SECTOR DEVELOPMENT PLAN
2026-2040

Water Supply, Sanitation and Hygiene (WASH) Sector in Bangladesh

Local Government Division
Ministry of Local Government, Rural Development and Co-operatives
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24/7	Twenty-four hours seven days a week
a2i	Access to Information
ADB	Asian Development Bank
ADP	Annual Development Program
AE	Assistant Engineer
AIT	Asian Institute of Technology
AIRU	Arsenic and Iron Removal Unit
BADC	Bangladesh Agricultural Development Corporation
BBS	Bangladesh Bureau of Statistics
BCSIR	Bangladesh Council of Scientific and Industrial Research
BDP	Bangladesh Delta Plan
BDT	Bangladesh Taka
BMDA	Barind Multipurpose Development Authority
BOD	Biological Oxygen Demand
BSTI	Bangladesh Standards and Testing Institution
BUET	Bangladesh University of Engineering and Technology
BWDB	Bangladesh Water Development Board
CBO	Community-Based Organization
CCEA	Cabinet Committee on Economic Affairs
CCEDM	Climate Change, Environment and Disaster Management
CDA	Chattogram Development Authority
CEGIS	Center for Environmental and Geographic Information Services
CHT	Chattogram Hill Tracts
CQI	Construction Quality Improvement
CQSI	Continuous Quality and Service Improvement
CSMP	Cyclone Shelter Management Policy
CSO	Civil Society Organization
CWASA	Chattogram Water and Sewerage Authority
CWIS	Citywide Inclusive Sanitation
DGHS	Directorate General of Health Services
DHIS	District Health Information System
DM	Disaster management
DMB	Disaster Management Bureau
DMC	Disaster Management Committee
DNCC	Dhaka North City Corporation
DOE	Department of Environment

DP	Development Partner
DPE	Directorate of Primary Education
DRR	Directorate of Relief and Rehabilitation
DSCC	Dhaka South City Corporation
DWASA	Dhaka Water Supply and Sewerage Authority
ECR	Environmental Conservation Rule
FMM	Finance Ministers' Meeting
FSM	Fecal Sludge Management
FY	Financial Year
GDP	Gross Domestic Product
GHWD	Global Hand Washing Day
GLAAS	Global Analysis and Assessment of Sanitation and Drinking Water
GoB	Government of Bangladesh
GW	Groundwater
GWSC	Global Water and Sanitation Center
ha	Hector
HCF	Health Care Facility
HDC	Hill District Council
HH4A	Hand Hygiene for All
HRD	Human Resource Development
HtR	Hard to Reach
IEC	Information, Education and Communication
IG	Infiltration Gallery
IMF	International Monetary Fund
IOM	International Organization for Migration
IPAM	Implementation Plan for Arsenic Mitigation
IPC	Infection Prevention and Control
IRF	Institutional and Regulatory Framework
ISO	International Organization for Standardization
ITN	International Training Network
JICA	Japan International Cooperation Agency
JMP	Joint Monitoring Program
KCC	Khulna City Corporation
Km^2	Square Kilometer
KWASA	Khulna Water and Sewerage Authority
LCG	Local Consultative Group
LGD	Local Government Division

LGED	Local Government Engineering Department
LGI	Local Government Institution
m^3	Cubic Meter
MAR	Managed Aquifer Recharge
mbgl	Meter below Ground Level
MT	Metric Ton
mg/l	Milligram per Liter
MDG	Millennium Development Goal
MHM	Menstrual Hygiene Management
MICS	Multiple Indicator Cluster Survey
MIS	Management Information System
MoA	Ministry of Agriculture
MoF	Ministry of Finance
MoH&FW	Ministry of Health and Family Welfare
MoLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
MoPME	Ministry of Primary and Mass Education
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
MTBF	Medium Term Budget Framework
NFWSS	National Forum for Water Supply and Sanitation
NGO	Nongovernmental Organization
NSS	National Sanitation Strategy
O&M	Operation and Maintenance
OSS	On-site Sanitation
ppb	Parts per Billion
PPP	Public Private Partnership
PSB	Policy Support Branch
PSF	Pond Sand Filter
PSU	Policy Support Unit
PW	Production Well
PWSS	Paurashava Water Supply Section
RADP	Revised Annual Development Program
RAJUK	Rajdhani Unnayan Kartipakkha
R&D	Research and Development
RDA	Rural Development Academy
RO	Reverse Osmosis
RWASA	Rajshahi Water and Sewerage Authority

SACOSAN	South Asian Conference on Sanitation
SDG	Sustainable Development Goal
SDP	Sector Development Plan
SIS	Sector Information System
SMOSS	Safely Managed On-Site Sanitation
SOD	Standing Orders on Disaster
SSP	Sanitation Safety Plan
STP	Sewerage Treatment Plant
SW	Surface water
SWA	Sanitation and Water for All
SWAp	Sector Wide Approach
SWM	Solid Waste Management
TLCC	Town Level Coordination Committee
UfW	Unaccounted for Water
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UP	Union Parishad
USD	United States Dollar
VIP	Ventilated Improved Pit
WARPO	Water Resources Planning Organization
WASA	Water Supply and Sewerage Authority
WASH	Water, Sanitation and Hygiene
WASHBAT	WASH Bottleneck Analysis Tool
WATSAN	Water and Sanitation
WB	World Bank
WHO	World Health Organization
WS	Water Supply
WRC	Water Supply Regulatory Commission
WSF	Water Safety Framework
WSP	Water Safety Plan
WSS	Water Supply and Sanitation

EXECUTIVE SUMMARY

Bangladesh, part of the world's largest delta, has a population of 169.83 million and covers an area of 147,570 Km^2 (BBS, 2022a). Administratively, the country is divided into eight divisions, which are further segmented into 64 districts. These districts are subdivided into 495 upazilas (sub-districts), and upazilas are further divided into 4,596 unions, the lowest level of Local Government Institutions (LGIs). There are 12 city corporations and 330 municipalities (paurashavas). Bangladesh has 40 government ministries and 12 divisions at the national level, with some ministries overseeing more than one division. The country's terrain is predominantly flat, marked by the extensive river deltas created by the Ganges, Brahmaputra, and Meghna rivers. However, it also includes hilly areas, notably in the Chittagong Hill Tracts (CHTs) in the southeast and parts of Sylhet in the northeast. The tropical climate brings hot and humid summers, a pronounced monsoon season with heavy rainfall, and a dry winter. Bangladesh is highly susceptible to climate change, ranking seventh on the 2021 World Climate Risk Index (Eckstein et al., 2021). Climate-related disasters such as tropical cyclones, storm surges, and floods further strain the country's water, sanitation, and hygiene (WASH) sector, hindering progress.

A key development goal of the Government of Bangladesh (GoB) is to ensure universal access to WASH facilities and other basic human rights. Bangladesh achieved the Millennium Development Goals (MDGs) for drinking water, improving access from 76 percent in 2000 to 87 percent by 2015. Significant progress was also made in reducing open defecation, which dropped from 45 percent in 2000 to around one percent by 2015, while access to improved sanitation increased to 61 percent (JMP 2015).

Bangladesh has been proactive and adept in the improvement of the WASH sector, considering people's health-associated well-being and thus enhancing socioeconomic status. In 2005, the Local Government Division (LGD) prepared the first Sector Development Plan (SDP 2005) for a 10-year period. This was followed by the preparation of SDP 2011-2025, which updated the plan by incorporating key issues such as enhanced hygiene promotion and a greater focus on the CHTs region and other underserved areas.

A roadmap with several indicative milestones was outlined in the SDP 2011-2025. While some activities have been fully accomplished, others have been partially achieved, and certain actions remain uninitiated. Key achievement of the SDP (2011-2025) roadmap include:

a. The National Forum for Water Supply and Sanitation (NFWSS) has been established, and both the Policy and Monitoring Support Committee and Technical Support Committee have been formed;
b. Policy Support Branch (PSB) has been created as a permanent establishment under the LGD;
c. Water tariff fixation authority has been delegated to the paurashavas;
d. Environmental Conservation Rules (2023) has been adapted;
e. Water Act (2013) and Water Rules (2018) have been approved;
f. National Strategy for Water Supply and Sanitation has been revised and updated in 2021; and
g. Town Level Coordination Committees (TLCC) are in place in many paurashavas.

Conversely, several significant issues that were intended to be addressed but remained partially or entirely unresolved include:

a. Water and Sewerage Authorities (WASAs) have not been authorized to increase water tariff from five percent to 10 percent (ref. section 22 sub-section 2 of WASA Act);
b. The standard for arsenic levels in drinking water in Bangladesh (50 ppb) has not been aligned with the WHO Guidelines value (10 ppb) in the ECR (2023);
c. A National Groundwater Strategy is not in place;
d. Sector Information System (SIS) for monitoring is not yet operational;

e. Recognizing “WASH SECTOR” as a separate sector in the budgetary provision of the Annual Development Program (ADP) by the Planning Commission remains pending;
f. Restructuring of the Department of Public Health Engineering (DPHE) organogram has not been implemented.

The sectoral progress in the present SDP (2011-25) includes achievements on WASH and other Associate Components like Solid Waste Management (SWM). Fifty-nine (59) percent of the population in Bangladesh had access to safely managed water services in 2022. This represents an increase from 56 percent in 2015. The government of Bangladesh has been actively working to enhance water supply services through various initiatives aimed at providing safer and more reliable access to water. Efforts include the installation of new deep tube wells in regions with arsenic-safe groundwater to mitigate the risks of contamination. The government is also promoting rainwater harvesting systems as an alternative water source while placing more emphasis on shifting from groundwater to surface water usage to preserve aquifers. Expanding piped water supply systems and increasing the capacity of water treatment facilities are key focuses, ensuring that safe water reaches more households. To support equitable access, the government has adopted the Pro-poor Strategy and Operation and Maintenance (O&M) Guideline, prioritizing inclusivity and sustainability in water management.

In 2022, 59 percent of Bangladesh's population had access to ‘at least basic’ sanitation facilities. However, only 31 percent had access to safely managed sanitation, showing progress from 23 percent in 2015. Safely managed sanitation remains a complex issue, with the safe handling of fecal matter posing a significant and urgent challenge. A study indicated that while 50 percent of the population used safe latrines with proper fecal sludge containment, only 10 percent of households regardless of whether their latrines were safe or unsafe practiced safe emptying, transport, and disposal of fecal sludge. To address these challenges, the GoB has established the Citywide Inclusive Sanitation (CWIS)-FSM support cell within the DPHE. This cell is tasked with planning, designing, and monitoring capacity-building activities, conducting awareness campaigns, standardizing services, and implementing the institutional regulatory framework (IRF)-FSM. The CWIS approach aims to promote equitable, safe, and sustainable public sanitation by strengthening key public system functions, including responsibility, accountability, and resource management.

Despite significant progress with rapid changes in global and regional environment including development priorities, Bangladesh has made significant progress in promoting better hygiene practices over recent years. The percentage of the population with access to basic hygiene facilities, such as practicing hand washing with soap and water, has risen from 42 percent in 2015 to 62 percent in 2022 (JMP, 2022a). This improvement highlights the country’s efforts to enhance public health and hygiene awareness. Additionally, the implementation of the Menstrual Hygiene Management (MHM) strategy (2021) is in place, further supporting the overall well-being and health education of the population, particularly benefiting women and girls.

In 2020-21, Bangladesh generated a total of 35.15 million metric tons (MTs) of solid waste, out of which 5.48 million MTs were recycled, making up 15.59 percent of the overall waste. Municipalities contributed 7.44 million MTs of solid waste during this period. Despite this significant volume, only 0.18 million MTs, or a mere 2.43 percent of the waste generated by municipalities, was collected and managed in controlled facilities. To address these challenges and improve waste management, the Solid Waste Management (SWM) Rules (2016) have been put in place, aiming to guide and regulate waste collection, treatment, and disposal practices.

Bangladesh's progress in the WASH sector faces emerging challenges. Climate change is threatening water sources and infrastructure, while rapid urbanization is placing pressure on

existing systems. Industrialization has led to increased water pollution, complicating the provision of safe drinking water and sanitation services. Rural water supplies, often reliant on tube-wells, are at risk from arsenic contamination, salinity intrusion in groundwater, and overuse. A growing concern is the safe management of fecal sludge, particularly in densely populated cities, where inadequate management is creating environmental and health risks. Ensuring equitable access for marginalized communities and remote areas remains a significant challenge. Addressing these issues will require investment in climate-resilient infrastructure, expansion of urban WASH services, improved water resource management, enhanced fecal sludge management, and ensuring equal access for all. Furthermore, securing long-term funding for the maintenance and expansion of WASH services in this context is essential.

Water quality monitoring is an essential element of safe water supply, although the water quality surveillance capacity is limited. The DPHE, Department of Environment (DoE) and Bangladesh Standards and Testing Institution (BSTI) are responsible for water quality surveillance; however, their capacity in terms of manpower and other logistics is limited compared to the task to be performed for the huge number of water points in the rural areas. The DPHE has developed a Water Quality Surveillance Protocol that describes parameters for testing, procedures/ methods and sampling frequency in ideal conditions. The DPHE has 15 water quality testing laboratories including a Central Laboratory at Dhaka. In addition, DPHE has water testing facilities in 52 districts of the country. The WASAs have their water quality testing facilities. Nevertheless, the Water Safety Framework (WSF) (2011) has the provision to give the responsibility of surveillance of WASA's performance to the Public Engineering Universities (in place of DPHE).

Issues like fecal sludge management, menstrual hygiene, and solid waste management require targeted interventions that align with the Sustainable Development Goals (SDGs) WASH targets and promote the practical development of the sector. In response, the Policy Support Branch (PSB) under the LGD has initiated the preparation of the SDP 2026-40, which will serve as the updated strategic planning document for the WASH sector. The goal of the SDP is to provide a comprehensive framework for planning, implementing, coordinating, and monitoring all activities within the WASH sector.

The SDP 2026-40 has been developed in alignment with other national planning documents, such as the Perspective Plan, Delta Plan 2100, and the National Adaptation Plan (2023-2050). The targets of the SDGs have been considered in the short-term planning. The SDP 2026-40 will cover a 15-year period, beginning in 2026, and is divided into short-term, medium-term, and long-term phases, each lasting five years. As a dynamic document, the SDP will be updated as necessary to remain relevant and effective.

a) **Short-term planning:** During this period, priority will be given to ongoing and upcoming projects and programs that support the achievement of SDG targets. Additionally, there will be a focus on institutional strengthening. This phase will also involve the development of new policies and strategies, as well as the revision and updating of existing ones, ensuring they are completed within this timeframe.

b) **Medium-term planning:** In this term, there will be a strong focus on the gradual improvement of WASH service levels. Additionally, if any SDG targets are unmet in the short term, this phase will prioritize implementing projects and programs to complete the remaining activities required to achieve those targets.

c) **Long-term planning:** Once the SDG targets are achieved, the focus may shift to improving WASH service levels further, along with addressing emerging challenges. This phase may require the introduction of new planning concepts. It will be essential to develop innovative strategies for the WASH sector, taking into account potential financing, as well as the capacity for planning, implementation, and operation and maintenance (O&M).

Further, the Sector Development Plan 2026-40 is formulated based on the following strategic guiding principles:

a. Recognize water supply and sanitation as human rights and public goods with both economic and social value;
b. Implement an inclusive, demand-driven approach that ensures transparency and accountability throughout all stages of service delivery, with safety nets for the most vulnerable and marginalized groups;
c. Integrate gender, equity, rights, and citizen participation into the design, planning, implementation, and monitoring of WASH services;
d. Take a phased approach to improving service quality and levels, considering the impacts of climate change and emerging challenges;
e. Foster an environment that encourages greater private sector participation; and
f. Promote collaboration among WASH sector stakeholders, inter-ministerial partnerships, information sharing, and support harmonized approaches.

The SDP 2026-40 recognized the following priority areas within various service sectors as essential for enhancing service coverage and ensuring quality, equity, accountability, and transparency:

a) Urban Areas

i. Rehabilitation and upgradation of the existing systems;
ii. Expanding piped water supply (PWS) and sanitation coverage;
iii. Increasing tariff collection efficiency;
iv. Developing customer care; and
v. Increase community participation.

b) Rural Areas

i. More prominent roles by the private sector;
ii. Strengthening coordination;
iii. Harmonization of the approaches; and
iv. Effective implementation of the pro-poor strategy.

c) CHTs

i. Recognizing diversity;
ii. Implementation arrangement;
iii. Local planning and coordination;
iv. Choice of technologies;
v. Multi-sector development approach; and
vi. Service standards.

d) Hard to Reach (HtR) Areas

i. Address area-specific challenges;
ii. Use immediate and sustainable solutions;
iii. Local planning, design and implementation; and
iv. More involvement of LGIs and communities.

The Sector Development Framework with the new or amended acts, policies, strategies, plans and other WASH-related documents is as follows.

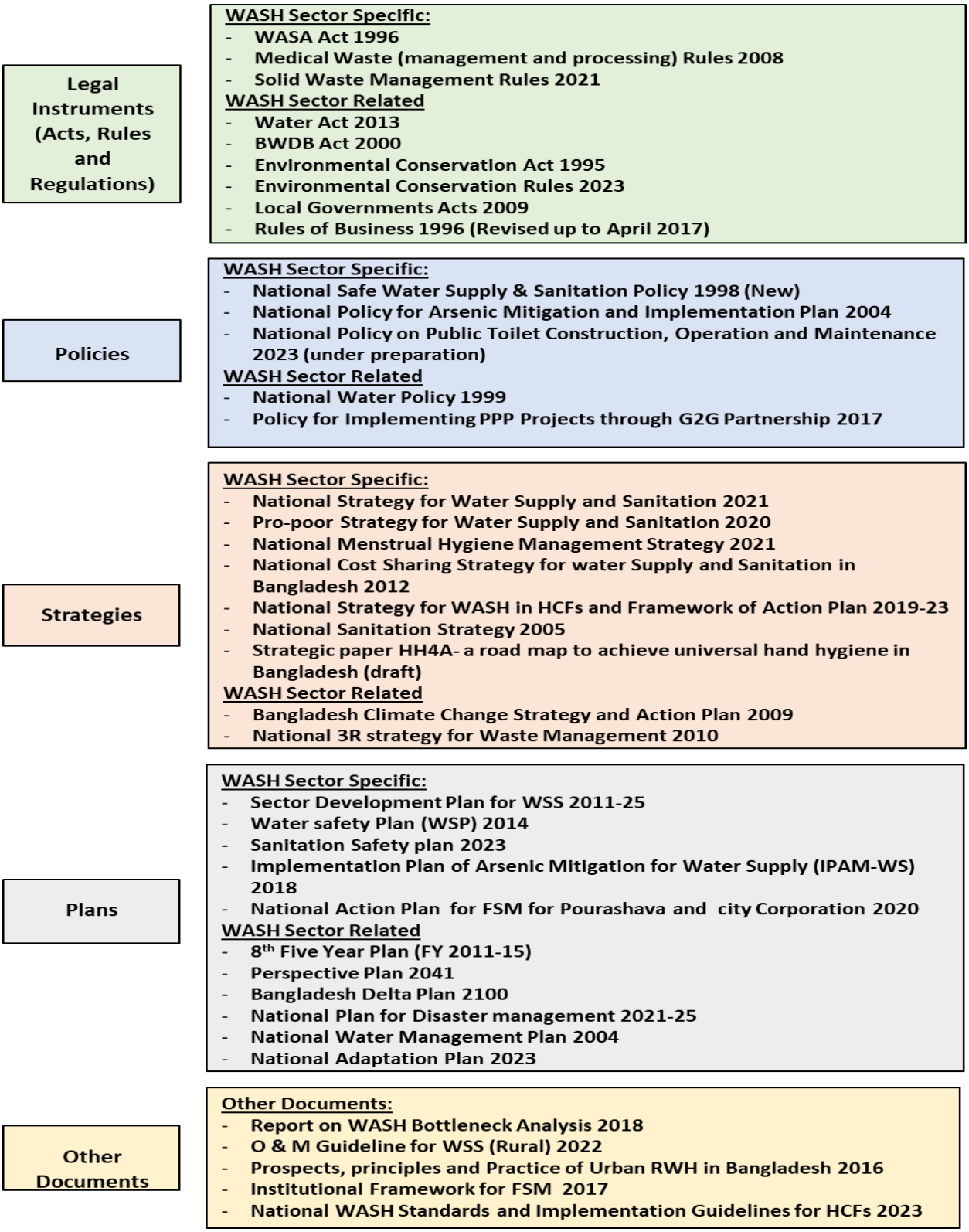


Figure: Sector Development Framework for SDP 2026-40

The implementation of a plan involves numerous factors. During the execution of the SDP, challenges such as insufficient budget allocation, shifts in national priorities, natural disasters, and political instability could potentially hinder progress. Conversely, if favorable conditions are present, the implementation process may advance more rapidly. Therefore, three distinct scenarios have been considered to guide the planning and execution of the SDP 2026-40.

Scenario 1 - Minimum required services to meet SDG targets.

Scenario 2 - A mediocre service level and operating efficiency in terms of increased piped water supply, off-site sanitation and hygiene coverages better than scenario 1.

Scenario 3 - Overall, a higher service level and operating efficiency in terms of increased piped water supply, off-site sanitation and hygiene coverages better than scenario 2.

During the SDP period from 2026 to 2040, the sector will improve the coverage and service levels gradually over three consecutive five-year terms (2026-30, 2031-35, and 2036-40). The targets for SDP 2026-40 are as follows.

Table: Targets for Water Supply

Service Type	Service Level	Baseline, 2022 (JMP)	Target in Percentage			
			2026	2030	2035	2040
Rural	Safely managed	62	81	100	100	100
	At least Basic	98	99	100	0	0
	Limited & Others	2	1	0	0	0
Urban	Safely managed	54	77	100	100	100
	At least Basic	98	99	100	0	0
	Limited & Others	2	1	0	0	0

Table: Targets for Sanitation

Service Type	Service Level	Baseline, 2022 (JMP)	Target in percentage			
			2026	2030	2035	2040
Rural	Safely managed	32	56	80	100	100
	At least Basic	62	81	100	0	0
	Limited & Others	38	19	0	0	0
Urban	Safely managed	29	55	80	100	100
	At least Basic	55	77	100	0	0
	Limited & Others	45	23	0	0	0

Table: Targets for Hand Hygiene at the National Level

Service Type	Service Level	Baseline, 2022 (JMP)	Target in Percentage			
			2026	2030	2035	2040
Hand Hygiene (National)	Basic service	62	80	100	100	100
	Limited Service	33	17	0	0	0
	No Service	5	3	0	0	0

Table: Targets for MHM at the National Level

Service Type	Use of Appropriate Materials	Status, 2022 (JMP)	Target in Percentage			
			2026	2030	2035	2040
Menstrual Hygiene (National)	Single-use/ re-useable	96	98	100	100	100
	Other Materials (paper/ local materials)	4	2	0	0	0

Table: Targets for Solid Waste Management

Service Type	Service Level	Status, 2021 (BBS, 2023a)	Target in Percentage			
			2026	2030	2035	2040
Waste Management (National)	**Basic service**	8	9	25	40	50
	Limited Service	71	90	75	60	50
	No Service	21	1	0	0	0

As an integral part of SDP 2026-40, the investment plan allows the government to identify potential funding sources, such as government grants, tariffs, foreign aid, or public-private partnerships. The investment requirements for this SDP 2026-40 implementations are considered for short term (2026-30), medium-term (2031-36) and long-term (2036-40) basis, considering different scenarios.

Investment requirements have been assessed individually for each of the three planning cycles, with figures varying according to the coverage levels considered in each cycle. The projections reflect increasing service levels across successive five-year phases. A summary of the investment requirements across various scenarios and terms is presented in the table below.

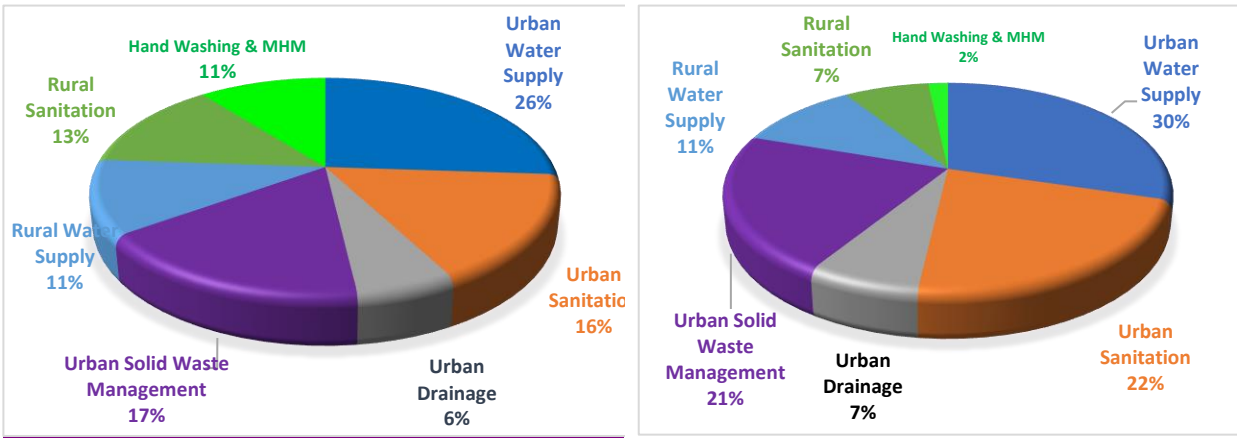
Table: Total investment requirements in different scenarios

Investment Terms	Scenario 1		Scenario 2		Scenario 3	
	Million BDT	Million USD	Million BDT	Million USD	Million BDT	Million USD
Short-term 2026-2030	1,279,876	10,666	1,589,257	13,244	1,962,493	16,354
Medium-term 2031-2035	1,339,960	11,166	1,606,919	13,391	1,888,354	15,736
Long-term 2036-2040	1,476,964	12,308	1,601,205	13,343	1,816,737	15,139
Total 2026-2040	4,096,800	34,140	4,797,380	39,978	5,667,585	47,230

The public investment required for the implementation of the SDP 2026-40 is indicated as follows:

Table: Indicative public investment requirements in different scenarios (In Million BDT)

Scenarios	Short-term 2026-2030		Medium-term 2031-2035		Long-term 2036-2040		Total 2026-2040
	Cost	Percentage of total Invest. Cost	Cost	Percentage of total Invest. Cost	Cost	Percentage of total Invest. Cost	
Scenario 1	792,906	62	856,230	64	872,463	59	2,479,579
Scenario 2	1,042,672	66	1,020,934	64	868,263	54	2,918,896
Scenario 3	1,335,256	68	1,168,123	62	947,661	52	3,416,610



(a) total investments (b) public sector investments

Figure: Distribution of required total investments for scenario 1 of the short term (2026-30)

Along with GoB and development partners (DPs), the investment will be shared by the users, private entrepreneurs, and NGOs, among others. All the sector partners would take part in the implementation of the SDP 2026-40 by sharing the investment costs. Sector partners are predominantly classified in the following categories:

Public sector: These include funding from the government, DPs, and revenue generated by the WASAs and paurashavas by rendering WASH services.

Private sector: Investments of the private households, private entrepreneurs, and contribution by the communities; and

NGOs: Funding directly for WASH by different DPs and funding by the NGOs themselves are included in this category.

A multi-tiered institutional structure supports the WASH Sector Development Plan (SDP) 2026-40 and relies on a clear delineation of stakeholder roles. The LGD serves as the primary leader of the WASH sector, setting priorities, allocating resources, monitoring progress, and supervising the implementation of the SDP. Within the LGD, the Policy Support Branch (PSB) spearheads planning efforts, develops the SDP framework, coordinates with stakeholders, and ensures alignment during implementation. The driving force of the plan lies in the contributions of organizations that execute WASH programs at the ground level.

Institutions at various levels will develop their own monitoring and reporting formats, incorporating relevant key indicators. Committees at each level will review and address outstanding issues, striving to resolve challenges independently whenever possible. They will report any necessary actions for improved performance to higher authorities. Additionally, these committees will provide feedback to the level directly below them, sharing overall status updates and comments on the measures taken.

The WASH SDP 2026-40 is an extensive strategy designed to enhance WASH services in Bangladesh. However, its success faces several potential risks. These include limited financial resources, insufficient capacity and expertise, weak coordination and collaboration, restricted access to data and information, concerns about environmental sustainability, social and cultural barriers, challenges posed by climate change and natural disasters, as well as the pressures of urbanization and population growth.

CHAPTER 1: INTRODUCTION

This chapter provides an overview of the Sector Development Plan (SDP) 2026-40, beginning with a glimpse into Bangladesh, the national planning and development framework, the context of the Water Supply, Sanitation and Hygiene (WASH) sector of the country, along with regional and global contexts. It also briefly outlines the existing legal instruments, policies, and strategies related to the WASH sector in the country. Following this, the chapter presents the objectives, scope, planning period, approach, and methodology of the SDP 2026-2040. The chapter concludes with an overview of the subsequent sections of the document.

1.1 BACKGROUND

The previous Sector Development Plan (FY2011-2025)was initiated and prepared by the then Policy Support Unit (PSU), under the Local Government Division (LGD), Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C) with assistance from all the concerned stakeholders of the then Water Supply and Sanitation Sector (WSS)(SDP FY 2011-25, 2011). Even before that, the first Sector Development Plan (SDP) was prepared in 2005(SDP, 2005). The SDP (2005) analyzed the relevant national and international policies, strategies and targets, and prepared a framework for the development of the WSS sector of the country, which was followed until 2010 as a planning document for the then WSS Sector by the government of Bangladesh (GoB) and the Development Partners (DPs).

The latest SDP (2011-25) timeline is going to end in 2025. Moreover, the scenario of the then Water Supply and Sanitation (WSS) Sector, henceforth termed as Water Supply, Sanitation and Hygiene (WASH) Sector, has changed noticeably, and new issues and challenges have emerged. This document uses the term “SDP 2026-40” to highlight the 15-year planning period, from 2026 to 2040, for the new Sector Development Plan.

1.2 COUNTRY CONTEXT

1.2.1 Administrative, Economic and Social Profile

Bangladesh, officially the People’s Republic of Bangladesh, is the eighth-most-populous country in the world with a population of 169.83 million and an area of 147,570 km^2 (sq. km)(BBS, 2022a).Of which, 127,660 sq. km (86.51 percent) is rural area and 19,910 sq. km (13.49 percent)

urban area(BBS, 2022a).For administrative purposes, Bangladesh is divided into eight divisions. The divisions are subdivided into 64 districts, the districts into 495 upazilas (sub-districts) and upazilas into 4,596 union councils (the lowest tier of Local Government Institutions). The unions are divided into mauzas; there are 58,846 mauzas in the country. Again, there are90, 049 villages in rural areas, which are parts of the mauzas. A village is the smallest territorial and social unit for administrative and representative purposes. In the urban areas, there are 15,153 mahallas. A mahalla is a part of a mauza in urban areas, which is similar to a village in rural areas. In the administrative setup, provisions for local governments are made at the district, upazila and union levels. There are two types of local governments in the urban areas: city corporations for metropolitan cities and paurashavas (municipalities) for large to medium-sized towns. As of now, there are 12 city corporations and 330 paurashavas. At the central level, there are 40 government ministries and 12 divisions (some ministries have two or more divisions, each headed by a senior secretary/secretary). A parliamentary democracy governs the country, and it has a unitary national parliament named Bangladesh Jatiya Sangsad.

Bangladesh's sustained economic growth has allowed the country to make substantial progress in poverty reduction despite a series of external setbacks. Since 2013, Gross Domestic Product (GDP)has gradually grown from 6.0 percent to 7.9 percent in 2019(WB, 2023). In 2020, GDP dropped to 3.4 percent due to the COVID-19 pandemic. After the COVID-19 era, GDP progress turned around and gained momentum again and reaching 7.1 percent in 2022, with the GDP per capita reaching US$ 2730(IMF, 2024a, 2024b). Ready-made garments and remittances are the twin drivers of the country's economy. Bangladesh's faster gains in human development result from the public policies that have complemented the significant energy at the grassroots level. The population growth rate has declined from 1.37percent per annum in 2011 to 1.12 percent in 2022(BBS, 2022a).The incidence of poverty has been declining. The national head count index of poverty declined from 31.5 percent in 2010 to 24.3 percent in 2016, and 18.7 percent in 2022(BBS, 2023b).The under-five mortality rate in Bangladesh has declined from 37 deaths per 1000 live births in 2011to 24 deaths per 1000 live births in 2022(WB, 2022).

Gaps in poverty across different occupational groups, genders and regions continue to persist despite rises in household income and expenditure. The income Gini coefficient was 0.499 in 2022, compared to 0.482 in 2016 and 0.458 in 2010. On the other hand, the consumption Gini coefficient was 0.334 in 2022, 0.324 in 2016, and 0.321 in 2010. It shows that the concentration of income is slightly increasing over time. Average calorie intake also increased significantly. The calorie intake per person per day was 2,393.0 kilocalories(kcal) in 2022, which was 2,210.4 kcal in 2016 and 2,318.3 kcal in 2010(BBS, 2023b).

1.2.2 National Planning and Development Framework

The government of Bangladesh (GoB) prepares a national budget every financial year, starting in June and ending in July. The national budget has two parts: i) a development budget, as reflected in the Annual Development Plan (ADP), and ii) a revenue budget for administrative and recurring expenses. The GoB usually prepares Five-Year national development plans. The government is now going through the Eighth Five-Year Plan (July2020- June 2025). The Eighth Five-Year Plan emphasized "*Ensuring safe water supply and sanitation facilities in a sustainable manner*" and "*Context-Specific Environmental and WASH Technologies/ Interventions*".

Moreover, a perspective plan has also been adapted titled:*"Making Vision 2041 a Reality: Perspective Plan of Bangladesh 2021-2041"*, which is a genuine articulation of the government to

transform the country from a lower middle-income country to an upper middle-income country by 2031 and a high-income country by 2041 under World Bank classification. The other juxtaposed goals are eradicating extreme poverty by 2031 and achieving zero poverty by 2041. In regard to water supply and sanitation, by 2041, the perspective plan targeted to provide one hundred percent of:

a. urban and rural households with tap water connectivity;
b. urban and rural households with water-sealed sanitary toilets;
c. urban and rural households with modern/safe sewerage connection;
d. urban centers with modern waste disposal facilities;
e. urban centers with wastewater treatment facilities;
f. urban water bodies preserved with hundred % compliance with water quality standards; and
g. Cities are flood-free with proper drainage.

The government of Bangladesh has also approved the Delta Plan 2100 in 2018 to secure the future of water resources and mitigate the likely effects of climate change and natural disasters. The Bangladesh Delta Plan (BDP) 2100(2018) is a broad-based, long-term vision of the likely changes and necessary interventions to make the Bangladesh Delta safe by the end of the 21st century. The Mission for BDP 2100(2018) is formulated as: *'Ensure long-term water and food security, economic growth and environmental sustainability while effectively reducing vulnerability to natural disasters and building resilience to climate change and other delta challenges through robust, adaptive and integrated strategies, and equitable water governance'*. '*The list of investment priorities identified in the BDP 2100 (2018)is extensive. The total required spending on BDP 2100(2018) related projects would need to grow from the pre-BDP 2100 spending levels of about US$ 1.8 billion in FY 2016 to about US$ 3.5 billion in FY 2017 and will increase to US$ 29.6 billion by FY 2031.*

'The investment priorities are as follows:

a. 'The backlog of investments in urban water supply, sanitation, waste management and drainage in major cities, coupled with rapidly growing concentration of population and economic density in these areas, suggests that this category will absorb at least 25 percent of all delta investments'; and
b. 'The lack of water and sanitation services in small towns and rural areas suggests that the need to achieve the government's targets for safe water supply and sanitation for these areas will call for massive investments in these services. This category may absorb as much as 20 percent of the total BDP 2100(2018) investment up to FY 2031'(BDP 2100, 2018).

The national planning documents also consider international commitments and the Sustainable Development Goals (SDGs), which aim to ensure the availability and sustainable management of water and sanitation for all (SDG 6, Targets 6.1 and 6.2).

1.3 WATER SUPPLY, SANITATION AND HYGIENE (WASH) SECTOR

1.3.1 WASH Coverage in Regional and Global Contexts

The WHO/UNICEF JMP (2023a) Progress delineates WASH coverage figures up to 2022 of the countries, regions and the world. The progress is prepared and aligned with SDG 6, targets 6.1 and 6.2. The WASH coverage figures of the seven South Asian countries, including Bangladesh,

Central and Southern Asia SD Gregion (Afghanistan, Bangladesh, Bhutan, India, Iran, Kazakhstan, Kyrgyzstan, Maldives, Nepal, Pakistan, Sri Lanka, Tajikistan, Turkmenistan, and Uzbekistan) and the world are given in Figures Figure 1.1, Figure 1.2, and Figure 1.3(JMP, 2023a).

According to the SDG definition, the safely managed water supply coverage of Bangladesh was 56 percent in 2015 and 59 percent in 2022. The 'at least basic' coverage was 97 percent in 2015 and 98 percent in 2022. The 'at least basic' coverage of Bangladesh (98 percent) in 2022 was the second highest in the South Asian region after Bhutan (99 percent). The annual rate of change in 'at least basic' coverage of water supply of Bangladesh was 0.15 percent, the lowest amongst the South Asian countries. The safely managed water supply coverages in 2015 and 2022 in Bangladesh were less than SDG regional (60 percent and 68 percent in 2015 and 2022 respectively) and world (69 percent and 73 percent in 2015 and 2022 respectively) coverages (Figure 1.1).However, the safely managed water supply coverage of Bangladesh was the highest (56 percent) among the South Asian countries in 2015 and second highest (59 percent) in 2022 after Bhutan (73 percent)(JMP, 2023a).

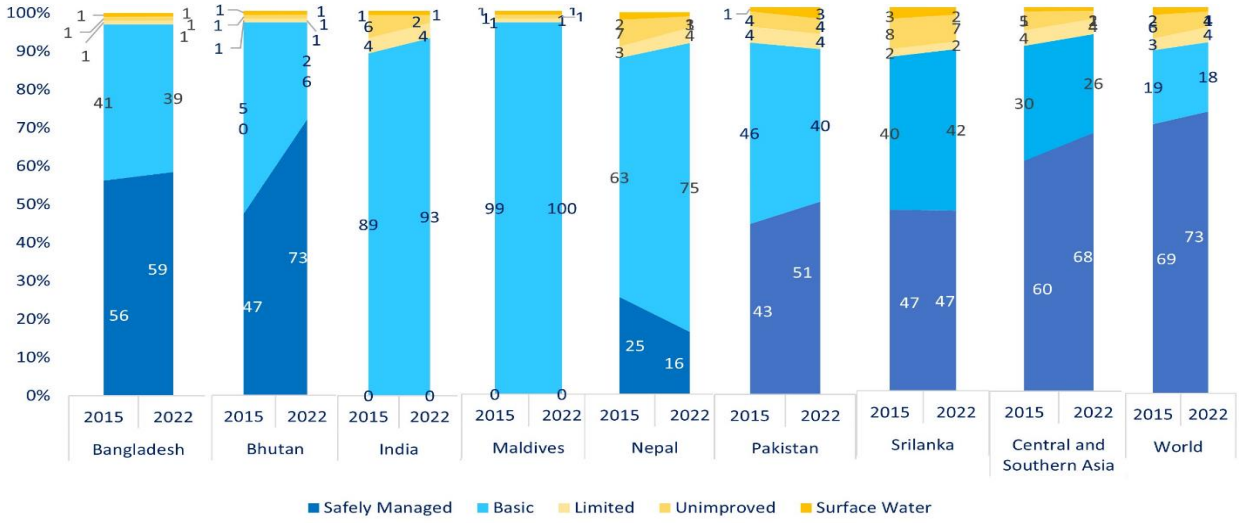


Figure 1.1: Comparison of Safely Managed Water Supply Coverage of Bangladesh, South Asian Countries, Central and Southern Asia and the World

Safely managed sanitation coverages of Bangladesh, according to JMP (2023a), were 23 percent in 2015 and 31 percent in 2022. And the 'at least basic' coverages were 49 percent and 59 percent in 2015 and 2022, respectively. Central and Southern Asian SDG regional coverages of safely managed sanitation were much higher than in Bangladesh (38 percent and 51 percent in 2015 and 2022, respectively). The worldwide coverage was also remarkably higher, 49 percent in 2015 and 57 percent in 2022 (Figure 1.2).

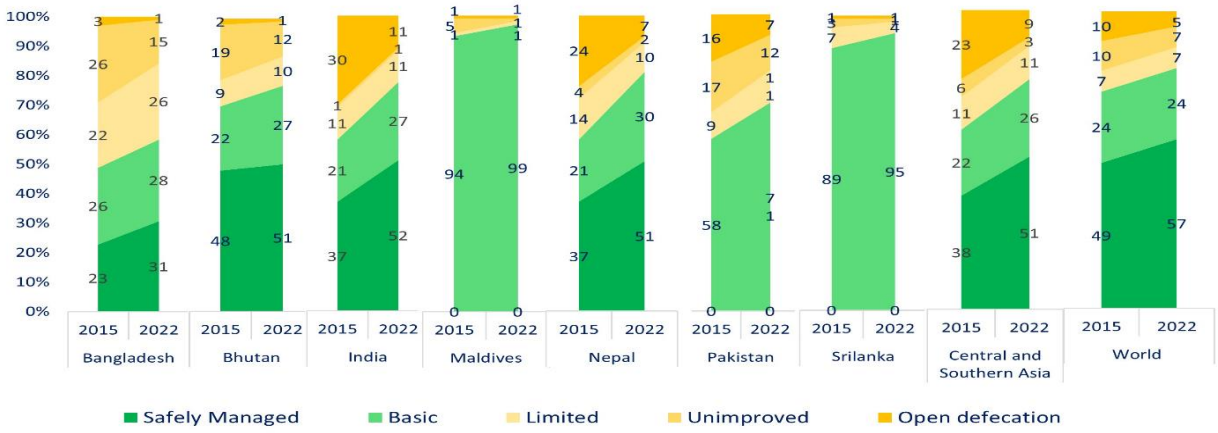


Figure 1.2: Comparison of Safely Managed Sanitation Coverage of Bangladesh, South Asian Countries, Central and Southern Asia and the World

The scenario of basic hygiene services exhibits a poor situation in Bangladesh. The basic hygiene coverage of Bangladesh was 42 percent in 2015 and 62 percent in 2022, which were the lowest amongst Central and Southern Asian SDG region (67 percent in 2015 and 76 percent in 2022) and the world (51 percent in 2015 and 75 percent in 2022) as well (Figure 1.3).

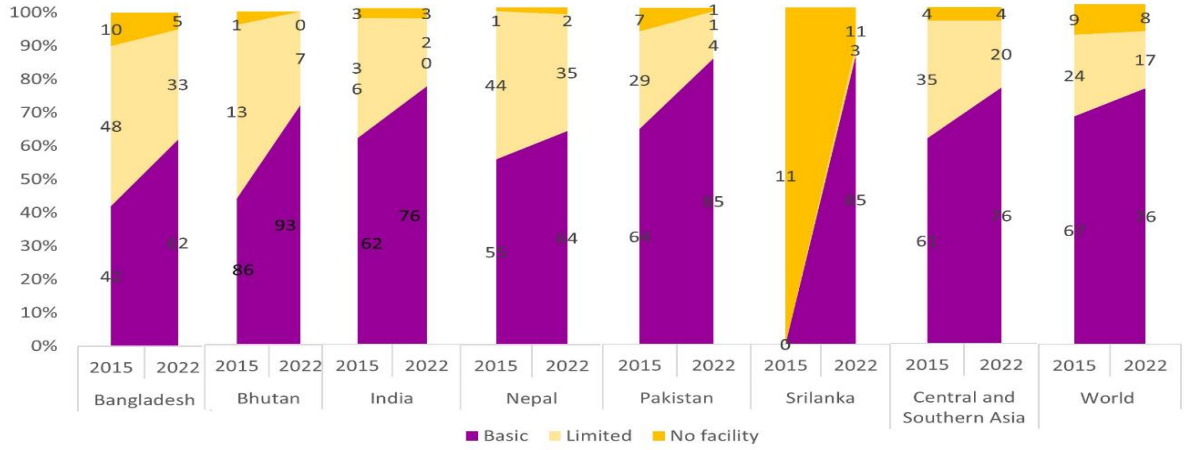


Figure 1.3: Comparison of Basic Hygiene Coverage of Bangladesh, South Asian Countries, Central and Southern Asia and the World (Note: Maldives has no data on hygiene in 2022)

1.3.1.1 WASH in Schools

Data on drinking water, sanitation, and hygiene in schools (WASH in schools) show a mixed scenario compared with regional and world data. Basic water services (improved and available) in Bangladesh schools were 81 percent, while that for the Central and Southern Asian SDG region and the world were 75 percent and 71 percent, respectively, in 2021. Basic sanitation services (improved, usable and single-sex) in Bangladesh were 57 percent in 2021. On the other hand, the SDG regional and world data showed higher values in 2021, 81 percent and 72 percent, respectively. Looking at the basic hygiene services (facilities with water and soap) data in schools in Bangladesh, it was revealed that coverage was 56 percent in 2021. The Central and Southern Asian SDG regional and world coverages were 53 percent and 58 percent, respectively, in the same year.

1.3.1.2 WASH in Health Care Facilities (HCF)

WASH in health care facilities was quite prominent in Bangladesh in terms of the availability of data compared to other South Asian countries. Only fragmented data are available in the JMP 2023 report on WASH in health care facilities in South Asian countries (except Maldives), the Central and Southern Asian SDG region, and on a global scale(JMP, 2023b).The Bangladesh data showed that in the health care facilities, basic water services(improved, available and on premises) was 64 percent, basic sanitation services (improved, usable, dedicated for staff, sex-separated with menstrual hygiene facilities, and adapted for limited mobility)was 31 percent, basic hygiene services (hand hygiene facilities at points of care and water and soap at toilets) was 38 percent, and basic waste management services (waste segregated and treated and disposed of safely) was 34 percent in 2021(JMP, 2023b).

1.3.1.3 Solid Waste Management

While the WASH sector primarily focuses on water and human waste management, improper solid waste mismanagement pollutes water sources and creates unsanitary conditions, hindering WASH sector goals. Solid waste management (SWM) is a significant challenge with rapid urbanization and industrialization. The generation of solid waste is increasing at an alarming rate. The total solid waste generated in the country in 2020-21 was 35.15 million metric tons (MTs), and per capita per day waste generation was 0.50 kilogram. Out of these, waste generated in urban areas was 7.44 MTs, and solid waste collection, as a percentage of solid waste generation (collection efficiency), was 80.63 percent(BBS, 2023c).

A report by Kaza et al. (2018)presented a comparative statement of the generation of solid waste in the South Asia Region, as shown in Figure 1.4. The report also mentioned that *the world is on a trajectory where waste generation will drastically outpace population growth by more than double by 2050*.

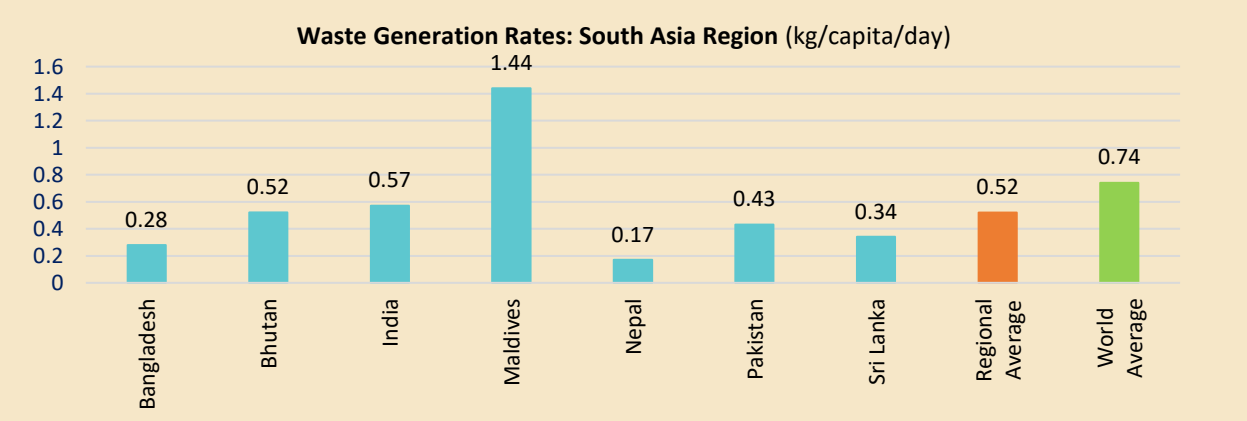


Figure 1.4: Comparison of Solid Waste Generation in Bangladesh, South Asian Countries, Regional and the World Average (Kaza et al., 2018)

1.3.2 Social and Economic Values of WASH

Water, sanitation and hygiene (WASH) are fundamental to sustainable social and economic development. By committing to the Sustainable Development Goals, countries have agreed to work towards universal access to safe and affordable drinking water (Goal 6.1) and access to adequate and equitable sanitation and hygiene for all (Goal 6.2). The 64th United Nations (UN)

General Assembly (July 28, 2010) recognized the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights. The UN also called upon states and international organizations to provide financial resources, capacity-building and technology transfer through international assistance and cooperation, particularly to developing countries, to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all.

Investment in WASH services typically generates several economic, environmental and social benefits (Table 1.1). Access to safely managed drinking water and sanitation reduces health risks, frees up time for education and other productive activities, as well as increases the labor force's productivity. Every $1.0 invested in water and sanitation provides a $4.0 economic return from lower health costs, more productivity and fewer premature deaths(Water Org., 2024).

Table 1.1: Benefits of Improved Drinking Water Supply and Sanitation (adapted from Hutton (2012) and Hutton et al. (2014))

Benefit	Water	Sanitation
Health, burden of disease	• Averted cases of diarrheal disease • Reduced malnutrition, enteropathy, and malnutrition-related conditions (stunting) • Less dehydration from lack of access to water • Less disaster-related health impacts	• Averted cases of diarrheal disease • Averted cases of helminths, polio, and eye diseases • Reduced malnutrition, enteropathy, and malnutrition-related conditions (stunting) • Less dehydration from insufficient water intake because of poor latrine access • Less disaster-related health impacts
Health, economic savings	• Reduced costs related to diseases, such as health care, productivity losses, and premature mortality	• Reduced costs related to diseases, such as health care, productivity losses, and premature mortality
Convenience time savings	• Saved travel and waiting time for water collection	• Saved travel and waiting time from having a nearby private toilet
Educational benefits	• Improved educational levels because of higher school enrollment and attendance rates due to the availability of water at water • Higher attendance and educational attainment because of improved health	• Improved educational levels because of higher school enrollment and attendance rates due to access to sanitation facilities at school • Higher attendance and educational attainment because of improved health
Social benefits	• Leisure and nonuse values of water resources and reduced effort of averted water hauling and gender impacts	• Safety, privacy, dignity, comfort, status, prestige, aesthetics, and gender effects

Benefit	Water	Sanitation
Water access benefits	• Pretreated water at lower costs for averted treatment costs for households	• Less pollution of water supply and hence reduced water treatment costs
Reuse		• Soil conditioner and fertilizer • Energy production • Safe use of wastewater
Economic effects	• Incomes from more tourism and business investment • Employment opportunity in water provision • Rise in value of property	• Incomes from more tourism and business investment • Employment opportunity in sanitation supply chain • Rise in value of property

The Water and Sanitation Program (WSP) of the World Bank carried out a study (2012) on the economic impacts (considering all aspects of direct, indirect, and non-health benefits) of inadequate sanitation and water supply in a number of countries in East Asia, the Pacific and South Asia regions, including Bangladesh. The study concluded that inadequate sanitation has substantial economic impacts in Bangladesh. The annual economic impact of inadequate sanitation was estimated at BDT 295.48 billion (US$ 4.23 billion), which was equivalent to 6.3 percent of the GDP.

1.3.3 Sector Stakeholders

There are many stakeholders directly and indirectly involved in the WASH sector of Bangladesh. The predominant stakeholders are:

Government and semi-government organizations: Government is the principal stakeholder and is the prime actor in all the WASH sector development-related activities: planning, regulating, implementing and monitoring. The government operates through its various institutional setups at the central level (ministries, divisions, departments and agencies), different tiers of local government (union parishad, upazila parishad, zila parishad, paurashava, and city corporation), and the semi-government organizations like Water and Sewerage Authorities or WASAs (Dhaka, Chattogram, Khulna and Rajshahi WASAs). The Department of Public Health Engineering (DPHE) is the WASH sector lead agency.

Development Partners (DPs): Different development partners play an important role in the advancement of the WASH sector by providing technical and financial assistance. The activities of DPs are guided by the policies of the government or organizations. They channel financial assistance for development activities following government procedures.

Non-Government Organizations (NGOs): There are several NGOs involved in WASH sector activities. Usually, the NGOs work at the grassroots level with the participation of the local people. They develop projects through motivation and education programs targeting the local communities and implement them as well.

Community-Based Organizations (CBOs): A community-based organization is one that is driven by community residents in all aspects of its existence. Governing bodies of CBOs consist mostly of local residents, and they operate offices in the community. In the WASH sector, they

usually maintain point sources of water and community latrines, especially in the urban slums. Progressively, CBOs are taking over the responsibilities of operating and maintaining the WASH facilities established by NGOs and the government.

Private Sector and Individuals: The private sector plays an important role in expanding water and sanitation infrastructure and improving the efficiency of our WASH system, especially in rural areas and urban slums. Private contractors, manufacturers, suppliers, and hardware shops are involved in the development of the WASH sector. Considerable parts of our rural WASH infrastructure are installed by individual households having support from local small and medium-scale entrepreneurs.

Others: Many others who are directly and indirectly involved in the functioning and development of the WASH sector are academia and research institutes, sector professionals, civil society, media, construction companies, consulting firms, the MHM platform and individuals at large.

1.3.4 WASH Institutional Framework:

At the national level, the LGD of the MoLDRD&C is responsible for the overall development of the WASH sector. The Department of Public Health Engineering (DPHE) and WASAs function under the administrative control of LGD. The organizational structure of the organizations under the LGD is shown in Figure 1.5. The DPHE is responsible for WASH projects in the public sector in rural as well as urban areas, except the urban areas where WASAs operate. In urban areas, DPHE has been discharging the responsibilities for the WASH sector, but gradually paurashavas (municipalities) and city corporations are becoming more involved in planning, implementing and managing the WASH systems.

In 1963, Dhaka and Chattogram WASAs were established. Later, two other WASAs in Khulna (2008) and Rajshahi (2010) cities were created. WASAs are independent, autonomous bodies with the mandate of water supply and sewage disposal for the concerned metropolitan cities. WASA Act (1996) narrates the roles and responsibilities of WASAs and the functions of the Board and Managing Director as well.

In addition to DPHE, the Local Government Engineering Department (LGED), City Corporation (without WASAs) and paurashavas (municipalities), also under the LGD, implement drainage infrastructure in the urban areas as part of urban infrastructure development. The national level coordination among the sector stakeholders, such as government agencies, development partners, NGOs and the private sector, is done by the National Forum for Water Supply and Sanitation (NFWSS) in the LGD. The Secretary, LGD, is the chairperson of the NFWSS.

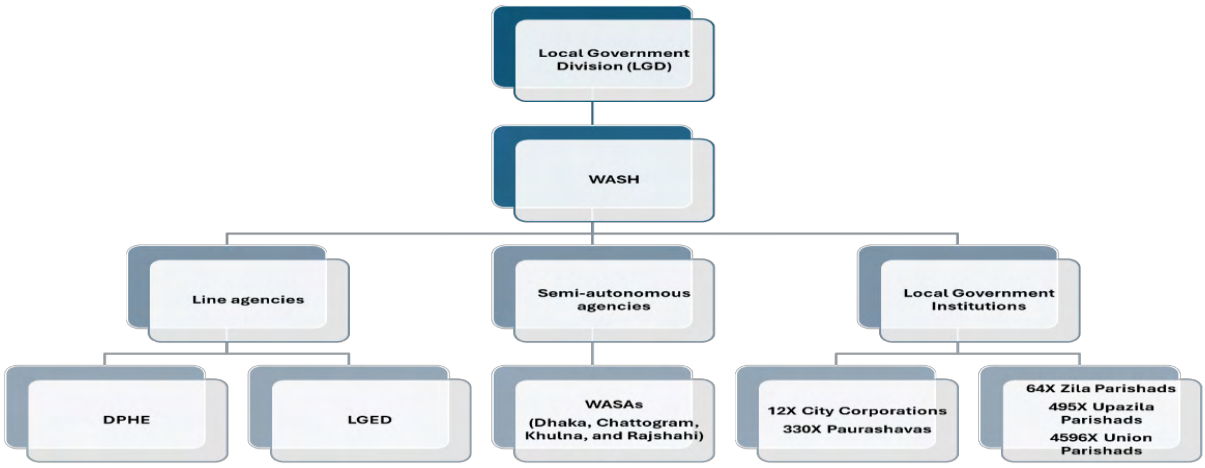


Figure 1.5: Organizational structure of the organizations under the LGD

Upazila Parishad Act(2009)and the Union Parishad Act (2009) have given responsibilities to the 'Public Health, Sanitation and Safe Water Supply' Committee at the upazila level and 'Sanitation, Water Supply and Sewage' Standing Committee at the union level, respectively, to look after the activities of the WASH sector.

In the Chattogram Hill Tracts (CHTs), the institutional setup differs from that of other parts of the country. There is a CHT Regional Council (CHT-RC) and three Hill District Councils (HDC). A traditional administrative setup also exists in addition to regular LGIs. The detailed roles and responsibilities of the WASH sector in CHTs are provided in chapter two.

1.4 SECTOR DEVELOPMENT FRAMEWORK

The Sector Development Plan (SDP) 2011-2025 was prepared in 2011. During 2011-2025 the development activities of the WASH sector have been planned, coordinated, and implemented by the stake holders aligned with the SDP (2011-2025) following legal instruments, policies, strategies, and plans operational at the time. Figure 1.6 illustrates the new sector development framework for the SDP 2026-40, featuring new or revised acts, updated policies, strategies, plans, and other related documents.

