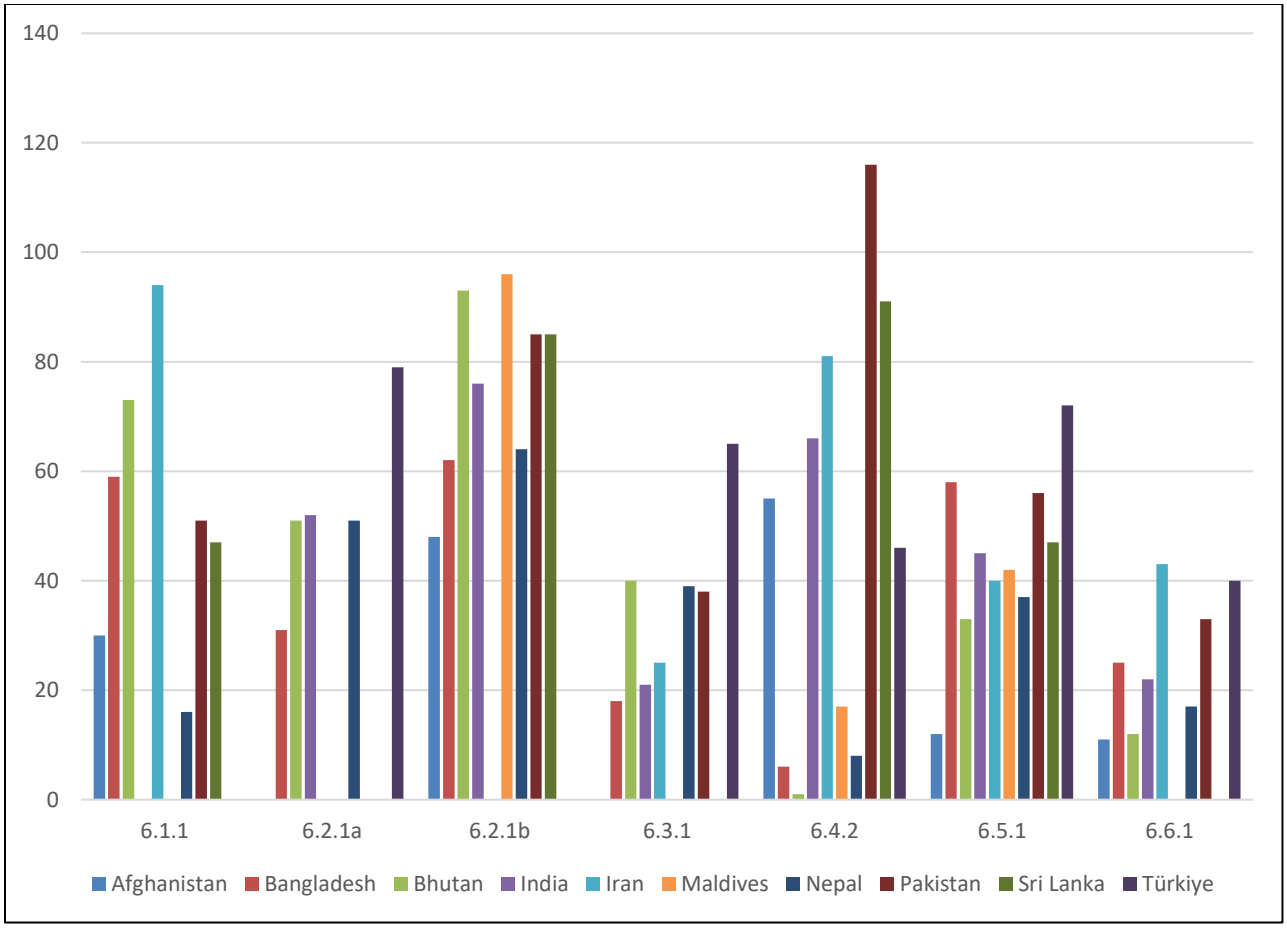
[5] Govt. of India (2019)

In South Asia, home to nearly 1.6 billion people, countries in the region are increasingly feeling the pressure of population growth and urbanization, due to which the region is coming out to be highly water-stressed (target 6.4.2). For instance, Pakistan is the country with the highest level of water-stress, 116%; similiarly, Sri Lanka with 91%, and Iran with 81%. Therefore, sharing of data and information between multiple stakeholders will be critical to planning for this uncertain water future.

Countries of the SSWA region have not reported any progress on Target 6.5.2. Despite the political complications within the SSWA subregion, the region's most essential resource, its ecosystems, needs to be managed sustainably (target 6.6.1). The target's objectives, according to the UN, have improved in this subregion, and with the exception of India and Bangladesh, the VNRs of other countries also make no mention of this target. Although the data highlights that water-related ecosystems in the region are improving in a slow fashion, at the moment, the most progressing nation is Iran at 43%, followed by Türkiye at 40%. Creating an enabling environment is an essential first step for succeeding with the implementation of any management response.
The means of implementation for targets 6.a and 6.b are complementary to SDG 17 and 9, which focus on finance, technology, capacity building, trade and systemic issues. In terms of target 6a, all countries have reported having received overseas development assistance to improve water and sanitation-related activities in the country. Therefore, the amount of water and sanitation-related Official Development Assistance (ODA) by different nations in 2020 has been exhibited in USD/m$. The highest amount of ODA's are received by India, 420 USD/m$, and the lowest is Iran at 3 USD/m$, which clearly explains that the region needs to expand international cooperation and enhanced capacity building in water and sanitation-related activities and programmes to achieve SDG 6 targets. In addition to this, Türkiye is the only country in this subregion that has undertaken projects out of the country in Mauritania, Djibouti, Niger, Ethiopia, Sudan, Mali, Somalia, Burkina Faso, and Syria in the context of target 6a to increase access to clean drinking water and sanitation. Türkiye, under the Turkish Cooperation and Coordination Agency (TIKA), on average, provides approximately US$ 6 million in development aid annually in this regard[6]. All countries, except the Maldives and Türkiye (no data), have shown positive trends on target 6.b.1, which emphasizes supporting and strengthening the participation of local communities in improving water and sanitation management.

[6] Govt. of Türkiye (2021)

Figure 3: Visual representation of SDG 6 and its different indicators



Source: Data from UN-Water (2023a). The data is expressed in percentages.

Figure 3 represents a graphic display of all the targets expressed that are expressed in percentage from Table 2. For this reason, targets 6.4.1, 6.a.1 and 6.b.1 has not been included, as well as target 6.3.2, since data is missing for all the countries. The graph aims to catalyze support for coordinated regional action on SDG 6 monitoring, with the ultimate goal of accelerating progress towards achieving SDG 6 and the overall 2030 Agenda. The representation has been realized for 7 indicators under the umbrella of SDG 6 i.e., drinking water (6.1.1), sanitation (6.2.1a), hygiene (6.2.1b), wastewater (6.3.1), water stress (6.4.2), water management , (6.5.1), boundary cooperation, and ecosystems (6.6.1). In the past ten years, South and South-West Asia has made good progress in improving drinking water, sanitation and hygiene. Despite this, a major challenge we witness at a glance through the data available is that South and South-West Asia is highly irregular and erratic in capturing data. There is a high unavailability of reasonable and trustable data in the region. For instance, for indicators such as water quality (6.3.2), and trans-boundary cooperation (6.5.2) there is no data available, especially because of lack of political willingness and inadequate resources. To address this issue, more cooperation among stakeholders in national and international level is necessary.

4. Status of Water Availability in the SSWA Region

The subregion of South and South-West Asia (SSWA) which includes the Islamic Republic of Afghanistan, People's Republic of Bangladesh, the Kingdom of Bhutan, the Republic of India, the Islamic Republic of Iran, the Islamic Republic of Pakistan, the Republic of Maldives, the Federal Republic of Nepal, the Democratic Socialist Republic of Sri Lanka, and the Republic of Türkiye, is home to more than one-fourth of the world's population and covers just over 4 percent of its total land area. It is endowed with a population of over two billion people. A little over 4.5 percent of the world's annual renewable water resources are left to this subregion. With the exception of Bhutan and Nepal, the availability of water per capita in the subregion is less than the global average, which was approximately 15,800 liters of renewable freshwater per day on average in 2017[7]. In this subregion, the agricultural sector consumes over 90 percent of the water that is withdrawn, which is significantly more than the global average of 70 percent, with the industry being the second largest consumer of water. Very little water is left for domestic use[8].

Burgeoning population growth, rapid urbanization and industrialization, increasing pressure from the agriculture and energy sectors have proved instrumental in exacerbating the demand for water globally. Global water stress and ecosystems reliant on water are deteriorating due to unscientific misappropriation, poor water management, over-extraction, and contamination of freshwater and groundwater sources in recent decades. Regional water ecosystems have been negatively impacted by the frequent occurrence of extreme weather events, especially severe forms of heat waves recorded in various parts of the world, and in particular in the SSWA subregion. These events have also sparked droughts and floods[9]. These changes have demonstrated their power to have negative affects on human health, economic activity, and food and energy supplies. In light of this, it is urgent to take action to halt the current trend and return to the path toward achieving SDG6, which is essential to achieving the other SDGs.

The pace of progress toward the SDGs has been slowing down in the Asia-Pacific region, and it has been lamented that with each passing year, since the adoption of the 2030 Agenda for Sustainable Development in 2015, the anticipated timeline for achieving the SDGs has been prolonged. The progress gap for achieving the SDGs grows wider and the prospect of achieving the SDGs now extends decades beyond 2030, and in 2017, the estimated year to achieve the SDGs was 2052, and by 2021, the estimated year had increased to 2065[10]. Undoubtedly, ESCAP (2022, 23)[11] notes that the SSWA subregion is not on track to reach any of the 17 SDGs by 2030; nonetheless, it is reported that some progress has been made on some goals, albeit at a slow pace.

[7] UNEP (2008)
[8] Boriah, Manju; Xiao, Limin; Lyons, Tom; and Ricks, Steve (2021)
[9] IPCC (2022)
[10] ESCAP (2022)
[11] ESCAP (2023)

The availability of water resources at all levels, including surface, ground, and glacier levels, is closely related to progress on SDG 6. Geographic diversity and variations in the availability of water resources are characteristics of the South and South-West Asia subregion. Two of the countries in the subregion—Sri Lanka and the Maldives—are island nations surrounded by water, Pakistan and Türkiye are experiencing ongoing water scarcity, and Bhutan and Nepal both have an abundance of water resources. Understanding the status of SDG 6 in this area of the world can be made easier with a brief overview of the water resources in each of the countries in the subregion.

Table 3: Freshwater availability in SSWA subregion

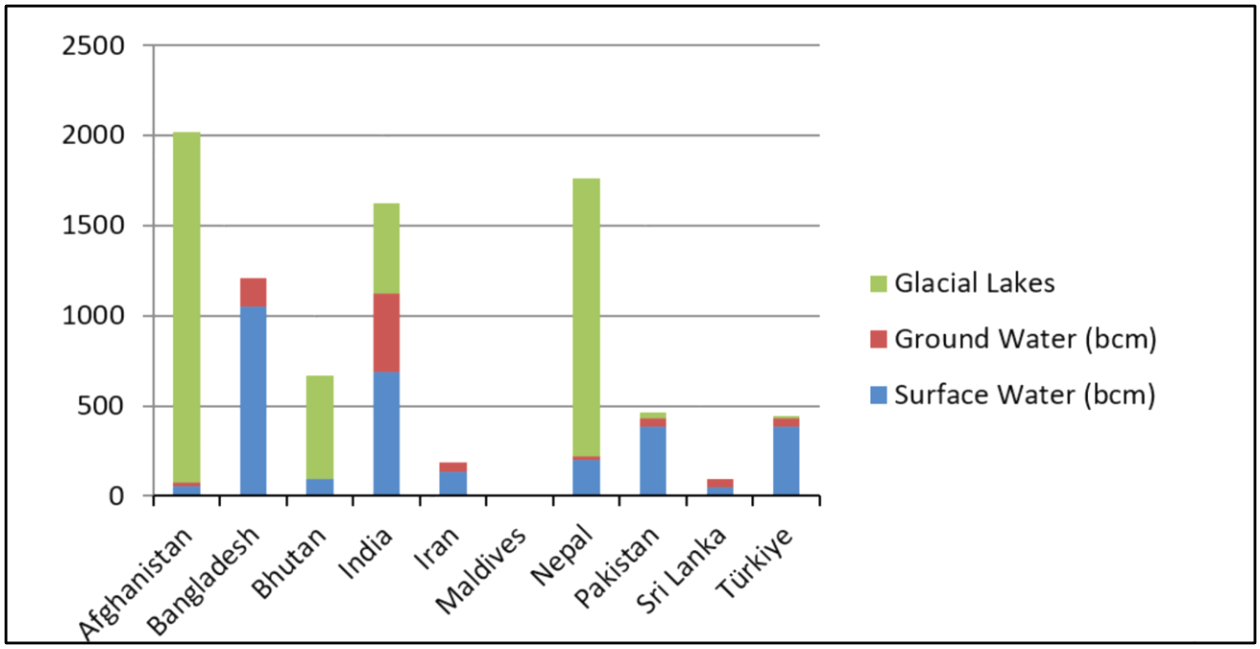
Country	Surface water (per capita per year)	Groundwater	Glacial lakes
Afghanistan	55	20	1,942
Bangladesh	1,050	160	--
Bhutan	95	0	570
India	690	433	503
Iran (Islamic Republic of)	137	49	0
Maldives	--	--	--
Nepal	198.2	20.9	1,541
Pakistan	384	50	33
Sri Lanka	50	43.2	--
Türkiye	384	50	8

Source- Qureshi, A. S. (2002). Banglapedia (2021). National Water Mission of India (2011). Green Facts (2005). Nepal, S.; Neupane, N.; Belbase, D; Pandey, V. P.; Mukherji, A. (2021). Noori, R.; Maghrebi, M.; Mirchi, A.; Tang, Q.; Bhattral, R.; Sadegh, M.; Noury, M.; Haghighi,A. T.; Klove, B.; Madani, K. (2021). Watto, M.A.; Mitchell, M.; and Akhtar, T. (2021). Chandrasekara, S.S.K.; Gamini, P.H.S.; Obevsekera, J.; Manthrithilake, H.; Kwon, H-H.; Vithanage, M. (2021). Fanack (2022). Royal Government of Bhutan (2021). ICIMOD (2021). Central Water Commission (2022). Khadka, N; Zhang, G.; Thakuri, S. (2018). Jones, B. (2022). Eren, S. C. (2021).
Note- The data is expressed in bcm (billion cubic metres), except for glacial lakes, that indicates the number of existing glacial lakes.
"- -" is used when data is not available for the country.

Afghanistan is endowed with significant freshwater sources which are available from rivers, lakes, wetlands, and other surface sources. The total available annual water resources are estimated at 75 billion cubic meters (BCM), consisting of 55 BCM of surface water and 20 BCM of groundwater along with 1,942 glacial lakes, as shown in Table 3. The availability of surface water in Afghanistan varies by region, depending on the climate, topography, hydrology, and water management practices. However, Afghanistan is still struggling to increase the accessibility of safe drinking water to its citizens in the wake of a substantial fall in the total annual renewable water

resources per capita which stood at 5,000 cubic meters per person in 1990 fell to less than 2,000 cubic meters in 2017 along with the steep fall in the storage capacity of dams per capita which amounted to 88.89 cubic meters per capita in 2002 got declined to 55.35m3 per capita in 2017[12].

Figure 4: Freshwater availability, cumulative value



Source: Freshwater Availability in SSWA Subregion in Table 3

In Bangladesh the total annual available water resources are estimated at 1210 BCM, consisting of 1050 BCM of surface water and 160 BCM of groundwater, as shown in Table 3. The surface water availability varies by season, depending on the monsoon cycle, which brings about 80% of the annual rainfall between June and October. The geographical location of Bangladesh is such that there are no glaciers for want of high-altitude mountains. Bangladesh is said to be a low-lying floodplain formed by three rivers – the Brahmaputra/Yamuna, the Ganges, and the Meghna – which have their headwaters outside Bangladesh.These three rivers, along with their tributaries, drain the bulk part of their catchment outside the country, and only 8 percent of the catchment area lies within the national borders. With nearly 90% of the annual water flow of these rivers and their tributaries originating outside Bangladesh, a significant annual variation is often observed, with the combined flow of the Ganges and the Brahmaputra typically increasing from less than 10,000 Cusecs (cubic foot per second) early in the year to a peak of 80,000 to 140,000 Cusecs by late August and early September. Besides, the diversion of water at the Farakka Barrage, just upstream of where the Ganges enters Bangladesh, leads to exacerbation of water shortage in the country during the dry season. About 700 rivers and water bodies occupy nearly 5 percent of the land

[12] Government of Afghanistan (2021)

surface of Bangladesh, which denotes abundant water availability during the wet season. Nevertheless, in the dry season, the country suffers from acute water shortage of both surface and groundwater[13].

