Government of the People's Republic of Bangladesh
Ministry of Local Government, Rural Development and Cooperatives
Local Government Division

National Strategy for Water Supply and Sanitation 2014

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Senior Secretary
Local Government Division
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Government of the People's Republic of Bangladesh

Foreword

Bangladesh has made remarkable progress on MDGs by significantly reducing the population without access to improved safe water and sanitation facilities. More importantly Bangladesh has successfully reduced the percentage of the poorest without access to water and sanitation facilities.

The National strategy for Water Supply and Sanitation 2014 is an integral part of the Sector Development Plan (SDP) 2011-25 for water and sanitation sector in Bangladesh. The strategy provides the Sector Context, Goal and Objectives, Guiding Principles, Framework, Strategic Direction, Institutional Arrangement and Implementation Plan for water supply and sanitation promotion at national, regional and local level. The strategy formulation made through a wide range of stakeholders consultation at different levels and finally reviewed by the members of expertise from concerned organizations those are involved in water and sanitation sector, like- representatives from DPHE, UNICEF, WHO, WSP-WB, WaterAid, BRAC, NGO Forum for Public Health etc.

The water supply and sanitation strategy suggests to achieve the sector goal and in accordance with the guiding principles, a set of seventeen strategies have been formulated. The strategies are broadly grouped into three themes- (a) WASH Interventions- increasing the coverage and improving the quality of WASH interventions, (b) Emerging challenges- addressing the emerging challenges in the sector, and (c) Sector Governance- strengthening sector governance.

There are massive challenges of implementation of the strategy in a coordinated way. Ensuring universal access to water supply, sanitation and hygiene is a major challenge for Bangladesh that will require a multi-pronged approach. This will need to address the challenges posed by hard to reach areas and vulnerable people. Bangladesh also has to tackle emerging issues, such as reducing the negative impacts of climate change as well as strengthening sector governance through building the capacity of institutions to ensure equity, accountability and transparency.

However, we expect that participation and efforts from different stakeholders, government agencies, LGIs, NGOs and development partners shall able to overcome the challenges.

I would like to express my heartfelt thanks and gratitude to all participants for rendering their valuable inputs and contribution in the review process and preparation of the National Strategy for Water Supply and Sanitation.

Finally, I am pleased and thankful to the Project Director, Kazi Abdul Noor (Joint Secretary), Policy Support Unit (PSU) and his other officials for their remarkable efforts in the total process of the preparation and finalization of the Strategy.

Monzur Hossain

Acknowledgement

Bangladesh, with a population of 150 million has made significant progress towards providing water supply and sanitation in the last two decades. According to the JMP (WHO/UNICEF-2014), 85% people have access to safe water and 57% people use hygienic sanitation facilities. Still there are significant challenges to ensure safe, affordable, reliable and sustainable services for all.

In the WSS sector several policy and strategic documents were developed based on the need of the sector. It was felt by the sector professionals that all the existing strategies need to be streamlined into a single strategy which will incorporate all outstanding and emerging sector issues. In this background the Local Government Division (LGD) of the Ministry of Local Government, Rural Developments and Cooperatives (MoLGRD&C) in consultation with various stakeholders formulated this National Strategy for Water Supply and Sanitation 2014.

The national strategy preparation was guided by the Policy Support Unit (PSU) under the LGD and a consulting company was engaged to support PSU. A working group was formed consisting of members from DPHE, WASAs, NGOs and Development Partners to support the preparation of the national strategy. The document was developed through participatory manner with a series of consultation at different level. The draft document was shared in the Policy and Monitoring Support Committee, Thematic Group meeting and in consultation workshop. The draft National Strategy was reviewed by a group of peer reviewers and was widely shared in a National Workshop. Finally, the document was validated by the National Forum for Water Supply & Sanitation.

I take this opportunity to express my heartiest gratitude to Mr. Monzur Hossain, Senior Secretary, Local Government Division, who has always been a source of inspiration for development of this strategic document.

I sincerely admire the contribution of UNICEF, Bangladesh for funding and extended cooperation of Mr. Charlie Hrachya Sargsyan, Chief WASH Section; Md. Shofiqul Alam, WASH Specialist and Ms. Mohsena Islam, WASH Specialist, UNICEF.

I am grateful to the members of the Task Committee and Peer Reviewers especially to Professor Dr. M. Feroze Ahmed, Professor Dr. Md. Mujibur Rahman, Mr. AKM Ibrahim, Mr. Shamsul Gafur Mahmud, Mr. Mark Ellery, Dr. Avijit Reaz Quazi, Mr. Alok Majumder and Mr. Alauddin Ahmed for their intellectual inputs in the development phase.

I express my profound gratitude and regard to Ms. Zuena Aziz, Director General (Additional Secretary); Mr. Shams Uddin Ahmed, Joint Secretary; Mr. Md. Akram-Al Hossain, Joint Secretary (WS); Syeda Salma Jafreen, Deputy Secretary; Mr. Md. Khairul Islam, Deputy Secretary; Ms. Sultana Yasmin, Senior Assistant Secretary (WS-2) and Mr. Faruq uz Zaman, Senior Assistant Secretary (WS-3) of Local Government Division for their wholehearted support in carrying out the initiative to develop this strategy.

I sincerely admire the effort made by DevConsultants and IWM JV for their contribution in the development of the document, especially Dr. Tanveer Ahsan who made his highest degree of contribution in the development of the document.

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I must acknowledge the perpetual efforts from Assistant Project Directors (Deputy Secretary) Mr. Md. Mohsin and Mr. Md. Abdur Rauf and S.M. Moniruzzaman, WASH Adviser of PSU who were always beside me, in extending wholehearted support in formulation of the strategy.

Kazi Abdul Noor
Project Director (Joint Secretary)
Policy Support Unit (PSU)
Local Government Division

Contents

Acronyms

3R	Reduce, Reuse and Recycle
CBN	Cost of Basic Needs
CLTS	Community-Led Total Sanitation
CSR	Corporate Social Responsibility
DPHE	Department of Public Health Engineering
DPP	Development Project Proposal
GLAAS	Global Analysis and Assessment of Sanitation and Drinking-Water
HRD	Human Resources Development
ICDDR,B	International Centre for Diarrheal Disease Research, Bangladesh
IEC	Information, Education and Communication
JMP	Joint Monitoring Programme (of UNICEF and WHO)
LCG	Local Consultative Group
LGD	Local Government Division
LGED	Local Government Engineering Department
LGIs	Local Government Institutions
LGSP	Local Governance Support Project
MDGs	Millennium Development Goals
MoA	Ministry of Agriculture
MoLGRD&C	Ministry of Local Government Rural Development and Cooperatives
MoH&FW	Ministry of Health and Family Welfare
MoP&ME	Ministry of Primary and Mass Education
MoE	Ministry of Education
MoW&CA	Ministry of Women and Children Affairs
MoWR	Ministry of Water Resources
NaMIS	National Management Information System
NGO	Non-Governmental Organization
ORS	Oral Rehydration Salts
PSU	Policy Support Unit
PWSS	Pourashava Water Supply Section
R&D	Research and Development
SACOSAN	South Asian Conference on Sanitation
SDG	Sustainable Development Goals
SDP	Sector Development Plan for the Water Supply and Sanitation Sector in Bangladesh (2011-25)
SOD	Standing Orders on Disaster
SWAp	Sector Wide Approach
TLCC	Town Level Coordination Committee
TPP	Technical Project Proposal
UNICEF	United Nations Children's Fund
µg/l	Microgram per liter
WASA	Water Supply and Sewerage Authority
WASH	Water Supply, Sanitation and Hygiene
WATSAN	Water and Sanitation
WHO	World Health Organization
WinS	WASH in Schools
WLCC	Ward Level Coordination Committee
WSF	Water Safety Framework
WSP	Water Safety Plan

Working Definitions

Water supply: Collection, treatment, storage, transmission and distribution of water for domestic uses.

Sanitation: Hygienic means of promoting health through treatment and safe disposal of faeces, surface drainage, solid waste and waste waters.

Hygiene: Conditions or practices conducive to maintaining health and preventing disease, especially through cleanliness.

Sector: The water supply and sanitation sector.

Drinking Water Standard: Bangladesh Standards for drinking water quality as defined in Environmental Conservation Rules 1997or subsequent government Acts, Rules and Circulars.

Water Points: Non-piped drinking water sources such as hand pump tube wells, pond sand filters, dug wells and rain water harvesting units and piped water supply outlets for common use like public stand posts.

