# SECTOR DEVELOPMENT PLAN

(FY 2011-25)

Water Supply and Sanitation Sector in Bangladesh

SUMMARY VERSION

# Sector Development Plan (SDP) for Water Supply and Sanitation Sector in Bangladesh (FY 2011-25)

**SUMMARY VERSION**

November 2011

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

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

# MESSAGE

I am delighted that the Policy Support Unit (PSU) of the Local Government Division (LGD) has prepared the 'Sector Development Plan (FY2011-25) for the Water and Sanitation Sector in Bangladesh'.

The Sector Development Plan (SDP) is a path-breaking initiative spearheaded by the LGD to sketch a bottom-up road map to achieve the goal of providing safe drinking water and sanitation for all by 2011 and 2013 respectively. This goal was enshrined in the 2008 election manifesto of our party and subsequently reflected in various national policy, strategy and planning documents, including the National Strategy for Accelerated Poverty Reduction II (Revised) FY 2009-11 Step Towards Change, Perspective Plan for Bangladesh, and Vision 2021.

I am pleased that the Plan has grown out of a highly participatory process involving a large variety of stakeholders from the grassroots to the policy level, and deepened a sense of shared ownership. The process led to the formation of 12 thematic groups, which have volunteered to contribute to the SDP implementation to be coordinated by the National Forum of Water Supply and Sanitation (NFWSS). It is encouraging that this trend-setting participatory approach by the SDP is in line with the government's overall aim of achieving good governance that will foster adoption of transparency and accountability principles.

While we have achieved significant progress in delivering water and sanitation services, our government remains sensitive to the demand which is increasing day by day. Despite the constraints facing the sector, we would enhance our institutional capacities to step up the process of implementing the SDP and thereby serving our people, particularly the disadvantaged, vulnerable and the excluded sections of the society, such as the hardcore poor, the women, the children and the physically challenged people.

Further, in recognition of the importance of this sector, the government has nearly doubled its budgetary allocation in FY 2010-2011 compared to that for FY 2008-09, and we hope to continue this pattern in the future as well. Towards this end, I note that implementation of the SDP would require additional allocations and that the finance gap of about Taka 21,000 crore, estimated by the SDP, could be made up with 50 percent additional allocation from the government and another 50 percent from the development partners.

I endorse the SDP's key message that it should be the overarching planning document and the basis for formulating sector investment plans. Accordingly, I call upon all stakeholders, including the government and non-government organizations, to follow the SDP in their respective plans.

I am hopeful that our collective commitment and concerted efforts would enable us to ensure sustainable delivery of water and sanitation services for all. I look forward to the successful implementation of this valued long-term plan by the Government of Bangladesh.
Long live Bangladesh !

**Syed Ashraful Islam, M.P**

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

# MESSAGE

I am glad that the Policy Support Unit (PSU) of the Local Government Division (LGD) has prepared the Sector Development Plan (FY2011-2025) for the Water and Sanitation Sector in Bangladesh involving a variety of stakeholders representing the governmental, non-governmental and private organizations and agencies. The wider participation of the stakeholders ranging from grassroots to the policy level in making a sector development plan of the government creates a unique example to follow, as we know participation is a major step towards establishing good governance.

I take special interest to note that the Sector Development Plan (SDP) is the first planning document of its kind that has been developed in a bottom-up approach articulating the grassroots priorities and tailoring them craftily to realize the government's commitments to providing water for all by 2011 and sanitation for all by 2013 as well as the basic services projected in Vision 2021. I believe that this dream, as propounded by Honorable Prime Minister, Deshratna Jananatry Sheikh Hasina, would be translated into actions by different implementing agencies under the leadership of Local Government Division, Ministry of Local Government, Rural Development and Co-operatives.

I am happy that the progress we have made in reaching the goals of water and sanitation for all is significant. However, we must acknowledge that we are yet to fully reach out to the hard-to-reach areas, such as the Chittagong Hill Tracts (CHTs), haors-baors and beels, coastal islands, chars and offshore islands. Also, we are yet to fully create viable service opportunities for the poor women and men living in the urban slums and squatter settlements. Further, it is becoming a matter of concern for the coastal people to access safe drinking water due to increase in salinity in groundwater and surface water. Generally, the groundwater level is declining, which is limiting our access to safe water in a cost effective manner. Therefore, it is imperative that we devise more innovative technologies, such as disaster-resilient technologies in the affected areas, by investing more in research and development.

We are aware that our institutional and financial capacity is still limited to create more viable options. Nonetheless, despite our limitations, our government remains committed to dealing with these challenges by allocating more resources to the sector and enhancing management capacity as per the investment plan of the SDP.

I would like to request all concerned to cooperate with the LGD in implementing the SDP.

Joy Bangla, Joy Bangabandhu,
Bangladesh Chirojibi Hoke.

**Advocate Jahangir Kabir Nanak, M.P**

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

# PREFACE

Providing sustainable water and sanitation services for all remains a huge challenge in Bangladesh. Although the water supply coverage increased significantly from nearly 10 percent in the early days of our independence to almost universal - 97 percent - in the early 90's, it dropped down to 74 percent due to the detection of arsenic contamination in groundwater. While we have been making efforts to ameliorate the situation by initiating various interventions on the ground, as per the recent study conducted by DPHE-JICA there are about 200 unions having only 20 percent water coverage, and more than 80 percent water sources are contaminated. We fully recognize that the challenging task ahead of us requires further urgent interventions. However, I am happy that the SDP has analyzed all these strategic issues for our future interventions and subsequent investment, on the basis of which the Government of Bangladesh and the development partners would make decisions on their involvement in the sector.