Bhutan is endowed with plentiful water resources, available in cloud harvest, glaciers and glacier lakes, groundwater, rivers, snow, soil moistures, springs, streams, and wetlands, etc. The total annual available water resources are estimated at 95 BCM, consisting of 95 BCM of surface water and 0 BCM of groundwater along with 570 glacial lakes, as shown in Table-3. The surface water availability varies by season, depending on the monsoon cycle, which brings about 80% of the annual rainfall between June and September. The bulk of this water – an estimated 2,325 cbm/s- flows out of Bhutan via India and Bangladesh to end up in the Bay of Bengal; this outflow seemingly accounts for 73,000 million BCM or 73 billion tons of water per year (Rizal, 2022). Only a few studies/reports on water quality in Bhutan have been published in the recent past, and one of these reports on Physico-chemical and biological parameters was carried out at upstreamwithin the urban area, and downstream, in and around Thimpu urban area, from 2008 to 2009. This made available some evidence of water quality, and it revealed that, as water flowed downwards, there was an increase in water alkalinity (pH), electrical conductivity, total dissolved solids, turbidity, nitrate, phosphate, chloride, total coliform, biochemical oxygen demand, but a diminution in dissolved oxygen[14]. Thus, it is widely believed that water quality in the urban areas of Bhutan is mostly not satisfactory. And the increasing popularity of the use of bottled water across the country, for its ease in carrying and quality, also testifies to this claim of water quality[15].

Surface water in India is available from rivers, lakes, wetlands and other surface sources for various purposes such as drinking, irrigation, hydropower and ecosystem services. The long-term average annual precipitation in India is 4000 billion cubic meters (BCM), of which 1869 BCM (47%) becomes surface water runoff and 433 BCM (11%) recharges groundwater. The total annual utilizable water resources are estimated at 1123 BCM, consisting of 690 BCM of surface water and 433 BCM of groundwater, along with 503 glacial lakes, as shown in Table 2. The surface water availability varies by season, depending on the monsoon cycle, which brings about 75% of the annual rainfall between June and September. The average monthly surface water runoff ranges from 350 BCM in August to 16 BCM in February. The surface water availability also varies by region, depending on the hydrological characteristics of the major river basins in India (Central Water Mission of India, 2011). India's ambitious economic development plans coupled with the rapid pace of industrialization and urbanization and the burgeoning population have exacerbated demand for water, which is likely to be more than doubled by 2030 relative to current demand. This last has already culminated in water shortage, along with contamination of ground and surface

[13] Ahmed, A. M. M. M. & Roy, K. (2007)
[14] Giri, N. & Singh, O. P. (2013)
[15] Rizal, G. (2022)

water resources, the fast pace of depletion of groundwater, melting Himalayan glaciers and uneven distribution of water resources, all issues that India's water sector is currently experiencing[16].

The total annual available water resources in the Islamic Republic of Iran are estimated at 186 BCM, consisting of 137 BCM of surface water and 49 BCM of groundwater, as shown in Table 3. There are no glacial lakes in Iran, owing to the country's geographic location. The surface water availability varies by region, depending on the climate, topography, hydrology, and water management practices. Iran also receives some surface water from neighboring countries through transboundary rivers. Specifically, the country receives 6.7 BCM/year of surface water from Pakistan through the Dasht River, and some water from Afghanistan through the Helmand River. Iran possesses an overall surface water availability of about 1,031 cubic meters per capita per year, which is lower than the global average of 5,800 m3 and some neighboring countries like Türkiye and Iraq[17]. Iran's internal renewable water resources are estimated at 128.5 BMC, with another 8.5 BMC coming in from transboundary sources, and the surface run-off represents a total of 97.3 km^3/year, of which 18.1 km^3/year comes from draining the aquifers. Groundwater recharge is projected at about 49.3 km^3/year, of which 12.7 km^3/year is acquired from infiltration in the riverbed, providing an overlap of 18.1 km^3/year[18]. Floods during the spring season cause enormous damage to these streams while water flow in summer is very scanty and most streams vanish during the summer. Water gets naturally stored in underground water aquifers, finding its outlet in subterranean water canals and springs as well as tapped by wells[19].

Availability of surface water in Maldives refers to the amount of water that is available from rainwater harvesting, desalination plants and imported bottled water for various purposes such as drinking, cooking, washing and sanitation. The Maldives is one of the most water-scarce countries in the world, as it has no permanent rivers, lakes, or groundwater sources. The average annual rainfall is about 2000 mm, but it varies widely by season and location. The Maldives relies heavily on rainwater harvesting as the main source of freshwater, but it faces challenges such as inadequate storage capacity, contamination and climate change impacts. The Maldives also uses desalination plants to produce freshwater from seawater, especially in urban areas and resorts. However, desalination is expensive, energy-intensive, and environmentally harmful due to the disposal of brine and chemicals. The country also imports bottled water from neighboring countries such as India and Sri Lanka to meet the demand for drinking water. However, bottled water is costly, unsustainable and generates plastic waste that pollutes the environment[20]. Comprising 1192 tiny coral islands scattered over 115,300 sq. km, the Maldives is an island country in the Indian Ocean

[16] Kaur, S. & Gauttam, P. (2022)
[17] Noori, R.; Maghrebi, M.; Mirchi, A.; Tang, Q.; Bhattral, R.; Sadegh, M.; Noury, M.; Haghighi,A. T.; Klove, B. & Madani, K. (2021)
[18] Fanack.com (2021)
[19] FAO (2017)
[20] NBS (2021)

and has a population of 344,023 people living on 187 islands, with more than 400 islands being used as resorts and for non-administrative purposes[21]. Over the years, persistent overuse and pollution have proved instrumental in exerting increasing pressures on the limited freshwater resources of the Maldives, and the effects of climate change have compounded the challenges, with rainfall becoming increasingly unpredictable along with the rising sea levels polluting precious sources of groundwater. Drinking water shortages have become a regular phenomenon on the outer islands during the dry season, and that has come to wield a significant impact on this island nation's health of the people, food security, and productivity[22].

Nepal is a landlocked country endowed with abundant water resources in the form of snow covers, rivers, springs, lakes, and groundwater, and about 6,000 rivers and rivulets flowing through the country make it one of the richest countries in the world for water resources. The total renewable water resource of Nepal is estimated to be 237 km^3/year (225 km^3/year for surface water sources and 12 km^3/year for groundwater sources)[23]. The long-term average annual precipitation in Nepal is 1700 mm, of which 198.2 BCM (94%) becomes surface water runoff and 20.9 BCM (10%) recharges groundwater. The total annual available water resources are estimated at 219.1 BCM, consisting of 198.2 BCM of surface water and 20.9 BCM of groundwater along with 1,541 glacial lakes, as shown in Table 3. The surface water availability varies by season, depending on the monsoon cycle, which brings about 80% of the annual rainfall between June and September. The average monthly surface water runoff ranges from 50 BCM in August to 3 BCM in February and the surface water availability also varies by region, depending on the hydrological characteristics of the major river basins in Nepal[24]. Despite having high annual rainfall, Nepal is still confronted with challenges of ensuring water security, which is usually attributable to the high temporal and spatial variations in water availability as well as the absence of congruity between locations of water availability and water All the major river systems in Nepal are transboundary, mostly originating from China, and the total average annual runoff from these major rivers is assessed at 225 (BCM), of which 172 BCM originates in Nepal, and the high seasonality of these rivers, especially during the monsoon is often accompanied by the fast flow of river water culminating in landslides, floods and flashfloods in both mountains and Terai regions. The currently estimated groundwater extraction of 1.9 BCM in the Terai region for different purposes, relative to annual recharge of 8.8 BCM suggests a vast potential in renewable groundwater reserves in Nepal[25]. Nevertheless, irrespective of Nepal having an estimated 7,000 m3 per person per year[26]. Nepal's water security is deemed to be the weakest in Asia and the Pacific[27].

[21] National Water Mission of India (2011)
[22] UNDP (2022)
[23] Pandey, C. L.; Maskey, G.; Devkota, K.; & Ojha, H. (2019)
[24] Nepal, S.; Neupane, N.; Belbase, D.; Pandey, Vishnu P.; & Mukherji, A. (2021)
[25] Shrestha, Surendra R.; Tripathi, Ganesh N; & Laudari, Dipendra (2018)
[26] FAO (2016)
[27] ADB (2016)

The long-term average annual precipitation in Pakistan is 494 mm, of which 384 BCM (78%) becomes surface water runoff and 50 BCM (10%) recharges groundwater. The total annual available water resources are estimated at 434 BCM, consisting of 384 BCM of surface water and 50 BCM of groundwater along with 33 glacial lakes, as envisaged in Table 3. The surface water availability varies by season, depending on the monsoon cycle, which brings about 70% of the annual rainfall between July and September. The average monthly surface water runoff ranges from 100 BCM in August to 10 BCM in February and the surface water also varies by region, depending on the hydrological characteristics of the major river basins in Pakistan[28]. Bequeathed with a population comprising 2.8 percent of the global population and accounting for 0.5% of global renewable water resources, Pakistan, once a water-abundant country, has drastically changed into a water-stressed country over the past few decades[29]. Pakistan is dependent on a single-river system – the Indus River system – and that accounts for 95.8 percent of the total renewable water for Pakistan (FAO, 2021). Furthermore, the water originating from outside of Pakistan amounts to nearly 78 percent of the country's total water resources, thereby enhancing Pakistan's vulnerability, and Pakistan's rank is 14 among the 17 extremely high water-risk countries worldwide (WRI, 2021). Pakistan's groundwater resources are severely overdrawn and in the eventuality of letting the prevalent situation unchanged, there is the likelihood of Pakistan facing water scarcity[30].

Sri Lanka, albeit an ocean island, is endowed with plentiful water resources in the form of 103 rivers, encompassing a total length of 4,500 km, and river basins covering 90% of Sri Lanka[31].The long-term average annual precipitation in Sri Lanka is 132 BCM, of which 50 BCM (38%) becomes surface water runoff and 43.2 BCM (33%) recharges groundwater. The total annual available water resources are estimated at 93.2 BCM, consisting of 50 BCM of surface water and 43.2 BCM of groundwater, shown in Table-3, without any glacial lake owing to the geographical location of the country. The surface water availability varies by season, depending on the monsoon cycle, which brings about 70% of the annual rainfall between May and September in the southwest and between October and January in the northeast. The surface water availability also varies by region, depending on the hydrological characteristics of the major river basins in Sri Lanka[32]. About 20 basins are perennial – carrying half of the annual surface flow – while the rest are seasonal rivers. The annual rainfall of Sri Lanka varies spatially between 800 mm to more than 5,000 mm, and the total annual runoff in Sri Lanka is projected to be 52 km^3 and vast natural reservoirs are not available in Sri Lanka, rather about 14,000 ancient human-built reservoirs with the cascade system, i.e., interconnections of various reservoirs, including networks of irrigation canals, are situated in dry zones of Sri Lanka. Furthermore, more than 20 important wetlands and

[28] Watto, M. A.; Mitchell, M.; & Akhtar, T. (2021)
[29] FAO (2021)
[30] Maqbool, N. (2022)
[31] UNEP (2005)
[32] Chandrasekara, S.S.K.; Gamini, P.H.S.; Obevsekera, J.; Manthrithilake, H.; Kwon, H-H.; & Vithanage, M. (2021)

groundwater resources, entailing the capacity of annual renewable groundwater estimated at 7.8 km3, make a significant contribution to water resources in Sri Lanka.

In Türkiye the long-term average annual precipitation is 450 BCM, of which 384 BCM (85%) becomes surface water runoff and 50 BCM (11%) recharges groundwater. The total annual available water resources are estimated at 434 BCM, consisting of 384 BCM of surface water and 50 BCM of groundwater along with 8 glacial lakes, as envisaged in Table-3. The surface water availability varies by season, depending on the climate, topography, hydrology, and water management practices. Türkiye, once one of the most water-rich countries of the Mediterranean, is now a water-stressed country on account of the combination of the burgeoning population, the rapid pace of urbanization and industrialization along with adverse impacts of climate change and global warming contributing to frequent visitations of droughts in the country since the 1980s along with the decrease in the availability of water from 4000 m^3 per capita/year to 1500 m^3 per capita/year in 2021[33], and Türkiye is likely to suffer from water scarcity in coming decades, with water availability projected to decline to 1000 m^3 per capita/year in 2050 as a consequence of population growth and impact of climate change[34].Furthermore, the potential drying up of surface water resources associated with rising temperatures in the wake of global warming is projected to cause changes in runoff of between -52% and -61% and a reduction of surface waters in the Türkiye basins of 20%, 35% and 50% for 2030, 2050 and 2100 respectively[35]. Another recent report indicates that only 2.4 percent of the total area of Türkiye constitutes blue areas of freshwater sources and of this water, 87% is ice or snow, and the remaining 13 percent is in the form of liquid water and the bulk of it, about 95% is subsurface water, 3% is surface water in the form of rivers, lakes, and streams, and remaining 2 percent is said to be soil moisture, and the amount of easily accessible water is around 0.3%[36].

The variations in the availability of freshwater resources in the countries of South and South-West Asia subregion is attributable to burgeoning population and urbanization in this subregion; variability in climate change; and inadequate management and governance of water resources, etc. Supporting more than 21 per cent of the global population, the SSWA subregion has access to just over eight per cent of global water resources that are already under pressure in the wake of increasing demand from sectors such as agriculture, industry, domestic use, and energy production, along with urbanization causing increased water pollution and loss of natural habitats. Additionally, the vulnerability of this subregion to the impacts of climate change and variability, such as changes in precipitation patterns, melting of glaciers, sea level rise, floods, droughts and storms often affect the quantity and quality of freshwater resources along with the resilience of

[33] Saygi, D. (2021)
[34] Aklas, O. (2014)
[35] CCP (2022)
[36] Daily Sabah (October 2021)

water-dependent communities and ecosystems[37]. Furthermore, the SSWA subregion faces challenges in managing and governing its freshwater resources effectively and equitably for want of adequate data and information, weak institutional capacity and coordination, low public awareness and participation, insufficient investment and financing, poor infrastructure and maintenance, corruption and inefficiency[38]. The impact of these and other related factors on the progress of SDG 6 targets on the countries of the SSWA subregion is analyzed in the following pages.

[37] WMO (20200)
[38] ESCAP (2023)

5. Status of the SDG 6 Targets Across the South and South-West Asia

5.1. Target 6.1 Achieve Safe and Affordable Drinking Water

The South and South-West Asia subregion the proportion of population having access to safely managed drinking water in rural areas was 49 percent in 2015, whereas in 2022 it was 68 percent. Although countries in the SSWA region have made substantial progress in improving access to drinking water, the challenges remain stark. Ill-conceived, outdated or non-existent water supply-and-capture infrastructure exacerbates water shortages. Furthermore, the increased incidence of extreme weather due to climate change greatly affects the availability of water. Periods of drought and flood require that governments, municipalities and water providers must now and into the future think differently about how to supply clean and safe water, while safeguarding the environment from the adverse effects of climate change.

Table 4: Target 6.1.1, proportion of population using safely managed drinking water services

Country	Year	Target 6.1.1, proportion of population using safely managed drinking water services (%)					
		Safely managed service	At least basic service	Basic service	Limited service	Unimproved	Surface water
Afghanistan	2022	30.3	--	52.14	1.17	10.48	6.18
Bangladesh	2022	59.11	--	38.99	1.19	0.1	0.62
Bhutan	2022	73.34	--	25.79	0.65	0.19	0.03
India	2022	--	93.3	--	4.18	1.98	0.54
Iran (Islamic Republic of)	2022	94.22	--	3.47	1.92	0.33	0.74
Maldives	2022	--	99.56	--	0.05	0.39	0
Nepal	2022	16.12	--	75.12	4.18	3.43	1.16
Pakistan	2022	50.6	--	40.02	4.45	3.79	1.14
Sri Lanka	2022	47.13	--	42.18	1.79	6.81	2.09
Türkiye	2022	--	97.03	--	2.02	0.74	0.22

Source- UN Water (2023a). Opened on 05/09/2023.
"- -" is used when data is not available for the country.

The proportion of the population with access to safely managed drinking water in Afghanistan increased from 23 percent in 2015 to 30 percent in 2022, and access to basic drinking water inurban Afghan areas was much higher, 63 percent than in rural areas where only 48 percent have access. About half of the total population of Afghanistan had access to safely managed drinking water.

In Bangladesh, if we compare by 2015 when 56 percent of the population had access to safely managed drinking water services, in 2022, 59 percent has the access to the same. Surprisingly, 62 percent of the population have access to safely managed drinking water in rural areas, in comparison to 54 percent in the urban areas.

Figure 5: Safely managed drinking water services by country

Source: ESCAP SDG6 Data Portal.