Water Supply Service Level: The desired level of service is that each household has a water connection or a water point for water supply. In case of financial or technical reasons in low income or other communities, piped and non-piped community water points may be considered.

The basic minimum quantity of water for domestic uses should be 50 liters per person per day.

Piped water supply should be available for 24 hours with adequate pressure and non-piped water points should have water available round the year. The water points should be within 150 meters of household premise and collection time should be within 20 minutes.

Safe Water: The water that does not cause any significant risk to the health of the consumer over lifetime consumption.

Hygienic Latrine: The latrine that would be able to confine the feces away from the environment and it seals the path between the squat hole and the pit to effectively block the pathways of bad smell, flies and other insect vectors thereby breaking the cycle of disease transmission.

Community Latrine: A single or a number of hygienic latrines placed in a cluster for use by a section of community.

Sanitation Service Level: The basic minimum service level for sanitation is that every household has a separate hygienic latrine with appropriate fecal sludge management system. In special circumstances, maximum two households may share a hygienic latrine. Community latrines may be used in cases of communities with space constraints, such as low income communities in urban areas or in hard to reach areas where each household should have access to a latrine in an acceptable manner.

Hygiene Service Level: The basic minimum service level for hygiene is hand washing with soap and menstrual hygiene management.

Integrated Water Resources Management: It is a process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.

Water Stress Areas: Areas where the demand for water is approaching or exceeds the available supply or where existing or potential water quality problem is serious. For example, these areas are the Barind tracks in Northwest Bangladesh where the availability of groundwater is limited for both irrigation and drinking water supply and in the coastal saline zone like in the districts of Shatkhira, Bagherhat and Khulna where ground water is saline and low-saline river water is scarcely available.

Hard to Reach Areas: Due to some spatial constraints related to geo-physical factors there are some areas in the country where water supply and sanitation cannot be provided easily. Examples of these areas are the char land (River Island), beels (natural depressions or saucer shaped areas subjected to flooding by rain or river water which may or may not hold water throughout the year), haors (large natural water bodies in the form of bowl-shaped depressions between two different rivers), exposed coastal lines and islands, hilly areas and enclave areas.

Vulnerable People: There are some groups of people who have unfavorable socio-economic or physical characteristics that constraint their access to basic services including water supply and sanitation. Examples of these groups of people are children, people with different ability, aged people, extreme poor, low income urban communities in slum areas, tea garden workers, indigenous communities and floating population.

Food poverty line: This is estimated using the cost of basic needs (CBN) method and is equal to the cost of a basic food basket required to meet the nutritional requirement of 2,122 kilo calories per person per day.

Non-food poverty line: Cost of consuming non-food items by the member of household close to the food poverty line.

Poor: They are the member of households whose per capita expenditure on food and non-food items combined are equal to or less than the summation of food poverty line and non-food poverty line (also termed as upper poverty line).

Extreme poor: They are the member of households whose total expenditures on food and non-food items combined are equal to or less than food poverty line (also termed as the lower poverty line).

Chapter 1: Introduction

1.1 Sector Context

Globally, around 1 billion people lack access to safe water and 2.4 billion people lack access to improved sanitation. Bangladesh, with a population of 150 million has made significant progress towards providing water supply and sanitation in the last two decades. According to the Joint Monitoring Programme (JMP) (WHO/UNICEF, 2014), 85% people have access to safe water and 57% people use hygienic sanitation facilities.

Bangladesh has made remarkable progress on Millennium Development Goals (MDGs) 7 by significantly reducing the population without access to improved water supply and sanitation facilities. More importantly Bangladesh has successfully reduced the percentage of the poorest without access to water and sanitation facilities. However, there are still significant challenges if Bangladesh is going to ensure safe, affordable, reliable and sustainable services for all.

In water supply, the quality of drinking water is undermined by safety issues. About 20 million people are currently exposed to water having arsenic contamination. In sanitation, while only 3% of the population defecates in the open, more than half of the latrines used in Bangladesh are unsanitary in design, operation or maintenance (JMP 2014). In hygiene, while general awareness is high, only 30% people wash hands with soap or ash and water after defecating (UNICEF/ICDDR,B, 2014).

So, ensuring universal access to water supply, sanitation and hygiene is a major challenge for Bangladesh that will require a multi-pronged approach. This will need to address the challenges posed by hard to reach areas and vulnerable people. Bangladesh also has to tackle 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 to ensure equity, accountability and transparency.

The Government of Bangladesh's long-term Perspective Plan (2010-21) attaches a high priority on ensuring access to drinking water, sanitation and good hygiene practice for all. The Government considers support to water supply and sanitation as vital for sustainable national development; raising the living standards and well-being of the population. In fulfilling its international commitments to sustainable development, the government has submitted to the United Nations (UN) its post-2015 development agenda (2016-30) the goal of "Safe and sustainable sanitation, hygiene and drinking water used by all". In order to further improve the services the government has prepared and is continuing to develop Acts, policies, strategies and plans.

1.2 Rationale for a Comprehensive National Strategy for Water Supply and Sanitation

The sector documents that govern the functioning of the institutions of the water supply and sanitation sector at various levels are shown in a simplified manner in Figure 1[1]. In the highest first level are the Acts[2], including Rules and Regulations related to the sector. In the second level are the policies; the sector has two national policies: the National Policy for Water Supply and Sanitation, 1998, and the

[1] The hierarchy of first and second levels, that is Acts and Policies, could be reversible in some cases. There could be more than one approving authority for a level of document.

[2] (i) Water Act 2013, (ii) the different Local Governments Acts 2009 for the City Corporations, the Paurashavas, the Upazila Parishads and the Union Parishads, (iii) WASA Act 1996 and (iv) Environmental Conservation Act 1995 and the Environmental Conservation Rules 1997.

National Policy for Arsenic Mitigation and Implementation Plan, 2004. In addition the sector is guided by the National Water Policy, 1999. In the third level are the strategies; currently there are five national strategies in the sector[3]. In the fourth level, there are various plans, guidelines and procedures describing detailed methodologies and work plan for the sector or for specific subjects.

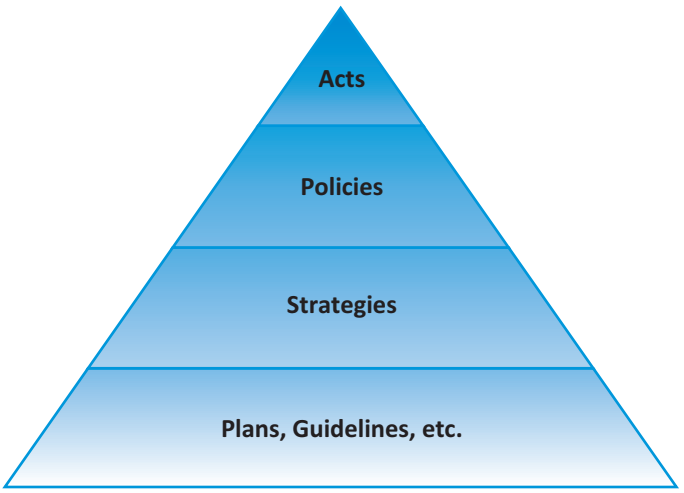
Levels of documents	Contents of the documents	Approving authority
	Legal framework	Parliament
	Sector guidance & priorities	Cabinet
	Sector directions	Ministry
	Detail work plans	Implementing agencies

Figure 1: Various levels of sector documents

A review of the sector documents in the Sector Development Plan for the Water Supply and Sanitation Sector in Bangladesh 2011-25 (SDP) revealed that although the policies were prepared long ago, they generally address the important issues in the sector. The policies are flexible and address the outstanding and new developments. The review also critically revealed numerous gaps and overlaps amongst sector strategies. It was therefore proposed that all the existing strategies need to be streamlined into a single strategy which will incorporate all outstanding and emerging sector issues. In this background the Local Government Division (LGD), Ministry of Local Government Rural Developments and Cooperatives (MoLGRD&C), in consultation with various stakeholders, formulated this National Strategy for Water Supply and Sanitation.

The LGD and the sector agencies would review the existing five strategies and update, modify and replace them into specific guidelines, in synchronization with the National Strategy. The existing five strategies would coexist and may be consulted for further directions related to the specific topic. However, this National Strategy would prevail, in case of any contradiction.

UN-Water[4] has proposed specific targets and indicators to meet the post-2015 Sustainable Development Goals (SDGs) and the SDP provides a broad action plan for the sector. This National Strategy for Water Supply and Sanitation seeks to translate these goals and directions into action including the further development of different guidelines to suit the specific needs of the sector.