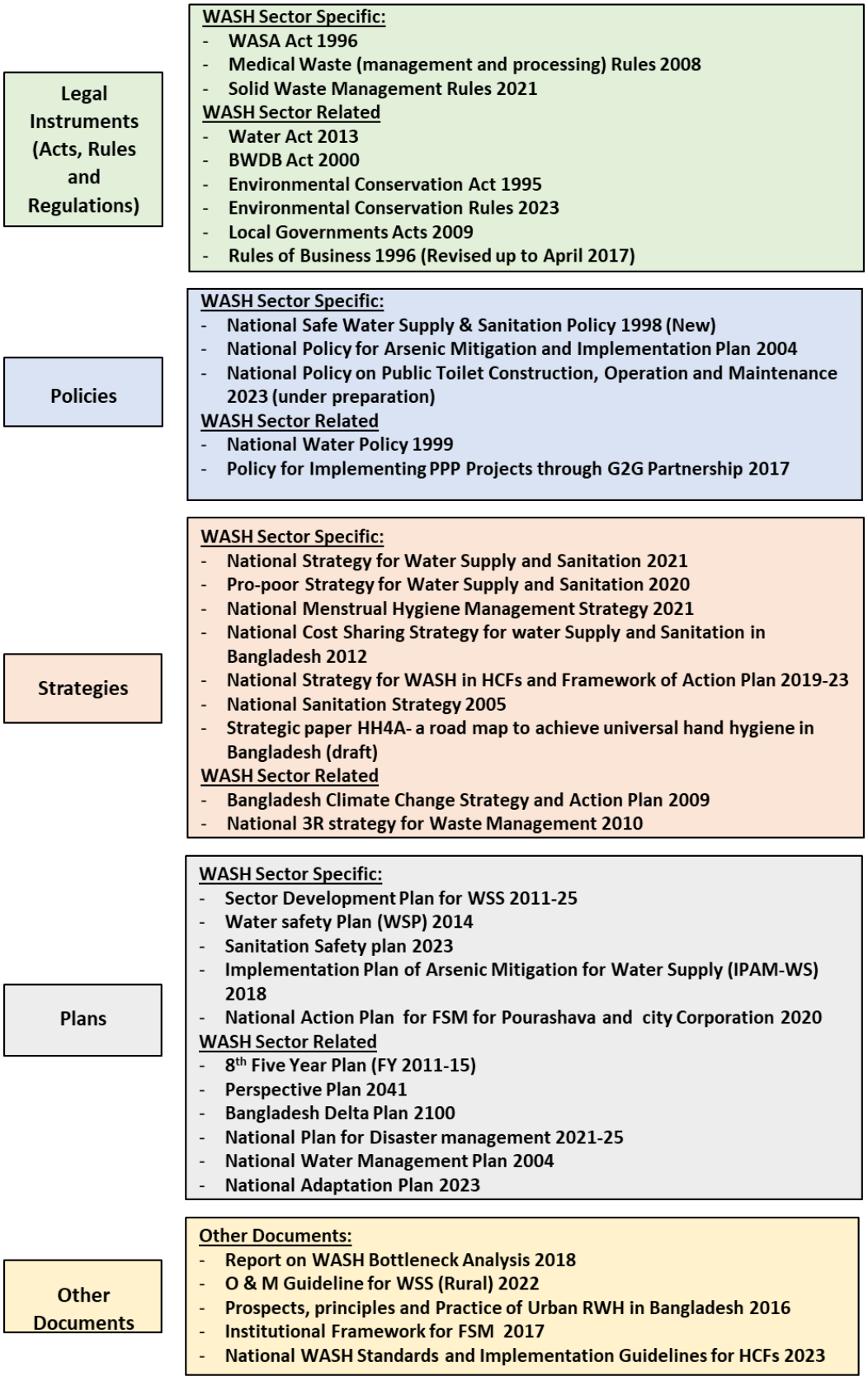


Figure 1.6: Sector Development Framework for SDP 2026-40

1.4.1 Legal Instruments, Policies, Strategies, Plans Related to WASH Sector

There are Acts, Policies, Strategies and Plans in place to govern and manage the WASH sector of Bangladesh. These types of documents need to be prepared, updated and revised with the changed scenarios due to various reasons like socio-economic development of the people, natural phenomena (like arsenic contamination in GW, depletion of GW, Covid-19, different types of catastrophes, etc.), and changes in technologies. Some documents were formulated or revised, or are in the process of being revised, taking into consideration the new commitments and ambitions of achieving the SDGs by 2030 and beyond. The legal instruments, policies, strategies, plans, etc., related to the WASH sector that Bangladesh currently possesses are presented in Table 1.2.

Table 1.2: Legal Instruments, Policies, Strategies, Plans, etc., Related to WASH Sector

Acts /Policies/Strategies/Plans, etc.	Brief Description
Acts/Rules/Regulations	
Environmental Conservation Act (1995) (Amended in 2010); and Environmental Conservation Rules (2023)	An Act to provide for the conservation of the environment, improvement of environmental standards and control and mitigation of environmental pollution; and Rules set the quality of water to be supplied and requirements for the disposal of effluents into water bodies.
WASA Act (1996)	Narrates the roles and responsibilities of WASAs and the functions of the Board and Managing Director as well.
Local Government Acts of 2009 for City Corporations(City Corporation Act, 2009), Paurashavas (Municipality Act, 2009), Upazila Parishads (Upazila Parishad Act, 2009), and Union Parishads (Union Council Act, 2009)	Describe the roles and responsibilities of the Local Government Institutions (LGIs), including issues related to WASH.
Bangladesh Water Act (2013); and Water Rules(2018)	A framework law to integrate and coordinate the water resources management in the country to establish a new, integrated approach to the protection, improvement and sustainable use of the country rivers, lakes, estuaries, coastal waters and groundwater; and the Water Rules (2018) implement provisions of the Water Act (2013).
Policies, Strategies and Plans	
National Policy for Safe Water Supply and Sanitation (1998)	This is the basic policy document governing the water supply and sanitation sector in the country. Now, in the process of revision.
National Policy for Arsenic Mitigation and Implementation Plan (2004)	The major focus is ensuring access to safe drinking and cooking water in all arsenic-affected areas through implementing alternative water supply options.
National Sanitation Strategy (2005)	Aimed to address the key sector issues, define the roles of various actors and guide the creation of enabling conditions for success.

Acts /Policies/Strategies/Plans, etc.	Brief Description
Sector Development Plan (FY 2011-25) for Water Supply and Sanitation Sector in Bangladesh (2011)	Focuses on WASH sector challenges, opportunities, investment requirements and the road map for SDP implementation. It also describes the progressive development of the sector during its fifteen-year planning period, divided into three terms, each of five-year duration.
National Cost Sharing Strategy for Water Supply and Sanitation in Bangladesh (2012a)	Suggested public subsidy for rural poor and cross-subsidy for urban slum dwellers. It also highlighted that government/ development partner subsidies could also act as the source of O&M funds.
National Hygiene Promotion Strategy for Water Supply and Sanitation Sector in Bangladesh (NHPS -WASH) (2012b)	Aims to promote sustainable use of improved WASH infrastructures and create an enabling environment, ensuring comprehensive hygiene promotion and practices to reduce water and sanitation-related diseases
Water Safety Plan (WSP) (2014)	Narrates how to reduce risks of water contamination to improve the quality of drinking water supply and reduce health risks by fostering a thorough and inclusive approach.
Institutional and Regulatory Framework for Fecal Sludge Management (IRF-FSM, 2017)	Developed separately for Megacity Dhaka, City Corporations, Paurashavas and Rural Areas, laying out the institutional roles and responsibilities to implement FSM services in these different contexts.
Report on WASH Bottleneck Analysis (2018)	Designed as a sector tool for government and development partners to strengthen the WASH sector.
Implementation Plan of Arsenic Mitigation for Water Supply (IPAM-WS) (2018)	Portrays the pathway of arsenic mitigation in the water supply. It builds upon a comprehensive framework for consistent and harmonized interventions that maintain pace towards sustainable development in arsenic mitigation.
Hand Hygiene for All(Strategic Paper)(2020)	Adapted to implement WHO's global recommendations on hand hygiene to prevent and control the COVID-19 pandemic and work to ensure lasting infrastructure and behavior.
Pro-poor Strategy (Revised) for the Water and Sanitation Sector in Bangladesh(2020a)	Formulated to ensure a safety net for the poor in getting WASH services.
National Strategy for Water Supply and Sanitation(2021)	A comprehensive framework for the WASH sector in Bangladesh in order to address the new and emerging challenges to align with the SDGs and beyond.
National Menstrual Hygiene Management Strategy(2021)	Narrates the action and investment required in menstrual hygiene management and issues of safeguarding women's dignity and privacy.
National Action Plan for Implementation of Institutional and Regulatory Framework (IRF) for Fecal Sludge Management for Rural Areas (2020b)	The document provides a guideline for implementing Fecal Sludge Management for Rural Areas.

Acts /Policies/Strategies/Plans, etc.	Brief Description
National Action Plan for Implementation of Institutional and Regulatory Framework (IRF) for Fecal Sludge Management for Paurashava (2020c)	The document provides a guideline for implementing Fecal Sludge Management for paurashavas.
Implementation of National Action Plan for Implementation of Institutional and Regulatory Framework (IRF) for Fecal Sludge Management for City Corporation (2021)	The document provides a guideline for implementing Fecal Sludge Management for city corporations.
Operation and Maintenance Guidelines for Water Supply and Sanitation (Rural Areas) (2022)	Aims to regularize the ways and means for effective operation and maintenance of WASH facilities to keep them functional at the desired state.
Water Resource Sector specific but related to the WASH sector	
National Water Policy (1999) National Water Management Plan (2004)	Address some of the crucial challenges faced in water management and provide broad directions for water resource management involving different sectors, including the WASH sector.
Cross-sectoral documents related to the WASH sector	
Medical Waste Management Rules (2008)	Talks about managing and processing medical waste disposal of different medical facilities and hospitals in the country.
Bangladesh Climate Change Strategy and Action Plan (2009)	A framework to address the challenges of climate change in Bangladesh, including WASH.
National 3R Strategy for Waste Management (2010)	Talks about the concept of minimizing waste impacts by reducing quantity, reusing the waste with simple treatments and recycling by using it as resources, usually referred to as “3R”.
Bangladesh Delta Plan 2100 (2018)	Seeks to integrate the short to medium-term aspirations of Bangladesh to achieve upper middle-income country (UMIC) status and eliminate extreme poverty by 2031 and developed country status by 2041, with the longer-term challenge of sustainable management of water, ecology, environment and land resources.
National Strategy for WASH in Health Care Facilities 2019-2023: A Framework for Action (2018)	Aims to articulate a pathway that strengthens all HCFs in Bangladesh to deliver standardized and effective Infection Prevention and Control (IPC) services.
Perspective Plan of Bangladesh 2021-2041 (2020a)	Aims to bring Bangladesh closer to the goals of attaining UMIC status, attaining major SDG targets, and eliminating extreme poverty by 2031.
8th Five-Year Plan 2020-2025 (2020b)	Represents the first phase of the country's Perspective Plan 2041.
Solid Waste Management Rules (2021)	Sets out the procedures for collecting, transporting, and disposing of solid waste, including plastic waste.
National Adaptation Plan of Bangladesh (2023-2050) (2022)	Developed to direct towards a viable path to climate-resilient development and reduced climate

Acts /Policies/Strategies/Plans, etc.	Brief Description
	risks and vulnerabilities in Bangladesh. WASH is included as a cross-cutting issue alongside infrastructure, health, etc.
National WASH Standards and Implementation Guidelines for Health Care Facilities in Bangladesh (2023)	This document outlines the national WASH and waste standards for healthcare facilities in Bangladesh.

1.4.2 Linkages of the Country's WASH Sector to International Commitments

Bangladesh met the Millennium Development Targets for drinking water by increasing access from 76 percent to 87 percent between 2000 and 2015. Remarkable progress was made by reducing open defecation practices to around one percent by 2015 from 45 percent in 2000, and increasing access to improved sanitation to 61 percent (JMP, 2016).

The era of the SDGs started in 2016 and will end in 2030. SDG Goal 6 targets 6.1 and 6.2 are as follows: by 2030, achieve universal and equitable access to safe and affordable drinking water for all, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying particular attention to the needs of women and girls and those in a vulnerable situation. Bangladesh is committed to fulfilling international commitments, such as achieving the targets of the SDGs. SDG Goal 6 targets 6.1 and 6.2 are specifically related to the WASH sector.

Bangladesh joined the 'Sanitation and Water for All' (SWA) in 2010. The SWA is a global partnership of governments, donors, civil society organizations and other development partners working together towards a joint objective of water, sanitation, and hygiene for all, always, and everywhere. In the Finance Ministers' Meeting(2020) of the Asia and the Pacific region held in December 2020, Bangladesh committed to ensuring an aggressive approach to make progress, including:

a. Advocate for the Ministry of Finance to approve separate water, sanitation and hygiene budget lines to support tracking sector financing to reach SDG6 targets.
b. Increase the government's yearly budget by USD 250 million for the WASH sector, reducing the budget gap by 50 percent each year;
c. Ensure that at least two million more people in arsenic-contaminated areas gain access to safe arsenic-free water;
d. Increase access to safely managed sanitation by five percent, bringing basic sanitation to 75 percent of the population; and
e. Increase at least five percent of the national WASH budget allocated to promote hygiene for all, including hand washing and menstrual hygiene management;

According to the SDG Financing Strategy 2017 of the General Economic Division (GED), Bangladesh requires an additional 11.80 billion US dollars to achieve SDG 6 (constant 2015-16 prices), of which 9.34 billion US dollars is needed for SDG 6.1 and SDG 6.2. The government of Bangladesh is gradually expanding the ADP budget allocations to the WASH sector to achieve the SDG targets.

The WHO/UNICEF Joint Monitoring Program for Water Supply, Sanitation and Hygiene (JMP) has reported country, regional and global estimates of progress on drinking water, sanitation and hygiene (WASH) since 1990. The JMP analyzes and publishes WASH-related data of Bangladesh from time to time.

The UN-Water Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS) report compiles new data every two to three years on drinking water, sanitation and hygiene (WASH) from 124 countries, including Bangladesh and territories and 23 External Support Agencies (ESAs). Bangladesh has been participating in GLAAS reports since 2012.

The South Asian Conference on Sanitation (SACOSAN) is a Government-led biennial convention to provide a platform for interaction on sanitation. The event is held on a rotational basis in each SAARC country: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The first SACOSAN conference was held on October 21-23, 2003, and the sixth SACOSAN conference was held on January 11-13, 2016, in Bangladesh. The SACOSAN conferences are intended to develop a regional agenda on sanitation, enabling learning from past experiences and setting actions for the future. The objectives of such conferences are to accelerate the progress in sanitation and hygiene promotion in South Asia and to enhance the quality of people's lives. The SACOSAN process is instrumental in generating political will towards better sanitation in the region.

1.5 OBJECTIVES OF THE SDP

The objective of the SDP 2026-40 is not far from those of SDP 2011-25.The aim of this SDP 2026-40 is also to provide an updated framework for planning, implementation, coordinating and monitoring all activities in the WASH sector of Bangladesh. It is envisaged that all WASH-related national and sectoral policies and strategies and international commitments will be aligned with this SDP.

As a strategic planning document, the SDP 2026-40 is expected to address the emerging and future challenges of the WASH sector. The plan also provides an updated road map for the development of the sector and a corresponding sector investment plan. The SDP has assessed the existing legal instruments, policies and strategies and recommended specific measures to streamline and address the gaps.

1.6 SCOPE OF THE SDP

The SDP 2026-2040 analyzes the present scenario of water supply, sanitation and hygiene promotion in both urban and rural areas and institutions (education and health) of Bangladesh and prepares a road map for achieving WASH-related SDG targets and beyond. It also attempts to focus on Climate Change and Adaptation along with other emerging issues, Water Safety Plan (WSP), Sanitation Safety Plan (SSP), Fecal Sludge Management (FSM), Menstrual Hygiene Management (MHM) and Solid Waste Management (SWM) and as the issues are linked with contamination of drinking water sources as well as environmental pollution.

1.7 PLANNING PERIOD

The SDP 2026-40 has been developed in alignment with other national planning documents, such as the Perspective Plan, Delta Plan 2100, and the National Adaptation Plan (2023-2050). The targets of the Sustainable Development Goals (SDGs) have been considered in the short-term planning. The SDP 2026-40 will cover a 15-year period, beginning in 2026, and is divided into short-term, medium-term, and long-term phases, each lasting five years. As a dynamic document, the SDP will be updated as necessary to remain relevant and effective.

a. **Short-term planning:** During this period, priority will be given to ongoing and upcoming projects and programs that support the achievement of SDG targets. Additionally, there will be a focus on institutional strengthening. This phase will also involve the development of new policies and strategies, as well as the revision and updating of existing ones, ensuring they are completed within this timeframe.
b. **Medium-term planning:** In this term, there will be a strong focus on the gradual improvement of WASH service levels. Additionally, if any SDG targets are unmet in the short term, this phase will prioritize implementing projects and programs to complete the remaining activities required to achieve those targets.
c. **Long-term planning:** Once the SDG targets are achieved, the focus may shift to improving WASH service levels further, along with addressing emerging challenges. This phase may require the introduction of new planning concepts. It will be essential to develop innovative strategies for the WASH sector, taking into account potential financing, as well as the capacity for planning, implementation, and operation and maintenance (O&M).

1.8 APPROACH AND METHODOLOGY

During the preparation of SDP 2026-40, a Technical Committee headed by the Joint Secretary, Policy Support Branch (PSB) of LGD, and with members from the government, development partners and NGOs, initially provided guidance based on changed scenarios of the WASH sector. Ideas and thoughts of all the sector stakeholders for the preparation of SDP 2026-2040 were shared by arranging consultations, meetings, and workshops, and also shared via emails throughout the preparation process. The events were attended by members from a number of agencies, including representatives of academia, government agencies, the DPs, the NGOs, and the private sector. The events considered three themes of the National Strategy for Water Supply and Sanitation (2021)for the preparation of this SDP. The themes emphasized increasing the coverage and improving the quality of WASH services; acknowledge demerging issues that need to be addressed, and aimed to strengthen the overall governance of the WASH sector to ensure efficient and sustainable implementation of strategies.

Few policies, strategies and guidelines related to the WASH sector and other cross-sector national plans, which also include the WASH sector, have been formulated, revised, and updated since the preparation of the SDP 2011-25. Attempts have been made to address the new issues that arose in those documents for the preparation of the SDP 2026-40.

1.9 ORGANIZATION OF THE DOCUMENT

The First Chapter presents a brief scenario of the WASH sector of Bangladesh and other general features considered in preparation for the SDP 2026-40. The WASH service area is covered in Chapter Two. The status of the WASH sector is described in Chapter Three. Chapter Four talks about the sector challenges, emerging issues and linkage of the WASH sector with water resources management. The guiding principles for the development of the document are narrated in Chapter Five. Details of sector development plans and considerations with action plans are represented in Chapter Six. The investment plan of the sector is delineated in Chapter Seven. Finally, the institutional arrangement and modalities of the SDP 2026-40 implementation are presented in Chapter Eight.

The document contains a few annexes, including the implementation status of the previous SDP 2011-25.

CHAPTER 2: WASH SERVICE AREAS AND SITUATION

This chapter delineates the jurisdiction of WASH service delivery by different organizations. The chapter narrates the present scenarios of the WASH situation in all the service areas, including some ongoing activities and future plans. It reflects the present scenarios of the national WASH service coverage as well as coverage of WASH services in different areas. The technical aspects, present and future potential technologies in the rural and urban subsectors are also discussed.

2.1 CLASSIFICATION OF SERVICE AREAS

Bangladesh has a variegated geography with low-lying and mainly riverine areas with a coastline of 720 km. The delta plain of the Ganges, Brahmaputra, and the Meghna rivers and their tributaries occupies 79 percent of the country. Moreover, Bangladesh is a rural-based country, where more than two-thirds of the total population lives in rural areas, although the population density in urban areas is much higher than in rural areas. The cities, towns and suburbs are considered as urban areas, and rural areas are geographical areas located outside the urban areas. In Bangladesh, as of 2022, 116 million (68 percent) people live in rural areas and 54 million (32 percent) people live in urban areas(BBS, 2022a). In rural areas, as well as in urban areas where a piped water supply system is yet to be established, predominantly hand tube wells are the source of drinking water. Depending on geographic location and built-up infrastructure, the WASH service areas are classified into the following major categories:

a) Urban;
b) Rural;
c) Chattogram Hill Tracts (CHTs); and
d) Hard-to-Reach (HtR) Areas.

2.2 URBAN AREAS

2.2.1 Urban Service Delivery

There are different types of service delivery authorities and modalities in urban areas, which are as follows:

LGIs: City corporations and paurashavas are the LGIs functioning in urban areas. These institutions are responsible for the O&M of the water supply and sanitation systems. The construction of new water supply and sanitation systems and major rehabilitation of existing systems are being done by the DPHE. After completion of the works, the systems are handed over to the city corporations and paurashavas by the DPHE for O&M. The LGIs carry out small-scale repair and extension works of the systems and install tube wells and sanitary latrines, usually in the low-income communities.

WASAs: WASH service systems are being implemented, operated, maintained, and revenue collection is being done by WASAs. Dhaka and Chattogram WASAs were created more than 60 years ago, in 1963. Khulna and Rajshahi WASAs are relatively new and created in 2008 and 2010, respectively.

Small-Scale Service Providers: At present, the small-scale service providers are predominantly NGOs working mainly in low-income communities. Their work mainly includes operating point sources connected to running water supply systems. Nowadays, they are also getting involved in the billing process on a contract basis.

Private Individuals: In areas where the piped water supply systems are yet to be established, private individuals install their own water sources. The sanitation facilities are installed and maintained by the households themselves.

NGOs: NGOs provide low-cost WASH options like hand tube wells, pit latrines, and community latrines in low-income communities.

Based on institutional arrangements for water supply and sanitation and the size of the cities, the urban areas are of two categories:

a) Cities with WASAs, and
b) City corporations and paurashavas.

2.2.2 Cities with WASAs

2.2.2.1 Water Supply

The National Urban Policy recognizes that urban areas in Bangladesh will be defined and categorized based on the BBS definition used for census purposes, and the definition of urban areas for municipalization will be according to the Paurashava Ordinance (1977)or its amendments and the Paurashava Act (2009). The Policy also recognizes that urban areas will form a network of distribution where each center will fall into a hierarchy. Currently, Bangladesh has 12 city corporations and 330 paurashavas (municipalities). Out of the 12 city corporations, there are WASAs operating in five large city corporations – Dhaka (operates in Dhaka North and Dhaka South), Chattogram, Khulna, and Rajshahi. The other seven city corporations and 330 paurashavas manage their water and sanitation services.

Dhaka and Chattogram are characterized by high population density and growing economic activity, leading to heavy pressure on the available space, infrastructure, and environment. These cities are rapidly growing vertically, with many high-rise buildings requiring high-capacity connections (delivering high volumes of water) to serve large offices. These developments are putting pressure on the already stressed water supply systems.

Groundwater is the primary source of water supply. Aquifer yields to meet the growing water demand have already become limited. Consequently, all the cities are facing a shortage of water supply sources. However, all the WASAs already started using surface water and trying to shift from ground water to surface water-based supply system. These surface water-based water supply systems require higher investments than groundwater-based systems due to the necessity of treatment.

Currently, around 67 percent of the water of Dhaka WASA comes from underground sources and the rest 33 percent from surface water. There are 997 Deep tube-wells through which the groundwater is abstracted. There are five water treatment plants in different parts of the city. These are Chandni Ghat Water Works, Saydabad Phase 1, Saydabad Phase 2, Padma Water Treatment Plant, and the Savar Vakurta Well Field. The water of the rivers Shitalakhya, Buriganga, and Padma is being treated and supplied in the city. The present demand for water is 265-270 million liters per day (MLD), though Dhaka WASA has a capacity for water production of 275 million liters per day from the existing available infrastructures and installations. Some of the upcoming water supply projects of Dhaka WASA are (i) Restoration of water bodies for sustainable water management in Dhaka Watershed, (ii) Expanding Dhaka Water Supply Resilience Project (EDWSRP), and (iii) Pilot Project of Smart Meter System for Smart Water Management in Dhaka City, Bangladesh (DWASA, 2023)**.**Eighty percent of the supplied water by the Chattogram WASA

comes from surface water sources from the rivers Karnaphuli, Halda and Mohora. One of the upcoming water supply projects of Chattogram WASA is the Mohra Water Supply Project (Phase-II) aimed mainly to cover Sitakundu and Mirarsorai Economic Zones as well as increasing the competency of CWASA (CWASA, 2023). Khulna WASA uses surface water from the Modhumoti River, some 55 km away from Khulna city, to supply water to its dwellers, which is 80 percent of the total water supplied. A new surface water treatment plant using water from the Padma river is being implemented by Rajshahi WASA to increase surface water coverage to 100 percent for providing treated water to people of the city and its outskirts(RWASA, 2023).

Still, some people collect contaminated water from rivers and ponds or carry water from distances. The water points, like hand pump tube-wells, are not appropriate for Dhaka and Chattogram cities because of the low capacity of hand tube-wells. As hand tube-wells abstract water mostly from shallow aquifers, these are vulnerable to contamination from the densely spaced septic tanks and pit latrines. Thus, the large cities have to rely on piped water systems. In Khulna City Corporation (KCC), there are deep hand tube-wells, and in Rajshahi City Corporation, there are shallow hand tube-wells.

The O&M of the water supply system is inadequate, as reflected in high water losses or what is technically termed as Unaccounted for Water (UfW). The UfW in Dhaka WASA was five percent(DWASA, 2023). In Chattogram, Khulna, and Rajshahi WASAs, the percentage of UfW was 15 (2021-22), 22 (2023), and 28 (2023), respectively. Periodic maintenance of the systems is not done regularly, resulting in leakages in pipelines and early corrosion of pipes, wells, and machinery. All the WASAs supply water 24/7 except Rajshahi. Supply becomes inadequate during the dry season, creating water scarcity in some areas. Moreover, sometimes, the water supply is disrupted by power outages. Dhaka WASA can recover only a part of the investment cost, whereas Chattogram, Khulna, and Rajshahi WASAs can hardly recover the O&M costs. The status of water supply in the four WASAs is depicted in Table 2.1.

Table 2.1: Water supply status of WASAs (Dhaka, Chattogram, Khulna and Rajshahi).

Water Supply System Profile	WASAs			
	Dhaka	Chattogram	Khulna	Rajshahi
Estimated Population in 2022 (million) (BBS 2022)	10.61	3.33	0.74	0.57
Daily Water Production (m^3)	2,650,000	500,000	110,000	123,800
GW source (No. of PW)	997	49	41	111
SW source (No. of Treatment Plant)	5	4	1	1
Pipeline (km)	4500	962	650	860
House Connection (Nos.)	388,428	78,198	40,368	48,645
Supply Hours	24	24	24	20-24
Water Supply Coverage (%)	> 99	94	73	88
UfW (%)	5	22	15	28

2.2.2.2 Sanitation

Dhaka city has sewerage systems covering 30 percent of the city area. According to the sewerage master plan, Dhaka city is divided into five sewerage catchment areas: Dasherkandi, Mirpur,

Rayerbazar, Pagla, and Uttara (DWASA, 2012). Five sewage treatment plants would be built by 2030 to serve the core area of Dhaka city (DWASA, 2022).Meanwhile, the Dasherkandi sewerage treatment plant was completed and commissioned in 2022, although the associated sewer network is yet to be constructed; the Pagla sewage treatment plant is being upgraded. Feasibility studies /land acquisition for Uttara, Rayerbazar, and Mirpur plants have started. Figure presents the master plan catchment areas of Dhaka WASA.

There is no sewerage system in central Chittagong or the surrounding urban paurashavas. Chattogram city is entirely dependent on on-site sanitation systems. A Sanitation Improvement Strategy and Master Plan (2016-65) was prepared in 2017. The master plan proposed for a conventional separate sanitary sewerage system for 58.7 percent population. For the rest of the 41.3 percent population, the Dry Weather Flow Interceptors (DWFI) system was proposed in areas where constructing a new separate sanitary sewerage system is impractical due to space and connection restrictions. In these areas, efficient FSM schemes and upgrading of septic tanks would be provided. The boundaries of the sewerage catchments of the sewerage master plan are shown in Figure 2.2.

Chattogram WASA is about to introduce a sewerage system in the city. A project is being implemented to construct 100 million liters per day capacity sewage treatment plant, a 300m^3/day capacity fecal treatment plant, and the installation of 200 km sewer lines.

Figure 2.1: Master plan Catchment Areas of Dhaka WASA (DWASA, 2012)

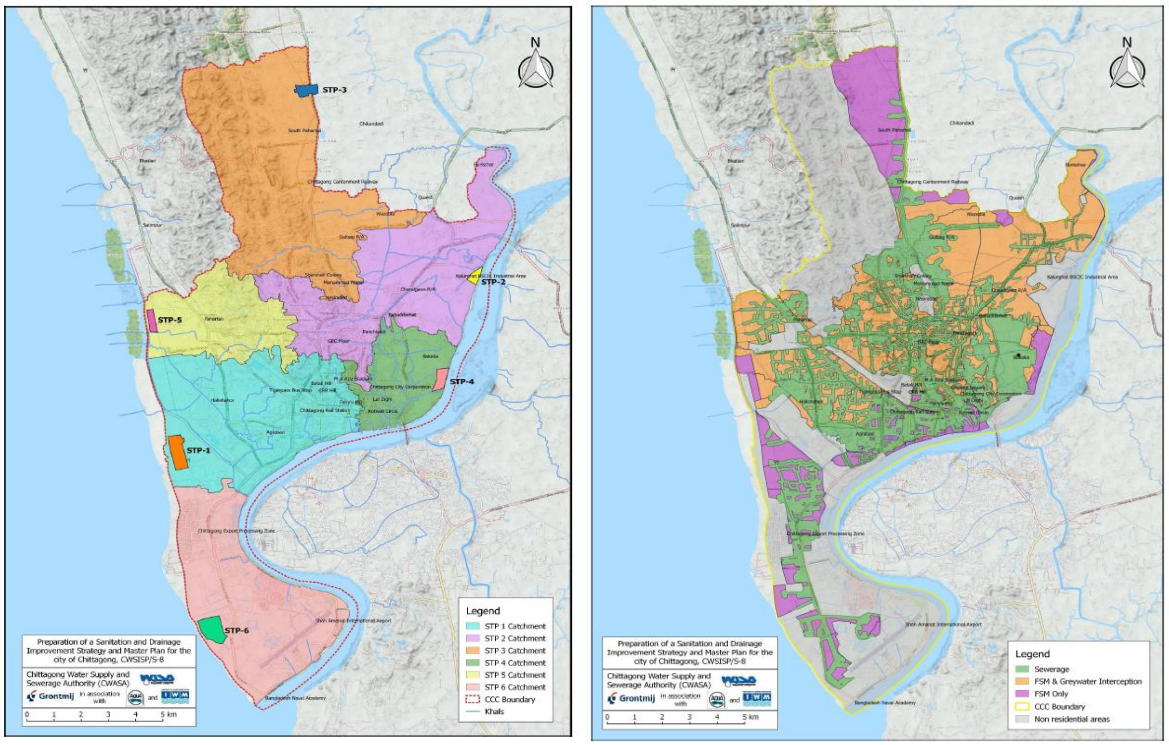


Figure 2.2: Proposed STP locations and corresponding treatment catchments and sanitation master plan (CWASA, 2017)

A feasibility study for a centralized wastewater management system for Khulna City Corporation (KCC) was concluded prior to framing up a master plan for a 20-year project horizon (from 2016 to 2035) in 2016.Khulna WASA has been implementing a project titled 'Khulna Sewerage System Development Project' to establish a sewerage system with a proper treatment facility in Khulna city and to ensure improved public health protection. KCC established a fecal sludge treatment plant of 180 cum per day capacity in an area of 1.3 acres in a sub-urban area(CSE India, 2024). Composts are being produced from the septage, and an initiative has been taken to produce biogas and electricity from the plant.

At present, there are no sewage treatment plants (STP) and a systematic sewer network in the Rajshahi City Corporation. A Preliminary Development Project Proforma /Proposal (PDPP) for an aided project titled 'Sewerage System in Rajshahi City' was prepared by Rajshahi WASA in 2022 based on the master plan prepared in 2012.

Overall, 30 percent of areas, covering 20 percent of the population of Dhaka city, are served by sewerage systems. In the rest of Dhaka city and all other cities with WASAs, onsite options, such as septic tanks, pit latrines, or unhygienic latrines, are used. Many buildings in large cities, including high-rises, are not connected to any sanitation systems, or their septic tanks often overflow and discharge their effluents into drains or directly into lakes, canals, and rivers, causing severe pollution and health hazards in densely populated areas. The sanitary conditions of urban slums are not pleasant. A few slum dwellers have no other option than to dispose of waste in drains, open fields, roadsides, or banks of a water body.

2.2.2.3 Solid Waste

The WASH and Solid Waste Management (SWM) are complicatedly linked. They may seem like separate issues, but they significantly impact each other. Poor solid waste management can negatively impact WASH. On the contrary, certain WASH practices can create challenges for SWM. Thus, a strong linkage exists between WASH and SWM. By recognizing these connections and working towards integrated solutions, communities can achieve better public health outcomes, environmental sustainability, and resource efficiency.

At present, in city corporations with WASAs, solid waste is accumulated from various sources such as (i) residential activities, (ii) industrial activities, (iii) commercial and business activities, (iv) educational activities, (v) hotel and restaurant related activities, (vi) healthcare activities, and (vii) street, park, and other public places. Residential activities produce more than two-thirds of the total solid waste. The total solid waste generated in city corporations in 2020-21 was 3.55 million metric tons (MTs). Of these, 3.48 million MTs were collected, which was 98 percent of the total waste(BBS, 2023a). All the city corporations follow almost the same procedure to manage solid waste. City corporation workers sweep the roads and open drains and accumulate waste somewhere on the roadside. Another group of workers collects and transfers to the nearest dustbins or containers. Afterward, city corporation trucks dump waste into the dumping depots (generally landfills) and are then dressed by bulldozers, tire dozers, pay loaders and excavators, and even sometimes manually.

In city corporation areas, solid waste is collected through door-to-door service at least one day of the week or regularly collected from a bin or any fixed place, generally at a distance of 200 meters or less on specified days of the week.

Waste is disposed of by dumping in landfills (solely managed and controlled by city corporations), dumping in locations near a river or canal that cannot be considered as designated landfills; by recycling; and by other types of disposals (burial in a pit, burning in open places, taken by another organization through service agreement). More than 80 percent of the solid waste is disposed of by dumping in landfills, 4.14 percent by recycling, and 13.55 percent is disposed of by other types of disposal in the city corporations (BBS, 2023a).

There are 20 landfills in the city corporation. Of these, there is only one sanitary landfill at Matuail in the Dhaka South City Corporation. Among the others, 17 landfills are without the scope of covering and compaction, and two with the scope of covering and compaction (BBS, 2023c).

The current SWM system is inadequate and inefficient. Some of the waste generated is not collected, instead disposed of in open dumps or burned, which poses a severe threat to public health and the environment.

The government of Bangladesh is aware of the challenges of SWM and has taken steps to address them. In 2021, the government enacted the *Solid Waste Management Rules (2021),*which provide a framework for improving SWM in the country. The rules also introduce Extended Producer Responsibility (EPR), which requires producers to take responsibility for managing their products after they have been consumed.

The *National 3R Strategy for Waste Management* (2010) is a comprehensive framework for improving waste management in the country. The strategy focuses on the three pillars of waste management: reduce, reuse, and recycle (3R).

Medical wastes account for a very small fraction, about one percent of the total solid wastes generated in the country. However, when this tiny amount is not handled properly, it gets mixed with domestic solid waste, and the whole waste stream becomes potentially hazardous. Medical

wastes were generally disposed of in the same way as ordinary domestic waste. However, the government developed a system to handle medical waste properly and enacted the *Medical Waste (Management and Processing) Rules* (DoE, 2008).

In recent years, multiple entities in Bangladesh have worked towards preventing the dangers of mismanaged medical waste, like PRISM Bangladesh, Waste Concern, the Centre for Sustainable Development (CSD), the Environment and Social Development Organization (ESDO), and the International Center for Diarrheal Disease Research, Bangladesh (ICDDR,B) (Nafiz Farhan, 2023).

2.2.2.4 Drainage

The existing internal drainage systems of Dhaka city consist of storm sewer lines, surface drains and open channels (locally known as Khals) that ideally carry the storm water as well as a part of the wastewater generated in the city to the surrounding rivers. About 380 km of storm sewer lines cover about 140 sq km (40 percent coverage area) of Dhaka, 65 km of open channel and 8.75 km of box culverts under Dhaka WASA make up the storm water system of Dhaka.

In parallel with Dhaka WASA, Dhaka city corporations also provide drainage facilities, mainly surface drainage, including tertiary drains and pipes within the city corporation boundary. A few years ago, Dhaka WASA handed over the responsibility of drainage system management and canals to the city corporations to solve the water logging woes. Dhaka WASA, Dhaka South City Corporation, and Dhaka North City Corporation signed a memorandum of understanding (MoU) in order to recover all the illegally grabbed canals of Dhaka city.

Chattogram is a hilly city; every day, unscrupulous people are slicing away hills. The major canals running through Chattogram city are Chaktai Khal, Rajakhali Khal, Mahesh Khal, Jamal khan Khal and Nasir Khal. All these canals play very important roles in draining rainwater out to the Karnaphuli River in the south of the city. However, these canals have all been narrowed down, and many have disappeared in different places. Moreover, when it rains, the sandy soil from the hills gets washed away and falls into the canals, filling them up and blocking the water flow, which is a reason for water logging in the city, amongst other reasons. The problems of water logging worsen during the monsoon season every year due to heavy rains, disrupting daily lives and local businesses. The total area of Chattogram city is 155 sq. km, and there are about 972 km of drains of different sizes to facilitate storm water drainage in the city (CCC, 2021).

Khulna city has a topography sloped towards the southwest, which helps natural drainage. However, unplanned spatial activities and habitation are causing encroachment on retention areas and natural drainage paths with little or no care for the natural drainage system. The major problems related to drainage are mainly the lack of proper cleaning and maintenance, unplanned drain construction, and encroachment of drainage paths for the development of other infrastructures. Khulna city has 1165 km of different types of drains, built and maintained by the city corporation (KWASA, 2023).

Rajshahi City Corporation (RCC) has a drainage system aimed at freeing the city from water logging. The city has 44.80 km of primary, 42.69 km of secondary and 41.78 km of tertiary drains (APN, 2023).

2.2.3 City Corporations (without WASA) and Paurashavas

2.2.3.1 Water Supply

As mentioned earlier, at present, there are 12 city corporations in the country, of which WASAs operate in six city corporations. The city corporations not having WASAs are Barishal, Cumilla, Gazipur, Mymensingh, Rangpur and Sylhet. Amongst these cities, the water supply systems of Barishal and Sylhet use surface water as a source along with groundwater. The other four cities (Cumilla, Gazipur, Mymensingh, and Rangpur) use groundwater as a source for their water supply systems.

Other than city corporations, there are also 330 paurashavas at the district level, upazila level and even outside the district and upazila headquarters. Urban areas are also declared as paurashavas from time to time, as this upgradation is a continuous process. Thus, the number of city corporations and paurashavas also increases with time. The water supply systems development in the city corporations without WASAs and many of the 330 paurashavas took place on an ad hoc basis, mostly according to financial availability in the development projects under which these were established. The DPHE has been supporting them in development and also for the expansion of existing piped water supply systems. On the other hand, the preparation of master plans/projects for the establishment of piped water supply systems for the paurashavas having no piped water supply systems, and is a continuous process in newly created paurashavas.

At present, out of 330 paurashavas, 159 have piped water supply systems, and in 88 paurashavas, piped water supply systems are under implementation. Projects are in the pipeline to establish a piped water supply in 55 paurashavas, and feasibility studies are underway in the rest of the paurashavas (data source: DPHE). At present, in the paurashavas, where there are no piped water supply systems, mostly hand are used for drinking water supply. A little more than 11 percent of households in the country use piped water (BBS, 2022a). Piped water supply systems of the paurashavas cover mostly the core urban areas. People who live in peri-urban and suburban areas mostly use hand tube-wells for water sources. In recent years, in some areas motor motor-driven submersible pumps have become popular as sources of water for household use.

In the city corporations and the paurashavas, the periodic maintenance of the water supply systems sometimes is not done properly. Periodic maintenance requires regular inspection of the system, leak detection and quick repair, maintenance and replacement of pipeline fittings and other parts, regular flushing of pipelines, and regeneration of production wells (PWs). Due to the lack of proper maintenance, the systems deteriorate quickly. Experience showed that, within a few years after the completion of development works, some systems got abandoned as the PWs did not remain functioning, and pipelines started leaking and so on. In some cases, the authorities do not pay attention to disinfecting water with bleaching powder or chlorine due to a shortage of skilled manpower, among other reasons. Customer care service is almost absent in water supply services. In many paurashavas, water is supplied only during a few hours of the day, causing less pressure in the pipeline during non-supply hours. Low pressure in the pipelines allows the contaminants to seep into the pipes through leakages. As a result, water gets contaminated, deteriorating in quality and creating health risks. However, an endeavor is underway by DPHE to provide training to the paurashavas' concerned staff, in order to develop systems to record and respond to customer complaints. The absence of demand management is the main drawback of the operations of the present systems.

In most paurashavas, there are no water meters. As a result, consumption depends on supply availability rather than price. A considerable amount of water is wasted at the user level by allowing it to flow freely during supply hours, often due to carelessness.

Recent data shows that 31 percent of households in the urban areas of the country use piped water supply, and 67 percent use different types of tube-wells (Table 2.2). The JMP (2022a) data is also in line with the BBS data, with 33 percent improved piped water coverage and 67 percent improved non-piped water coverage (Table 2.3). The JMP estimate also reveals that 54 percent of urban populations get safely managed services and 44 percent of populations get basic services (Table 2.4). Moreover, water is available to 97 percent of the urban population, of which 85 percent get on-premises and 54 percent get contamination-free water (Table 2.5).

Table 2.2: Number of households by main source of drinking water in the urban areas (BBS, 2022a)

Type of water sources	Number of households by main source of drinking water	percentage
Tap/pipe(supply)	3,971,720	31.4
Tubewell (deep/shallow)	8,426,295	66.6
Bottled/ Jar water	110,813	0.9
Well	28,588	0.2
Pond/river/canal/lake	60,912	0.5
Spring	9,145	0.1
Rainwater	38,075	0.3
Others	3,366	< 0.1
Total	12,648,914	100.0

Table 2.3: Urban water supply coverage by facility type (JMP, 2022a)

Facility type	Population (million)	Coverage (percentage)
Piped improved	22.37	32.9
Non-piped improved	45.27	66.6

Table 2.4: Urban water supply by service level (JMP, 2022a)

Service level	Population (million)	Coverage (percentage)
Safely managed service	36.84	54.2
Basic service	29.62	43.6
Limited service	1.18	1.7
Unimproved	0.17	0.3
Surface water	0.16	0.2

Table 2.5: Urban water coverage by safely managed element (JMP, 2022a)

Safely managed element	Population (million)	Coverage (percentage)
Available	65.66	96.6
On premises	57.57	84.7
Free from contamination	36.84	54.2

2.2.3.2 Sanitation

No other city in the country has a sewer system except part of Dhaka city. In all other urban areas, onsite sanitation options are used. In the urban areas, toilet facilities having safe disposal with flushing/pouring water are used by 71 percent of households, pit latrines with slab/ventilated improved latrines/ composting latrines are used by 13 percent households (Table 2.6).The paurashavas and national development projects provide water-sealed pit latrines for low-income communities.

Table 2.6: Toilet facilities by household in the urban areas (BBS, 2022a)

Type of toilet facilities	Number of households	Percentage
Safe disposal with flushing/pouring water	8,991,591	71.1
Unsafe disposal with flushing/pouring water	1,382,371	10.9
Pit latrine with slab/ventilated improved latrine/ composting latrine	1,705,089	13.5
Pit latrine without slab/open pit	286,178	2.3
Kancha/open/hanging latrine(permanent/temporary)	227,063	1.8
Open defecation/no latrine available	56,622	0.4
Total	12,648,914	100.0

Further, in urban areas, the population under safely managed service and basic service is 29 percent and 27 percent, respectively (Table 2.7). Likewise, considering safely managed elements, coverage by 'disposed in situ' and 'sewage treated' is 20 percent and eight percent, respectively (Table 2.8).

Table 2.7: Urban sanitation coverage by service level (JMP, 2022a)

Service level	Population (million)	Coverage (percentage)
Safely managed service	19.55	28.8
Basic service	18.11	26.6
Limited service	23.58	34.7
Unimproved	6.74	9.9
Open defecation	0.00	0.0

Table 2.8: Urban sanitation coverage by safely managed element (JMP, 2022a)

Safely managed element	Population (million)	Coverage (percentage)
Disposed in situ	13.85	20.4
Sewage treated	5.69	8.4
Fecal Sludge treated	0.00	0.0

The desludging of the pit latrines and septic tanks and the safe disposal of waste are worrying environmental problems. Although sanitation coverage in urban areas is comparable to rural areas, the negative impact is worse in urban areas because of the high population density. With more people living in urban areas in the future and with increasing population density, there exists a chance that the environmental situation will further deteriorate, especially in urban slums.

2.2.3.3 Hygiene

SDG target for hygiene is – access to all basic hand washing facilities with water and soap in the households. Urban Bangladesh has become more sensible than before in practicing improved hygiene behavior, particularly hand washing after the incidence of COVID-19. Yet, challenges persist. While awareness of hand washing is high, limited space for facilities and inconsistent water quality remain hurdles. Socioeconomic disparities further complicate matters, with poorer residents lacking proper facilities and struggling to prioritize hygiene practices. Continued efforts in infrastructure development, promoting behavior change, and ensuring equitable access are vital to creating truly hygienic and healthy urban environments. Recent data shows that in urban areas, in 80 percent of households, people wash their hands with soap and water, seven percent of households have no separate arrangements for hand washing, and the rest of the households have incomplete arrangements for hand washing (BBS, 2022a).

2.2.3.4 Solid Waste

The disposal procedure for solid waste in paurashavas is the same as that of city corporations. There are three categories of paurashavas. The large paurashavas are A-category, medium paurashavas are B-category and small ones are C-category. It is revealed from recent data that bigger cities/towns generate more waste than smaller ones, and the population covered by waste collection activities is greater in bigger cities/towns. Recent data also shows that the waste collection efficiency of city corporations is 98 percent, whereas the figures in paurashavas are: 61 percent in A-category paurashavas and 59 percent in B-category paurashavas. Only about three percent of hazardous wastes are treated in city corporations and a very small percentage in A-category paurashavas. Almost all the hazardous wastes remain untreated. (Table 2.9).

Table 2.9: Different categories of waste management in the paurashavas of the country in 2020-21 (BBS, 2023a)

Descriptions (unit)	City Corporation	Paurashava		
		A- Category	B-Category	C-Category
Waste generation per day per sq. kilometer (MT)	6.77	2.58	0.96	0.77
Waste collection efficiency (percentage)	97.98	60.96	59.03	90.08

Descriptions (unit)	City Corporation	Paurashava		
		A- Category	B-Category	C-Category
Population covered by waste collection activities (percentage)	85.83	69.42	64.15	59.11
Recycling rate by paurashava itself (percentage)	4.05	2.46	2.17	0.00
Treatment of hazardous waste as a percentage of total waste (percentage)	2.69	0.11	0.00	0.00

As of 2020-21, the total number of landfills in paurashavas was 474. Of these, 11 were sanitary landfills and 20 with the scope of covering and compaction. Survey data showed that 45 percent of the urban population had access to basic services of collection through door-to-door service at least one day a week, and 39 percent urban population had access to a collection point at a distance of 200 meters or less regularly or on specified days of the week.

2.2.3.5 Drainage

City corporations and paurashavas face problems due to unplanned and unstable urban infrastructural development. Drains are constructed to remove rain and sullage water (grey water) or excess water from any surface or sub-surface area. In most paurashavas or other urban areas, drains are built on an ad-hoc basis without the proper size and gradient. However, nowadays, the master plans of paurashavas are being prepared by DPHE and LGED, incorporating the drainage system and have started implementation accordingly. At present, where there is no proper drainage system, sullage water is collected in open roadside drains and discharged into the nearby canals and other water bodies, as sullage water is usually less polluted than sewage.

2.2.4 Urban Slums

A total of 1.86 million people in the country live in slums. Slum dwellers mostly live in large cities. Dhaka has 0.91 million, Chattogram 0.56 million, Khulna 0.14 and Rajshahi 0.07 million slum dwellers. And the remaining 0.18 million live mostly in Barisal, Rangpur, Mymensingh and Sylhet (BBS, 2022a). Almost half of the slum dwellers live in Dhaka city. According to Dhaka WASA, they provided water connections in 80 percent of the slum areas in the city. In other cities, hand pumps are mostly the source of drinking water in the slums. Sanitation facilities in the urban slums are being built by city corporations and NGOs. Rajshahi City Corporation built 11,000 hygienic latrines in the slums during the last couple of years.

In city corporations and some large paurashavas, slums are dominant and have visible urban features. In small paurashavas, low-income urban communities are generally concentrated in their small lands with little or no access to urban infrastructure. A study on slum areas of eight wards (2, 8, 12, 13, 14, 15, 16 and 23) of Chattogram city corporation showed that the majority of slum households (59 percent) used pit latrines with slabs (Ferdous et al., 2022). The pit latrine without a slab was used by 22 percent of the population. Another 15 percent of the population used an open-air hanging toilet. And four percent of the slum population used open fields as their toilet (Table 2.10). It was also revealed from the study that using those types of toilets, they face different types of problems, such as disease-associated symptoms like diarrhea, and skin irritations are more

frequent (64 percent). Thirty-five percent did not have any permanent toilet structure. Twenty percent of people were using toilets that were built in a risky way and were not safe (Table 2.11). Safe disposal of excreta is very important for the environment. The study further showed that only 45 percent of people in the slum had some ideas about the sanitation system, and the rest 55 percent did not have any idea. About 49 percent population of slums found their toilet clean enough to use, and about 49 percent of the population did not think that their toilets were satisfactorily clean.

Table 2.10: Types of toilets in slum areas of Chattogram city (Ferdous et al., 2022)

Types of toilets in slum areas	Percentage
Pit Latrine without a slab	21.8
Pit latrine with slab	58.9
Hanging toilet	15.3
Open field toilet	4.0

Table 2.11: Problems of using toilets in slum areas of Chattogram city (Ferdous et al., 2022)

Problems of using toilets in slum areas	Percentage
Disease	63.7
Safety	34.8
Far from house	33.3
No problem	16.9
Located in danger zone	20.4

2.3 RURAL AREAS

2.3.1 Rural Service Delivery

There are different service delivery mechanisms for WASH in rural areas as follows:

Public Sector: The public agencies, mainly the DPHE, plan and implement water supply and sanitation facilities. The DPHE district Executive Engineers and sometimes project authorities (Project Directors/ Managers) at the district/ divisional/ central level engage private contractors to install/build the facilities.

LGIs: At the union level, site selections for the facilities (like water sources and latrines) are done by the union parishads following certain criteria. The upazila parishads also provide water supply options and sanitary latrines free of cost to the poor communities out of their ADP block allocation earmarked for water supply and sanitation.

NGOs: The NGOs themselves are the 'service providers.' They plan and implement schemes in close consultation with the communities. The implementation works are carried out either by the communities themselves or by the private contractor engaged by the NGOs.

Private Sector: Individual households or buyers directly purchase tube-wells and sanitation units from the market and install them on their own.

2.3.1.1 Water Supply

The rural water supply in Bangladesh is predominantly groundwater-based. Groundwater is generally colorless with little or no suspended solids, has a relatively constant temperature, is usually free from pathogens, and is generally not treated for domestic use. The detection of arsenic contamination in groundwater in the 1990s was a major setback for the water supply sector in Bangladesh. The southern, south-central and north-eastern regions of Bangladesh are particularly affected by arsenic contamination of groundwater.

The government made significant progress in addressing the arsenic problem, but it remains a challenging issue. High iron concentration in groundwater is quite common in many regions of Bangladesh. Although iron does not pose any adverse health threat, it could significantly reduce the acceptability (from aesthetic considerations) of water for domestic use, especially if concentrations become too high. High iron concentrations are often associated with high arsenic concentrations. High concentrations of manganese have also been detected in some areas of the country. Moreover, in recent years, fecal contamination has been detected in groundwater extracted from shallow aquifers. The close proximity of latrine pits to tube-wells is thought to be a potential source of fecal contamination of shallow groundwater.

The soil is mostly stratified and formed by alluvial deposits of sand and silt, having occasional lenses of clay. The easy drilling of tube-wells, particularly in shallow aquifers, enabled millions of hand-pump tube-wells to be installed throughout the country.

Shallow tube-wells are Bangladesh's most commonly used tube-wells for drinking water supply. These tube-wells are used to extract water from shallow aquifers, which are mostly unconfined. The depth of a shallow tube-well is up to 60 meters. Deep Set Pump (DSP) tube-wells (commonly known as Tara or Tara Dev head or Super Tara) are used where the water table goes down, and water cannot be extracted under atmospheric (suction) pressure. In practical cases, when the water table (or piezometric head) goes down beyond six meters, the pumping arrangement must be placed below the water table at a lower depth. Tara, Tara Devhead, and Super Tara are the different types of deep-set pumps, depending on the depth and pumping arrangement. Deep-set pump shallow tube-wells are known as Shallow Tara tube-wells, and deep-set pump deep tube-wells are known as Deep Tara tube-wells. Deep tube-wells are installed to extract water from deep aquifers, which are usually confined. Deep tube-wells are usually installed at a depth of 150 meters or more. There are also tube-wells between 60 to 150 meters, those are actually tube-wells with medium depth, sometimes classified as Shallow tube-well, if in the shallow aquifer (unconfined) zone and sometimes as Deep tubewell, if in the deep aquifer (confined) zone.

There are places where suitable groundwater sources are not available or cannot be used for household purposes due to arsenic contamination or salinity, mostly in shallow aquifers. In those areas, community-based technologies, usually known as Alternative Technologies, are used. Alternative Technologies include Pond Sand Filter (PSF), Protected Dug Well (also known as Ring Well) and Rain Water Harvester (RWH), among others. Contaminant removal technologies such as Arsenic-Iron Removal Unit (AIRU) and Reverse Osmosis (RO) plant are also being used. Shallow Shrouded Tube-wells (SSTs) and Very Shallow Shrouded Tube-wells (VSSTs) are used in some pocket areas in the saline coastal belts to capture infiltrated water at shallow depths.

The Managed Aquifer Recharge (MAR) system has been successfully piloted in the coastal region of the country(WASH-FN, 2018). The systems, which store freshwater in the ground, can help provide resilience against the impacts of cyclonic surges, providing safe water when other traditional sources have been damaged by floods. The technical and social feasibility of MAR as a climate-resilient, rural water supply option has been demonstrated. The systems have the

potential to be used throughout Bangladesh in low-lying areas affected by saline intrusion, rising sea levels and storm surges, to safeguard water supply and climate resilience.
In recent times, due to access to electricity in rural areas, the use of submersible pumps to yield water has become popular. In some cases, multiple hand pumps are used by different households from a single tubewell where groundwater availability is limited. Promotional activities for solar power-driven tube-wells (with submergible pumps) and other alternative sources are underway.
Piped Water Supply (PWS) in rural areas is becoming common gradually, and attempts have been made under different projects by the DPHE to establish piped water supply systems in different parts of the country, focusing on local demand. NGOs are also promoting small-scale piped water supply systems in the rural areas. At present, about two percent of the population in rural areas is under piped water supply coverage.
Hand pump tube-wells are prime drinking water sources in Bangladesh's rural areas. Some of those are being installed by the public sector, mostly through DPHE. Most shallow tube-wells at household levels are installed by people on their own because of comparatively low-cost involvement and ease of installation by locally available skilled manpower in the private sector. However, other types of hand tube-wells and alternative technological options are installed predominantly by DPHE because of technical reasons as well as higher cost involvement. As of June 2023, the country had 1.975 million public running water points (tube-wells and alternative options) (Table 2.12). Moreover, there were 0.383 million dysfunctional water points due to various reasons like arsenic contamination, an increase in salinity, a lowering of the groundwater table, and theft of different parts.

Table 2.12: Numbers of running public water sources in the rural areas throughout the country up to June 2023 (Source: DPHE Progress Report, June 2023)

Types of Water Supply Technologies	Number	Percentage
Shallow Tube-wells	788,636	39.9
Shallow Tara Tube-wells	191,872	9.7
Deep Tube-wells	752,888	38.1
Shallow Tara Deep Tube-wells	129,130	6.5
Alternative Technologies		
SST/VSST	8,127	0.4
PSF/IG	3,779	0.2
Ring Wells (protected dug well)	34,896	1.8
Rainwater Harvesting System (RWHS)	57,040	2.9
Others	8,890	0.5
Total	1,975,258	100.0

In the case of PSFs, dysfunctionality occurs due to contamination of ponds, lack of O&M, and, unfortunately, the community's unwillingness to manage properly. The number of dysfunctional water points was more than 16 percent of the total public water points in the country.

The number of shallow tube-wells installed by the users themselves is much higher than that of the DPHE. About 26.4 million households are using shallow/deep tube-wells followed by only 0.51 million using tape/pipe water as potable water sources (Table 2.13).

Organizations like LGED, upazila parishads, union parishads and NGOs also install tube-wells and other water points in rural areas. A nationwide census is required to depict an accurate scenario of the rural water supply system.

Table 2.13: Number of households by main source of drinking water in the rural areas (BBS, 2022a)

Type of water sources	Number of households by main source of drinking water	percentage
Tap/pipe(supply)	512,744	1.9
Tubewell (deep/shallow)	26,399,121	95.6
Bottled/ Jar water	117,606	0.4
Well	110,086	0.4
Pond/river/canal/lake	298,340	1.1
Spring	36,396	0.1
Rainwater	124,667	0.5
Others	9,804	<0.1
Total	27,608,764	100.0

In rural areas, 62 percent population is under a safely managed service, followed by 36 percent under a basic service (Table 2.14). It also reveals that water is available to 96 percent population, available on-premises to 82 percent, and 62 percent get water free from contamination. (Table 2.15)

Table 2.14: Rural water supply coverage by service level (JMP, 2022a)

Service level	Population (million)	Coverage (percentage)
Safely managed service	64.35	62.4
Basic service	37.12	36.0
Surface water	0.89	0.9
Limited service	0.85	0.8
Unimproved	0.00	0.0

Table 2.15: Rural water supply coverage by safely managed element (JMP, 2022a)

Safely managed element	Population (million)	Coverage (percentage)
Available	99.29	96.2
On premises	84.81	82.2
Free from contamination	64.35	62.4

2.3.1.2 Sanitation

Pit latrines are the most common sanitation facilities used in rural areas of Bangladesh. Pit latrines are of different types, broadly single-pit and twin-pit. There are other types: pit latrines with slab and without slab, and VIP latrines. Moreover, pit latrines can be further categorized as having a water seal or without a water seal. The other types of latrines are latrines with septic tanks, composting toilets, eco-san toilets, etc. CEGIS (2022)conducted a study in 2022 and revealed that more than 56 percent of households were using pit latrines. MICS (2019)data showed that around 23 percent of rural households used shared latrines.

The household latrines are mostly built by people on their own. Moreover, DPHE has been providing different types of latrines to the poorest quartiles free of cost and others at a subsidized cost under different project provisions. NGOs are also constructing various types of latrines that contribute to increased coverage. In rural areas, there are 13.43 million households, which have latrines with safe disposal with flushing/pouring water, followed by 7.14 million households, which have pit latrines with slab/ VIP latrines/ composting latrines (Table 2.16).

Table 2.16: Toilet facilities by household in the rural areas (BBS, 2022a)

Type of toilet facilities	Number of households	Percentage
Safe disposal with flushing/pouring water	13,427,863	48.6
Unsafe disposal with flushing/pouring water	3,812,237	13.8
Pit latrine with slab/VIP latrine/ composting latrine	7,138,546	25.9
Pit latrine without slab/open pit	1,377,437	5.0
Kancha/open/hanging latrine(permanent/temporary)	1,412,283	5.1
Open defecation/no latrine available	440,398	1.6
Total	27,608,764	100.0

In rural areas, the population under safely managed service and basic service is 32 percent and 29 percent, respectively (Table 2.17). Furthermore, considering safely managed elements, coverage by ‘disposed in situ’ and ‘sewage treated’ is 32 percent and point three (0.30) percent, respectively (Table 2.18).

Table 2.17: Rural sanitation coverage by service level (JMP, 2022a)

Service level	Population (million)	Coverage (percentage)
Safely managed service	33.48	32.4
Basic service	30.37	29.4
Limited service	20.85	20.2
Unimproved	18.52	17.9
Open defecation	0.00	0.0

Table 2.18: Rural sanitation coverage by safely managed element (JMP, 2022a)

Safely managed element	Population (million)	Coverage (percentage)
Disposed in situ	33.19	32.2
Sewage treated	0.29	0.3
Fecal Sludge treated	0.00	0.0

2.3.1.3 Hygiene

Rural Bangladesh faces a complex situation regarding hygiene practices. Increased access to basic sanitation facilities like pit latrines is a positive step. Hand washing with soap is gaining awareness, but consistent practice, especially during critical times, is a hurdle. Sometimes, water scarcity and potential contamination from surrounding environments are concerns. Traditional practices and limited access to soap can hinder consistent hand washing. Economic constraints often limit access to soap and water for proper hygiene, particularly for women and girls during menstruation. Overall, progress is being made, but significant work is needed to bridge the gap between knowledge and consistent practice to ensure good hygiene reaches all cornered. Recent data shows that 65 percent of people in rural households wash their hands with water and soap, 13 percent have no separate hand washing arrangements, and the rest have incomplete hand washing arrangements (BBS, 2022a).