It does not go unnoticed that the problem of water source management and the alternative source of surface water for drinking purposes is going from bad to worse to our utter dismay. The groundwater level of Dhaka city is going down at a rate of about three meters per year, deepening the present crisis of non-availability of supply water in some parts of the city in dry season. It is alarming to us as the policymakers and the managers of services. Moreover, our urban centers are growing rapidly with people migrating to the city, but we have limited piped water supply coverage in those areas. The sanitation systems, including sewerage and drainage in the urban areas, are also inadequate and in some cases inappropriate. The operation and the maintenance of the existing facilities are inefficient causing huge revenue losses. Rural water supply also faces a host of problems including the lack of appropriate solutions with regard to the hard-to-reach areas. Further, the improvement in sanitation of rural areas is difficult due to a lack of sustained use of latrines and hygiene practices. I am happy to note that the 'Sector Development Plan (FY 2011 – 2025) for Water and Sanitation Sector in Bangladesh' has already captured these technical and operational issues and has come up with plausible solutions.

It keeps me enthusiastic in seeing that the SDP has included the major challenges that the sector is facing at this moment. It analyzes the issues of donor harmonization, alignment of the WSS programs with government policies and principles, and adopting sector-wide approaches (SWAp), which seems simple to read but difficult to implement. Besides, the SDP spells out investment requirements divided into three major strategic timeframes (i.e. short-term, medium-term, and long-term), which is aligned with the government planning systems. For reasons of conformity with broader national planning, the SDP was consulted with the Planning Commission to feed its views into the government's 15-year Perspective Plan. It has been reflective of the government's political commitment and international pledges, for example Vision 2021 and the MDGs. In terms of funding requirements, the SDP is realistic, as it shows possible access to public, development partners and private funding sources over time. The overall progress of the sector services is also linked with the gradual inclusion of institutional and financial improvements, and sector-wide approaches.

I would like to add that the SDP has widened the opportunities for the sector agencies like the WASAs, city corporations and the paurashavas to increase their service coverage. The SDP process has also broadened DPHE's scope to take the lead role in making all the 12 thematic groups more vibrant and to remain responsive to the emerging technical and social needs and demands of the sector. The immediate task for the PSU would be to provide support to the relevant agencies for making their plans in line with the road-map for implementing the SDP. I would like to request all respective agencies to establish a focal point for SDP implementation so that the LGD can maintain regular communication with them.

While going through the set of action points that the SDP recommends, I find them very pragmatic and doable as well. In a nut-shell, it lays emphasis on institutional and legal reforms, strengthening the capacities of the public institutions, establishing a better sector coordination and monitoring system, managing the water resources effectively, stimulating the private sector, safeguarding the environment and tackling the climate change, increasing fund, and above all expanding coverage, increasing service levels, and ensuring sustainability. These are all hugely important for the sector, but what we need urgently is to address in future the programming in the sector. And I call upon the relevant departments, the agencies, the NGOs, the private sector, and the development partners to take these into account.

I thank my colleagues of the Local Government Division (LGD), especially the Joint Secretary (Water Supply) and the Deputy Secretary (Water Supply) for their proactive roles and continued support. I also thank my colleagues working with the Policy Support Unit (PSU) for their relentless efforts at managing the uphill task of SDP preparation and presenting it to the nation. I must make a particular mention of the valuable contribution, praiseworthy dedication and excellent leadership of the Project Director, Policy Support Unit (PSU). Indeed, he has demonstrated all such attributes through the trajectory of the SDP preparation and its dissemination.

Finally, I take the privilege of introducing the SDP to all stakeholders, hoping that all our endeavors will succeed eventually in effectively implementing the Plan

**Abu Alam Md. Shahid Khan**

# FOREWORD

The Sector Development Plan (FY 2011-25) for the Water and Sanitation Sector in Bangladesh took an extensive, participatory and analytical approach at the national and local levels to provide a framework for planning, implementing, coordinating and monitoring all activities in the Water Supply and Sanitation sector. The exercise covered a wide range of consultations with the stakeholders, comprising, among others, development partners, various ministries and other relevant functionaries, different local government institutions, the Chittagong Hill Tracts (CHTs) regional and district councils, public and private service providers, community and individual level users, policy makers, sector professionals and academia. This approach is indeed commendable, as it results from a holistic process of stakeholder participation, consultation and involvement.

The most pertinent element of the SDP is the presentation of progressive development of water supply and sanitation services during the Plan's three strategic timeframes: short-term, medium-term, and long-term. This development of services is linked to the performance of the sector based on achievement of various milestones during each of the three timeframes.

The SDP has addressed various issues related to sector financing, planning and coordination mechanisms, and monitoring and evaluation. It includes the needs of the people of the CHTs and other hard-to-reach areas. For institutional strengthening, the SDP recommends necessary reforms, and enhancing the Research and Development (R&D) activities to support innovating technological solutions, and to promote demand responsiveness of the service providing agencies.