[3] The five national strategies are (i) National Sanitation Strategy 2005, (ii) Pro-Poor Strategy for Water and Sanitation Sector 2005, (iii) National Cost Sharing Strategy for Water Supply and Sanitation in Bangladesh 2011, (iv) National Hygiene Promotion Strategy for Water Supply and Sanitation in Bangladesh 2012, and (v) National Strategy for Hard to Reach Areas and People of Bangladesh 2012.

[4] UN-Water is the United Nations (UN) inter-agency mechanism for all freshwater and sanitation related matters.

1.3 Approach and Methodology

The National Strategy preparation was guided by the Policy Support Unit (PSU) under the LGD and a Consulting Company[5] was engaged to support PSU. A working group was formed consisting of members from Department of Public Health Engineering (DPHE), Water Supply and Sewerage Authorities (WASAs), non-governmental organizations (NGOs) and Development Partners to support the preparation of the National Strategy. Consultations were held with stakeholders, including DPHE, WASAs, Local Government Institutions (LGIs), NGOs, Development Partners and sector professionals, during various stages of the National Strategy development. The draft National Strategy was reviewed by a group of peer reviewers and was widely shared in a National Workshop. The final draft version was discussed and approved in the National Forum for Water Supply and Sanitation[6].

[5] Joint Venture of DevConsultants Limited (DevCon) and Institute of Water Modeling (IWM).

[6] The forum is chaired by secretary, LGD and sector stakeholders like: government & semi-government organizations, NGOs, development partners, academia and representative of civil society are the members of this forum.

Chapter 2: The National Strategy for Water Supply and Sanitation

2.1 Goal

Safe and sustainable water supply, sanitation and hygiene services for all, leading to better health and well-being.

2.2 Objective of the National Strategy

To provide a uniform strategic guideline to the sector stakeholders, including the government institutions, private sector and NGOs, for achieving the sector goal.

2.3 Timeframe

The Strategy for Water Supply and Sanitation will be for a period of five years starting from 2014. The Strategy's progress will be reviewed annually and it will be updated and revised after five years.

2.4 Guiding Principles

The Strategy is based on the following guiding principles.

1. Regard water supply and sanitation as human rights.
2. Consider water as a public good that has economic and social value.
3. Ensure drinking water security through integrated water resource management.
4. Promote water supply, sanitation and hygiene components in all WASH development programs in an integrated manner.
5. Adopt a participatory, demand driven and inclusive approach in all stages of WASH service delivery programs.
6. Recognize importance of gender in all WASH activities.
7. Ensure equity in services by giving priority to arsenic affected areas, hard-to-reach areas, water-stressed areas and vulnerable people.
8. Protect human health and water supply and sanitation facilities from the adverse impact of natural and manmade disasters and climate change.
9. Harness the potential resources from solid and liquid wastes.
10. Promote innovations to address technical and social needs.
11. Promote transparency and accountability at all stages of service delivery.
12. Undertake a gradual approach to improve the quality and service levels.
13. Promote enhanced private sector participation.

2.5 The Framework of the Strategy

In order to achieve the sector goal, and in accordance with the guiding principles, a set of 17 strategies has been formulated. The strategies are broadly grouped into the following three themes:

- **WASH Interventions:** Increasing the coverage and improving the quality of WASH interventions
- **Emerging Challenges:** Addressing the emerging challenges in the sector
- **Sector Governance:** Strengthening sector governance

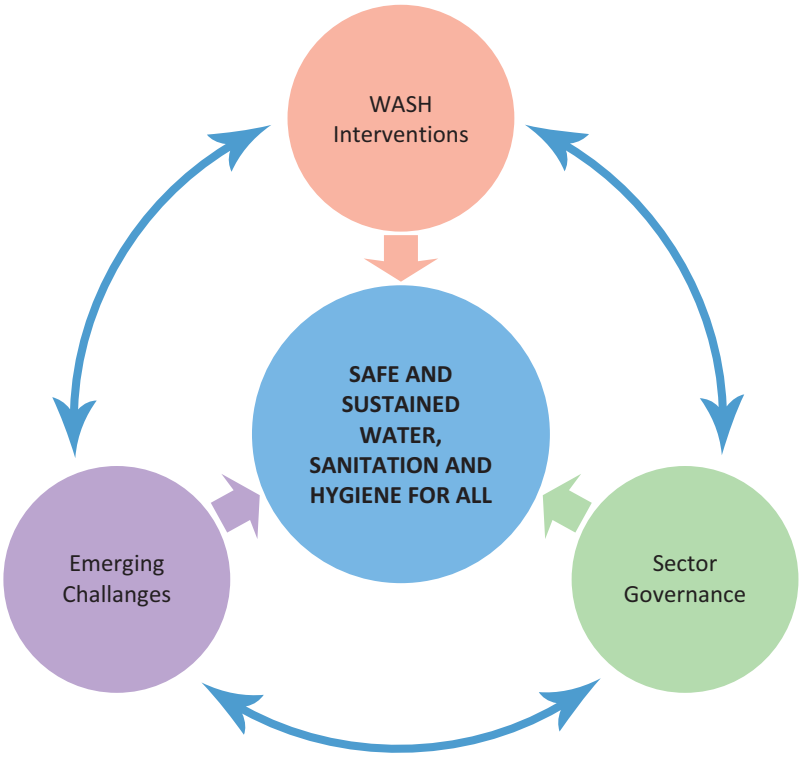


Figure 2 Three themes of the National Strategy for the Water Supply and Sanitation

Figure 2 illustrates contributions of the three themes towards achievement of the sector goal. The themes are supported by a number of strategies as shown in Table 1. The themes being broad and interdependent, a particular strategy may belong to more than one theme. Therefore, the National Strategy should be looked at in its entirety when considering its application for a particular case.

The strategies are applicable for water supply and sanitation in both urban and rural areas unless otherwise specified.

Table 1: The Themes and the Strategies

Themes	Strategies
WASH Interventions	1: Ensure safe drinking water 2: Give priority to arsenic mitigation 3: Undertake specific approaches for hard to reach areas and vulnerable people 4: Move ahead on the sanitation ladder 5: Establish fecal sludge management 6: Manage solid waste judiciously 7: Improve hygiene promotion 8: Mainstream gender 9: Facilitate private sector participation
Emerging Challenges	10: Adopt integrated water resource management 11: Address growing pace of urbanization 12: Cope with disaster, adapt to climate change and safeguard environment 13: Institutionalize research and development
Sector Governance	14: Undertake integrated and accountable development approach 15: Recover cost of services while keeping a safety net for the poor 16: Strengthen and reposition institutions 17: Enhance coordination and monitoring

2.6 The Strategies and Strategic Directions

This section gives an introduction to the strategy and states the various strategic directions (i.e. pathway that will lead to the achievement of the strategy).

2.6.1 Theme - WASH Interventions

The strategies under this theme would increase the coverage and improve the quality of WASH interventions.

Strategy 1: Ensure safe drinking water

The provision of safe water is threatened by risks of contamination at source, in conveyance and at the point of consumption. The government approved the Water Safety Framework (WSF) in Bangladesh, 2011 as a guideline to ensure the provision of safe drinking water. The following strategic directions highlight how to manage water safety risks.

1. Look holistically at the provision of safe water from the water source to the point of consumption, including in-house handling, for piped and non-piped water supply systems.
2. Adopt a risk management based approach for safe water, commonly known as Water Safety Plan (WSP) in all water supply programs.
3. Establish a water quality monitoring system and protocol, delineating the roles and responsibilities of the consumers, service providers, local and central government institutions.
4. Prepare manuals, tools and guidelines on WSPs for all water supply systems in the light of the existing Water Safety Framework in Bangladesh, 2011.

5. Intensify operational monitoring by all water providers and increase awareness among users.
6. Provide institutional set-up for the Water Quality Monitoring and Surveillance Protocol to supervise and improve the management of WSPs including establishing relationship with Department of Environment, related NGOs and private sector.

Strategy 2: Give priority to arsenic mitigation

An estimated 20 million people are exposed to water having arsenic contamination above Bangladesh standard and half of the exposed population is living in the severely affected areas where more than 80 percent of the tube wells are contaminated with arsenic. The government prepared the National Policy for Arsenic Mitigation, 2004 and the National Implementation Plan for Arsenic Mitigation in 2004. The Implementation Plan included four sectors: water supply, health, agriculture and water resources. This Policy and Plan, as well as other issues that emerged after 2004, are considered in the strategic directions given below.