2.4 CHATTOGRAM HILL TRACTS (CHTs)

2.4.1 Institutional Setup

The Chattogram Hill Tracts (CHTs) are a mountainous region in southeastern Bangladesh, with elevations ranging from 60 meters to more than 1,000 meters, bordering India and Myanmar. CHTs comprise three hilly districts: Bandarban, Khagrachari and Rangamati. The area of CHTs is nine percent of the country's total area and little more than one percent of the total population of the county lives there. With an area of 13,295 Km^2, the CHTsare home to a diverse indigenous people. About 1.90 million people living in the CHTs, including the Chakma, Marma, Tripura, Tanchangya, Assamese, Keot (Kaibarta), Chak, Pankho, Mro, Murang, Bom, Lushei, Khyang, and Khumi. These indigenous peoples make up about half of the population of the CHTs. There are 119 unions, 26 upazilas and seven paurashavas including three CHT districts headquarters.

The institutional setup of CHTs is quite different from that of other parts of the country. There is a traditional system of tribal administration (the kingships of Chakma, Bomang and Maung). Following the CHTs Peace Accord (1997), in addition to the national government systems (District Commissioner at the district level and Upazila Nirbahi Officer (UNO) at the upazila level), the Regional Council (RC) and three Hill District Councils (HDCs) were established for administration and development matters. A separate ministry, the Ministry of CHT Affairs, was also established according to the provisions of the CHT Peace Accord. The CHT RC and HDCs work under this ministry. Following the establishment of the HDCs, 18 government departments and agencies, including the DPHE, were deputed under the HDCs as transferred subjects.

The present form of institutional arrangement for the CHTs is complex, particularly for delivering the WASH services. The sector planning, budgeting and allocation functions are carried out by the LGD, while the implementation of activities at the local level is carried out by the DPHE. In CHTs, district-level DPHE Executive Engineers work under the direct supervision of the HDCs, but their programs and activities are coordinated by the DPHE Superintending Engineer, CHT Circle (located at Chattogram). An issue that has often been raised is that the voices of the local people,

particularly of the ethnic minority communities, are not appropriately reflected in the central government's plans and budgets. Also, there is ambiguity in the roles of the Ministry of CHT Affairs in planning and managing the WASH programs in the CHTs.

2.4.2 Water Supply

CHTs areas have exceptional geophysical characteristics. The hydro-geological characteristics of the CHTs are different and often change within short distances. Different types of water options are operated in the CHTs, including alternative technologies. In addition, Infiltration Gallery (IG) is used where a small stream or spring is available.

The water supply coverage in the CHTs areas is lower than that of the rest of the country, although the number of public water points per person is higher in CHTs. The population density of CHTs is only 143 persons /sq. km, which is much lower than the plain land (1,150 persons/sq. km)(BBS, 2022a). In CHTs, people live in scattered settlements; as such, the number of households covered by one water point is much less than in plain areas of the country. As a result, even if there are an increased number of running public water points, people have to fetch water from a distance due to the scattered locations of houses. This is a significant burden, particularly for the women who collect water in the hilly terrain.

The district and category-wise number of running water sources in the CHT districts shows that deep tube-wells (23,382 numbers) are the main sources of drinking water, followed by 11,888 numbers of ring/dug wells (Table 2.19).

Table 2.19: District and category-wise number of water sources in CHT districts (Source: DPHE Progress Report, June 2023)

Category of running water points/ sources	District wise numbers			Total
	Bandarban	Khagrachari	Rangamati	
Shallow tube wells	851	1973	866	3690
Deep set shallow tube-wells (Tara)	952	405	1215	2572
Deep tube-wells (including deep set)	7058	7819	8505	23382
Ring/Dug wells	3169	2796	5923	11888
Rain Rainwater harvesters (RWH)	0	8	0	8
Infiltration Gallery (IG)	80	0	0	80
Gravity Flow System (GFS)	0	16	0	16
Total	12110	13017	16509	41636

Looking at the level of services reachable in the CHT districts a few years back, it is noticeable that those areas lagged behind other parts of the country. National coverage of safely managed service was 48 percent; on the contrary, Bandarban, Khagrachari and Rangamati had 16 percent, 37 percent and 20 percent, respectively. Basic service coverage and improved drinking water sources also depict similar scenarios (Table 2.20).

Table 2.20: Comparison of national water supply service coverage and CHT districts (percentage) (MICS, 2019)

Service type	National	CHT District		
		Bandarban	Khagrachari	Rangamati
Safely managed drinking water services	47.9	16.0	36.9	19.8
Basic drinking water services	98.0	56.8	76.9	58.9
Improved drinking water sources	98.5	56.8	78.4	59.2

2.4.3 Sanitation

Sanitation in CHTs is based on indigenous options such as 'machang' (hanging latrine). Open defecation is still widely practiced in many areas of the CHTs. Installation of conventional sanitation options is complicated due to difficult transportation and social practices. A large number of people leave their villages for 'Jhum' cultivation (cultivation on hill slopes) for a significant number of days in a year. These temporary migrants do not arrange a proper sanitation facility, which consequently creates the risk of spreading waterborne diseases among the neighboring localities.

The types of toilet facilities used in the CHT areas are not similar in every district. In Bandarban, the most used toilet facilities are 'safe disposal with flushing/pouring water' (23 percent), where open defection practice is highest (20 percent) among CHT districts. On the other hand, among different types of latrines, use of pitlatrines with slab/ VIP latrine/ composting latrines are highest in Khagrachari (35 percent), followed by Rangamati (28 percent) (Table 2.21).

Table 2.21: Percentage of households in CHT districts using different types of toilets (BBS, 2022a)

Type of toilet facilities	Percentage of households		
	Bandarban	Khagrachari	Rangamati
Safe disposal with flushing/pouring water	23.4	27.7	26.3
Unsafe disposal with flushing/pouring water	13.5	11.8	11.4
Pit latrine with slab/ VIP latrine/ composting latrine	19.4	34.8	27.6
Pit latrine without slab/open pit	10.5	14.9	18.8
Kancha/open/hanging latrine (permanent/temporary)	13.0	8.2	11.8
Open defecation/no latrine available	20.2	2.6	4.1
Total	100.0	100.0	100.0

National coverage of different types of sanitation services is higher than CHTs except for 'safe disposal in situ of excreta from on-site sanitation facilities'; remarkably, this is 91 percent nationally and significantly higher in CHTs (97 percent). (Table 2.22).

Table 2.22: Comparison of national sanitation service coverage percentage in CHT districts (MICS, 2019)

Service type	National	CHT District		
		Bandarban	Khagrachari	Rangamati
Improved sanitation facilities	84.6	43.1	64.1	54.8
Basic sanitation services	64.4	38.9	55.2	51.3
Safe disposal in situ of excreta from on-site sanitation facilities	90.7	97.2	97.2	96.5
Removal of excreta for treatment off-site	1.5	0.8	0.8	1.1

2.4.4 Hygiene

Hygiene practice in the CHTs is poor compared to other parts of the country. People are mostly poor, and their livelihood is primarily based on agriculture and forest resources. In many ethnic communities, especially some in the Bandarban district, it is usual practice that humans and animals live closely, and animal excreta remain scattered in the immediate neighborhood. The use of latrines for defecation differs significantly. Young children are not expected to use latrines, and their excreta are not thought to be polluted. Language is sometimes a barrier to communication, as some tribal people who do not know Bangla are excluded from the national hygiene promotional campaign through radio or television.

Hand washing facilities with water and soap, a proxy indicator for hygiene practice, reveal that CHTs need to do a lot to catch up national figure of 70 percent (Table 2.23).However, in the case of menstrual hygiene management, the differences between national (94 percent) and CHT districts' coverages (Bandarban-84 percent, Khagrachari-75 percent and Rangamati- 78 percent) are not much (Table 2.23).

Table 2.23: Hygiene Coverage in CHT districts

Service type	National	CHT District		
		Bandarban	Khagrachari	Rangamati
Hand washing facilities with water and soap (BBS, 2022a)	70.0	37.7	47.1	52.0
Menstrual hygiene management (MICS, 2019)	93.9	83.5	74.8	77.9

2.5 HARD-TO-REACH AREAS AND VULNERABLE GROUPS

2.5.1 Hard to Reach (HtR) Areas

Some difficult areas are relatively inaccessible from other parts of the country. At the same time, it is almost a flat country with some extraordinary geophysical and hydro geological factors, which do not make it easy to get WASH service comfortably. Women, children, and physically challenged people find it awkward to deal with receiving WASH services. The nature of the above-mentioned hard-to-reach areas is not similar. Some areas are inundated almost every year by flood, some are drought-prone, river islands, tea gardens, and areas with tidal effects. Figure 2.3 shows

the intensity of the HtR areas depending on severity. A total of 1,144 unions of 257 upazilas of 50 districts of the country are categorized as HtR areas. Of which, the extent of the char area is maximum, spread over 353 unions of 88 upazilas of 20 districts. (Table 2.24). Considering the ranking of extremity, 147 unions of hilly areas are extremely HtR areas. (Table 2.25).

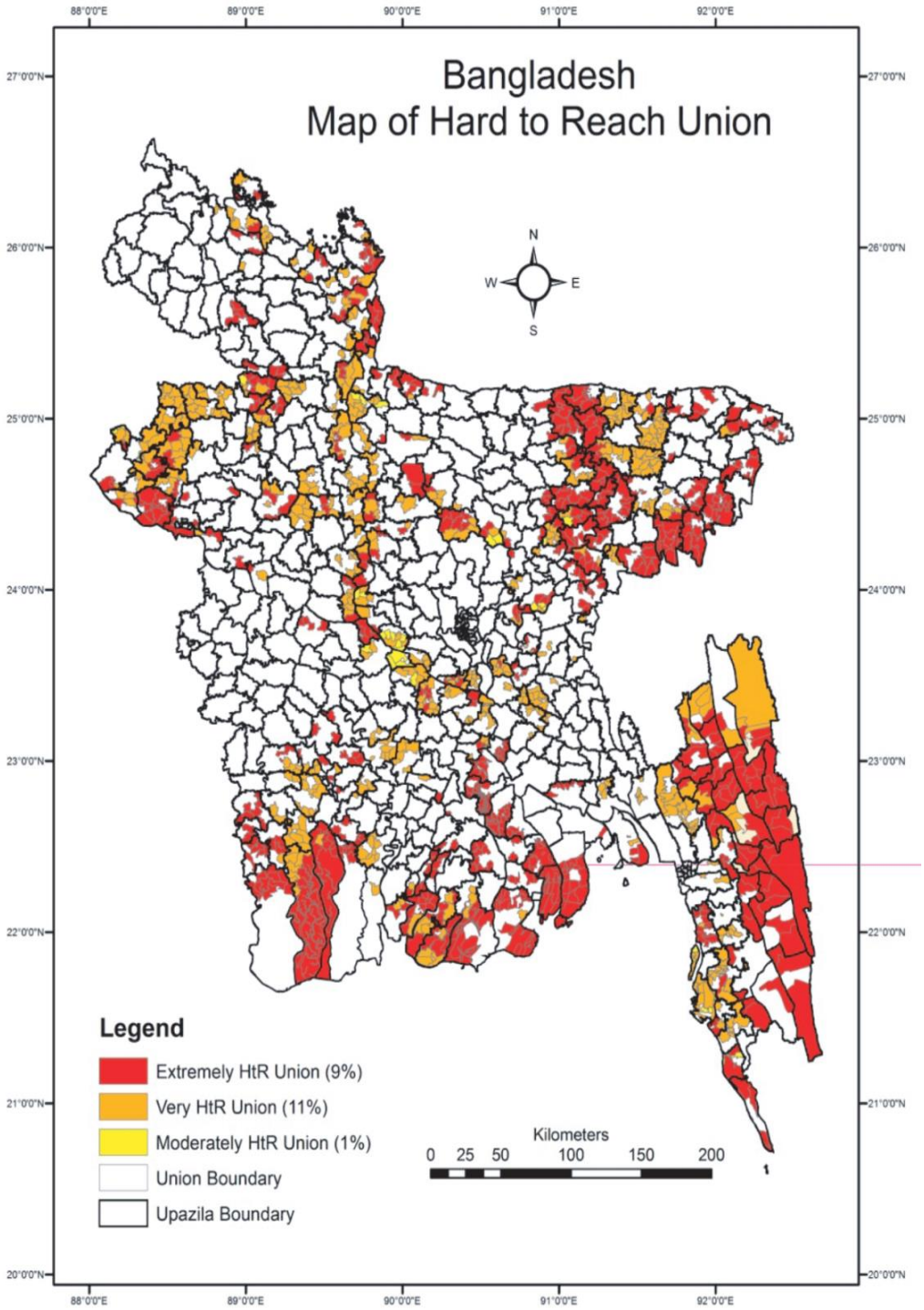


Figure 2.3: Intensity of the HtR areas of Bangladesh (LGD, 2012c)

Table 2.24: Categorized summary of HtR areas based on physiographic conditions and spatial distribution (LGD, 2012c)

Physiographic condition	No. of districts	No. of Upazilas	No. of Unions
Barind	8	31	123
Beel	6	18	64
Char	20	88	353
Coast, Offshore Island and Saline	6	39	213
Haor	4	29	164
Hilly	6	52	227
Coverage	50	257	1144

Table 2.25: Total number of unions based on HtR ranking (LGD, 2012c)

HtR	Barind	Beel	Char	Coast, Offshore Island and Saline	Haor	Hilly	Total
Extremely	50	26	122	141	96	147	582
Very	71	38	211	70	66	76	532
Moderately	2		20	2	2	4	30
Total	123	64	353	213	164	227	1144

Coast and offshore islands

Coast and offshore islands are areas in the southern part of the country that are severely exposed to tidal effects and natural disasters like cyclones and water surges. The coastal belt is predominantly dependent on deep aquifers for sources of water. Nowadays some ponds are also used as drinking water sources. As inundation is a regular phenomenon due to tidal surges, and the water table comes up, the latrines usually overflow.

Haor, beel and wetlands

Haor, beel and wetlands are located mostly in the north- eastern region (Figure 2.4) with an area of about 0.86 million hectares with 4.02 million vulnerable population (MoEFCC, 2022). There are 373 haors in seven districts, namely, Sunamganj, Sylhet, Habiganj, Moulavibazar, Netrokona, Kishoreganj, and Brahmanbaria (BHWDB, 2012). Tube-wells installed in shallow aquifers are common drinking water sources in those areas. Flood and monsoon water inundate the areas every year. As a result, the shallow aquifers get contaminated due to the permeable nature of the soil, as most of the latrines in the areas are pit latrines.

Char and islands

Char and islands areas are riverine islands formed by the deposition of sediments from rivers. These areas are often characterized by poverty, poor infrastructure, and lack of access to essential services, including WASH. In Bangladesh, char and islands areas of 3,976 sq. km are home to 8.51 million people in the districts of Nilphamari, Lalmonirhat, Kurigram, Gaibandha, Sirajgonj,

Jamalpur, Mymensingh, Manikganj, Munshiganj, Shariartpur, Chandpur, Bhola, Patuakhali, Feni, and Noakhali (MoEFCC, 2022). These areas are highly vulnerable to sudden and forceful flooding as well as erosion and loss of land, which makes living in the chars both hazardous and insecure. In char areas, tube-well with raised platform is an appropriate option, as groundwater is usually free from arsenic contamination. Nevertheless, the safe distance of the tube-well from the nearby pit latrine needs to be considered, as the soil is very permeable in char areas.

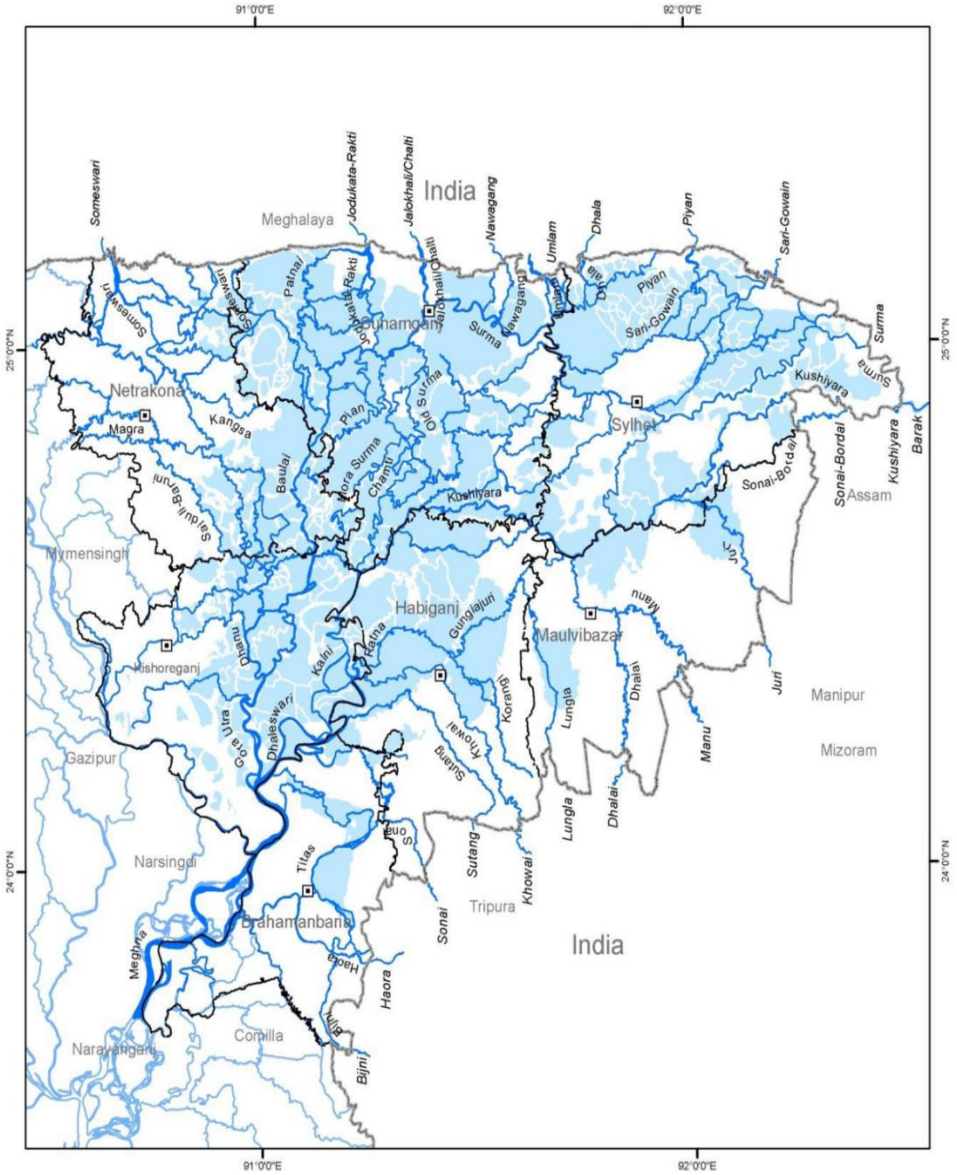


Figure 2.4: Haor of North East area (BHWDB, 2012)

Barind areas

The Barind Tract is a drought-prone region in the northwestern part of Bangladesh. It principally covers the Dinajpur, Rangpur, Pabna, Rajshahi, and Bogura districts. According to the BDP 2100 (2018), 18 districts are Barind and drought prone areas with an area of 22,848 sq. km, namely: Bogura, Chuadanga, Dinajpur, Gaibandha, Joypurhat, Kushtia, Meherpur, Naogaon, Natore, Nawabganj, Nilphamari, Pabna, Panchagarh, Rajshahi, Rangpur, Satkhira, Sirajganj and Thakurgaon.

The Barind Tract is characterized by its undulating topography, infertile soils, and lack of surface water resources. The region is also heavily dependent on groundwater for irrigation and drinking water sources, which has led to over-exploitation and declining groundwater levels. The Barind Tract is particularly vulnerable to drought due to its low rainfall and high evaporation rates. The mean annual rainfall in the region is about 1400 millimeter, which is less than the national figure of about 2400 millimeter(MoEFCC, 2022). The region also experiences high temperatures and strong winds, which can further exacerbate drought conditions. The region often experiences severe drought, causing water shortages as the water table goes down. Retention of rainwater by excavating ponds and water reservoirs could be one of the solutions for drinking water in the dry season.

Other water scarce areas

There are also some other water-scarce areas, particularly in the southwest part of the country, such as Satkhira, Bagerhat, and Khulna districts, where there is no feasible groundwater source. On the other hand, surface water sources like river water are saline in these areas. Some other difficult water scare areas are located in Panchagarh, Sylhet and Chattogram districts. In these areas, groundwater cannot be explored due to a stony layer below ground or for other reasons. Sources of surface water are also unreachable in these areas.

2.5.2 Vulnerable Groups

The most vulnerable people in our society are children, women, elderly people, people with disabilities, indigenous communities, the floating population, and hardcore poor people(GED, 2009). The Head Count Rate (HCR) using the upper poverty line is 18.7 percent, that is, 18.7 percent of people in the country were living below the poverty line in 2022(BBS, 2023b). Most of the people living below the poverty line are in vulnerable groups. Usually, vulnerable groups get less access to WASH services. Consequently, it is tough to integrate them in the process of establishing WASH infrastructure and accessing WASH services. The vicious cycle of poverty and vulnerable groups is shown in Figure **2.5**.

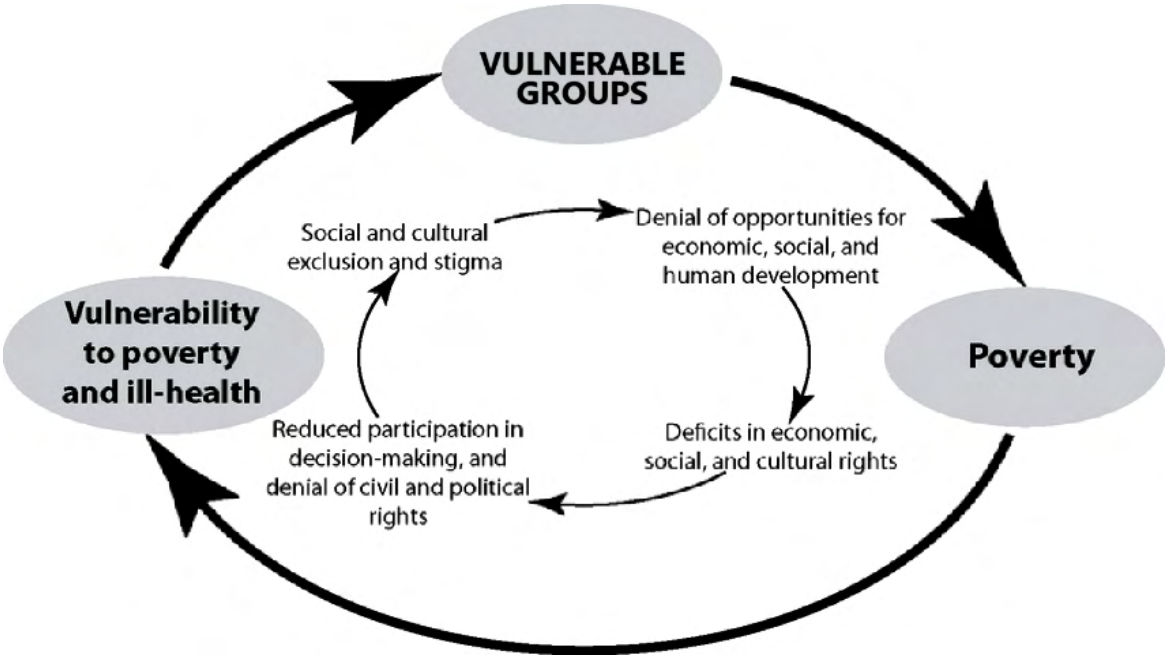


Figure 2.5: Poverty and vulnerable **group - a vicious cycle**

2.5.2.1 Women

In Bangladesh, when water supplies become scarce, or quality deteriorates, for instance, due to salinity or arsenic pollution or challenging geological or hydro geological situations, women and adolescent girls must take the burden of collecting drinking water from distant locations in rural and HtR areas. As a result, women and girls benefit most when a safe and sustainable water supply becomes available closer to their homes. Women are more likely than men to lack access to safe drinking water and improved sanitation facilities. This is due to several factors, including cultural norms, gender roles, and poverty. They spend a significant amount of time collecting water and managing household sanitation. This time burden can limit their opportunities for education, employment, and other activities and they are insecure using public toilets and other WASH facilities due to several factors, including harassment, violence, and lack of privacy. Moreover, women are often underrepresented in decision-making processes related to WASH at the community and national levels. This can limit their ability to influence the design and implementation of WASH programs and services.

Women struggle with WASH for many other reasons. Firstly, their knowledge about their health remains weak, and poor menstrual hygiene practices have adverse effects on women's and girls' health and education. Women's access to sustainable WASH services enables them to enjoy better health, pursue their education, participate more fully in the economy, build their social capital, increase their dignity, and reach their full potential.

2.5.2.2 Children

Children are particularly vulnerable to the adverse impacts of inadequate water, sanitation, and hygiene situations. They are more likely to suffer from diarrhea, cholera, and typhoid, which can lead to lifelong health problems or even sometimes cause reason for death. Children are also more likely to suffer from malnutrition and stunted growth, which get inadequate access to safe water and sanitation. Access to safe water, sanitation and hygiene contribute towards children's rights and development. The National Sanitation Strategy (2005) and the National Menstrual Hygiene Management Strategy (2021) talk about Children's priorities in WASH service.

Despite improvements, children particularly in rural and HtR areas face misfortune in getting adequate WASH services. Contaminated water sources and arsenic in groundwater put their health in jeopardy. Limited sanitation facilities at home and school hinder hygiene and girls' education. These challenges cause waterborne illnesses resulting in missed school days. In Bangladesh, ensuring safe water, toilets and hygiene facilities for all children remains a priority.

2.5.2.3 (Disable) People with Special Needs

A disability is a condition that affects a person's physical or mental abilities. A variety of factors, including genetics, birth defects, accidents, and diseases can cause it. Disabilities can be mild or severe, and they can be temporary or permanent. The WHO defines disability based on the International Classification of Functioning, Disability and Health (ICF, 2001). The ICF is a framework that classifies how people function daily and considers a person's physical, mental, and social environment. A national survey shows that 2.80 percent of Bangladeshi population is living with disabilities, this percentage is 3.29 for males and 2.34 for females. Disability is higher in rural areas at 2.92 percent than in urban areas at 2.45 percent. The survey also found that only 9.71 percent of persons with disabilities have special types of sanitation facilities at home as per their needs (BBS, 2022b).

The GoB enacted the Persons with Disabilities' Rights and the Protection Act (2013), a comprehensive law that guarantees the rights of persons with disabilities in all areas of life, including WASH. Policies and strategies related to persons with disabilities emphasize that the government is firmly committed to the advancement and rights of persons with disabilities. The pro-poor strategy (2005) defines hardcore poor households as those that are, among others, headed by the disabled or women or old persons.

People with disabilities often face challenges, although there exist policies for WASH accessibility in Bangladesh. Inaccessible toilets and a lack of ramps can limit their ability to maintain hygiene. This gap between policy and practice, coupled with a lack of awareness, creates significant health risks and hinders the dignity and independence of people with disabilities.

2.5.2.4 Ethnic Minority Population

Bangladesh is a country of cultural and ethnic diversity, with over 54 ethnic minority people, speaking at least 35 languages. According to the BBS census 2022, the country's ethnic minority population is a little more than 1.65 million, representing about one percent of the total population(BBS, 2022a). The majority of the ethnic minority population lives in the plain districts, largely in Rajshahi, Sylhet and Mymensingh, and the rest in the Chittagong Hill Tracts (CHTs).

The ethnic minority population, every so often, lacks access to healthcare and WASH facilities. At the WASH sector level, there are no explicit references to addressing the needs of the indigenous communities.

In Bangladesh, ethnic minority communities face a unique set of WASH challenges. Remote locations and hilly terrain often limit access to safe water sources, forcing them to depend on contaminated options. Climate change deteriorates this situation by salinizing coastal water sources and causing erratic rainfall patterns. Additionally, hygiene challenges can be created due to traditional practices and culturally inappropriate WASH infrastructure. These issues contribute to a higher incidence of waterborne diseases and hinder overall well-being within these communities.

2.5.2.5 Tea garden dwellers

Bangladesh has 168 commercial tea estates and tea gardens (Hoque et al., 2023).Nearly 0.30 million workers are employed on the tea estates, of which over 75 percent are women (MoFA, 2024). Tea garden workers face a significant burden when it comes to WASH. Lack of awareness about the importance of WASH and traditional practices contributes to inadequate facilities and hygiene behaviors. Densely populated housing within the tea gardens poses challenges in constructing sanitation facilities. Many live in isolated communities on the gardens themselves, lacking proper WASH infrastructure. This indicates that limited access to safe water sources, with some workers resorting to using potentially contaminated water. Shared sanitation facilities are often inadequate or poorly maintained. Moreover, menstrual hygiene management can be challenging due to a lack of privacy and proper disposal options. These WASH issues have negative impacts on waterborne diseases and overall health problems in tea garden dwellers. Ultimately, these situations put tea garden dwellers at potential risk of waterborne diseases and lead to overall poor hygiene situations. Collaboration between tea garden owners, communities, NGOs, and the government is required to undertake a multipronged approach to improve the present measurable WASH scenario of tea gardens.

2.5.2.6 Floating population and hard-core poor people.

The floating population is a term used to describe people who move from one place to another in search of work or other opportunities. They are often seasonal migrants who move during the peak agricultural season and return home during the off-season. The floating population also includes people who have been displaced by natural disasters or other events.

The number of floating populations is 22,185, and floating households are 19,134. On the other side, 5.6 percent of the population is hard core poor. Out of which, the figure is 6.5 percent in rural areas and 3.8 percent in urban areas. The floating population in our country includes, among others, nomadic people, gypsy, pavement dwellers, sweepers, the fishermen of remote coastal islands, and sex workers (BBS, 2022a).

The revised Pro-Poor Strategy (2020a) and the National Sanitation Strategy (2005) make explicit references to include the disadvantaged and extremely poor groups in the mainstream of society by ensuring their participation in socioeconomic activities, protecting their human rights, and reducing their poverty level. Unfortunately, the floating population and hard-core poor still face misfortune regarding WASH. Their constant movement makes it difficult to access permanent water sources and sanitation facilities. Insufficiency and inconveniently located public options compel them to rely on unsafe water sources like rivers, lakes or ponds. Affordability is a barrier for the hard-core poor in getting WASH services. These factors contribute to a higher risk of waterborne diseases and make hygiene practices challenging, impacting their overall health and well-being.

CHAPTER 3: NATIONAL LEVEL STATUS OF WASH SECTOR

Beginning with sector environment and sector strength, this chapter provides an assessment of the implementation status of the SDP 2011-2025, in alignment with its roadmap. It then discusses the current status of the WASH sector of the country. This chapter also provides an overview of the sector achievements, based on some key sector documents.

3.1 WASH SECTOR ENVIRONMENT

The WASH sector of Bangladesh is expanding with time. However, water sources are facing various challenges. The prevalence of natural disasters originating from climate change phenomena poses extra pressure on the existing WASH service systems, as well as the establishment of new infrastructure. Numerous steps have been taken to cope with the emerging challenges.

The LGD of the MoLGRD&C is responsible for the WASH sector centrally. A dedicated wing in the LGD, the Policy Support Branch (PSB) deals with the WASH sector policy issues. The PSB plays a key role in formulating WASH sector-related acts, and relevant policies, strategies, plans, guidelines, etc. and takes initiative for the revision and updating of those documents. The Local Government Act 2009 empowered the LGIs, particularly the upazilas and union parishads, to accomplish WASH sector activities.

The WASH sector has gained the attention of policymakers, leading to the formation of forums such as SACOSAN. A demand-driven community management approach has been conceptualized, fostering a sense of ownership over WASH infrastructure and enhancing community participation in operation and maintenance (O&M). Additionally, the active involvement of women at the grassroots level has become a significant strength of the sector.

Creating a better enabling environment is crucial for the continued progress of the WASH sector. The overlapping of the responsibilities of the government agencies needs to be addressed. Urban areas are expanding rapidly and haphazardly, creating pressure on existing WASH facilities. As a result, more resource mobilization is required to control any worsening of the WASH service delivery systems. Regional disparities in WASH coverage persist across the country, and many water points in both rural and urban areas are no longer functional due to various reasons, requiring rehabilitation and replacement. Above all, fostering a more cohesive and collaborative environment between interrelated sector functions is essential for sustaining the development of WASH services. This will help ensure the availability of sustainable WASH facilities and promote the progressive reduction of inequalities.

3.2 WASH SECTOR STRENGTHS

Bangladesh has made significant progress in the WASH sector in recent decades. The country has a robust policy framework and a well-functioning institutional structure for WASH. There is also a firm commitment from the government and development partners to invest in the sector.

The WASH sector in Bangladesh has a number of strengths, including:

a. **Firm political commitment:** The Government of Bangladesh is committed to improving access to safe water and sanitation for all. This is reflected in the National WASH Strategy and the allocation of significant resources to the sector.
b. **Effective institutional arrangements:** The WASH sector in Bangladesh is well-coordinated, with clear roles and responsibilities for different stakeholders. The DPHE is the lead agency for the sector, but there is also strong involvement from other government agencies, civil society organizations and the private sector.

c. **Vibrant civil society:** A strong and active civil society is engaged in WASH advocacy and programming. This helps to ensure that the needs of the poorest and most marginalized communities are heard.
d. **Community engagement:** Community engagement is a central pillar of the development of the WASH sector in Bangladesh. The government, LGIs, NGOs, CBOs and the private sector work closely with communities to identify their needs and develop and implement sustainable solutions.
e. **Robust technical expertise:** There exists a group of technical experts in the WASH sector in the country. They keep involved in the process of planning, implementing, and monitoring WASH programs and projects.
f. **Innovative solutions:** This has led to the development of new and innovative solutions to WASH challenges, such as solar-powered water pumps, community-led sanitation initiatives, and so on. These strengths have helped Bangladesh to make significant progress in the WASH sector in recent decades. However, there are still challenges to be addressed, particularly in rural areas and among the poorest and most marginalized communities.

3.3 IMPLEMENTATION STATUS OF SDP 2011-25

A road map was prepared with several indicative milestones in the SDP (2011-2025). Some of the activities have been accomplished, while a few have been attained partially, and, in some cases, actions have not been initiated yet.

Some of the key accomplishments in the SDP (2011-2025) roadmap include:

a. Water tariff fixation authority has been delegated to the paurashavas. LGD issued a circular and 'Instructions on Paurashavas Water Supply Management', instructing the paurashavas to propose by-laws for water supply management. The paurashavas would propose water tariff rates, and a four-member committee headed by the concerned Deputy Commissioner of the district would review and approve the tariff rates.
b. Environmental Conservation Rules (2023) has been adapted. In this new version, (i) the drinking water parameters are revised, (ii) more parameters are included for surface water standards, (iii) point source effluent discharge standards and STP liquid effluent standards are revised.
c. Water Act (2013) and Water Rules (2018) have been approved.
d. Managed Aquifer Recharge (MAR) Strategy has been drafted.
e. Implementation Plan of Arsenic Mitigation for Water Supply (IPAM-WS) (2018) has been prepared.
f. National Strategy for Water Supply and Sanitation(2021) has been revised and updated.
g. Policy Support Unit (PSU) has been upgraded to Policy Support Branch (PSB) as a permanent establishment under LGD.
h. Around 10 projects have been implemented by LGD to support the capacity building of LGIs.
i. The National Forum for Water Supply and Sanitation (NFWSS) has been established, and both the Policy and Monitoring Support Committee and Technical Support Committee have been formed.
j. The Public Private Partnership (PPP) in urban utilities has been stimulated. The Cabinet Committee on Economic Affairs (CCEA) approved (in principle) two projects (identification phase) under the PPP program in the WASH sector, including one in Chattogram WASA. DWASA has signed a MoU with Water and Sanitation for the Urban

Poor (WSUP) for desludging services in Dhaka city. RAJUK has undertaken a PPP project to develop water supply facilities in the Purbachal New Town Project area. This is the first large-scale PPP project in the water supply sector in Bangladesh.

k. The DPHE has established a CWIS-FSM support cell to oversee Climate Change, Disaster Risk Management (CCDRR) aspects in CWIS projects. 'Operational Guidelines for WASH (Water, Sanitation and Hygiene) In Emergencies - Bangladesh (2017)' has been formulated to deal with emergencies.
l. DPHE has implemented a dedicated arsenic mitigation project titled - 'Arsenic Risk Reduction Project for Water Supply' (January 2018-June 2024) with an estimated cost of BDT 19,910 million. The project areas covered 1290 unions of 31 districts. Around 193,000 arsenic-safe water supply sources have been installed. Moreover, a screening program was carried out in 3200 unions of 335 upazilas of 54 districts under the project provision.
m. Private sector capacity building initiatives were initiated under World Bank-supported 'Bangladesh Rural Water Supply and Sanitation Project', implemented during 2012-2017 by the DPHE.
n. A Draft National Plan for Disaster Management (2021-2025) (2020a) has been prepared.
o. Town Level Coordination Committees (TLCC) are in place in many paurashavas as per section 14 of the Local Government (Paurashava) Act (2009).

Some notable issues, which were planned to be accomplished but remained partially or fully unaddressed, are as follows:

a. WASAs were not authorized to increase the water tariff from five percent to 10 percent per year.
b. Bangladesh standard value for arsenic in drinking water (50 ppb) has not been considered in line with the WHO guidelines value (10 ppb) in the ECR (2023).
c. The National Groundwater Strategy is not in place as mentioned in the road map.
d. Sector Information System (SIS) for monitoring is not yet operative.
e. Recognizing "WASH SECTOR" as a separate sector in the budgetary provision of the ADP by the Planning Commission remains pending.
f. Sending proposal for the Supplementary Standing Order for emergencies is awaiting.
g. Although the 'Modalities for a Dedicated Research and Development Fund for WASH Sector 2014' has been formulated, budget allocation for R&D is still inadequate. Moreover, the R&D setup of DPHE is yet to be transferred to the revenue setup.
h. Climate Change, Environment and Disaster Management (CCEDM) units of WASAs are yet to be in place.
i. WASAs have no 'one-stop-customer' services unit and Customer Satisfaction Survey as mentioned in the SDP (2011-2025) road map.
j. Restructuring the organogram of the DPHE has not been materialized.
k. No specific IEC guideline has been prepared for hygiene promotion. However, the National Menstrual Hygiene Management Strategy (2021), and a strategic paper on Health Hygiene for All (HH4A)is prepared.
l. Experience of DPHE working with small-scale service providers in rural piped water supply schemes has not been satisfactory.

The road map with indicative milestones for implementation in the SDP 2011-25 and its implementation status in detail is annexed herewith in **Annexure 1**.

The following are some of the key progress noticeable after preparation of the SDP (2011-2025), which might have been influenced by the SDP:

a. Access to safely managed water increased from 56 percent in 2015 to 59 percent in 2022;
b. Access to safely managed sanitation increased from 23 percent in 2015 to 31 percent in 2022;
c. Open defecation declined from four percent in 2015 to less than one percent in 2022;
d. Basic hygiene service increased from 42 percent in 2015 to 62 percent in 2022;
e. Climate resilience in WASH infrastructure is promoted through the construction of cyclone shelters with water and sanitation facilities and the installation of solar-powered water pumps;
f. Hygiene education and practices have been promoted through community-based programs and mass media campaigns.
g. DPHE created water quality testing facilities in every district, where there are no water testing laboratories, to ensure and enhance water quality and surveillance activity.
h. National Action Plan for Implementation of Institutional and Regulatory Framework (IRF) for Fecal Sludge Management for City Corporation, Paurashava and Rural Areas is formulated.
i. DPHE established a CWIS-FSM support cell to address the safely managed sanitation systems throughout the country.

3.4 NATIONAL STATUS OF WASH SECTOR

3.4.1 Water Supply

Fifty-nine (59) percent of the population in Bangladesh had access to safely managed water services in 2022 (Table **3.1**). This represents an increase from 56 percent in 2015. However, there are still regional disparities in access to safely managed water supply and sanitation facilities.

Several factors contribute to the gap between improved water supply coverage and safely managed water supply coverage. One factor is the presence of arsenic in groundwater. Arsenic is a naturally occurring element that can cause serious health problems if ingested over time. Arsenic contamination is widespread in Bangladesh, and millions of people are exposed to arsenic through their drinking water. Another factor contributing to the gap between improved and safely managed water supply coverage is the lack of adequate water treatment facilities. Many water treatment facilities are not able to remove all of the contaminants from the water. This is a particular problem in rural areas, where water treatment facilities are often less developed.

The government is investing in new water treatment facilities, improving water distribution systems, promoting water quality testing and monitoring and also working to make water supply services more affordable and accessible to the poorest and most marginalized communities. The table below depicts the summary of water supply coverage in Bangladesh.

Table 3.1: Summary of water supply coverage in Bangladesh (JMP, 2022a)

Description	Coverage in percentage in 2022		
	Rural	Urban	Total
At least basic	98	98	98
Limited more than 30 minutes	<1	2	1
Unimproved	<1	<1	<1
Surface water	<1	<1	<1

Description	Coverage in percentage in 2022		
	Rural	Urban	Total
Proportion of the population using improved water supplies			
Safely managed	62	54	59
Accessible on premises	82	85	83
Available when needed	96	97	96
Free from contamination	62	54	59
Piped	3	33	15
Non-piped	96	67	84

The total number of water sources, including tube-wells, of the country by percentage of households shows that about 87 percent of households depend on deep/shallow tube-wells, followed by 11 percent on tape/pipe water supply (Table 3.2).

Table 3.2: Main source of drinking water by percentage of households (BBS, 2022a)

Type of water sources	Percentage
Tap/pipe(supply)	11.14
Tubewell (deep/shallow)	86.51
Bottled/Jar Water	0.57
Well	0.34
Surface Water (Pond/river/canal)	0.89
Spring	0.11
Rainwater	0.40
Others	0.03
Total	100.00

3.4.2 Sanitation

3.4.2.1 Coverage of Sanitation

Fifty-nine percent of the population of Bangladesh had access to ‘at least basic’ sanitation facilities in 2022. However, only 31 percent had access to safely managed sanitation. This implies that a significant portion of the population still uses latrines that do not adequately contain and dispose of human waste.

The coverage of sanitation varies between rural and urban areas. In rural areas, 62 percent of the population had access to ‘at least basic’ sanitation facilities in 2022, while 32 percent had access to safely managed sanitation. In the same year, in urban areas, 55 percent of the population had access to ‘at least basic’ sanitation facilities, and 29 percent had access to safely managed sanitation (Table 3.3).

Table 3.3: Summary of sanitation coverage in Bangladesh (JMP, 2022a)

Description	Coverage in percentage in 2022		
	Rural	Urban	Total
At least basic	62	55	59
Limited (shared)	20	35	26
Unimproved	18	10	15
Open defecation	<1	<1	<1
Proportion of the population using improved sanitation facilities			
Safely managed	32	29	31
Disposed in situ	32	20	27
Emptied and treated	<1	<1	<1
Waste water treated	<1	8	3
Latrines and others	63	34	51
Septic tanks	18	29	23
Sewer connections	<1	27	11

People use different types of toilet facilities across the country. Considering the percentage of households, a maximum of 56 percent of households use toilets with safe disposal with flushing/ pouring water, followed by 22 percent use pit latrines with slab/ventilated improved latrines/ composting latrines (Table 3.4).

Table 3.4: Toilet facilities of the country by percentage of households (BBS, 2022a)

Type of toilet facilities	Percentage
Safe disposal with flushing/pouring water	55.7
Unsafe disposal with flushing/pouring water	12.9
Pit latrine with slab/ventilated improved latrine/ composting latrine	22.0
Pit latrine without slab/open pit	4.1
Kancha/open/hanging latrine(permanent/temporary)	4.1
Open defecation/no latrine available	1.2
Total	100.0

3.4.2.2 Fecal Sludge and Septage Management

Bangladesh achieved commendable sanitation success in the last decades. The achievement was possible through a remarkable growth in on-site sanitation (OSS) facilities. However, the management of OSS remains neglected with a large quantity of fecal sludge generated in these facilities inaptly managed leading to significant environmental, health and economic challenges. Bangladesh has recognized the importance of an 'Institutional and Regulatory Framework' (IRF) for fecal sludge management to ensure that the achieved sanitation success is sustained.

Fecal sludge management (FSM) is the collection, dislodging, transport, treatment and/or disposal of fecal sludge. Conventional sewerage is not included in an FSM system. Elements of the entire FSM service are shown in Figure 3.1.

Box 3.1: Annotations on Fecal Sludge

Fecal sludge: Sludge removed from all kinds of on-site sanitation systems such as septic tanks, aqua privies, pit latrines, community multiple pit system etc.

Septage: Fecal sludge (settled solids, scum and liquid) that accumulates in septic tanks.

Fecal Sludge Management (FSM): FSM refers to a systems approach that includes technologies and mechanisms for containment, emptying, collection, transportation, treatment, disposal and/or reuse of sludge produced in onsite sanitation systems (OSS) such as septic tanks and pit/pour-flush latrines.

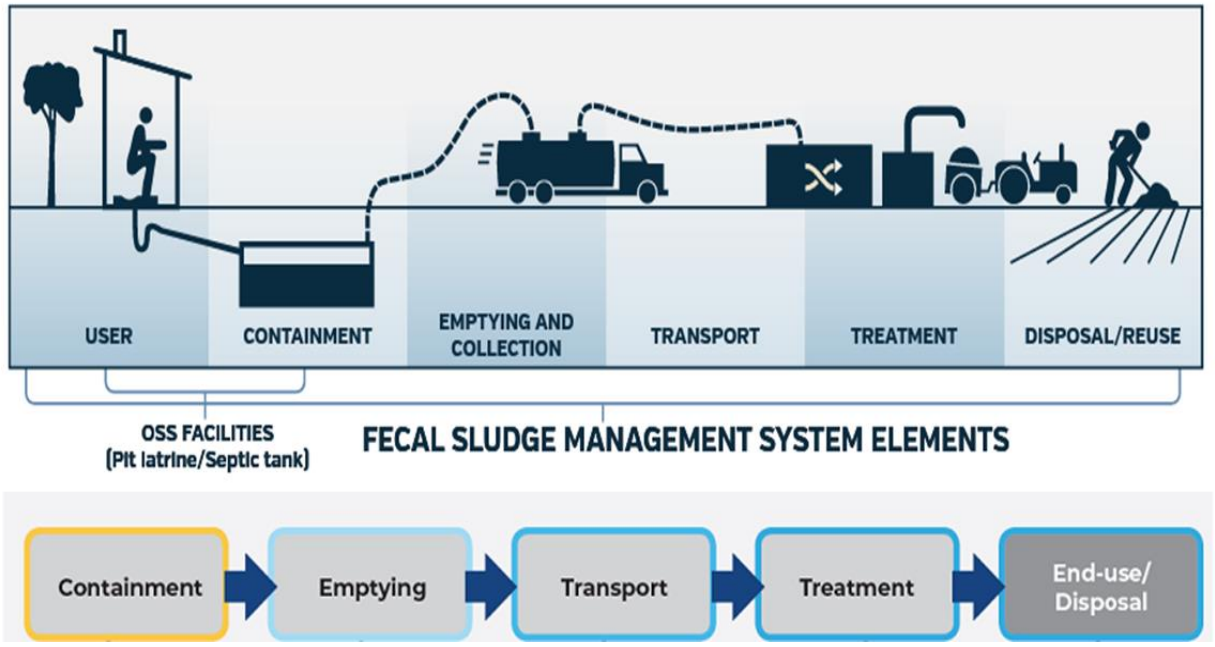


Figure 3.1: Elements of the entire FSM service chain (image adapted from Rahman et al.(2016))

The situation in Bangladesh with respect to safely managed sanitation is complex and safe management of fecal matter has become a major and urgent challenge. To learn the status of the different stages of safely managed on-site sanitation (SMOSS) systems across Bangladesh, a study(2022b) was launched in late 2020. The study revealed that 50 percent of the population had access to safe latrines with appropriate fecal sludge containment facilities, only 10 percent of households (for both safe and unsafe latrines) practiced safe emptying, transport and disposal of fecal sludge. The situation in Low-Income Communities (LICs) was observed to be even worse, with 59 percent of toilets having no containment facility at all, instead, they were directly connected to drains. Manual emptying of pits is still very common as the availability of mechanical emptying systems is rare, and fecal sludge treatment facilities are equally scarce.

Box 3.2: Elements of FSM System

In the FSM system, the following elements should be considered holistically:

User: Raise awareness of the pros and cons of the entire service chain and ensure participation in all stages of planning, design, implementation, and O&M of FSM services. Users are a critical stakeholder in the system.

Containment: Proper design for effective containment of fecal matter.

Emptying: Sufficient access to mechanical dislodging, particularly in slums and low-income areas.

Collection: Align collection vehicle size with available access to OSS facilities.

Transport: Include transfer stations for cost-effective transport of fecal sludge up to treatment plants.

Treatment: Ensure availability of land for establishment of fecal sludge treatment plants.

Disposal/Reuse: Implement quality assurance of treatment and treated FS for end use.

The study(2022b) findings further revealed that nationally, 23 percent required emptying their latrine pits and septic tanks, yet only 19 percent emptied. Only 3.9 percent did mechanical emptying using either manual pump (non-motorized), motorized pump, or vacuum tanker, whereas 15 percent emptied manually using local equipment such as shovel, spade, bucket, rope, etc. Of the 3.9 percent of households that emptied mechanically, 3.3 percent transported the emptied fecal sludge using motorized vehicles (motorized transportation of fecal sludge was mostly from households using mechanical emptying). Overall, 2.2 percent of emptied fecal sludge was disposed of at a designated disposal/ treatment site and most of these households used mechanical emptying. However, some households used manual emptying and transported emptied fecal sludge using vans or push carts and disposed of sludge at designated disposal sites. A significant number of households (eight percent) emptied their pits and septic tanks and buried the fecal sludge within or near the premises. Thus, in 10 percent of households emptied fecal sludge was disposed of either locally or at a designated disposal site; in the remaining nine percent of households where sanitation facilities were emptied, wastes were unsafely discharged to the environment (JMP, 2022b). National SMOSS service chain status is shown in Figure 3.2.

Citywide Inclusive Sanitation (CWIS)

Citywide Inclusive Sanitation (CWIS) is a public service approach to advance equitable, safe, and sustainable outcomes, by strengthening core public system functions of responsibility, accountability, and resource planning and management. The CWIS Framework (Figure 3.3) allows for and encourages flexibility in how each function is achieved in different contexts.

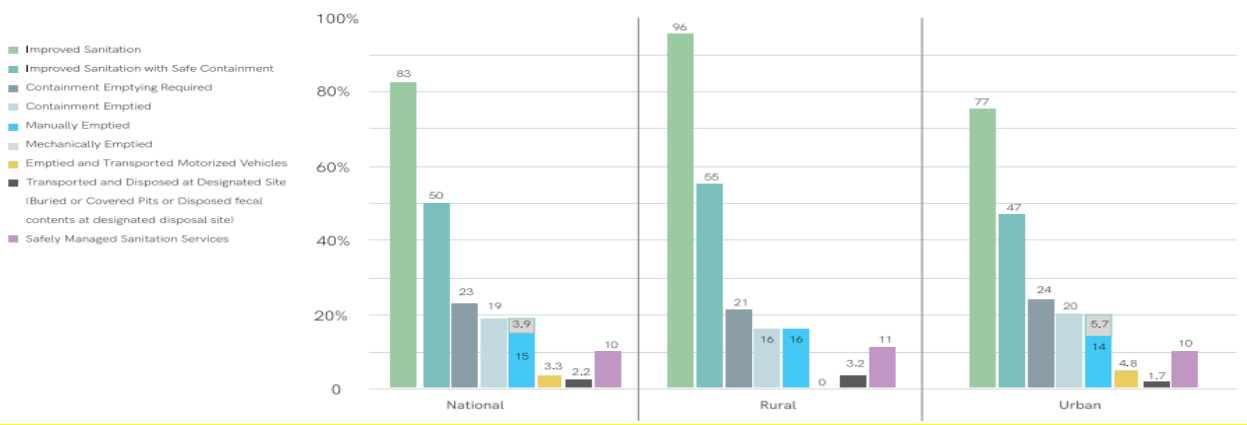


Figure 3.2: National SMOSS service chain status (JMP, 2022b)

By 2015, the WASH sector had failed to meet MDG sanitation targets that focused on access to toilets and instead committed to more ambitious SDG targets for safely managed sanitation services covering all stages of the sanitation chain. Recognizing the scale of the urban sanitation challenge— its disproportionate burden on the urban poor and marginalized and the limited progress of prevailing approaches—a global movement formed to radically rethink approaches to achieving the target outcomes of SDG 6, prioritizing inclusion. CWIS gained traction and is increasingly accepted by government, development, and financing stakeholders in the sector globally.

CWIS implementation requires long-term planning, technical innovation, institutional reform, and financial mobilization in conjunction with political will and technical and managerial leadership to support cities through the necessary system change (CWIS, 2024).

The GoB has established a CWIS-FSM support cell in the DPHE to plan, design and monitor capacity-building activities, awareness campaigns, and standardization of the services and implementation of IRF-FSM.

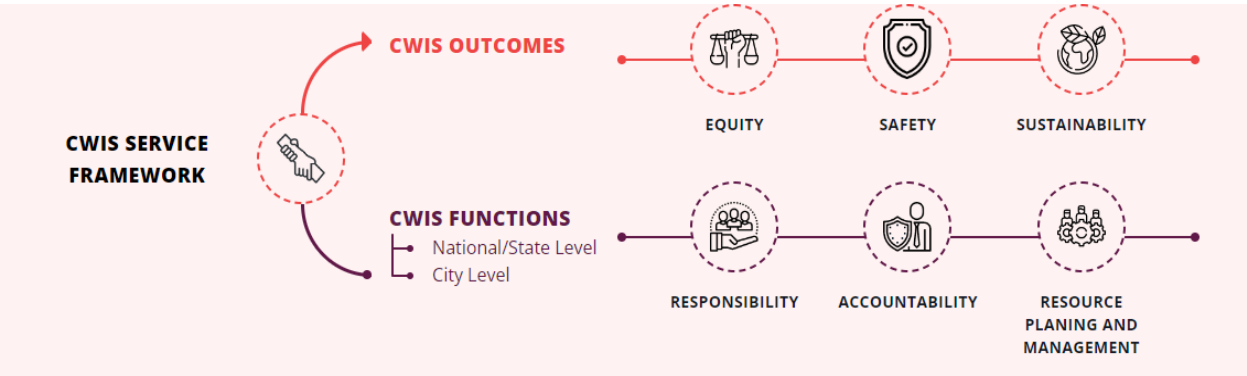


Figure 3.3: CWIS Framework

3.4.3 Hygiene

3.4.3.1 Coverage of Hygiene (Hand Hygiene)

Significant progress has been made in improving hygiene in Bangladesh in recent years. The proportion of the population with access to basic hygiene practices (practicing hand washing with soap and water) has increased from 42 percent in 2015 to about 62 percent in 2022, according to

JMP(2022a) and more than 69 percent in 2022, according to BBS(2022a). Table 3.5 below depicts the summary of hand hygiene practices in Bangladesh.

Table 3.5: Summary of hygiene practice (Hand Hygiene) in Bangladesh (BBS, 2022a, 2018; JMP, 2022a)

Service level	Coverage in percentage in BBS, 2022	Coverage in percentage in JMP, 2022			Coverage in percentage in NHS, 2018
	National	Rural	Urban	Total	National
Basic (hand washing facility with soap and water in the household)	69.59	57.7	67.9	61.7	61.0
Limited (hand washing facility without water or soap)	19.51	35.7	28.7	32.9	23.0
No hand-washing facility	10.90	6.6	3.4	5.3	16.0

3.4.3.2 Menstrual Health and Hygiene

Menstrual health and hygiene interventions can help overcome these obstacles. Not only do they fulfill the unmet demand for menstrual hygiene products (sanitary pads, menstrual cups, eco-friendly and biodegradable materials), but they also protect dignity, build confidence, and strengthen sexual and reproductive health, particularly among adolescents (UNICEF, 2024a). Table 3.6 shows the status of menstrual hygiene management in Bangladesh(JMP, 2022a).

Table 3.6: Menstrual Health Data

Use of Materials in Menstrual Hygiene Management (MHM)	Proportion of women and girls (age 15-49)		
	National	Urban	Rural
Single-use materials	30	47	25
Reusable materials	66	51	71
Other materials	4	2	4

3.4.4 Solid Waste Management

3.4.4.1 Coverage of Solid Waste Management

Solid waste generated in the country in 2020-21 was 35.15 million metric tons (MTs). Of which, the amount of waste recycled was 5.48 million MTs, which was 5.48 percent of the total waste (Table 3.7). On the other hand, solid waste generated only by municipalities was 7.44 million MT. Out of which, solid waste collected and managed in controlled facilities was only 0.18 million MT, which was only 2.43 percent of the solid waste generated by the municipalities (Table 3.8).

Table 3.7: National solid waste generation and recycling rate in 2020-21(BBS, 2023c)

Description	Quantity in million MT			
	Country Total	Establishment	Municipalities	Rural Households
Waste generated	35.15	20.41	7.44	7.30
Waste recycled	5.48	5.25	0.23	0.00
National recycling rate (waste recycled/waste generated *100)	15.59 percent			

Table 3.8: Municipal solid waste generated and managed in controlled facilities in 2020-21 (BBS, 2023c)

Description	Unit	Quantity
Municipal solid waste generated	Million MT	7.44
Solid waste is collected and managed in controlled facilities	Million MT	0.18
Proportion of solid waste collected in controlled facilities	Percent	2.43

3.4.5 Liquid Waste Management

The country generates a large amount of liquid waste from domestic, agricultural, and industrial sources. Wastewater from non-toilet plumbing systems such as hand basins, washing machines, showers and baths is known as 'grey water'. Some of the common contaminants in grey water include salts, food materials, household detergents, soaps and chemicals, and bacteria and other disease-causing microbes.

The current liquid waste management system is inadequate and inefficient, and much of the liquid waste generated is discharged untreated into the environment, posing a serious threat to public health, water sources and the environment. The government is aware of the challenges of liquid waste management and has taken steps to address them.

The total wastewater generated in the country in 2020-21 was 5,956 million cubic meters. Of which, the wastewater flow treated was 1134 million cubic meters. To put it another way, the proportion of wastewater flow safely treated was only 19.05 percent (Table 3.9).

Table 3.9: National domestic and industrial wastewater flow, and percent of safely treated flow in 2020-21(BBS, 2023c)

Description	Quantity in million cubic meters			
	Country Total	Industrial	Municipalities	Rural Households
Wastewater generated	5955.67	3118.37	1644.99	1192.31
Wastewater flow treated	1134.45	1134.14	0.31	0.00
Proportion of wastewater flow safely treated		19.05 percent		

3.5 SECTOR ACHIEVEMENTS

3.5.1 Gradual Progress

Over the years, starting from 2015, Bangladesh has made remarkable progress in achieving access to 'at least basic' water supply by 98 percent of its population, sanitation by 59 percent, and hygiene services by 62 percent of the population in 2022 (Table 3.10). Reducing open defecation practices to almost zero (less than one percent) was also achieved.