In Bhutan, in 2015 access to safely managed drinking water was available to 47 percent in comparison to 73 percent in 2022. Access to improved water supply services is available to over 100 percent population, in comparison to 99 percent in 2015. In rural areas the access is 85 percent to safely managed drinking water vis a vis urban population which is 59 percent. In rural areas 99 percent of the population has access to basic and improved drinking water where as in urban areas it is 100 percent. The 12th Five-Year plan launched by Bhutan in 2018 emphasizes many SDGs that aim at reducing poverty in the Kingdom. Within the Plan, the government of Bhutan has developed National Key Result Areas (NKRA) to maintain accountability for its initiatives. Among the three NKRAs centered on safe drinking water, sustainable water is specifically targeted

under NKRA 17 by focusing on maintaining adequate irrigation and sanitation for quality water. There is reportedly a plan for at least six new programmes pertaining to this goal[39].

Figure 6: Access to clean water for children

©UNICEF/2018/PChoden

Only 63 % of the Bhutanese population have access to basic sanitation services. That is why we work with our partners to provide water, sanitation and hygiene services to the communities, schools and monastic institutions.

As of August 2023, India had saturated as many as 67.37 %[40] of rural habitations with access to 40 liters of drinking water per capita per day, and another 15.71 percent with partial access. 60.77% of households have been provided with tap water connections since the launch of the mission.

About 94% of the total population of the Islamic Republic of Iran had access to safely-managed drinking water in 2022 (UN Water, 2022). In 2019, the Iranian authorities installed a total number of water treatment –plants amounting 190, including five major plants in Teheran[41].

[39] Banuelos, M. (2021)
[40] Govt. of India (2023)
[41] Yazdandoost, F. (2020)

In the Maldives, the population with access to water supply networks had increased from 25% in 2013 to 39% by the end of 2016, and the government's target was to continue this momentum of providing access to the safe water supply to 75 percent of the population by the end of 2018[42]. Nevertheless, by 2022, 99.56 percent of the total population in the Maldives is using at least basic drinking water services[43].

The basic water supply coverage in Nepal had reached 75% of the population in 2022, while only 16% had access to safely managed drinking water services, and only 49.6 percent of the household had access to piped water supply, and households having access to tap water supply are those that have perennial water sources located nearby within 30 minutes' reach; nonetheless, only 25 percent of the population had access to safe drinking water in 2019-20 in terms of target 6.1[44]. Only 51 percent of the population had access to safely-managed drinking water in Pakistan in 2022.

Figure 7: A boy drinking water from a waterpoint installed by UNICEF at a temporary camp in Larkana District, Sindh Province, Pakistan

© UNICEF/Asad Zaidi

The information available on Sri Lanka reveals that 47 percent of the total population had access to safely managed drinking water services in 2022 in Sri Lanka.

[42] Govt. of Maldives (2017)
[43] Dashboard SDGs Index Maldives (2020)
[44] Govt. of Nepal (2020)

5.1.1. Challenges

Challenges faced by the majority of the countries of the SSWA subregion in target 6.1 pertain to the disparities in access to safely-managed drinking water in rural and urban areas. The main drivers responsible for water scarcity in SSWA Region are poverty and inequalities. The presence of natural water sources and a country's ability to utilize them are equally important to determine the availability of clean water. Millions of children and families still do not have a dedicated water line connected to their homes or a community tap nearby to collect water for daily use. Installations of water infrastructure and its maintenance is a costly affair that many, including governments, struggle to afford. The alternative is bottled water and water trucking, either of which comes at a high price and negatively impacts the environment from plastic pollution.

Figure 8: Plastic waste illegally dumped near Alibeykoy Dam after a ban on imported ethylene polymer plastic waste, in Istanbul, Türkiye

The disparity is because of improper infrastructure, lack of political will, inadequate funding, pollution of surface water bodies, inadequate treatment of wastewater, over extraction of groundwater etc. For example, Bangladesh is faced with the problem of the non-availability of appropriate technology with affordable prices. In this regard, some types of technologies can help the poorest and marginalized people living in hard-to-reach areas and vulnerable to the vagaries of climate change to have access to adequate safely-managed drinking water[45]. India is confronted with the challenge of lack of localized data systems on water, often characterized by limited coverage and coordination. For the Maldives and Nepal, geographical dispersal of the population is a challenge to deliver on targets 6.1 (universal and equitable access to safe and affordable drinking water) and 6.2 (adequate and equitable access to hygene).

5.1.2. Policies Taken by Governments

Box 1: India's SDG 6 progress monitoring

India has been monitoring progress on SDG 6 at the national and sub-national levels onwater and water storage along with launching of Water for Life Mission, National Rural Drinking Water Programme along with leveraging digital technologies and data. It is revealed that the overall Index Score for India is 88, and ranges between 69 and 96 for states, and between 61 and 100 for the union territories, on a scale 0-100. While the floor of performance is high, there is significant variation across states, indicating to the essentiality of identifying and acting upon the factors responsible for such convergence. This good practice of maintaining proper data and monitoring progress enables formulation of proper policies and programs for implementation as per the gaps noticed.
Source: Niti Aayog (Government of India) (2020).

In order to meet challenges in implementing SDG 6.1, Bangladesh established a national drinking water quality surveillance program, strengthened institutional coordination and capacity, and leveraged innovative technologies and partnerships[46].
Bhutan improved water supply services, rainwater harvesting, spring source protection, and establishment of a national coordination mechanism for monitoring water quality and quantity[47].

[45] Govt. of Bangladesh (2020)
[46] UN-DESA (2020)
[47] UN-DESA (2022)

5.1.3. Good Practices

While establishing a coordination and monitoring mechanism, the government of Afghanistan started installing clean water systems in villages and schools, raising awareness of hygiene practices, training local communities on water management, and supporting farmers with drought-resistant seeds and irrigation systems[48].

Iran is implementing water conservation and efficiency measures, expanding rural water supply networks, along with improving water quality monitoring and standards[49].

Maldives expanded the rainwater harvesting area, installing desalination plants, and strengthening water quality monitoring, governance and regulation[50].

Nepal promoted good agricultural practices, improving water quality monitoring, and enhancing resilience to climate change impacts[51].

Pakistan's emphasized on improving water supply, installing solar-powered water filtration plants, and promoting rainwater harvesting.

Sri Lanka improved institutional and policy coherence.

Türkiye aims at improving water supply services along with installing wastewater treatment plants and promoting water conservation and reuse[52].

5.2. Target 6.2 Achieve Access to Sanitation and Hygiene and End Open Defecation

The proportion of population having access to safely managed sanitation in rural areas of the SSWA region was 36 percent in 2015, whereas in 2022 it was 68 percent. Access to the same in urban areas was 32.9 in 2015 and 67 in 2022. Population practicing open defecation in 2015 was 22.4 and has reduced to 9 percent in 2022. Proportion of population with basic hand washing facilities in their premises in 2015 was 63.7 whereas in 2020 it was 76 percent. In some countries in the subregion, the urban rural difference in sanitation coverage is large and widening. This situation may be due to the fact that progress is being made more rapidly in urban areas compared with the rural ones.

More than half of the population of Afghanistan is reported to have access to a basic sanitation facilities, and these services are more prominently available in Afghan urban areas relative to rural areas. The adoption of WASH and emphasis on frequently washing hands with soap, and consideration of social distancing along with wearing masks during the COVID-19 also proved instrumental in improving sanitation and hygiene services in Afghan society.

[48] Afghan Aid (2021)
[49] UN-DESA (2022)
[50] UN-DESA (2020)
[51] Joshi, K. (2022)
[52] UN-DESA (2022)

The proportion of the population using safely managed sanitation services had a target of 55 percent by 2020 and, fortunately, the target was met in 2017. By 2022, approximately 56 percent of people had access to safely-managed sanitation services in Bangladesh.

Table 5: Target 6.2.1a, proportion of population using safely managed sanitation services

Country	Year	Target 6.2.1a, proportion of population using safely managed sanitation services					
		Safely managed service	At least basic service	Basic service	Limited service	Unimproved	Open defecation
Afghanistan	2022	--	55.95	--	12.04	23.16	8.84
Bangladesh	2022	30.98	--	28.32	25.95	14.75	0
Bhutan	2022	50.51	--	27.43	10.01	12.05	0
India	2022	52.14	--	26.25	10.51	0	11.1
Iran (Islamic Republic of)	2016-2022	--	90.36	--	9.64	0	0.4
Maldives	2022	--	99.7	--	0.3	0	0
Nepal	2022	50.58	--	29.82	10.28	2.35	6.98
Pakistan	2022	--	70.53	--	10.99	11.72	6.75
Sri Lanka	2022	--	95.09	--	3.9	1.01	0
Türkiye	2022	78.69	--	20.56	0.34	0.27	0.15

Source: UN-Water (2023) SDG 6 Data Portal. Visited on 9/5/2023.
Note: "--" is used when data is not available.

According to Bhutan's Annual Health Bulletin 2017, about 4.1% of the population experienced open defecation due to no access to hygienic toilets and proper water sanitation, and by 2022 the issue has been almost completely solved. With the National Sanitation and Hygiene Policy 2020 in place, Bhutan is expected to move forward more rapidly. The government of Bhutan is reported to be working in partnership with many global organizations to improve water quality within the country. And it has developed a programme – Beyond the Finish Line-Sustainable Sanitation and Hygiene for All – to improve rural sanitation. This programme focuses on the impact that a quality sanitation can wield on multiple factors, including alleviating poverty levels, and increasing gender equality[53].

[53] Banuelos, M. (2021)

Table 6: Target 6.2.1b, proportion of population with a handwashing facility with soap and water available at home

Country	Year	Target 6.2.1b, proportion of population with a handwashing facility with soap and water available at home (%)		
		Basic service	Limited service	No handwashing facility
Afghanistan	2022	48.21	46.16	5.62
Bangladesh	2022	61.73	32.94	5.33
Bhutan	2022	93.2	6.68	0.12
India	2022	76.26	20.28	3.46
Iran (Islamic Republic of)	2022	--	--	--
Maldives	2021	95.84	1.82	2.34
Nepal	2022	63.54	34.91	1.54
Pakistan	2022	84.69	14.38	0.92
Sri Lanka	2022	85.35	3.34	11.31
Türkiye	2022	--	--	--

Source: UN-Water (2023) SDG 6 Data Portal. Visited on 9/5/2023.
Note: "--" is used when data is not available.

India reiterates its claim to be a nearly open-defecation-free country in the aftermath of the launch of the Swachh Bharat Mission (SBM or Clean India Campaign, Box 1). India has been the only country that has reported on the impact of sanitation and hygiene conditions on women, girls and those in vulnerable situations, whereas this aspect is missing from the VNRs of other countries of the subregion. In 2022, the proportion of population still practicing open defecation is 11 percent at national level, with a 17 percent in rural areas, and merely 1 percent in urban areas. The bulk of the population in Iran uses at least basic sanitation services, with specific emphasis on WASH principles in terms of target 6.2[54].

The proportion of the population with access to adequate sewerage networks in the Maldives increased from 31% in 2013 to 48% by the closing part of 2016, and the government had targeted to provide safe adequate sewerage services to about three-fourths of the total population of the country by the end of 2018[55]. However, by 2022, access to basic sanitation services was available to 99.7% of the total population of the Maldives[56]. Nevertheless, there is no data regarding the proportion of population using safely managed sanitation services, the factor used to define the overall value of SDG 6.2.1a.

[54] UN-Water (2022)
[55] Government of the Republic of Maldives (2017)
[56] Dashboard SDGs Index Maldives (2020)

Box 2: Swachh Bharat Mission

Swachh Bharat Mission has successfully achieved its target by constructing over 109 million household and community toilets in 603,175 villages in 706 districts across the country where the percentage of rural households with individual household toilets had reached 100% in 2019.

The Clean India Campaign proved instrumental in effecting a behavioral transformation by creating a nudge that culminated in widespread awareness to shift towards better sanitation and hygiene facilities along with focusing on the conversion of unsanitary toilets to pour-flush toilets, municipal solid waste management, raising awareness and nudging behavioral change. It is claimed that the improvement in sanitation has had a positive influence on the life and health of women and girls, and an increase in the proportion of households with toilets has been found to have a positive impact on the safety of women, especially in rural India.

Source: Government of India (2019).

© Swachh Bharat Mission, India

Undoubtedly, the safely managed sanitation coverage (target 6.2.1a) in Nepal had reached 51 percent of the total population, with the proportion of people using toilets having increased from 67.6 percent in 2015 to 85 percent in 2018-19[57]. In addition, 64 percent of the population has been reported using hygiene facilities, like hand-washing services, including WASH[58].

Figure 9: Water, sanitation and hygiene (WASH) in the Maldives

© UNICEF Maldives/2020/Shaari

By 2022, access to safely-managed sanitation services in Pakistan was available to 85 percent of the population, and an emphasis on capacity building through training workshops on WASH at the federal and provincial levels has been stressed along with the launching of the Clean Green Pakistan Movement (CGPM)[59]. Nearly 95% of the total population of Sri Lanka was using at least basic sanitation services, and the usage rate of safely-managed sanitation services to the municipality population in Türkiye had increased from 44% in 2002 to 79% in 2022.

[57] Govt. of Nepal (2020)
[58] UN-Water (2022b)
[59] Govt. of Pakistan (2022)

5.2.1. Challenges

A majority of countries of the SSWA subregion are faced with the challenge regarding target 6.2 in terms of disparities in access to safely-managed sanitation services in rural and urban areas. If we take in consideration urban context, the countries in SSWA region have a substantial population living in informal settlements within cities where sewerage is precarious or non-existent, and space for toilets and removal of waste is at a premium. Inequalities in access are compounded when sewage removed from wealthier households is discharged into storm drains, waterways or landfills, polluting poor residential area. Despite numerous efforts by governments, open defecation is still prevalent due to longtime ingrained behavior. In this sense, lack of proper infrastructure in terms of public toilets with adequate handwashing facilities aggravates sanitation issues.

For example, Bhutan faces the problem of increasing pressure on sanitation facilities in the wake of rapid urbanization and the inadequate capacity of local governments to cope with the increasing pressure. Lack of appropriate data on the sanitation sector is also an issue. India's challenges pertaining to target 6.2, *inter alia*, include entrenched mind-sets and practices leading to gender access to sanitation facilities. The paucity of public toilets, maintenance of gender-specific facilities and water scarcity often modulate and restrict usage by women and girls. In addition, further interventions are requested in order to put in place targeted interventions to improve the conditions of sanitation workers[60].
To address all these issues, it would be prefereable to implement a continuous process of hand-holding within the whole society, to educate people about the ills that can be caused by bad sanitation practices.

5.2.2. Policies Taken by Governments

Bangladesh is developing WASH blocks for schools, especially in the government primary schools, with the provision of separated toilet facilities with running water supply for boys and girls. This project of the WASH block is being implemented in the country by the Directorate of Primary Education (DPE), in cooperation with the Department of Public Health Engineering (DPHE)[61].

[60] Niti Aayog (Government of India) (2020)
[61] Govt. of Bangladesh (2020)

Figure 10: Safe and affordable sanitation for all through business principles and local entrepreneurs

© UNICEF Bangladesh/2022/Paul

The largest behavior change campaign in the world attempted in the field of sanitation- Swachh Bharat Mission[62] (Clean India Mission) was launched in India in the year 2014 with an ambitious goal of eliminating open defecation by the 150th birthday of Mahatma Gandhi (October 2019). It was met with the achievement of a 100% target as more than 10 crore household toilets were built under this scheme since its launch. The initiative to has also made India an ODF (Open Defecation Free) country. In its first economic analysis, Swachh Bharat Mission (SBM) resulted in annual benefits to the tune of more than Rs 53,000 (727 US dollars) per household in rural India, including reduced diarrhea incidence and sanitation access time savings.

Nepal has initiated a Water, sanitation and hygiene (WASH) with UNICEF, a programme through which children and their families will have improved and equitable access to the use of safe and sustainable drinking water and sanitation services, as well as improved hygiene practices[63]. The

[62] Govt. of India (2019)
[63] Govt. of Nepal (2016)

WASH component of the country programme will be guided by the WASH Sector Development Plan (2016–2030), which is being implemented by the Ministry of Water Supply and Sanitation. The 'open defecation free' social movement and the total sanitation concept will be scaled up. The private sector will be engaged to promote improved hygiene practices and create markets for sanitation. Gender and disability-friendly sanitation services will be advocated in both health facilities and schools, through the child-friendly school initiative. The ranking of schools in terms of their provision of WASH facilities will be scaled up nationally. Campaigns will use mass media and social media to raise awareness on hygiene behaviors, including menstrual hygiene management practices.

In Maldives modern sanitation facilities are available at home with adequate water supply to maintain hygiene and sanitation. Every household has a rainwater harvesting system and desalinated water supply through a pipe network. This facility is available in Male and administrative capitals of island atoll groups[64]. This is supplemented by groundwater from household shallow dug wells and rainwater from individual home roofs. On other islands, people rely only on rain and groundwater harvested privately within the households. Some islands have access to tap bays that distribute rainwater harvested and stored at public rainwater harvesting sites. Desalinated water plants have been set up on some of the islands to supply drinking water during the dry season. Participants reported that everyone uses household toilets. Open defecation is practically nil, but hand washing with soap, though practiced by many, is not yet a universal habit. Most women and girls use sanitary napkins to manage their menstruation, but the used material is disposed off in general waste without any segregation, increasing pollution.