1. Prepare exclusive Implementation Plan for water supply under the National Policy for Arsenic Mitigation, 2004 giving importance to arsenic testing, monitoring, arsenic-laden sludge disposal and research.
2. Carry out screening and monitoring of all potential contaminated tube wells with the objective to identify arsenic contaminated wells, arsenic patients and population at risk.
3. Test all new ground water supply sources for arsenic before commissioning by the individual or the agency installing the water sources.
4. Carry out public awareness campaign to warn about consuming arsenic contaminated water, to take remedial measures against arsenic poisoning and to inform that arsenicosis is not contagious, social exclusion is not justified and various alternative arsenic-safe water supply options are available.
5. Support local initiatives to promote testing, marking and switching of wells, where feasible, as the lowest cost mitigation option.
6. Initiate the process of lowering the standard for arsenic in drinking water to 10 microgram per liter (µg/l) on a phased timescale supported by study of its human health risks.
7. Give preference to arsenic mitigation technology using surface water sources when other types of arsenic mitigation technologies appear to be equally technically feasible, while also considering factors like chemical and microbial safety of the water, social acceptability and cost.
8. Give priority to dedicated projects for arsenic mitigation in arsenic affected areas and special attention for their smooth implementation.
9. Provide at least one arsenic-safe water source at a reasonable distance in arsenic affected areas on an emergency basis.
10. Promote piped water supply in arsenic affected areas wherever feasible.
11. Coordinate arsenic mitigation related activities between various ministries and divisions (e.g. LGD, MoH&FW, MoA and MoWR) as well as between government agencies, NGOs and private sector at different levels, from national to union.

Strategy 3: Undertake specific approaches for hard to reach areas and vulnerable people

The coverage and service levels in the hard to reach areas are low compared to the rest of the country because of their spaital constraints like different geo-physical characteristics and frequent occurrence of

natural calamities. So far, 1,144 unions have been identified as hard-to-reach unions for water supply & sanitation in 257 upazilas of 50 districts. About 21% of the total geographical areas of Bangladesh are found to be hard-to-reach with about 28.62 million people living in these areas. The general development interventions are not always appropriate for them. Similarly, because of the disadvantaged socio-economic condition of the vulnerable people the development interventions are not always able to reach them. In both the cases, different and specific approaches are needed to address the local conditions and specific group people. LGD prepared the National Water Supply and Sanitation Strategies for Hard to Reach Areas of Bangladesh, 2012. The following strategic directions have taken into consideration for hard to reach areas as well as the needs of vulnerable people.

1. Prepare separate development projects or separate components within development projects specifically for the hard to reach areas and for the vulnerable people.
2. Adopt different approaches considering the local infrastructure, cultural values and socio-economic status.
3. Consider area specific needs when considering and developing technologies, such as sanitation technology requiring less flushing water and light weight construction materials for hilly areas.
4. Create awareness and incorporate solutions to address vulnerable groups' issues in community level planning.
5. Establish public water supply and toilet facilities at strategic locations for the use of vulnerable people.
6. Make the provision of facilities for differently able people mandatory for public water supplies and toilets.
7. Coordinate and pursue a multi-sector development approach with other sectors like water resources, agriculture and fisheries, road transport and social affairs.
8. Undertake a learning approach to identify 'what works', with particular attention to operation and maintenance, and accordingly prepare guidelines, and design specific tools and approaches for the different hard to reach areas and vulnerable people.

Strategy 4: Move ahead on the sanitation ladder

The success of sanitation in Bangladesh during the last decade is largely credited to the Community-Led Total Sanitation (CLTS) movement supported by the central government, local governments and NGOs. The National Sanitation Strategy prepared in 2005 was instrumental in facilitating installation of millions of latrines, mostly by households themselves. However, a large portion of the latrines are unhygienic, many families share a latrine and still many practice open defecation. Appropriate sanitation in urban areas, especially in the low income communities, is a burning issue. These shortcomings indicate that sanitation in Bangladesh is at the initial steps of the "sanitation ladder" (sanitation ladder is used to explain the gradual steps in using improved sanitation facilities). The following strategic directions suggest ways to consolidate and improve the present approach including marketing of sanitation products. The scope of this strategy is related to only human excreta management using onsite sanitation technologies, other aspects of sanitation are addressed in other strategies (fecal sludge management exclusively in strategy number 5, solid waste management exclusively in strategy number 6 and drainage and water borne sewerage systems are incorporated in strategy number 11).

1. Carry out baseline survey in each union, town and city on the status of sanitation and prepare a local plan for 100% sanitation coverage, giving priority to elimination of open defecation.

2. Ensure effective use of earmarked government funds, such as the Local Governance Support Project (LGSP), to local government agencies for sanitation programmes.
3. Facilitate a partnership approach for sanitation programmes whereby the LGIs take a central role and join hands with the NGOs and the private sector, and DPHE provides technical assistance and guidance.
4. Give due consideration to local values and cultural practices in sanitation improvement programmes including choice of technologies.
5. Continue and expand the reach of the National Sanitation Campaign and include specific campaign programmes targeting the potential latrine users.
6. Develop a set of sanitation technologies, ranging from basic hygienic latrines to water borne sewerage system, as appropriate in specific situations.
7. Develop markets for various types of hygienic latrines (i.e. conversion of unhygienic latrines, changing from shared to single household use latrine and introducing latrines to people still practicing open defecation) and upgrade existing hygienic latrines.
8. Provide adequate public toilet facilities at places where people congregate, such as, bus stations, boat terminals, market and parks and provide mobile toilets or other suitable facilities for public gatherings like public meetings and fairs.

Strategy 5: Establish fecal sludge management

Water borne sewerage system with sewer lines and sewerage treatment plant covers only about 20% of the population of Dhaka city, the remaining population of the country use onsite hygienic sanitation technologies like septic tanks and pit latrines as well as unhygienic latrines or none at all. The fecal sludge from septic tanks and pit latrines in most cases are not withdrawn and disposed safely; often this sludge is disposed in drains and open spaces. Moreover, many septic tanks, especially those of high rise buildings, are not emptied timely or at all causing fecal matters to overflow and discharge directly into drains and water bodies. In some cases the fecal sludge is emptied manually and again discharged into drains, open low-lying areas or particular open dump sites. This improper management of fecal sludge is creating severe environmental pollution putting public health at high risk. The situation is especially critical in urban low income communities.

Presently, only a few small-scale isolated pilots on fecal sludge disposal are being tried in urban and rural areas. A safe method of collection and disposal of fecal sludge is yet to be developed. The following strategic directions are needed to initiate and establish a proper fecal sludge management system in the country.

1. Give priority to the management of fecal sludge from septic tanks and pit latrines such that all sludge are collected, transported, treated and disposed safely in an environmental friendly manner.
2. Develop innovative technologies appropriate to local conditions for collection, treatment and safe disposal of fecal sludge.
3. Allocate land at suitable locations (by LGIs) for fecal sludge treatment and disposal for all urban areas and upazilla headquarters.
4. Build fecal sludge management and regulation capacities of LGIs.
5. Emphasis on action research and demonstration projects for recycling fecal sludge, such as composting for use as fertilizer thus recycling nutrients back to nature, and generation of biogas.
6. Encourage use of double pit latrines to enable proper in-situ composting of sludge and for its safe disposal or to be used as fertilizer.

7. Make arrangements including bylaws for regular emptying of septic tanks and pit latrines.
8. Establish fecal sludge management in trains, launches and boats.
9. Provide technical and business support to private sector in sludge management, recycling, and sale of compost or other products.

Strategy 6: Manage solid waste judiciously

With rapid urbanization, solid waste disposal has emerged as a major environmental concern. Together with technical solutions, it is essential to promote awareness on the value of waste as a resource. Towards this end, the Department of Environment (DoE) under the Ministry of Environment and Forests (MoE&F), prepared the National 3R (Reduce, Reuse and Recycling) Strategy for Waste Management in 2010. The following strategic directions give the key features of the 3R Strategy and of other associated issues.

1. Promote (by City corporations and pourashavas) segregation of waste at source.
2. Encourage establishment of a community-based primary collection system and link it with the city corporation's or pourashava's secondary collection, transportation and final disposal.
3. Consider special handling and treatment for hazardous waste, like medical waste, and emerging waste streams like electronic wastes.
4. Pursue organic waste recycling through composting, bio-gas and reuse derived fuel.
5. Plan sanitary landfills for an urban area or a regional landfill for a group of urban areas, to meet realistic long term needs.
6. Design sanitary landfills with provision of collection of methane gas for use as a fuel and thereby reduce the emission of Green House Gas of high global warming potential.
7. Prevent keeping of waste materials on footpaths, roadsides and other public places.