Table 3.10: Progress of WASH over the years (JMP, 2022a)

Description		2015 (percentage)	2017 (percentage)	2020 (percentage)	2022 (percentage)
Water Supply (at least Basic)	National	97	97	98	98
	Urban	98	97	97	98
	Rural	97	97	98	98
Sanitation (at least Basic)	National	49	48	54	59
	Urban	52	51	53	55
	Rural	47	47	55	62
Hygiene (at least Basic)	National	42	35	58	62
	Urban	55	51	66	68
	Rural	35	26	54	58

In the context of the country's SDG targets, government leadership of the sector planning processes has been enhanced by the establishment or strengthening of government-led multi-stakeholder platforms such as the SDG 6 high-level platform, Local Consultative Group and the formulation of the National Action Plans for SDG 6.1 and 6.2. Most development partners use government systems for the procurement of water and sanitation services. A budget and expenditure tracking platform has been piloted to strengthen accountability and provide evidence-based data to support sustainable financing strategies. The government has developed the SDG Tracker to track progress towards eliminating inequality. An integrated management information system for the rural WASH sector, with the support of development partners such as JICA, Swedish International Development Cooperation Agency (SIDA) and UNICEF, is being established (FMM, 2020).

3.5.2 WASH Bottleneck Analysis

A comprehensive multi-stakeholder WASH Bottleneck analysis based on the Sanitation and Water for All (SWA) building blocks was conducted in 2018-2019 by the MoLGRD&C in collaboration with UNICEF in the eight divisions of Bangladesh to assess and prioritize gaps in urban and rural WASH services and institutional WASH services delivery. Costed action plans have been developed to address the priority gaps.

The major findings of the WASH Bottleneck Analysis are as follows:

a. Sensitization at the Ministry is critical.

b. A separate stakeholder sensitization workshop at the national level is needed prior to rolling out at the regional/division level.
c. A cadre of facilitators and reporters should be identified carefully from sector partners.
d. Regional /divisional WASHBAT exercise is critical to address regional disparities in the planning process.
e. WASHBAT workshop to be organized before the preparation of the Five-Year Plan and SDP with regional data and briefing notes.
f. In the future, there is a need to engage public representatives from LGIs and include more private sector representatives in the workshop.
g. Encourage participation of more female representatives in the workshop to better identify and address gender issues.

3.5.3 The National Adaptation Plan of Bangladesh (2023-2050)

The adaptation plan acknowledges the importance of WASH and the link between sanitation, water resources, and health, recognizing the interconnectedness of these issues when it comes to climate change adaptation. It outlines eight core sectors for adaptation strategies; WASH is included as a cross-cutting issue alongside infrastructure, health, etc. This indicates that sanitation is recognized as essential for overall well-being, but lacks a dedicated action plan within the adaptation plan. Bangladesh faces significant challenges due to climate change, including rising sea levels and increased flooding. These events can damage sanitation infrastructure and contaminate water sources, leading to outbreaks of waterborne diseases. A dedicated sanitation plan within the adaptation plan could outline strategies for building climate-resilient sanitation facilities and ensuring continued access to safe sanitation during extreme weather events.

3.5.4 Bangladesh National WASH Accounts 2020

This is the first-ever 'National WASH Accounts 2020', which sheds light on WASH sector expenditure and investment trends across the country, published by BBS in 2023 (BBS, 2023d). It revealed some interesting insights about WASH sector expenditure. Around 2.18 percent of Bangladesh's GDP was spent on WASH in 2020. Households spent an average of 4.30 percent of their annual income on WASH, with a breakdown of BDT 1,502 on water, BDT 1,985 on sanitation and BDT 8,087 on hygiene products and practices. Moreover, per capita spending across three WASH components shows that per capita expenditure on hygiene (BDT 2,093) is significantly higher compared to water (BDT 500) and sanitation (BDT 898). Expenditure on hygiene accounts for around 60 percent of the total WASH spending, followed by sanitation at 26 percent. Drinking water accounts for 14 percent of the total WASH spending.

3.5.5 Sanitation Data Command Center

The Department of Public Health Engineering (DPHE), and a2i (Access to Information), the multi sectoral digital transformation center of the Government of Bangladesh, have started a new initiative to establish a Sanitation Data Command Center in Bangladesh to accelerate the progress towards achieving SDG 6.2. This is a unique and timely initiative to enable an evidence-based decision-making culture for supporting SDGs in smart WASH and sanitation in Bangladesh. The Sanitation Data Command Center provides a one-stop platform for accessing, storing, analyzing

and visualizing sanitation data from various sources and levels. It builds on the existing National Sanitation Dashboard, which was established by DPHE in 2019. The dashboard contains sanitation, solid waste, drainage, and shit flow diagram (SFD) related information of 61 cities across the country. The Sanitation Data Command Center expands the scope and coverage of the dashboard to include additional information on the rest of the cities and eventually data from rural areas.

The Sanitation Data Command Center will support data-based decision making, resource planning and management, policy formulation and implementation, and progress tracking and reporting for the sanitation sector. It will also foster transparency, accountability and participation of different actors and beneficiaries in the sector. Moreover, it will contribute to achieving other SDGs that are interlinked with water and sanitation, such as health, education, gender equality, poverty reduction, etc. (GWSC, 2023).

3.5.6 Institutional and Regulatory Framework for Fecal Sludge Management (IRF-FSM)

Aligning with Sustainable Development Goal 6.2, the IRF-FSM recognizes the diverse sanitation needs of different regions and provides specific guidelines for Mega City Dhaka, other City Corporations, Municipalities (Paurashavas), and Rural Areas (Figure 3.4) to manage human waste. The framework assigns clear roles and responsibilities to various stakeholders in the management of fecal sludge. Government agencies like the DPHE and local authorities will collaborate with private service providers for emptying and transporting fecal sludge. By emphasizing the entire sanitation chain, the IRF-FSM focuses on safe containment of waste, hygienic collection and transportation of fecal sludge, and proper treatment and disposal of fecal sludge.

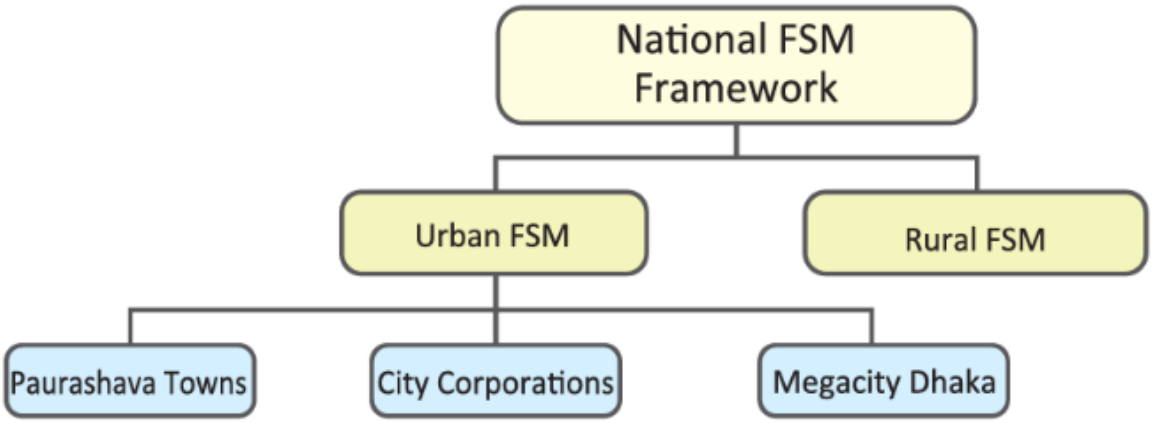


Figure 3.4: National FSM framework for different types of areas in Bangladesh (LGD, 2021)

National Action Plan (2021-2030)for city corporations for the implementation of IRF-FSM (2021) was prepared in May 2021 and in March 2020 for rural areas. In the action plan, a tentative budget for the first three years (2019-2021) for national-level actions and twelve years (2019-2030) for upazila/union-level actions has been proposed.

3.5.7 WASH in Healthcare Facilities (HCFs)

Across the country, WASH services in HCFs fall short of WHO and national standards. The National Strategy for WASH in Health Care Facilities 2019-2023: A Framework for Action was adopted in 2019 (DGHS, 2019). This strategy spoke about a health-systems strengthening approach, and the objective was to articulate a pathway that would strengthen all HCFs in the country to deliver standardized and effective Infection Prevention and Control (IPC) services and bring about a new era of quality healthcare for the people, moving toward universal health coverage. Subsequently, WASH Standards and Implementation Guidelines for HCFs (2023)were also published to facilitate the implementation of a strategy for the provision of WASH services in HCFs.

3.5.8 National Sanitation Marketing Guidelines, 2020

The National Sanitation Marketing Guidelines(2020)has been developed to promote a market with diverse sanitation products and a strong delivery chain. Despite significant progress in sanitation coverage, there are some geographically difficult areas, including HtR areas, where sanitation coverage is comparatively low. The use of low-quality, easily degradable sanitation products prevailing in the market in those areas are a hindrance to ensuring sustainability. So, a market for good-quality sanitation and hygiene products with a robust service delivery chain is essential.

3.5.9 COVID-19 and WASH Sector

To reinforce the benefits of reducing transmission and impact of the COVID-19 pandemic, the MoLGRD&C has finalized a "National WASH Sector strategic paper to respond to the COVID-19 outbreak through Water, Sanitation and Hygiene interventions". This was developed with technical assistance from UNICEF and in close collaboration with other relevant ministries, especially Health, Education, Information, Religious Affairs and other various important local, national and international stakeholders. In addition, the government also developed and adopted the Hand Hygiene for All (HH4A) roadmap to bridge momentum for hand hygiene in the COVID-19 response with a longer-term goal of making hand hygiene a pillar in public health interventions in Bangladesh.

3.5.10 Cross-Sector Linkages

Many targets set for water resources, maternal and child health, education, gender equality, and economic growth cannot be realized as they invariably depend on people gaining access to the most basic human needs – safe water, improved sanitation and hygiene. The WASH sector has successfully established partnerships and cross-sector linkages with health, education and LGIs, giving a direct impetus to achieve SDGs.

CHAPTER 4: SECTOR CHALLENGES AND EMERGING ISSUES

There are various prevailing challenges and new issues evolving in the WASH sector. This chapter categorizes these challenges by geographical areas, socio-economic groups, and other populations requiring special attention. Then, an attempt is made to connect the WASH sector with water resources management. The chapter concludes with a discussion on water quality issues and related topics.

4.1 ISSUES AND CHALLENGES OF THE WASH SECTOR

Bangladesh has made significant strides in WASH access, but challenges remain. Despite increased access to improved water sources, arsenic contamination and unreliable quality are important issues to be addressed. Open defecation is rare, but many rely on unsafe sanitation methods. Limited funding, lack of trained personnel and poor infrastructure resilience to floods hamper progress. Bridging the gap between access and quality, alongside behavioral change and sustainable management, are key hurdles to overcome.

4.1.1 Urban Sub-sector

Although momentous progress has been made by Bangladesh in the WASH sector in recent decades, there are still several issues and challenges that need to be addressed, mostly in urban areas. The major key issues and challenges include:

a. **Rapid urbanization:** Bangladesh is one of the most rapidly urbanizing countries in the world. This is putting a strain on urban WASH services, which are already struggling to meet the needs of the existing population.
b. **Climate change:** Climate change is posing several challenges to urban WASH services, including sea level rise, saltwater intrusion, and more extreme weather events. These challenges are making it more difficult to provide safe and reliable WASH services to the urban population.
c. **Water scarcity:** Water scarcity is due to several factors, including population growth, climate change, overexploitation of groundwater, and pollution of surface water.
d. **Unfavorable scenario of sanitation:** Urban sanitation is beset by poor fecal sludge management, resulting in health hazards and environmental pollution.
e. **Awareness and hygiene practices:** Lack of awareness and poor hygiene practices are also challenging for urban WASH services. These lead to the spread of waterborne diseases.
f. **Cost recovery:** Partial cost recovery hinders the successful operation of the water supply system. Without an appropriate water tariff, sufficient revenue for long-term financial sustainability is not possible. Thus, a water supply system might not be entirely successful if full cost recovery is not in place, keeping a safety net for the poor and hardcore poor.
g. **Urban slums:** A noteworthy proportion of the urban population lives in slums. Slum dwellers often have limited access to WASH services due to overcrowding, poor infrastructure, and lack of affordability.
h. **Solid Waste Management:** Generation of solid waste has been increasing with time as rapid urbanization has been taking place. Safe disposal of the solid waste is a major concern in the urban areas.

i. **Wastewater management:** A substantial proportion of wastewater in urban areas is not collected or treated properly. This is leading to water pollution and public health risks.

There is still a long way to go to ensure that all urban residents have access to safe and sustainable WASH services.

4.1.2 Rural Sub-sector

Rural water supply is based on groundwater sources, which are almost free from pathogens. However, in arsenic-affected areas, water in most shallow aquifers is arsenic-contaminated. Moreover, in some areas, the water table of the unconfined aquifer goes down beyond the capacity of lifting water by atmospheric pressure, particularly during the dry season. Inadequate infrastructure and limited funding, along with other emerging issues for the development of rural water sources and sanitation facilities, have compounded the challenges facing the rural WASH sub-sector. The challenges also include the disproportionate number of women and girls spending a significant time fetching water, the vulnerability of children to waterborne diseases and the challenge of accessing traditional WASH services by physically challenged people.

a. **WASH facilities:** Site selections of the WASH infrastructure (water points/sources, latrines) allocated out of public funds are being done locally at the union/upazila level. Unfortunately, in many cases, it is noticed that local influential people influence the site selection processes. As a result, the powerless poor and marginalized section of society remains deprived of getting required WASH services.
b. **Depletion of groundwater table:** Over-extraction of water for agricultural purposes, climate change, and poor management practices are contributing to the depletion of the groundwater table.
c. **Arsenic contamination in groundwater:** Analysis of household drinking water samples indicates that 83.3 percent of the population consumes water within the level of WHO guidelines, while six percent consume water having concentrations between >10 and <50 ppb and over five percent drink water with a level of arsenic between >50 and <200 ppb. A little over five percent of the household population drinks more than 200 ppb, the highest risk category. In total, 89.4 percent of the population drink within the Bangladesh limit, and the remaining 10.6 percent consume above the 50 ppb level (BBS, 2021).
d. **Climate change, sea level rise, and saline intrusion:** Both surface and groundwater sources are being affected by saline intrusion due to sea level rise, causing scarcity of drinking water, particularly in vast areas of the southern coastal areas.
e. **Inaccessibility to WASH services:** In hard-to-reach and hilly areas, people have limited access to WASH services. Sometimes, they are forced to rely on unsafe water sources, which can lead to waterborne diseases.
f. **Sustainability of latrine use:** Sustainability is a significant concern for latrine use. Most latrines are single-pit latrines, and once the pit is filled up, a new pit needs to be constructed, and the slab needs to be placed over it or connected to it. Experience shows that once the pit is filled up and the existing latrine cannot be used, there is a tendency in some cases to revert to open defecation. The pit latrines are usually designed for single-family use, so sharing latrines is not technically suitable or socially viable in the long run.
g. **Natural disasters:** Different types of natural disasters occur in Bangladesh regularly. Many parts of the country are inundated by floods every year, causing damage to pit latrines

built in soft alluvial soil. Flash floods and storm surges wash out latrines recurrently, particularly in the north-eastern and southern coastal areas, respectively. The destruction of latrines by cyclones is a regular phenomenon.

h. **Inadequate safely managed sanitation facilities:** Many people do not have access to safely managed sanitation facilities, which might contaminate the environment and spread diseases.
i. **Proper utilization of block allocation by upazilas:** Upazilas get some percentage of funds (block allocation) from the LGD every year earmarked for sanitation activities. This allocation needs to be properly utilized as nonconformity of utilization exists.
j. **Poverty:** Poverty is a significant challenge for WASH in rural areas. Many people in rural areas are too poor to afford to pay for WASH services or to invest in WASH infrastructure.
k. **Operation and Maintenance (O&M):** O&M for sustainable WASH services functionality is challenging. Despite the existence of many water points across the country, there are substantial gaps in the functionality of these water options and water supply reliability in terms of safe water due to proper O&M. Non-functional water supply has a high impact on access, particularly for the poor and marginalized (well-off people can arrange alternative source). Due to a lack of proper maintenance, the technologies for water supply and sanitation often remain non-functional and become redundant.

4.1.3 Chattogram Hill Tracts (CHTs)

The geophysical characteristics, as well as the hydrogeology of CHTs, are different, and they frequently change within short distances. The WASH technologies used in CHTs are also not similar, and many ethnic minorities live there. As such, issues and challenges are also dissimilar to other areas. Challenges and issues of the CHTs could be summarized as follows:

a. **Geo-physical characteristics:** Hilly areas certainly have different geophysical characteristics than plain land, which hinders getting WASH service provisions.
b. **Difficult hydrogeology**, like rocky formations in some areas, makes the availability of drinking water sources tough, particularly safe groundwater sources.
c. **Socio-cultural aspects** of the people of the ethnic minorities differ in many ways, which need special attention when providing WASH services to them.
d. **Scattered patterns** of houses due to low population density and high altitude of houses present a challenge in providing WASH facilities there;
e. **Seasonal fluctuation of flow** in surface water sources like springs and streams poses extra pressure on the availability of water in the dry season; and
f. **Poverty** is rampant in CHTs, which hinders the building of necessary WASH infrastructure for many households. Moreover, some ethnic groups prefer their traditional practices because of cultural beliefs.

4.1.4 Hard to Reach (HtR) Areas

The challenges of HtR areas are based on physiographic conditions and spatial distribution and are summarized below.

a. **Water scarce areas:** Due to the decline of the GW table, drying up of surface water sources and lack of a rainwater storage system, water scarcity becomes evident in the dry season. Sanitation options become unhygienic due to water scarcity and poverty.
b. **Char areas:** Regular inundation due to monsoon rain and upstream flash floods causes river erosion in char areas. Extreme poverty is also common there. All these factors hinder the provision of WASH services.
c. **Coast, offshore islands and saline prone areas:** Water and sanitation infrastructure are damaged due to cyclones, tidal surges and inundation of lowlands and offshore islands. Saline intrusion is also becoming an emerging issue in these areas.
d. **Haor and Beels:** These areas remain under water for a long period of the year, and the absence of adequate roads and communication networks restricts easy movement of the inhabitants, causing problems in getting WASH services. Moreover, in some areas, GW is arsenic-contaminated.

4.1.5 Solid Waste Management

SWM is a complex issue that requires a multi-pronged approach. The government, the NGOs, the private sector, and civil society all need to work together to improve SWM in Bangladesh. Challenges that need to be addressed in order to improve SWM are as follows:

a. **Infrastructure:** Lack of necessary infrastructure, such as landfills, incinerators, and solid waste treatment/processing facilities.
b. **Awareness:** Many people are unaware of the importance of proper SWM practices.
c. **Funding:** The government has yet to allocate enough budget to SWM.
d. **Promotion of recycling and composting:** The government, NGOs and private sector need to promote recycling and composting to reduce the amount of waste that goes to landfills.

4.1.6 Educational Institutions, Health Care Facilities and Public Toilets.

4.1.6.1 Educational Institutions

The following are some challenges in schools and other educational institutions:

a. Low awareness of the importance of WASH in schools;
b. Inadequacy of standard designs of WASH facilities, especially for HtR areas;
c. Lack of integration of WASH activities with the education system;
d. Poor functioning of WASH facilities soon after construction;
e. Non-functioning of regular O&M, cleaning arrangement, etc. for promoting menstrual hygiene practice and sustaining hygiene in schools;
f. Sustainability of the government funding mechanism; and
g. Absence of government funding for non-government schools.

4.1.6.2 Health Care Facilities (HCFs)

Issues and challenges are as follows:

a. Provision of WASH facilities has been a neglected area for a long time;
b. Inadequacy of safe water supply, functional toilets, and hand washing facilities in HCFs is critical for preventing infection transmission from the health care facilities to the beneficiaries;
c. WASH services are the least prioritized area amongst the health policy makers and the service providers;

d. Lack of information on WASH services in the health care facilities;
e. O&M of WASH facilities is not taken as an important or priority issue; and
f. WASH-related information is not properly reported by the district and upazila health complex, nor is it asked for by the DGHS.

4.1.6.3 Public Toilets

A few challenges related to public toilets, from their construction to use and O&M are as follows:

a. Finding appropriate space for the construction of public toilets, particularly in crowded places;
b. Most of the toilets remain unclean and lack running water. This makes them unhygienic and unsafe, especially for women and children.
c. There are not enough public toilets, especially in crowded areas. This forces people to resort to open defecation, which is a major public health risk.
d. Poor lighting and a lack of attendants can often make public toilets dangerous, particularly at night. This discourages people from using them, especially women and girls, and
e. While a small fee might be understandable for maintenance, the cost can be a barrier for some, particularly slum dwellers and marginalized groups.

4.1.7 Vulnerable Groups

Challenges faced by the vulnerable groups in the WASH Sector in Bangladesh:

4.1.7.1 Women:

a) Inaccessibility to private WASH facilities can lead to safety issues and privacy concerns.
b) Cultural taboos surrounding menstruation can make it difficult for women to manage their hygiene during their periods.

4.1.7.2 Children:

a) Increased vulnerability to WASH-related diseases, which can lead to stunting and hinder their growth.
b) Non-attendance at school due to illness caused by poor hygiene and sanitation.
c) Limited access to hygiene education, which can lead to poor hygiene practices.

4.1.7.3 People with Special Needs (Disabled):

a) Inaccessible sanitation facilities that are not designed to meet their specific needs.
b) Difficulty practicing proper hygiene due to physical limitations.
c) Social stigma and exclusion that can prevent them from accessing WASH services.

4.1.7.4 Ethnic Minority Population:

a) Traditional practices that may not be aligned with WASH guidelines, such as defecation practices.
b) Language barriers that can hinder communication about WASH practices and their importance.
c) Remote locations that make it challenging to develop and maintain WASH infrastructure.

4.1.7.5 Tea Garden Dwellers:

a) Poor living conditions with limited sanitation facilities.
b) Dependence on often-polluted water sources.
c) Lack of ownership rights over their dwellings can make it difficult to invest in WASH improvements.

4.1.7.6 Floating Population:

a) Constant movement makes it difficult to access WASH services consistently.

b) Increased vulnerability to waterborne diseases due to limited access to safe water and sanitation.

4.1.8 Climate Change

The impacts of climate change are huge in a country like Bangladesh. The country is located in a low-lying delta region and is prone to flooding, cyclones, and other extreme weather events. Climate change is worsening these risks and causing a number of negative impacts on Bangladesh. A multi-hazards risk map for Bangladesh is created, which illustrates the spatial distribution across the country. The risk map includes all hazards and segregates the country into 11 (eleven) climate stress areas shown in Figure 4.1.

Being a lower riparian country, Bangladesh largely depends on freshwater availability from the country's transboundary rivers. Recent research on global freshwater storage depicts the area in and around Bangladesh as having a water deficit (Rodell et al., 2018). It is characterized by water depletion and less water reaching the groundwater layer. Due to climate change, the average annual flow of the Ganges, Brahmaputra and Meghna river basins will increase, resulting in more frequent river floods and erosion. Additionally, flash floods might occur early and become more frequent, droughts during the dry season might become more severe, and water scarcity might be aggravated. Due to sea-level rise and increased salinity, more coastal areas will face freshwater shortages and damage to agriculture, while extreme heat might cause a reduction in water bodies. The potential impacts and risks for water resources are presented in Table 4.1.

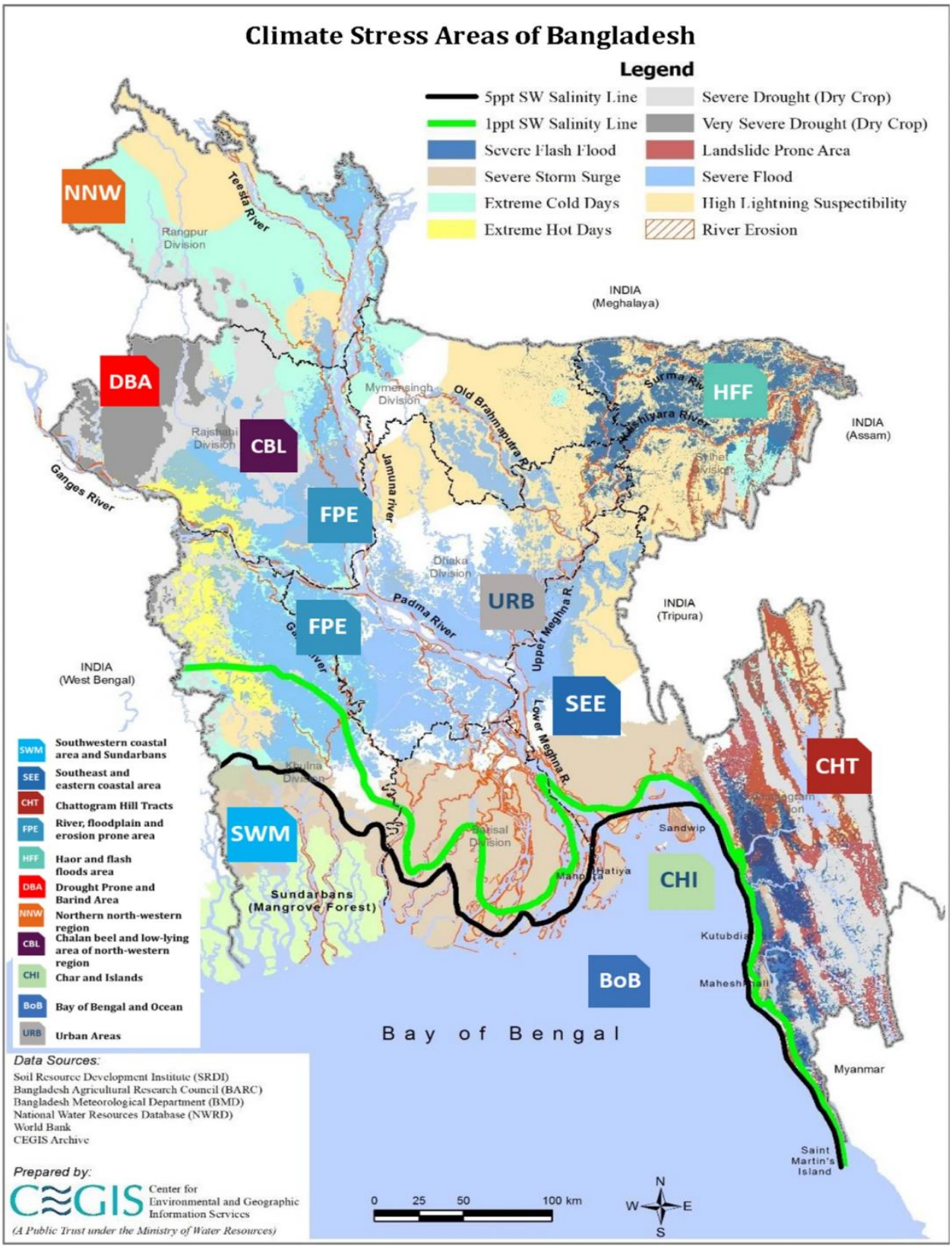


Figure 4.1: Climate Stress Areas of Bangladesh (MoEFCC, 2022)

Climate change is having a significant impact on sanitation infrastructure in Bangladesh. Sanitation infrastructure is often severely affected by cyclones and post-cyclone water logging. This damage makes it difficult to provide safe and reliable sanitation services. Rural areas mostly depend on off-set pit latrines, which are very common in smaller towns and peri-urban areas. These latrines are easily washed away or flooded, and superstructures can be damaged by strong cyclone winds. Cyclones can lead to high waves and flooding, leaving land and toilet sub-structures inundated for days.

Table 4.1: Potential impacts and risks for water resources (MoEFCC, 2022)

Climate Signals and Hazards	Potential Impacts
Excessive rainfall	-Water logging and drainage problems -Frequent erosion
Extreme heat	-Decreases in perennial water bodies and wetlands
Frequent river floods	-Sediment problems -Prolonged waterlogging
Early or frequent flash floods	-Drainage problems in drainage structures -Sediment problems -Water management infrastructure becomes dysfunctional/damaged
Severe drought/water scarcity	-Lower water availability -Hampered water security -Dependency on groundwater increases and -groundwater depletion
Increased salinity	-Less freshwater availability -Unfavorable water quality
Frequent tropical cyclones/ tornado and storm surges	-Water quality deteriorates -Saltwater ingress
Sea-level rise	-Salinity increases

4.1.9 Other Emerging Issues

Bangladesh's WASH progress faces new challenges. Climate change threatens water sources and infrastructure, while rapid urbanization strains existing systems. Issues like industrialization have led to increased water pollution and made it difficult to provide safe drinking water and sanitation services. Rural water supplies, often dependent on tube-wells, are at risk from arsenic contamination, intrusion of salinity in groundwater and overuse. A growing concern is safe management of fecal sludge, especially in densely populated cities. The lack of fecal sludge management creates environmental and health risks. Moreover, marginalized communities are often left behind. Ensuring equitable access for marginalized groups and remote areas remains a hurdle. Addressing these issues requires investment in climate-resilient infrastructure, expanding urban WASH services, promoting water resource management, strengthening fecal sludge management, and ensuring equitable access for all. Disasters like earthquakes, infrastructure collapse, fire outbreaks, landslides, and epidemics also occur at times. WASH services are very critical in those situations. Finally, securing long-term funding to maintain and expand WASH services in the above-mentioned situation is crucial.

4.2 LINKAGE TO WATER RESOURCES MANAGEMENT

4.2.1 Surface Water (SW)

In Bangladesh, surface water resources consist of river flow, water on standing water bodies (water storage in reservoirs, water bodies such as lakes and ponds), water on seasonal wetlands, and instream storage. There are about 230 rivers in the country, with a total length of 24,000 km. Most of the flow in the river system is generated from outside the country and passes over the country through 57 transboundary rivers. The annual average inflows of the three major rivers, Ganges, Brahmaputra and Meghna, is 981 km^3 in the wet season and 148 km^3 in the dry season (of which 111 km^3 is provided by the Brahmaputra only) (MoEFCC, 2021). Figure 4.2 shows the river system in the country. During the wet season, the rivers receive an additional flow of about 113 km^3 from the combined regional runoff. Thus, only eight percent of Bangladesh's water resources are produced internally. The combined volume of inflows and runoff, which is not consumed (1373 km^3) is discharged to the sea annually.

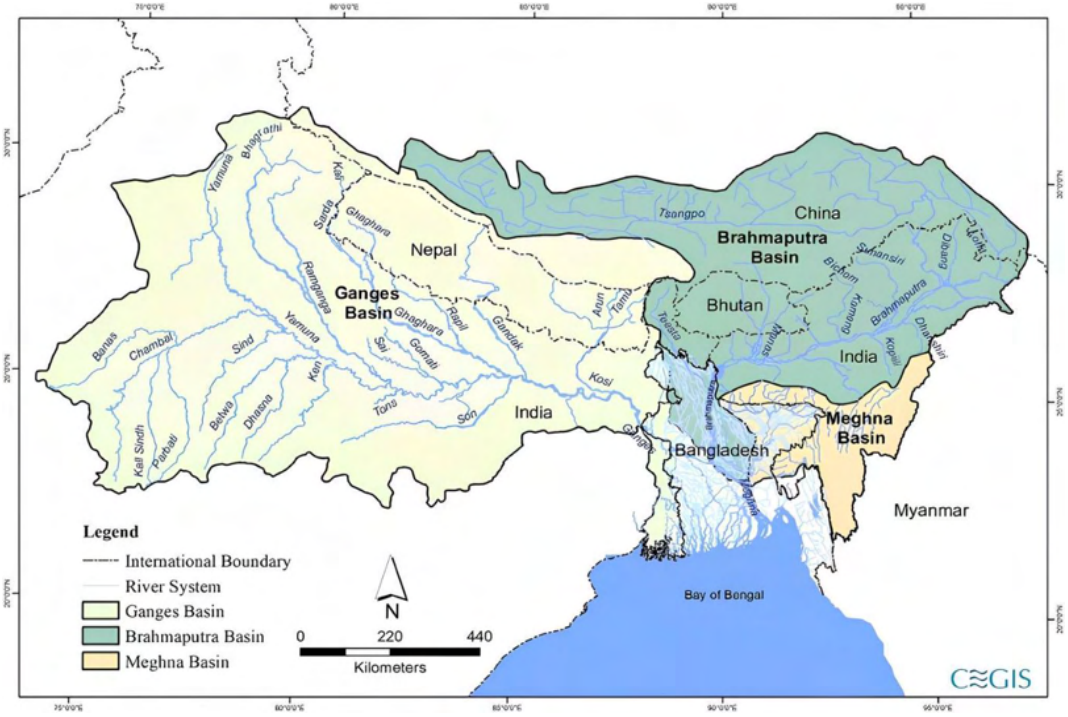


Figure 4.2: Three major rivers of Bangladesh and River Systems (Ganges, Brahmaputra and Meghna basins) (MoEFCC, 2021)

Wetlands, Water Bodies and Lakes

Along with rivers, there are other surface water sources in Bangladesh. Some of those are natural, and some are man-made. A network of beels, haors, baors, lakes, khals, and ponds exists in the country, comprising a rich source of water bodies. Some of these remain underwater for the whole year, whilst others are submerged in the wet season only. Haors are bowl or saucer-shaped depressions and are mostly seen in the north-eastern part of the country, in the Sylhet basin. The haor area constitutes a mosaic of wetland habitats, including rivers, streams and irrigation canals, large areas of seasonally flooded cultivated plains, and hundreds of haors and beels. This zone

contains about 400 haors and beels, varying in size from a few hectares to several thousand hectares. There are 373 haors in the north-eastern region with a total area of 858, 460 hectres.

Beels are usually depressions or topographic lows produced by erosion or other geographical processes. These are generally smaller and seen all over Bangladesh. Many beels dry up in winter and expand during the monsoon season into large and shallow water bodies. Beels are generally smaller than haors, but there are also large beels like Chalan beel (in Rajshahi division), through which the Atrai river passes. Occasionally, small permanent water bodies within the haors remain after the haors dry up. These are also called beels, which occupy the lowest part of the depressions. A third category is the baor or oxbow lake, mostly found in the moribund delta, such as in greater Cumilla, Faridpur, Dhaka, and Pabna districts. Kaptai Lake is the largest (permanent) lake in the country, covering an area of around 680 km^2; created after the construction of the Kaptai dam for hydropower generation. The average annual flow in the reservoir is approximately 15,646 million m^3. The flood absorption capacity is 1024 million m^3. Another prominent lake is Bogakine Lake, which is a natural lake situated in the Bandarban district in the Chittagong Hill Tracts. Other lakes include Rinkhyongkine and Foys, all situated in the eastern hills (EH), Chattogram division(BDP 2100, 2018).

Ponds

An estimated 1.3 million ponds exist in the country, covering some 151,000 ha or 11 percent of the permanent inland water. In general, the size of the ponds varies between 0.02 and 20 ha, with an average area of 0.30 ha(MoWR, 2024).In Bangladesh, though in the past ponds were constructed for washing, bathing and irrigation purposes, recently, many ponds are being constructed absolutely for fish culture purposes. There are two types of ponds based on water retention capacity – the perennial ponds - which contain water round the year and the seasonal ponds - which contain water at certain times or seasons (mainly in monsoon) (Hossain, 2015).Before the introduction of tube-wells in the 1960s and 1970s, ponds were important sources of drinking water in rural areas. Up to 80 percent of women make use of ponds for their needs, including water for cooking and bathing(WARPO, 2004).

Recently, many ponds across the country have been re-excavated by the DPHE for use as sources of drinking water. Before that, some ponds were re-excavated on a piloting basis in the coastal districts under a project provision. Pond water is used for household purposes by constructing Pond Sand Filter (PSF) at the embankment of the pond. Some of these are solar-powered PSFs.

The total area covered by open and closed water bodies is some 43,980 km^2, as presented in Table 4.2.

Table 4.2: Total area of water bodies in Bangladesh (GED, 2018)

Open Water Bodies		Closed Water	
River and Estuaries	10320 km^2	Ponds	2150km^2
Beels and Haors	1140km^2	Baors	50km^2
Kaptai Lake	680km^2	Coastal Lowlands	1410km^2
Flooded Land (average)	28330km^2		
Total	40470km^2	Total	3510km^2

Bangladesh Water Act (2013) emphasized *conserving the water of a dighi, pond, or any other similar water source as a source of potable water due to severe scarcity of such potable water for any natural or other reasons [Rule 22 (1)(a)].*

4.2.1.1 Use of SW as source of drinking water

At present, groundwater accounts for around 90 percent of drinking water sources in Bangladesh. Conjunctive use of surface water and groundwater for household purposes has been promoted for a long. The use of surface water has been increasing in recent times. WASAs (Dhaka, Chattogram, Khulna and Rajshahi) are using water from different rivers as sources of water (see 2.3.2). Barisal and Sylhet city corporations are also using water from the rivers Kirtonkhola and Surma, respectively, as sources of their water supply system. In many other secondary towns like Gopalganj, Sunamganj and Pirojpur, river water is solely used as a source of water as there are no other suitable groundwater sources. In some district towns like Chandpur, Cox's Bazar, and Bandarban, river water is used in addition to groundwater. The water from Kaptai Lake is used in the Rangamati water supply system. The water supply system of Mongla paurashava in the Bagerhat district is also served by surface water.

4.2.1.2 Issues and challenges of SW

The use of surface water requires some important considerations before selection as a source of drinking water, which are as follows:

a) Availability of too much and too little water in different seasons as well as its erratic occurrence;
b) An intricate network of alluvial rivers carrying huge annual discharge and sediment load and unstable in nature, which causes bank erosion;
c) Withdrawal in upstream areas having serious effects on socioeconomic growth, environment and ecology, and fish habitations;
d) Inland navigation blockages due to siltation;
e) Increased water demand for domestic, agricultural, irrigation and industrial use;
f) Increased surface water pollution due to industrial effluent and domestic discharge; and
g) Increase in salinity in the coastal belt.

The quality of surface water is vital for use as drinking water. There are issues of two broad categories regarding surface water, pollution and salinity.

Fresh water availability is shrinking due to imprudent use. Unwise dumping of industrial, household, agricultural and municipality wastes has been polluting the abundant availability of fresh water. In Bangladesh, water bodies in urban areas are more severely polluted than in rural areas. High concentrations of pollutants are common for most water bodies in and around Dhaka region. The main sources of pollution in industrial cities are anthropogenic sources like untreated industrial effluent and municipal wastes. In contrast, in rural part the main sources of pollution are agricultural. The government has approved many policies, ordinances, acts and laws; however, due to lack of proper implementation and monitoring, the water pollution problem is increasing progressively(Sarkar et al., 2019).

There are 19 coastal districts covering an area of almost 28,000 Km^2, in which salinity is a normal hazard. The salinity level increases in the dry season (October- May), when upstream freshwater flow reduces. As a result of the rise in sea levels and the simultaneous decrease in the availability of fresh water in major rivers, saline intrusion is becoming a major problem for getting fresh water

in the rivers of the coastal areas, and the situation is aggravating day by day. Salinity reaches up to Khulna and affects the availability of fresh water.

4.2.2 Rain Water

4.2.2.1 Rainwater Harvesting

Rainwater harvesting can be a potential alternative to tackling the acute water crisis. Storing and reusing rainwater will also help coastal and hill people face the issue of salinity and reduce the excessive demands on groundwater.

In recent years, rainwater harvesting has emerged as a viable solution for providing water to coastal and arsenic-affected rural communities in Bangladesh. Pilot projects by the DPHE have led to the construction of rainwater harvesters (RWHs) in areas facing severe freshwater shortages, particularly in the districts of Pirojpur, Bagerhat, Satkhira, and Khulna. The DPHE is also implementing a government-funded project to install over 0.20 million household RWH systems in the coastal zone, with an investment of BDT 100 million, aimed at ensuring a reliable drinking water supply. Additionally, various NGOs are also involved in installing and constructing RWHs in these regions.

4.2.2.2 Issues and Challenges of Using Rain Water as Drinking Water:

a) Rainwater is not always safe to drink without treatment. As it falls through the atmosphere, it can pick up pollutants such as dust, soot, bacteria, and viruses.
b) Rainwater that collects on the ground or roofs can be contaminated by bird droppings, animal waste, and other pollutants.

If rainwater is considered a source of drinking water, it is important to take steps to ensure that it is safe to consume. This may involve filtering the water to remove contaminants, treating it with a disinfectant such as chlorine, or boiling it to kill germs.

4.2.3 Ground Water

4.2.3.1 Ground Water and Its Availability

Most of the areas of Bangladesh have been formed from the sedimentary alluvial and deltaic deposits of three major rivers. These alluvial deposits have formed mainly an unconfined aquifer for most of the area and groundwater is one of the major natural resources of the country. The estimated groundwater recharge is between 28 km^3 and 65 km^3 in Bangladesh. The shallow groundwater table rises nearly to the surface across Bangladesh during the wet season because of heavy rainfall and flooding. Water tables fall during the dry season because extensive water withdrawals and discharge to the rivers deplete the aquifers. Pre-monsoon periods (April to May) have the deepest groundwater tables, and post-monsoon periods (November) have the shallowest water tables(MoEFCC, 2021).

The aquifer system of Bangladesh traditionally was ‘depth based’ and divided into three categories. An upper of 1st aquifer, extending up to 50 mbgl (meter below ground level), which is called a shallow aquifer as well. The main/ lower or 2nd aquifer is extended from 50 to 150 mbgl and the deep or 3rd aquifer is beyond 150 mbgl. Detection of arsenic in groundwater made a paradigm shift in the classification of aquifer systems in Bangladesh. A new classification of aquifers (Table 4.3) has emerged, which is ‘sedimentary age-based’ and called Type 1, Type 2,

Type 3 and Type 4. The newly classified Type 1 and Type 2 aquifers are extended up to 100 mbgl with an age of less than 100 years, which could have a high level of arsenic contamination. The aquifer at a depth of 100-200 mbgl is classified as Type 3, which is 3000 years old and mainly free from arsenic but vulnerable to arsenic contamination. The Type 4 (deep aquifer) has a depth greater than 100-200 mbgl, which is 20,000 years old and free and protected (where red clay present) from arsenic contamination (Tuinhof and Kemper, 2010).

Table 4.3: Old and new classification of aquifer systems (Tuinhof and Kemper, 2010)

Depth Based (old)		**Sedimentary Age-based (new)**			**Level of Arsenic Contamination**
Aquifer Name	Depth (mbgl)	Aquifer Name	Depth (mbgl)	Age (years)	
Upper or 1st	0-50	Type 1 and Type 2	0-100	<100	High
Main/ Lower or 2nd	50-150				
		Type 3	100-200	3,000	Mainly free, but vulnerable
(Red Clay Layer)	>150				
Deep or 3rd		Type 4	<100-200	20,000	Free and protected (where red clay present)

In Bangladesh, only nine percent of groundwater is required for water supply, 12 percent for the environment, and 79 percent for agriculture. It is revealed that most of the groundwater is used for agriculture. Groundwater extraction is contributing to the decline of groundwater resources. The over-extraction of groundwater leads to a decline in the water table and increases salinity of groundwater.

The groundwater potential map was classified into five groundwater potential zones (i.e., very high, high, moderate, low, and very low- Figure 4.3). The very high and high groundwater potential zones were mostly found in the areas to the south, near the Bay of Bengal, and areas adjacent to major rivers. These two categories of groundwater potential (i.e., very high and high) were typically found in areas with considerable rainfall and silty clay loam soil type, which has considerable infiltration potential. Zones with moderate groundwater potential were generally found in valleys, locations with low-intensity development, and a high drainage density. The remaining two zones (i.e., very low and low) were mostly found in the hilly areas in the highlands, with a lower presence in the lowlands. Factors like steeper slopes, low lineament density, moderate to high drainage density, high-intensity development, and forest lands contribute to low and extremely low groundwater potential zones.

Heavy withdrawals of groundwater for irrigation have lowered the water table in many areas below the effective reach of hand tube-wells. Seepage of agrochemicals into shallow aquifers may also pollute water for human and animal consumption. Salinity intrusions from seawater deep into the land in the southwest are rendering groundwater unfit for consumption. Cities and urban areas, too, are facing the problem of receding water tables due to extensive groundwater extraction. Lack of access to safe water supply in rural areas is a special hardship for women who carry water over long distances, significantly impacting their health and productivity.

To address these problems, it is the policy of the government to:

a. Facilitate safe and affordable drinking water supply availability through various means, including rainwater harvesting and conservation.
b. Preserve natural depressions and water bodies in major urban areas to recharge underground aquifers and manage rainwater.
c. Mandate relevant public water and sewerage institutions to provide necessary drainage and sanitation, including treatment of domestic wastewater and sewage and replacement of open drains and construction of sewers, in the interest of public health.
d. Empower and hold responsible municipalities and urban water and sewerage institutions to regulate the use of water to prevent wastage and pollution by human action.
e. Mandate local governments to create awareness among the people in checking water pollution and wastage (WARPO, 2004).

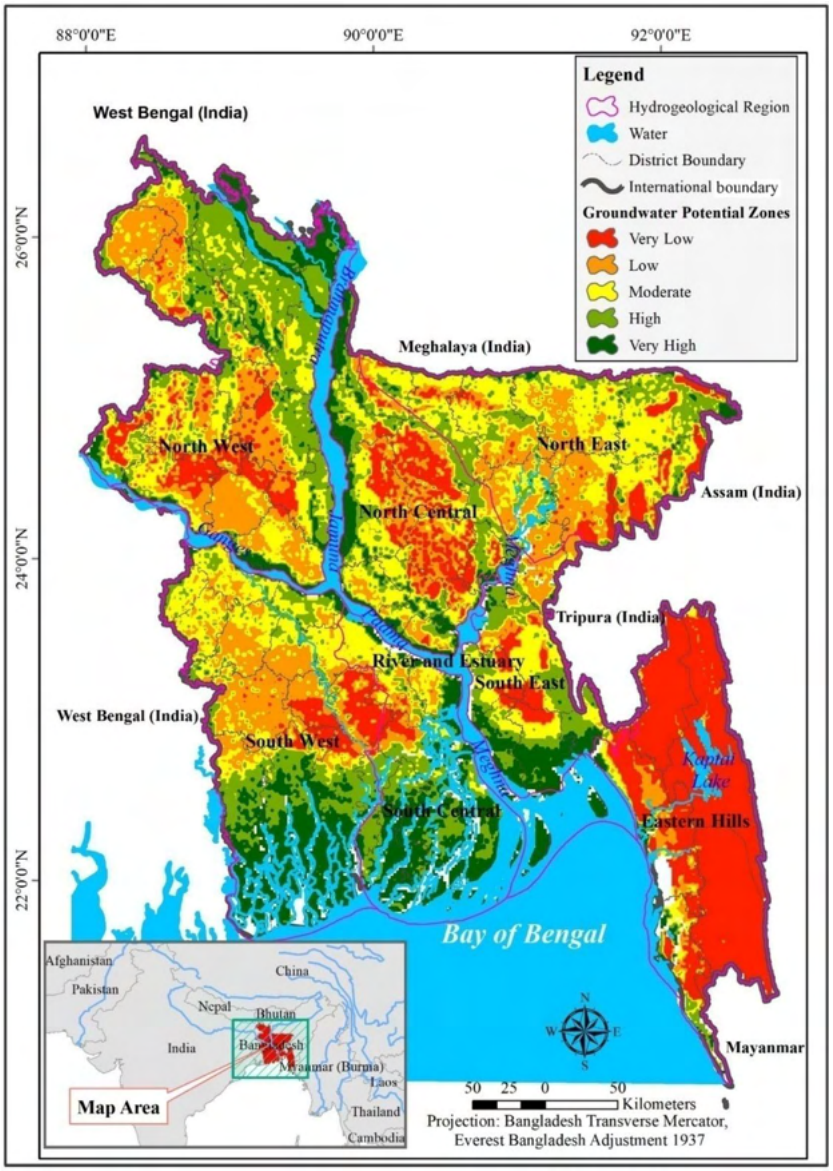


Figure 4.3: Groundwater potential map of Bangladesh (Sarkar et al., 2022)

4.2.3.2 Issues and Challenges of Using Groundwater as a Source of Drinking Water

Groundwater contamination in shallow aquifers has become a significant concern in recent years. In coastal areas, freshwater aquifers are being encroached upon by seawater. Throughout Bangladesh, groundwater levels decline during the dry season, although aquifers typically replenish during the monsoon. However, in major cities like Dhaka, excessive groundwater extraction has caused a long-term drop in the water table. Additionally, over-exploitation for irrigation and industrial use has further lowered groundwater levels, while pollution from these activities has compromised water quality. The lack of effective, comprehensive management also hinders the proper utilization of groundwater resources.

4.2.4 Policies and Institutions for Water Resources Management

Groundwater in Bangladesh is developed, utilized and managed by various agencies. Despite the existence of national policies on both water (resources) and safe water and sanitation, there is no integrated strategy to ensure the beneficial use, protection and sustainability of these vital natural resources. Current developments are mostly carried out on an ad hoc basis, driven by demand. Policies related to the water sector need to be reviewed individually, and also institutional specifications and overlaps between institutions and policies should be identified. Currently, there is a lack of coordination and cooperation amongst different ministries.

The main organizations involved in groundwater management are listed in Table 4.4. To this list of stakeholders, farmers and households need to be added, as they are the largest abstractors of the groundwater but have not been represented in water management earlier.

Table 4.4: Organizations involved in groundwater management

Ministry/Division/Private	Department	
	Key role	**Subsidiary role**
Water Resource	WARPO, BWDB	
Local Government	DPHE, WASAs	LGIs, LGED, RDA
Agriculture	BADC, BMDA	Department of Agricultural Extension (DAE)
Environment		Department of Environment (DOE)
Science and Technology		Bangladesh Atomic Energy Commission (BAEC)
Energy and Mineral Resources		Geological Survey of Bangladesh (GSB)
Private Sector		Institute of Water Modelling (IWM), CEGIS, Consulting Firms

4.3 WATER QUALITY

4.3.1 Drinking Water Quality Standards

The standards of drinking water quality for Bangladesh were published in the Environmental Conservation Rules (2023), under the provision of the Bangladesh Environmental Protection Act(1995). According to ECR(2023), there are two sets of standards for water quality: surface water and drinking water. There are 12 parameters for surface water; these are: pH, Dissolved Oxygen (DO), BOD, NO_3-N, NH_4-N, PO_4-P, Total Cr, Pb, Hg, Total Coliform, Total Dissolved Solids (TDS), and Chemical Oxygen Demand (COD). The surface water standards have been set for six different uses,

such as, for use as a source for water supply, recreational purposes, for aquaculture, for irrigation, etc. On the other hand, the number of parameters (physical, chemical and biological) for drinking water is 55. However, for commissioning of new tube-wells using groundwater as sources and for monitoring and surveillance purposes, every time, and all the parameters are not tested. Generally, arsenic (As), chloride (salinity), coli form (bacteria), and iron (Fe) are tested by DPHE for groundwater to be used for drinking purposes. And rarely, in particular areas, Manganese (Mn) and Fluoride (F) are tested. According to the Water Safety Framework (WSF) in Bangladesh(2011)**,** there are five first-priority and 35 second-priority parameters and targets. The first priority health-based parameters are Thermo-Tolerant Coliform (TTC), Arsenic, Chlorine (residual) and Nitrate; and Turbidity is non-health-based parameter. The water quality parameters may be divided considering the impact on health, aesthetics and geographic spread as follows (Table 4.5):

Table 4.5: Categories of Water Quality Parameters(SDP FY 2011-25, 2011)

Categories of Water Quality Parameters	Parameters
Natural parameters of concern and cover wide are as	Arsenic, iron, manganese and salinity
Natural parameters that are more localized or low intensity problems	Barium, boron, nitrate and ammonium
Anthropogenic parameters: risk associated with t heseparameters can be minimized through monito ring and putting up barriers against hazards	Microbiological, agrochemical and industrial pollutants
Health-related parameters by WHO but are not expected to occur in Bangladesh (need to be confirmed by analyzing representative samples)	Mercury, tin, radioactivity and silver

4.3.2 Water Quality Monitoring and Surveillance

Water quality monitoring is an essential element of safe water supply, although the water quality surveillance capacity is limited. The DPHE, DoE and Bangladesh Standards and Testing Institution (BSTI) are responsible for water quality surveillance; however, their capacity in terms of manpower and other logistics is limited compared to the task to be performed for the huge number of water points in the rural areas. The DPHE has developed a Water Quality Surveillance Protocol that describes parameters for testing, procedures/ methods and sampling frequency in ideal conditions. DPHE has 15 water quality testing laboratories including a Central Laboratory at Dhaka. In addition, DPHE has water testing facilities in 52 districts of the country. The WASAs have their water quality testing facilities. Nevertheless, the WSF(2011) has the provision to give the responsibility of surveillance of WASA's performance to the Public Engineering Universities (in place of DPHE).

There are more than 1.86 million functional public tube-wells in the country installed by DPHE as of June 2023. Privately installed tube-wells are multifold more than public tube-wells. Monitoring the water quality of huge numbers of tube-wells is a massive task.

Under the provision of JICA-assisted 'Project for Improvement of Comprehensive Management Capacity-1 (PICMaC-1)' of DPHE, the following four mechanisms were developed to monitor Water Supply and Quality Monitoring. Out of four, two mechanisms are now under implementation.

a. **Groundwater Source Monitoring and Feedback Mechanism:** Water level and quality (Arsenic, Iron and Chloride concentration) of the water of two (dedicated observation) tube-wells in each union are being monitored. The mechanism aimed to monitor twice a year (dry and wet seasons), but due to budget constraints presently it is being done only in dry season.
b. **Water Quality Monitoring and Surveillance and Feedback Mechanism in Rural Water Supply Areas:** Water quality (Arsenic, Iron, Chloride concentration and Fecal Coliform) of the selected options in all the unions (at source and consumption points) are being tested once in 5years.
c. **Drinking Water Monitoring and Feedback Mechanism for Rural Areas:** All the water points installed by DPHE will be monitored twice a year, in dry and wet seasons. Monitoring items include (i) Functionality (functional and nonfunctional water points with problem), (ii) Water Quality (Taste, Odor, Color and suspended solid) (iii) Optional Problem (existing and breakdown)
d. **Drinking Water Monitoring and Feedback Mechanism for Paurashavas:** All the piped water supply schemes and point sources in Paurashavas will be monitored twice a year, in dry and wet seasons. The monitoring items are similar to the rural water supply areas.

The first two mechanisms are under implementation since 2022-23. It started in three districts (Gazipur, Rajshahi and Khulna) in 2022-23. In the next year 2023-24, seven more districts (Rangpur, Mymensingh, Jhenaidha, Gopalganj, Barisal, Noakhali and Sylhet) were included making a total of ten districts. Further in 2024-25, nine districts (Gaibandha, Bogura, Natore, Tangail, Dhaka, Faridpur, Satkhira, Cumilla and Habiganj) were added. Altogether, now, the first two mechanisms are underway in 19 districts. Thus, although mechanisms for proper monitoring and surveillance of groundwater quality have been made, they could not be put in place due to human resources and budget limitations.

Preferably water quality monitoring needs to have three levels of monitoring (Table 4.6). At present, there is some Level-1 and Level-2 monitoring, but there are no such activities or regulations for Level-3 monitoring. The obligatory quality assurance role of the water suppliers/providers, as per Level-1, is highly important because the consumers' health risk lies in the water quality at this point.

Table 4.6: Different levels of water quality monitoring (SDP FY 2011-25, 2011)

Monitoring Levels	Functions	To be carried out by	Remarks
Level-1	Testing water quality parameters critical to a specific drinking water supply system as an obligatory routine function of the water suppliers/ providers under the responsibility for operational monitoring	Urban areas by WAS As, Paurashavas and City Corporation Rur al areas by Union Par ishads, communities, individual households	O&M of the rural water supply systems installed by public sector, LGIs or NGOs is handed over to the communities
Level-2	Monitoring quality of drinking water being supplied by different suppliers/providers/ authorities/ owners by the government as its	This is usually termed as Third party surveillance of	LGD should identify the institutional mechanism through which this task will be carried out

Monitoring Levels	Functions	To be carried out by	Remarks
	regulatory function through some designated national organizations/ agencies	drinking water quality. In complex settings, this maybe contracted out to specialized public or private agencies or delegated to LGIs	
Level-3	Monitoring trend/change in water quality (such as increase or decrease in concentration of certain parameters and addition of new harmful organic, inorganic and other circumstances) water sources (surface and ground) by the government as its regulatory functions through some designated national organizations/ agencies	The state-sponsored monitoring function may be termed as water quality surveillance of national water resources.	Government should define the institutional mechanism

4.3.3 Issues and Challenges Related to Drinking Water Quality

Arsenic: The health impact of arsenic is an issue of anxiety as arsenic is a toxic substance. Thus, this is a high priority issue in water supply. The most important actions to deal with the situation are pinpointing the affected areas with extent and magnitude, and providing arsenic-safe water.

Microbial Contamination: Microbiological contamination is becoming an immense challenge to deal with water quality. Surface water sources are being contaminated by human and animal waste. The upper layer of groundwater is also getting contaminated by leakage and leachate from pit latrines and solid waste dumping places. Contamination also takes place in the water chain from points of source to use.

Salinity: The coastal rivers and shallow aquifers of the coastal areas are saline. According to Bangladesh standards, the acceptable limit of salinity in the coastal areas is 1000 mg/l, which is 150-600 mg/l in other areas. There are some pocket areas with saline groundwater other than coastal zone, particularly in Cumilla and Chandpur districts.

Iron: The groundwater of central, northwestern and southwestern regions of the country contains iron of varied ranges. While, iron is an aesthetically inoffensive metal, consuming excessive iron may create fatigue, weight loss, joint pain and eventually may affect the liver, heart and lead to diabetes and many other complications (Olynyk and Delatycki, 2024).

Manganese and Fluoride: Analysis of data obtained from the national hydrochemical survey showed that about 42% of tube-wells have manganese concentrations exceeding the WHO health-based guideline value of 0.4 mg/l (Hasan and Ali, 2010). A study showed that the tube well water of Barisal, Faridpur, Jessore, Khulna, and Rajshahi regions contains higher fluoride levels than any other regions (Hoque et al., 2003). Excessive fluoride affects human intelligence, especially in children(Sarwar et al., 2018).

CHAPTER 5: GUIDING PRINCIPLES

Bangladesh's WASH sector prioritizes ensuring access of everyone to safe water, sanitation, and hygiene (WASH) services. This is outlined in the National Strategy for Water Supply and Sanitation 2021. This chapter outlines the key guiding principles based on which the sector development plan 2026 -40 is formulated. It also addresses strategic issues such as improving sector governance, adopting a human rights-based approach, eliminating inequalities, promoting gender mainstreaming, and fostering community engagement, ensuring sustainability, and achieving related SDGs, among other priorities.

5.1 BASIC GUIDING PRINCIPLES

The Sector Development Plan 2026-2040 is formulated based on the following basic guiding principles:

a. Regard water supply and sanitation as human rights, as well as public goods that have economic and social values;
b. Adopt an inclusive, demand-driven approach ensuring transparency and accountability at all stages of service delivery, with safety nets for the hardcore poor and the marginalized;
c. Mainstream gender, equity, rights and citizen participation in designing, planning, implementing and monitoring of WASH services;
d. Undertake a gradual approach to improve the quality and service levels, considering the adverse impacts of climate change and emerging challenges;
e. Create an enabling environment for enhanced private sector participation; and
f. Promote WASH sector stakeholder, inter-ministerial collaboration, information sharing and facilitate harmonized approaches.

To ensure and maintain the guiding principles of SDP 2026-40, the following strategies should be followed in the implementation of the SDP 26-40.