There are massive challenges facing the sector. One such challenge that needs to be dealt with a huge financial gap that is needed to implement the SDP as planned. In addition, the PSU will have to ensure sector coordination, MIS, monitoring and evaluation in conformity with Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) and the Joint Monitoring Program (JMP). We will also have to face another challenge of making the Policy and Monitoring Committee and the Technical Committee functional under the leadership of the National Forum for Water Supply and Sanitation (NFWSS). Yet, I am confident that, with the commitment and support of all relevant members, the proposed institutional framework for the sector led by the Forum will function effectively and efficiently.

To sum up, I would like to express my gratitude to the stakeholders of the sector, including the development partners, who have rendered valuable inputs and support in the process of the SDP preparation. I also thank my colleagues in the ministry, for making important contributions. Further, we are thankful indeed to the consultants for their sincere efforts at producing an excellent piece of work.

Finally, I greatly appreciate the tremendous efffors of thePolicy Support Unit (PSU) and its officials have demonstrated at all levels to keep the boat sailing all the way under the dynamic and worthy leadership of the Unit's Project Director of Policy Support Unit. I thank them all because they have made it possible to present the SDP to the country.

**Zuena Aziz**
Joint Secretary (Water Supply)
Local Government Division

# ACKNOWLEDGEMENT

The Sector Development Plan (FY 2011-25) is a homegrown planning document. It has grown in an all-inclusive process which has eventually developed into a commitment-generating platform. The platform has mobilized all stakeholders on board and enabled them to participate effectively in the sector reform process and contribute to the formulation of various actions points for the Plan.

I recall that the preparation of the SDP had faced enormous challenges which we had been able to overcome successfully with the continuous support and commitment obtained from the respective ministries and the government departments, development partners, UN agencies and the NGOs. I sincerely acknowledge the contributions of all stakeholders, including the community and individual users at the local levels, who graciously gave their time and provided valuable insights and suggestions. Nonetheless, the major challenge lies in the satisfactory implementation of the SDP with the assistance of 12 thematic groups under the leadership of the policy and technical committees. However, I am pleased to report that the SDP is already being used in various analyses of the sector and the implementation of some sections of the SDP has been initiated. A case in point is the pilot implementation of the Water Safety Plan technically supported by the World Health Organization.

While it would be difficult to mention the contributions of all by name, yet, it would be generous to recognize a few who lent critical support to the SDP preparation. The SDP is born out of the tireless efforts made by a team of consultants Dr. Tanveer Ahsan, Team Leader; Mr. Imtiaz Ahmad, Member; Mr. Md. Abul Kashem, Member; and Mr. A. Quader Chowdhury, Member, SDP Preparation Team. While preparing the Plan, they have always been very accommodative of changes, flexible to incorporation of suggestions and innovations, and committed to maintaining the quality of the output.

The SDP is the first planning document that has been peer-reviewed by the scholars and experts, namely Dr. Ainun Nishat, Vice Chancellor, BRAC University (BRACU); Mr. Feroze Ahmed, Professor, Civil/Environmental Engineering Department, BUET; Dr. Md. Mujibur Rahman, Professor, Civil/Environmental Engineering Department, BUET; Mr. Habibur Rahman, Pro-Vice Chancellor, BUET; Mr. S M Ihtishamul Huq, Superintendent Engineer, DPHE; Mr. Shamsul Gafur Mahmud, National Professional Officer, World Health Organization (WHO); Mr. Hans Spruijt, Chief, WES Section, UNICEF Bangladesh; Mr. Rafiqul Islam, Senior Project Implementation Officer, ADB Bangladesh Resident Mission; Mr. S. M. A. Rashid, Executive Director, NGO Forum for DWSS; Mr. Kazuyuki Suenaga, Arsenic Mitigation Technical Advisor, JICA; Mr. Mark Ellery, Head of WSP, The World Bank, Dhaka Office and Dr. Md. Khairul Islam, Country Representative, WaterAid-Bangladesh. I am expressing my gratitude to all of them that they have made it convenient to ensure and enrich the quality of the product. I again thank Mr. Mark Ellery for being the Official Editor of the SDP. The member organizations and agencies of the 12 thematic groups have provided critical inputs in course of the SDP preparation and are committed to its implementation. I thank them all for their valuable contribution to the process.

I express my gratitude to Mr. Abu Alam Md. Shahid Khan, Secretary, LGD, who kindly shouldered the responsibility for completing the halfway task and demonstrated his extraordinary leadership in retaining the momentum. I also express my gratitude to his predecessor Mr. Monzur Hossain, Secretary, Ministry of Home Affairs, who has always been a source of inspiration, who remained with us in the five major workshops, and who facilitated building consensus among the stakeholders. I am thankful to Ms. Zuena Aziz, Joint Secretary (Water Supply), LGD for her critical guidance. I am also thankful to Mr. Shahjahan Ali Mollah, former Joint Secretary (Water Supply); Mr. Shams Uddin Ahmed, Deputy Secretary (Water Supply), LGD and Mr. Sarwar Bari, Senior Assistant Secretary and Private Secretary to Honorable Secretary, LGD who have always cooperated with us and played important roles in many different ways.

I am grateful to Mr. Jan Moller Hansen, Deputy Head of Mission, Embassy of Denmark who has mobilized financial support as well as created space for the SDP to be more inclusive.