Strategy 7: Improve hygiene promotion

The high levels of water supply and sanitation coverage in Bangladesh have not necessarily been reflected in the public health, nutritional status and well-being of the people. The disease burden and malnutrition due to unsafe and inadequate water supply and poor sanitation condition is alarming. Hygiene promotion increases the effectiveness of water supply and sanitation interventions as well as supports in increasing their demand. Despite various hygiene awareness programmes in the country during the last three to four decades, poor hygiene practice and consequent health impact is a cause for concern. To address hygiene-related issues, the government prepared National Hygiene Promotion Strategy, 2012. The following strategic directions focus on expanding and improving hygiene promotion interventions based on the above strategy.

1. Explore new approaches for hygiene promotion that are effective in translating people's knowledge into practice.
2. Prioritize hand washing with soap, and menstrual health management.
3. Address specific behavioral domains (e.g. personal including menstrual hygiene, food hygiene, environmental hygiene).
4. Target mothers of under-five and school children, healthcare assistants, religious and community leaders.
5. Undertake collaborative initiatives with private sector for promoting hygiene related consumer products like soaps, sanitary napkins, oral rehydration salts (ORS), water storage tanks and hand washing devices.

6. Undertake national hygiene and sanitation campaign in partnership with media.
7. Work collectively with the MoH&FW for cooperation with their health workers, the Ministry of Primary and Mass Education (MoP&ME) and the Ministry of Education (MoE) for hygiene and sanitation promotion in primary and secondary schools.

Strategy 8: Mainstream gender

The success of poverty reduction and development interventions in water supply and sanitation sector is generally high when women and men are fully involved. In this sector, women are generally the managers of water and sanitation in families and are also the guardians of hygiene enforcement, thus their involvement needs to be built in the sector activities. Following are the strategic directions to strengthen and mainstream gender.

1. Involve women in planning, implementing and operation and maintenance of WASH services.
2. Ensure that the project interventions contribute to the empowerment of women and give importance to equal participation of women and men.
3. Increase women representation in community based organizations, Water and Sanitation (WATSAN) Committees and other committees involved in the sector.
4. Consider and promote technological options suitable for women of various socio-economic groups and their special needs such as menstrual hygiene management.
5. Adopt a gender sensitive approach in the promotional campaign.
6. Coordinate with related ministries, especially with the Ministry of Women and Children Affairs (MoW&CA), for mainstreaming gender.

Strategy 9: Facilitate private sector participation

The benefits of private sector participation in the water supply and sanitation sector include mobilization of private resources to meet the growing investment needs, reduction of cost of services through competition, and increased efficiency and innovation. Bangladesh has a vibrant private sector in water supply and sanitation in rural areas; however, their role is limited in urban areas. The following strategic directions would stimulate further participation of the private sector.

1. Prepare a guideline for private sector participation in water supply and sanitation sector including measures for creating an enabling environment and for capacity development.
2. Continue encouraging and supporting the private sector to play a major role in rural water supply and sanitation.
3. Follow a transition path to the higher levels of private sector involvement by first improving the performances of the water and sanitation utilities and preparing the sector through simple types of involvement such as service contracts and management contracts.
4. Incorporate social virtues and needs of the poor in private sector contracts.
5. Continue piloting innovative private sector participation models in urban and rural areas with the objective to scale up appropriate models.
6. Develop rules and regulations for service quality and environmental protection of related works (e.g. well drilling, plumbing, fecal sludge management and water quality testing) within the framework of the Water Act 2013, the proposed Water and Sanitation Services Act or other related Acts.
7. Encourage and make provisions for private sector involvement in promotional activities.

8. Encourage latrine manufacturers to package some related services (bundling) like carrying and installing latrines in their households, upgrading of existing latrines and after sales services.
9. Build capacities of the private sector by providing technical, financial and marketing support. Explore linking the private sector with appropriate financial institutions dealing with small businesses.

2.6.2 Theme - Emerging Challenges

The sector faces emerging challenges like rapid urbanization, increasing water pollution due to industrialization and climate change. The strategies under this theme would prepare the sector to tackle the emerging issues that challenge the achievements and progress of the sector.

Strategy 10: Adopt integrated water resource management

In the context of competitive use of water by various sectors, like agriculture and industry, there is need for integrated water resource management to ensure drinking water supply security in terms of its viability and quality. In Water Act 2013, the government has given highest priority to domestic water supply which will lead to security of drinking water in case of multiple uses of ground water and surface water resources. Ground water has been a reliable and economic source of domestic water supply, however, its use is being pushed to its limits in water-stressed areas such as in large cities due to excessive abstraction for water supply and other industrial uses, and in Barind areas due to high abstraction for irrigation. The following strategic directions, prepared under the framework of Water Act 2013, suggest using ground water through integrated water resources management as well as a shift towards more use of surface water.

1. Harmonize the Water Act 2013 with the existing WASA Act, various LGI Acts and other related Acts, Rules and Regulations to effectively address the water supply issues.
2. Foster a shift away from reliance on groundwater towards surface water for irrigation in groundwater-stressed areas.
3. Consider the availability and quality of surface water for water supply carefully, evaluating factors such as seasonal variations, possible withdrawal of water in upstream and effects of climate change like increased salinity and reduced flow.
4. Investigate, assess and monitor the availability and use of groundwater in water-stressed areas and in the deep aquifer.
5. Limit the abstraction of groundwater to a sustainable level in water-stressed areas by keeping the abstraction within the safe yield.
6. Consider artificial recharge of groundwater and other technical measures in the water-stressed areas.
7. Integrate storm water drainage systems in urban areas with overall watershed drainage system in coordination with the MoWR.

Strategy 11: Address growing pace of urbanization

Globally, urbanization has been an effective engine of economic and socio-cultural development. Bangladesh has experienced phenomenal urban growth since its liberation, with heavy concentration in Dhaka and other large cities. It is expected that over the next 25 years, the urban population would be equal to the rural population, each about 100 million. The present water supply and sanitation infrastructure is mostly inadequate for the present demand and there are severe weaknesses in its operation and maintenance. The unplanned and rapid urban growth is mounting heavy pressure on the

already stressed urban infrastructure, including water supply and sanitation, and is causing serious environmental degradation. Rapid urbanization is also impacting the low income communities which lack access to basic services. This strategy aims to expand and increase the efficiency of the existing water supply and sanitation infrastructure in urban areas (except some specific aspects which are mentioned as separate strategies, which are: onsite sanitation in strategy number 5, fecal sludge management in strategy number 5 and solid waste management in strategy number 6) as well as to prepare for the challenges of rapid urbanization. The strategic directions are as follows.

1. Prepare master plans for water supply and sanitation services for all urban areas and undertake planned expansion and improvement programs to keep pace with urban growth.
2. Prevent contamination of surface and ground water sources from indiscriminate discharge of sewage, industrial wastewater and solid waste.
3. Explore new water sources, particularly for the large metropolitan cities, because of the limitation of local groundwater availability.
4. Establish sanitary sewerage and drainage system in all urban areas starting with major cities.
5. Prevent discharge of untreated industrial wastewater into sanitary or storm sewer systems.
6. Use appropriate onsite sanitation technologies where sewerage system cannot be constructed within a short time.
7. Reclaim natural canals and improve the carrying capacities of canals and box culverts by proper maintenance like urban dredging.
8. Rehabilitate and upgrade the existing water supply and sanitation systems with the objectives to improve service levels and reduce unaccounted-for water.
9. Improve the operations and maintenance of the existing water supply and sanitation systems by appropriate measures like practicing improved construction and operating procedures, enhancing staff capacities, benchmarking, establishing district metering areas (DMAs) and introducing system automation.
10. Improve financial management and give priority to rationalizing tariff, increase billing and collection efficiencies and take initiatives to increase the number of connections.
11. Practice demand management by firstly, installing water meters for all connections and secondly by promoting water conservation, including wastage reduction inside houses.
12. Recognize low income communities as legitimate customers and adopt specific approaches for delivering services to them.
13. Delink service provisions from land tenureship to allow service providers to extend their services to low income communities.
14. Develop customer care and public relationship by involving citizens' forums, such as the Town Level Coordination Committees (TLCC), in planning and operation of the systems.