5.2.2.1. Good Practices

The Total Sanitation Campaign (Nirmal Bharat Abhiyan, TSC), which places people at the center of development, has performed well in the district of East Garo Hills in Meghalaya state of India[65]. The facilitators persevered with their focus on people-driven change. Their belief in sanitation places ownership and accountability within communities. Several factors were at work in ensuring the success of TSC. The district underwent two rounds of training for instructors, introducing the concept of Community-Led Total Sanitation (CLTS), grassroots-level mobilization, and triggering. The participative and illustrative methods motivated the facilitators and coordinators into immediate action. CLTS shook the government representatives out of their inertia and inspired belief in the possibility of permanent change. They were able to internalize CLTS and renew their focus on promoting behavior change among communities. Total Sanitation Campaign, the people-led and people-driven program in the district, secured 49 NGPs in 2010-11 as compared to none in 2009-10. This number is reflective of the giant leap the state has taken both in confidence and in delivering results.

[64] Maldives Country Report (2016)
[65] The Telegraph India (2014)

Bangladesh has emerged as a global success story in promoting sanitation. A small experiment in a few remote villages in the country generated the community led total sanitation (CLTS) approach, now being replicated in many developing countries. CLTS has been recognized by the United Nations and other development agencies as one of the most effective approach to promote sanitation. Community Led Total Sanitation (CLTS) is a participatory approach to hygiene. Developed in Bangladesh in late 2000, it has inspired people to carry out their own appraisals and ensure total sanitation of the community. It has successfully engaged all sorts of people, including children, to work collectively for total sanitation. The early success and rapid spread of CLTS has occurred without much research into its processes.

The most significant outcomes of CLTS are: "People can buy cheap latrines, which means they can install them immediately using their own resources."[66] Government Organization (GO) and Non Government Organization (NGO) coordination brought momentum to the issue. There was mutual support for installing latrines at community level, and spontaneous leaders emerged as part of the process to mobilize the people. Rural Sanitation Engineers developed among the community, who provided technical support on the installation of latrines. Thus, use of safe water increased significantly though water remained scarce in some areas during the dry season and floods. Community initiatives and outside support significantly reduced open defecation, despite a lack of subsidy for domestic latrines.

However, some people still practiced open defecation. This was mostly because they did not repair latrines after they collapsed, or failed for a long time to share some of them. Some NGOs provided and subsidizing tube wells to the community at public places, including educational institutions and growth centers. Local government used 20% of the Annual Development Programme (ADP) fund for the total sanitation programme. Management of solid domestic waste and better hygiene practice were the two major components of CLTS that required more in-depth attention and follow-up by the spontaneous leaders and the implementing organizations. Change in practice from open defecation to the use of hygienic latrines and other hygienic practices took time, and required strong commitment from all stakeholders. Regular monitoring and follow-up by the community and NGO staff was necessary for the sustainability of the CLTS approach. The general assumption was that once people are accustomed to using latrines and safe water, they will not opt for open defecation. Experiences showed that people have benefited from CLTS programmes in almost all the intervention areas. Poor people were less likely to suffer from diarrhea, which meant treatment costs reduced significantly. This resulted in more working days, which meant increased income. People were motivated to start sanitation businesses; they produced low cost latrine materials and were selling these in the local market. The political economy at work behind CLTS's fast transition from a local approach to a national intervention cannot be ignored.

[66] VERC (2005)

5.3. *Target 6.3 Improve Water Quality, Wastewater, and Reuse*

Collecting, treating and reusing wastewater from households and industry, reducing diffuse pollution and improving water quality are major challenges for the water sector, especially in SSWA region. Ambient freshwater quality is at risk, freshwater pollution is prevalent and increasing. Preliminary estimates of household wastewater flows, from SSWA countries, show that 24 per cent is safely treated. On water quality there is no data available from any of the countries in SSWA region on the UN Water SDG6 data portal. The extent of industrial pollution is not known, as discharges are poorly monitored and seldom aggregated at national level. Although some domestic and industrial wastewater is treated on site, few data are available and aggregated for national and regional assessments. Many countries lack the capacity to collect and analyse the data needed for a full assessment. Reliable water quality monitoring is essential to guide priorities for investment. It is also important for assessing the status of aquatic ecosystems and the need for protection and restoration. There is no data available on this indicator from Afghanistan, Maldives and Sri Lanka either in terms of wastewater safely treated (SDG 6.3.1) or the proportion of water bodies with good ambient quality (6.3.2). The latter is unavailable for all the countries from the subregion. Bangladesh has seemingly undertaken adequate measures for the safe disposal of wastewater, along with installing wastewater treatment plants at appropriate places as well as relocating tanneries from the city of Dhaka to the outskirts of the city.

Table 7: Target 6.3.1, proportion of wastewater flow (safely) treated

Country	Year	Target 6.3.1, proportion of wastewater flow (safely) treated %		
		Total	Domestic	Industrial
Afghanistan	2022	--	--	--
Bangladesh	2015-2022	6.4	17.52	--
Bhutan	2022	--	39.61	--
India	2022	--	20.71	--
Iran (Islamic Republic of)	2015-2022	35.16	25.23	--
Maldives	2021	--	--	--
Nepal	2022	--	38.6	--
Pakistan	2022	--	38.11	--
Sri Lanka	2022	--	--	--
Türkiye	2015- 2022	81.2	64.68	--

Source: UN Water (2023). SDG6 Data Portal.
Note: "--" is used when data is not available.

India is seeming conscious of the problem of contamination of its groundwater sources. The country has identifies water quality salinity and contamination as major water quality issues. It has been estimated that, water salinity affects 212 districts and the presence of nitrates is impacting 386 districts; also, 351 polluted river stretches on 323 rives across the country. India has implemented a comprehensive multipronged strategy by placing adequate mechanisms at appropriate places to monitor all major river basins in the country and remedy water quality. Besides, India has embarked on identifying polluting industries and monitoring effluents in conjunction with the implementation of control and compliance measures, which are being implemented along with several other programmes under the National River Conservation Plan[67].

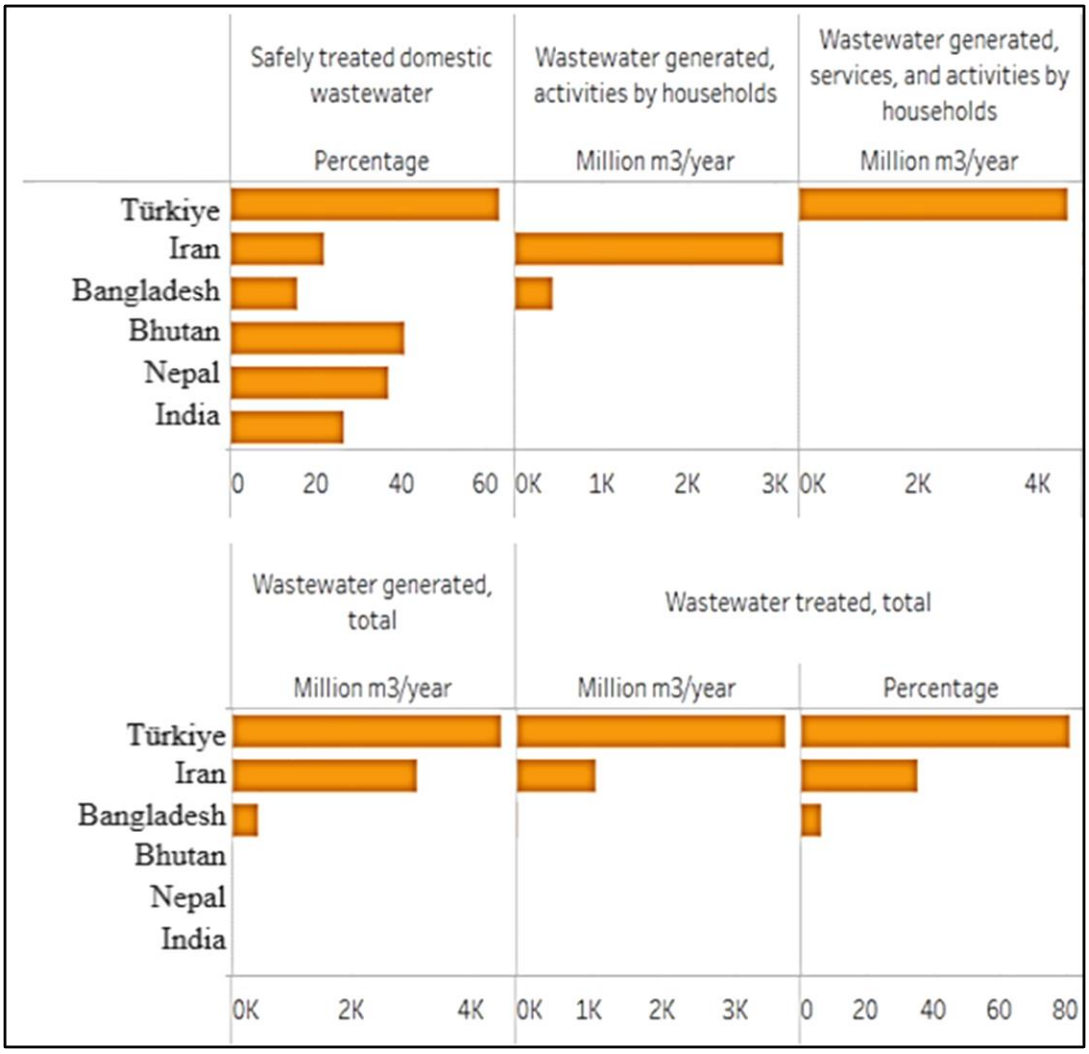
Inadequate management of wastewater and solid waste culminates in pollution of the water resources in Iran. Here, almost two-thirds of the wastewater from industrial facilities finds its way to surface and groundwater resources without any treatment, and the lack of wastewater treatment network and overconsumption, especially in large cities not only pollute the available freshwater resources, but also restrict their use[68]. Undeniably, the extensive efforts in recent years for wastewater treatment by the municipalities have been increasingly made for using treated wastewater in urban services such as green development and maintenance. Nevertheless, the reuse of treated water is not widely applied in the urban sector, mainly for cultural reasons and related traditions[69].

The government of the Maldives launched a project in 2017 with the backing of the Green Climate Fund (GCF) and the United Nations Development Programme (UNDP) to ensure a year-round supply of safe, reliable, and uninterrupted water to residents of the most vulnerable outer islands, covering about one-third of the national population. Irrespective of some delays due to COVID-19 pandemic travel restrictions and supply chains, this project was nearing completion in early 2022[70].

Acknowledging that untreated industrial waste in water remained at 95% and the target of managing 75.5 industrial waste having been not met in 2018-19, Nepal's Sectoral Development Plan (2017-2030), which is currently under implementation, aims at ensuring access to safe, adequate and affordable drinking water and sanitation services to all by 2030[71]. Nevertheless, data about this goal is not available on UN's SDG 6 Data Portal.

[67] Niti Aayog (Government of India) (2020)
[68] Yazdandoost, F. (2016)
[69] Yazdandoost, F. (2020)
[70] UNDP (2022)
[71] Govt. of Nepal (2020)

Figure 11: Wastewater safely treated



Source- ESCAP SDG6 Data Portal

No data is available on this target about Sri Lanka.

With the increase in the number of installations of domestic wastewater treatment facilities from 126 in 2002 to 881 in 2018, the rate of the municipality population in Türkiye using the services increased from 35% to 75% in 2018[72].

[72] Govt. of Türkiye (2019)

5.3.1. Challenges

There is lack of political will to tackle pollution at its source. Wastewater from large cities is often pumped directly into rivers or seas without treatment, leading to pollution and posing a threat to the health of both ecosystems and people. There is a lot of misconception regarding the usage of treated water. Lack of information and education among the populace regarding this leads to lack of using the treated water. In poorer urban areas, a large proportion of wastewater is discharged untreated directly into the closest drainage channel or water body. Household effluent, human waste, toxic chemicals and medical waste are exposed to the air, contaminating the environment in often densely-populated residential zones.

5.3.2. Policies by Governments

India- Under the Atal Mission for Rejuvenation and Urban Transformation[73] (AMRUT) programme of Ministry of Housing & Urban Affairs, 883 sewerage and septage management projects amounting to Rs.34,081 crore have been taken up, of which 370 projects costingRs.8,258 crore have been completed so far. Under the Swachh Bharat Mission (Urban) 2.0 launched in October, 2021, Rs.15883 crore has been allocated to States and Union Territories (UTs) for wastewater/used water management, including setting up of STPs and FSTPs (fecal sludge treatment plants). As per the Provisions of Environment (Protection) Act, 1986 and Water (Prevention & Control of Pollution), Act 1974, industrial units are required to install effluent treatment plants (ETPs) and treat their effluents to comply with stipulated environmental standards before discharging into river and water bodies. Accordingly, CPCB, State Pollution Control Boards/Pollution Control Committees monitor industries with respect to effluent discharge standards and take action for non-compliance under provisions of these Acts. Besides, in compliance of the orders of National Green Tribunal (NGT) in Original Application No.673/2018 regarding rejuvenation of polluted river stretches in the country, States/UTs are required to implement approved action plans, including installation of wastewater treatment plants, for restoration of the polluted stretches in their jurisdiction as identified by CPCB and published in their report of 2018, within the stipulated timelines. As per the orders of NGT, regular review on implementation of action plans is undertaken in the States/UTs and also at Central level.

Bangladesh- The Ministry of Environment, Forest and Climate Change of Bangladesh enacted the Environmental Conservation Rules (ECR) 2023 to implement the Environmental Conservation Act 1995[74]. The rules have been effective from March 5, 2023, by repealing the Environmental Conservation Rules 1997, and set boundaries for industries of Bangladesh to limit the environmental burden of their operations. As per rules, wastewater must follow a set of standards in order to contain pollutants from damaging both the environment and people, and its release must

[73] Govt. of India (2021)
[74] Govt. of Bangladesh (2016)

be mandatory made through specific discharge points where parametres are properly monitored. According to the guidelines, wastewater of different industries present in the country and not meeting these parameters leads to legal issues, as per the Environmental Conservation Act 1995. The rules also set requirements for getting permission for an Effluent Treatment Plan (ETP) and its operation.

Türkiye- The water and wastewater sectors have particularly high capital investment costs compared to other sectors: the total investment is estimated at around USD 9.8 billion until 2023 (Ministry of Environment and Urbanization, MEU). The Wastewater Treatment Action Plan (2015-23), prepared by the MEU in 2015 and updated in 2017, established the total investment cost of the wastewater treatment plants to be renovated by 2023 at TRY 8.9 billion (about 2017 USD 1.4 billion)[75]. The necessary renewal of sewerage networks would cost TRY 8.7 billion (2017 USD 1.4 billion) by 2023. In addition, the cost of new sewerage networks planned to be constructed by 2023 has been estimated at TRY 9.6 billion (2017 USD 1.5 billion). The total amout of investment to be made by the same year for urban wastewater infrastructure is thus estimated at TRY 27.5 billion (2017 USD 4.4 billion). A recent study estimated the costs of Turkey's compliance with the UWWTD at USD 5.4-6.6 billion in additional investments (World Bank, 2016a). Turkey has to ensure the efficiency of new investments, including full consideration of future O&M costs and social implications. To meet wastewater treatment requirements over time, Turkey may consider gradual implementation, which is applied by some EU Member States such as Croatia and Bulgaria.

5.3.3. Good Practices

Bangladesh- The initiative managed by the NGO PRISM-Bangladesh[76], aims to promote integrated wastewater treatment and aquaculture with the intention of directing the benefits of these operations towards the poor and marginalized sectors of society. The PRISM initiative in Khulna involves the use of wastewater stabilization ponds, which are used for treatment of wastewater and production of duckweed, which is then used to feed fish. Apart from the health benefits and environmental improvements, the system recovers resources from the wastewater and produces marketable bi-products, which contribute towards supporting the local economy. In addition, PRISM has encouraged members of the local communities to be more actively involved with environmental management activities – including both solid waste and wastewater management.

India – In Gurugram, a city in Haryana, the overall treated water amount and wastewater utilization has been improved thanks to an innovative technology, known as Phytorid Technology, and the operalization of a Wastewater Treatment Plants (WTPs) system.

[75] OECD (2019)
[76] GHK International (2005)

Box 3: Wastewater reuse in Gurugram

Several traditional waterbodies in Gurugram, which were once used to collect rainwater from catchment areas, gathered wastewater along with rainwater due to urbanization and poor infrastructure. As a result of this, there were fewer number of clean water sources, the ecology of ponds was being destroyed, groundwater getting polluted—all of which further exacerbated water scarcity in Gurugram. Treatment of the accumulated wastewater in ponds, which were used for irrigation, horticulture, construction of infrastructure and other purposes, which reduced reliance on groundwater, replenished water table and improved the biodiversity of the area.