I thank Mr. Nuruzzaman, Chief Engineer, DPHE, who had been instrumental in mobilizing technical expertise from the DPHE and reaching consensus. Mr. Taqsem A. Khan, Managing Director, Dhaka WASA; Mr. A.K.M. Fazlullah, Managing Director, Chittagong WASA; Mr. Muhammad Rezaul Islam, Managing Director, Rajshahi WASA; Mr. Md. Abdullah, Managing Director, Khulna WASA; Mr. Liakot Ali, Deputy Managing Director, Dhaka WASA; played leadership and expert roles in increasing service coverage and ensuring its quality. I thank them all.

I am thankful to Mr. Swapan Kumar Sarkar, Director General, MIE Wing, LGD; Mr. Md. Abdul Malek, Joint Secretary (Dev), LGD; Mr. Ashoke Madhob Roy, Joint Secretary and Private Secretary to Honorbale Minister for LGRD&C; Mr. Abu Bakr Siddique, Chief, Physical Planning and Infrastructure Division, Planning Commission; Mr. S.M. Zahir Khan, Joint Chief, Physical Planning, Planning Commission; Mr. Ansar Ali Khan, Deputy Secretary (Dev.), LGD; Mr. Matinul Haque, Deputy Secretary (WS-3), LGD; Mr. Aktar Hossain, Deputy Secretary (Admin), LGD; Mr. Khaja Miah, Deputy Secretary (WS-1), LGD; Mr. Mizanul Haque Chawdhury, Deputy Secretary (WS-3), LGD; Mr. Abdul Quashem, Deputy Secretary, Ministry of Water Resources; Mr. Anwar Hossain Hawlader, Deputy Secretary, LGD; Mr. Sudhir Kumar Ghosh, Superintending Engineer (Ground Water Division), DPHE; Mr. Amin Sharif, Senior Assistant Chief (Planning), and Private Secretary to Honorable State Minister, LGRD&C; Mr. Harunur Rashid, Senior Assistant Secretary, LGD; Mr. Noor-e-Alam, Assistant Chief, Planning Commission; Mr. Zahidul Anam Khan, Senior Assistant Chief, Planning Commission; Ms. Syeda Salma Zafreen, Senior Assistant Secretary (WS-2), LGD; Mr. Ali Akbar, Senior Assistant Secretary, LGD; Mr. Ali Ahmed, Project Director, UPPR Project; Mr. Azahar Ali, National Project Coordinator, UPPR Project; Mr. Sk. Abu Jafar Shamsuddin, Center Manager, ITN-BUET; Mr. AKM Ibrahim, Superintending Engineer, DPHE; Dr. Enamul Kabir, MD, HYSAWA FMO; Dr. Niaz Chowdhury, Program Officer, Water and Sanitation, Embassy of Denmark; Mr. M. Akhtaruzzaman, Country Team Leader, WSP-SA World Bank; Mr. Abdul Motaleb, Senior WS Specialist, WSP-World Bank; Mr. Santanu Lahiri, Senior Water and Sanitation Specialist, WSP-World Bank; Ms. Rokeya Ahmed, Water and Sanitation Specialist, WSP-World Bank; Mr. Delwar Hossain, ADB Consultant; Mr. Md. Yakub Hossain, Deputy Executive Director, VERC; Dr. Yan Zheng, WES specialist, Mr. Lalit Mohan Patra, WES Specialist, Ms. Mohsina Islam, Institution Development Specialist, Unicef; and Mr. Ranajit Das, Senior Project Coordinator, DSK for their advice and all-out support and cooperation. Thanks are due to Dr. Dibalok Singha, Executive Director, DSK and late Dr. Syed Ishteaque Ali Jinnah, former Director – Policy and Advocacy, WaterAid Bangladesh; who had been instrumental in mobilizing the civic organizations to feed their voices into the document.

I am very thankful to Mr. Jyotirindra Bodhipriya Larma, Chairman, Chittagong Hill Tracts Regional Council, for his kind cooperation and cordial support for assessing the special needs and priorities of the CHTs in water supply and sanitation sector. I also thank Advocate Azmatullah, Mayor, Tongi Pourashava, and Chairman, Municipal Association of Bangladesh (MAB); Mr. Shamim Al Razi, Mayor, Singra Pourashava, and Secretary, MAB; and Abdul Baten, Mayor, Bera Paurashava and Vice-Chairman, MAB; who played important roles in mobilizing the elected officials of the paurashavas in enlarging the service networks and reducing the system loss. Thanks are due to the representatives of all city corporations, who remained cooperative all through in reforming the WSS polices.

I would like to thank former Project Director Mr. Waliul Islam, Project Director Kazi Abdul Noor, Senior Adviser Dr. Guna N. Paudyal, Quazi Avizit Reaz and their colleagues of the GoB-Danida HYSAWA Project for their warm cooperation and sincere efforts. I would like to thank the WSSPS-II officials including Mr. Alok Majumder, Ms. Farzana Nasrin, Ms Fatema Khatun, and Mr. Anthony Gomes, for their warm support for our work.