Strategy 12: Cope with disaster, adapt to climate change and safeguard environment

This strategy and the following strategic directions aim to protect water supply and sanitation systems from the risks of natural and manmade disasters, climate change and environmental impacts.

1. Develop a common framework for screening of disaster, climate change and environmental impacts and mainstream adaptation of remedial measures in all development programmes.

2. Establish a new unit for Climate Change, Environment and Disaster Management or allocate the functions to an existing unit in key sector agencies like DPHE and WASAs.
3. Operationalize Disaster Management Bureau's Standing Orders on Disaster (SOD) for water supply and sanitation sector agencies by issuing supplementary Standing Orders that would consist of, among others, roles and responsibilities, delegation of enhanced administrative and financial powers to enable emergency response during disaster.
4. Strengthen disaster preparedness by proper planning and maintaining stock of emergency water supply and sanitation units, chemicals and spare parts in strategic locations.
5. Simplify the administrative procedures during the warning and emergency periods by delegation of more authority to the local staff.
6. Relax the procurement rules to manage emergency and take early steps such as mobilizing staff, vehicles and supplies during the warning period.
7. Build community capacities and resilience through raising awareness and imparting training on health impact and climate change.
8. Strengthen WASH Cluster[7] and develop a contingency plan of all the stakeholders for disaster management.
9. Build capacities of sector institutions, such as WASAs, DPHE, Local Government Engineering Department (LGED), and NGOs and allocate funds for climate change adaptation and managing disaster risks.
10. Promote disaster resilient water and sanitation systems in the disaster-prone areas. All future public buildings, like schools, having water supply and sanitation facilities, should be equipped with disaster management facilities, which can be used as shelter during emergency.
11. Construct in extreme disaster prone areas some disaster-proof water supply systems that can be used by people during emergency.
12. Introduce a regular monitoring system on sea level rise, saline water intrusion, depletion of groundwater level, flow reduction in rivers, and change in rainfall patterns to forecast adaptation approaches.
13. Prepare projects related to climate change and make efforts to obtain financing from climate change funds.
14. Pursue and coordinate water pollution control, especially in areas around large cities and in proximity of water supply sources, with the MoE&F and other related ministries.

Strategy 13: Institutionalize research and development

There is pressing need for solutions for some persisting problems (e.g. arsenic and urban sanitation) in the sector as well as for several emerging ones (e.g. climate change and saline intrusion). Research activities in the sector are low, fragmented and limited to only a few organizations. It is in this context that this strategy and the following strategic direction are suggested.

1. Promote research and development (R&D) and subsequent stages of demonstration, deployment and market development.
2. Create dedicated Division within DPHE and WASAs for R&D.

[7] A network of NGOs having work plans for WASH related disaster management. WASH Cluster is chaired by UNICEF and co-chaired by DPHE; the WASH Cluster members prepare themselves to support the national and local disaster management initiatives in line with the SOD 2010.

3. Increase the scope of research on outstanding technical, social and management issues in the sector (e.g. arsenic removal technologies, local manufacturing of arsenic test kits, water supply and sanitation technological innovation and improvement, artificial recharge of groundwater, water conservation gadgets, appropriate technologies for hard to reach areas, urban sanitation, fecal sludge management, climate resilient water supply and sanitation systems, rainwater harvesting, use of solar energy, behavioral change, devolution of planning and management, and market research) and streamline research management.
4. Incorporate R&D activities in technical assistance and development projects and provide adequate budget allocations.
5. Create a dedicated "R&D Fund" to increase the funding for the R&D and create opportunities for interested researchers.
6. Build partnerships with international and national institutes to create a network of professionals and increase human resources and institutional capacities in research.

2.6.3 Theme - Sector Governance

The strategies under this theme would facilitate improved governance related to WASH activities.

Strategy 14: Undertake integrated and accountable development approach

This strategy gives a framework for planning and implementation of development programmes and projects, containing some crucial elements, to achieve the sector goal. The impacts of water supply, sanitation and hygiene are best achieved when these are combined. Duplication and fragmented approach needs to be avoided, a common approach in promotional and educational interventions needs to be taken up and the sector agencies should gradually harmonize their development projects. Following are the strategic directions for realizing this strategy for an integrated approach.

1. Aim to integrate water supply, sanitation and hygiene in development projects and programmes.
2. Ensure community participation in all stages of development projects, such as, in planning, implementation, operation, monitoring and creating awareness.
3. Allocate government's development funds to LGIs considering their needs and performance in managing the water supply and sanitation systems.
4. Promote WASH in Schools (WinS) and include WASH in school curriculum.
5. Prepare and adapt an integrated Information, Education and Communication (IEC) guideline for WASH interventions which will include, among others, WSP, hygiene promotion, WinS and proper operation and maintenance of water and sanitation facilities.
6. Initiate a gradual Sector Wide Approach (SWAp) approach starting with simple and small steps like sub-sector SWAps for WASAs and rural subsector.
7. Manage knowledge and information centrally and make it public (e.g. through webpage and display boards) to ensure transparency in the planning and implementation process.

Strategy 15: Recover cost of services while keeping a safety net for the poor

This strategy has the prime objective to recover capital and operation and maintenance costs. This is in compliance with the National Water Supply and Sanitation Policy, 1998. The strategy also aims to be an instrument to reduce inequalities in services, ensure services to all including vulnerable people and promote establishing the rights, ownership and dignity of the users. The government prepared a Pro-Poor Strategy in 2005 and a Cost Recovery Strategy in 2010. The following strategic directions include the highlights of the two strategies and other related aspects.

1. Aim at full cost recovery in a gradual manner.
2. Realize at least the operations and maintenance costs of all piped water supply and water borne sewerage systems in the shortest possible time, but not later than five years.
3. Assign tariff on piped water supply and sewerage services and holding taxes on drainage and conservancy services as sources of fund for capital and operation and maintenance costs.
4. Give priority to the extreme poor for services and subsidy in cases of all water supply and sanitation facilities.
5. Establish progressive tariff for piped water supply and sewerage systems and include a life-line tariff for poor for basic level services.
6. Allow cross subsidy between poor and non-poor users for capital cost sharing and for realizing operation and maintenance costs in case of shared use of water supply and sanitation facilities; the amount of cross subsidy may be decided among the respective user groups.
7. Users to bear full operation and maintenance costs of all non-piped water supply systems and on-site sanitation systems as soon as those are handed over to the users.
8. Subsidize the capital cost in cases of vulnerable people, hard to reach areas, arsenic affected areas and in locations where the cost of technologies are high and unaffordable for the common people.

Strategy 16: Strengthen and reposition institutions

The following strategic directions are intended to strengthen the sector's institutional capacities with interventions at three levels: environmental, organizational and individual. The environmental level defines the enabling factors (e.g. laws, regulations, policies, strategies, guidelines and advocacy). The organizational level refers to factors that will influence an organization's performance (e.g. physical resources, capital, intellectual resources, management process, incentive and reward system, management and leadership). The individual level focuses on individual capacity building (e.g. knowledge and skills developed through education, practice and training) and it is also referred to as human resources development (HRD).

Environmental:

1. Delegate more administrative and financial powers to LGIs, based on various Local Government Acts, such as for staff recruitment, water tariff fixation and demarcating, protecting and maintaining water bodies.
2. Strengthen the capacity of the National Forum for Water Supply and Sanitation and other institutions in development and application of emerging WASH-related sector documents like legal instruments, strategies and guidelines.
3. Establish Water Supply and Sanitation Regulatory Commission in two phases: i) Water Cell; and ii) Water Supply and Sanitation Regulatory Commission and finalize draft and initiate enactment of the Bangladesh Water Services Act.

Organization and Individual:

4. Prepare Tripartite Agreements between LGD, DPHE and various LGIs specifying their roles and responsibilities regarding improvement of WASH services.
5. Implement the Policy Matrix for WASAs as contained in the Partnership Framework Agreement between the government and Development Partners.

6. 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, groundwater monitoring, private sector participation, hygiene promotion, and planning and implementation, including social development issues like participation and empowerment of communities and vulnerable groups.
7. Strengthen DPHE capacity based on a comprehensive HRD plan, logistics, improved systems, procedures and guidelines to carry out its new roles.
8. Enhance the capacities of Pourashava Water Supply Sections (PWSS) of City Corporations and Paurashavas through, among others: i) staff recruitment and training, ii) establishment of separate accounts for PWSS and introduction of appropriate financial management system.
9. Create a positive image by highlighting customer excellence in the provision of services, transparency and accountability in its operations.
10. Support the LGIs, particularly the UPs, to facilitate, coordinate and ensure the quality of all WASH services of the government agencies, NGOs and private sector including regulations, monitoring and record keeping.
11. Formulate village-level or urban moholla-level committees, with support from NGOs or by their own initiatives, and establish linkages with the formal committees such as Ward Level Coordination Committees (WLCC) and TLCC.