5.2 STRATEGIC GOALS AND DIRECTIONS OF THE NATIONAL STRATEGY FOR WASH 2021

The three thematic strategies outline the different strategic directions necessary to achieve the goal of the National Strategy for Water Supply and Sanitation (NSWSS) (2021), as illustrated in Figure 5.1. Each thematic block includes various specific strategies and action points. The successful implementation of these strategies and actions is anticipated to contribute to the goal of providing safe, sustainable water supply, sanitation, hygiene services, and secure waste disposal for everyone, upholding the principle of leaving no one behind.

GOAL

Safe and sustainable water supply, sanitation and hygiene services and safe disposal of wastes for all, with safety nets for the hardcore poor and the marginalized, leading to better health and well-being.

↑

OBJECTIVE

To provide uniform strategic guideline to sector stakeholders, including the government, semi-government and local government institutions, private sector and NGOs, to achieve the sector goal

↑

Strategic Theme 1:	Strategic Theme 2:	Strategic Theme 3:
Increase the Coverage and Improve the Quality of WASH Services	Address the Perennial and Emerging Challenges in the sector	Strengthening Sector Governance, Coordination, Monitoring and Reporting
1. Expand access to safe and affordable drinking water and sanitation facilities.	10. Adopt integrated water resource management	14. Undertake an integrated and accountable development approach
2. Give priority to arsenic mitigation	11. Address growing pace of urbanization	15. Recover the cost of services while keeping a safety net for the poor
3. Move to the safely managed rung of the sanitation ladder	12. Cope with disaster, adapt to climate change and safeguard the environment	16. Strengthen and reposition institutions and develop human and financial capacities
4. Establish fecal sludge management system	13. Institutionalize research and development	17. Enhance coordination, monitoring and reporting mechanism
5. Manage solid waste judiciously		
6. Improve hygiene promotion		
7. Undertake specific approaches for hard to reach areas and vulnerable people		
8. Mainstream gender approaches		
9. Facilitate private sector participation		

Figure 5.1: Framework of the National Strategy for water supply and sanitation 2021 (NSWSS, 2021)

5.3 IMPROVING SECTOR GOVERNANCE

Water governance is central to the management of water resources. It serves as the mechanism for balancing various, often competing, and water interests to ensure the long-term benefit of the population. Additionally, it provides a framework for regulating harmful activities by specific actors to protect shared water resources and systems from damage. Governance encompasses the policies established, the institutions responsible for their implementation, and the practical functioning of water management on the ground.

The Water Act (2013) is the latest and most important framework law to integrate and coordinate water resources management in the country. It absorbs content from previous water regulations and supersedes all previous water-related Acts and Regulations. There are also a number of additional policies those overlap and connect to the present Water Act; the Disaster Management Act (2012), Integrated Small-Scale Irrigation Policy (2011), Coastal Development Strategy (2006), the Coastal Zone Policy (2005), National Policy for Safe Water Supply & Sanitation (1998) (under revision), Environment Conservation Act (1995), National Forest Policy (1994), Groundwater Management Ordinance (1985) and the Forest Act (1927).

Effective sector governance is a precondition for the effectiveness and sustainability of WASH services. Good governance emerges when sector actors engage and participate with each other in an inclusive, transparent, accountable manner to accomplish improved WASH services for all anytime, anywhere, and everywhere. It is performed within the rule of law and with integrity. The present Water Governance bodies and connected Institutions are shown in Figure 5.2.

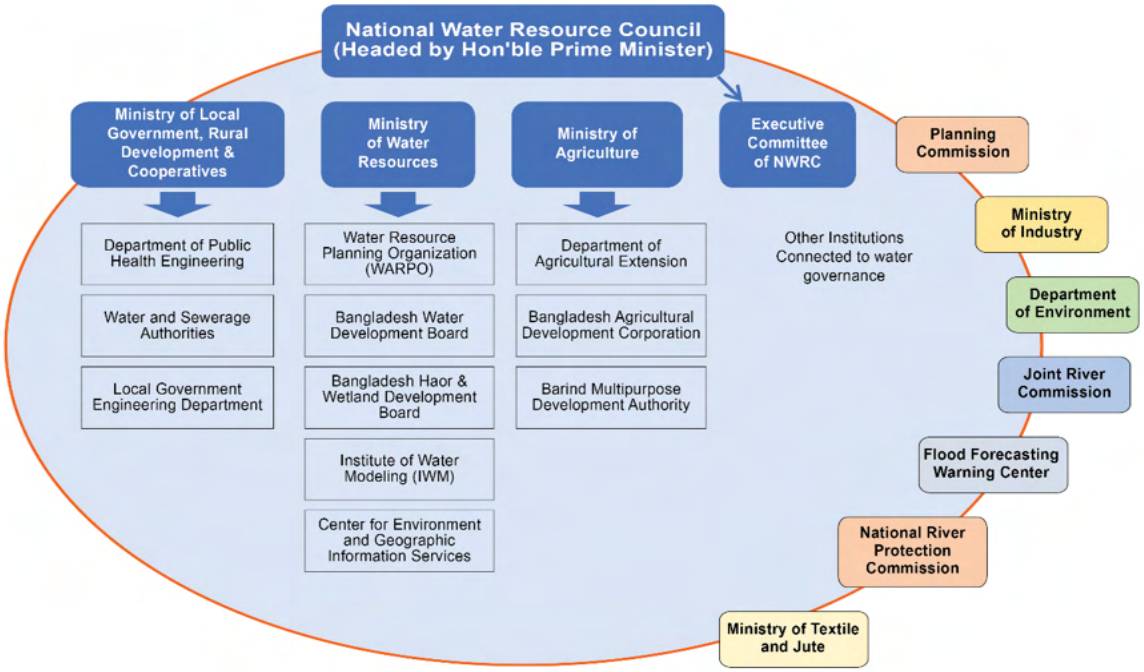


Figure 5.2: Water Governance bodies and connected institutions (WWF and H&M, 2015)

5.4 GOVERNMENT LEADERSHIP

Providing WASH services as a basic need and ensuring fundamental rights are the primary responsibilities of the government. Even if the government holds ultimate responsibility for the sustained provision of WASH services, a number of sector actors can take part in the planning and implementation in a coherent and harmonized manner. All sector actors should adopt the same plan and one reporting system as agreed. A development contract between the government and DPs establishes shared responsibility and mutual accountability with follow-up mechanisms to ensure WASH sector reform is essential.

5.5 HUMAN RIGHTS-BASED APPROACH

Safe water and basic sanitation are fundamental human needs and basic human rights - everyone needs them to live a healthy, dignified and productive life. Moving to a rights-based approach implies focusing on the relationship between the state and citizens.

Physical presence is not the same as access. A water or sanitation service does not serve the whole community if it is too expensive, unreliable, unhygienic, unsafely located, unadapted for differently abled groups or children, or non-gender-segregated, in the case of toilets and washing facilities.

'Leaving no one behind' is the central promise of the 2030 Agenda for Sustainable Development. A society can only achieve high rates of public health, gender equity, educational attainment, and economic productivity when all its members enjoy their rights to water and sanitation. Respect for human rights must be integrated into development plans for all sectors at all levels. All people are entitled to water and sanitation without discrimination**.** Marginalized groups – women, children, refugees, indigenous peoples, disabled people and many others – are often overlooked by and sometimes face active discrimination from those planning and governing water and sanitation improvements and services and other service users (UN Water, 2024a).

5.6 ELIMINATING INEQUALITIES

Tracking inequalities in access to drinking water, sanitation and hygiene is essential for achieving universal access and ensuring the progressive realization of the human rights to water and sanitation. The JMP has been drawing attention to inequalities in drinking water, sanitation and hygiene since 1990. The Millennium Development Goals target focused on halving the proportion of the population without access, but JMP updates have also highlighted inequalities between rural and urban areas, between rich and poor, and between other groups and the general population.
The Sustainable Development Goals (SDGs) have a much stronger focus on inequalities, with Goal 10 dedicated to 'reducing inequalities between and within countries'. The 2030 Agenda further commits Member States to 'leave no one behind' and states that SDG indicators should be disaggregated, where relevant, by income, sex, age, race, ethnicity, migratory status, disability, and geographic location. The WASH program should address the following areas:

a. Inequalities between Urban and Rural;
b. Inequalities in Service Coverage and Availability;
c. Inequalities in Socio-economic;
d. Disparity between Divisions; and
e. Inequalities between plain land and HtR areas.

5.7 INTEGRATION

Sector Development Plan (2026-2040) is aimed to integrate WASH in households, public places and institutions (health, education) through improved linkages within the sector and between health, education, and the environment sectors, integrating WASH into their respective policies and programs. WASH activities would be planned and implemented within the sector as an integrated WASH package. Standalone sanitation and hygiene projects would only be initiated in areas where communities already have access to adequate and functional water supply and if there is an expressed demand from the communities. The NFWSS at the LGD would arrange strategic consultation and convey the necessity of integrating WASH activities.

5.8 PLANNING AND STRENGTHENING PARTNERSHIP

5.8.1 Decentralized Planning

WASH services need to be planned for a local area as part of integrated development, linking with local development, health and education. Processes and structures for both strategic and participatory annual planning where all WASH sector actors come together to make informed decisions about local equitable WASH service provision options, including infrastructure, costs, service levels and institutional arrangements, and where every sector actor is empowered to put forward views and choices are critical elements.

5.8.2 Strengthening Partnership

Various stakeholders are directly and indirectly involved in the WASH sector. The main groups of stakeholders in the WASH sector are government and semi-government organizations, development partners (DPs), INGOs/LNGOs, CBOs, private sectors, individuals, academia and research institutions, civil society, media, construction and consulting companies, communities and sector professional, who are directly and indirectly involved in the functioning and development of the sector. Assessment of Sanitation and Drinking-Water (GLAAS)-2022 survey(2022) indicates the need for working together towards the elimination of sub-national, rural-urban, socio-economic, geographical and gender inequalities and to ensure improved WASH services. Mutual accountability at national and sub-national levels requires coordinated and collaborative actions to reinforce country-level multi-stakeholder participation and planning and review processes, and it needs to be preceded by capacity building and knowledge-sharing activities that need to be organized by the GOB and CSO/NGOs, taking on board all stakeholders.

5.9 GENDER MAINSTREAMING

Women and girls are most often the primary users, providers, and managers of water in their households, as well as guardians of household hygiene. Suppose a water system falls into disrepair or is damaged by natural calamities (flood, salinity and drought). In that case, women are forced to travel long distances over hours to meet their families' water needs. Also, the long distance between toilets creates insecurity and raises questions of dignity; it makes women vulnerable to harassment and violence, and menstrual hygiene management faces problems. Pregnant women and adolescent girls suffer the most. Women and children, particularly girls, are the most susceptible to waterborne diseases due to their roles in water collection, washing clothes and other domestic activities. So, easy access and improved user-friendly water facilities are absolute requirements.

5.10 COMMUNITY ENGAGEMENT

Maximizing community influence and acceptance of WASH facilities and services is critical to ensure that:

a. Public health risks are reduced, and the unique privacy, dignity and cultural needs of communities are addressed;
b. Communities' right to be involved in decision-making is upheld through honest dialogue and the provision of information, and
c. Program quality is strengthened through two-way communication, participation and feedback.

Listening to different groups and individuals is a key to community engagement. Understanding how people view risk and how they cope in a crisis can help to ensure that, as much as possible, the WASH response strengthens their existing capacities, enables meaningful participation, and focuses, in particular, on marginalized and less powerful members of a community. For example, Community Approach to Total Sanitation (CATS) and Community Led Total Sanitation (CLTS) are globally known as the best community engagement or participation processes. Some guiding principles for community engagement in WASH are as follows:

a. Be respectful of the community's attitude and behavior;
b. Acknowledge and leverage local knowledge and skills;

c. Deliver practical information in accessible language;
d. Encourage feedback on the quality and effectiveness of the response;
e. Use feedback;
f. Foster collaboration and coordination; and
g. Advocate for community concerns and priorities.

5.11 ADAPTATION, CLIMATE CHANGE RESILIENCE AND DISASTER RISKS MANAGEMENT IN WASH SECTOR

5.11.1 Adaptation

Adaptation pathways are developed to promote adaptive management in tackling a wide range of climate change uncertainties in WASH service delivery and achieving climate-resilient WASH development.

Climate change is one of many sources of risk and uncertainty that impact sustainable WASH service delivery and access. Adopting this principle creates the necessary structure that incorporates climate change as a priority issue in WASH governance processes. Understandably, prioritization of climate change varies from place to place.

The impacts of climate change are determined by the consolidation of a wide range of factors. It is not possible to develop an all-encompassing strategy for climate change adaptation. Despite this, there are some straightforward actions and interventions that could be considered in many contexts. These include increased funding directed to facilitating a given community's/area's resilience against droughts, or the enforcement of stricter planning regulations on locating WASH infrastructure in flood-prone areas(Batchelor et al., 2011). These, however, must be accompanied by informed and evidence-based research and a "learning-by-doing" approach that identifies and evaluates adaptation strategies. Effective adaptation to climate change requires improvement of WASH governance.

5.11.2 Climate Change Resilience

Resilience is the ability of people and systems to anticipate, adapt to, and recover from the negative effects of shocks and stresses (including natural disasters and climate change) in a manner that reduces vulnerability, protects livelihoods, accelerates and sustains recovery, and supports economic and social development, while preserving cultural integrity. Climate resilient development involves measures and activities that deliver benefits under all potential climate scenarios and cope with uncertainties over future conditions.

For the WASH sector, according to GWP and UNICEF(2017), climate resilience requires a focus on ensuring that:

a. WASH infrastructure and services are sustainable, safe, and resilient to climate-related risks; and
b. Resilient WASH systems contribute to helping build community resilience to the impacts of climate change.

5.11.3 Disaster Management (DM)

WASH interventions in disaster management or emergencies focus on saving lives, contributing to protection, safety, dignity and peaceful coexistence. Reducing mortality and morbidity by preventing the transmission of diseases and outbreaks, and providing immediate access to WASH services as a Human Right to all displaced people in all settings, based on the criteria of availability, quality, acceptability, accessibility and affordability (UNHCR, 2024).

Disaster Management (DM) in Bangladesh is guided by a number of national drivers which include:

a. National Plans for DM (NPDMs) (2020a) that strategize the management of both risks and consequences of disasters, community involvement and integration of structural and non-structural measures;
b. Disaster Management (DM) Policy (2015), which places importance on the DM fund as a dedicated financial resource for DM activities at all levels;
c. DM Act (2012), which endorses the Standing Orders on Disaster (SOD)(2020b) and provides a legal basis.

The Ministry of Disaster Management and Relief (MoDMR) has the responsibility for coordinating national DM efforts and National Disaster Management Council (NDMC) is the supreme body for providing overall direction. Functional and hazard-specific planning and execution responsibilities are vested in sectoral agencies. The Standing Orders on Disaster (SOD) (2020b) issued by the ministry in 1997 was an important milestone towards guiding and monitoring DM activities in Bangladesh. At sub-national levels, the Disaster Management Committees (DMCs) manage disasters at district, paurashava, upazila, union, and ward levels. Figure 5.3 below shows the disaster management cycle and consists of a continuous chain of activities (LGD, 2017). The right side of the diagram shows how the management of risk is done through preparedness and warnings. After the onset of a disaster, the left side shows the management of the consequences of disaster, which include emergency response, early recovery and rehabilitation. Learning from disasters provides inputs to increase the effectiveness of disaster preparedness.

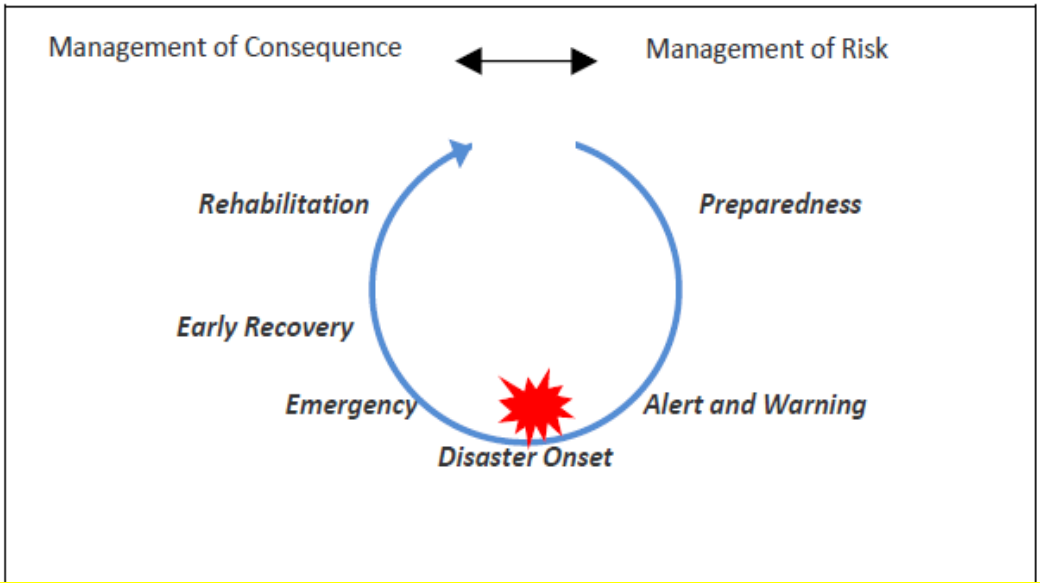


Figure 5.3: Disaster Management Cycle (LGD, 2017)

5.12 ADVOCACY AND SECTOR CONVERGENCE

5.12.1 Advocacy

Advocacy may play a vital role in water resource management for those dependent on the Trans boundary basins of India and Myanmar. In Bangladesh, 38 percent of trans boundary basin areas have an operational arrangement for water cooperation(UN Water, 2023).Bangladesh has 57 trans boundary rivers. The country shares 54 rivers with India and three rivers with Myanmar. Among these rivers, a treaty for the Ganges River was signed with India in 1996, effective till 2027.

WASH advocacy aims to raise awareness of the current state of water resources and the need for adequate diplomatic solutions to stimulate cooperation around how the resource is managed. It will provide knowledge resources, circumstantial experiences, and a cadre of tools to water-relevant sector actors to enhance their ability to assess, prevent, and respond to the tensions arising from situations of water scarcity and mismanagement. Advocacy to the Ministry of Finance to approve separate budget lines for WASH to support tracking sector financing to reach SDG 6 targets and also to increase the government yearly budget to reduce the gap.

5.12.2 Sector Convergence

Sector Development Plan predicts sector convergence, i.e. all WASH interventions will be executed under one ministry, i.e. LGD of the MoLGRD&C. All sector actors, including DPs, NGOs, civil society and the private sector, will be contributing to the sector through one sector plan for one agreed outcome. The NFWSS will organize a progress review meeting after the end of the Fiscal Year in the presence of all sector actors. Sector Convergence transforms the WASH sector from fragmentation to a coherent, harmonized and aligned sector. It envisages all WASH interventions through one policy, plan, monitoring framework and sector performance report.

5.13 ACHIEVING WASH RELATED SUSTAINABLE GOALS

Following the MDGs era target of halving the proportion of the people without access to water and sanitation by 2015 (MDG target 7c), the SDG era has introduced even higher service standards in the form of Goal 6 – ensuring availability and sustainable management of water and sanitation for all- which encompasses universal and equitable access, leaving no one behind, and addressing aspects of accessibility, affordability and quality (Figure 5.4).

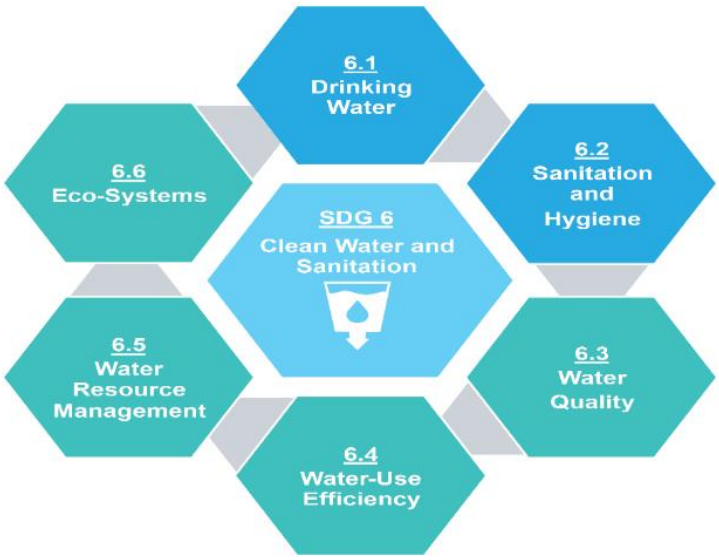


Figure 5.4: Sustainable Development Goal (SDG)-6 (UNICEF, 2016)

Box-5.1 below briefly captures the salient features of WASH service ladders and SDG 6 targets as stated in NSWSS (2021), while Table 5.1 and Table 5.2 present a range of global standards for sanitation and water technology categories (MICS, 2019).

Table 5.1: Global Standard for Sanitation Technology Category

Improved sanitation facilities	Unimproved sanitation facilities
Flush/pour flush(i. piped sewer system, ii. Pit latrine-single pit or twin pit)	Open drain
VIP latrine	Pit latrine without slab/open pit
Pit latrine with slab	Hanging toilet/latrine
Compost toilet	Open defecation (no facility, bush, field)

Table 5.2: Global Standard for Water Technology Category

Improved water facilities	Unimproved water facilities
Piped water (i. into dwelling, ii. Into yard/plot, iii. To neighbour, iv. Public tap/standpipe)	Unprotected well
Tube well/ bore-hole	Unprotected spring
Protected well	Surface water
Protected spring	
Rainwater collection	
Cart with small tank	
Water kiosk	
Bottle water	
Sachet water	

BOX-5.1: Salient features of WASH service ladders and SDG 6 target(NSWSS, 2021)

SDG 6: Ensure availability and sustainable management of water and sanitation for all. Targets:		DRINKING WATER LADDER	SANITATION LADDER	HAND WASHING LADDER
6.1	By 2030, achieve universal and equitable access to safe and affordable drinking water for all.	Safely managed: Drinking water from an improved water source which is located on premises, available when needed and free from fecal and priority contamination	Safely managed: Use of an improved sanitation facility which is not shared with other households and where excreta are safely disposed in situ or transported and treated off site.	Basic: Hand washing facility with soap and water in the household.
6.2	By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defection, paying special attention to the needs of women and girls and those in vulnerable situations.			
6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.			

BOX-5.1: Salient features of WASH service ladders and SDG 6 target(NSWSS, 2021)				
6.4	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.	Basic: Drinking water from improved source provided collection time is not more than 30 minutes for a round-trip including queuing.	Basic Sanitation: Use of improved facilities which are not shared with other households	Limited: Hand washing facility without soap and water.
6.5	By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.	Limited: Drinking water from an improved source where collection time exceeds 30 minutes for a round -trip, including queuing.	Limited Sanitation: Use of improved facilities shared between two or more households.	No facility: No hand washing facility
6.6	By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.	Unimproved: Drinking water from an unprotected dug well or unprotected spring.	Unimproved Sanitation: Use of pit latrines without a slab or platform, hanging latrines and bucket latrines.	
6.a	By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programs, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	Surface water: Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation channel.	Open defecation: Disposal of human feces in fields, forest, bushed, open bodies of water, beaches or other open spaces or with solid waste.	
6.b	Support and strengthen the participation of local communities in improving water and sanitation management.	Note: Improved source include: piped water, boreholes or tube-wells, protected dug wells, protected springs and packaged or delivered water.	Note: Improved facilities include: flush/Pour flush to piped sewer system, septic tank or pit latrine; VIP latrine, composting toilet or pit latrine with slab	

Achieving the targets of SDG6, reaching the scenarios depicted in the topmost layers in the ladders (Box-5.1) and ensuring the use of global standard for improved sanitation and water technologies (Table 5.1&Table 5.2) are critically important for better health and well-being. Therefore, ensuring universal access to water supply, sanitation, and hygiene is a major challenge for Bangladesh, and it requires a multi-pronged approach and strategies. Moreover, it needs to address several perennial challenges, such as HtR areas and vulnerable people. Apart from these, Bangladesh must tackle other emerging issues, such as reducing the negative impacts of climate change and meeting the increasing demands for services due to the rapid pace of urbanization, as well as strengthening sector governance through building the capacity of institutions.

CHAPTER 6: WASH SECTOR DEVELOPMENT PLAN

This chapter outlines the Sector Development Plan (SDP), highlighting key elements such as physical targets, enhancing access to water supply, sanitation, hygiene (hand hygiene and MHM), and solid waste management. It also discusses the current legal framework of the WASH sector, identifying gaps and providing recommendations for improvement. Notably, the chapter outlines the 'action points' required to address all relevant issues to achieve the SDP targets.

6.1 WASH SERVICE LEVEL AND ACCESS

Available WASH services and benefits should be effectively accessed and utilized by all. Access to WASH services is not only about physical access but also the financial capacity to utilize the service. Access to WASH services ensures reaching the unreached and effective utilization of available services and benefits. The service level is crucial for a sustainable, long-term WASH plan and forms the foundation for planning and determining investment needs.

6.2 PHYSICAL TARGETS

6.2.1 Water Supply and Sanitation

The coverage and service levels would be gradually improved during the SDP period, 2026 to 2040, over the three five-year terms (2026-30, 2031-35 and 2036-40). Physical targets of SDP 2026-40 are discussed below. The water supply and sanitation targets of the SDP 2026-40, outlined in Table 6.1 and Table 6.2, are based on linear projections. In alignment with the government's SDG targets, the SDP 2026-40 aims to achieve 100 percent safely managed water supply and 80 percent safely managed sanitation by 2030(GED, 2020c). Addressing current and future WASH challenges requires the rapid development and implementation of innovative and transformative solutions. The 2022 JMP report data on drinking water supply and sanitation serves as the baseline for these efforts.

Table 6.1: Targets for Water Supply for SDP 2026-40

Service Type	Service Level	Status, 2022 (UNICEF, 2024b)	Target in Percentage			
			2026	2030	2035	2040
Rural	Safely managed	62	81	100	100	100
	At least Basic	98	99	100	0	0
	Limited& Others	2	1	0	0	0
Urban	Safely managed	54	77	100	100	100
	At least Basic	98	99	100	0	0
	Limited& Others	2	1	0	0	0

Table 6.2: Targets for Sanitation for SDP 2026-40

Service Type	Service Level	Status, 2022 (UNICEF, 2024b)	Target in percentage			
			2026	2030	2035	2040
Rural	Safely managed	32	56	80	100	100
	At least Basic	62	81	100	0	0
	Limited& Others	38	19	0	0	0
Urban	Safely managed	29	55	80	100	100
	At least Basic	55	77	100	0	0
	Limited& Others	45	23	0	0	0

6.2.2 Hygiene

6.2.2.1 Hand Hygiene for All (HH4A)

Hand hygiene is a key priority for the Government of Bangladesh (GoB), as well as national stakeholders and development partners. The policy and institutional framework for WASH (Water, Sanitation, and Hygiene) continues to prioritize access to safe water and sanitation services. Following the launch of the global UNICEF and WHO Hand Hygiene for All (HH4A) initiative, the GoB began developing the HH4A country roadmap to align with its national vision across various settings. This effort is supported by international partners, the public and private sectors, and civil society groups. Bangladesh aims to achieve 100 percent basic hand hygiene coverage by 2030. To reach this target, the GoB has laid out a roadmap focusing on eight strategic objectives for universal hand hygiene. Table 6.3 outlines the HH4A targets set in the SDP 2026-2040, projected linearly to meet the SDG goal of 100 percent Basic Service (hand hygiene facility with water and soap) by 2030. The 2022 JMP Report on hand hygiene data has been used as the baseline for these projections.

Table 6.3: Targets for Hand Hygiene at the National Level for SDP 2026-40

Service Type	Service Level	Status, 2022 (UNICEF, 2024b)	Target in Percentage			
			2026	2030	2035	2040
Hand Hygiene (National)	Basic service	62	80	100	100	100
	Limited Service	33	17	0	0	0
	No Service	5	3	0	0	0

6.2.2.2 Menstrual Hygiene Management (MHM)

The "National MHM Strategy (2021)" was developed under the leadership of LGD with support from all concerned stakeholders. While there is no specific national SDG target for MHM, the aim is to eliminate the use of non-sustainable materials in MHM by 2030 and progressively increase the use of single-use or reusable materials to their highest potential by 2030. Menstrual products should be locally available, accessible, and affordable for consumers. Additional emphasis should be placed on the safe disposal of used sanitary products and fostering positive attitudes and behaviors. The national targets for Menstrual Hygiene are detailed in Table 6.4.

Table 6.4: Targets for MHM at the National Level for SDP 2026-40

Service Type	Use of Appropriate Materials	Status, 2022 (UNICEF, 2024b)	Target in Percentage			
			2026	2030	2035	2040
Menstrual Hygiene (National)	Single use/ re-useable	96	98	100	100	100
	Other Materials (paper/ local materials)	4	2	0	0	0

6.2.3 Solid Waste Management

Fundamentally, one of the main focuses of the Perspective Plan 2041 (PP2041) (2020a) is environmental management strategy, which includes prevention of surface water pollution, ground water sustainability and waste management. An increasing rate of waste generation has become a challenge with the growing urban population. There have been insufficient incentives to improve the standard of waste management across all relevant sectors especially industrial, municipal and medical waste. There are, of course, some recent developments in waste management, especially in urban areas. During the implementation of PP2041, the country intends to add more initiatives with current ones with more impetus. Therefore, the initiative is to bring urban areas (city corporations and paurashavas) and all medical institutions/ hospital and clinics under basic services or limited services by decreasing "No service" to zero by 2040. The target is - all city corporations and paurashavas, hospitals and clinics will have either Basic service or Limited service for solid waste management and gradually increase the Basic service coverage. The SDP 2026-40 targets for Waste Management at national level are shown in Table 6.5.

Table 6.5: Targets for Solid Waste Management for 2026-40

Service Type	Service Level	Status, 2021 (BBS, 2023a)	Target in Percentage			
			2026	2030	2035	2040
Waste Management (National)	***Basic service**	8	12	20	30	45
	****Limited Service**	71	70	65	60	55
	*****No Service**	21	18	15	10	0

*Waste is segregated, treated and disposed of safely

**Waste is not segregated or treated but disposed of safely

***Waste is not segregated nor treated and not disposed of safely

6.3 IMPROVING ACCESS TO WATER SUPPLY

About 2.7 million people in Bangladesh use unimproved/unprotected water sources (BBS, 2022a). They are located either in remote rural areas, HtR areas, rocky and hilly areas, slums or among floating people, disadvantaged and vulnerable populations, or communities that lack power, resources, and skills to secure WASH services successfully. To meet the national targets for safely managed and at least basic water and sanitation services for all, those populations have to be reached.

6.3.1 Urban

The following action points are proposed for improving access to water supply in urban areas.

a. Adopt integrated water resource management in planning;
b. Prepare a strategic plan and implement sustainable water supply systems (both surface and groundwater);
c. Ensure safely managed water supply for all, including slums in city corporations and other urban areas;
d. Carry out regular and effective O&M of WS systems in urban areas including regular water quality testing;
e. Promote rain water harvesting where possible;
f. Strictly follow the Acts, Rules, Ordinances and other legal instruments, policies, strategies and guidelines during implementation of WS projects;
g. Recover the cost of services while keeping a safety net for the poor;
h. Full metering coverage to minimize unaccounted for water (UfW);
i. Strengthen and reposition institutions and capacity building;
j. Strengthen O&M to minimize production costs and improve the level of service;
k. Encourage PPP in project implementation and O&M;
l. Take measures to reduce surface and ground water pollution; and
m. Boost coordination and monitoring.

6.3.2 Rural

The following action points are proposed to achieve national targets for safely managed and at least basic water services for the rural population.

a. Assign priority to under-served and un-served areas in building new water points and piped water supply systems including water treatment plants to achieve safely managed WS for all;
b. Ensure water points are in a convenient location for water collection and routinely maintain for benefitting the whole family, women, men, adolescents' girls, boys and differently able persons by giving easy and safe access;
c. Implement sustainable WS systems with climate resilient technological options appropriate to specific regions, geological situations and social groups (HtR areas, hilly areas, coastal areas and vulnerable people);
d. Consider implementation of IPAM on a priority basis for screening, awareness campaign and dedicated arsenic safe union protocol/concept;
e. Address the presence of iron and manganese in GW in rural WS systems including treatment;
f. Explore the storage and use of downstream river water for drinking and irrigation purposes in coordination with the Ministries of Water Resources; Environment, Forest and Climate Change; and Industries. The LGD, MoLGRD&C should lead for action;
g. Shift gradually from ground water to surface water sources in water supply systems development;

h. Give priority to collaborative and coordinated community engagement in interventions and activities at all levels;
i. Excavate and re-excavate ponds including construction of water reservoir with attention to protection of surface water bodies;
j. Encourage participation of private organizations/individuals in water supply schemes;
k. Implement piped water supply schemes in densely populated rural settings, considering community cost sharing and willingness to pay;
l. Select technology and design of the WASH facilities compatible with the differential needs of women and men, girls and boys, differently able and elderly men-women and women of reproductive age;
m. Install reverse osmosis (RO) plants, managed aquifer recharge (MAR) systems and rainwater harvesting systems in the saline coastal zone;
n. Implement O&M guidelines for water supply and sanitation to increase the functionality of WASH facilities;
o. Build capacity at the local/community level to deal with problems;
p. Update union-wise technological and hot spot mapping;
q. Continue R&D activities to develop new technologies and improvement of existing technologies; and
r. Regular qualitative and quantitative monitoring, reporting and evaluation.

6.3.3 Improvement of Water Resources Management

The following action points are proposed for the improvement of water resource management in Bangladesh.

a. Development of groundwater protocol;
b. Investigation and assessment of the aquifers;
c. Monitoring of excessive extraction;
d. Control the quality of water;
e. Expand/reclaim surface water bodies and wetlands to facilitate groundwater recharge;
f. Introduce licensing for well drilling and mass abstraction;
g. Promote artificial recharge of the groundwater;
h. Strengthen inter-ministry and inter-agency coordination;
i. Enforce legal measures against the polluters of water bodies (actions by the Ministries of Environment, Forest and Climate Change, Water Resources and Industries); and
j. Prepare the required legislative framework.

6.3.4 Improvement of Water Quality

Adherence to water quality standards protects human health and avoids costs related to medical care, productivity loss, and even loss of life. Therefore, drinking water quality needs to be improved according to the National Standards for Drinking Water Quality. The action points are as follows:

a) Review and revise Bangladesh's drinking water quality standards, arsenic in particular. The WHO guideline value of arsenic in drinking water is 0.01 mg/l. ECR (2023) recommends 0.05 mg/l, which is much higher than the WHO guideline value.
b) Review and update the existing water quality testing protocol;
c) Strengthen the water quality surveillance and monitoring system. Local water quality monitoring data should be integrated with the national MIS system, and the database needs to be updated on a regular basis.
d) Strengthen and operationalize water quality testing facilities and laboratories at the district level with the required budget and human resources; and
e) Liaise with DGHS to incorporate information on arsenicosis and other non-communicable diseases due to iron and salinity, focusing on women and girls, in their database and share with concerned agencies.

6.4 IMPROVING ACCESS TO SANITATION

Despite significant progress in water supply and sanitation coverage, further efforts are required to achieve the SDG targets. Currently, 13.8 million people rely on unimproved toilets, while 2.09 million lack access to toilets or practice open defecation (BBS, 2022a). Advancing sanitation service levels necessitates moving up the 'Sanitation Ladder', with a strong focus on institutional strengthening and effective implementation of FSM. Additionally, revitalizing regional and international collaboration, knowledge exchange, technological innovation, and initiatives like SACOSAN is crucial for sustaining long-term improvements in the sector.

6.4.1 Urban

6.4.1.1 Moving Towards Sanitation Ladder

The proposed action points to address the issue are as follows:

a. Conduct a nationwide sanitation census and prepare a master plan to achieve 100 percent safely managed sanitation by 2035;
b. Implement National Action Plan for rapid implementation of IRF-FSM in cities and paurashavas;
c. Install improved sanitary latrines, giving priority to the extremely poor and vulnerable in slum areas;
d. Develop a range of safely managed sanitation technologies with treatment facilities having provisions for hand washing services in slum areas; and
e. Install disabled and gender friendly public toilets and other sanitation facilities in public places and transport hubs;

6.4.1.2 Revamping Sanitation Campaign

The proposed action points to address the issue are as follows:

a. Initiate and implement a social mobilization (SOCMOB) campaign on sanitation;
b. Involve and utilize social media, national dailies, government/NGOs institutions, social elites and social institutions in sanitation campaign; and
c. Encourage private sector participation in promotional activities.

6.4.1.3 Implement Citywide Inclusive Sanitation (CWIS)

The objectives of CWIS are to promote productive, healthy, dignified lives of all citizens in an environment free from fecal contamination and to safeguard the urban environment, including water and food supplies. The proposed action points to address the issue are as follows:

a. Create demand for safe sanitation and awareness on safe disposal of human excreta in the urban communities;
b. Use appropriate, low-cost, easy-to-maintain technology;
c. Leverage collective efforts to mobilize essential resources through advocacy with International Financial Institutions (IFIs) and the government;
d. Conduct relevant research to identify technological gaps;
e. Initiate CWIS capacity enhancement initiative based on capacity need assessment of the service authorities;
f. Introduce "Occupational Health and Safety Protocol" for sanitation workers in implementation of CWIS; and
a) Regular monitoring and reporting.

6.4.1.4 Fecal Sludge and Septage Management

The proposed action points to address the issue are as follows:

a. Develop innovative technologies appropriate to local conditions for collection, treatment, and safe disposal of fecal sludge;
b. Allocate land at suitable locations (by LGIs) for fecal sludge treatment and disposal;
c. Conduct action research and implement demonstration projects for recycling fecal sludge, such as composting for use as fertilizer and generation of biogas;
d. Encourage the use of twin offset pit latrines and other innovative and improved toilets to enable proper in situ composting of sludge in urban slum areas;
e. Provide technical and business support to the private sector to encourage and participate;
f. Facilitate the formation of organizations for pit emptier and emphasize their awareness building, capacity building of sludge transporters, treatment plant operators, etc.
g. Ensure "Occupational Health and Safety" for sanitation workers;
h. Develop innovative financing mechanisms and implement them, involving the private sector in O&M cost recovery; and
i. Build capacity of the private sector on implementation and O&M of WASH facilities, FSM and SWM.

6.4.1.5 Sewerage

The main function of a sanitary sewer system is to protect water quality and public health. The following action points can be followed for this:

a. Continue implementation of DWASA, CWASA and KWASA Sewerage Master Plans;
b. Commence implementation of the RWASA Master Plan;
c. Establish and integrate both sewered and non-sewered sanitary systems, and drainage systems in all areas of WASAs;
d. Gradually expand the sewered network in other city corporations and paurashavas; and
e. Recover capital and O&M costs of sewerage systems.

6.4.1.6 Storm Water Drainage

Bangladesh has been experiencing erratic rainfall due to the effects of climate change, with floods and waterlogging becoming common issues in several municipalities during the monsoon season. This waterlogging not only causes significant human suffering but also leads to damage to roads and properties. Effective management practices should include the following:

a. The construction of drainage systems based on a comprehensive master plan, considering the entire drainage network up to the outfalls. In municipalities where urban roads remain waterlogged during the monsoon, concrete or block paving is being used for road construction. While this approach is effective, it is not sustainable in some municipalities due to poor construction practices or insufficient technical expertise. Therefore, there is a need for thorough research to identify the weaknesses in the design and construction methods of concrete and block roads.
b. In coastal districts, drainage plans should be incorporated into urban planning, with careful, case-by-case design. Urban drainage systems will only function effectively if they are supported by proper waste management practices. Without these, drains tend to clog, leading to sewage water logging(GED, 2020b).

The following action points are proposed for the improvement of storm water drainage.

a. Develop storm water drainage plan for all urban areas;
b. Integrate floods, storm water drainage and managed aquifer recharge (MAR) in all urban areas and implement integrated projects starting with bigger cities; and
c. Clean and maintain storm water drainage regularly.

6.4.1.7 Solid Waste Management (SWM)

The following action points are proposed for the improvement of SWM.

a) Prepare a position paper on improved solid waste management practices in urban areas;
b) Develop an inventory and mapping of solid waste production scenario and current pollution scenario in urban and rural areas;
c) Prepare and implement appropriate waste treatment technology in city corporations and paurashavas:
    i. Establish appropriate waste treatment facility;
    ii. Promote waste management through the use of appropriate technologies in big cities and gradually introduce a cluster approach for the adjacent towns;
    iii. Promote organic waste recycling through composting, biogas and refuse-derived fuel;
d) Promote (by city corporations, paurashavas and other LGIs) segregation of waste at source;
e) Encourage establishment of a community-based and/or private-entrepreneur-based primary collection system and link it with the city corporation's or paurashavas' secondary collection, transportation and final disposal systems;
f) Plan and design sanitary landfills for an urban area or a regional landfill for a group of urban areas with provision of collection of methane gas for use as a fuel; and
g) The concept of waste management through incineration in big cities is to be promoted, and the opportunity for creating waste-to-energy is to be explored further.

6.4.1.8 Liquid Waste Management (Grey Water)

Treated grey water generally carries lower health risks. There are different grey water treatment systems: diversion and filtration, diversion and treatment using chemicals or nature-based solutions (NBS). Depending on the type of treatment, it can be used for a range of purposes, including garden watering, toilet flushing and laundry. However, grey water treatment systems can be expensive to set up and operate. The proposed action points to address the issue are as follows:

a) Use grey water for garden watering where possible;
b) Use grey water for toilet flushing and laundry after treatment through filtration (where possible); and
c) Sensitize the dwellers to the proper use of grey water.

6.4.2 Rural

About 9.5 million rural population of Bangladesh have been using unimproved latrines, and around 1.4 million defecate in open places (BBS, 2022a).

6.4.2.1 Moving Along the Sanitation Ladder

The actions points are as follows:

a. Conduct a nationwide sanitation census and prepare a master plan to achieve 100 percent safely managed sanitation by 2035;
b. Implement National Action Plan for rapid implementation of the IRF-FSM in rural areas;
c. Install improved sanitary latrines, giving priority to the extremely poor and vulnerable;
d. Install disabled- and gender-friendly public toilets and other sanitation facilities in public places and transport hubs;
e. Implement sanitation marketing approach in partnership with NGOs/Private Sector and DPs;
f. Implement women-led community-based sanitation projects;
g. Ensure utilization of earmarked funds (15 percent of block allocation of ADP to upazila parishad) in sanitation activities as instructed by the government; and
h. Develop a wide range of safely managed sanitation technologies with treatment facilities having provisions for hand washing service.

6.4.2.2 Revamping Sanitation Campaign

This sanitation campaign supports the government's approaches and will seek to elevate discussions, education and awareness around sanitation issues, focusing on the themes of health and hygiene, the impact on our environment and natural resources, as well as sanitation innovations and technologies.

The objectives of the 'Sanitation Campaign' are as follows:

a. Motivate communities and LGIs to promote sustainable sanitation facilities through awareness campaigns and health education;
b. Create demand and accelerate safely managed coverage;
c. Promote hygiene education and build sanitary habits among all, including in schools; and
d. Promote the use of cost-effective, appropriate technology for ecologically safe and sustainable sanitation.

The proposed action points for the purpose are as follows:

a) Initiate and implement a social mobilization (SOCMOB) campaign on sanitation;
b) Involve and utilize social media, national dailies, government/NGOs institutions, social elites and social institutions in the sanitation campaign; and
c) Encourage private sector participation in promotional activities.

6.4.2.3 Fecal Sludge and Septage Management

The following actions are needed to establish a proper FSM system in rural areas:

a) Encourage the use of twin offset pit latrines and other innovative and improved toilets to enable proper in-situ composting of sludge;
b) Carry out an awareness and promotional campaign program on FSM;
c) Promoting safe emptying practices (e.g., use of safety gear by emptier and use of mechanical means);
d) Facilitate the formation of organizations for pit emptier and emphasize their awareness, and capacity building of sludge transporters, treatment plant operators, etc.,and
e) Promoting safe disposal (e.g., burying) of emptied fecal sludge.

6.4.2.4 Solid Waste Management

The solid waste management action points in the rural areas include:

a) Involve the rural community in waste management and carry out awareness campaigns in every upazila and union;
b) Develop business models of waste management-, involving private entrepreneurs in 100 UPZs,200 UPs and 200 growth centers; and
c) Follow-up and monitoring.

6.5 IMPROVING ACCESS TO HYGIENE

Important hygiene behaviors are difficult to bring into practice without the right knowledge and skills, and adequate community support. For improving knowledge, access, and personal hygiene practices, the following actions may be considered:

a) Undertake national hygiene and sanitation campaign in partnership with media and others;
b) Address specific behavior domains (e.g., personal including menstrual hygiene, hand hygiene, food hygiene, environmental hygiene) and build favorable infrastructure and facilities for practicing such behavior;
c) Prepare integrated IEC guidelines for communities which include hygiene promotion;
d) Facilitate the implementation of menstrual hygiene management strategy, framework for action and promote sanitary napkins/ alternative products (options);
e) Work collectively with the MoH&FW for cooperation with their health workers, the Ministry of Primary and Mass Education, the Ministry of Secondary and Higher Education, the Ministry of Information and Broadcasting and the Ministry of Environment for hygiene and sanitation promotion;
f) Build awareness of the community and engage them in behavior change activities;

g) Undertake collaborative initiatives with the private sector for promoting hygiene-related consumer products like soaps, sanitary napkins, water preservation tanks and washing devices, including safe disposal of used sanitary napkins; and
h) Encourage youth engagement in promoting the hygiene behavior campaigns and observance of days/weeks/months (Global Hand Washing Day (GHWD), World Toilet Day, World Water Week, Sanitation Campaign).

6.6 IMPROVING ACCESS TO WASH IN EDUCATIONAL INSTITUTIONS

Children spend a significant portion of their day at school, where WASH services can impact student learning, health, and dignity, particularly for girls. The inclusion of WASH in schools in the SDGs (targets 4.a, 6.1, 6.2) represents increasing recognition of their importance as key components of a 'safe, non-violent, inclusive and effective learning environment' and as part of 'universal' WASH access, which emphasizes the need for WASH outside home. Beyond the schoolyard, children who learn safe water, sanitation and hygiene habits at school can reinforce positive life-long behaviors in their homes and communities.

The following actions are suggested to address the issues:

a) Accelerate the provision of WASH facilities and hygiene promotion activities and practices;
b) Standardize the appropriate technical designs of WASH facilities suitable for HtR areas;
c) Ensure the quality of construction works of WASH facilities;
d) Establish O&M and cleaning mechanism of WASH facilities;
e) Sustain government funding for construction of WASH facilities including O&M;
f) Perform regular incineration/ disposal of used menstrual hygiene materials; and
g) Include WASH topics in the education curriculum.

6.7 IMPROVING ACCESS TO WASH IN HEALTH CARE FACILITIES (HCFs) AND CLINICS

Enhanced WASH services and effective healthcare waste management are critical for robust infection prevention and control (IPC) measures. The availability, accessibility, and acceptability of WASH services in HCFs are vital to protecting the rights and dignity of patients, visitors, and healthcare workers.

The following actions can be taken to address the issue:

a) Enforce and implement national standards for WASH in HCFs;
b) Use Water and Sanitation for Health Facility Improvement Tool(WASH FIT) for facility improvement;
c) Develop facility-based costed action plans for addressing basic WASH infrastructures and implementation of costed action plans;
d) Introduce and carry out safe management of healthcare wastes (harmful waste, sharp waste, general waste and liquid waste);
e) Regular monitoring of diseases (arsenicosis and non-communicable) database through DHIS;

f) Develop and launch a social behavioral change communication (SBCC)campaign to promote improved WASH/IPC among HWs;
g) Ensure hand washing at every point of healthcare within HCFs/clinics for adequate IPC;
h) Build the capacity of hospital staff members for O&M of WASH facilities;
i) Periodic check of water quality, regular O&M, and ensure risk management plans (water safety plan, safe storage and handling);
j) Develop a checklist for monitoring mechanisms to verify compliance with national standards and carry out regularly; and
k) Strengthen coordination among MoHFW, MoLGRD&C, MoWorks and MoF to identify and increase sources of funding for WASH.

6.8 IMPROVEMENT OF WASH SERVICES IN PUBLIC PLACES

The public toilet provides sanitation facilities to ordinary citizens working or passing by, rather than households. Public toilets often overlook the needs of women, children, disabled people and the elderly during planning and construction (Afacan and Gurel, 2015). Women often cancel their outdoor work during menstruation, and girls are withdrawn from schools when they reach adolescence due to the absence of proper toilet facilities (Hossain et al., 2018). Due to biological, social and cultural factors, women have different requirements from the facilities than men.

The policy context of a public toilet is mainly guided by the National Sanitation Strategy (2005), which provides necessary directives and identifies institutional roles for installing and maintaining public toilets. The strategy particularly says, "Public and community latrines will be set up by city corporations/paurashavas and leased out to the private sector for maintenance." It also emphasizes the participation of the private sector and NGOs.

The following actions can be taken to address the issue:

a) Construct more public toilets at strategic locations and encourage LGIs/DPs/NGOs for more allocation;
b) Create awareness among the mass people to use public toilets in case of need;
c) Keep toilets clean and hygienic to encourage use;
d) Make easy and comfortable use, especially by women/girls/disabled;
e) Motivate and encourage LGIs to provide lands at suitable locations for construction; and
f) Make O&M a profitable business to attract vendors

6.9 WASH IN SPECIAL SITUATION

6.9.1 Climate Resilient WASH Facilities

Disasters and climate change impacts on WASH technologies in Bangladesh are quite visible, including the physical damage to infrastructure, impairing their functionality and sustainability. During a disaster response, among other services, the WASH service becomes very critical and is considered a priority service. DPHE, UNICEF, and WASH Cluster developed a National Compendium of Water, Sanitation and Hygiene (WASH) Technologies for Disaster Response(2023)**.**The national compendium includes WASH technologies that would be used during and after disasters as well as climate resilient options that are to be promoted/implemented as sustainable technologies for disaster preparedness.

The following actions can be taken:

a) Create specialized cells within sector agencies like DPHE and WASAs for dealing with the environment, climate change and disaster management;
b) Take up R&D activities and piloting of projects on climate change and disaster-resilient WASH technologies;
c) Promote climate and disaster-resilient WASH systems;
d) Build capacity of the local community through training on health impact and climate change, and engage them in project implementation; and
e) Introduce regular monitoring systems on rising sea levels, saline water intrusion, depletion of the groundwater level, flow reduction in rivers, and change in rainfall patterns to forecast adaptation approaches in WASH.

6.9.2 Emergency Situation (Internal Displaced, Refugees)

Providing access to WASH is a critical humanitarian service that saves lives during emergencies. The Government and its dedicated agencies (Department of Disaster Management(DDM), DPHE, WASAs, LGIs), UN agencies (UNICEF, UNHCR, IOM), DPs, NGOs, and Private Organizations/Individuals work with communities/affected populations to recover from emergencies, to restore and improve access to WASH services, directly supporting progress towards SDG-6, whilst also indirectly contributing to other SDGs.

The following actions can be taken:

a) Early preparedness of pre-positioning of WASH emergency stocks (such as hygiene kits, water reservoirs, latrine slabs, etc.) and training of emergency WASH personnel;
b) Install climate-resilient WASH facilities in extreme climate-vulnerable areas, which can be used during emergencies;
c) Restore and improve access to WASH services in affected areas as post emergency response;
d) Engage the community in productive ways;
e) Ensure communities' active participation in decision making in planning, awareness building, implementation and O&M of WASH projects; and
f) Build institutional and local capacity (organization/individual) to tackle post emergency activities.

6.9.3 Disaster Risks Management

Climate change also poses serious challenges to WASH services, increasing risks of water contamination, salinity intrusion, and infrastructure damage in flood-prone and coastal areas. Strengthening climate-resilient WASH systems is essential to ensure safe water supply, improved sanitation, and public health protection. The following actions can be taken to address the issue:

a) Strengthening forecasting and early warnings, and raising awareness on probable losses/damages of WASH infrastructures;
b) Take adequate measures to reduce losses/damages of WASH facilities in advance;
c) Early preparedness for post-disaster situations;
d) Engage WASH stakeholders, private sectors and communities in post-disaster activities;

e) Organize training for stakeholders, the private sector and communities;
f) Carryout post-disaster assessment and translate losses/damages into an effective WASH action plan;
g) Use existing evidence for allocating adequate resources to implement the WASH action plan;
h) Regular coordination with local DRR and monitoring

6.10 CONTINUOUS QUALITY AND SERVICE IMPROVEMENT

Continuous Quality and Service Improvement (CQSI) is a systematic way to improve processes where actors define their goals and key outcomes for improvement in their systems and services. The objective of CQSI is to institutionalize a systematic way to improve processes in the WASH sector. The process assumes that staff are good enough, work hard, and have enough training. CQSI believes that every process can be improved to enhance outcomes and the process that creates those outcomes.

6.10.1 Continuous Quality Improvement (CQI)

CQI is a management philosophy that utilizes a continuous cycle of reviewing processes to gather data and use it to improve the overall process. Customer needs and demands are fluid and ever-changing, so firms have to be as well. Business enterprises need to maintain the flexibility that allows them to change and grow to meet customer needs and demands (Figure 6.1).

SDG-6 has focused on quality of WASH services delivery. Therefore, CQI is necessary for WASH which shall ensure safely managed water and sanitation services.

The following actions can be taken to address the issue:

a) Public agencies, NGOs and Private Sector should follow the protocol for construction, water quality testing, and O&M;
b) Introduce third-party testing and auditing standards such as ISO: 9000; and
c) Recommendations and requirements from the manufacturers of all products and equipment used in project to be followed.

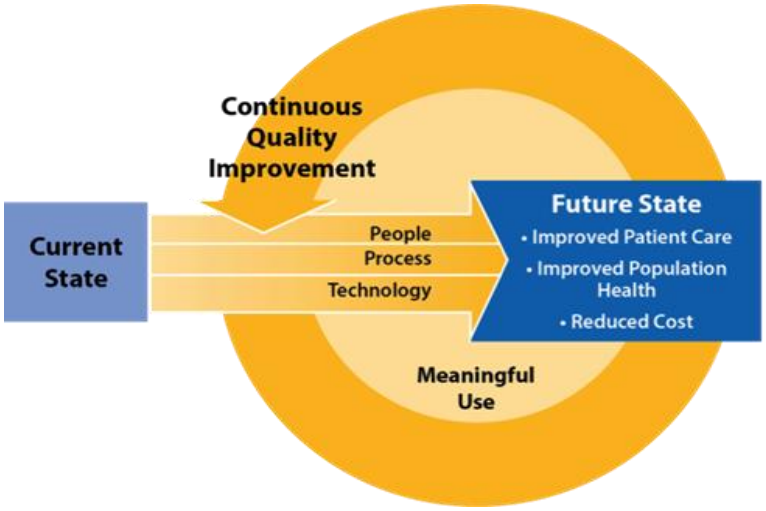


Figure 6.1: Continuous Quality Improvement Flow Diagram

6.10.2 Service Quality Improvement

Utilities, directly or indirectly, are using a variety of management initiatives – i.e., management systems, voluntary programs, guidance books and manuals, benchmarking programs, and best practices – to improve utility performance in management areas such as safety, quality, finances, human resources, and environment. Some of these initiatives specifically support performance improvement at water and wastewater utilities; others support all types of organizations.

The following actions can be taken to address the issue:

a) Develop 'Service Level Standards of Utilities' by WASAs and DPHE and forward to the LGD for approval;
b) Introduce 'Award' for the best performing utility provider;
c) Prepare Standard Operating Procedure(SOP)/Process documents and Quality/Process Manual for the utility provider;
d) Prepare and implement projects for protection of surface water and groundwater sources from contamination;
e) Carry out financial auditing through third party engagement (chartered accounting firm) and publish audited financial reports for financial transparency;
f) Carry out 'Consumer Satisfaction Survey';
g) Continue District Metering Areas (DMA) system; and
h) Introduce 'One Point Service' in all WASAs and LGIs (city corporations and paurashavas) and undertake service promotional activities.

6.10.3 Accountability Mechanism

Provision for effective WASH services relies on the actions of different sector actors (mainly government, administration and service providers). In analyzing the accountability situation, the conceptual model of the public services accountability framework (Figure 6.2) depicts a triangle of relationships.

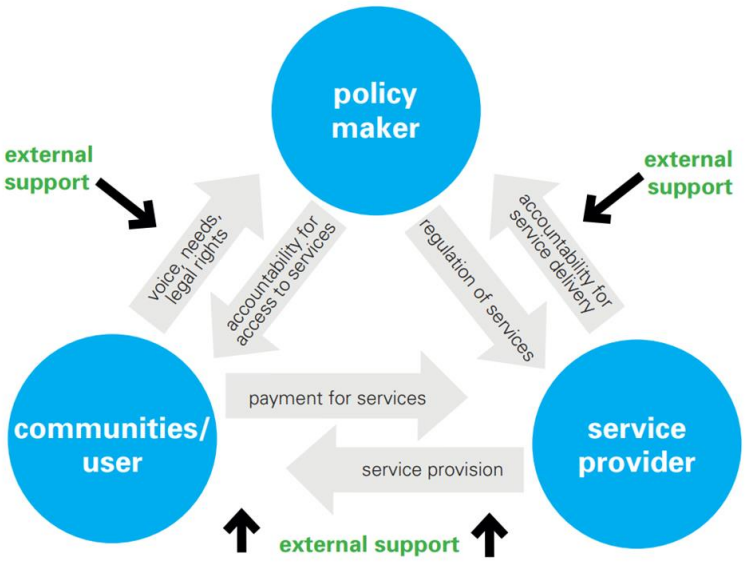


Figure 6.2: Conceptual model of the Accountability Framework for Sustainable Water and Sanitation Services (Jiménez et al., 2015)

The triangle reflects the generic set-up of institutional responsibilities in public service provision:

a) **Communities/users** (the citizens) may claim their rights to services (exercise their voice) through elections or other political actions to make politicians (policy-makers) prioritize and put resources into their needed services.
b) **Policy makers** respond through a direct return of services but by ensuring the provision of such services to the communities, either through local branches of the government or through independent public or private service providers
c) **Service providers** are accountable to the state (policy makers) for delivering services within their designated area of supply. Service providers are also accountable to the communities and/or individual customers, who establish their entitlement to services through payments.

External support agencies are not part of the national service delivery framework. However, they can play an important role in strengthening the accountability links.

The action points are as follows:

a) Allocate clear responsibilities for individuals;
b) Share information with consumers on their rights and obligations;
c) Improve flow of information about services, quality, tariffs, etc;
d) Promote space for dialogue and interactions with stakeholders and consumers;
e) Allow public access to budget expenditure tracking and auditing;
f) Introduce Recognition and Rewarding system for the best performer;
g) Take anti-corruption measures and sanctions; and
h) Establish a strong Supervision, Monitoring, Follow-up and Feedback system.

6.11 FUNCTIONALITY AND SUSTAINABILITY

Functionality is basically about the number of water supply facilities that are operational at any given time. The significance of functionality is reflected in the reliability of those systems. Sustainable WASH services are when they are owned, managed and maintained by the community, and when appropriate behaviour exists to support the effective usage of the WASH infrastructure.

6.11.1 Improving Functionality and Sustainability

Water systems become dysfunctional mainly due to inadequate application of the Water Safety Plan, negligence, lack of institutional, technical, and financial capacity of the user committee to undertake major repairs and funding issues. The common tendency to use available resources only on new projects rather than on maintenance may partly be explained by the greater political visibility of the government in the delivery of WASH and reluctance on the part of DPs to allocate sufficient resources for maintenance.

It is important to improve the functionality of WASH services by developing a dedicated national program and institutional support mechanisms to address functionality and ensure the sustainability of dysfunctional water supply systems.