I would like to thank all of my PSU colleagues. In particular, I would like to express my appreciation to Mr. Poul-Erik Frederiksen and Mr. Shajahan Ali for their commitment and high quality technical advice. My other colleagues, Mr. Torsten Malmdorf, Md. Naziruzzaman and Mr. ABM Ziaul Kabir aslo deserve special thanks. Futher, I thank Mr. Edwin Ranjan Hira, Mr. Rubel Shankar Biswas, Mr. Ashfaq E Zaman, Mr. Md. Mozaffar Hossain, Mr. Md. Zakir Hossain, Mr. Md. Rezaul Islam, Mr. Md. Ahmedul Haque, Mr. Md. Yousuf Hawladar, Mr. Shyamal Chandra Saha, Mr. Montu Costa and Mr. Masum Khan for their hard work and sincere cooperation. I also thank Mr. Bayezid Dawla, Mr. Ashutosh Dey and Mr. Nurul Haque Asheem, Consultants for their inputs.

Finally, I sincerely hope that the team effort would continue during the SDP implementation phases.

**Md. Shariful Alam**
Project Director (Deputy Secretary)
Policy Support Unit (PSU)
Local Government Division

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | | |
|---|---|---|
| ADB | : | Asian Development Bank |
| ADP | : | Annual Development Program |
| AusAID | : | Australian Agency for International Development |
| BDT | : | Bangladesh Taka |
| CBO | : | Community Based Organization |
| CHT | : | Chittagong Hill Tracts |
| CLTS | : | Community-Led Total Sanitation |
| DANIDA | : | Danish International Development Assistance |
| DFID | : | Department for International Development |
| DGHS | : | Directorate General of Health Services |
| DP | : | Development Partner |
| DPHE | : | Department of Public Health Engineering |
| FGD | : | Focused Group Discussion |
| FY | : | Financial Year |
| GDP | : | Gross Domestic Product |
| GoB | : | Government of Bangladesh |
| HYSAWA | : | Hygiene, Sanitation and Water Supply |
| IEC | : | Information, Education and Communication |
| JICA | : | Japan International Cooperation Agency |
| JMP | : | Joint Monitoring Program |
| KII | : | Key Informant Interview |
| LGD | : | Local Government Division |
| LGED | : | Local Government Engineering Department |
| LGI | : | Local Government Institution |
| MGDs | : | Millennium Development Goals |
| MICS | : | Multiple Indicator Cluster Survey |
| mm | : | millimeter |
| MoH&FW | : | Ministry of Health and Family Welfare |
| MoLGRD&C | : | Ministry of Local Government, Rural Development and Co-operatives |
| MoP&ME | : | Ministry of Primary and Mass Education |
| MTBF | : | Mid-Term Budget Framework |
| NAMIP | : | National Policy for Arsenic Mitigation and Implementation Plan |
| NFWSS | : | National Forum for Water Supply and Sanitation |
| NGO | : | Nongovernmental Organization |
| NSAPR | : | National Strategy for Accelerated Poverty Reduction |
| NWP | : | National Water Policy |

| | | |
|---|---|---|
| NWMP | : | National Water Management Plan |
| O&M | : | Operation and Maintenance |
| PPP | : | Public Private Partnership |
| ppb | : | parts per billion |
| PRSP | : | Poverty Reduction Strategy Paper |
| PSU | : | Policy Support Unit |
| PSF | : | Pond Sand Filter |
| R&D | : | Research and Development |
| SDP | : | Sector Development Plan |
| sq km | : | square kilometer |
| SWAp | : | Sector Wide Approach |
| UfW | : | Unaccounted for Water |
| UNDP | : | United Nations Development Programme |
| UNICEF | : | United Nations Children's Fund |
| WASA | : | Water Supply and Sewerage Authority |
| WATSAN | : | Water and Sanitation |
| WHO | : | World Health Organization |
| WSS | : | Water Supply and Sanitation |

# 1. Introduction

Providing access to safe drinking water and sanitation services for all is a major development goal of the Government of Bangladesh (GoB). Accordingly, the Local Government Division (LGD) has prepared a Sector Development Plan (SDP) to guide the water supply and sanitation (WSS) sector in the attainment the government's goal. The summary version focuses on sector challenges, opportunities, investment requirements and the road map for SDP implementation. .

This section provides a background of the SDP, states the objective, and explains the approach and methodology adopted for the preparation of the Plan. It concludes by highlighting the progressive development of the sector during its 15-year planning period, divided into short, medium and long terms, each of five years' duration.

## Background

In 2005, the Local Government Division (LGD), Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C) prepared a 10-year Plan (SDP 2005) for the WSS sector in Bangladesh. The SDP 2005 had been used as a planning document for the WSS sector by the Government of Bangladesh (GoB) and the Development Partners (DPs). The government subsequently decided to update the SDP and incorporate a separate analysis for the Chittagong Hill Tracts (CHT), focusing more on hygiene promotion, and paying greater attention to the regions lagging behind. It was also felt that some emerging development approaches, such as the Water Safety Plan, Sector Wide Approach (SWAp), and environment, climate change and disaster management should be assessed and included.

Accordingly, the Policy Support Unit (PSU) under the LGD started to prepare the next SDP, which would be the strategic planning document for the sector. The SDP will be for a period of 15 years, starting in Financial Year 2010-11 (FY 2011) and ending in FY 2025.

## Objective of the SDP

The objective of the SDP is to provide a framework for planning, implementing, coordinating and monitoring all activities in the WSS sector. As a strategic planning document, it addresses the emerging and the future challenges of the WSS sector. The SDP provides a road map for the development of the sector and a corresponding sector investment plan.