Strategy 17: Enhance coordination and monitoring

Development and implementation of a robust coordination, monitoring and evaluation system is crucial to determine whether the sector is on track to achieve its goal. It will also infuse transparency in the system, track performance, create synergies between various ministries and institutions, and enhance accountability within the sector.

Effective coordination, monitoring and evaluation system will also provide improved information for assessing the effectiveness of the policies and the strategies. The PSU and other agencies have already initiated strengthening the coordination and sector monitoring mechanisms. The following strategic directions are aimed at continuing such initiatives and to make further enhancements.

1. Establish intra-ministry coordination by creating a Secretaries' Committee on WASH with secretaries from related ministries like MoWR, MoH&FW, MoE&F, MoP&ME, and MoE.
2. Continue with the National Forum for Water Supply and Sanitation along with its two committees (i) Policy and Monitoring Support Committee; and (ii) Technical Support Committee.
3. Streamline different committees at the local level which have similar or overlapping functions. For example, the arsenic committees at the ward, union, upazilla and district levels should be merged with the respective WATSAN committees. The Tubewell Site Selection Committee at the union level should be merged with the Union WATSAN Committee.
4. Establish coordination and monitoring mechanisms at different levels to track the sector performances, spanning from community levels to headquarters, having some common key indicators and set up reporting and feedback mechanisms between them.
5. Strengthen the National Management Information System (NaMIS) for water supply and sanitation at DPHE and integrate the various monitoring systems.
6. Promote regional cooperation, exchange of knowledge, technological innovation and initiatives like South Asian Conference on Sanitation (SACOSAN).
7. Support the global monitoring systems such as JMP, and Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) and the national innovative initiatives like the open data monitoring platform and the smart-mobile phone based information system.

Chapter 3: Institutional Arrangement and Implementation Plan

3.1 Institutional Arrangements

The National Forum for Water Supply and Sanitation, having representatives from relevant ministries, agencies and the external support agencies and chaired by the Secretary, LGD, is responsible for coordination, monitoring and evaluation of the sector activities. The Forum is supported by two committees under it: i) Policy and Monitoring Committee chaired by the Joint Secretary (Water Supply), the LGD, with the PSU acting as the secretariat; and ii) Technical Support Committee chaired by Chief Engineer, DPHE.

A number of thematic groups consisting of members from related government agencies, development partners, NGOs and academicians, have been created to support the implementation of various themes of the SDP.

Since the Forum's inception in 2000, it has approved, supervised and coordinated a number of policy and strategy documents. The Forum will continue its functions with regards to this National Strategy. The water and sanitation subgroup of the Local Consultative Group (LCG), which is a platform for external support agencies, would coordinate with the two committees as and when required.

The LGD has provided the PSU with the overall responsibility of facilitating preparation of policies and strategies and in coordinating and monitoring of sector activities including implementation of the SDP which is closely related to this National Strategy. The PSU will also be the focal agency in implementing the National Strategy. The PSU will facilitate the National Strategy implementation through coordination with the sector agencies and will engage with the sector stakeholders through the two committees under the National Forum. The National Forum, with advice from PSU may create thematic groups or allocate responsibility to the existing thematic groups to support the implementation of specific strategies. The PSU may provide technical and management support to those thematic groups and will use the Implementation Plan (mentioned below) and its milestones as a guideline to monitor the implementation.

The sector institutions - DPHE, WASAs and LGIs- will implement their respective components related to the National Strategy. The LGIs will support their WATSAN Committees to implement the National Strategy in cooperation with the communities. The NGOs and the private sector would be encouraged to align their respective activities in accordance with the National Strategy.

3.2 Implementation Plan

The implementation plan of the National Strategy shown in Table 2 lists the strategies, the lead organization and partner organizations responsible for the implementation and milestones to be achieved within a given timeframe.

Table 2 Implementation Plan of the National Strategy for Water Supply and Sanitation

Strategies	Lead	Partners	Milestones
Theme: WASH Interventions			
1. Ensure safe drinking water	LGD	MoE&F, DoE & DPHE	Amendments to the Environmental Conservation Rules 1997 for revised drinking water quality standards and other sector issues, like more detailed surface water quality standards, revised point source discharge standards including effluent quality standards for sewage and industrial waste water treatment plants, initiated by MoE&F by June 2015.
	DPHE	LGIs & DoE	Implementation of water quality monitoring protocol started by Dec 2014 Surface and ground water sources such as surface water intake, control points of treatment plants and distribution mains, non-piped water sources and production wells, pollution risk identified and action taken by LGIs by December 2015. Strengthen the Water Quality Monitoring and Surveillance Circle of DPHE to supervise and improve the management of WSPs including coordination among DoE, NGOs and private sectors by June 2016. WSP incorporated in at least 50 percent piped water supplies by December 2017.
	DPHE	LGIs	Comprehensive operational tools for WSP prepared by December 2015.
	LGD	DPHE & PSU	Institutional set up for Surveillance System functional by June 2016.
2. Give priority to arsenic mitigation	LGD	PSU & DPHE	Preparation of exclusive Implementation Plan for Arsenic Mitigation for water supply by MoLGRD&C by June 2015.
	DPHE	NGOs	Update database of the ongoing arsenic screening of highly affected unions by June 2016.
	DPHE	LGIs	Protocol for the construction, water quality testing and maintenance of hand pump or production wells by public agencies, NGOs and private sector prepared by December 2015. Proposal regulating the installation of hand pump tubewells in areas identified as arsenic affected by the LGIs with support from DPHE. submitted to LGD by June 2016. Development Project Proposal (DPP) covering all possible arsenic contaminated areas submitted to the LGD by December 2016.

Strategies	Lead	Partners	Milestones
	DPHE	MoH&FW, MoE&F, & Research Institutes	Research related to reducing the arsenic standard to 10 µg/ initiated by December 2015. Concept note on the implications reducing the arsenic standard submitted to LGD and other institutions by December 2016.
	LGD	PSU	Inter-ministry Secretaries' Committee on WASH (including addressing arsenic issues) established by June 2015.
3. Undertake specific approaches for hard to reach areas and vulnerable people	DPHE	PSU & WASAs	Guideline and tools, including technical, social and financial aspects, for the hard to reach areas and vulnerable people prepared by DPHE and WASAs by June 2016. Separate DPP for all hard to reach areas and vulnerable people prepared or these are included in new DPPs by sector agencies by December 2017.
	LGD	PSU	Secretaries' Committee on WASH and other coordination mechanisms having regular meetings to discuss solutions for hard to reach areas and vulnerable people initiated from June 2016.
4. Move ahead on the sanitation ladder	LGD	PSU	Circular on earmarking funds for sanitation in LGI implemented projects like LGSP issued by LGD by June 2015.
	DPHE	PSU	Proposal for sanitation baseline survey and local level planning for100% sanitation by the LGIs submitted to LGD by June 2015.
	DPHE	PSU & LGIs	LGI based sanitation improvement programme, including sanitation marketing, in partnership with NGOs and Development Partners submitted to the Planning Commission by December 2015.
5. Establish fecal sludge management	PSU	DPHE & NGOs	National workshop involving all stakeholders for improved fecal sludge management organized by December 2014.
	DPHE	PSU & NGOs	Guidelines for fecal sludge management prepared by June 2016.
	DPHE	WASAs & LGIs	DPP or Technical Project Proposal (TPP) for demonstrating fecal sludge management submitted to the Planning Commission by December 2016.