The following actions can be taken to address the issue:

a) Determine the functionality of WS systems to update the Sector Information System (SIS) database;
b) Registration of water sources and water service; and
c) Implement O&M guidelines of WASH facilities, Water Safety Plan (WSP) and Sanitation Safety Plan (SSP).

6.11.2 Registration of Water Sources and Services

Despite the policy and legal provision for registration of water sources/points by the local body of each agency/institution, itis not done regularly. DPHE, the implementing agency for rural water supply, usually registers tube-wells/water options by upazila DPHE office after installation. In city corporations and paurashavas, the respective authorities are responsible for maintaining records of all water supply sources and services. WASAs are responsible for their respective areas. A **"**Monitoring Unit/Cell" in each agency/authority may regularly monitor and update the database by keeping close contact with the field units/offices.

The following actions can be taken to address the issue:

a) Strengthen the Monitoring Cell/Unit and keep it under vigilance;
b) Ensure the registration of all water points and services;
c) Update and maintain the data of all water sources and services; and
d) Build the capacity of all concerned staff of the monitoring cell/unit

6.11.3 Monitoring and Updating Database of Functionality of WASH Facilities

Monitoring the status of water sources and sanitation facilities helps keep the functionality database up to date. This enables management to identify risks associated with water supply systems and sanitation facilities and take corrective actions.

The following actions can be taken to address the issue:

a) Develop a format or outline and a checklist for monitoring of status of WASH facilities
b) Collect water table data twice a year and update the database;
c) Organize training on monitoring and data management systems for the field staff members and the monitoring unit/cell.
d) Conduct meetings and review progress at a regular interval;
e) Update the database with the current information; and
f) Publish yearly data book.

6.11.4 Implement O&M Guidelines for WASH Facilities

The LGD with the technical and financial support from the ITN-BUET and UNICEF prepared the Operation & Maintenance (O&M) Guidelines for Water Supply and Sanitation for Rural Areas(2022) in June 2022. The main purpose of the O&M guidelines is to regularize the ways and means for effective O&M of water supply and sanitation facilities to keep them functional at the desired state. The purview of the guidelines includes public community-based WASH services, WASH facilities in all educational institutes, and community latrines, primarily in rural areas. However, this guideline also applies to the community-managed water supply and sanitation options in urban/semi-urban or peri-urban areas and any settings similar to water, sanitation, and hygiene options.

The following actions can be taken to mainstream the guidelines:

a) Implement O&M guidelines at all levels;
b) O&M of community-level water options of advanced technologies like RO plants, PSFs, and AIRUs to be done by DPHE; and
c) O&M cost of all non-piped water supply systems and on-site sanitation to be applied to users.

6.11.5 Implement Water Safety Plan (WSP)

Water safety planning is a comprehensive risk assessment and risk management approach that encompasses all steps in a drinking-water supply chain, from catchment to consumer. It is an integral part of the Water Safety Framework (Figure 6.3). The LGD through PSB prepared the "Water Safety Framework in Bangladesh" as an important national dossier in October 2011(LGD, 2011).The WSF approach brings together risk assessment and preventive management in a framework extending from water sources to consumers. The framework applies to systems of all types, from large, complex piped systems to community-managed sources, including point sources.

The WSP has been implemented on a pilot basis since 2005 to ensure safe drinking water for all. Since then, in three different phases, DPHE implemented WSP in 20 district-level municipalities, two upazila-level municipalities, and three city corporations. DPHE has piloted Climate Resilient Water Safety Plans (CR-WSPs) with support from WHO in six urban piped water supply systems since 2015. In 2019, WHO and DPHE scaled up the CR-WSPs in six municipalities that use piped water supplies and in two municipalities in 2021, following the revised CR-WSP guideline for municipalities of Bangladesh.

The following actions can be taken to scale up the implementation of WSP:

a) Advocacy for awareness building at policy and operational levels;
b) Continue CR-WSP and water quality surveillance in city corporations, paurashavas and village piped water supply systems;
c) WASAs and LGIs should implement CR-WSP after identifying pollution risks at intake points of the water sources and the treatment plants, distribution mains and PWs;
d) Incorporate CR-WSP in all ongoing and new development projects, especially in urban areas;
e) Continue regular monitoring of WSP/CR-WSP in all WASAs, City Corporations and Paurashavas, and carry out evaluation of each supply system; and
f) Strengthen training programs on CR-WSP and continue training and refresher courses.

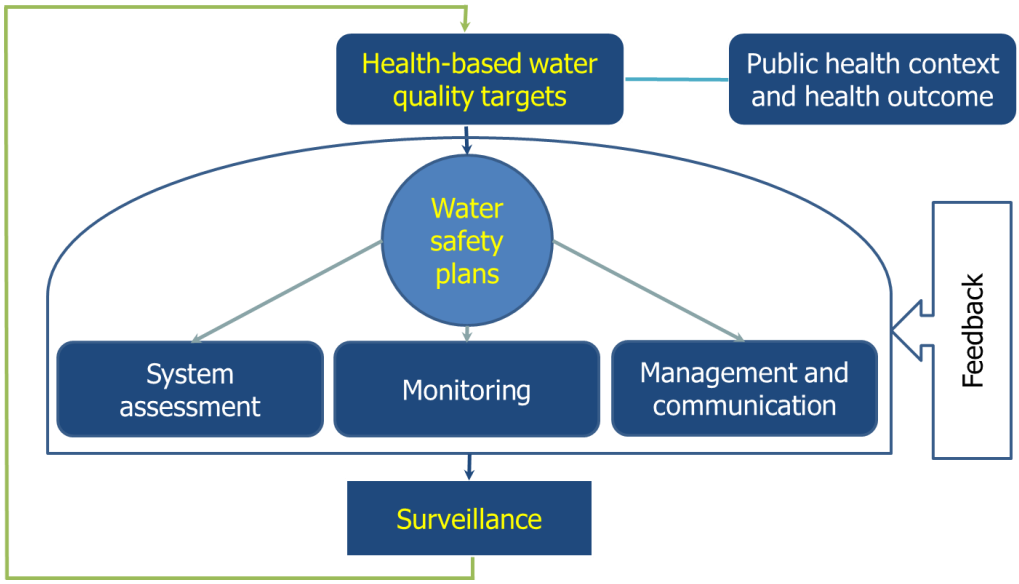


Figure 6.3: Water Safety Framework of WHO

6.11.6 Implement Sanitation Safety Plan (SSP)

A Sanitation Safety Plan (SSP) is a systematic risk management approach designed to ensure the safe operation of sanitation systems. It focuses on identifying and reducing health risks associated with inadequate sanitation practices, with a key emphasis on fecal sludge management (FSM), particularly in urban areas, to prevent environmental contamination and safeguard public health. SSP serves as a coordinating framework, bringing together stakeholders across the sanitation service chain to assess risks, implement improvements, and establish regular monitoring (SSP, 2022). Until now, a 'Sanitation Safety Plan' has been developed for Sakhipur Municipality, Tangail, to enhance public health protection through targeted sanitation interventions and guide future investments accordingly (WaterAid, 2023).

The following actions can be taken to scale up the implementation of SSP:

a) Customize the WHO Sanitation Safety Planning (SSP) Manual for use in Bangladesh;
b) Introduce SSP nationally as a risk management approach;
c) Prepare and implement a capacity development training program for different stakeholders on SSP; and
d) Prepare follow-up and monitoring of SSP.

6.12 LEGISLATION, POLICIES, STRATEGIES AND PLANS

The existing legal framework, policies, strategies and plans for WASH sector are briefly discussed in Chapter one. This sub-section further analyzes these aspects in light of their appropriateness for the effective governance of the WASH sector, particularly for achieving the objectives of the SDP. The preparation of new legislations, policies, and strategies, as well as the amendments to existing ones, have been identified and accordingly reflected in the Sector Development Framework.

6.12.1 Legal Framework for WASH

Article 1.4.1 of Chapter One provides a list of the significant acts and ordinances related to the WASH sector. Under the provisions of the acts and the ordinances, different rules, regulations, by-laws and executive orders are prepared by the concerned ministries and agencies. A review of the existing legal framework reveals that:

a) Stronger policies and enforcement measures are essential to safeguard the quality of surface and groundwater sources. Currently, Dhaka WASA relies on the Padma, Buriganga, and Shitalakhya rivers for water extraction. The sources need to be protected from industrial, agricultural and sewage pollution.
b) Funding is inadequate to meet the cost for water supply, sewerage and stormwater drainage infrastructures in the public/private housing areas.
c) Dhaka WASA has not fully prioritized the implementation of the WHO-recommended Water Safety Plan (WSP), which is essential for ensuring the consistent safety and quality of water supply systems
d) There is limited enforcement of the Local Government Acts, 2009, and inadequate delegation of authority hinders effective WASH governance. Additionally, there is an absence of clear mandates for demarcating, protecting, and maintaining water bodies, as well as establishing and managing watersheds for sustainable water supply and environmental conservation.

In order to address the above sector challenges, there is a clear need to update the acts, regulations and other legal instruments. The functions of the WASH sector are also under the purview of and closely related to the broader water resource management, particularly groundwater management.

6.12.2 Acts and Regulations for Water Resources Management

The acts and regulations related to water resources management, particularly for groundwater, which accounts for the bulk of water supply sources, are discussed first, and then those for the WASH.

6.12.2.1 Bangladesh Water Act 2013

The Water Act (2013) is the latest and most important water resource legal instrument in Bangladesh. It absorbs content from previous water regulations and supersedes all previous water-related policies. There are also a number of additional policies that overlap and connect to the present Water Act (2013), the Disaster Management Act (2012), Integrated Small-Scale Irrigation Policy (2011), Coastal Development Strategy (2006), the Coastal Zone Policy (2005), National Policy for Safe Water Supply & Sanitation (1998) (under revision), Environment Conservation Act (1995), National Forest Policy (1994), Groundwater Management Ordinance (1985) and the Forest Act (1927).

In 2015, Center for Resource Development Studies (CFRDS) Ltd. carried out a study to examine different elements of water governance in Bangladesh including relevant policies, strategies, regulations and their implementation by institutions in order to pinpoint important challenges and opportunities (related to WASH only). These are given in Table 6.6:

Table 6.6: Thematic gaps within policies and recommendations (WWF and H&M, 2015)

Gaps	Recommendations
The Bangladesh Water Act (2013)was developed by the Ministry of Water Resources (MoWR) within its scope as a water regulator. However, other ministries also have policies related to water, such as the Ministry of Shipping with policies covering navigation and all waterway transportation and National Policy for Safe Water Supply and Sanitation (NPSWSS)(1998) of MoLGRD&C. Therefore, the coordination of topics among all water-related policies is a major challenge.	Policy interactions and overlaps should be urgently reviewed to understand how all relevant policies can be optimized as an interactive and mutually supportive system of legislation.
There are no guidelines relating to non-point water pollution sources like fertilizer and pesticides in the Water Act (2013), and some non-significant mentions in the National Water Policy (NWP) (1999).	The issue of non-point water pollution should be incorporated with adequate guidelines in the Water Act (2013).
One of the significant gaps of the Water Act (2013) is the issue of participation of women in decision-making during planning, operations and maintenance of water projects. It is overlooked in the Water Act, even though it was mentioned in	The Water Act (2013) should explicitly include mechanisms for the participation of women (and other community perspectives and potentially marginalized groups) in water decision-making processes.

Gaps	Recommendations
the National Policy for Safe Water Supply and Sanitation (NPSWSS) (1998).	
There are some serious issues where the policies have been translated or interpreted. For example, in the Bangla version of the Bangladesh Water Act (2013), it states that safe drinking water for all will get priority; however, in the English version of this Water Act, the wording is not clear. Therefore, according to the Water Act (2013), the government is not legally obligated to ensure safe drinking water in the coastal area, i.e., in a village where there is no source of drinking water.	Translations and interpretations of all policies should be reviewed to ensure consistency. Any discrepancies should be corrected, and any areas of explicit confusion addressed directly.
In the Water Act (2013), there is a provision for using groundwater for industrial and irrigation purposes. However, some stakeholders suggested that there should be bans on extensive withdrawal of groundwater (particularly for irrigation) using tube wells in specific high-risk areas, for example, the Barind Tract area.	Options should be considered to create exclusion zones to avoid extensive groundwater withdrawal using tube wells in areas with low groundwater levels and/or high groundwater depletion risk.
The Cyclone Shelter Management Policy (CSMP) (2012) describes setting rainwater harvesting systems on top of cyclone shelters in order to supply water for use by users of the shelters. However, the policy can't be implemented due to a lack of detailed guidelines about the estimated demand for potable water, the number of latrines, water points, the O&M system, management process etc.	The CSMP (2012) should be revised to include the required guidelines on water sources and needs, with specific bottom-up and participatory processes to ensure a safe water supply and sanitation.
WARPO does not have sufficient institutional capacity to initiate the collaboration between diverse stakeholders (such as LGED, DPHE, WASAs, NGOs, CBOs and the private sectors) required for developing the technical packages within the Water Act. WARPO will also need data and information from these institutions in order to develop effective regulations.	Measures can be taken to strengthen WARPO in its capacity, making it functional to facilitate resource regulation, planning, and collaboration with all other departments to implement the Water Act (2013). WARPO will require new staff, training, duties and responsibilities, guidelines, and powers delegated through legislation.
Contradictions in scope for the same organizations can be found within the institutional setup. For instance, WASA cannot supply safe water in city areas where the public sector has the legal responsibility for providing drinking water. However, in the capital city of Dhaka, DWASA has permission to sell bottled water.	The contradiction in the scope of WASA or the public sector to provide drinking water should be reviewed.

6.12.2.2 Ground Water Resource Regulation

The regulation of surface water and ground water is covered under the Water Act (2013). The water sources (both surface water and groundwater) are given equal importance in the Water Act. The competitive use of groundwater by the agriculture and WASH sectors emphasizes the importance of regulation. As shown in Figure 6.4, the regulation and management of groundwater could be divided into two broad functions:

a) **Resource Regulation:** The basic principle is that resource regulation should be separated from abstraction management. It should rest within MoWR but be separated from the agencies with executive responsibilities for water resource abstraction. Currently, the organization that comes closest to performing the resource regulation function is WARPO. Its functions are limited to planning and staffing. However, its resources are completely inadequate to carry out the regulatory functions. The Hydrology Wing and Groundwater Circle of the BWDB, which is responsible, among others, for groundwater monitoring, is well-resourced. Still, its institutional anchorage is incompatible due to the principle of separation of regulation from abstraction. WARPO will require new staff, training, duties and responsibilities, guidelines and power delegated through legislation.

b) **Abstraction Management:** Abstraction Management includes providing abstraction licenses, controlling and monitoring the actual amount of water abstraction, water level, and water quality, and protecting water sources from pollution. Various agencies such as the DPHE, WASAs, city corporations, paurashavas and rural piped water supply utilities are engaged in groundwater abstraction for domestic water supply. They would operate under the guidelines set by WARPO. The agencies would also take measures to monitor the quantity of water abstraction, water levels, and water quality, as well as protect water sources from pollution. The roles and responsibilities of the various organizations will be delineated in the contemplated National Groundwater Management Strategy, including private irrigation and private water supply agencies.

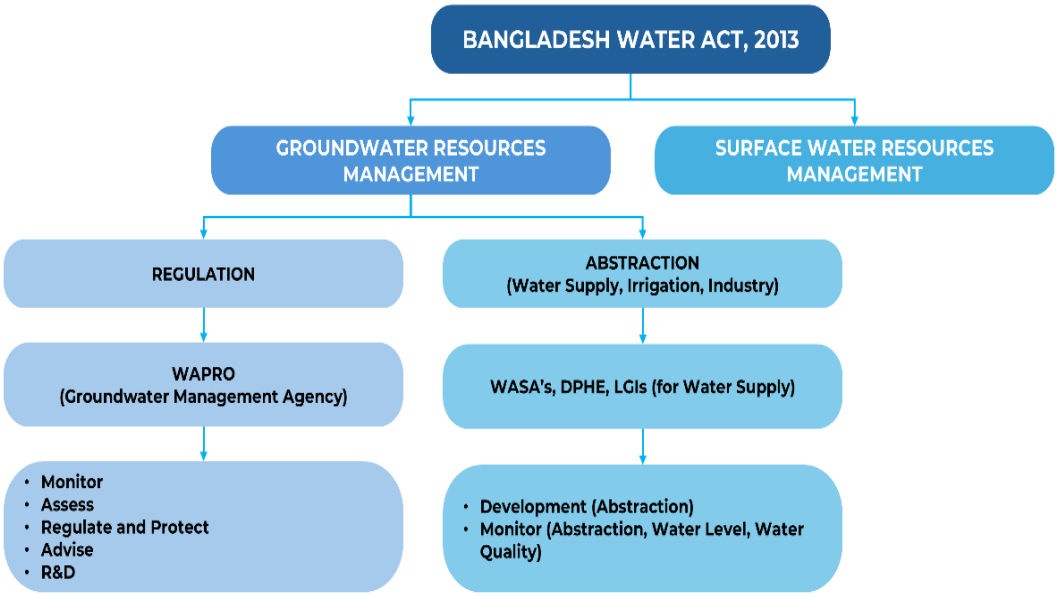


Figure 6.4: Proposed division of functions, roles and responsibilities for groundwater management under the Bangladesh Water Act (2013)

6.12.2.3 National Groundwater Management Strategic Framework

An important inter-sectoral issue is groundwater management, cutting across the agriculture, water resource, and WASH sectors. As such, a national groundwater strategy should be formulated by the MoWR. The strategy should ideally be under the framework of the revised Water Act, which is expected to include groundwater management issues. In the interest of early establishment of regulations, it is suggested that the groundwater strategy should be drafted in parallel with the revision and enactment of the Water Act. The strategy would emphasize integrated water resource management and a water safety framework (WSF) and ensure that regulations and other measures are in place to protect against over-exploitation and pollution. It would create an enabling environment by establishing a sound institutional development platform where the roles and responsibilities of stakeholders are clearly delineated and knowledge and capacity building are promoted.

6.12.2.4 Water Services Regulation

A regulatory mechanism is crucial for the WASH sector in Bangladesh. Regulations can mandate standards for water quality, sanitation facilities, and hygiene practices. This ensures safe water, improved sanitation infrastructure, and better hygiene behavior. Without regulations, there's a risk of inconsistent service quality and potential health hazards, and unsustainable practices that could harm the environment and future service delivery. A regulatory body can oversee tariffs, protecting consumers from excessive pricing and ensuring affordability, particularly for vulnerable communities. This fosters healthy competition, encouraging innovation and improved efficiency in service delivery. Unregulated markets can lead to monopolies or unfair practices, ultimately harming consumers. A regulatory framework promotes long-term sustainability and ensures certainty for private sector participation. It can dictate proper resource management, financial transparency, and responsible environmental practices by service providers. Regulations also hold service providers accountable for meeting standards and addressing consumer concerns. In essence, a strong regulatory mechanism is key to ensuring all have access to safe, affordable, and reliable WASH services.

6.12.3 Analysis, Gaps and Recommendations of National Policies, Strategies and Plans

The policies and strategies that govern the WASH sector are introduced in Chapter One. Further analysis and identification of the need for new policies and strategies or modification of the existing ones are as follows.

6.12.3.1 National Policy for WASH

The National Safe Water Supply and Sanitation Policy (1998), at this point of time, does not meet the present WASH sectoral challenges, national and international commitments (e.g., SDGs) and climate change and other emerging issues. The national policy needs to be aligned with these issues urgently. The GOB has taken steps to review and update the 'National Policy for Water Supply and Sanitation, 1998'. Presently, the policy is under review and revision.

6.12.3.2 National Strategy for WASH

The primary objective of the National Sanitation Strategy (2005) is to delineate the ways and means of achieving the national target through providing a uniform guideline for all concerned. The strategy emphasizes that the central government would be responsible for funding, guiding, monitoring and coordinating sanitation programs throughout the country following a coherent consultative process, and the decision making and implementation of sanitation programs must be conducted at the local level by the LGIs (Hassan, 2013).

This strategy is not capable of addressing climate change and its impacts, the SDGs and the emerging issues. Therefore, the NSS (2005)needs to be revised and updated.

The following actions can be taken to address the issue:

a. NSS (2005) to be reviewed and updated to align with the current situations, SDGs, climate change and other emerging issues. PSB shall initiate immediate action for the revision of NSS (2005).
b. 'Sanitation Secretariat' needs to be created in the form of a permanent structure in the DPHE organogram and to be equipped with full capacity of human resources and logistics; and
c. DPHE shall prepare a proposal for the 'Sanitation Secretariat' and forward it to LGD for processing for approval.

6.12.3.3 National Plans for WASH

Sector Development Plan (FY 2011-25)(2011)

The Government of Bangladesh and various stakeholders have identified several key challenges in implementing the WASH Sector Development Plan (SDP) 2011-2025. These include a lack of coordination, poor harmonization, and disparities in sectoral approaches, as well as weaknesses in implementation strategies, monitoring, and information management. In 2018, the Ministry of LGRD&C and UNICEF conducted a WASH sector review (Bottleneck Analysis(2018)),which emphasized the need to revise the SDP to align with the Sustainable Development Goals (SDGs), as it was originally developed during the Millennium Development Goals (MDGs) era.

Implementation Plan of Arsenic Mitigation for Water Supply (IPAM-WS) (2018)

The IPAM-WS portrays the pathway of arsenic mitigation in the water supply. The overall National Policy for Arsenic Mitigation (IPAM) should be translated into realities through four sectoral IPAMs, which are IPAM-WS, IPAM-H, IPAM-Ag, IPAM-WR, shown in Figure 6.5 (Source: IPAM-WS, 2018).

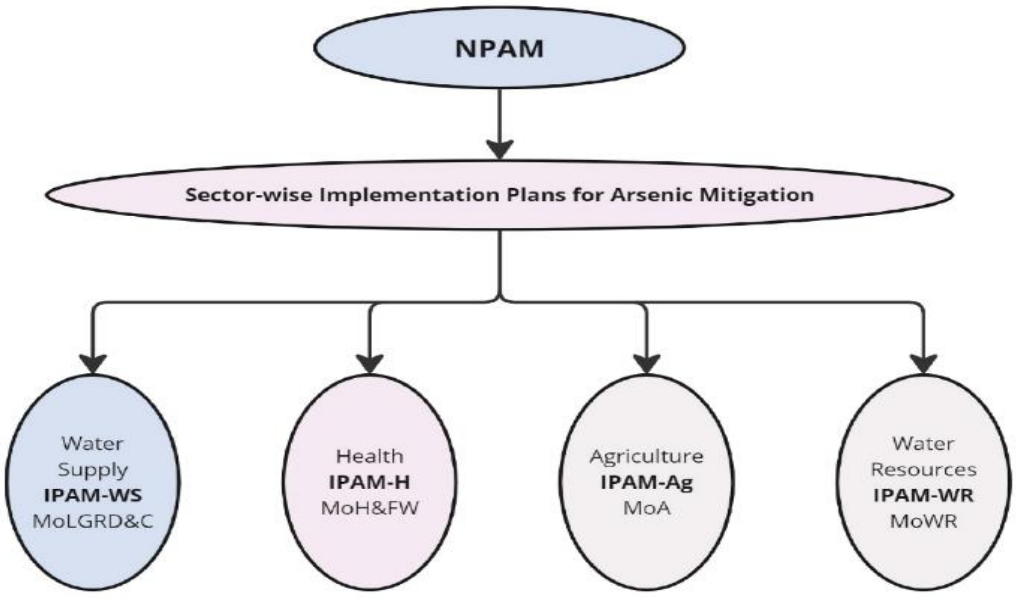


Figure 6.5: Sector-wise implementation plan of IPAM for arsenic mitigation (LGD, 2018)

LGD prepared IPAM-WS in July 2018, and DPHE has been implementing IPAM-WS in its water supply programs. The documents for IPAM-H, IPAM-Ag and IPAM-WR are yet to be prepared by the respective ministries. The remaining IPAM (H), IPAM (Ag) and IPAM (WR) need to be prepared by respective ministries, and LGD needs to pursue the respective ministries for the preparation of separate sector-wise IPAMs.

National Action Plan for FSM for Dhaka Mega City, City Corporations, Paurashavas and Rural Areas

The LGD approved the Institutional and Regulatory Framework for Fecal Sludge Management (IRF-FSM, 2017) in 2017**,** outlining roles and responsibilities for FSM services across city corporations, paurashavas, rural areas, and the Dhaka megacity. A 'Citywide Inclusive Sanitation-Fecal Sludge Management (CWIS-FSM) Support Cell (CFSC)' has been established in DPHE, but a National Coordination Cell (NCC) is needed for better oversight. While a National Action Plan for Dhaka megacity is yet to be prepared, the National Action Plan for City Corporations(2021) guides FSM implementation in new city corporations, assigning responsibilities based on existing roles of ministries, departments, and local authorities. Similarly, the National Action Plans for Paurashavas (2020c)and Rural Areas (2020b)provide structured actions for stakeholders at national and local levels, aiming for full FSM implementation by 2030 with government and development partner support.The following actions can be taken to address this issue:

a) Establish a 'National Coordination Cell (NCC)' at the ministry level;
b) Prepare National Action Plan for Dhaka Mega City;
c) Develop FSM implementation guidelines;
d) Prepare a 'Capacity Development Plan' for the stakeholders and field-level workers and implement it;
e) Formulate by-laws and regulations for sludge management, including emptying of septic tanks and pit latrines; and
f) Develop and pilot different business models on WASH, FSM and Solid Waste Management.

6.13 GOVERNANCE AND INSTITUTIONAL STRENGTHENING

6.13.1 Governance

Water governance refers to the political, social, economic and administrative systems that influence water use and resource management. Water governance determines the equity and efficiency in water resource and services allocation and distribution. It balances water use between socio-economic activities and ecosystems(UNDP-SIWI, 2024a). There are four fundamental dimensions of water governance to consider when analyzing governance dynamics. The four fundamental dimensions of water governance are social, economic, political, and environmental, as shown in Figure 6.6.

In many countries, shortcomings of water are not due to a shortage of water resources but due to governance failures, such as institutional fragmentation, lack of coordinated decision-making, corruption and low levels of transparency and accountability. The result is that governance systems are often not able to prevent unethical behavior and poor professional practice. Integrity issues are often at the core of conflicts around water, which arise at local, country and international levels.

Promoting and enforcing water integrity is one of the most important means of reducing poverty and inequality. These efforts link primarily to SDGs - 1, 6 and 16, directly supporting the achievement of the 2030 agenda. Transparency, Accountability and Participation is the main approach of partners promoting and enforcing water integrity.

Access to water and sanitation is recognized by the UN as human rights – fundamental to everyone's health, dignity and prosperity. The right to water entitles everyone to have access to sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic use. The right to sanitation entitles everyone to have physical and affordable access to sanitation, in all spheres of life, that is safe, hygienic, secure, and socially and culturally acceptable and that provides privacy and ensures dignity. A water or sanitation service does not serve the whole community if it is too expensive, unreliable, unhygienic, unsafely located, un-adopted for less able groups or children, or non-gender-segregated, in the case of toilets and washing facilities.

The following actions can be taken to address the issues of WASH governance, transparency, accountability, participation, and people's right to WASH:

a) Develop and implement integrated WASH programs;
b) Recover the cost of services while keeping a safety net for the poor;
c) Define the roles and responsibilities of stakeholders (national, local and private sector) and identify appropriate incentive mechanisms for private operators;
d) Strengthening partnership and mutual accountability among national-level actors of the WASH sector;
e) Reinforcing participation of multi-stakeholders at the country level in planning and review of WASH programs;
f) Establish the environment of evidence-based resource allocation, implementation, and M&E;
g) Promote rights-based approach in the implementation of WASH projects; and
h) Build awareness in the community about their rights to WASH.

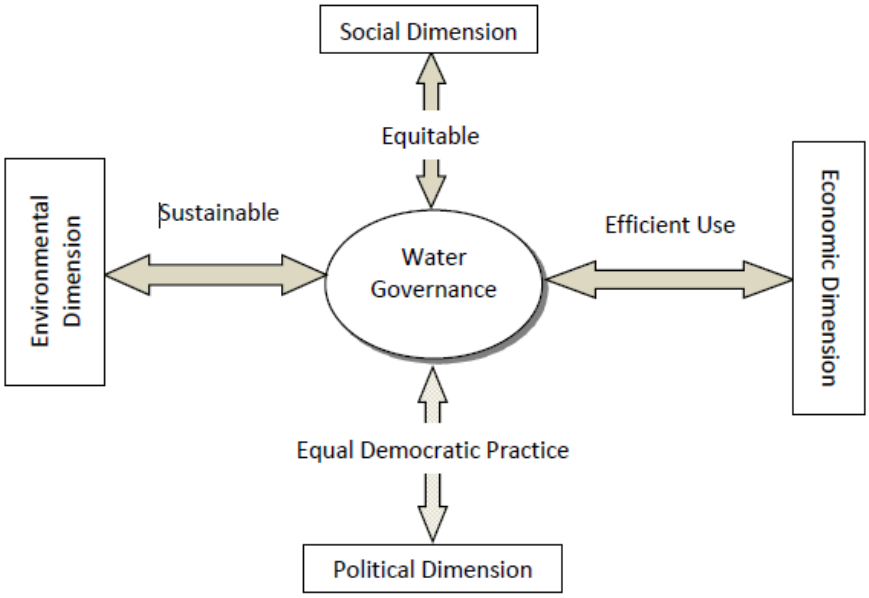


Figure 6.6: Dimensions of water governance (UNDP-SIWI, 2024b)

6.13.2 Institutional Strengthening

At the national level, the LGD oversees the WASH sector, focusing on the formulation, supervision, and implementation of policies and plans. The DPHE provides critical technical assistance to local government bodies and ensures effective implementation. In major cities such as Dhaka, Chattogram, Khulna, and Rajshahi, WASAs are responsible for ensuring access to safe water and sanitation services. In other urban areas, city corporations and paurashavas manage water supply and sanitation systems and are authorized to levy fees to cover O&M costs. In the rural areas, DPHE collaborates with other organizations to ensure equitable access to water and sanitation services. To improve governance and management in the WASH sector, several targeted actions are necessary as follows:

a) Strengthening collaboration among union parishads, municipalities, upazila administrations, and national agencies (e.g., DPHE, LGED, WASAs) to enhance coordination and efficiency in WASH service delivery;
b) Engage/involve the community and the private sector in WASH infrastructure development;
c) Promote Public-Private Partnerships (PPP) to attract investment and innovation in WASH infrastructure development and service delivery;
d) Foster active citizen participation and support a culture of collaboration, transparency, and accountability in the decision-making process;
e) Establish WASH dashboards so that local governments and citizens can track service performance;
f) Incorporate climate resilience strategies into WASH planning to address natural calamities;
g) Ensure open access to the citizen charter;
h) Prepare disaster risk reduction (DRR) plans focusing on WASH in emergencies;
i) Enhance financial transparency in local WASH budgets by ensuring public access to expenditure reports, audits, and financial statements;
j) Establish a dedicated WASH fund at the union parishad and municipal levels to support system maintenance, infrastructure improvements, and emergency repairs;
k) Encourage nature-based solutions (e.g., rainwater harvesting, restoration of ponds, etc.) for sustainable water management; and
l) Improve data collection and monitoring of WASH services through GIS mapping and digital platforms.

WASH committees are established at various levels under different Acts or Executive Orders. Other committees within LGIs also address similar or overlapping responsibilities, often involving the same members or organizations. This overlap can lead to confusion and reluctance among members to actively participate in multiple committees simultaneously. Consequently, the existing WASH-related committees at LGIs often struggle to function effectively. Currently, WASH is handled by three committees: the Arsenic Mitigation Committee, the WATSAN Committee, and the Sanitation Task Force. To improve efficiency, it may be beneficial to consolidate all WASH-related committees within an LGI into a single unified 'WASH Committee' at all levels, supported by revised Terms of Reference (TOR).

6.14 ADVOCACY AND SECTOR CONVERGENCE

6.14.1 WASH Advocacy

The purpose of WASH advocacy is to raise awareness of the current state of WASH resources and the need for adequate solutions to stimulate cooperation in managing them.

The following actions can be taken to address the issue:

a) Advocacy for introducing a separate WASH sector budget in MTBF, and increasing the government's yearly budget (ADP) for WASH;
b) Advocacy for ensuring WASH services to all without any discrimination and reduce disparities between urban and rural, division to division, women to men, rich to poor and hilly to plain; and
c) Prioritize HtR areas (hilly regions, chars, beels, tea gardens, saline zones, etc.) and vulnerable groups (women, girls, adolescents, disable, elderly) in the planning of WASH projects.

6.14.2 WASH Sector Convergence

The SDP envisages sector convergence, i.e., all WASH interventions will be executed under a single sector ministry, i.e., LGD, MoLGRD&C. All sector actors, including government agencies, DPs, NGOs, civil society, and the private sector, will be contributing to the sector through one sector plan for one agreed outcome. In this context, the sector will adopt the Sector Wide Approach (SWAp). Sector convergence brings the WASH sector from fragmentation to a coherent, harmonized, and aligned sector. It envisages all WASH interventions, including solid waste, through one policy, one plan, one monitoring framework and one sector performance report. The following actions can be taken to address the issue:

a) Make policy provisions to execute all WASH interventions under LGD;
b) Advocacy for implementation of Sector Wide Approach (SWAp) in the WASH sector;
c) Issuance of directions from NFWSS for implementation of integrated WASH program (SWAp);
d) Enhance the implementation of SWAp and bring all sector actors under one umbrella; and
e) Orientation to the personnel of government agencies, NGOs and the private sector on SWAp.

6.14.3 Coordination, Networking, Communication and Promotion

The WASH sector is characterized by multiple stakeholders. Broadly, there are two levels of coordination at national and local levels. At the national level, the NFWSS, chaired by the Secretary of LGD and comprising representatives from ministries, agencies, and development partners, oversees coordination, monitoring, and evaluation of WASH activities. Sector institutions like DPHE, WASAs, and LGIs implement national strategies, while NGOs and the private sector are encouraged to align their efforts accordingly.

The NFWSS is responsible for national-level networking and coordination among government agencies (DPHE, WASAs, LGED, LGIs), NGOs, development partners, and the private sector, while LGIs manage WASH services at the local level. Effective communication is essential for WASH sector collaboration, requiring a structured strategy to convey SDP principles, policies, and priorities. Additionally, promotion plays a key role in raising awareness, improving service quality, and encouraging payment for WASH services. As the sector evolves globally, it must

balance social service and market-based approaches to meet population needs and aspirations. The following actions can be taken on the issues:

Strengthen stakeholder networking, coordination, and dialogues at national and local levels;

a) Develop a comprehensive communication strategy for collaboration and engagement;
b) Conduct media campaigns, WASH fairs, and outreach initiatives;
c) Establish procedures for multi-sector engagement and decision-making;
d) Ensure accessible, affordable, and timely WASH services;

6.15 SECTOR CAPACITY BUILDING

This sub-section briefly describes the setup of the different organizations, reports their present and future functions, and presents the actions for building the capacities of the organizations and the individuals. It is expected that other organizations in the sector, such as NGOs and the private sector, would take initiatives to build their capacities in line with the functions suggested in the SDP.

Bangladesh articulated its vision to achieve middle-income status in the National Perspective Plan 2021-2041 (GED, 2020a). The development of human capital has become an urgent task for the government to further accelerate economic growth and poverty reduction. The following actions can be taken to address the issue:

a) Conduct need-based assessments to identify competence, areas of improvement, possible risks and opportunities for organizations to assist them with planning for resource allocation and investment;
b) Assist organizations by providing need-based training sessions and workshops to develop strong, efficient and dedicated team members; and
c) Develop sustainability plans for organizations in the areas of institutional, programmatic and financial aspects based on current development trends and reflecting on market status and structures, as well as by identifying potential future trends.

6.15.1 Local Government Division (LGD)

The Local Government Division (LGD) is under the Ministry of LGRD&C. The Additional Secretary (Water Supply) leads the WASH sector and the respective government agencies under LGD. The present and future major functions of the LGD related to WASH are:

Present Functions	Future Function
○ Overall guidance to the WASH sector, including formulation of policies and strategies, plans, sector coordination and monitoring; and ○ Administrative and policy support to the agencies and institutions under it.	○ Provide overall guidance to the sector with more effective coordination and support to the sector partners, including the NGOs, communities and the private sector; ○ Continue providing administrative and policy support to the agencies and institutions under it; and ○ Guide and support a structured development of the WASH sector and achievement of the SDGs by 2030 through the implementation of the SDP.

In order to carry out the above functions, the following action points need to be taken:

a) Make PSB fully staffed and strengthen their capacity to meet present and future challenges;
b) Strengthen SDP implementation and monitoring mechanism;

c) Decentralize administrative and financial authorities, as feasible, to the sector agencies (DPHE, WASAs and LGED) and the LGIs; and

d) Support restructuring and staffing of the sector agencies, particularly the DPHE, to meet the present and future challenges.

6.15.2 Department of Public Health Engineering (DPHE)

According to the organogram of November 2009, the DPHE has a sanctioned staff position of 7,185. DPHE proposed a new organogram (restructured) to the LGD with the required increased number of posts. All the vacant posts need to be filled urgently. Approval of the proposed new organogram would enable the DPHE to strengthen its field strength and make it capable of executing entrusted responsibilities more efficiently and effectively. The present and future major functions of the DPHE are:

Present Functions	Future Functions
National ○ Ensure safe water supply using appropriate technologies in arsenic affected and other areas including problematic areas like salinity, stony, hilly etc. areas; ○ Technical advice, information sharing and training to the LGIs, Private sector, Individual entrepreneurs and CBOs related to the development of safe water supply and sanitation; ○ Investigation of groundwater and surface water sources and to make provision for emergency safe water supply and sanitation systems during natural calamities and hazards (floods, cyclones etc); ○ Carry out water quality testing, surveillance and monitoring of water quality throughout the country, and R&D for appropriate WASH technologies; ○ Public awareness building on personal hygiene behavior related to the use of safe water, sanitary toilets and environmental sanitation;	National ○ Implement the WASH projects in technically difficult areas in consultation with the LGIs; ○ Carry out hydro-geological survey and investigation and implement emergency interventions during natural calamities, disaster risks management and climate change impacts; ○ Carry out national water quality monitoring and surveillance, groundwater level, and the WSP; ○ Strengthen the R&D activities and carry out public awareness campaigns; ○ Maintain and update the national WASH database and regular reporting following the SDG targets; ○ Advise and monitor the use of surface and groundwater on behalf of LGD; ○ Promote gradual shifting from groundwater to surface water for drinking water supply systems; ○ Provide technical and advisory support to the LGIs in O&M of WASH facilities; ○ Promote Sector Information System (SIS) and operationalize for enriching and modernization of the WASH sector information management system; and ○ Skill development of the human resources of the WASH sector stakeholders.

Present Functions	Future Functions
Urban o Plan and implement the WASH projects in city corporations (without WASAs) and paurashavas and in other urban areas; o Provide technical support to city corporations and paurashavas in the implementation of WASH projects; and o Capacity development of WASH personnel of city corporations and paurashavas.	Urban o Provide technical assistance to the LGIs to plan and implement WASH projects and to efficiently operate and maintain the systems, including WSP; o Support the LGD/service regulator to set service standards and monitor the service level; and o Plan and implement FSM and solid waste management (SWM) gradually in all city corporations and paurashavas.
Rural o Plan and implement the WASH projects in rural areas with support from LGIs.	Rural o Plan and implement the WASH projects in all rural areas, including technically difficult areas; o Provide technical assistance to the union parishads and the upazila parishads in WASH-related functions like formulating and appraising schemes in consultation with the communities; o Support LGIs in O&M of WASH facilities; o Support LGIs for improvement of the quality of services, like improved sanitation and the WSP; and o Support the private sector and individuals by providing technical assistance in business development and the choice of technologies.

As the sector lead agency, the DPHE's organizational strength is crucial for the sustainable development of the sector. It is revealed from the present organogram of DPHE, approved in 2009, that the organogram was formulated keeping a focus on addressing development activities predominantly in the rural areas over the last decades. Meanwhile, the scenario has changed; the SDGs and various other emerging issues have evolved. The present organogram is no longer capable and proficient enough to deal with the development activities of the present context. It urgently needs the following actions:

a) Establish dedicated units in DPHE organogram for the following critical areas with necessary posts and T&Ps: i) climate change and disaster and risks management, ii) research and development, iii) support cell for city corporation and municipality, v) capacity development, vi) MIS Unit (restructuring and strengthening), digitized data processing, vii) monitoring and evaluation, viii) Sanitation Secretariat and (ix) Legal and Discipline Unit.

b) Expand the social development unit with necessary staff from relevant fields, including gender specialists;

c) The number of personnel in the HRD and the water quality testing and analysis laboratories needs to be further strengthened; and

d) Establish testing facilities (laboratories) for FSM plant effluent quality at all divisional headquarters.

In order to build the required capacity of the DPHE personnel, the actions are as follows:

a) Restructure the DPHE organogram to make it capable of supporting the LGIs, particularly the city corporations and the paurashavas;
b) The personnel to be trained, especially on urban WASH services, along with other regular and area-specific training;
c) Redeploy the existing staff to deal with the changed scenario and redefine the charter of duties of the field staff to involve them in software activities progressively, for example, the designation of 'Mechanics' may be changed to 'WASH Motivator'; and
d) Strengthen institutional capacity building for the development of alternative technologies for safe water and sanitation options and FSM.
e) Prepare a five-year training plan for DPHE personnel covering WASH, FSM and Waste Management;
f) Organize relevant higher study courses in collaboration with BUET, Delft University of Technology, KTH Royal Institute of Technology, AIT and other universities as necessary; and
g) Develop relevant training manuals and guidelines.

6.15.3 Water and Sewerage Authority (WASA)

WASAs are service-oriented autonomous commercial organizations in the public sector, entrusted with the responsibility of providing water supply and sewerage facilities. DWASA targets for more than 20 million people with 5138 numbers of various categories of staff members, CWASA for 3.2 million city people with 676 numbers of permanent/temporary staff members, KWASA for 1.5 million city population with 235 different types of staff members (306 approved posts) and RWASA for 0.64 million city population with 79 different types of staff members (254 approved posts), provide water supply and sewerage services(CWASA, 2023; DWASA, 2021; KWASA, 2023; RWASA, 2023).

The present and future major functions of the WASAs are:

Present Function	Future Function
○ Provide WASH services in accordance with the quality and service standards set by LGD/Water Supply Regulatory Commission or appropriate authority and monitored by the city corporations; ○ Operate the water supply section and conservancy section following sound technical and commercial practices; ○ Ensure customer care and services to the disadvantageous communities; and ○ Make partnerships with the private sector and NGOs in some service delivery.	○ Development of water supply management and improvement of water supply network system; ○ Development of sewerage management system for city dwellers; ○ Constantly seek ways to better service to the customers; ○ Implement the projects effectively and speedily; ○ Reduce dependency on GW sources; ○ Organizational Capacity building; ○ Development of digitalized financial system and billing services; ○ Practice a corporate culture in management & operation; ○ Ensure a high level of transparency & accountability; and ○ Improve efficiency and reduce the operating cost.

The GoB and some DPs (WB, ADB, Danish International Development Assistance(DANIDA), Agence Française de Développement, European Investment Bank(EIB), JICA, New Development Bank(NDB) and the Government of Korea) have already prepared a Partnership Framework with agreed investment plans.The following actions can be taken to address the issue:

a) Improve organizational structure and fill up all vacant posts;
b) Improve technical capacity and financial management;
c) Ensure to complete the partnership agreement within the stipulated timeframe of the agreement;
d) Implement the Sewerage Master Plans and complete them within the target period; and
e) Regular follow-up on customer satisfaction, customer feedback and complains.

6.15.4 City Corporations and Paurashavas

The WASH service is one of the mandated functions of the city corporations and the paurashavas. Previously, the WASH development projects were solely implemented by the DPHE, but currently, the modalities have been changed; gradually, more responsibilities are being transferred, and projects are being implemented jointly. At present, the DPHE implements relatively more sophisticated technical interventions, such as treatment plants, overhead tanks (OHTs), PWs, and transmission lines, whereas the city corporations and the paurashavas implement distribution networks. While O&M is the responsibility of the city corporations and the paurashavas.

The Local Government Acts 2009 regarding the City Corporations and the Paurashavas give them the authority to recruit staff and fix water rates (more in section 5.6.2.1)(City Corporation Act, 2009; Municipality Act, 2009). However, the authority is not fully exercised due to the need for approval from a committee headed by the concerned Deputy Commissioner. The present and proposed future major functions of the city corporations and the paurashavas are:

Present Functions	Future Functions
○ Plan and implement the WASH projects jointly with DPHE; ○ O&M of the WASH facilities; ○ Formulate bylaws related to WASH services.	○ Provide WASH services in accordance with the quality and service standards set by the LGD/competent authority and continue O&M services of the WASH facilities; ○ Initiate implementation of FSM gradually in all city corporations and paurashavas; ○ Ensure customer care and services, including LICs; ○ Operate the water supply and conservancy sections following sound technical and commercial practices; ○ Build partnerships with the private sector and NGOs in service delivery. ○ Formulate by-laws related to WASH as and when required; and ○ Promote the double-entry accounting system in the water supply section.

To carry out the above functions, the following actions are proposed:

a) Ensure a certain level of independence of operations of the water supply section. This can be done either by establishing an autonomous water section under each city corporation or paurashavas, or at least establishing a supervisory board including members from outside (e.g., DPHE) to oversee the operations of the water supply section. The performance of this water supply section should be monitored under some form of quality of service agreement;

b) Approve by-laws (under the Local Government Acts of 2009) for the individual city corporation or paurashava regarding staffing of the WASH sections, recruiting required staff and fixation of tax/tariff;

c) Improve working procedure and double-entry accounting system through staff training;

d) Establish the TLCC and Ward Level Coordination Committee and involve them in planning, implementing and monitoring activities; and

e) Collaborate with the DPHE and other relevant organizations for technical assistance, and in setting and monitoring water quality and service standards.

6.15.5 Upazila and Union Parishads

The upazila, the middle tier of the local government, plays a crucial role in planning and development initiatives. Under the Local Government (Upazila Parishad) Act(2009), amended in 2011, the Line Departments at the upazila level were brought under the jurisdiction of the upazila parishad. To strengthen governance at this level and ensure decentralized, effective service delivery to local communities, the Upazila Governance and Development Project (UGDP) was launched. UGDP aims to enhance the capacity of upazila parishads to provide efficient and responsive services by offering additional development funds and capacity-building opportunities for stakeholders. Among its priority activities, the project emphasizes water supply facilities and equipment.

The union parishad, the lowest tier of local government, has long been active in rural areas. Consequently, most capacity-building efforts under national and development partners funded WASH sector projects target union parishads.

Upazila Parishad

Present Role	Future Role
○ Coordinate and inspect WASH development activities of the Union Parishads and provide necessary assistance; ○ Organize an awareness campaign on sanitation and hygiene; ○ Take measures to provide potable drinking water, improve sanitation and drainage systems; and ○ Adopt and implement small-scale irrigation projects to ensure optimal use of surface water resources.	○ Publicize new issues like ‘safely managed WASH services’; ○ Raise awareness of the community on the necessity and importance of issues like FSM, use of Twin-pit latrines, MHM, HH4A, etc. ○ Allocate resources for WASH activities; ○ Encourage the private sector to take part in WASH activities; and ○ Guide and supervise WASH activities of the Union Parishads.

Union Parishad

Present Role	Future Role
○ Raise awareness on the importance of safe water supply, sanitation and hygiene; ○ Support the central government in implementing WASH programs and	○ Active role in awareness building and coordinating with other stakeholders; ○ Play a key role in planning, community mobilization and participation, resource mobilization and collaboration in WASH activities;

play the role of implementing agency; and ○ Assist NGOs in implementing WASH activities.	○ Take the responsibility of O&M of WASH facilities; and ○ Strengthening capacity as WASH leaders to take responsibility for emerging issues in WASH.

The following actions are needed for capacity building of the upazila and union parishads:

a) Prepare capacity development plan of the upazila and union parishad and implement; and
b) Share the O&M guidelines of WASH facilities and encourage to involve them in O&M activities in their respective areas.

6.15.6 Exchange of Learnings and Sharing Events

The sector lead agency DPHE needs to set up a quarterly sharing and learning mechanism for the sector stakeholders as learning exchange meetings (peer-to-peer learning, Figure 6.7). Many sector partners and professionals could actively participate in these learning exchange meetings, which would provide an excellent forum for dissemination of knowledge, innovative and climate-resilient technologies, and sector information. The following actions can be taken to address the issue:

a) Learning exchange needs to be further strengthened through publishing 'Facts Sheet", R&D findings, best practices, WASH status etc.;
b) Knowledge exchange programs can be extended at sub-national level;
c) DPHE to create a cell for learning and exchange program;
d) Organize round-table discussions, seminars, workshops and webinars on WASH related events and climate change impacts on WASH; and
e) Organize learning exchange programs at national and international levels.

Figure 6.7: Advantages of peer learning (IDA, 2024)

6.16 INNOVATION AND ADAPTATION OF WASH TECHNOLOGIES

6.16.1 Innovation, Learning, Research and Development

The WASH sector must consistently review, refine, and adapt its programs, approaches, and technologies to ensure sustainability, innovation, relevance, and effectiveness. Urban environmental challenges are complex, multifaceted, and interconnected. Issues such as rapid urbanization, rural-to-urban migration, inadequate waste management, poor drainage, and air pollution, limited access to safe drinking water and sanitation, and insufficient health and nutrition services significantly impact the quality of life and pose ongoing challenges to WASH sector development. The following actions can be taken to address the issue:

a) Carry out "Feasibility Study" for new WASH projects in urban and rural areas;
b) Implement "Modalities for a dedicated Research and Development funds for WASH sector, (2014)";
c) Carry out R&D activities for climate resilient WASH technologies; and
d) Advocacy for R&D funds in the annual development budget of the government.

6.16.2 Appropriate Technologies

Use of advanced technologies adopted by developed countries in WASH sector appeared to be unrealistic in the socio-economic context of Bangladesh. It greatly restricts the expansion of service coverage due to high investment and O&M costs. Therefore, cost-effective technologies with easy implementation, user friendliness, availability of spares and affordable technologies needs to be promoted. The following actions can be taken to address the issue:

a) Promote installation of drinking water and sanitation infrastructures with raised platforms in coastal, char and flood affected areas;
b) Promote and expand rain water harvesting, PSF, excavation of ponds with PSF, RO plant, and MAR in coastal areas;
c) Explore and use renewable energy (solar) in water supply system development;
d) Expand the use of AIRP in arsenic affected areas; and
e) Promote community water points/taps, sanitation blocks in urban slum areas, and standard public toilets with hand washing facilities in public places.

CHAPTER 7: SECTOR INVESTMENT PLAN

This chapter begins with an introduction and a brief overview of the category-wise planning areas used to calculate the investment requirements for the SDP 2026-40. It then discusses the factors considered in determining the indicative investment needs. The chapter outlines the physical targets for various components across different geographical regions of the country, along with the expected improvements in service levels over time. This is followed by a breakdown of investment costs for each component. A summary of the investment requirements under different scenarios is provided, along with a graphical comparison of these requirements in a chart. The chapter then details the breakdown of these needs, including the required public investment. It also highlights the recent trends in budget allocations for the WASH sector in the ADPs. The chapter concludes with a brief discussion of potential sources of funds and the availability of the necessary budgets.

7.1 PLANNINGPERIOD AND AREAS

An investment plan provides an estimate of the total cost of implementing the plan. Without a clear understanding of the financial requirements, a plan cannot be taken forward. This allows the government to identify potential funding sources, such as government grants, tariffs, foreign aid, or public-private partnerships. The investment requirements for this SDP 2026-2040 implementation are calculated for short term (2026-2030), medium term (2031-2036) and long term (2036-2040) basis considering different scenarios.

The investment requirements are assessed differently across various planning areas, which are broadly categorized as Urban, Rural, CHTs and Hard to Reach areas. Additionally, the unique geographical and hydro-geological features of each area are taken into account. Investment costs can be broken down by activity types, such as water supply, sanitation, hygiene, drainage, and solid waste management. Table 7.1 provides details of the planning areas, with category-wise investment requirements also shown.

Table 7.1: Category-wise planning for investment requirements

Sub Sector	Service wise	Area wise	Hydro-geology wise	
			For Water Supply	For Sanitation and Hygiene
Urban Rural CHTs HtR Areas	**Urban & rural:** -Water Supply -Sanitation -Hygiene (HW and MHM) **Only urban:** -Drainage -Solid Waste Management	**Urban:** -WASAs -City corporation without WASAs -Large Paurashavas (A category) - Medium and Small Paurashavas (B&C category) -CHT Paurashavas -Other Urban Centres -CHT Urban Centres **Rural:** Areas other than urban areas, including CHTs and Hard to Reach.	- Plain land areas -CHT areas -Hard-to-reach areas -Coastal areas -Arsenic problem areas	-Plain land areas -CHT areas -Hard-to-reach areas

7.2 FACTORS FOR INVESTMENT REQUIREMENT

7.2.1 Population Projection

Population projection is indispensable to comprehending possible future scenarios for any decision making for planning purposes. The demand for water and sanitation facilities increases as the population grows within a WASH service area. Rapid population growth can outpace the ability to expand WASH services. Population projections help anticipate future demand, enabling proactive planning and investment in expanding service capacity. The large increase in Bangladesh's population, notably from the late 20th century, is mainly due to the improvement of literacy rate, reduction of gender disparity, a decline in maternal and child mortality rates, better medical technology, and immense public health campaigns. The monograph *Population Projection of Bangladesh: Dynamics and Trends 2011-2061*, published by BBS(2015), highlighted the future population of Bangladesh, which assumed three scenarios for future population projections. Considering scenario II, the population projection is shown in Figure 7.1.

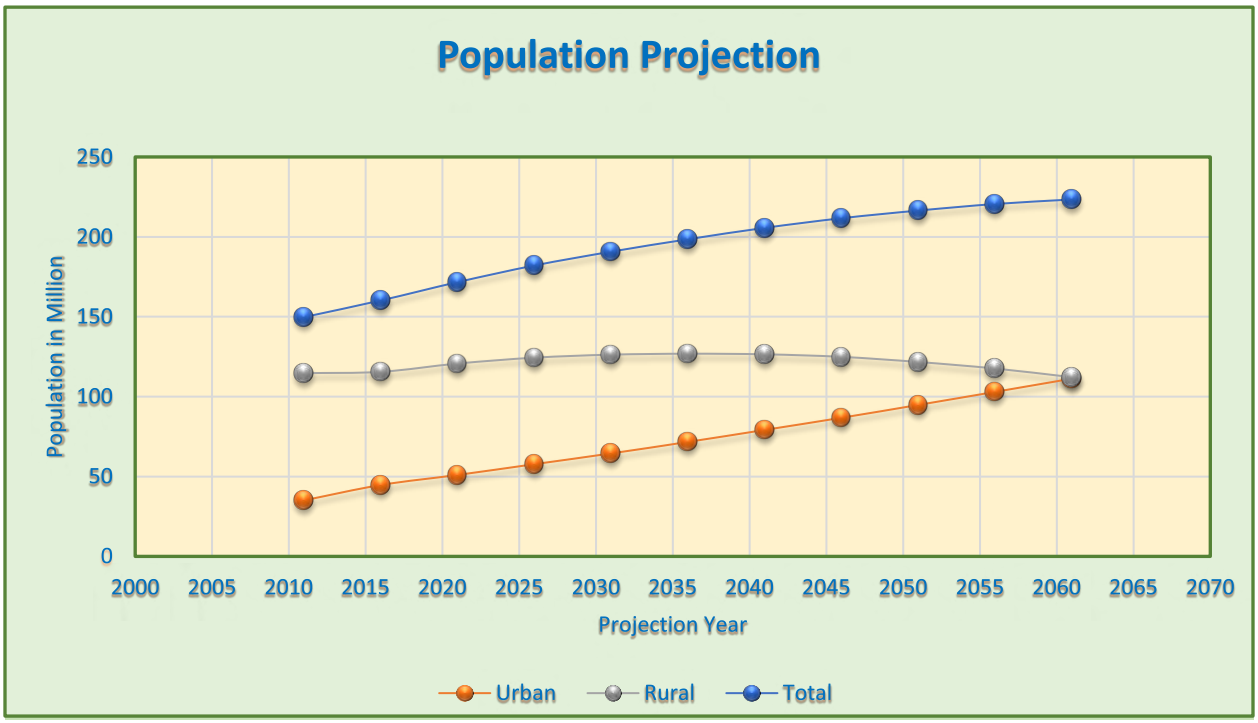


Figure 7.1: Population projection of Bangladesh (BBS, 2015)

The projection shows that Bangladesh's urban population has been increasing constantly since 2011, while its rural population remained almost stagnant. Yet, the country's rural population still outnumbers the urban one. This is projected to change soon: the urban population is expected to continue its steep increase to equal the rural one. The year 2061 is projected to be the intersection and turning point when urban Bangladeshis will outnumber their rural co-citizens for the first time.

7.2.2 Technological Options

Leveraging suitable technologies and integrating them into planning is essential to achieving universal access to WASH. The choice of specific technologies should be based on the unique needs and context of each region or community. A flexible, adaptable approach is a key to

designing solutions that are both effective and sustainable. For planning, the best-fit conventional and innovative technologies have been considered, particularly for rural areas, to meet service targets. In urban areas, adopting appropriate modern technologies for water supply is critical. As research and development continue over the 15-year SDP implementation period, technologies may be replaced or upgraded to more cost-effective and efficient options.

7.2.3 Climate Change Impacts

Bangladesh experiences a range of natural disasters, including floods, cyclones, storm surges, riverbank erosion, earthquakes, drought, and salinity intrusion, all exacerbated by climate change. Cyclones and floods cause significant damage to infrastructure, including WASH facilities. Consequently, the impact of climate change is an important factor in determining investment requirements.

7.2.4 Water Quality

Water quality standards need to be improved for the gradual improvement of service standards. Environmental Conservation Rules (2023) set the quality of water to be supplied and requirements for disposal of effluents into water bodies. The maximum allowable limit of arsenic as delineated in the ECR 2023 is 50 ppb, which is envisaged to be reduced to 10 ppb as per WHO guidelines in the near future(BD ECR, 2023; WHO, 2017).

7.2.5 Service Level

There are several compelling reasons to increase the service level of water and sanitation services. Improved access to safe drinking water and sanitation facilities dramatically reduces waterborne diseases. Better WASH services free up people's time and energy. People don't have to spend hours collecting water or dealing with inadequate sanitation facilities. This allows them to pursue education, work, and other productive activities. Studies have shown that WASH improvements can lead to higher school attendance rates and increased economic productivity. By preventing waterborne illnesses, enhanced WASH services can also ease the burden on healthcare systems, lower healthcare costs, and promote a healthier population, fostering long-term economic growth. Increasing the WASH service level is an investment in public health, economic development, and the overall well-being of the community. As such, a gradual increment of service level is considered, which has led to an increase in the indicative investment requirements.

With the increase of physical coverage with time, it is anticipated that the service level in terms of quantity and quality would also be increased in different terms. The anticipated service levels in water supply and sanitation both in rural and urban areas are detailed in **Annexure 2.**

7.2.6 Price Level

All cost estimations are based on the 2024 price level. Unit costs across various planning areas differ according to the technologies employed and factors such as labor, transportation, etc. Additionally, the unit costs for different implementation scenarios vary based on timing and other influencing variables.

7.3 SECTOR DEVELOPMENT SCENARIOS

The implementation of a plan involves numerous factors. During the execution of this SDP, challenges such as insufficient budget allocation, shifts in national priorities, natural disasters, and political instability could hinder progress. Conversely, favorable conditions could expedite the process. Therefore, three different scenarios have been considered to guide the planning for the implementation of the SDP 2026-40.

Scenario 1 – Minimum required services to meet SDG targets

Scenario 2 – A mediocre service level and operating efficiency in terms of increased piped water supply, off-site sanitation and hygiene coverage better than scenario 1.