## Approach and Methodology

An extensive participatory and analytical approach was used during the preparation of the SDP, at both the local and central levels. Several Focused Group Discussions (FGDs) and Key Informant Interviews (KIIs) were organized with the LGIs at all levels, various government offices, non-governmental organizations (NGOs), civil society, and the academia. All the major bi-lateral and multi-lateral donors, such as Asian Development Bank (ADB), Australian Agency for International Development (AusAid), UKAID (formerly Department for International Development (DFID)), Danish International Development Assistance (DANIDA), Japan International Cooperation Agency (JICA), The World Bank, World Health Organization (WHO), United Nations Children's Fund (UNICEF) and the United Nations Development Programme (UNDP)) engaged in development of the WSS sector were consulted to ascertain their views and obtain feedback on the key issues of the SDP. Specific consultations were held with the Ministry of Primary and Mass Education (MoP&ME) and the Ministry of Health and Family Welfare (MoH&FW) to draw lessons from their experience in the implementation of SWAp in their programmes and to accordingly incorporate those in the design of the SWAp in the WSS sector.

Two regional workshops were held in two diversified areas of the country: i) Rangamati town in the CHT representing its unique geography, culture and socio-economy; and ii) Mohonganj Upazila under Netrokona district representing the *haor* and flood-prone areas. In addition, three national workshops were organized to exchange views on the key issues.

Further, 12 Thematic Groups were established (Annex-1). Each Group was composed of members from a number of agencies, including representatives of academia, government agencies, the DPs, the NGOs and the private sector with expertise in the particular theme. The objectives the Thematic Groups were two-fold as follows:

- To provide technical support related to the themes during the SDP preparation phase; and
- To oversee the implementation of the thematic recommendations and to provide technical guidance during the three SDP planning and implementation periods.

Finally, to ensure high quality of the SDP, a peer review of the draft SDP was done by the leading sector specialists from the academia, government, the NGOs and the DPs (Annex-2).

## Three Steps of Planning

The SDP will be applicable for a period of 15 years, starting in FY 2010-11. The planning period of 15 years is divided into long-term planning, medium-term

planning, and short-term planning, each of five years' duration, and will coincide with the Five-Year Plan cycles of the government's development planning. The SDP will be a rolling plan, which will be updated every five years.

The short-term planning period would comprise priority programs and projects, which are ongoing, approved and in the pipeline. The programs and the projects would have either approved financing or have a good chance of securing financing during the short-term period.

The medium-term planning period should include the next round of priority programs and projects with corresponding estimated financing. Before the end of the first five-year period, the medium term will be considered the new short-term period with detailed program and project planning, and identification of financing.

The long-term planning would express the vision of the government on how the WSS sector would develop at the end of the long-term planning period based on the possible sector financing, and the expected capacity for planning, implementation, and the O&M.

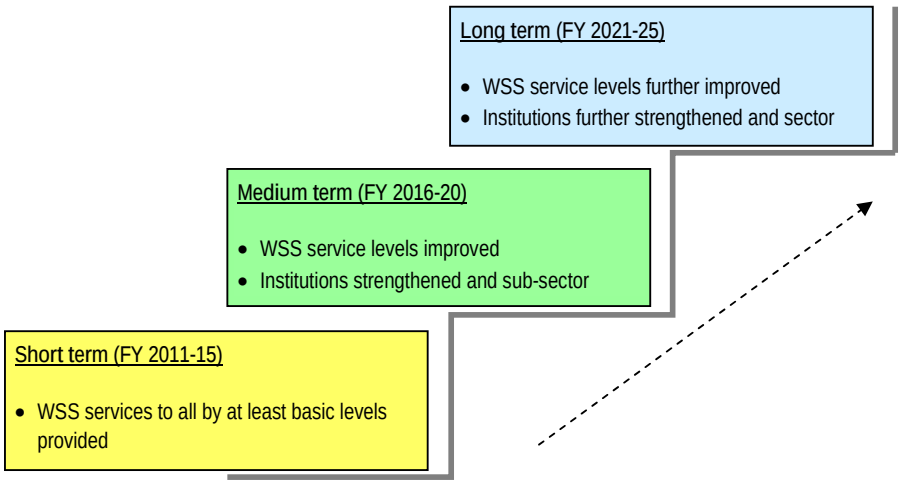


**Figure 1: Diagram showing the progressive developments in the three terms of SDP implementation**

The progressive development of the sector in these three planning terms is illustrated in Figure 1. During the short-term period, the aim is to provide, at least, the basic minimum water and sanitation services for all, particularly the poor and vulnerable groups. According to the National Strategy for Accelerated Poverty Reduction (NSAPR II), safe water supply will be provided for all by 2011 and

sanitation for all by 2013. Minimum service levels would be ensured at first and then progressively improved. In parallel, institutional strengthening will be initiated. Further, during the short term, sector governance instruments, such as establishing a legal and regulatory framework, and preparing new policies and strategies or revising the existing policies and strategies, will be completed. Platforms for cooperation and coordination among the sector stakeholders would also be established and a step-by-step approach towards SWAp will be initiated. In summary, in addition to providing minimum services for all, the activities in the short term will set the ground for progressive and sustainable development in the subsequent terms.