Dewatering of ponds to increase the recharge capacity was done. Cleaning of peripheral areas of ponds and levelling of landscape for setting up Wastewater Treatment Plants (WTPs). Aggregates and natural filter media were laid down in the constructed WTPs. Treated water from ponds is used in biodiversity zones. Biochemical oxygen demand level of 23 mg/L reduced to 10 mg/L, with the help of the Waste Treatment Plants, thereby improving the quality of water, which can be used for agriculture and horticulture, as well as other activities. The Phytorid Technology has five stages, which can be adapted at low cost in several other regions.

Source: Compendium of best practices, Niti Aayog, Government of India. 2021

5.4. Target 6.4 Increase Water Use Efficiency and Ensure Freshwater Supplies

Few countries have the natural and financial resources to continue increasing water supplies. The alternative is to make better use of available resources. This target addresses the issue of water scarcity and the importance of increasing water-use efficiency (SDG 6.4.1), with the latter being a measure of the value of water to the economy and society in units of United States dollars per cubic meter (US$/m3) of water used. On water use efficiency the SSWA region 4.2$/$m^3$is the value of water used by people and their economy. Although the global average water stress (SDG 6.4.2) is only 11 per cent, the SSWA countries experience water stress between 47 percent. The goal set by the 2030 Agenda is to maintain the level under 25. Levels of stress are likely to increase as populations and the demand for water grow and the effects of climate change intensify.

Table 8: Target 6.4.1, water use efficiency

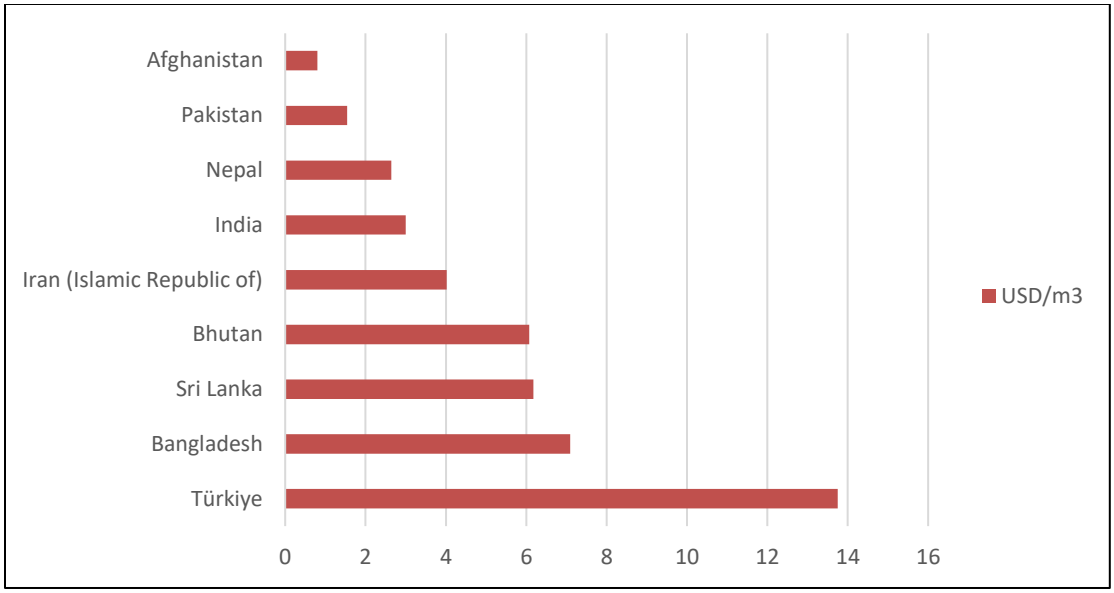
Country	Year	Target 6.4.1, water use efficiency over time (USD/m3)			
		Overall	Agriculture, Forestry and Fishing	Industry	Services
Afghanistan	2020	0.8	0.12	12.67	57.21
Bangladesh	2020	7.09	0.84	101.52	41.58
Bhutan	2020	6.07	0.37	212.11	76.39
India	2020	2.89	0.44	34.92	23.28
Iran (Islamic Republic of)	2020	4.02	0.34	111.01	36.15
Maldives	2020	--	--	1113.69	471.33
Nepal	2022	2.64	0.66	100.63	108.31
Pakistan	2020	1.54	0.33	36.63	18.03
Sri Lanka	2020	6.18	0.32	26.93	67.01
Türkiye	2020	13.75	0.38	251.77	83.31

Source: UN-Water Data Portal
"- -" is used when data is not available for the country.

During its VNR update, Bangladesh informed that assessment of water resources availability and lowest safe yield of the aquifer in 54 districts of Bangladesh for effective implementation of Bangladesh Water Act, 2013 will play a significant rule in achieving SDG 6. The country has laws in place for safe disposal of wastewater since the formulation of Environmental Rules in 1997. Nevertheless, many industries are under process to have wastewater treatment facilities to comply with the set standards under these rules. Among the urban areas, only Dhaka city has a wastewater treatment facility, which serves solely 20 percent of the city. According to FAO, in 2017, the level of water stress, i.e. freshwater withdrawal as a percentage of available freshwater resources, was 6 in Bangladesh[77]. In 2020, the value rose to 7.09.

[77] Govt. of Bangladesh (2020)

Figure 12: Water use efficiency across the subregion

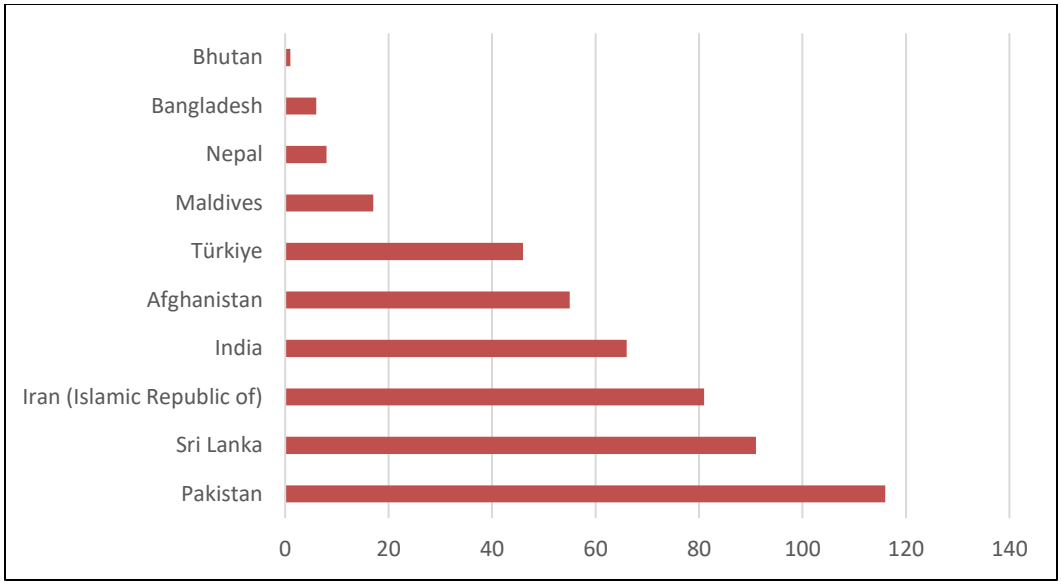


Source: ESCAP (2023) SDG6 Data Portal

India alludes to its recently launched Jal Shakti Abhiyan which aims at improving water conservation, rainwater harvesting, renovation of traditional and other water bodies, reuse of water and recharging of structures, watershed development, and intensive afforestation through broader community mobilization and participation to achieve a water-secure future for India. The programme Jal Jeevan Mission[78], under this Jal Shakti Abhiyan, envisioned to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India. Out of a total of 192,296,888 rural households, about 60.77 percent of them received functional household tap connections till now. The functionality of this facility is defined in terms of quantity, quality, pressure, and regularity of water supply. Public Health Engineering Departments are strengthened on water quality monitoring, and communities are trained on water quality surveillance under the mission. Further, five women from every village, under different initiatives such as ASHA Worker (Health worker), Anganwadi worker (Plat school worker in villages) School teacher, Gram Panchayat (Village governing council) member, are being trained on water quality testing using Field Test Kits (FTKs), for instance undertaking sanitary inspections, and learning how to upload data online. There has been a substantial increase in water stress (SDG 6.4.2) in Iran, wherein 81 percent of water was withdrawn from water resources after taking into consideration environmental requirements in 2019. The government of the Maldives focused on a lesser amount of freshwater withdrawal, about 17 percent, as a proportion of available freshwater resources in 2019 (UN Water, 2022).

[78] Govt. of India (2023)

Figure 13: Water stress level in the subregion



Source: ESCAP (2023) SDG6 Data Portal

The fresh water withdrawal in Nepal is 8 percent in proportion to available fresh water resource; in Pakistan is 116, the highest level of water stress recorded in the subregion. Freshwater withdrawal accounted for 91 percent of the total available freshwater resources in 2019 in Sri Lanka in terms of target 6.4.2.

Türkiye has reportedly put in place requisite action plans by developing a national basin-based classification system, in a manner that permits for the conservation and sustainable use of water resources. It also aims to secure the water supply system from source to tap for the entire urban and rural population, as well as to improve the water distribution networks to prevent water losses or leaks.

5.4.1. Challenges

Agriculture is by far the largest water consumer, accounting for nearly 70 per cent of all withdrawals globally, and as much as more than 90 per cent in SSWA countries. Saving just a fraction of this can significantly alleviate water stress in other sectors. There are significant water losses in municipal distribution networks and industrial and energy cooling processes. Once again, lack of usage of treated wastewater because of political and cultural barriers further exacerbates the problem of efficiency.

5.4.2. Policies by Governments

India- As mentioned above, for the long-term movement, National Water Mission[79] was drafted by The Department of Water Resources, River Development and Ganga Rejuvenation (MoWR, RD&GR) through wider consultative process. The main objective of the National Water Mission is "conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management". Out of its five goals, one is to improve the efficiency of water use by 20%. For achieving this, various strategies have been identified, like research in area of increasing water use efficiency and maintaining its quality in agriculture, industry and domestic sector, and incentivize recycling of water including wastewater. It also includes development of eco-friendly sanitation system, improve efficiency of urban water supply system, efficiency labelling of water appliances and fixtures, promotion of water efficient techniques and technologies, and undertake pilot projects for improvement in water use efficiency in collaboration with States. The initiative furthermore promotes the establishment of Water Regulatory Authorities for ensuring equitable water distribution and rational charges for water facilities and promotes mandatory water audit, including those for drinking water purposes. Nevertheless, there should be an adequate provision for operation and maintenance of water resources projects, incentive through award for water conservation and efficient use of water, and incentivize use of efficient irrigation practices and fully utilize the created facilities.

Pakistan- Pakistan National Water Policy has provisions for water use efficiency considering the water scarcity in the country[80]. The main objective of this policy are: augmentation of the available water resources through judicious and equitable utilization via reservoirs, conservation and efficient use; improving urban water management by increasing system efficiency and reducing non revenue water through adequate investments to address drinking water demand, sewage disposal, handling of wastewater and industrial effluents; and promoting behavioral change to reduce wastage of water by raising public awareness through media campaigns and incorporating water conservation lessons in syllabi/curricula at primary, secondary and tertiary levels etc.

5.4.3. Good Practices

Bangladesh has revealed the adoption of good practices of saving water in agriculture through the Alternate Wetting and Drying[81] (AWD) method of irrigation in the country. Usually, an estimated 3,000 to 5,000 liters of water is required to produce one kilogram of rice; nevertheless, the application of AWD method of irrigation could help save about 15 to 20 percent irrigation without any reduction in rice yield. This method is now being practiced in many parts of ther country.

[79] Govt. of India (2014)
[80] Govt. of Pakistan (2018)
[81] Govt. of Bangladesh (2020)

Bangladesh has adopted another good practice, what it calls “Two Lighthouse Initiatives (TLI)”, which consists of excavation and re-excavation of ponds for ensuring safe drinking water and to help keep local weather cool. Under this TLI scheme, one pond per mauza (administrative district) or a specific land area or area would be protected from contamination so that it could provide a source of drinking water with minimum treatment for domestic uses. It requires that the protected ponds ought not to receive any surface discharge and should only be replenished by rain and groundwater infiltration.

India has employed the traditional Taanka[82] technique to propel efforts for rainwater harvesting and water conservation. Taanka technique is popular in the state of Rajasthan, and Sonbhadra became the first district in the state of Uttar Pradesh where it was employed. Sonbhadra district is in the process of building 5,521 ponds across the water-starved district. Taankas are underground rainwater storage tanks with 25,000 liters capacity. The Taank technique helps in conserving and storing water to be utilized during the lean summer months when the demand for water is at its peak and supply invariably falls short. This initiative envisages a departure from the temporary respite provided by water tankers, and is a critical step toward sustainable use of water resources within the district in the long term.

Another good practice reported by India deals with the construction of subsurface dams for water storage. In pursuance of this practice, the YSR Kadappa district in Andhra Pradesh has constructed subsurface dams using Z sheet piling technology[83] at six locations along the river Papagni. Subsurface dams not only play an effective role in the proper utilization of groundwater resources, but also help in controlling undesired fluctuations in groundwater levels. Prior to the implementation of this initiative, the water table in the adjacent areas of the river was very low. After the intervention, hovewer, water percolation of the surface runoff to the sand layers, and in the adjoining alluvium along the river has increased the water table, resulting in increased water availability for sustainable irrigation practices.

5.5. Target 6.5 Implement Integrated Water Resources Management

The 2030 Agenda fully commits Member States to IWRM and transboundary cooperation over shared water resources. Putting this into practice will be the most comprehensive step that countries make towards achieving SDG 6. If the components of IWRM are broken down, most progress towards implementation is found in cross-sectoral coordination and public participation at national level (62 per cent), but even financing (33 per cent), gender issues (33 per cent) and aquifer management (41 per cent) are areas of concern. There is no universal approach to implementing IWRM, and each country must develop its own pathway based on political, social, environmental and economic circumstances. The degree of implementation of IWRM in the

[82] Hindustan Times newspaper news (2019)
[83] Govt. of India (2019a)

SSWA region is 44.2 percent. The transboundary cooperation among the countries in the SSWA region is almost negligible as per the UN water statistics portal, 2022.

Table 9: Target 6.5.1, degree of integrated water resources management implementation (0-100)

Country	Year	Target 6.5.1, degree of integrated water resources management implementation (0-100)				
		Overall	Enabling environment	Institutions and participation	Management instruments	Financing
Afghanistan	2020	12	23	13	9	2
Bangladesh	2020	58	59	60	61	50
Bhutan	2020	33	36	27	38	32
India	2020	45	41	39	63	37
Iran (Islamic Republic of)	2020	40	40	39	45	36
Maldives	2020	42	48	49	31	40
Nepal	2020	37	27	51	36	32
Pakistan	2020	56	61	60	49	53
Sri Lanka	2020	47	53	64	40	32
Türkiye	2020	72	78	75	73	62
Source: UN-water SDG6 data Portal						

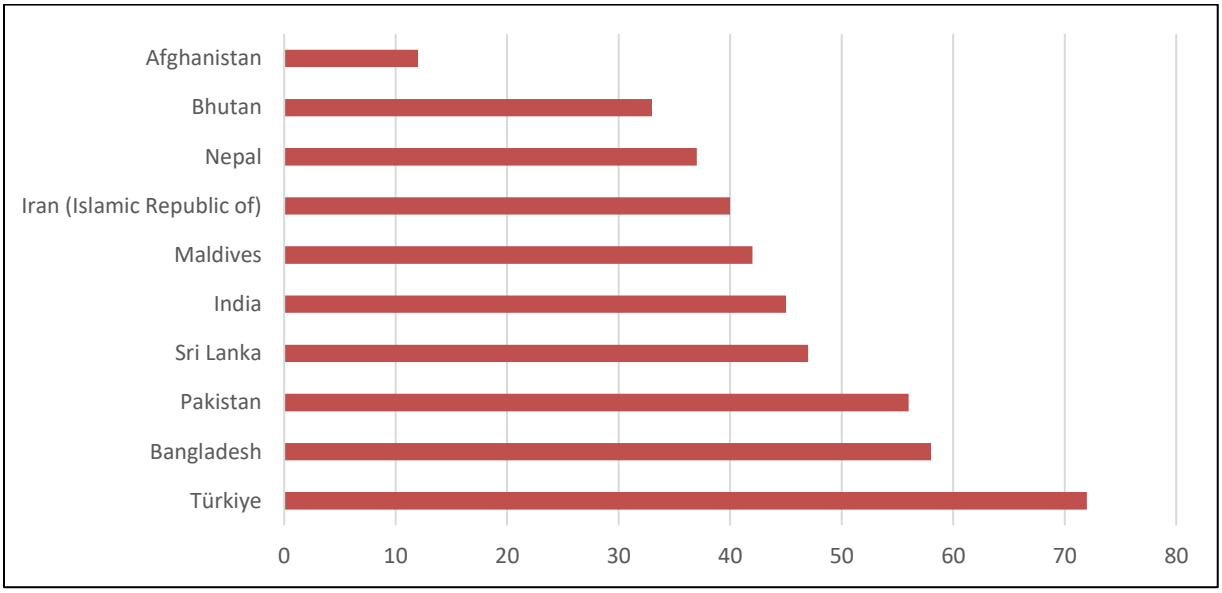
Afghanistan reports that the process of implementation of the IWRM principles has been slow lamenting that sector institutions have not fully adapted to their intended targets. The degree of the implementation of the IWRM in Afghanistan is 12 percent. Afghanistan has five major river basins, of which four are transboundary and shared with the Islamic Republic of Iran, Pakistan, and the Central Asian countries of Tajikistan, Uzbekistan, and Turkmenistan. However, the fragile geopolitical situation within Afghanistan and in its surrounding, spanning more than five decades seems to have been a herculean challenge for the country dealing with transboundary water governance and bilateral or regional agreements and cooperation with riparian countries[84].