Scenario 3 – Overall, a higher service level and operating efficiency in terms of increased piped water supply, off-site sanitation and hygiene coverages better than scenario 2.

Percentages of piped water supply and off-site sanitation (sewerage / FSM) coverages, assumed to be achieved in different areas of the country, in different terms and scenarios, are shown in **Annexure 3.**It is also assumed that hygiene (hand washing with soap and water) will be achieved 100 percent in 2030 in every area.

7.4 TARGET COVERAGES

Physical targets of different components - water supply, sanitation and hygiene (hand washing with soap and water, MHM) for this SDP 2026-40 have been set in article 6.2 of Chapter Six. The baseline data shows that in Bangladesh, 98 percent of the population is under the basic service level of water supply coverage (JMP, 2022a). Of which, 59 percent are under a safely managed service level (62 percent in rural and 54 percent in urban areas). According to SDG target, it is considered that the target of achieving 100 percent safely managed service for water supply would be achieved in the short-term planning period, 2030. During the rest of the terms, it is planned that to improve service level, the non-piped systems will be gradually reduced by increasing piped water supply systems predominantly in urban areas as well as in rural areas. At present, the piped water coverage of WASAs ranges from 73 percent to >99 percent which is targeted to be 85-100 percent in 2030 and to be increased gradually to reach 100 percent by 2040. In city corporations, paurashavas, other urban centers and rural areas, the piped water supply coverage would be increased gradually reaching a level shown in Table 7.2 below.

Table 7.2: Targeted piped water supply coverage

Organization/ Areas	Piped water supply coverage (percentage of households), 2022	Targeted piped water supply coverage (percentage) in different terms (year).			Comments
		2030	2035	2040	
Urban Areas					
WASAs					City corporation/ Paurashava-wise coverage data of piped water supply is not available. BBS 2022 data show district wise coverage as percentage of households. As such, present
-Dhaka	>99	100	100	100	
-Chattogram	94	97-99	100	100	
-Khulna	73	85-95	100	100	
-Rajshahi	88	95-99	100	100	
City corporations without WASAs	4-35	30-70	50-80	70-100	
Large paurashavas	5 (Av. value)	25-35	50-70	60-80	

Organization/ Areas	Piped water supply coverage (percentage of households), 2022	Targeted piped water supply coverage (percentage) in different terms (year).			Comments
		2030	2035	2040	
Small paurashavas	3 (Av. value)	15-20	40-60	50-80	coverage in different areas but in WASAs are presumed based on BBS 2022 data(BBS, 2022a).
CHT paurashavas	5 (Av. value)	25-35	40-60	60-80	
Other urban centers	3 (Av. value)	10-15	25-40	30-50	
Rural Areas	<2	5-7	10-20	15-30	

Safely managed sanitation coverage in Bangladesh is 31 percent, much below SDG target coverage (JMP, 2022a). Only Dhaka city has sewerage systems for 30 percent of the city area. In Chattogram and Khulna cities, sewerage systems are under construction. In some other paurashavas, FSM systems are being adapted for management of fecal sludge generated in on-site sanitation systems. The SDP targeted to achieve at least 80 percent safely managed sanitation by 2030 in line with the GED target and gradually introduce sewerage system/FSM system in city corporations, paurashavas. The rest of the urban areas and rural areas will be covered by on-site sanitation systems. The present and targeted off-site sanitation coverage in different terms is shown in Table 7.3.

Table 7.3: Targeted off-site sanitation/FSM coverage

Organization/ Areas	Off-site (sewerage) sanitation/FSM coverage (percentage), 2022	Targeted off-site sanitation/FSM coverage (percentage) in different terms (year).			Comments
		2030	2035	2040	
Urban Areas					
WASAs					Currently, only Dhaka WASA has a sewerage system serving 20 percent of its population. The sewerage systems for Chattogram and Khulna WASAs are set to be commissioned soon.
-Dhaka	20	50-70	60-80	70-90	
-Chattogram	<1	20-40	30-50	50-70	
-Khulna	<1	20-40	30-50	40-70	
-Rajshahi	<1	2-30	20-50	40-70	
City corporations without WASAs	<1	2-40	20-50	40-70	

Organization/ Areas	Off-site (sewerage) sanitation/FSM coverage (percentage), 2022	Targeted off-site sanitation/FSM coverage (percentage) in different terms (year).			Comments
		2030	2035	2040	
Large paurashavas	<1	2-20	20-40	40-60	
Small paurashavas	<1	2-10	10-20	15-25	
CHT paurashavas	<1	2-20	20-40	40-60	
Other urban centers	<1	1-10	10-20	15-25	
Rural Areas	<1	1-5	5-10	10-20	

As of now, the country has achieved 70 percent of basic hand washing facilities (BBS, 2022). While SDG target is to achieve 100 percent, basic hand washing facilities by 2030. The backlog of SDG targets 6.1 and 6.2 would be carried over in the medium term.

The solid waste collection efficiency of the city corporations stands at 98 percent. In A- category paurashavas, the efficiency is 61 percent, in B-category paurashavas 59 percent, and in C-category paurashavas it reaches 90 percent (BBS, 2022). Overall, collection efficiency across all municipalities is 79 percent. The SDP aims to achieve 100 percent collection in selected urban centers by 2030 and progressively extend this target to all urban areas.

7.5 INDICATIVE INVESTMENTS

The investment requirements have been calculated separately for each of the three planning terms. Costs vary due to the differing coverage levels within these terms. The investment requirements also account for progressively higher service levels in each subsequent five-year term. Table 7.4 provides a summary of the investment requirements across various scenarios and terms. The calculated required investments are BDT 4,096,800 million for Scenario 1, BDT 4,797,380 million for Scenario 2, and BDT 5,667,585 million for Scenario 3.

Table 7.4: Total investment requirements in different scenarios

Investment Terms	Scenario 1		Scenario 2		Scenario 3	
	Million BDT	Million USD	Million BDT	Million USD	Million BDT	Million USD
Short-term 2026-2030	1,279,876	10,666	1,589,257	13,244	1,962,493	16,354
Medium-term 2031-2035	1,339,960	11,166	1,606,919	13,391	1,888,354	15,736
Long-term 2036-2040	1,476,964	12,308	1,601,205	13,343	1,816,737	15,139
Total 2026-2040	4,096,800	34,140	4,797,380	39,978	5,667,585	47,230

7.5.1 Total Investment Breakdown

Investment required in different terms and different scenarios is outlined in section 7.7. Now, the breakdown of requirements in scenario 1, in three terms for different components, is shown in Table 7.5. The table shows that the largest investment is needed for the urban water supply component, accounting for 26 percent of the total investment requirement in the short-term scenario 1.

In the medium-term and long-term scenario 1, the urban water supply component will require 35 percent and 27 percent of the total investment, respectively, due to the growing urban population and expanded piped water supply coverage. Notably, revenue generation from water supply services has been considered based on the required O&M costs, with a progressive increase.

Table 7.5: Investment required in different components in scenario 1 (in Million BDT)

Categories	Short-Term (2026-30)	Medium-Term (2031-35)	Long-Term (2036-40)	Total (2026-40)
Urban Water Supply	333,537	470,508	398,863	1,202,907
Urban Sanitation	206,788	151,905	258,039	616,732
Urban Drainage	75,763	136,314	161,628	373,704
Urban Solid Waste Management	216,600	231,548	282,261	730,410
Rural Water Supply	141,621	131,489	130,182	403,292
Rural Sanitation	170,014	81,507	97,205	348,727
Hygiene (Hand Washing & MHM)	135,553	136,690	148,785	421,028
Total in each Term	1,279,876	1,339,960	1,476,964	4,096,800

The percentage distribution of the total investment requirement for scenario 1 of the short-term (2026-30) is depicted in Figure 7.2.

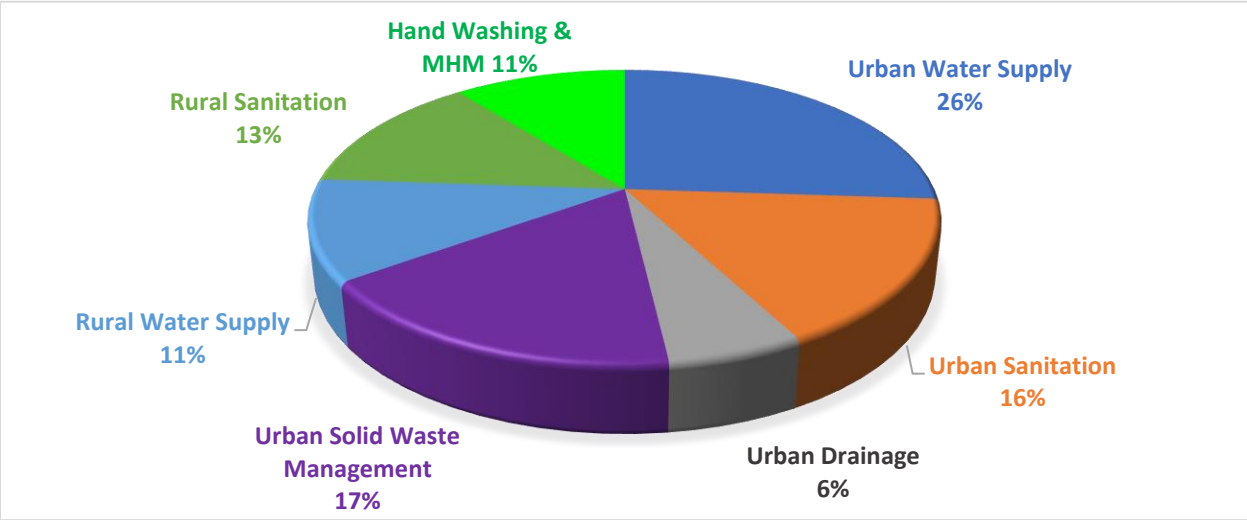


Figure 7.2: Percentage distribution of the total investment requirement for the short-term (2026-30)-Scenario 1

7.5.2 Indicative Public Investment

The total investment required for the implementation of the SDP 2026-40 is indicated in Table 7.4. Along with GoB and DPs, the investment will be shared by the users, private entrepreneurs, and NGOs, among others. The indicative public investments out of the total investment in different terms and scenarios are shown in Table 7.6. The table indicates that public investment constitutes around two-thirds of the total investment requirements.

Table 7.6: Indicative public investment requirements in different scenarios (In Million BDT)

Scenarios	Short-term 2026-2030	Medium-term 2031-2035	Long-term 2036-2040	Total 2026-2040
Scenario 1	792,906	856,230	872,463	2,493,510
Scenario 2	1,042,672	1,020,934	868,263	2,931,869
Scenario 3	1,335,256	1,168,123	947,661	3,451,041

The component-wise breakdown of the required public sector investment cost in the short term (2026-30) in scenario 1 is shown in Table 7.7.

Table 7.7: Component-wise Public Sector Investment Short Term (2026-30) – in different scenarios (In million BDT)

Component	Required Public Sector Investment in the Short Term (2026-30)		
	Scenario 1	Scenario 2	Scenario 3
Urban Water Supply	235,522	291,913	356,774
Urban Sanitation	175,483	258,504	376,300
Urban Drainage	56,122	104,443	157,451
Urban Solid Waste Management	169,435	186,533	210,129
Rural Water Supply	84,546	104,279	115,941
Rural Sanitation	58,156	82,695	103,691
Hand Washing and MHM	13,641	14,305	14,970
Total	792,906	1,042,672	1,335,256

The percentage distribution of the required public sector investment for the short term (2026–2030) under Scenario 1 is illustrated in Figure 7.3. The component-wise figures are lower than those presented in Figure 7.2. Notably, Figure 7.2 represents the total investment cost to be borne by all stakeholders, including community contributions, private households, private entrepreneurs, and NGOs, along with the revenue generated from service delivery.

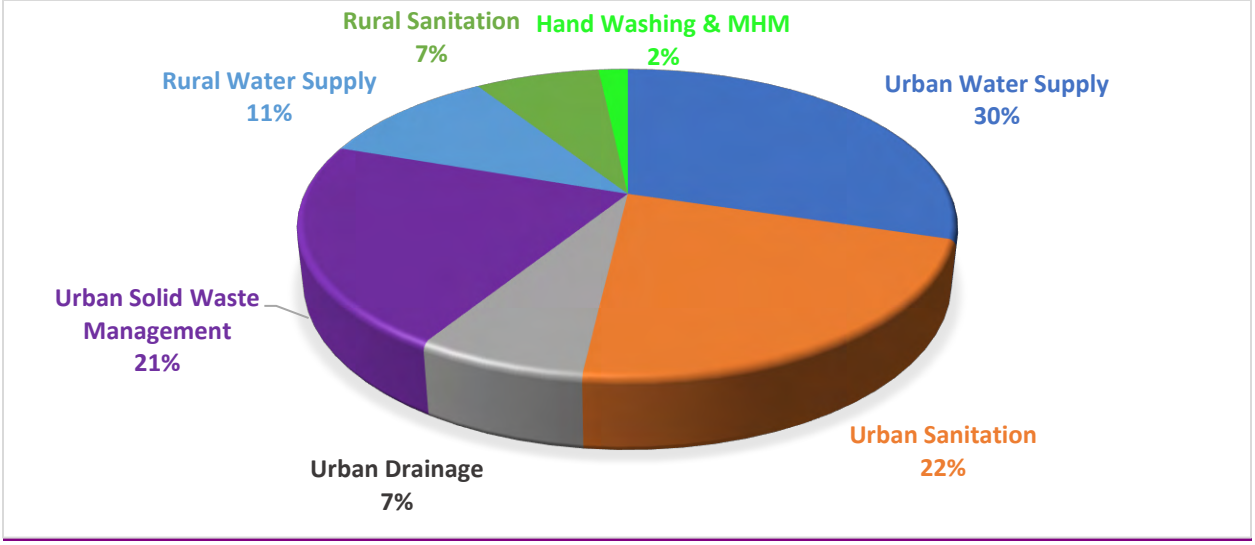


Figure 7.3: Percentage distribution of the required public sector investment Short Term (2026-30) - Scenario 1

7.5.3 Organization-wise Investment Requirement for the Public Sector

In different scenarios, organization-wise investment costs for the public sector during the short term are shown in Table 7.8.The table reflects that the maximum investment would be required for Dhaka WASA in all the scenarios in the urban sub-sector. Notably, Dhaka WASA currently serves a population of over 11 million, producing 2.65 million cubic meters of water daily, with 33 percent sourced from surface water, which incurs high production costs. To meet the rising demand, surface water production needs to be increased soon. Additionally, during this SDP period, DWASA plans to enhance the water supply service level and expand sewerage coverage significantly.

Table 7.8: Organization-wise investment cost in the public sector during the short term in different scenarios (In million BDT)

Organization	Required Public Sector Investment – Short Term-scenario 1	Required Public Sector Investment – Short Term-scenario 2	Required Public Sector Investment – Short Term-scenario 3
Urban			
Dhaka WASA	233,659	283,830	358,162
DSCC & DNCC	46,390	48,752	51,170
Chattogram WASA	33,189	50,371	67,511
Chattogram City Corporation	13,137	13,812	14,496
Khulna WASA	8,178	12,347	16,788
Khulna City Corporation	2,628	2,765	2,902
Rajshahi WASA	3,156	6,366	8,736
Rajshahi City Corporation	2,024	2,130	2,236

Organization	Required Public Sector Investment – Short Term-scenario 1	Required Public Sector Investment – Short Term-scenario 2	Required Public Sector Investment – Short Term-scenario 3
City Corporations without WASAs	56,177	73,550	93,346
Paurashavas and others	115,685	150,881	198,108
DPHE	130,014	204,637	295,622
Rural			
DPHE	148,668	193,230	226,179
Total	792,906	1,042,672	1,335,256

7.6 BUDGETARY ARRANGEMENT

7.6.1 Recent Trends of Budget Allocation in WASH Sector

Figure 7.4 illustrates Annual Development Program (ADP) /Revised ADP allocations in recent years for WASH and SWM activities by the organizations under LGD, more specifically by the WASH sector agencies and city corporations (Data source: Bangladesh Planning Commission.). Although other departments such as health, education etc. also implement WASH related activities in their respective jurisdictions, these are not included in the year-wise ADP/RADP allocations presented here. Furthermore, only dedicated WASH and SWM projects are considered, excluding those that include WASH and SWM activities as supplementary to other major projects. The budget allocations in recent ADPs/RADPs have shown an overall upward trend, but these need to be further increased to meet the SDG targets 6.1 and 6.2, as well as the SDP 2026-40 goals.

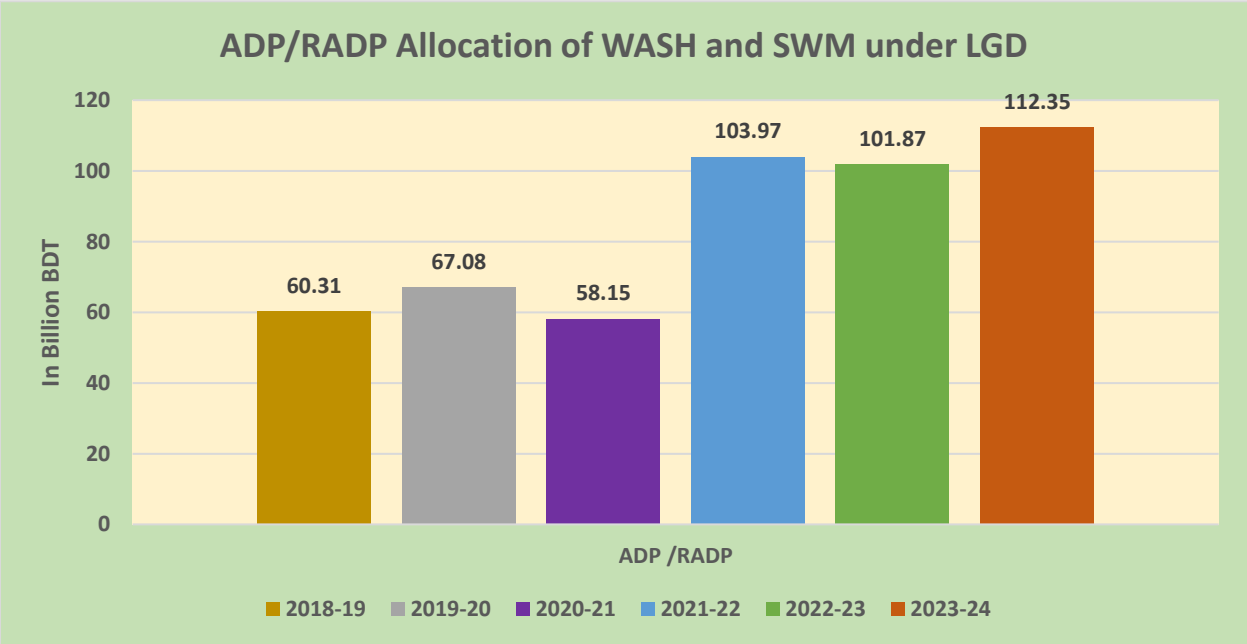


Figure 7.4:ADP/RADP allocation in WASH and SWM under LGD (LGD, 2023; Planning Division, 2024)

Budget allocations and projections of the lead organizations of the WASH sector (DPHE and WASAs) under LGD, in the Mid-Term Budgetary Framework (MTBF) for the three financial years (2023-24, 2024-25 and 2025-26) indicate that the total allocation remains almost the same across all the three FYs(MoF, 2024). The WASH sector demands a significant increase in funding to meet the SDG targets and maintain an elevated service level moving forward. The MTBF budget for 2023-24, along with the projections for 2024-25 and 2025-26, for the lead WASH sector organizations under LGD, are displayed in Figure 7.5.

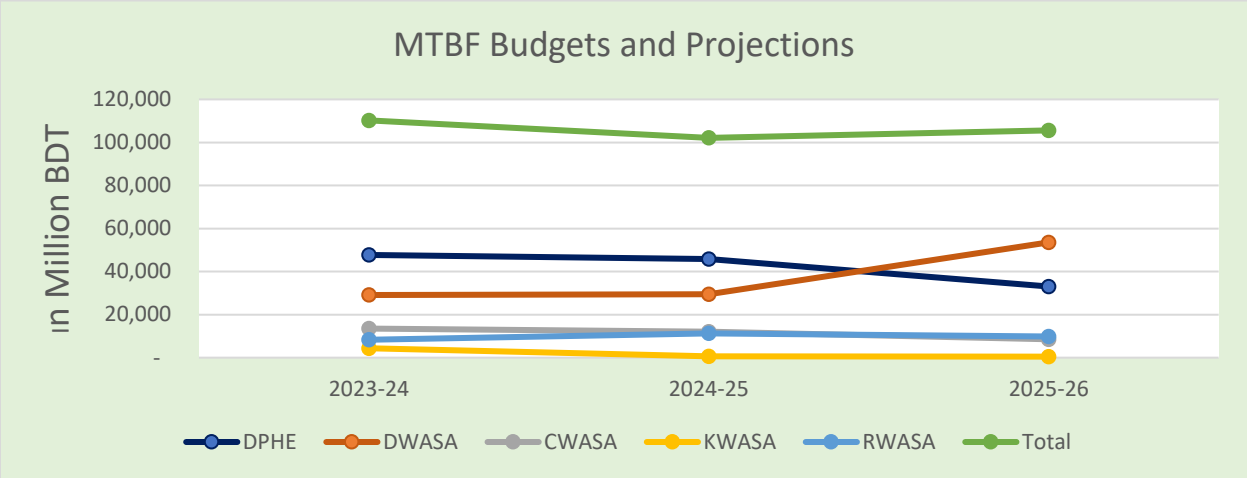


Figure 7.5: MTBF budget and projections of the lead WASH sector organizations under LGD (MoF, 2024)

7.6.2 Sources of Funds

All the sector partners would take part in the implementation of the SDP by sharing the investment costs. Sector partners are predominantly classified in the following categories:

Public sector: These include funding from the government, DPs, and revenue generated by the WASAs and paurashavas by rendering WASH services.

Private sector: Investments of the private households, private entrepreneurs and contribution by the communities; and

NGOs: Funding directly for WASH by different donors and funding by the NGOs themselves are included in this category.

The estimated funding by the above-mentioned partners for the establishment of WASH facilities and other related costs, including O&M for scenario 1, are shown in Table 7.9.

Table 7.9: Investment cost by the sector partners for scenario 1 (In million BDT)

Sources of fund	Short term (2026-2030)	Medium term (2031-2035)	Long term (2036-2040)	Total (2026-2040)
Public sector				
Investment	792,906	856,230	872,463	2,493,510
Revenue	155,728	221,526	306,705	683,959
Private sector				
Community contribution	4,245	221	125	4,590

Sources of fund	Short term (2026-2030)	Medium term (2031-2035)	Long term (2036-2040)	Total (2026-2040)
Private households' investment	307,313	248,085	280,165	596,808
Private entrepreneurs' investment	1,780	3,137	5,005	9,921
NGOs	17,904	10,762	12,500	29,137
Total	1,279,876	1,339,960	1,476,964	4,096,800

7.6.3 Availability of Resources

The MTBF budget and projected allocations for FYs 2023-24, 2024-25, and 2025-26 indicate that BDT 105,537 million will be allocated for WASH sector agencies and city corporations under LGD in FY 2025-26. Considering a substantial increase in allocations in the coming years and applying a 20 percent cumulative increase for each consecutive FYs, the projected total allocation for five years (2026-30) of the short term will reach BDT 785,364 million (Figure 7.6). The calculated required public sector investment in the short-term- scenario 1 stands at BDT 792,906 million, which closely aligns with the projected total MTBF allocation for the five years of short-term (MoF, 2024).

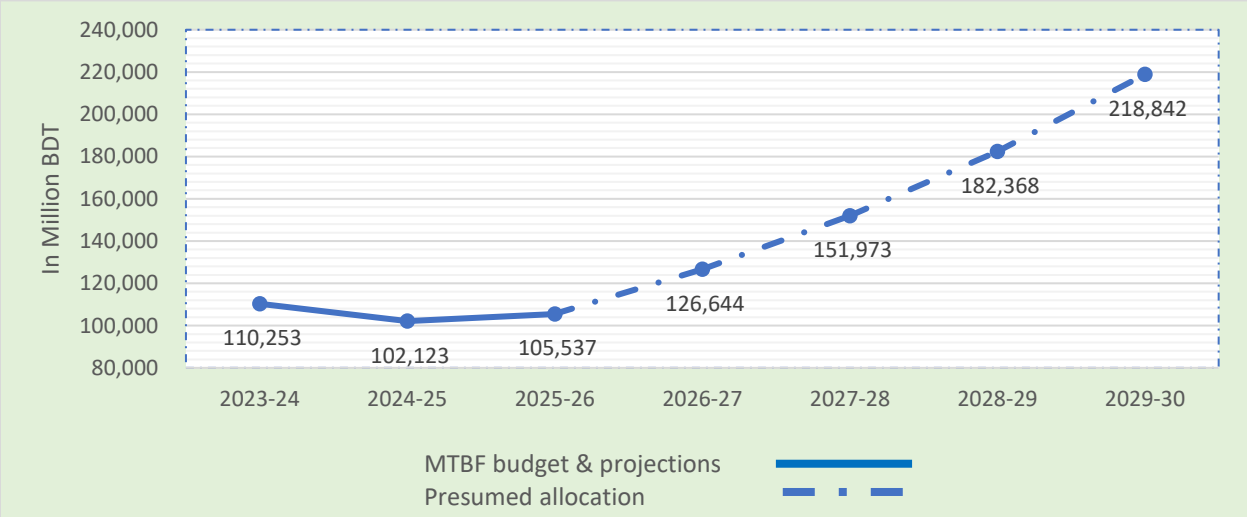


Figure 7.6: The MTBF budget and projections up to 2025-26 and presumed allocation in WASH sector lead organizations and city corporations under LGD up to 2029-30 (short term) considering a 20 percent annual increment

7.6.4 Public Sector Investment in Different Terms

Scenario 1

Table 7.6 indicates that the required indicative public sector investments for the medium-term and long-term of scenario 1 are BDT 856,230 million (US$ 7,135 million) and BDT 872,463 million (US$ 7,270 million), respectively. Figure 7.6 projects an allocation of BDT 218,842 million in FY 2029-30, based on a 20 percent annual increment from the MTBF projected budget of FY 2025-26. Additionally, if the same allocation from FY 2029-30 continues throughout both the medium-

term (FY 2030-31 to FY 2034-35) and long-term (FY 2035-36 to FY 2039-40), the total investment for both periods will reach BDT 1,094,210 million (US$ 9,118 million), which will meet the required indicative public sector investment for both the medium and long terms.

Scenarios 2 and 3

Table 7.6 shows that the public sector investment requirements for scenarios 2 and 3 are more than scenario 1, as higher coverages and service levels are presumed. Development partners (DPs) have made a significant contribution to funding WASH sector development activities in recent years. The LGD, in collaboration with the Planning Commission and the External Resource Division (ERD), may seek the necessary contributions from DPs to support the SDP 2026-40 implementation. Moreover, the WASH sector could potentially be included in the Small and Medium Enterprise (SME) category list of Bangladesh Bank, and Priority Sector Lending (PSL) schemes might also be introduced.

7.7 Investment Cost for WASH Facilities in Institutions

7.7.1 Schools

The country has over 0.13 million primary and secondary schools, employing over 0.92 million teachers and serving 29.5 million students(BANBEIS, 2023; DPE, 2024).While 99 percent of secondary schools have access to basic water supply and sanitation services, the figures for primary schools are lower, at 89 percent for water supply and 85 percent for sanitation. Additionally, the availability of basic hygiene facilities stands at 86 percent in primary schools and 81 percent in secondary schools (JMP, 2023a). The estimated investment required to provide WASH facilities in the remaining schools and cover O&M costs until 2040 is 99,268 million BDT (US$ 827 million). Detailed calculations are provided in **Annexure 4.**

7.7.2 Health Care Facilities

The country has approximately 19 thousand Community Clinics (CCs), Union Health and Family Welfare Centers (UHFWCs), and Union Health Sub-Centers/Rural Dispensaries (RDs) altogether at the union level(DGHS, 2019). Many of these facilities either partially or completely lack WASH amenities. To address this gap, an estimated BDT 12,260 million (US$ 102 million) will be required to establish WASH facilities and cover O&M costs in these healthcare centers until 2040. A detailed cost breakdown is available in **Annexure 5.**

CHAPTER 8: SDP IMPLEMENTATION

This chapter begins with the issue of introducing a sector-wide approach (SWAp) in the implementation of WASH programs with its experience, challenges and way forward. It then covers the institutional arrangements for implementing the SDP, stakeholder participation, and coordination mechanisms. The chapter further outlines a roadmap for the SDP implementation schedule and concludes with a matrix of potential risks and corresponding mitigation measures.

8.1 SECTOR-WIDE APPROACH (SWAp)

8.1.1 Introduction

The previous SDP 2011-25(2011) aimed to introduce SWAp in implementing WASH sector activities. But still, it remains a plan. The WASH sector's activities have a wide range of variety, starting from infrastructure development to software activities, such as motivational activities like practicing improved personal hygiene behavior. Development partners are important stakeholders in the development of the WASH sector. Not all the development partners are interested in supporting similar nature of activities. Besides, government agencies (DPHE, LGED), autonomous commercial organizations (WASAs), LGIs, NGOs, the private sector and the users are involved in WASH sector development at the central and local levels. All these stakeholders have their own mandates and operational approaches. Moreover, coordination, monitoring, and reporting systems have remained a concern in the WASH sector, along with inadequate capacity, especially at the local level, due to inadequate manpower. Overall, sincere initiative has not been taken yet to introduce SWAp, perhaps due to the reluctance of the existing setup of the relevant organizations. Thus, the SWAp plan remains unimplemented in the WASH sector of the country.

8.1.2 Bangladesh's Experience in SWAp

The Government of Bangladesh has considerable experience in designing and implementing large SWAps in the health sector, HPNSP (Health, Population and Nutrition Sector Program), and primary education sectors, PEDP (Primary Education Development Program). A secondary education SWAp in the name of Secondary Education Development Program (SEDP) is also now operational, while a SWAp development process is initiated by the Bureau of Non-Formal Education (BNFE) on non-formal education. A SWAp in Bangladesh Technical and Vocational Education and Training (TVET) is in the early stage of implementation.

8.1.3 Issues and Challenges

While the Sector-Wide Approach (SWAp) offers several potential benefits, such as enhanced efficiency and effectiveness of development assistance, strengthened government leadership and ownership of the sector, and greater transparency and accountability, it also presents a range of challenges, including:

a) **Difficulty of coordination:** Coordinating many development partners can be complex and challenging, especially in a country like Bangladesh with a comparatively complex governance structure.

b) **Unwillingness to change deep-rooted practices and systems:** SWAp requires significant changes to traditional practices and systems. This can be difficult to achieve, especially in a sector like WASH.

c) **Weak monitoring and evaluation systems:** Monitoring and evaluation systems in the WASH sector in Bangladesh are still weak, not up to the mark, which could make it difficult to assess the impact of SWAp.

d) **Issue of transparency and accountability:** Despite being a key principle of SWAp, transparency and accountability are still deficient in some areas.

e) **Inadequate participation of civil society:** Civil society organizations have often been marginalized in the SWAp process.

8.1.4 Way Forward

Despite these challenges, SWAp remains a promising approach to development assistance in the WASH Sector in Bangladesh. However, it is important to address the challenges mentioned above in order to ensure that SWAp is implemented effectively and efficiently. Here are some recommendations for addressing the issues and challenges of SWAp in the WASH Sector in Bangladesh:

a) **Simple and Small Initiative: A** Simple and small-scale SWAp to be introduced in the WASH sector initially. The transition from a project approach to a program approach should be gradual to allow building capacity and confidence. WASH sector to adopt SWAps in phases, starting with sub-SWAp, and then expanding gradually.

b) **Preparatory Works:** SWAp for the WASH sector was recommended in the previous SDP 2011-2025(2011). Still, any initiative for the development of SWAp remains pending. The development of SWAp will require considerable time, effort, resources and continued commitment. The preparatory works need to focus on (i) negotiations with the interested DPs on the nature of the SWAp; (ii) building awareness and providing training on the SWAp concept for the LGD and the related agencies; (iii) development of fund flow mechanism; and (iv) agreeing with the DPs on the use of government financial, procurement and reporting procedures and systems.

c) **Strengthen Sector Capacity:** Increased investment in strengthening sector capacity to implement and monitor the SDP. This could help the government to take a more leading role in the SWAp process and to ensure that SWAp is aligned with national priorities.

d) **Improve Monitoring and Evaluation Systems:** The GoB and its DPs should work together to improve monitoring and evaluation systems. This will help to better assess the impact of SWAp and to identify areas where improvement is needed.

e) **Lead Agency during Preparatory Phase:** The PSB of the LGD under the MLGD&C should be the lead agency during the preparatory phase and coordinate all preparatory activities in consultation with stakeholders.

8.2 INSTITUTIONAL ARRANGEMENT FOR SDP IMPLEMENTATION

The WASH Sector Development Plan (SDP) 2026-40 thrives on a multi-layered institutional structure and hinges on a well-defined division of stakeholder roles. The MoLGRD&C acts as the WASH sector captain, setting priorities, allocating resources, monitoring progress and overseeing the SDP's implementation. Within MoLGRD&C, the Policy Support Branch (PSB) takes the lead on planning, crafting the SDP framework, coordinating amongst the stakeholders and ensuring that implementation aligns with the plan. The influence behind the plan comes from organizations executing WASH programs on the ground. Financial support comes predominantly from the GoB, DPs and the users. While government organizations, LGIs, NGOs and the private sector deliver services at the community level, the LGIs also play a vital role by mobilizing communities and ensuring the long-term success of WASH interventions. This collaborative approach ensures each stakeholder contributes their expertise for successful WASH sector development.

The main functions of the Policy Support Branch (PSB) in the implementation of the SDP 2026-40 are:

a) Coordination of WASH sector, SDP progress review and follow-up, monitoring and evaluation;
b) Policy review, policy preparation, modification, updating, and monitoring of the implementation in the WASH sector;
c) Assist the different government and autonomous institutions like DPHE, LGED, LGIs (union and upazila parishads, paurashavas, city corporations) and WASAs in the preparation and implementation of policies and strategies for water supply and improved sanitation;
d) Assist in capacity building of LGIs on national water supply and improved sanitation;
e) Establish 'WASH Sector Information System', maintain and update it at a regular interval; and
f) Support 'Research Activities' on the implementation of policy-related activities.

8.3 STAKEHOLDERS' PARTICIPATION IN SDP IMPLEMENTATION

A wide range of stakeholders are involved in the WASH sector of Bangladesh. Stakeholders' participation is essential for the successful implementation of the WASH Sector Development Plan (SDP). Stakeholders are involved in the planning process to ensure that they are aligned with the needs of the community and are feasible to implement. They can play a key role in execution by contributing resources, expertise, and manpower, as well as monitoring progress to keep the process on track and identify challenges that may arise. Stakeholder advocacy is also essential for mobilizing resources.

8.4 COORDINATION, MONITORING AND EVALUATION OF SDP 2026-40

Development and implementation of a robust coordination, monitoring and evaluation system is crucial to determine whether the sector is on track to achieve its SDP targets. The establishment of an effective sector monitoring and evaluation system will provide many benefits, such as the strengthening of mechanisms for identifying the causes of good or poor performance; service providers more easily held accountable for their performance in a transparent manner; integration of the 'tools' of performance measurement, for example, operational monitoring, financial tracking studies and evaluation; improved information for assessing the effectiveness of policy and for enabling better policy making; and establishment of a more credible system for leveraging more resources for the sector(WEDC, 2005).

8.4.1 Present Status of Sector-Level Coordination

8.4.1.1 National Level

The NFWSS, having representatives from relevant ministries, agencies and the DPs and chaired by the Secretary, LGD, is responsible for coordination, monitoring and evaluation of the activities of the WASH sector (Figure 8.1). Since its formation in 2000, the NFWSS has approved, supervised and coordinated a number of policy and strategy documents. The NFWSS has two subcommittees: (i) the Sub Committee for policies and strategies, and (ii) the Sub Committee for technical matters. In addition, there is the National Sanitation Task Force, chaired by the Secretary, LGD, exclusively to look after sanitation activities.

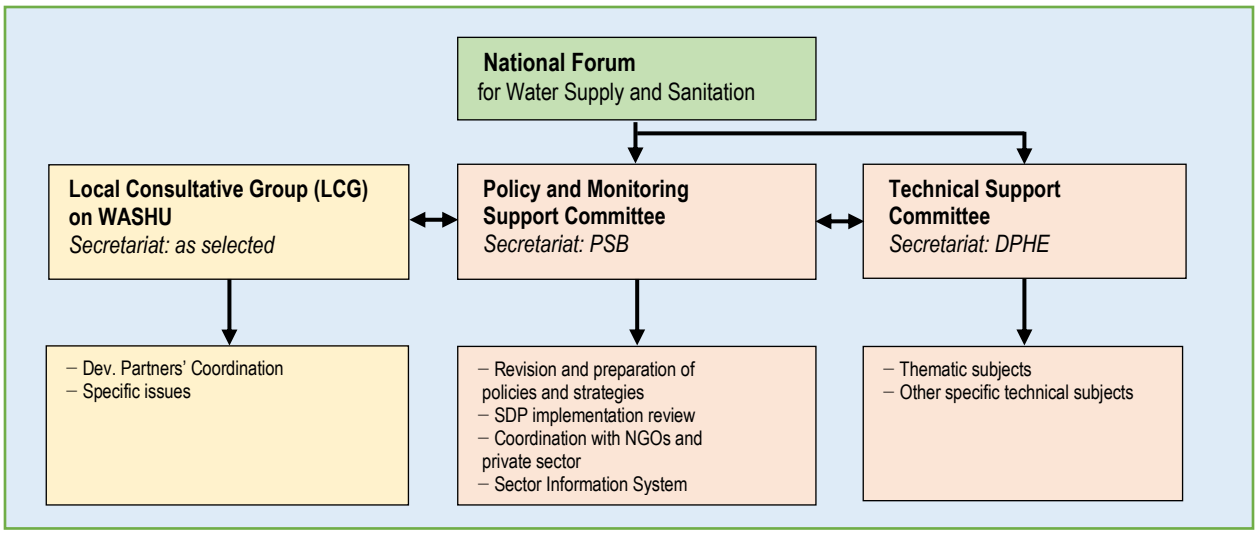


Figure 8.1: Sector Coordination and Monitoring Arrangement

The MoLGRD&C has restructured Local Consultative Group (LCG) on Water Supply and Sanitation and Urban (WASHU), which is an interactive and broad communication and information sharing platform for donors and group representatives. It is the forum of the representatives of government, Development Partners, NGOs, Academia, and Civil Societies working on WASH and urban development. In addition to these regular members, resource persons are also part of the group who are invited from relevant organizations/agencies as appropriate. The overall objective of the LCG Working Group on WASHU is to contribute towards effective and coordinated implementation of national policies, strategies, plans and programs on urban development and WASH in rural and urban areas with an emphasis on reaching the poorest.

8.4.1.2 Local Level

Local level coordination has been described in Article 6.15.3 of Chapter Six.

8.4.2 Other Issues Related to Coordination and Monitoring

The other issues that need to be addressed to ensure better coordination, monitoring and evaluation of the WASH sector activities are mentioned below.

a) **Institutional Capacity:** DPHE is the national lead focal agency in the WSAH sector. The existing staff of DPHE generally lacks adequate capacity to effectively monitor and evaluate sector activities. There is room for considerable improvements at all levels in keeping proper records of data and information, and updating and publishing them on a regular basis. Similarly, there is also a lack of data in the information systems within the paurashavas and city corporations.

b) **Inadequate Sector-wide Information:** Organizations in the WASH sector have their own coordination, monitoring and evaluation arrangements, mostly development project-specific and do not adequately address the sector coverage and performance. Moreover, the use of definitions, terminology and methodology to monitor and evaluate the progress of the key indicators of the sector is often not consistent with the projects implemented by both the government and other stakeholders. This inconsistency thus makes a comparison of inter-project performances difficult and provides an inadequate reflection of the sector's overall performance. In fact, the sector's real performance remains unmapped due to the non-inclusion of the major contributions made by individuals in terms of the installation of hand tube-wells and sanitation facilities.

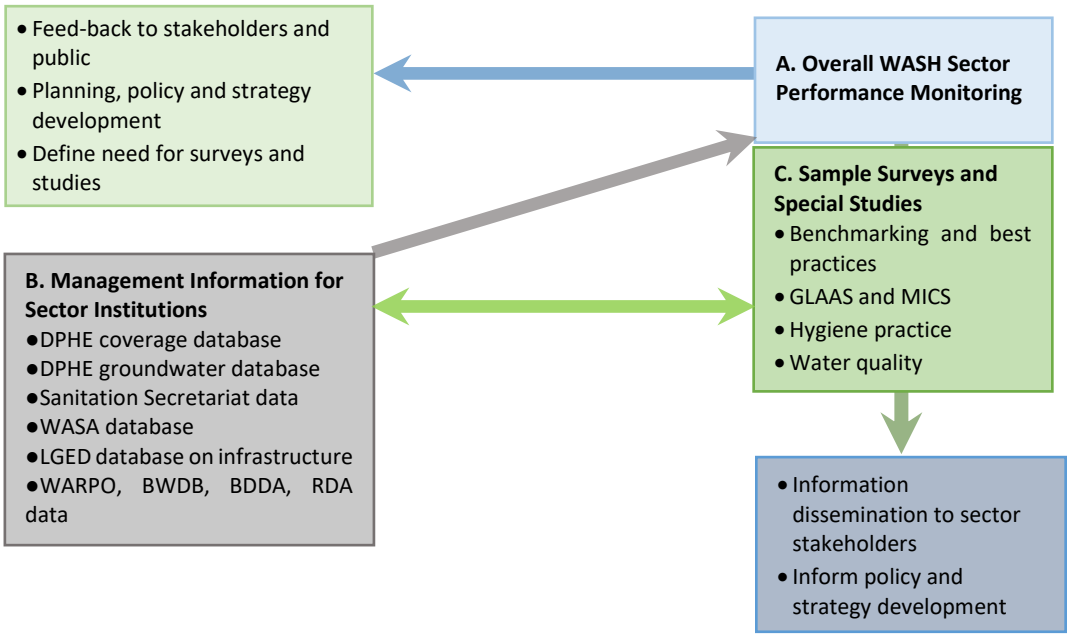
8.4.3 Sector Coordination and Monitoring

To ensure effective coordination and measurement of sector performance, the following measures need to be taken:

8.4.3.1 Develop and Implement the Sector Information System (SIS)

The WASH sector should have a dedicated SIS operated by trained staff having adequate financial and physical resources. The SIS is essentially a tool for monitoring progress towards achieving the targets and informing the government, DPs and the public on sector progress (Figure 8.2). The indicators to track the sector's performance should be simple, measurable and manageable. Accordingly, it is recommended that the LGD consider using, at the initial stages, key sector indicators (Table 8.1), which the national and local institutions in the WASH sector are capable of generating, providing adequate capacity-building support and financial and physical resources. NGOs and the private sector performing in the WASH sector can also take part in the process.

A simplified overview of the proposed sector information system



a) Overall WASH Sector Performance Monitoring: Initially, key indicators for monitoring the performance of the WASH sector, for example, coverage of water supply and sanitation.

b) Management Information of Sector Institutions: Detailed information systems in sector institutions, including NGOs, for monitoring progress related to the mandate of the particular institution, mainly used for progress and performance monitoring. These institutions will include relevant indicators from the key indicators in their monitoring and reporting system.

c) Sample Surveys and Special Studies: Availing the results of special studies on sector issues like Value for Money studies, special in-depth studies on rights issues, gender, water consumption patterns, efficiency in irrigation, and so on. This includes a system for making the research and studies reports available, for example, through links to the PSB's website, for all sector stakeholders to benefit from the documentation.

Note: The 'b and c' parts of the SIS provide the data needed for 'a'.

Figure 8.2: A simplified overview of the proposed sector information system

Table 8.1: Key performance indicators for the sector information system (SIS) at the national level

	Key Indicators	Means of Measuring Indicators (unit)
Access	Water supply coverage	Proportion of population with safely managed water services (percentage)
	Sanitation coverage	Proportion of population with safely managed and basic sanitation services (percentage)
	Fecal Sludge Management (FSM) Coverage	Proportion of population served by FSM services (urban and rural) (percentage)
	Hand Hygiene	Proportion of households having hand washing facilities with soap and water (percentage)
	Solid waste management coverage (only urban)	Proportion of households with basic and limited services (percentage)
Functionality	UfW (only urban)	Proportion of water delivered to registered customers compared to water produced in WS systems (percentage)
	Water quality	Proportion of water sample taken at the point of consumption that complies with the national water quality standard (percentage)
Organizational Efficiency	Cost recovery (only urban)	Proportion of capital and O&M costs recovered by revenue collection in piped WS systems (percentage)
Investment Efficiency	Unit cost	Unit cost of population served (per capita)
Inclusiveness	Pro-poor	Proportion of poor population having access to safely managed water and sanitation facilities (percentage)
Behaviors Change	Hand washing coverage	Proportion of population washing hands with soap and water in the household (percentage)
	Menstrual Hygiene Management (MHM) coverage	Proportion of women and girls practicing MHM (percentage)

8.4.3.2 Coordination and monitoring mechanism at different levels:

The different coordination and monitoring mechanisms, along with their reporting lines, are shown in Table 8.2. At different levels, each institution will develop its own monitoring and reporting formats, incorporating relevant indicators from the key indicators. The committees at each level will liaise with the Integrated Water Resource Management (IWRM) Committees. The committees will address outstanding issues, resolve the problems to the extent possible, and escalate any specific actions needed for improved performance to higher authorities. Additionally, the committees will provide feedback to the immediate lower level, sharing the overall status and offering comments on the actions taken.

The union parishads, as the lowest tier of the local government, would take the responsibility of collecting information from the respective wards and communities. Where community-level or ward-level organizations exist, the union parishad may collect information through them. The staff limitation at the union parishads is a major concern for effective monitoring and reporting. The union parishads may take the support of ongoing WASH projects in the union, or any interested NGO or ward members, or individuals for monitoring and reporting. The DPHE, being the lead sector agency, would facilitate the coordination and reporting at the upazila and district levels. For sustainable development, each union parishad should have additional staff, in particular, an Accounts Assistant and a Work Assistant.

Table 8.2: Proposed coordination and monitoring mechanisms at different levels

Levels	Coordination and Monitoring Mechanisms	Reporting Lines
Inter-sector	Secretaries' Committee on WASH	Reports from time to time to different ministries and national committees
WASH sector	National Forum for WASH National SIS managed by LGD/DPHE	Reports from time to time to the Secretaries' Committee, other ministries, national committees and disseminates information among the sector stakeholders
Sector Institution Headquarters (DPHE, WASAs, LGED, WARPO, DoE, BADC, BMDA, WDB, NGOs etc.)	Coordination and Monitoring Departments of Government organizations and NGOs databases of different organizations	Compiles information in the respective databases of the different organizations and sends a report to the National SIS in standard formats.
District	District Coordination Committee DPHE Executive Engineer, member secretary, or focal person for WASH	Complies, validates and reports to the DPHE Headquarters with copies to the divisions. The city corporations and the paurashavas (and unions and upazilas) with piped WS reports to district coordination committees, with copies to the DPHE Executive Engineer at the district.
Upazila	'Public Health, Sanitation and Safe Water Supply' committee. DPHE Sub-Assistant Engineer (or the Assistant Engineer) member secretary.	Compiles and reports to the district coordination committee with copies to the DPHE Executive Engineer.
Union	'Sanitation, Water Supply and Sewage Standing Committee'	Compiles and reports to the upazila committee with copies to the DPHE Assistant Engineer /Sub-Assistant Engineer. The union parishad would collect and compile reports from the community development committee and report to the upazila parishad. A focal person (preferably a member of the union parishad of the concerned ward) or an agency (such as an NGO) or development project, if available, may support the union parishads in organizing meetings at different levels and preparing reports.
Community	Community Development Committee	Uses simple forms and tools and reports to union parishad.

At the headquarters level of different government organizations and the NGOs, the respective organizations would carry out their own coordination and monitoring and would send information in standard formats to the national SIS. At the WASH sector level, the SIS will be managed by the

LGD (PSB)/DPHE and report to the NFWSS which is the main body for monitoring and coordination of different organizations including the NGOs. Inter- sectoral coordination would be done by the proposed Secretaries' Committee on Water Supply and Sanitation.

a) **Establish a coordination and monitoring mechanism for surface and ground water sources: As ground water and surface water sources are interrelated,** the coordination and monitoring mechanism of groundwater and surface water sources is crucial for ensuring sustainable water management in the country. Special attention is needed to protect water resources in and around the large cities. As such, study and identification of possible pollution sources need to be carried out and a coordination and monitoring mechanism for the protection of water sources to be developed among the concerned agencies, such as DPHE, WASAs, City Corporations, DoE, WARPO, BADC, BWDB, BMDA and LGED.
b) **Institutionalize monitoring systems for climate change impact:** Establishment of a new unit for Climate Change, Environment and Disaster Management (CCEDM) or allocation of the functions to an existing unit in key WASH sector agencies like WASAs and DPHE need to be done to monitor climate change impact and build staff capacities accordingly to deal with the future challenges.
c) **Preparation of annual qualitative and quantitative report on WASH sector:** Preparation of annual qualitative and quantitative reports on WASH is a critical tool for tracking progress, ensuring accountability, promoting evidence-based decision-making, mobilizing resources, raising awareness, documenting achievements, informing SDGs, promoting equity, and building a knowledge base. These reports would play a vital role in advancing the WASH sector and achieving the goal of universal access to safe water, sanitation, and hygiene for all. Annual reports could also include the status of water points and water supply systems, sanitation services, the groundwater table, water consumption, etc. The PSB might take the responsibility to lead the preparation of the annual qualitative and quantitative reports on WASH with the active participation of concerned agencies.

8.5 ROAD MAP FOR SDP IMPLEMENTATION

8.5.1 Major Areas of Activities for SDP 2026-2040 Implementation

a) **Institutional Arrangement:** The PSB is entrusted to facilitate the implementation of the SDP. It is necessary to make sure that required funding is available and establish linkages with all sector partners to facilitate their functions under the SDP framework.
b) **Sector Capacity:** Capacity building of the key sector agencies like DPHE is important for successful implementation of the SDP. Hence, it deserves priority attention for organizational restructuring, staff recruitment and staff training.
c) **Regulatory Framework:** Necessity of a regulatory authority for WASH sector is an obligation for worthy implementation of the SDP. Alongside, the policies and the strategies should also be stream lined, as and when required.
d) **Alignment of Development Projects and its Implementation:** All new development projects should be prepared and ongoing projects should be revised aligned with the SDP. All projects should be implemented within the scheduled timeframe with the participation of all stakeholders including the private sector.
e) **Real Time Monitoring:** Real-time monitoring could be initiated, which could be an essential tool for tracking progress, identify and address problems and improve service

delivery. Several technologies can be used for real-time monitoring, including sensors, mobile phones, satellite imagery, internet of things (IoT) devices and AI-based technology. Likewise, by using real-time monitoring data, governments, NGOs, and other stakeholders can make informed decisions about WASH investments and interventions.

8.5.2 Road Map for the SDP 2026-40 Implementation

A roadmap with indicative milestones for the implementation of the SDP 2026-40, including action points, has been developed. This roadmap outlines the responsible sector agencies for each phase of implementation. The detailed roadmap is provided in **Annexure 6.**

8.6 RISKS AND MITIGATION MEASURES

The WASH sector development plan is a comprehensive plan that aims to improve WASH services in Bangladesh. However, there are a number of risks that could jeopardize the success of the plan. These risks include limited financial resources, lack of capacity and expertise, weak coordination and collaboration, limited access to data and information, environmental sustainability concerns, social and cultural barriers, climate change and natural disasters, and urbanization and population growth, as outlined in Table 8.3.

Table 8.3: Risks and Mitigation Measures for WASH Sector Development Plan

Risk	Category	Mitigation Measures
Limited financial resources	Low	- Increase government funding for programs. - Attract private sector investment. - Explore innovative financing mechanisms, such as public-private partnerships and impact bonds.
Lack of capacity and expertise	Medium	- Strengthen the capacity of sector lead agency (DPHE) and other WASH service providers. - Provide training and technical assistance to sector professionals. - Foster collaboration and knowledge sharing among stakeholders.
Weak coordination and collaboration	Medium	- Establish clear institutional roles and responsibilities. - Strengthen coordination mechanisms among government agencies, LGIs, DPs, NGOs, and the private sector. - Promote community participation in WASH planning and implementation.
Limited access to data and information	Low	-Improve data collection and monitoring systems. - Increase access to WASH data for informed decision-making. - Promote open data sharing for transparency and accountability.
Environmental sustainability concerns	Medium	- Promote sustainable technologies and practices. - Protect water resources and ecosystems. - Address the issue of fecal sludge management.
Social and cultural barriers	Low	- Raise awareness issues and promote behavior change. - Address gender inequalities in access and use. - Respect cultural sensitivities in interventions.
Climate change and natural disasters	Low	- Build infrastructure that is resilient to climate change. - Develop early warning systems for WASH emergencies. - Promote climate-smart WASH practices.
Urbanization and population growth	Low	- Invest in WASH infrastructure to meet the growing demand in urban areas. - Promote decentralized systems in urban areas. - Explore innovative approaches to service delivery in urban slums.

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ANNEXURE 1

Implementation Status of the Road Map of the SDP 2011-2025

Items	Actions Points	Associate Responsibility	Implementation Status
LEAD RESPONSIBILITY: LGD (supported by PSU)			
ACTS			
Local Government Acts of 2009 for City Corporation, Paurashavas, Upazila Parishads and Union Parishads	LGD to delegate more administrative and financial powers to LGIs LGD to delegate authority to City Corporations and Paurashavas to: i)recruit staff, ii)fix water tariff, and iii) demarcate, protect and maintain water bodies by issuing executive orders or approval of Regulations formulated by Paurashavas and City Corporations	DPHE / LGIs	The organograms for paurashavas are categorized into three types (A, B, C), each including a dedicated section for WASH, led by a Superintendent (Sub Assistant Engineer). The total number of staff varies based on the number of PTWs and other infrastructure present. Paurashavas must obtain permission to fill vacant 3rd and 4th class positions, after which recruitment is conducted according to government procedures. The Superintendent (SAE) position, classified as a 2nd class post, is recruited by the LGD. Previously, there was no standardized procedure or regulation for setting water tariffs in paurashavas. However, a few months ago, LGD issued a circular titled *Instructions on Paurashava Water Supply Management* and sent it to paurashavas on March 14, 2023 (ref. no 46.00.0000.063.99.040.22-415). The circular instructed paurashavas to draft by-laws for managing water supply. According to these instructions, each paurashava must prepare a proposal for water supply (WS) tariff rates and submit it to a four-member committee led by the Deputy Commissioner for approval. The committee's member secretary is the Executive Engineer from DPHE. This committee will review and finalize the WS tariff rates, and the paurashavas must inform LGD of the approved rates.
WASA Act (1996)	LGD to delegate authority to increase water tariff from 5% to 10% (ref. section 22 sub-section 2 of WASA Act)	WASAs	WASA can increase the tariff five percent per year with Board approval. WASA Act has not been amended to make tariff 10 percent from five percent.

Items	Actions Points	Associate Responsibility	Implementation Status
Environmental Conservancy Act (1995) and the Environmental Conservation Rules (1997) (MoEF)	LGD to initiate amendment to the Environment Conservation Rules of 1997 to: i) revise drinking water standards, ii) include more detailed surface water standards, iii)revise point source discharge standards; and iv) include sewerage treatment plants in the industrial emission standards	MoEFCC	Environmental Conservation Rules (2023) is adopted. In this new Rule, • Drinking water standard has been revised • More parameters have been included for surface water standards, and • Point source discharge standards have been revised.
Bangladesh Water Act 2008 (Draft prepared by MoWR)	LGD to send proposal to incorporate specific measures for groundwater management: i)define water stressed areas to include groundwater quantity and quality issues, ii) Issuing licenses for well drilling, abstraction, etc.	MoWR	Water Act (2013) and Water Rules (2018) are approved. • Sections 17 and 18 of the Water Act (2013) talked about the 'Declaration of Water Stressed Area and Management' and 'Preferential use of water in the Water Stress Area and Exemption'. Rules 26 and 27 of the Water Rules provided further details on the issue. • Water Rules (2018) has given the authority to WARPO to issue drilling permit.
Bangladesh Water Act 2008 (Draft prepared by MoWR)	In parallel, LGD will assist MoWR in preparing a National Groundwater Strategy.	DPHE / WARPO	National Groundwater Strategy has not yet been drafted. While the National Strategy for Water Supply and Sanitation (2021) briefly addresses ground groundwater management, it emphasizes that all new groundwater supply sources must be tested for arsenic before being commissioned. It also calls for the development of a data repository to track arsenic contamination and its geographic spread. Additionally, a Managed Aquifer Recharge (MAR) strategy has been prepared, but it is still awaiting approval.
Bangladesh Water Services Act	LGD to draft and initiate enactment of the Act that will, among others,	WASAs /DPHE	This initiative was originally launched in 2016 but was not realized at the time. In 2023, PSB revived the effort to establish a 'WSS Regulatory

Items	Actions Points	Associate Responsibility	Implementation Status
	establish Water Supply Regulatory Commission		Mechanism,' which will also include sanitation regulation, under the framework of an ADB-assisted TA project.
Bangladesh Water Services Act	Water Supply Regulatory Commission to be established in two phases: i) Water Cell (WC); and ii) Water Supply Regulatory Commission (WRC)		This was initiated in 2016, but was not materialized. PSB has taken the initiative now in 2023, for establishing 'WSS Regulatory Mechanism', which includes Sanitation Regulation also, under provision of an ADB assisted TA project.
POLICIES			
National Policy for Safe Water Supply and Sanitation (1998)	No immediate revision required	DPHE	Revision and updating under preparation
National Policy for Arsenic Mitigation and Implementation Plan 1994	Separate the joint Implementation Plan (IP) for Arsenic Policy (AP) and prepare sector-wise Implementation Plans for Water Supply (by LGD), Health (by MoH&FW), Agriculture (MoA) and Water Resources (MoWR)	DPHE	Implementation Plan of Arsenic Mitigation for Water Supply (IPAM-WS) (2018) is prepared. However, the proposal to separate IPs for other sectors has not yet been submitted.
National Policy for Arsenic Mitigation and Implementation Plan 1994	LGD to prepare the Implementation Plan for Water Supply (IP-WS)	DPHE	Implementation Plan of Arsenic Mitigation for Water Supply (IPAM-WS) (2018) is prepared.
STRATEGIES			
National Urban Water Supply and Sanitation Strategy National Rural Water Supply and Sanitation Strategy	Review existing strategies and those under preparation and consolidate them into two strategies: urban and rural	DPHE	National Strategy for Water Supply and Sanitation (2021) is revised and updated in 2021. Separate strategies for Urban and Rural are yet to be initiated. The National Strategy covers both urban and rural areas. As such, two separate strategies might not be required.