Activities during the medium term will be built on the firm foundation prepared in the first phase. The service levels would be improved, and contribute to a better quality of life. Institutional development would continue and SWAp at the subsector levels (for example, the urban and the rural subsectors) would be established.

During the long term, service levels would be further improved. By then the sector is expected to have established sound capacity for sustained development. A well coordinated approach would be followed by all stakeholders and a full sector SWAp established.

# 2. Water Supply and Sanitation Sector Profile

The salient features of the WSS sector profile comprise a variety of stakeholders including the NGOs, the communities and the private sector making valuable contributions to the development of the sector, complexities of water resource management and significant progress made in terms of WSS coverage during the past three decades, and the challenges to be addressed in the near future.

## Country's Administrative Set-up

Bangladesh, with an area of 147,570 square kilometer (sq km) and an estimated population of about 150 million in 2010, is one of the most densely populated countries in the world. For administrative purposes, Bangladesh is divided into seven divisions (geographic). The divisions are subdivided into 64 districts, the districts into 482 upazilas (sub-districts) and the upazilas into 4,498 unions (lowest tier of the local government). In the administrative set-up, the provisions of local governments are made at the district, upazila and union levels, but presently the local governments exist in only the upazilas and the unions. In the urban areas, there are two types of local government: City Corporations for the seven largest cities and the Paurashavas (municipalities) for the large-to-medium size towns. There are seven city corporations and 308 paurashavas. The country is governed by a

parliamentary democracy and it has a unitary National Parliament. There are 35 ministries and seven divisions (functional).

## Sector Institutional Framework

At the national level, the LGD of the MoLGRD&C is responsible for the overall development of the sector. The Department of Public Health Engineering (DPHE) and the Water Supply and Sewerage Authorities (WASAs) function under the administrative control of the LGD. The DPHE is responsible for implementation of the WSS projects in the public sector in the rural and urban areas outside the areas covered by the WASAs. In addition to the DPHE, the Local Government Engineering Department (LGED), also under the LGD, implements the water and drainage projects in the urban areas as part of the urban infrastructure development projects. The coordination at the national-level among the sector stakeholders, such as the government agencies, the NGOs, the DPs and the private sector is done by the National Forum for Water Supply and Sanitation (NFWSS) established in the LGD. The Secretary, the LGD, is the chairperson of the Forum.

In the rural areas, the role of coordinating WSS service provision is the responsibility of the Local Government Institutions (LGIs). The Water Supply and Sanitation (WATSAN) committees of the upazila parishads and the union parishads discharge the responsibility to coordinate the activities of the DPHE, the NGOs and other stakeholders. The district-level LGI (Zila Parishad) is not presently functional.

In the urban areas, the DPHE was originally responsible for the WSS services, but gradually, the paurashavas (municipalities) and the city corporations are becoming more involved in planning, implementation and management of the water systems. WASAs were established in 1963 in Dhaka and Chittagong cities, as special purpose institutions responsible for water supply, sewerage and drainage. In 2008, Khulna WASA was created. The government has recently established another WASA in Rajshahi. The structure and manpower requirements are now in the process of being finalized.

## Sector Stakeholders

A variety of stakeholders are directly and indirectly involved in the WSS sector. The main groups of the sector stakeholders are as follows:

- **Government and Semi-government Organizations:** The government is the main stakeholder and is involved in planning, regulating, implementing and monitoring the development works. The government operates through its various institutional setups at the central level (ministries, divisions, departments and agencies), different tiers of local governments (upazilas and union parishads, paurashavas and city corporations) and semi-government organizations (for example, WASAs);

- **Development Partners (DPs):** The DPs make significant contributions to the sector through technical and financial assistance. The scope of their assistance is guided by the policies of their respective governments or organizations, and aligned with the national policies and priorities. The DPs channel their assistance mostly through the government agencies, while direct support to the NGOs is also common;
- **Non-Governmental Organizations (NGOs):** The NGOs have been working with participation of the local people at the grassroots level in different areas. They have been supporting development projects through motivation and education programs targeting the communities, and many are also involved in direct implementation;
- **Community Based Organizations (CBOs):** The CBOs, in the rural areas, operate and maintain handpump tubewells or other water points through their elected committees and groups. In the urban areas, they are increasingly taking over the responsibility of operating and maintaining the water points and community latrines in the urban slums. The facilities that the CBOs manage are provided by either the government or the NGOs;
- **Private Sector and Individuals:** Many private sector entities like private contractors, suppliers, manufacturers, hardware shops, and consultants are involved directly or indirectly in the WSS sector development. The bulk of the handpump tubewells and latrines in the rural and urban areas have been installed by individual households themselves; and
- **Others:** Other organizations like the academic and research institutions, civil society, media, construction and consulting companies, sector professionals and individuals are directly and indirectly involved in the functioning and development of the sector.

## Legal instruments, Policies and Strategies

The legal instruments for the WSS sector consist of a set of acts, ordinances and rules specifying the roles and responsibilities of various sector institutions. Some important ones are briefly discussed below:

- Environmental Conservation Act 1995, and Environmental Conservation Rules 1997 set the standards of the quality of water to be supplied and requirements of disposal of effluents into water bodies;
- WASA Act 1996 describes the roles and responsibilities of WASAs, including the functions of the Board and Managing Director; and
- Different Local Government Acts of 2009 for City Corporations, Paurashavas, Upazila Parishads and Union Parishads describe the functions and responsibilities of the LGIs, including matters related to WSS.