The principles of Integrated Water Resources Management are under implementation in Bangladesh in accordance with this target and in pursuance of the provisions of the Bangladesh Water Act 2013 and Bangladesh Water Rules 2018, a paradigm shift has been focused from ‘standalone project’ to IWRM principles in Bangladesh. While emphasizing basin-wise IWRM,

[84] Nori, S. M. (2020)

Bangladesh has finalized three-level IWRM guidelines – District IWRM guidelines, Upzila or Sub-District IWRM guidelines, and Union IWRM guidelines. Bangladesh has followed the UNEP's 'step-by-step Methodology' for indicator 6.5.1, and the degree of IWRM implementation for Bangladesh was 58 as of December 2020[85].

Figure 14: Level of integrated water resource management in the subregion (%)



Source: ESCAP SDG6 Data Portal

The country has 57 transboundary rivers, of which 54 shared with India, and 3 with Myanmar. Among the 54 rivers it shares with India, Bangladesh has concluded a treaty for the Ganges River, which was inked in 1996 and is effective until 2027. This treaty stipulates that the amount of water to be released by India to Bangladesh will be at Farakka on the basis of an agreed-upon formula for ten-day periods from the first of January to the 31st of May every year. The Joint Committee, established to monitor flow below the Farakka point, is entrusted with the responsibility of implementing the arrangements contained in the treaty and examining any difficulty arising out of the implementation of the arrangements and of the operation of Farakka Barrage, and any differences or dispute arising in this regard, if not resolved by the Joint Committee, shall be referred to the Indo-Bangladesh Joint Rivers Commission (JRC). Both India and Bangladesh have reportedly agreed to conclude water-sharing Treaties/Agreements with regard to other common rivers, and furthermore, a Joint Expert Group on sharing best practices of basin-wide water resources management. This has been formed in accordance with the decision of the Joint Working Group of BBIN (Bangladesh, Bhutan, India, and Nepal, formed in 2011), and demonstrates compliance of Bangladesh with indicator 6.5.1[86].

[85] UN-Water (2022)
[86] Govt. of Bangladesh (2020)

The Asian Development Bank (ADB) is said to have extended support to Bhutan in envisaging the Bhutan National Integrated Water Resources Management Plan (BNIWRMP) in terms of target 6.5. This plan looks at managing water as a whole, instead of every sector, optimizing for unity purposes only, from drinking water, irrigation and watershed preservation. The task of implementing this plan has been entrusted to Bhutan's national Environment Commission (NEC) (Chen, 2019). The actual degree of implementation is 33 percent.

The degree of implementation of IWRM in India is 45 percent. The IWRM is an integral part of the country's water policy, and India's Jal Shakti Mission has focused on the preservation of water bodies and water ecosystems in terms of target 6.6 along with an emphasis on the participation of local communities in water and hygiene-related issues across the whole territory[87].

The degree of integrated water resources management in the case of Iran is 40 percent in terms of target 6.5.1, and there is ample scope for transboundary water cooperation in accordance with target 6.5.2. This is due to the fact that Iran receives water from Afghanistan through the Helmand River, and from Azerbaijan via Aras River. 43 percent of water ecosystems had experienced changes in Iranian basins in 2020 (target 6.6.1).

About 42 percent of the Integrated Water Resources Management (IWRM) had been implemented in the Maldives by 2020 (UN Water, 2020), and IWRM systems were operational on the four main islands – Lolhivaranfaru, Foakaidhoo, Maduvvari, and Dharavandhoo. These systems bring together rainwater, groundwater and desalinated water to serve as distribution hubs for seven northern islands during the dry season (UNDP, 2022). Since the Maldives is an island nation, hence there arises no scope for transboundary cooperation in terms of target 6.5.1.

It is further reported that 37% of IWRM was under implementation in Nepal in 2020 in terms of target 6.5.1, and most of the major rivers of Nepal are transboundary rivers, so there is ample scope for transboundary water cooperation.

The IWRM principles are 56 percent in terms of target 6.5.1 and transboundary water cooperation is shared by Pakistan with India under the terms of the Indus Water[88].

About 47 percent of the Integrated Water Resources Management (IWRM) had been implemented in Sri Lanka.

[87] Govt. of India (2020)
[88] Govt. of Pakistan (2020)

Turkish government has also developed an IWRM model for water management in the country in accordance with target 6.5 and it is reported operational in both rural and urban areas[89]. As Türkiye shares transboundary rivers with some neighboring countries, there is scope for improved transboundary water cooperation.

5.5.1. Challenges

Water offers an opportunity for cooperation between countries rather than source of conflict. Implementing IWRM at the transboundary level demonstrates the critical need to strengthen cooperation over shared water resources. The operational agreements and the joint bodies established for transboundary cooperation are diverse and demonstrate that, while based on principles of customary law, there is no universal solution for what these should look like. Countries reported barriers to reaching agreement. These included: lack of political will and power asymmetries among riparian countries; fragmented national legal, institutional and administrative frameworks; lack of financial, human and technical capacity; and poor data availability, especially in relation to transboundary aquifers and their boundaries.

5.5.2. Policies of Governments

Türkiye- The Government of Türkiye supports the implementation of integrated water resources management (IWRM) at the level of river basin, watershed and groundwater systems within each country, and, where appropriate, through international cooperation in order to meet economic, social and environmental demands equitably. It also aims to address the impact of global changes, taking into account the interests of all stakeholders, using a participatory process in decision making and planning while creating better links between relevant sectors to achieve solutions that benefit all parties.[90].

Bhutan- In taking forward the Royal Government's drive for a more comprehensive management of water resources, the NECS has initiated the preparation of the NIWRMP[91] under the ADB-funded technical assistance 'Adapting to climate change through Integrated Water Resources Management' and with the guidance of a Technical Advisory Committee (TAC) comprising representatives from the competent Authorities. The time horizon for this plan is 2030.The overall goal of this NIWRMP is to establish the framework and priorities for the implementation of IWRM in the country. Specific objectives of the NIWRMP are: to assess the current situation and future prospects of water resources in the light of a changing climate; to formulate the principles and framework within which players in the water sector can plan, implement and monitor water resources management in a coordinated manner; to propose priority interventions and tools for

[89] Govt. of Türkiye (2020)
[90] Govt. of Türkiye (2009)
[91] Royal Government of Bhutan (2016)

integrated water resources management in the country. NIWRMP is not a macro-economic analysis of best development alternatives, but rather an elaboration of the water security development framework, assessment of driving issues, intervention strategies, institutional roles and performance management system.

India- The River Boards Act (1956) allows for the establishment of river boards by the Government of India in consultation with relevant state governments, for the purpose of enabling integrated water resources development and flood management[92]. The Inter-state River Water Disputes Act (1956) was passed to resolve the water disputes that would arise in the use, control and distribution of interstate rivers. Although several river boards have been established using this legislation, these have largely focused on the delivery of specific development projects or a single water management problem, such as flooding. No river basin organizations exist in India with the mandate and resources for comprehensive planning and management of water resources at the basin-scale. The Government of India has drafted a River Basin Management Act (intended to replace the River Boards Act) that would require states to adopt cooperative, integrated and basin-scale approach to water resources planning and management through establishment of appropriately empowered River Basin Authorities for regulation and development of inter-state river basins. The proposed new legislation will require the support from state governments and thus progress will require strong relationships between the Centre and the states based on a shared understanding of the need for major reform to address India's growing water challenges.

5.6. Target 6.6 Protect and Restore Water-related Ecosystem

Water-related ecosystems underpin other SDGs, and yet they also depend on them, particularly those relating to food and energy production, biodiversity, and land and sea ecosystems. Protecting and restoring water-related ecosystems cannot be achieved without progress on these other goals and vice versa. 20.3 percent of SSWA region's water basins is experiencing rapid changes in the area covered by surface waters. SSWA region has already lost 59 percent of its wetlands as highlighted by Wetlands International.

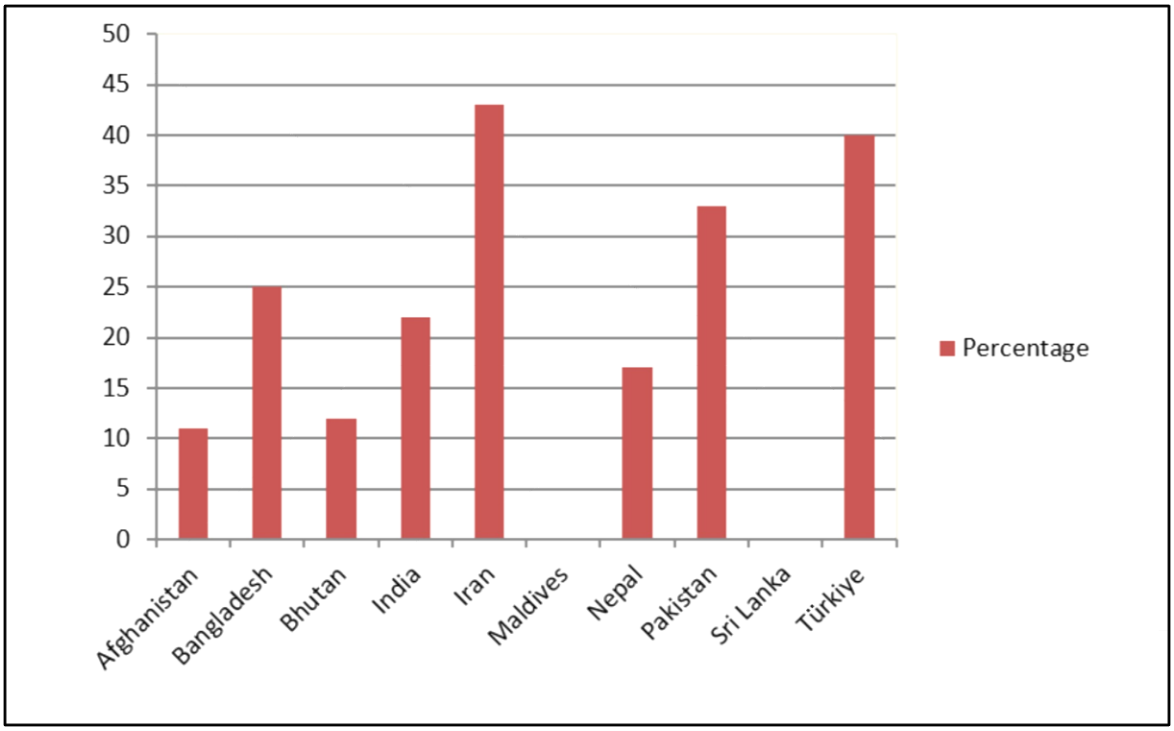
In Afghanistan, 11 percent of water basins are experiencing changes in the area covered by surface waters. But, considering the actual political situation on the country, no updated additional data is available.

Bangladesh reported that its Water Resources Planning Organisation (WARPO) was in the process of preparing of Industrial Water Use Policy 2019 with technical support from the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) in compliance with indicator 6.6.1. Besides, Bangladesh has also undertaken the initiative of relocating Hazaribag tannery industries to improve the severely degraded water quality of the Buriganga River, thereby facilitating the improvement of water quality and protection of the water resources. Furthermore,

[92] Govt. of India (2015)

the Halda River in Chattogram, which is a significant riverine ecosystem and the only tidal freshwater river not only in Bangladesh but in the world, is exposed to a dangerous situation: the fish egg collection had been dropping rapidly on account of anthropogenic activities such as water abstraction for irrigation, illegal fishing, sand mining of riverbeds, industrial pollution, etc. The government of Bangladesh took drastic efforts in 2018 to preserve the Halda River ecosystem, these yielded fruitful results in terms of large fish egg collection.

Figure 15: Proportion of water basins experiencing high surface water extent changes



Source: UN-Water SDG6 Data Portal

In Bhutan, water ecosystems mainly consist of lakes, rivers, marshlands and hot springs. It has been extimated that 12 percent of country's water basins is experiencing high surface water extent changes. India under its Jal Shakti Mission, has undertaken over 350,000 water conservation measures in 256 districts, entailing the participation of an estimated 26.4 million people, and that seemingly has made it a people's movement.

The Government of Iran, together with UNDP Global Environment Facility (GEF), in 2004 engaged in the Conservation of Iranian Wetlands Projects (CIWP). Given its positive support to an integrated and participatory ecosystem-based approaches for conservation of about 34 Iranian wetlands, the project has been scaled-up to its phase II in 2013. Up to date, it has been introduced

in 25 provinces and 38 wetlands all over the country[93]. The project helped to enhance the wetlands management by both national and local stakeholders.

Being an island nation, the island basins in the Maldives are experiencing rapid changes in the wake of rising sea levels in terms of this target and it entails the potential of impacting water ecosystems in the region.

Figure 16: White foam is formed in the water as ferryman Abdul Karim, 72, rides his boat in the Buriganga river near the Sadarghat area in Dhaka, Bangladesh

©Mohammad Ponir Hossain/Reuters

In Pakistan, 33 percent of the water basins is experiencing rapid changes in the area covered by surface waters[94]. Due to anthropogenic activities, mainly the agriculture related ones, urbanization, climate change, and global warming, the freshwater wetland biome of the country is under threats. To protect the entire aquatic ecosystem the country has undertaken several measures and programmes for their conservation.

[93] UNDP (2013)
[94] Govt. of Pakistan (2018)

Sri Lanka is another country home to rich wetlands and ecosystems, although there is no direct assessment of drivers affecting associated biodiversity[95]. The country is trying to enforce potential countermeasures through legal basis to address this issue.

Türkiye has initiated many plans like the Basin Protection Action Plans, River Basin Management Plan, Water Quality Action Plans and Drought Management Action Plans, etc., in order to contain many provisions pertaining to this target for the protection of water-related ecosystems.

5.6.1. Challenges

Access to water and sanitation remains an important work in progress in many countries across the region, especially in rural areas. In SSWA region, rapid urbanization and city growth has put a strain on the existing water infrastructure, leading to higer investments in new facilities for a clean water supply, sanitation and stormwater management. The combination of growing population, socioeconomic development requirements and climate change has further increased pressure on water resource. Recent estimates also indicate depletion of groundwater resources from which countries draw for irrigation and drinking water to offset lacking surface water availability. The already limited freshwater resources are further strained by pollution, over abstraction and salinity. Based on a global assessment, ADB reported that pollution increased in 50 per cent of the major rivers in SSWA between 1990 and 2010, salinity increased by more than one-third, and 80 per cent of wastewater still lacks adequate treatment. This presents challenges not only to the availability of water for human consumption, but also for ecosystem health.

5.6.2. Policies by Governments

India- The Ministry of Environment forest and climate change of the Government of India has drafted a set of guidelines, "Guidelines for National Plan for Conservation of Aquatic Ecosystems[96]". These are intended to streamline the details required for development of institutional mechanism at national as well as State levels, and optimize the project reports and proposals submitted under the National Plan for Conservation Aquatic Ecosystems (NPCA). The document reflects the knowledge and experience gained since the last set of guidelines for the National Lake Conservation Plan (NLCP) and National Wetlands Conservation Programme (NWCP), issued in 2008 and 2009, respectively. The guidelines are a major step forward, requiring a more practical approach to develop the conservation plans with the ownership and stewardship for the management of wetlands resting, with State Government and Central Government playing a facilitating role. An effective institutional structure at the state level is the backbone for successful implementation, and fundamental to ensure cross sectoral decision making for wetlands.

[95] FAO (2016a)
[96] Government of India (2019 b)

They also outline the different steps to be undertaken for preparing and submission of proposals. Leveraging of the various Central and State Government schemes to support the implementation of wetland projects has also been emphasized.