Items	Actions Points	Associate Responsibility	Implementation Status
INSTITUTIONAL STRENGTHENING			
LGD capacity strengthening	Integrate PSU as a permanent unit in the LGD organogram		The Policy Support Branch (PSB) has been established as a permanent unit under LGD, located at DPHE Bhaban. The PSB is currently led by a Joint Secretary, officiating in the role of Deputy Secretary. According to the approved organogram, PSB comprises three units: (1) Sector Coordination, (2) Policy Formulation and Implementation, and (3) Capacity Building and Research. Each unit is managed by a Senior Assistant Secretary, supported by an Administrative Officer, a Computer Operator, and an MLSS. Additionally, the head of PSB (Deputy Secretary's Office) is assisted by an Administrative Officer and an MLSS. In total, the PSB has 15 staff members as per the approved organogram.
LGD capacity strengthening	Prepare Tripartite Agreement between LGD, DPHE and LGIs specifying their roles and responsibilities regarding WSS services. DPHE to initiate the process and LGD to issue executive orders	DPHE	A Tripartite Agreement between LGD, DPHE, and LGIs has yet to be prepared. In some cases, DPHE signs an MOU or agreement with the paurashava to secure their cooperation in implementing water supply and sanitation projects. These MOUs/Agreements typically address matters such as land availability, recruitment of staff for the WSS unit of the paurashava, and the operation and maintenance (O&M) of the system after project completion.
COORDINATION AND MONITORING			
Streamline existing committees and groups	At the national level will have NFWSS and under it (i) Policy and Monitoring Support Committee; and (ii) Technical Support Committee	PSU	The National Forum for Water Supply and Sanitation (NFWSS) has been established, with both the Policy and Monitoring Support Committee and the Technical Support Committee formed. The Policy and Monitoring Support Committee is chaired by the Joint Secretary (WS), LGD, while the Technical Support Committee is led by the Chief Engineer, DPHE.

Items	Actions Points	Associate Responsibility	Implementation Status
Streamline existing committees and groups	At local levels, integrate the functions of Union Tube-well Site Selection Committee and Union Arsenic Mitigation Committee into the Union WATSAN Committee. Similarly integrate the functions of Arsenic Mitigation Committees into the different WATSAN Committees at Upazila and District levels	DPHE	There are provisions for 'Public Health, Sanitation and Safe Water Supply Committee' at the upazila level and 'Sanitation, Water Supply and Sewage' Standing Committee' at the union level in the Upazila Parishad Act (2009) and Union Parishad Act (2009) respectively to look after the activities of WASH sector in their respective jurisdiction. Those committees can look after all WASH related issues. The WATSAN Committees at District, Paurashava, Upazila, Union and Ward levels were formed vide a circular no. LGD/Pas-1/nol-11/1999/320(5100), issued by LGD on May 08,2007. At that time, site selection for the water sources was not included as a responsibility of the WATSAN Committees. Afterward, the Union WATSAN Committee was entrusted with the responsibility of site selection along with other responsibilities. As for example, an instruction issued by LGD on February 18, 2020 to CE, DPHE revealed that sites of water sources allocated under the provision of the ever largest rural 'Water Supply Project Throughout the Country', were selected, 50 percent of the allocation by the honorable member of parliament of the concerned area and rest by the Union WATSAN Committee.
SIS	Establish dedicated SIS for the WSS sector	DPHE WASAs, LGIs, NGO, Private Sector	Sector Information System (SIS) for monitoring is not yet operative. DPHE has MIS and GIS Units under Planning Circle. There are four personnel in the set-up of MIS Unit; a Programmer, an Assistant Maintenance Engineer and two Data Entry Operators. Dhaka WASA has an 'MIS and Billing Unit' with a total of 72 personnel and 'GIS Unit' with 15 personnel as per DWASA's organogram. Chattogram WASA has 'ICT Division' with three personnel headed by a

Items	Actions Points	Associate Responsibility	Implementation Status
			System Analyst, a 'System Development Branch' with four personnel headed by a Computer Programmer, and a 'DATA Management Section' with eight personnel headed by an Assistant Computer Programmer. Khulna WASA has an 'ICT Branch' with three personnel (An Assistant Programmer, a Computer Operator, and a Data Entry Operator) Rajshahi WASA proposed an 'IT Branch' in their organogram with three personnel (An Assistant Programmer and two Data Entry Control Operators) awaiting approval.
SECTOR WIDE APPROACH (SWAp)			
SWAp	Develop simple and small SWAps and gradually expand to cover the full WSS sector	PSU/ DPs/ DPHE/ WASAs/ CCs/LGIs/ Ministry of Finance/ Planning Commission	'WASH' is yet to be recognized as a SECTOR in the budgetary provision of the ADP by the Planning Commission. 'Water Supply and Sanitation' is now a sub-sector under 'Physical Infrastructure' sector. DPHE opined that a wide range of diversified stakeholders have been working in the WASH sector. As such, financial and administrative controls amongst these large numbers of actors in the sector seem not easy. On behalf of DPs, Local Consultative Group (LCG) often talks about the issue. But considering the issues mentioned above, the initiative of SWAp is yet to be initiated.
THEMATC AREAS			
Research and Development (R&D)	Create a dedicated "R&D Fund" to increase funding and create opportunities for interested researchers.	PSU	Has not been initiated yet. It seems to be difficult to implement in a project-based approach. R&D Division of the DPHE is a set-up under development budget. Efforts have been continuing since long to transfer the R&D Division to the 'Revenue Head'.

Items	Actions Points	Associate Responsibility	Implementation Status
Climate Change, Environment and Disaster Management	Operationalize Disaster Management Bureau's Standing Order for WSS sector agencies by issuing a Supplementary Standing Order that would consist of, among others, roles and responsibilities, delegation of enhanced administrative and financial powers to enable emergency response during disasters.	DPHE	Proposal for the Supplementary Standing Order is yet to be sent to LGD. However, AN OPERATIONAL GUIDELINES FOR WASH (Water Sanitation and Hygiene) IN EMERGENCIES – BANGLADESH (2017) was prepared in 2017. DPHE works following the operational guidelines.
PPP (Urban Utilities)	Appoint a facilitating agency (e.g., IIFC or consultants) to build capacity of LGD/PSU and sector institutions to gradually introduce PPP and support preparation of PPP guidelines as mentioned in the National Policy of WSS (1998)	PSU	The Office of the Public-Private Partnership was established in September 2010 to act as a catalyst to proactively realize PPP Projects. PPP Authority has been organizing Certification Courses for different organizations. No Facilitating Agency is appointed yet by PSU to prepare the PPP Guidelines.
PPP (Urban Utilities)	Follow a transition path to PPP by first starting with simple types like service contracts and management contracts	WASAs, DPHE, city corporations and paurashavas	The PPP is gradually being introduced in WASH sector projects. Meanwhile, the approach was followed in a World Bank supported 'Bangladesh Rural Water Supply and Sanitation Project' implemented by DPHE during 2012-2017. Few Rural Piped Water Supply schemes were implemented with PPP approach, which were service contracts as well as management contracts. The Cabinet Committee on Economic Affairs (CCEA) has approved (In principle) two projects (identification phase) of Chattogram WASA under the PPP program in WASH sector. (DWASA signed an MoU with Water and Sanitation for the Urban Poor (WSUP) for desludging services in Dhaka city) RAJUK has initiated a PPP project to develop water supply facilities in the Purbachal New Town Project area, with

Items	Actions Points	Associate Responsibility	Implementation Status
			an estimated cost of BDT 5,924 million. The project will be jointly implemented by Chinese United Water Corporation and Delcot Water Limited. This marks the first large-scale PPP project in Bangladesh's water supply sector. The construction phase is expected to take four years, followed by an additional 11 years for operation and maintenance (O&M), during which the investment cost will be recovered and profit will be generated.
LEAD RESPONSIBILITY: Common to Sector Agencies (WASAs, DPHE & LGIs)			
Surface water	In the context of increased future need, particularly in large cities, the availability of surface water needs to be considered carefully in terms of factors like seasonal variations, possible upstream withdrawal and increased salinity due to climate change.	BWDB, WARPO	Strategy for Managed Aquifer Recharge (MAR) has been drafted. After approval of the strategy guidelines need to be prepared by the sector agencies.
Groundwater	Build capacity of sector organizations including creation of permanent and contract positions of groundwater specialists in key sector agencies like WARPO, DPHE, WASAs and BWDB	BWDB, WARPO	No Groundwater Specialist post is created in WARPO, DPHE, WASAs and BWBD yet. However, DPHE, DWASA and BWBD have posts of Hydro geologists in their organograms. On the other hand, WARPO has posts of Senior Scientific Officer (GW) and Scientific Officer (GW).
Vulnerable Groups	Designate focal persons for vulnerable groups in concerned WSS sector agencies for coordination and technical guidance. Undertake a learning approach and prepare guidelines, design tools and specific approaches for the different vulnerable groups.	NGOs	DPHE and UNICEF co-lead the National WASH Cluster, which includes NGOs working in the WASH sector and focusing on humanitarian activities for vulnerable populations during disasters. During emergencies, NGOs at the district level join the WASH Cluster to assist vulnerable groups. DPHE has also developed guidelines on WASH technologies for disaster response.
Research and Development	Scale up R&D activities in the development	PSU, DPHE	As mentioned earlier, DPHE, R&D Division is a set-up under development budget. Practically 'Development'

Items	Actions Points	Associate Responsibility	Implementation Status
	projects and disaster management programs. Build partnerships with international institutes and create a network of national and international professionals. Strengthen institutional capacities of WSS agencies through training and guidance programs, and arranging equipment and proper testing facilities.		activities are being done by the division. No 'Research' activity has been done in recent times. Budget provisions are being kept under different development projects. Activities for improvement of effectiveness of different technologies like Tara Pumps, PSFs, Iron-arsenic removal units installed with hand pumps, etc. are being done out of the budget. Moreover, development, piloting and scaling up of technologies like manganese removal unit, solar-powered PSF and identification of arsenic safe layers of the aquifers were also done by the R&D Division. Preparation and Publications such as 'Enhancing Promotion of Sanitation in Difficult Areas of Bangladesh: Adopting Ecological Approaches (2014)', 'Feasibility Report on Rural Water Supply in Bangladesh (2015)' and 'Union Wise Water Technology Mapping (2008)' throughout the country are also included in their activities. In recent years, the DPHE R&D Division has been running short of budget because no budget provision is being kept in development projects as before. As such, budget provision has decreased instead of increased. To enhance the capacity of sector personnel, DPHE's Training Division offers training on a wide range of topics to both its own staff and personnel from LGIs, particularly those in paurashavas. The training covers areas such as water quality testing, water safety plans, operation and maintenance (O&M) of water supply systems, personal hygiene practices, financial and office management, and e-Government Procurement (e-GP), among others. Additionally, DPHE sends its officials and staff to participate in training programs offered by various professional organizations, both within the country and internationally.

Items	Actions Points	Associate Responsibility	Implementation Status
Climate Change, Environment and Disaster Management	Establish a new unit for Climate Change, Environment and Disaster Management (CCEDM) or allocate the functions to an existing unit in key WSS sector agencies like WASAs and DPHE. Build staff capacities, including training on related subjects	DPHE, WASAs	The DPHE CWIS-FSM support cell oversees Climate Change, Disaster Risk Management (CCDRR) aspects in CWIS projects. WASAs do not have any separate CCEDM unit.
Climate Change, Environment and Disaster Management	Pursue and coordinate water pollution control measures especially in areas around large cities which are the major contributors of pollution Build capacities of sector institutions (WASA, DPHE & LGED) and communities to protect environment, adapt to climate change and build resilience for disaster management	DOE	JICA assisted "Project for Improvement of Comprehensive Management Capacity (PICMaC)" on Water Supply has been implemented by DPHE to enhance capacity of the DPHE professionals. ITN-BUET is a renowned institution that has long been involved in building the capacity of WASH sector professionals. Recently, ITN-BUET has been focusing on strengthening the capacity of DPHE professionals, particularly in fecal sludge management. Previously, ITN-BUET conducted capacity-building programs on WASH Disaster Risk Reduction (DRR) and emergencies for DPHE and other sector stakeholders. Now, DPHE's WASH Cluster and ITN-BUET have initiated plans to organize training programs for DPHE officials at the divisional level.
Climate Change, Environment and Disaster Management	Take early preparedness steps such as mobilizing staff, vehicles and supplies during warning period. Ensure that the water and sanitation facilities are functioning in strategic locations like cyclone shelters.	DMB	DPHE works as per 'Operational Guidelines For WASH Emergencies - Bangladesh (Second Edition) (2017)'. DPHE also follows Standing Orders on Disaster (SOD) issued by Ministry of Disaster Management and Relief (MoDMR, 2020b). Moreover, Office Orders are being issued in case of any emergency, no particular standing order.
	Construct at least a few water and sanitation installations in disaster prone areas that are resistant to disaster so	DMB/NGOs	DPHE has installed tube-wells with raised platforms in the disaster-prone and flood-affected areas. And has got Mobile Water Treatment Plants, Water Carriers to provide safe water

Items	Actions Points	Associate Responsibility	Implementation Status
	that the people of the locality can use those during emergency Coordinate with local administration, NGOs and other agencies, specifically through the local Disaster Management Committees for effective response		immediately after any disaster and in emergencies. New tube-wells are installed and the existing tube-wells are disinfected. Water purification tablets, bleaching powder, jerrycans, buckets, hygiene kits and sanitary napkins are supplied in the affected areas. At the district level, Executive Engineers and at the upazila level, AEs/SAEs coordinate with local Disaster Management Committees to address the situation. DPHE also sets up a 'Control Room' at its headquarters to maintain 24/7 communication with the affected areas.
LEAD RESPOBSIBILITRY: WASAs			
INSTITUTIONAL STRENGTHENING			
Policy Matrix	Implement the Policy Matrix as contained in the Partnership Framework Agreement between the GoB and DPs. The Policy Matrix addresses three key areas: i) strengthening governance and organization structure, ii) improved financial management capacity, and iii) sustainable service delivery	LGD / DPs	The improvement and progress in the three key areas mentioned is an ongoing process. Efforts are currently being made to enhance the organizational structure, strengthen financial management capacity, and ensure sustainable service delivery. At present, there is no available Policy Matrix for the WASH sector.
Corporate Image	Involve customers more in planning, implementing operating and maintenance of WSS programs and facilities. Create a positive corporate image by highlighting customer excellence in the provision of services, transparency and accountability in its operations	City Corporations, RAJUK, Chittagong Development Authority, Khulna Development Authority	At present, WASAs do not have a 'one-stop-customer' service unit, and a Customer Satisfaction Survey has not yet been conducted. Dhaka WASH operates a hotline (16162), and Chattogram WASA has a helpline (16118) that functions during office hours. Khulna WASA holds a 'Public Hearing' every Wednesday at 11:30 A.M. at the KWASA premises to improve customer service.

Items	Actions Points	Associate Responsibility	Implementation Status
IMPLEMENTING AGENCY: DPHE			
INSTITUTIONAL STRENGTHENING			
Restructuring DPHE	Restructure DPHE to address the increased and new roles and responsibilities with regards to * More support to the urban subsector * Climate change, environment and disaster management * R&D and groundwater monitoring * Private sector participation * Hygiene promotion * Planning and implementation, including social development issues like participation and empowerment of communities and vulnerable groups * Institutional strengthening support to the LGIs	LGIs	A proposal for restructuring the organogram is prepared by DPHE and submitted to LGD. The present organogram has a provision of 7,185 personnel. And in the new organogram, 10,453 personnel have been proposed. However, an issue like private sector participation is not addressed. The proposed organogram has separate divisions for urban subsector including an Additional Chief Engineer (Municipal Support), a Planning Circle (urban), a Municipal Support Circle, Disaster Management Unit, Sanitation Laboratory Unit. The proposed posts also include 74 posts of Social Development Officers headed by a Chief Social Development Officer.
DPHE organization and HRD	Strengthen DPHE capacity based on a comprehensive HRD plan, logistics, improved systems, procedures and guidelines to carry out its new roles Increase capacities and outreaches of water testing laboratories and field-testing facilities.	LGD	DPHE has its separate Human Resource Development (HRD) Bhaban, located at Mohakhali, Dhaka. According to annual Report 2022-2023, DPHE Training Division, in FY 2022-2023, organized training of 19 batches on different topics, in which 964 officials took part. Moreover, online training courses were conducted on APA in 9 batches, in which 429 personnel of the department participated.
Support to LGIs	Prepare a program to provide capacity and investment support to support the LGIs under the tripartite agreement: − Support city corporations and paurashavas to: i) Prepare master plans,	LGD	There are around 10 projects being implemented by LGD to support capacity building of LGIs. A tripartite agreement between CCC, Chattogram Sheba Sangstha (a local medical waste collection company), and Water and Sanitation for the Urban Poor

Items	Actions Points	Associate Responsibility	Implementation Status
	ii) build operational and financial management capacities, iii) install water meters, iv) repair, wastage and leakage control and upgrade the water supply systems, v) consumer care and customer relationship, and vi) improve management of sludge from septic tanks and pit latrines − Support the Union Parishads to plan, implement and monitor rural water supply and sanitation		(WSUP) Bangladesh signed for FSM in 2017. DPHE imparts training to the paurashava water supply related personnel on hardware issues like installation water meters; repair wastage and leakage control; improve management of septic tanks and pit latrines etc.
THEMATC AREAS			
Water Quality	Review the existing water quality testing protocol and develop a comprehensive protocol. Establish water quality monitoring system, including water quality surveillance, and delineating the roles and responsibilities of local and central government institutions	BCSIR / BSTI /LGIs/ NGOs	In 2005, DPHE prepared 'Water Quality Monitoring and Surveillance Protocol for Rural Water Supply System in Bangladesh' (DPHE, 2005). Additionally, in 2019, DPHE prepared a "Guideline for program on groundwater monitoring, evaluation and feedback". However, a regular monitoring and surveillance system or program is not yet in place, primarily due to a lack of budgetary allocation, amongst other reasons.
Arsenic Mitigation	Take immediate actions for arsenic mitigation in 188 Unions with very high arsenic contamination and low safe water coverage and 212 unions with high arsenic contamination and low safe water coverage, as identified by DPHE JICA Study 2010	LGIs/ NGOs	DPHE has been implementing a dedicated arsenic mitigation project titled - 'Arsenic Risk Reduction Project for Water Supply' (January 2018-June 2024) with an estimated cost of BDT 19,910 million. The project spans 1290 unions across 31 districts. Around 193,000 arsenic-safe water supply sources are being installed under the project provision. Moreover, a screening program is being carried out in 3200 unions across 335 upazilas of 54 districts under the project provision.

Items	Actions Points	Associate Responsibility	Implementation Status
Water Safety Plan	Prepare an integrated IEC Guideline for WASH promotion which will include Water Safety Plan, hygiene promotion, proper operation and maintenance of water and sanitation facilities Build capacities of sector stakeholders by first creating a pool of ITN-BUET-trained master trainers from different government organizations, NGOs and academic institutions and then using the master trainers of these organizations to transfer the concept and skill gradually down the line up to grassroots level.	MoH& FW /LGI/ ITN/ NGOs	Water Safety Framework (WSF) in Bangladesh (2011) was published by the then PSU (now PSB). DPHE provides training on WSP, Hygiene Promotion, and O&M as part of other training programs.
Hygiene Promotion	Prepare an Integrated IEC Guidelines as mentioned above	MOH&FW/ LGI/ ITN/ NGOs	No specific IEC guideline is prepared for Hygiene Promotion. However, National Menstrual Hygiene Management Strategy (2021) and a strategic paper on Health Hygiene for All are prepared.
Hygiene Promotion	Coordinate with sector partners like NGOs and private sector and inter-sector partners like Health Assistants at ward levels of the MoHFW.	MoH&FW/ LGI/ITN/ NGOs	Yet to hold such stakeholders' meetings with MoH&FW on a regular basis.
Public Private Partnership	Rural Market: − Build capacities of rural entrepreneurs to meet the present and future challenges. − Use the social, administrative and legal instruments of the LGIs to monitor and ensure	LGIs/ private sector	DPHE has developed, endorsed, and launched a national sanitation marketing guideline supporting at least 90 LGIs that have established local coordination Public Private Development Platforms and created favorable conditions for sanitation marketing in the targeted districts. Under the World Bank-supported "Bangladesh Rural Water Supply and

Items	Actions Points	Associate Responsibility	Implementation Status
	the quality of services delivered at the household levels.		Sanitation Project" (2012-2017), DPHE also implemented private sector capacity-building initiatives. The project aimed to i) enhance the capacity of local small entrepreneurs and masons in producing and marketing various sanitation facilities within the community; and ii) build the capacity of local leaders and Union Parishads to ensure access to services for poor people, among other objectives.
Public Private Partnership	Small Scale Service Provider: − Continue piloting and assessing different rural piped water supply models, objective to scale up appropriate models. − Provide technical and management support to strengthen existing businesses and develop new businesses like sludge management in urban areas.	LGIs/ private sector	Experience of DPHE working with Small Scale Service Providers in rural piped water supply schemes is not satisfactory. Two World Bank-funded projects, implemented by DPHE, attempted to use the Build-Operate and Transfer (BOT) model in setting up hundreds of private operator schemes. BOT design that covered capital costs with 40% private equity contributions, 10 percent community contributions, and 50 percent output based aid (OBA) subsidies. User tariffs were expected to fully cover O&M costs and allow private operators to recover their investments in 15 years. These projects were the 'Bangladesh Water Supply Program Project (BWSPP),' from 2005-2009 and the 'Bangladesh Rural Water Supply and Sanitation Project (BRWSSP),' from 20012-2017. Both projects carried out a variety of activities in the water sector beyond piped water supply which did deliver improved services. However, the efforts to roll out the BOT model in support of piped water supply were less successful, leading to significant funding and target reductions after midterm project reviews (MTRs). BWSPP reduced its BOT target from 300 schemes to 21, and BRWSSP reduced from 125 schemes to 35. Some small piped water supply systems are being run by the union parishad and NGOs in rural areas and urban slums. Development Association for Self-

Items	Actions Points	Associate Responsibility	Implementation Status
			reliance, Communication and Health (DASCOH) Foundation implemented a piped WSS scheme through Ranihati Union Parishad (UP) in Chapai-Nawabgonj, Max Social Enterprise works with a local entrepreneur to maintain a piped WSS System in Kurigram paurashava, an improved PSF is being run by an NGO in Kocha village in Dacope upazila are few of the examples. BRAC WASH Program supported the municipality in initiating FSM in Jamalpur in 2017 and working as the implementation organization of FSM. BRAC trained the local pit emptiers. They also ran a social awareness raising campaign. BRAC provides help for pit and tank emptying. In Khulna, mechanical fecal sludge (FS) emptying and transport (E&T) service is provided by Community Development Committees (CDCs) and the Khulna City Corporation (KCC). FSM is enabling the environment for private sector engagement in FS E&T business in Khulna, which seems favorable. Practical Action providing Public-Private Partnership led FSM services in Faridpur, Laxmipur, Magura, Meherpur, Rajbari, and Satkhira. Waste Concern has been working in Khustia and other initiatives are underway. In Jhenaidah and Kustia paurashavas, SNV Netherlands Development Organization is helping in FSM. As such, it can be stated that the mini piped water supply systems and FSM have started stepping forward to create a new business horizon for Private Sector and small-scale service providers.
Environment, Climate Change and	Formulate an integrated CCEDM Guideline, in line with EIA, to	DMB/NGOs	A draft National Plan for Disaster Management (2021-2025) is prepared

Items	Actions Points	Associate Responsibility	Implementation Status
Disaster Management	incorporate climate change adaptation, environment pollution control and disaster risk reduction for planning and implementation of WSS development projects		(MoDMR, 2020a). CCEDM Guideline is not available.
LEAD RESPONSIBILITY: City Corporations and Paurashavas			
INSTITUTIONAL STRENGTHENING			
Capacity building of Water And Sanitation Sector	Enhance the capacities of PWSS of city corporations and paurashavas in the short run through, among others: i) staff recruitment and training, ii) Establishment of separate accounts for PWSS and the introduction of double entry accounting system Provide PWSS more autonomy in the long run to operate in commercial terms	LGD, DPHE	Many LGIs have sent proposal to the LGD to revise their organogram with enhanced capacity. Capacity Building programs are being carried out in the districts with CWIS. Initiative for introducing 'ring-fenced' double entry accounting system (every financial transaction is recorded in two accounts once as debit and once as credit) has been taken by DPHE in paurashavas under the project provision of the '30 Paurashava Water Supply and Sanitation Project (GoB-WB-AIIB)'. LGED has also been trying to promote the said accounting system under project provisions. However, it has been observed that while the system functioned effectively during the project implementation period, sustaining it beyond the project's duration has proven to be a challenge.
Participation and customer care	Evolve TLCC to oversee and ensure accountability of the operations of the PWSS Engage customers more in planning, implementing operating and maintenance of local WSS facilities. Create a positive corporate image by highlighting customer excellence in the provision of services,		Town Level Co-ordination Committees (TLCC) have been formed in many paurashavas as per section 14 of the Local Government (Paurashava) Act (2009). One stop customer service is yet to be established in city corporations and paurashavas. Only Dhaka North City Corporation (DNCC) got connected with the "333 Helpline" in 2019.

Items	Actions Points	Associate Responsibility	Implementation Status
	transparency and accountability in its operations.		
LEAD RESPOBSIBILITRY: Union Parishads			
INSTITUTIONAL STRENGTHENING			
Union Parishads	Formulate village-level committees, with support from NGOs or by their own initiatives, and establish their linkage with the formal committees (WATSAN Committees)	LGD/ DPHE/ NGOs	The circular issued by LGD on May 8, 2007, regarding the formation of WATSAN Committees at various levels of LGIs also includes the "Ward WATSAN Committee." Since "village" is not a formal administrative unit, the "Mouza" may be considered the lowest formal geographical unit, especially in land-related matters, while the "Ward" is the lowest administrative unit. Therefore, the Ward WATSAN Committee could take on the proposed role in local planning, implementation, and monitoring of WASH facilities, replacing the Village Committee in overseeing WASH activities.
	Improve working procedures and accounting by participating in capacity building programs arranged by DPHE and other organizations. Gradually take over the roles of planning, implementation and monitoring of the rural water and sanitation	DPHE	No such capacity building program has been initiated by DPHE yet.

ANNEXURE 2

Present and future service levels for water supply and sanitation

Water Supply

Description	Service level			
	2022	2030	2035	2040
Urban				
WASAs (Piped water)				
Per capita water consumption per day (l/day)	140	150	175	200
Piped water coverage (percentage)	96	100	100	100
City Corporations (Piped Water)				
Per capita water consumption per day (l/day)	110	125	140	150
Piped water coverage (percentage)	20	50	65	85
City Corporations (Point Source)				
Per capita water consumption per day (l/day)	77	86	100	115
Point source coverage (percentage)	80	50	35	15
Paurashavas and other Urban Areas (Piped Water)				
Per capita water consumption per day (l/day)	100	110	120	130
Piped water coverage (percentage)	4	25	50	70
Paurashavas and other Urban Areas (Point Source)				
Per capita water consumption per day (l/day)	77	85	100	115
Point source coverage (percentage)	96	75	50	30
Rural (Piped Water)				
Per capita water consumption per day (l/day)	67	90	100	110
Piped water coverage (percentage)	<2	6	15	20
Rural (Point Source)				
Per capita water consumption per day (l/day)	77	82	90	100
Point source coverage (percentage)	96	94	85	80

Sanitation

Description	Service level (percentage of coverage)			
	2022	2030	2035	2040
Urban				
Off-site treatment facilities (sewerage system)	5	10	20	30
Latrines with flushing/ pouring water (offset twin pit pour flush latrines and septic tank with safe desludging and disposal - FSM)	50	70	80	70
Others	45	20	0	0
Rural				
Latrines with flushing/ pouring water (offset twin pit pour flush latrines and septic tank with safe desludging and disposal - FSM)	62	80	100	100
Others	38	20	0	0

ANNEXURE 3

Targeted Piped Water Supply Coverage (percentage) in Different Scenarios

Planning Area	Status, 2022	Short Term (2026-30)			Medium Term (2031-35)			Long Term (2036- 2040)		
		Scenarios (S)								
		S1	S2	S3	S1	S2	S3	S1	S2	S3
DWASA	>99	100	100	100	100	100	100	100	100	100
CWASA	94	97	98	99	100	100	100	100	100	100
KWASA	73	85	90	95	100	100	100	100	100	100
RWASA	88	95	97	99	100	100	100	100	100	100
Barishal	31	60	65	70	80	90	95	100	100	100
Sylhet	16	40	50	55	80	90	95	100	100	100
Cumilla	6	30	40	50	60	70	80	70	80	90
Gazipur	10	30	40	50	60	70	80	70	80	90
Mymensingh	7	30	40	50	50	60	70	70	80	90
Narayangonj	35	50	55	60	60	70	80	80	90	100
Rangpur	4	30	40	50	50	60	70	60	70	80
Large Paurashava	5	25	30	35	50	60	70	60	70	80
Small Paurashava	3	15	18	20	40	50	60	50	70	80
CHT Paurashava	5	25	30	30	40	50	60	50	60	70
Other Urban Centre	3	10	12	15	25	35	40	30	40	50
CHT Urban Centre	3	8	12	15	25	35	45	30	40	60
Rural	<2	5	6	7	10	15	20	15	25	30

Targeted Off-site Sanitation/ FSM Coverage (percentage) in Different Scenarios

Planning Area	Status, 2022	Short Term (2026-30)			Medium Term (2031-35)			Long Term (2036- 2040)		
		Scenarios (S)								
		S1	S2	S3	S1	S2	S3	S1	S2	S3
DWASA	20	50	60	70	60	70	80	70	80	90
CWASA	<1	20	30	40	30	40	50	50	60	70
KWASA	<1	20	30	40	30	40	50	40	50	70
RWASA	<1	2	20	30	20	40	50	40	50	70
Barishal	<1	2	10	20	20	30	40	40	50	60
Sylhet	<1	2	10	20	20	30	40	40	50	60
Cumilla	<1	2	10	20	20	30	40	40	50	60
Gazipur	<1	20	30	40	30	40	50	50	60	70
Mymensingh	<1	2	10	20	20	30	40	40	50	60
Narayangonj	<1	20	30	40	30	40	50	50	60	70
Rangpur	<1	2	10	20	20	30	40	40	50	60
Large Paurashava	<1	2	10	20	20	30	40	40	50	60
Small Paurashava	<1	2	5	10	10	15	20	15	20	25
CHT Paurashava	<1	2	10	20	20	30	40	40	50	60
Other Urban Centre	<1	2	5	10	10	15	20	15	20	25
CHT Urban Centre	<1	2	5	10	10	15	20	15	20	25
Rural	<1	1	3	5	5	8	10	10	15	20

Assumptions: Targets across various terms and scenarios for off-site sanitation/ FSM coverages have been set considering resource availability. The goal is to bring all city corporations to a similar status, except for Gazipur and Narayanganj, which face challenges due to high population density and rapid growth rates.

ANNEXURE 4

Basic WASH Data in Schools (Primary & Secondary) and Cost Assumption Calculations

JMP Status	Water		Sanitation		Hygiene	
	Primary School	Secondary School	Primary School	Secondary School	Primary School	Secondary School
Basic Service (%)	89	99	85	99	86	81
Limited Service (%)	2	< 1	-	< 1	<1	15
No Service (%)	9	< 1	-	1	14	4

Cost Assumptions

Unit Cost as per present market price (2024)

Water Supply (with one water source) = BDT 200,000

Water Supply (with two water source) = BDT 280,000

Toilet block (B+G) for primary students = BDT 700,000

Toilet Block (B+G) for secondary students+ BDT 700,000

Toilet (M+F) for teachers with hand washing facility = BDT 250,000

MHM facility for female teachers and girl students = BDT 80,000

The calculations account for a 25 percent increase in unit costs for every year.

O&M cost per year (assuming two percent of unit cost of new construction)

PRIMARY SCHOOL COUNTRY DATA (Source: APSC 2023)

Primary Schools (Government+Private+Others) = 113,135 nos.

Teachers (M+F) = 642,722 nos.

Students (G+B) = 19,508,478 nos.

Assumptions for Calculation:

Students per school = 200

Water points per school = 1 no

Students 75 per toilet cubicles

SECONDARY SCHOOL COUNTRY DATA (Source: Bangladesh Education Statistics 2022)

Secondary Schools= 20353 nos.

Teachers (M+F) = 278,608 nos.

Students (G+B) = 10,028,509 nos.

Assumptions for Calculation:

Students per school = 500

Water points per school = 2 nos.

Students 75 per toilet cubicles

Abbreviations: M- Male, F- Female, T- Teacher, B-Boy, G- Girl, TW- Tubewell

Indicative Cost for Establishment of WASH Facilities in the Primary and Secondary Schools

Types of School	Schools Required WASH Facilities	Type of WASH Facilities	Number of Facilities	Average Unit Cost per year (BDT)	Total Cost for 2026-40 (Million BDT)
Primary	12,445 (Teachers-70,700 (M+F) and students (G+B)-24,89,000)	Water Supply System with one water source (Tube-well)	12445	300,000	3,734
	16,970 (Teachers-96,408 (M+F) and students (G+B)-33,94,000)	WASH Block (T+B+G) for 16,970 schools (6 toilet cubicles per WASH block), 3 cubicles (for girls+ F- teachers) and 3 cubicles (for boys + M-teachers)	33940	1,050,000	35,637
Secondary	470 (Teachers-5572 (M+F) and students (G+B)-235000)	Water Supply (Two water sources per school)	470	420,000	197
		Toilet for teachers (two toilets per school for male and female teachers) with two HW facilities	470	375,000	176
		Toilet block for students (B+G), 6 toilet cubicles per block (3 cubicles for girls and 3 for boys)	470	1,050,000	494
		MHM facility (two units per school for both female teachers and girl students).	470	120,000	56
Total cost for WASH in Schools (Primary and Secondary):					40,294
Abbreviations: M- Male, F- Female, T- Teacher, B-Boy, G- Girl, TW- Tubewell					

Indicative O&M Cost for WASH Facilities in Primary and Secondary Schools Including Cost for Awareness Building

Types of School	Total Numbers	Type of facility	Average Unit Price per year (BDT)	Total Cost per year (Million BDT)	O&M Cost for 2026-40 (Million BDT)
Primary	113135	Water Supply	6,000	679	10,182
		Sanitation	21,000	2,376	35,638
Secondary	20353	Water Supply	8,400	171	2,564
		Sanitation (Teachers)	7,500	153	2,290
		Sanitation (Students)	21,000	427	6,411
		MHM facility	2,400	49	733
Cost for O&M of WASH facilities in schools (Primary and secondary):					57,818
Cost for Awareness Building (two percent of O&M cost)					1,156
Total Cost for O&M and Awareness Building					58,974

ANNEXURE 5

Basic Data of WASH in Health Care Facilities (HCFs)

Description	Community Clinic	UHFWC	Sub-Centres and RD	Data source
Total numbers	14234	3291	1314	National Strategy for WASH in HCF 2019-2023
No water facility	7983	700	no data	DGFP, Health Bulletin 2023
No sanitation facility	81	700	no data	Unicef internal report
No HW facility	-	-	-	No data available

Abbreviations: UHFWC- Union Health and Family Welfare Center; RD- Rural Dispensary

Assumptions:

- Some of the existing WASH facilities require replacement/ rehabilitation. As such, number of HCFs in which WASH facilities need to be constructed: Community Clinic-8000, UHFWC - 800, and Sub center/RD - 200.
- Water Point per HCF (Community Clinic/UHFWC/Sub-centre/RD) =1 (one)
- Separate toilets and HW basins for male and female.
- Unit cost considered as per present market price (2024)
  - Piped water supply system for community clinic/sub-centre/RD = BDT 250,000
  - Sanitation facilities with plumbing for Community Clinic/Sub center/RD (2 toilets and 2 HW basins for staff and patients)= BDT 250,000
  - Sanitation facilities with plumbing for UHFWC (3 toilets with 3 HW basins for staff and patients) = BDT 300,000
  - O&M cost per year (assuming two percent of the unit cost for new construction)
- Other sanitary materials (present market price) per (a) Community Clinic per year = BDT 20,000 (b) UHFWC per year = BDT 25,000 and (c) sub-center/RD per year = BDT 15,000
- The calculations account for a 25 percent increase in unit costs for every five years.

Required Indicative Cost for Construction of WASH Facilities in HCFs

Types of HCF	Number of HCFs required WASH facility	Description of WASH facilities required	Number of Facilities	Average Unit cost per year (BDT)	Total Cost for 2026-40 (Million BDT)
Community Clinic	8000	Water Supply (deep TW with 2000 liter capacity submersible pump and water taps as required including plumbing.	8000	375,000	3,000
		Toilets-2 (Male-1 and Female-1 including staff) with septic tank (20 users) and sanitary plumbing including hand washing (2 nos.) facilities	8000	375,000	3,000
		Other sanitary items (waste bins and other cleaning materials)	8000	30,000	240
Union Health and Family Welfare Centre	800	Water Supply (deep TW with 2000 litre capacity submersible pump and water taps as required including plumbing.	800	375,000	300
		Toilets-3 (Male-1 + Female-1 + Staff-1) with septic tank (50 users) and sanitary plumbing including hand washing (3 nos.) facilities	800	450,000	360
		Other sanitary items (waste bins and other cleaning materials	800	37,500	30
Union Sub-centre and Rural Dispensary	200	Water Supply (deep TW with 2000 litre capacity submersible pump and water taps as required including plumbing.	200	375,000	75
		Toilets-2 (Male-1 and Female-1 including staff) with septic tank (20 users) and sanitary plumbing including hand washing (2 nos.) facilities	200	375,000	75
		Other sanitary items (waste bins and other cleaning materials.	200	22,500	5
Total cost for WASH in Health Care Facilities at Union Level			**7,085**		

Required Indicative O&M Cost for WASH Facilities in HCFs

Types of HCF	Total number of HCFs facility	Description of WASH facilities required	Average Unit Cost per year (BDT)	Total Average Cost per year (Million BDT)	O&M Cost for 2026-40 (Million BDT)
Community Clinic	14234	Water Supply	7,500	107	1,601
		Sanitation (toilets)	7,500	107	1,601
Union Health and Family Welfare Centre	3291	Water Supply	7,500	25	370
		Sanitation (toilets)	9,000	30	444
Union Sub-centre and Rural Dispensary	1314	Water Supply	7,500	10	148
		Sanitation (toilets)	7,500	10	148
Gross cost for WASH in Health Care Facilities at Union Level					**4,313**
Cost for Awareness Building (two percent of O&M cost)					863
Total:					**5,175**

ANNEXURE 6

ROAD MAP OF THE SDP 2026-40 IMPLEMENTATION

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
LEAD RESPONSIBILITY: LOCAL GOVERNMENT DIVISION (LGD) – SUPPORTED BY POLICY SUPPORT BRANCH (PSB)					
ACTS					
WASA Act (1996)	Update WASA Act 1996 to address evolving challenges, such as expanding services to LICs (non sewered sanitation), strengthening WASA Board with experts etc.	WASAs	WASA Act reviewed and updated by 2026.	Reviewed and further updated, if necessary.	Reviewed and further updated, if necessary.
Bangladesh Water Act (BWA) (2013)	i) Assist MoWR in preparing a National Groundwater Strategy (NGWS); ii) Policy interactions and overlaps in BWA (2013) to be urgently reviewed to understand how all relevant policies can be optimized as an interactive and mutually supportive system of legislation; iii) Issue of non-point water pollution to be incorporated with adequate	MoWR, WARPO	i) DPHE reviewed draft of "National Ground Water Strategy (NGWS)" and submitted to LGD by 2026 and LGD submitted for approval to MoWR by 2026; ii) "Water Act (2013)" reviewed and updated by 2026.	WASH stakeholders and related agencies followed "NGWS and Water Act" and implementation continued.	Reviewed and Updated

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	guidelines in the Water Act (2013); iv) The Water Act (2013) explicitly include mechanisms for the participation of women (and other community perspectives and potentially marginalized groups) in water decision-making processes; and v) Measures to be taken to strengthen capacity of WARPO in making it functional to facilitate resource regulation, planning and collaboration with all other departments for implementation of the Water Act (2013). vi) Options to be considered to create exclusion zones in Water Act (2013) to avoid extensive withdrawal of groundwater using tube wells in areas with low groundwater levels and/or high				

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	groundwater depletion risk.				
Water and Sanitation Regulatory Mechanism	Enact the "Water Services Act" to establish Water Supply Regulatory Mechanisms among other issues.	PSB, DPHE, WASAs, LGIs, NGOs	Draft "Water Services Act" submitted to LGD by PSB and LGD submitted draft Act to Cabinet Division by 2026 and enacted by 2027.	WASH sector stakeholders and related agencies followed "Water Services Act" and implementation continued.	WASH sector stakeholders and related agencies followed "Water Services Act" and implementation continued.
	Establish Water Supply Regulatory Mechanisms in two phases: i) Water Cell (WC); and ii) Water Supply Regulatory Commission (WRC)		PSB submitted the draft proposal for WC and WRC to LGD in consultation with DPHE, WASAs, NGOs: i) WC established by 2026 and activity continued; ii) WRC established covering WASH sector by 2030.	WRC actively continued.	WRC actively continued.
STRATEGIES					
National Sanitation Strategy (NSS) (2005)	i) The NSS 2005 needs to be reviewed and updated to align with the current situations, SDGs and emerging issues; ii) Deploy necessary staff and allocate	DPHE, PSB	i) NSS 2005 reviewed and updated by 2026; ii) DPHE submitted proposal for deployment of staff and allocation of resources for "Sanitation Secretariat" to	i) Continued with new NSS; ii) "Sanitation Secretariat" in DPHE actively continued.	i) Reviewed and Updated (if necessary); ii) "Sanitation Secretariat" in DPHE

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	resources to the "Sanitation Secretariat" in DPHE.		LGD by 2026 and approved by 2026.		actively continued.
PLANS					
Implementation Plan for Arsenic Mitigation (IPAM) (2018)	Prepare separate sector-wise Implementation Plans for Arsenic Mitigation for Health (by MoH&FW), Agriculture (by MoA) and Water Resources (by MoWR) sectors.	MoH&FW, MoA, MoWR	Respective ministry submitted the draft IPAM to Cabinet Division by 2026 and approved by 2026.	WASH stakeholders and related agencies followed the respective IPAM and implementation continued.	Reviewed, updated (if necessary) and implementation continued.
INSTITUTIONAL STRENGTHENING					
LGD Capacity Strengthening	Prepare tripartite agreement among LGD, DPHE and LGIs for WASH services' roles and responsibilities.	DPHE, LGIs	DPHE sent proposal to LGD by2026; LGD issued Executive Order by 2026.	Reviewed and updated, if necessary.	Reviewed and updated, if necessary.
COORDINATION AND MONITORING					
Streamline existing committees and groups.	At local levels, integrate the functions of union tube-well site selection committee and Union Arsenic Mitigation Committee into the Union Standing Committee according to the Union Parishad Act 2009. Similarly integrate the functions of	DPHE, PSB	All the WASH related activities at the union level to be entrusted to the Union Standing Committee for Sanitation, Water Supply and Sewage, ratified by the Union Parishad Act (2009). Unification of WASH related committees in other LGIs are also suggested and enacted by 2026.	All LGIs continued with new WASH related committees.	All LGIs continued with new WASH related committees.

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	WASH related Committees into the Standing Committees at Upazila and District levels.				
Sector Information System (SIS)	Develop and Implement the Sector Information System (SIS) in WASH sector	DPHE, BBS, WASAs, LGIs, NGOs and Private Sector	i) Stakeholders agreed key monitoring indicators by 2026; ii) Carry out national WASH census in collaboration with BBS by 2026; iii) Established SIS by 2026 using BBS census report and regularly monitored WASH progress and performance.	Reviewed and updated, if necessary and regularly monitored.	Reviewed and updated, if necessary and regularly monitored.
SECTOR WIDE APPROACH (SWAp)					
Sector Wide Approach (SWAp)	Develop simple and small SWAps and gradually expand to cover the WASH sector	PSB, DPs, DPHE, WASAs, LGIs, MoF, MoP	(i) Awareness built up and training provided on the SWAp concept for the LGD and the related agencies by 2026; (ii) The nature of the SWAps negotiated with interested DPs by 2027; (iii) Fund flow mechanism developed by 2027; (iv) Use of government financial, procurement and reporting	i) Implementation of SWAp continued in DPHE and WASAs as regular program; ii) SWAp piloted in City Corporations, Paurashavas and CHTs.	SWAp established in WASH sector and implementation continued.

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
			procedures and systems agreed with DPs by 2028; and v) SWAp in DPHE and WASAs piloted by 2030.		
THEMATIC AREAS					
Research and Development (R&D)	Create a dedicated "R&D Fund" for WASH sector in govt. budget to increase funding and create opportunities for WASH sector agencies and research Institutions.	DPHE, WASAs, PSB and Research Institutions	i) "Modalities for a Dedicated R&D Fund for WASH Sector 2014" implemented by 2026; ii) DPHE and WASAs submitted proposal for R&D funds from the government budget in MTBF to LGD by 2026; and iii) R&D funds allocated to interested research institutions by 2026.	i) Allocations of R&D funds continued; ii) Engagement of research institutions continued on emerging technical issues and climate resilient WASH technologies,	i) Allocations of R&D funds continued; ii) DPHE, WASAs and research institutions continued R&D activities.
Climate Change, Emergency, Disaster Management	Operationalize Disaster Management Bureau's Standing Order for WASH sector agencies by issuing a Supplementary Standing Order that would consist of, among others, roles and responsibilities, delegation of enhanced administrative	DPHE, WASAs	i) DPHE submitted draft supplementary SOD for WASH sector to LGD by 2026; and ii) Disaster response system for the WASH sector is functional under new Standing Order by 2026.	Disaster response system for the WASH sector under new SO.	Disaster response system for the WASH sector under new SO.

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	and financial powers to enable emergency response during disaster.				
	Coordinate and enforce water pollution control measures in urban areas.	MoEFCC (DoE)	DoE regularly organized inter-ministry coordination meetings to prevent water pollution in urban areas.	Meeting held regularly and followed up.	Meeting held regularly and followed up.
LEAD RESPONSIBILITY: COMMON TO SECTOR AGENCIES (DPHE, WASAs & LGIS)					
Surface Water	Establish coordination mechanism for surveillance of surface water due to climate change.	LGD, MoWR (BWDB, WARPO)	i) LGD initiated establishing a coordination mechanism for surface water surveillance and became functional by 2026; ii) National Strategy for Managed Aquifer Recharge (NSMAR) approved and enacted by 2026; and iii) DPHE submitted implementation guidelines for NSMAR to LGD for approval by 2026. iv) Approved and enacted by LGD by 2026.	Coordination mechanism and implementation of NSMAR continued.	Reviewed and updated, if necessary.
Ground Water	Capacity building of sector organizations including creation of	DPHE, WASAs, WARPO, BWDB	i) Proposals submitted by agencies (DPHE, WASAs, WARPO, BWDB) to their	Ground Water Specialists are in place and rendering	Ground Water Specialists are in place and

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	permanent positions of groundwater specialists in key sector agencies like WARPO, DPHE, WASAs and BWDB		respective ministries (MoLGRD&C, MoWR) by 2026; and ii) Groundwater specialist positions included in agencies' organogram and HRs are positioned in by 2027	service continued.	rendering service continued.
Research and Development	i) Scale up R&D activities in the development projects and disaster management programs. ii) Build partnerships with international institutes and create a network of national and international professionals. iii) Strengthen institutional capacities of WASH sector agencies through training and guidance programs, and arranging equipment and proper testing facilities.	DPHE, WASAs	i) R&D budget allocated in MTBF by 2026; ii) Mainstreaming R&D actives and network of national and international professionals established by 2026; iii) Well-equipped testing facilities established and R&D capacity increased by 2026.	i)R&D Budget increased and, capacity building and networking continued. ii)Research activities continued by DPHE and WASAs; and iii) Testing of samples continued.	R&D Budget increased further, capacity building, networking and testing of samples continued.
Climate Change, Emergency, Disaster	Create specialized cells within sector agencies (DPHE and WASAs etc.)	DPHE, WASAs	i) DPHE and WASAs submitted proposal for creation of environment,	Environment, climate change and disaster management cells/units in	Environment, climate change and disaster manageme

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
Management	for environmental, climate change and disaster management;		climate change and disaster management cell/unit to LGD by 2026; ii) Environment, climate change and disaster management cell/unit enacted in DPHE and WASAs by 2027.	DPHE and WASAs actively operated.	nt cells/units in DPHE and WASAs actively operated.
	Invest in disaster risk reduction for resilience	DPHE, WASAs, LGIs	i) Disaster management (DM) financing introduced by 2026; ii) The key hazards of floods and cyclones addressed following an "all-hazards" approach by 2026.	Reviewed and continued.	Reviewed and continued.
LEAD RESPONSIBILITY: DPHE					
INSTITUTIONAL STRENGTHENING					
Restructuring DPHE	Restructure DPHE to address new roles and responsibilities and emerging issues such as: i) More support to the urban subsector; ii) Climate change, environment and disaster risks management; iii) R&D and groundwater monitoring; iv) Private sector	LGD	i) DPHE submitted a complete and detailed proposal for restructuring DPHE to LGD by 2026; and ii) Enacted and deployed with full human resources by 2027.	i) Reviewed and updated; and ii) Actively continued	i) Reviewed and updated; and ii) Actively continued

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	participation; v) Hygiene promotion; vi) Planning and implementation including social development issues like participation and empowerment of communities and vulnerable groups; and vii) Support to the LGIs for institutional strengthening.				
	Expansion of Social Development Unit by creating a social development division (SDD) in DPHE with necessary staffs from the relevant fields such as economics, hygiene promotion specialists, social science (gender specialists) are essential.	LGD	i)DPHE prepared proposal for Social Development Division and sent to LGD by 2026; ii)The LGD approved the proposal by 2027; and iii) Enacted and actively involved.	The newly created SDD in DPHE is fully functioning and continued.	Functioning continued.
	FSM plants effluent quality testing facilities need to be established in DPHE and enacted with necessary HRs	LGD	i) DPHE prepared a proposal for "FSM plants effluent quality testing facilities" and sent it to LGD by early 2026;	The newly created fecal effluent testing facilities" in DPHE is fully functioning and continued.	Functioning continued.

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	and respective posts.		ii) LGD approved and enacted by 2027; and iii) "FSM plants effluent quality testing facilities" actively functioning.		
	Redeploy the existing staffs to deal with the changed scenario and redefine the charter of duties of the field staffs to involve them in software activities progressively, for example, the designation of 'Mechanic' may be changed as 'WASH Motivator'.	LGD	i) Deployment proposal submitted by DPHE to the LGD by 2026 and approved by 2026; and ii) Started functioning.	Service continued and updated.	Service continued and updated.
HRD	i) Strengthen DPHE capacity based on a comprehensive HRD plan, logistics, improved systems, procedures and guidelines to carry out its new roles; and ii) Increase capacities with exchange of knowledge and experience sharing.	LGD	i) DPHE submitted a five-year capacity development, exchange of knowledge, and experience sharing program (TPP/DPP) to the Planning Commission via LGD by 2026; and ii) implementation started after approval by 2026.	Updated and implementation continued.	Updated and implementation continued.

ITEM	ACTION POINTS	ASSOCIATE RESPONSIBILITY	INDICATIVE MILESTONES		
			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
Support to LGIs	Provide investment and capacity development support to the city corporations and paurashavas in: i) Preparation of WASH master plans; ii) Building operational and financial management capacities; iii) Installation of water meters; iv) Repair and maintenance, wastage and leakage control and upgrade of the water supply systems; v) Improvement of consumer care and customer relationship; and vi) Improvement of management of sludge from septic tanks and pit latrines.	LGD, LGIs	i) DPHE submitted investment and capacity development program for City Corporations and Paurashavas to LGD by 2026; and ii) Implementation started by 2026 after approval.	Continued with another investment and capacity development program and implementation.	Continued with another investment and capacity development program and implementation.
	Provide support to the Union Parishads in planning, implementation and monitoring of rural water supply and sanitation.		i) DPHE submitted investment and capacity development program for Union Parishads to LGD by 2026; and	Continued with another investment and capacity development program and implementation.	Continued with another investment and capacity development program and

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			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
			ii) Implementation started by 2026 after approval.		implementation.
Water Quality	i) Review and revise Bangladesh's drinking water quality standards, or at least those that differ from current WHO guidelines, especially arsenic; ii) Review and revise the existing water quality testing protocol and develop a comprehensive protocol; iii) Establish water quality monitoring system, including water quality surveillance; and iv) Delineating the roles and responsibilities of local and central government institutions.	LGD, BCSIR, BSTI, NGOs	i) The drinking water quality standards reviewed and updated by 2026. ii)Water quality testing protocol developed by DPHE by 2026; and iii) Water quality monitoring system integrated in SIS by 2026.	Implementation continued and SIS updated accordingly.	Implementation continued and SIS updated accordingly.
Arsenic Mitigation	i) Update union wise arsenic hot spot mapping. ii) Implementation of IPAM on priority basis for screening, awareness campaign and	DGHS, LGIs, NGOs	i) DPHE completed arsenic hot spot mapping by 2026. ii) Implementation of dedicated arsenic mitigation project started by 2026. iii) DGHS incorporated	i) Reviewed and updated arsenic hot spot mapping; ii) Continued implementation of dedicated arsenic mitigation project; and	Reviewed, updated and continued.

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			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	dedicated arsenic safe union protocol/concept. iii) Liaise with DGHS to incorporate information of arsenicosis and other non-communicable diseases due to iron and salinity, focusing on women and girls, in their database and share with concerned agencies (DPHE, WASAs and LGIs) to deal with.		arsenicosis patients and non-communicable diseases data in DHIS by 2026 and shared with concerned agencies (DPHE, WASAs and LGIs).	iii) DHIS database updated for arsenicosis patients and non-communicable diseases and sharing continued	
Water Safety Plan (WSP)	i) Advocacy for awareness building at policy and operational levels; ii) Introduce WSP and water quality surveillance in city corporations, paurashavas and village piped water supply systems; iii) Strengthen training courses on WSP and create a pool of master trainers.	WASAs, LGIs, NGOs	i) DPHE developed advocacy "Flyer" on arsenic for awareness building and utilized by 2026; ii) DPHE/WASAs introduced WSP in city corporations and paurashavas by 2026.	i) Advocacy for awareness building continued. ii) Implementation of WSP and capacity building programs continued.	i) Advocacy for awareness building continued. ii) Implementation of WSP and capacity building programs continued.
Sanitation Safety Plan (SSP)	Customize WHO Sanitation Safety Planning (SSP)	WASAs, LGIs, NGOs	DPHE developed SSP planning manual for use in Bangladesh and	Implementation Continued.	i) Reviewed and updated; and

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			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	Manual for use in Bangladesh;		implemented by 2026.		ii) Implementat-ion continued.
Hygiene Promotion	i) Prepare an integrated IEC Guidelines for WASH promotion; ii) Undertake national hygiene and sanitation campaign in partnership with media and others; iii) Work collectively with the MoH&FW for cooperation with their health workers, the MoPME, MoSHE, MoI&B and MoE for hygiene (HH and MHM) and sanitation promotion in primary and secondary schools; iv) Undertake collaborative initiative with private sector for promoting hygiene related consumer products like soaps, sanitary napkins, water preservations tanks and washing devices including proper disposal systems for these; and v) Encourage youth engagement in	WASAs, LGIs, NGOs, POs, Communities	i) DPHE prepared IEC Guidelines by 2026 and mainstreamed in existing and new projects and implemented by 2026; ii) Hygiene and Sanitation Promotion Project implementation and monitoring conducted by 2026 in collaboration with the MoH&FW, MoPME, MoSHE, MoI&B and MoE ; iii) Stakeholders' meetings held regularly; and iv) Collaborative activities and involvement with of Private Organizations and engagement of youth initiated in promotion of hygiene behavior campaigns including MHM by 2026. v) Implementation of roadmap for HH4A started by 2026.	i) IEC guidelines reviewed for Improvement; and ii) Implementation continued.	i) IEC guidelines reviewed for Improvement; and ii) Implement ation continued.

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			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	promoting the hygiene behavior campaigns including MHM and in observance of days/weeks/month (GHWD, World Water Week, Sanitation Campaign). vi) Implementation of roadmap of HH4A 2023				
Public Private Partnership (PPP)	i) Define the roles and responsibilities of stakeholders (national, local and private sector) and identify appropriate incentive mechanism for private sector operators. ii) Prepare implementation guidelines for involvement of the Private Organizations (POs) for WASH sector, and identify the mechanism for licensing of private operators and incorporate O&M mechanism in contract documents.	WASAs, LGIs, POs	i) DPHE defined the roles of stakeholders and identified the appropriate incentive mechanism for POs and submitted to LGD for approval by 2026; ii) LGD approved by 2026 and applicable for all projects; iii) DPHE prepared implementation guidelines for engagement of POs incorporating mechanism for licensing and O&M in contract documents and submitted to LGD for approval by 2026; iv) LGD approved and enacted by 2027; and v) Started implementation in all projects.	Reviewed for improvement and implementation continued.	Reviewed for improvement and implementation continued.

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			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
Environment, Climate Change and Disaster Management	Formulate integrated CCEDM Guideline, in line with EIA, to incorporate climate change adaptation, environment pollution control and disaster risk reduction for planning and implementation of WASH sector projects.	DMB, NGOs	i) DPHE prepared CCEDM Guidelines and submitted to LGD and DMB by 2026; ii) DPHE incorporated in existing and new projects and implemented by 2027.	Implementation continued.	Guidelines reviewed, updated and implementation continued.
LEAD RESPONSIBILITY: WASAs					
INSTITUTIONAL STRENGTHENING					
Corporate Image	i) Create a positive corporate image by highlighting customer excellence in the provision of services, transparency, accountability in its operations and updating of citizen charter; ii) Ensure a proper regulatory environment that protects the rights of consumers and safeguards the objectives of WASH service providers.	City Corporations, RAJUK, CDA, KDA, RDA	i) WASAs submitted customer survey reports to LGD by 2026 and reviewed by 2026; ii) WASAs maintained regulatory environment in protecting rights of customer and safeguards of service providers by 2026.	Reviewed, updated and regulatory environment in protecting rights of customer and safeguards of service providers continued.	Reviewed, updated and regulatory environment in protecting rights of customer and safeguards of service providers continued.
Water Tariff	Plan to introduce progressive tariff system for water supply	City Corporations, RAJUK, CDA, KDA, RDA	i) WASAs submitted proposal for introducing progressive tariff system for water	Reviewed, updated and continued.	Reviewed, updated and continued.

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			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
			supply to LGD by 2026; ii) LGD approved WASAs' proposal for progressive tariff system and enacted by 2027; and iii) Introduced progressive tariff system by 2027.		
LEAD RESPONSIBILITY: CITY CORPORATIONS AND PAURASHAVAs					
INSTITUTIONAL STRENGTHENING					
By-laws	Approve by-laws (under the Local Government Acts of 2009) for the individual city corporation and paurashava regarding staffing of the WASH sections and recruit required staff.	LGD	City Corporations and Paurashavas approved by-laws and enacted by 2026.	Reviewed, updated and continued.	Reviewed, updated and continued.
Participation and Corporate Image	i) Engage customers more in planning, implementing, operating and maintenance of local WASH facilities; ii) Create a positive corporate image by highlighting customer excellence in the provision of services, transparency, accountability in	LGD, DPHE	i) TLCC established in all city corporations and paurashavas by 2026; ii) Provided WASH services in accordance with the quality and service standards set by the LGD/WRC and continued O&M services of the WASH facilities starting from 2026; and	Status reviewed, updated and customer care service continued.	Status reviewed, updated and customer care service continued.

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			SHORT-TERM (2026-30)	MEDIUM-TERM (2031-35)	LONG-TERM (2036-40)
	its operations and updating citizen charter.		iii) One-stop customer care unit established in city corporations and paurashavas by 2026 and started service delivery.		
LEAD RESPONSIBILITY: UPAZILA PARISHADS AND UNION PARISHADS					
INSTITUTIONAL STRENGTHENING					
Upazila Parishads and Union Parishads	i) Improve working procedures and accounting by participating in capacity building programs arranged by DPHE and other organizations. ii) Gradually take over the roles of planning, implementation and monitoring of rural water and sanitation services and updating citizen charter.	LGD, DPHE	i) DPHE developed Capacity Building and Investment Program and implemented by 2026. ii) Citizen charter updated by 2026.	Reviewed, updated and implementation continued.	Reviewed, updated and implementation continued.