Strategies	Lead	Partners	Milestones
	PSU	LGIs & WASAs	By-laws or regulations for sludge management including periodic emptying of septic tanks and pit latrines prepared by LGIs by June 2017.
6. Manage solid waste judiciously	PSU	DPHE, DoE & urban LGIs	Position paper on improved solid waste management practices incorporating 3R elements in the LGIs and related projects and programmes of the sector prepared by December 2015.
	LGD	DPHE, LGED, DoE & urban LGIs	Coordination mechanism between DPHE, LGED and LGIs for urban sanitation including solid waste management functioning by June 2016.
	DPHE	LGED, DoE & Urban LGIs	Improved solid waste management based on the principles of 3R incorporated in the relevant sector projects by June 2017.
7. Improve hygiene promotion	DPHE	MoH&FW, LGIs & NGOs	An integrated Information, Education and Communication (IEC) Guideline for WASH promotion including WSP, hygiene promotion and proper operations and maintenance of water supply and sanitation facilities prepared by December 2015. IEC Guideline mainstreamed into existing and new projects by December 2016.
	LGD	PSU & NGOs	Coordination mechanism with MoH&FW and other related ministries for hygiene promotion established by June 2015. National campaign for hygiene and sanitation promotion in partnership with media launched by December 2015.
8. Mainstream gender	PSU	DPHE & MoW&CA	Gender guidelines for planning, implementing and monitoring WASH interventions prepared by December 2015. Coordination mechanism with MoW&CA and other related ministries for gender promotion established by June 2016.
	DPHE	MoW&CA	Gender issues mainstreamed into existing and new projects by December 2016.

Strategies	Lead	Partners	Milestones
9. Facilitate private sector participation	PSU	DPHE & Ministry of Finance	Guideline for private sector participation in the sector prepared by December 2015. Encourage and facilitate private companies to contribute to the sector through their Corporate Social Responsibility (CSR) progarmmes by June 2016.
	PSU	DPHE, LGIs, private sector, financial and business support institutions & NGOs	A package consisting of technical knowhow, business support and financial assistance for private businesses in the sector (e.g. rural piped water supply, well drilling, water quality testing, plumbing, latrine manufacturing and fecal sludge management) prepared by June 2016.
	LGD	PSU & DPHE	Rules and regulations for service quality and environmental protection, under the Water Act 2013, various Local Governments Acts of 2009 or other Acts, for private sector business submitted to the government by June 2017.
Theme: Emerging Challenges			
10. Adopt integrated water resource management	PSU	WARPO, DPHE & LGIs	Rules, regulation, by-laws and circulars prepared under the framework of Water Act 2013, to enforce the conditions of the Act and to harmonize with the existing WASA Act, various LGIs Acts and other relevant Acts, rules and regulations that would include definitions of water stressed areas and licensing for well drilling and abstraction submitted by WARPO by December 2016.
	DPHE	PSU & WARPO	Guidelines for surface water use for water supply and for artificial recharge of ground water prepared by June 2017.
	PSU	DPHE, WASAs, City Corporations, DoE, WARPO & BWDB	Coordination mechanism for surface and ground water use established between related agencies like DPHE, WASAs, City Corporations, Department of Environment (DoE), WARPO, BADC and Bangladesh Water Development Board (BWDB) by June 2016.
11. Address growing pace of urbanization	DPHE & WASAs	LGIs	DPP or TPP for operational capacity building programme for urban areas, consisting of improved operations, maintenance, financial management, water conservation and customer care, submitted to Planning Commission by December 2016.

Strategies	Lead	Partners	Milestones
			Master Plans for water supply, sanitation and drainage for urban areas including provision of land and facilities for solid waste management and fecal sludge management prepared for the first phases of urban areas by December 2018.
	WASAs & urban LGIs	DPHE	Separate approach and programmes for low income communities adapted by all WASAs and urban LGIs by June 2016. Water meters introduced in all urban water supplies by December 2017.
	WASAs	LGIs	Innovative or advanced systems like system automation, establishing DMAs and urban dredging introduced in WASAs by December 2017.
	LGD	LGIs	Proposal for promotional activities and LGI bylaws regarding outstanding issues like waste separation at source and keeping waste materials in public places, sent to LGD by DoE by June 2016.
12. Cope with disaster, adapt to climate change and safeguard environment	LGD	DPHE, WASAs & LGIs	Supplementary SOD for the sector that would consist of, among others, roles and responsibilities of various actors, delegation of enhanced administrative and financial powers issued by LGD by December 2015. Government Orders for establishing new units for disaster management, climate change and environment or allocation of these functions to existing units issued by June 2016.
	PSU	DPHE, WASAs & LGIs	Common framework for screening of disaster, climate change and environmental impacts developed by December 2015.
	DPHE	LGIs	Projects related to climate change prepared for studies, investigation and piloting, climate-resilient infrastructure, capacity building of sector institutions and communities and installation of monitoring systems submitted to climate change funds by June 2015.
	WASAs	DPHE, DoE & BWDB, LGIs	Coordination mechanism established for protection of surface and ground water sources in and around large cities by June 2016.
13. Institutionalize research and development	PSU	LGD	Dedicated fund for R&D created by December 2015.

Strategies	Lead	Partners	Milestones
	LGD	DPHE & WASAs	Dedicated Divisions for R&D created in DPHE and WASAs by June 2016.
	PSU	Research institutes	Partnership with international and national institutes established by June 2016.
Theme: Emerging Challenges			
14. Undertake integrated and accountable development approach	PSU	DPHE & LGED, LGIs	Procedures for allocating government's development funds to LGIs based on indicators for assessing their needs as well as performance in managing water supply and sanitation systems submitted to LGD by June 2015.
	PSU	WASAs, DPHE & City Corporations	Subsector SWAp initiated in WASAs, rural areas and City Corporations by December 2016.
	PSU	DPHE, LGED WASAs & LGIs	Guideline on enhanced public disclosures of information on various steps in planning and implementation, like allocation of funds to various projects and its components, allocation of subsidy or water supply and sanitation facilities, through notice boards, websites and other suitable methods submitted to LGD by June 2016.
	PSU	DPHE, WASAs, LGIs	Vetting guideline updated to include, among others, integration of WASH activities and WASH in Schools (WinS) as well as improve the planning, implementation and monitoring process by December 2016.
15. Recover cost of services while keeping a safety net for the poor	WASAs	City Corporations	Progressive tariff system for water supply introduced in WASAs by June 2016.
	PSU	DPHE, WASAs & LGIs	Proposal to rationalize the allocation of funds to various water supply and sanitation services from holding taxes and tariff submitted to LGD by December 2015. Timeframe for recovery of capital costs and operation and maintenance costs of various piped water supplies submitted to LGD by June 2016.

Strategies	Lead	Partners	Milestones
			Circular for a common cost recovery methodology and providing priority to extreme poor for WASH services and subsidy issued by December 2016. Operational Guideline for subsidy to vulnerable people, hard to reach areas or areas with high public health concerns submitted to LGD by December 2016.
16. Strengthen and reposition institutions	LGD	PSU, WASAs & DPHE	Allocation of roles and responsibilities for implementation of different sections of the National Strategy and other sector documents to the two Committees and various Thematic Groups under the National Forum for Water Supply and Sanitation done by June 2015.
	LGD	PSU, WASAs, DPHE & LGIs	Circulars issued or regulations for staff recruitment, water tariff fixation, demarcating, protecting and maintaining water bodies under various LGI Acts approved LGD by December 2016.
	WASAs	LGD	Review of the implementation of the Policy Matrix related to WASAs undertaken periodically.
	DPHE	PSU & LGIs	Proposal for Tripartite Agreements between LGD, DPHE and various LGIs submitted to LGD by June 2015. Formalize the Sanitation Secretariat within DPHE by June 2015. Prepare plans to train DPHE staff on environmental auditing by December 2016. Concept note on restructuring DPHE and capacity building submitted to LGD by June 2017.
	LGD	DPHE	Restructured organogram approved by the government by December 2017.
	DPHE	LGIs	DPP or TPP on Sector Capacity Building Programme (5 years - Phase 1) submitted to the Planning Commission by June 2016.
	LGIs	DPHE & PSU	TLCC or WLCC established in all LGIs by June 2016. Village level or Moholla level committees formed and linked with WLCC or TLCC by June 2017.
	WASAs	DPHE & urban LGIs	One-stop customer care unit for water supply established in all WASAs and urban LGIs by December 2016.

Strategies	Lead	Partners	Milestones
17. Enhance coordination and monitoring	DPHE	LGIs	Proposal for integrating the overlapping functioning of various committees with the WATSAN committees at different tiers of the LGIs June 2015.
	PSU	DPHE, WASAs & LGIs	Strengthen the NaMIS by December 2015. Key monitoring indicators and methodology for data collection and reporting agreed upon by stakeholders by June 2015. Enrich the NaMIS database incorporating data of various stakeholders in a common format by June 2016. Prepare sector analysis report with enriched data and disseminate to sector stakeholders by December 2016. National survey of water supply and sanitation done by June 2017.