Figure 17: A woman walks over drainage pipes that flow into the Bagmati River in Kathmandu, Nepal

© Niranjan Shrestha / AP

Pakistan- The Water Policy 2018[97] of Pakistan has mentioned that environmental flows shall be ensured in the rivers to maintain a safe environment for the conservation of the river ecology, morphology, delta and coastal ecosystem and fisheries. A National Wetland Management Plan shall be adopted to conserve and protect wetlands and Ramsar Sites, wetlands of international importance under the Ramsar Convention, for the prevention of losses of wild life, flora and fauna, and ensure that endangered habitats are registered, monitored and managed according to the overall needs of wetland species. The development of water bodies shall be promoted where possible, for recreational use, water sports and fisheries.

[97] Govt. of Pakistan (2018)

The salt build up in the irrigated lands is recognized as a serious threat. Appropriate studies shall be undertaken to assess and mitigate its impacts. Encroachments on natural streams, river beds and drains will be discouraged.

Türkiye- Sustainable management of water policies through the long-term protection of water resources and the development of alternative sources of freshwater is critical to address the growing water scarcity problem. Türkiye has measures for the sustainable management of water resources in order to protect and develop the potential of groundwater and surface water[98]. Pollution prevention, as well as access to safe drinking water and sanitation services are also regulated in detail in the national legislation. In general, legislative standards regarding water pollution and water quality are in line with the EU standards.

5.6.3. Good Practices

A notable practice, which Bangladesh claims "to be the first country" to consider, is related to the 'Valuing Water' in policy and investment decisions in order to achieve the SDG goals and sustainable socio-economic development. Valuing Water has been chosen as one of the high-priority areas by the Bangladesh Water Multi-Stakeholder Partnership (BWMSP), which comprises high-level representatives from the government, private sector, NGOs, civil society, and academia. The BWMSP, in one of its first actions, has solicited a PFS for a study on "Developing Operational Shadow Prices for Water to Support Informed Policy and Investment Decision-Making Processes". The multi-stakeholder process in developing the study proposal ensures that the project is tailored to the needs and current situation of Bangladesh, and creates support for the implementation and the future adoption of the project results across the public and private sectors. It is being implemented by Water Resources Planning Organization (WARPO), and was expected to be completed by 2020[99].

5.6.4. Target 6a and 6b Means of Implementation

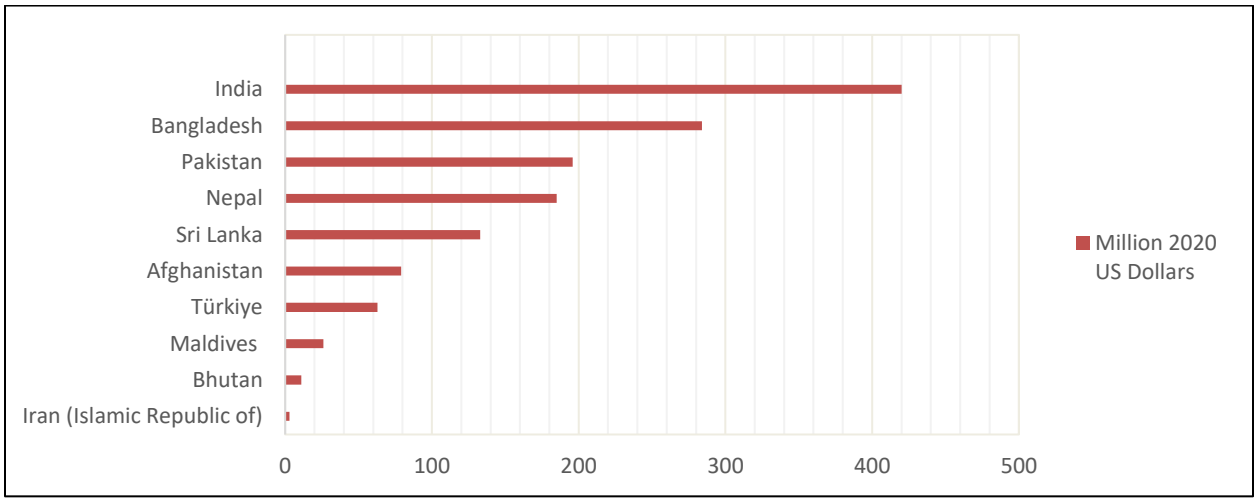
As per the UN Water data, in 2020 Afghanistan received around 79 m$ as official development assistance and also reports positive participation of communities in SDG sub sectors[100].

Bangladesh reported that it has been in receipt of water and sanitation related official development assistance which was US$ 301 million in 2014-15, and increased to US$ 338 million in 2016-17 and further got increased to US $526 million in 2018-19, in compliance of target 6a. According to UN SDG 6 Data Portal, the total water and sanitation-related ODA was 284 $/m3 in 2020. In order to support and strengthen the participation of local communities in improving water and sanitation management in terms of target 6b, the local government authorities in Bangladesh are said to have

[98] Govt. of Türkiye (2019)
[99] Govt. of Bangladesh (2020)
[100] UN-Water (2022)

integrated the overlapping functioning of various committees with the WATSAN committees at different tiers of the Local Government institutions under the aegis of the Local Government Division of Bangladesh's National Strategy for Water and Sanitation Strategy 2014[101]. Interestingly, the WATSAN committees are primarily represented by the participation of the poor from the local communities.

Figure 18: Official development assistance to water and sanitation



Source: UN-Water (2020). SDG 6 Data Portal

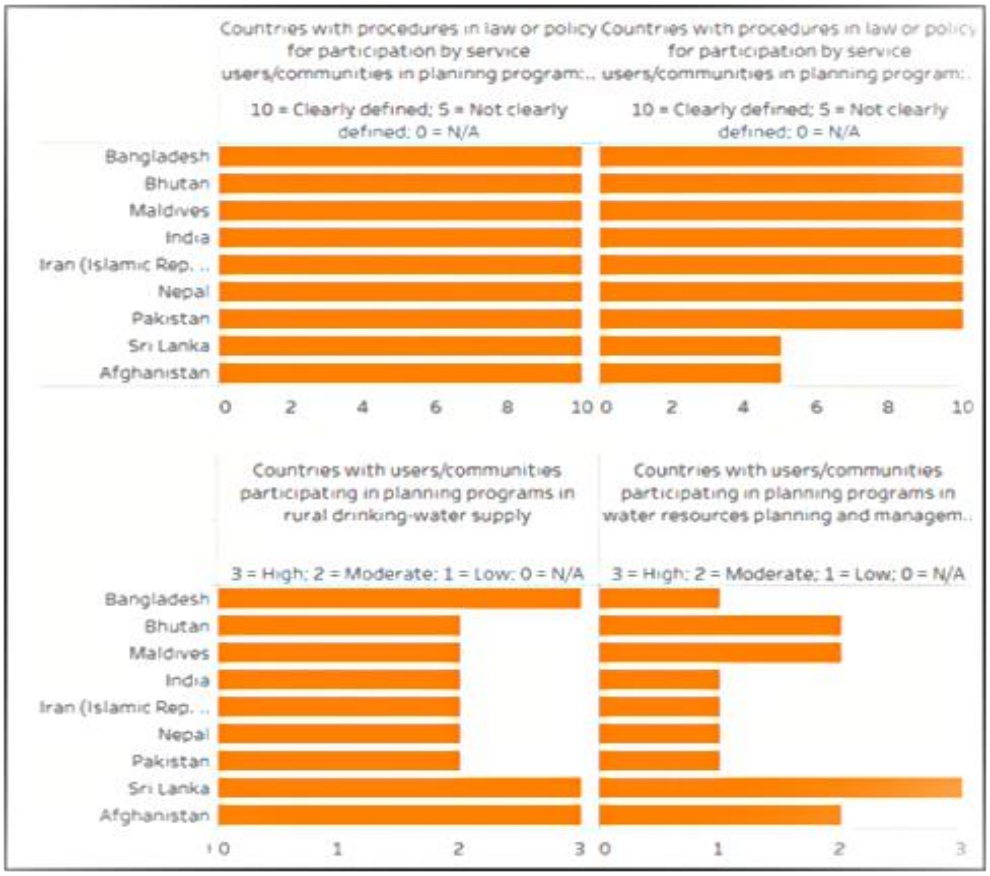
In 2020, the Islamic Republic of Iran is reported to have received official development assistance worth 3 m$ for water and sanitation-related activities in consonance with target 6a; nevertheless, participation of local communities in Iran in water and sanitation management activities has been at a slow pace in terms of target 6b[102].

The Maldives is reported to have received US$ 26 million in 2020 for water and sanitation activities as official development assistance (UN Water, 2020), and furthermore, the government of the Maldives has also launched a clean water project worth US$ 26 million with the assistance from GCF and UNDP in terms of target 6a. Community participation in water-related activities in accordance with target 6b is encouraged in rainwater harvesting in the Maldives where the construction of 17 rainwater Harvesting Systems was completed in early 2022, and these systems are an improvement on existing community systems, with the tanks designed to collect 150 tons of water in addition to water collected in various public buildings, and these systems entail the

[101] Govt. of Bangladesh (2020)
[102] UN-Water (2022b)

potential of providing around 20,000 people with an uninterrupted supply of clean water and thus ease the impacts of water shortages[103].

Figure 19: Participation in water and sanitation management



Source: ESCAP SDG6 Data Portal

Nepal is reported to have received US$ 185 million till 2020 for improvement in water and sanitation facilities within the country in terms of target 6a and there is no data with respect to community participation in water and sanitation activities in Nepal as per target 6b[104].

By 2020, Sri Lanka had received US$ 133 million for improvement in water and sanitation-related activities in the country and no data is available on target 6b[105].

Türkiye has provided about US$ 6 million in development aid on average annually to Mauritania, Djibouti, Niger, Ethiopia, Sudan, Mali, Somalia, Burkina Faso, and Syria in the context ofi

[103] UNDP (2020)
[104] UN-Water (2022d) SDG 6 Data Portal
[105] UN-Water (2022e) SDG 6 Data Portal

nternational cooperation to increase access to clean water and sanitation in accordance with target 6a.[106].

6. Data Availability

We can only manage what we measure. Data quantity and quality is an issue across many SDG 6 indicators, holding back progress. Credible and timely water and sanitation data create social, economic, and environmental benefits in both public and private sectors, such as stronger accountability, political commitment and evidence-based decision-making. The monitoring and reporting of progress towards SDG 6 is essential to achieve access to water and sanitation for all. High-quality data help politicians and policy- and decision-makers at all levels of government to:

- Identify gaps and set priorities for effective water and sanitation policies and investments.
- Learn about good practices to implement more efficiently.
- Identify interlinkages across sectors to harness synergies and manage potential conflicts.
- Communicate progress and requirements to ensure accountability, raise awareness, and gain political support as well as to stimulate action, including financial investment.

There are significant gaps in data availability in South and South-West Asia Region.

We have classified data availability according to three categories:

1. ***Sufficient***: indicators with at least an underlying data series with two data points or more between 2000 and 2020. To estimate a historical trend, two data points for at least half of the countries is deemed sufficient. As of 2020, sufficient indicators include 6.1.1, 6.2.1, 6.4.1, 6.4.2, 6.5.2 6.6.1, 6.a.1 and 6.b.1.

2. ***Insufficient***: indicators with an underlying data series with at least one data point or two data points. While indicators with such limited data availability may shed light on the current status of the region, no historical trend can be estimated. Insufficient indicators include 6.3.1 and 6.5.2

3. ***No Data***: indicators with no data for any of the countries of the region. No data indicators include 6.3.

[106] UN-Water (2022f) SDG 6 Data Portal

For countries to effectively monitor progress of SDG 6, data needs to be collected on multiple levels, and from multiple sources using both country-derived data and geospatial data produce the most comprehensive results on local water. For monitoring indicator 6.6, data at both the ecosystem level (i.e. lake, wetland) and basin level (e.g. upland areas, watersheds, forest areas, combined river, lakes wetlands within a basin), is required.

Table 10: Data on various indicators in SSWA region countries

Indicators	Countries with data	Countries without data
Indicator 6.1.1	All have data	--
Indicator 6.2.1	Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka, Türkiye	Iran (Islamic Republic of)
Indicator 6.3.1	Bangladesh, Bhutan, India, Iran (Islamic Republic of), Nepal, Pakistan, Türkiye	Afghanistan, Maldives, Sri Lanka
Indicator 6.3.2	--	No data from any of the countries
Indicator 6.4.1	Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Nepal, Pakistan, Sri Lanka, Türkiye	Maldives
Indicator 6.4.2	All have data	--
Indicator 6.5.1	All have data	--
Indicator 6.5.2	--	No data from any of the countries
Indicator 6.6.1	Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Nepal, Pakistan, Türkiye	Maldives, Sri Lanka
Indicator 6.a.1	All have data	--
Indicator 6.b.1	Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Maldives, Pakistan, Sri Lanka	Nepal, Türkiye
Source: ESCAP SDG Data Availability		

There is a serious need to strengthen the regional capacity for data collection for SDG 6 (although there is a good availability of annual data on indicators on the proportion of the population using an improved drinking water source and with access to basic sanitation. A further challenge is that many countries in SSWA Region 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. It is important to have reliable focal points and to improve collaboration on data sharing between institutions at the national level.

Figure 20: Data availability of SDG6 indicators in SSWA region

Source: ESCAP SDG Data Availability

7. Some Common Challenges in SSWA Region

7.1. Common Challenges

Major economic sectors, such as agriculture and energy, are primarily dependent upon a reliable supply of fresh water- Food production and energy are highly water intensive. Agriculture is the largest consumer of the SSWA regions freshwater resources, and more than one-quarter of the energy used is expended on food production and supply. The vast majority of energy generation is water intensive, such as its use in coal-fired power plants and in nuclear reactors, and in bio-fuel crop production. The ability to improve water management in agriculture is typically constrained by inadequate policies, major institutional under-performance, and financing limitations. Critical public and private institutions (encompassing agricultural and water ministries, basin authorities, irrigation agencies, water users' and farmer organizations) generally lack the enabling environment and necessary capacities to effectively carry out their functions.

Level of water stress: freshwater withdrawal as a proportion of available freshwater resources- There's not an infinite supply of water, the water table is depleting all over the SSWA region. Climate change, coupled with water mismanagement and overconsumption, is causing droughts and water shortages. Water shortages occur due to a number of factors. One of the biggest drivers of water scarcity is drought, a natural phenomenon in which dry conditions and lack of precipitation – whether it is rain, snow or sleet – occur over certain areas for a period of time. While the amount of rainfall can naturally vary between different regions and times of year, climate change and rising global temperatures are altering rainfall patterns, which in turn, impact the quality and spatial distribution of water resources. Warmer temperatures mean that moisture in soil evaporates at faster rates, and more frequent and severe heat waves exacerbate drought conditions and contribute towards water shortages.

Negative change in the extent of water related ecosystems over time- Water-related ecosystems provide multiple benefits and services to society and are essential for reaching several Sustainable Development Goals. Water-related ecosystems, such as lakes, rivers and vegetated wetlands, are among the world's most biologically diverse environments, and provide numerous products and services on which human well-being depends. Despite the values and benefits of water-related ecosystems, they face considerable pressures to meet short-term socioeconomic development demands. It is alarming to note that most of the region's water-related ecosystems are already degraded and polluted.

Inadequate proportion of local admin units with operational policies for participation of local communities in water and sanitation management- Stakeholder participation is essential to ensure the sustainability of water and sanitation management options over time, e.g. the choice of appropriate solutions for a given social and economic context, and the full understanding of the

impacts of a certain development decision. Defining the procedures through policies or law for the participation of local communities is vital to ensure needs of all the community is met, including the most vulnerable and also encourages ownership of schemes which in turn contributes to their sustainability. It is noted that participation of users and communities is constrained by a lack of financial and human resources.

Significant gaps and considerable variation in data availability- Monitoring and assessing progress are essential to guiding member States and strengthening SDG implementation. Evaluating progress on implementation helps policy and decision-makers identify challenges and opportunities, set priorities for more effective and efficient implementation, depict interlinkages between the goals, and communicate on progress. Moreover, reliable data can spur public and private investments toward water and sanitation and catalyse political advocacy and commitment. Sadly, there is huge data gap in al the SSWA countries which leads to ineffective policy making and implementation.

Climate change and Disaster-prone region- South and South-West Asia is among the most vulnerable regions to climate risks, and remains highly prone to cyclones, extreme monsoon rainfall variability, floods, food and water insecurity, and extreme heat from rising temperatures. More than half of all SSWA population, about 750 million people, were affected by one or more climate-related disasters in the last two decades. A recent example is the devastating floods in Pakistan, that impacted over 32 million people and caused damages estimated at around $10 billion. Floods and inundation of varying intensity was recorded across other countries including Afghanistan, Bangladesh, India, Nepal, and Sri Lanka. This followed soon after a deadly heat wave, where the highest temperatures were recorded in 122 years in some parts of the region. Urbanization, environmental degradation and lack of strong governance are exacerbating the vulnerabilities in most of the countries in SSWA Region. Political instability, border disputes, ineffective regional networks and climate change are triggering the hazard impacts.

Tapping into wastewater, an underutilized resource- Majority of water contamination issues emerge from wastewater effluents. Huge quantity of wastewater is produced every day. Due to insufficient wastewater treatment facilities, wastewater is frequently released into surface water sources, causing water contamination. The negative impact of decreased dissolved oxygen and augmented demand for biological oxygen and ammonia must be taken into consideration in the chemical constituents in water bodies that receive untreated sewage. Therefore, the use of water resources, aquatic ecosystems, and unsuccessfully treated wastewater must be effectively treated, in order to prevent hostile health risks that have long-term as well as short-term effects on human health. Increased usage of chemical fertilizers and pesticides, and untreated wastewater in irrigation, pollutes groundwater and surface water. Industry in many areas still discharges waste directly into water courses.

Tackling water pollution and promoting water efficiency, including in the industrial sector- Still today, in SSWA region almost 80 per cent of wastewater goes untreated, containing everything from human waste to highly toxic industrial discharges. The nature and amount of pollutants in fresh water determines the suitability of water for many human uses such as drinking, bathing and agriculture. In addition, pollution of freshwater ecosystems can impact the habitat and quality of life of fish and other wildlife. Pollution in freshwater ecosystems can include pathogens (largely from human and animal waste), organic matter (including plant nutrients from agricultural run-off such as nitrogen or phosphorus), chemical pollution and salinity (from irrigation, domestic wastewater and run-off from mines into rivers). Plastic pollution, and emerging pollutants such as pharmaceuticals, also increasingly put our world's waterways at risk, but the extent and impacts of their presence in our freshwater is largely unknown**.**

Cooperation and collaboration at the regional, subregional and national level- SSWA countries lack a whole-of-government and whole-of-society approach towards implementation of SDGs. There is lack of inter and intra departmental coordination and cooperation and absence of robust outcomes-based monitoring and evaluation systems. Also, a poor localization of the Sustainable Development Goals and lesser stakeholder participation for inclusive approaches towards the Goals in the subregion represent an additional challenge for the subregion. The civil society organisations have very negligible role in the processes for voluntary national reviews at national and regional levels. Also, cooperation among countries with respect to data sharing, technical capacity building, and knowledge sharing on best practices is absent.

Challenges of the subregion include poverty-induced deprivations and inequalities in terms of access to basic infrastructure and services, including education, health, housing, clean energy and sanitation.

7.2. Miscellaneous Challenges

Challenges faced by the countries of the SSWA subregion in implementing SDG 6 fall in two categories – target-specific challenges and country-specific challenges – and most of the countries of this subregion have reported target-specific challenges in respect of targets 6.1 and 6.2. Country-specific challenges have been categorized under Miscellaneous Challenges pertaining to the implementation of SDG 6. Issues that Afghanistan is currently confronting in this regard comprise weaker domestic water resources management and investment, slow implementation, and non-adaptation of sector institutions to the intended targets of SDG 6[107]. Challenges facing Bangladesh in this respect include monitoring and supervising the progress of SDG6 through setting proper indicators; coordinating among stakeholders; and establishing feedback mechanisms to review the decisions and control measures[108]. Bhutan struggles with insufficient source management;

[107] Govt. of Afghanistan (2021)
[108] Govt. of Bhutan (2021a)

inadequate infrastructure development and maintenance; issues in governance and sector-based system; and lack of reliable data on water and sanitation sector[109].

The obstacles Iran is dealing with in respect of SDG 6 include: low agricultural water efficiency, a drop of groundwater table and land subsidence, pollution of water resources due to agro-chemicals, insufficient community participation in addressing water problems, unreliable water data, hasty solutions without consideration of long-term consequences[110]. Challenges faced by Pakistan, inter alia, comprise: weak governance mechanism; weak water management; absence of robust policies; lack of effective institutional framework; weak agriculture water governance; ineffective engagement of stakeholders; lack of data and poor service delivery; lack of dedicated budget for awareness raising and sensitization of stakeholders; no cross-departmental guidelines/standards for planning/evaluation; and absence of a single apex authority for regulating the affairs of drinking water and sanitation services[111].

[109] GNHC (2021)

[110] Fanack.com (2021a)

[111] Govt. of Pakistan (2022)

8. Recommendation and the Way Forward

In order to take SDG 6 to its logical end by 2030, each country of this subregion is required to align its important water-related policies and plans with the IWRM concept and principles, along with adequate attention to be given to ascertain to what extent they have been translated fully into action, especially at the programme and project levels. Equal attention needs to be focused on prioritizing the integration of indigenous knowledge, practices and community aspirations into the development of water-related policies and mechanisms. It also devolves on each country to have a strong domestic institutional framework equipped with well-defined implementing mechanisms, supported by adequate agreements and clear regulations pertaining to water management. There is a simultaneous necessity of building a database for water-related issues which need to be updated regularly and shared with like-minded neighbouring countries. State-of-the-art water-related technology should be available to needy countries along with appropriate financial assistance to help achieve SDG 6. Owing to the outbreak of the COVID-19 pandemic and the resultant socio-economic and health impacts, the progress on SDGs in general and SDG 6 in particular, was greatly affected and the resultant outcome can be seen in variations in the submission year of the VNR reports.

The recommendations presented below support the translation of the ambitions into concrete cross-sectoral solutions and action-oriented policies, programming and interventions on the ground. Based on the experiences of countries in South and South-West Asia and other actors over the past years, these recommendations identify what works in order to deliver fast, yet sustainable results towards the water-related Goals and targets of the 2030 Agenda and beyond. The aim is to overcome "business as usual" approaches and silo mentalities and to propose cross-sectoral approaches in line with the commitment of the 2030 Agenda.

1. Adopting sustainable and climate smart agriculture practices- Due to population growth, urbanization, and climate change, competition for water resources is expected to increase, with a particular impact on agriculture. Population is expected to increase to over 10 billion by 2050, and whether urban or rural, this population will need food and fiber to meet its basic needs. Promote participatory irrigation management, inclusive of farmers to enhance timely and reliable water supply and increase the productivity of water sustainably is highly significant. In doing so, promoting equity and women's rights, increasing their participation in management structures and in decision making, and their access to irrigation, as well as facilitating public-private and community partnerships to address funding gaps on irrigation infrastructure development is furthermore fundamental. Rainwater harvesting, along with supplemental irrigation, can substantially improve rainfed agriculture. On-farm water conservation, particularly the adoption of agricultural practices that reduce runoff and increase the infiltration and storage of water in the soil in rainfed agriculture, is the most relevant local supply enhancement option that farmers have to increase production. On a slightly larger scale, small, decentralized water harvesting and storage

systems contribute to increasing water availability and agricultural production at the household and community levels. These small-scale measures promote local economic development and increase the climate resilience of local communities, for example a successful case of participatory watershed management at Ralegan Siddhi Village in district Ahmadnagar, Maharastra, India[112], and other best practices mentioned in this link.

2. Adopting Renewable Energy Sources to minimize freshwater withdrawals in energy sector- Support for the development of less water-intensive renewable energy, such as hydropower and wind must be intensified. Geothermal energy has great potential as a long-term, climate independent resource that produces little or no greenhouse gases, and does not consume water. Also, there are water uses that can be improved with alternative and sustainable sources, the ones not supplied from fresh surface water or groundwater, that offset the demand for freshwater. For instance, alternative water can serve as a vital water supply to federal agencies in support of water resilience. Examples of alternative water sources include: harvested rainwater from roofs, harvested stormwater, reclaimed wastewater, graywater, captured condensate etc. There is also significant scope to lower water use by improving the efficiency of the power plant fleet and deploying more advanced cooling systems for thermal generation. An integrated approach to energy and water management can help reduce risks on both fronts. Many of the clean technologies being deployed to provide electricity can also be used to provide access to water. Decentralised solar PV water pumps can replace more expensive diesel pumps, and mini-grids can power filtration technologies, such as reverse osmosis systems, to produce clean drinking water. Also, water services can provide an "anchor load" for power generation, and assist with balancing and storage. For example, irrigation can be shifted to periods of low electricity demand, while pumping to storage facilities can be reduced during demand peaks. Energy and water stewardship should go hand in hand.

3. Water Stress-When societies place a higher value on water, we can expect improved efficiency and reuse instead of waste and pollution. Both the public and the private sector will want to invest in crumbling water infrastructure to limit waste and prepare for future weather extremes. It makes sense to apply more nature-based solutions to clean water and recharge supply. As we start to understand the true cost of pollution, we can expect improved wastewater treatment and more recycling. All sectors of society must learn to manage water in a way that strengthens its cycle. Also, sharing water is an efficient way to increase justice and resilience. This is equally true for relationships between countries who share a river, lake, or groundwater aquifer. By managing it together, they are much better prepared for the increasingly erratic rainfall patterns and the growing number of droughts and floods that must be expected as the global temperature rises. We need more research and innovation to improve the sustainability, climate resilience and water efficiency of agriculture. But many alternative methods already exist that recharge water, restore soil health and improve food security. Often, a combination of traditional knowledge and new inventions give

[112] FAO (1996)

the best results. Changing food habits and reducing waste are other key factors in the overhaul of the global food system that has started and now needs to rapidly pick up speed.

4.Restore our freshwater Ecosystems-The governments have to understand their responsibility to protect and restore forests, rivers, wetlands, and oceans. This is in turn should mean that we must stop over-abstracting and polluting the world's groundwater, which poses an enormous risk to global food and water security. By protecting and restoring ecosystems we can limit climate change, stop the loss of biodiversity, and improve water security, for instance by treating all waste water before it is discharged. Fishing and mining must be controlled. Dams can be removed or better designed to restore river connectivity, while water extraction can be managed to maintain minimum flows. Returning water flows in peatlands and other wetlands to nature levels restores their ability to prevent stored carbon from reaching the atmosphere. Rainwater retention measures should be adopted, which allow rainwater to infiltrate into the Earth body and vegetation to increase again, restoring topsoil. Natural water cycles are the prerequisite for restoring intact ecosystems, and thus for developing regenerative agriculture.

5. Participation of local Communities in WASH Management- It is essential to support and strengthen the participation of local communities in improving water and sanitation management. It is fundamental to adapt and sustain SDG 6 solutions to local community contexts, and to ensure that no one is left behind. Participation may range from users having access to information to more formal representation of users or communities in government processes for joint decision-making on issues surrounding WASH and water resources management. Many countries of SSWA region have defined procedures for participation in law or policy, but fewer have high levels of participation. Community participation strengthens accountability mechanisms and lead to the emergence of women and youth leadership in urban poor localities. They have been instrumental in bringing about a substantial change at the ground level while at the same time affecting the national policy frameworks. The role of CSOs in enabling access of urban poor to services, as well as demanding accountability from the government institutions and empowering communities. These initiatives need to be continued and documented to benefit the sector. Collaboration and partnership with concerned agencies that have a heath and sanitation mandate is an important step in engaging with governance. To achieve this result, governance must be responsive to community needs and accountable to people. Identifying the agency, or the agencies, forging and negotiating collaboration are of vital importance in making delivery of WASH collaborative, efficient and timely.

5. Addressing Gaps in Data and Monitoring-There should be dedicated focal points at the national level for SDG 6 monitoring. This would facilitate coordination between governments, custodian agencies, and other stakeholders involved in monitoring activities. The appointment of dedicated focal points for all countries would greatly improve the ability of custodian agencies and partners to provide support to national governments in their SDG 6-related monitoring activities.

Designating national focal points for SDG 6 monitoring would also streamline communication and data collection, while enabling closer cooperation between relevant stakeholders. All agencies involved in SDG 6 monitoring should work closely in order to ensure that the data are consistent in all respects, and that data systems are harmonised at the national, regional, and global level. This would enable policymakers and decisionmakers to accurately assess progress on the 2030 Agenda, and support countries in data collection for the SDG 6 indicators currently not available or insufficient. This could be done through capacity building trainings targeting national statistical offices and other parts of government responsible for data collection, and focus particularly on SDG 6.3.1, 6.3.2, 6.4.1, 6.4.2, 6.5.1, 6.5.2. In order to ensure better monitoring and reporting on SDG 6 and on all SDGs in general, governments could strengthen multi-stakeholder partnerships for data collection and analysis, in particular with the academic community, Civil Society Organisations and the private sector, as relevant.

6. Addressing vulnerability to climate change and disasters- Energy efficiency must be combined with technological innovations to reduce the carbon intensity of the power sector. In parallel, renewable energy development and regional energy trading must be bolstered, taking into account environmental stress. Measures to deal with rising peak electricity demands due to higher temperatures and risks posed by extreme weather events, including greater sedimentation from flooding that could affect hydropower, must be considered. A more resilient energy sector is critical to sustainable economic growth. Greenhouse gases from energy use and generation represent more than half of Asia's emissions. The foundation of mitigation strategy is curbing growth in energy demand by increasing energy efficiency and meeting energy needs through low-carbon options. Opportunities to pursue low-carbon and climate-resilient growth abound in the urban sector. This should also be harnessed by incorporating energy efficiency in the design of buildings and water infrastructure, as well as by integrating environmental sustainability and sound mobility into transport and land use plans. Promoting effective regional and subregional efforts to strengthen disaster risk modelling, assessment, mapping, monitoring and multi-hazard early warning systems of common and transboundary disasters must also be considered, along with facilitating regional dialogue and cooperation in integrating disaster risk reduction into related development activities.

7. From Waste to wealth: Wastewater as an Asset– Wastewater, is highly underutilised. If the SSWA region reuses 80 percent of its untreated wastewater from its most populous cities, majority of projected industrial water demand can be met. Sludge from treated wastewater can irrigate agricultural lands, while providing nutrients to crops and reducing fertiliser dependence by 40 percent. Moreover, the use of treated wastewater for non-potable industrial and agriculture purposes frees up freshwater for drinking water consumption. Global experience suggests that countries which have transformed wastewater treatment into a business opportunity succeeded by leveraging the public private partnership (PPP) model. In this scenario, governments provide financial support to Water Treatment Plant (WTPs), lowering investment risk, and private sector

firms accord technical expertise alongside capital investment. This allows PPPs to be more cost-efficient than purely government-run projects. Furthermore, it allows for scale: a larger number of WTPs can be established through PPPs given the fiscal constraints of government-led investment. Israel and Singapore are two leading international examples in this regard. Wastewater recycling offers a solution that could benefit all parties involved. With the public sector providing a clear regulatory framework, tariff regime and risk mitigation instruments, PPPs can be leveraged to create CETP and STP infrastructure, and bridge financing gaps. A market for treated water can be established to maximise the circular use of scarce freshwater. Under a differentiated tariff regime, the cost of water as an input for select consumer categories, such as agricultural or industrial users, can be reduced, and freshwater conservation can be encouraged.

8. Cooperation and collaboration-South and South-West Asian countries should adopt a whole-of-government and whole-of-society approach towards implementation, of SDG 6 policies and goals with better interdepartmental coordination and cooperation accompanied by robust outcomes-based monitoring and evaluation systems. Localization of the Sustainable Development Goals and greater and broader stakeholder participation were some of the priorities for inclusive approaches towards the Goals in the subregion. Greater participation of civil society in the processes for voluntary national reviews at national and regional levels to create greater buy-in for policy programmes for the Goals is needed. Advancing towards a water surplus region requires further discussion on the challenges that regional cooperation and integration can and should address.

9. Adequate Financing- A strong enabling environment for water-related investment is characterised as a robust set of policies, regulations and institutional arrangements that facilitate investment in activities and assets that contribute to water security. Policy settings include both water specific policies and policies related to the financial sector and capital markets. Adequate policies, regulations and institutional arrangements can ensure that individual investments deliver their intended benefits and contribute to the sustainable management of water resources and the delivery of water supply and sanitation. While financiers typically focus on the availability of a pipeline of bankable projects, government authorities and project developers should also situate these pipelines within broader strategic investment pathways to ensure they are resilient and contribute to water security and sustainable growth over the long term and preferably at the least cost. Governments may consider institutional and market reforms to improve economies of scale, and thus reduce operational costs and investment needs in the water supply and sanitation sector.

10. Capacity Building-Focus on human capacity to deliver SDG 6 is fundamental. Sufficient attention should be paid to education, training, attracting and retaining the skilled workforce needend to deliver water and sanitation-related services. Capacity development, monitoring and evaluation are essential for improving service levels, operating and maintaining technology, increasing job creation in the water sector, and monitoring performance, including at community

level. Water education is necessary at all levels to develop a holistic understanding of the issues at stake, including for young people. Capacity development is required in engineering, scientific and technical disciplines, and also across all areas related to water and sanitation, including in policy, law, governance, finance, information technology, environment, gender, stakeholder participation and management. This includes strengthening the capacity of local governments and water and sanitation providers in service delivery. Capacity development needs to holistically transfer knowledge beyond training to foster cross-sectoral decision-making, planning and implementation, intensifying horizontal and vertical cooperation on all levels.

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