The following policies, strategies and other documents govern the functioning of the WSS sector in Bangladesh.

**Specific to Water Supply and Sanitation Sector**

- National Policy for Safe Water Supply & Sanitation, 1998;
- National Policy for Arsenic Mitigation & Implementation Plan (NAMIP), 2004;
- National Sanitation Strategy, 2005;
- Pro-Poor Strategy for Water and Sanitation Sector, 2005; and
- National Sector Development Programme for Water Supply and Sanitation, 2005 (SDP 2005).

**Water Resources Management Sector specific but related to Water Supply and Sanitation Sector**

- National Water Policy (NWP), 1999; and
- National Water Management Plan (NWMP), 2004.

**Cross sector related to Water Supply and Sanitation Sector**

- National Strategy for Accelerated Poverty Reduction II (Revised) for FY 09-11 (NSAPR II or PRSP-II), 2009;
- Sixth Five-Year Plan ( FY 2011-15);
- Perspective Plan (2010-2021);
- Environmental Conservation Rules, 1997;
- Bangladesh Climate Change Strategy and Action Plan, 2009; and
- Invigorating Investment Initiative through Public Private Partnership (PPP), June 2009 (Position Paper of Ministry of Finance).

## Water Resources of Bangladesh

Bangladesh lies across the delta of four major rivers: the Ganges-Padma, the Brahmaputra-Jamuna, the Meghna and the Teesta (Figure 2). These rivers and their distributaries discharge about five million cubic feet of water per second into the Bay of Bengal at the peak periods. The annual sediment load of the rivers has been estimated between 1.5 and 2.4 billion tons. In total, Bangladesh has about 24,000 km rivers, streams and canals.

The surface water system of Bangladesh consists of the major river networks, the massive flood plains which become inundated in the monsoon season, lakes and

over a thousand *beels* and *haors* which are saucer-like depressed basins of a marshy character, and ox-bow lakes, which are remnants of dead rivers in the south-western parts of the country. Besides these natural water bodies, there are more than one million ponds of various sizes. The total area of the water bodies is over 12,000 sq km which is about eight percent of the total land area of Bangladesh.

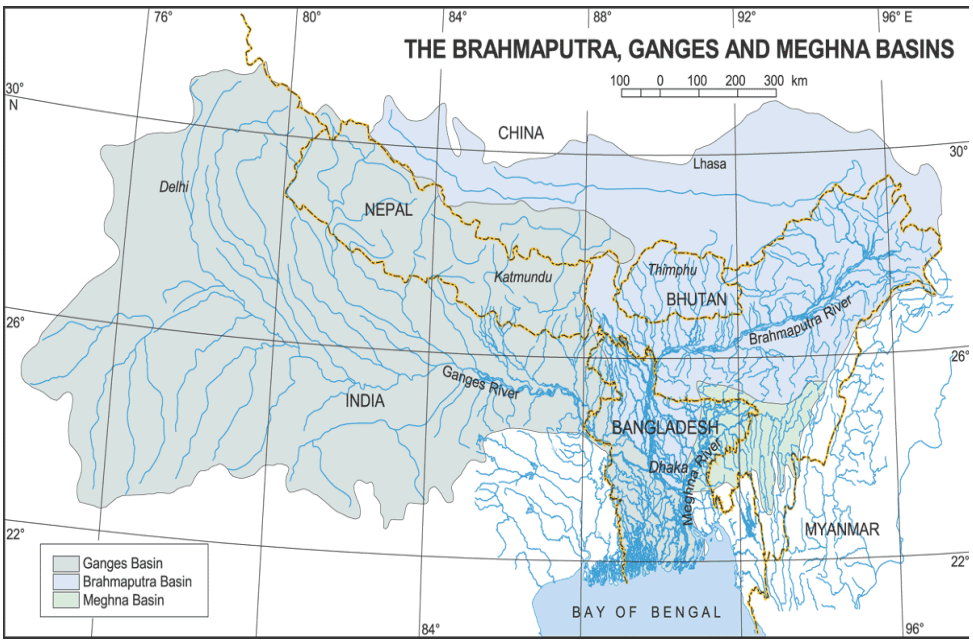


**Figure 2: The major river systems in Bangladesh and their drainage areas**

Rainwater is another source of surface water. In Bangladesh, rainfall varies widely not only from season to season but also from region to region. The mean annual rainfall varies from 1,400 millimeter (mm) in the western part to almost 5,000 mm in the northeast and is characterized by wide seasonal fluctuations. About 90 percent of the total rainfall occurs in the period between June and September.

The country is blessed with an abundance of groundwater in most of the country which is the principal source of domestic, industrial and irrigation supply. The shallow alluvial aquifers are recharged through rainfall and flooding, and almost replenished every year everywhere except in a few areas. Recharge to deeper aquifers is mostly available in the central and southern areas; however, its recharge is difficult to assess.

According to NWMP 2004, only nine percent of groundwater is required for water supply, 12 percent for the environment, and 79 percent for agriculture. The water balance studies indicate that, without consideration of water quality issues, there

should be no serious regional problem of groundwater availability for water supply. However, at the sub-regional level, recharge could be a constraint along the western border of Bangladesh, and especially beneath the High Barind. The lowering of groundwater, due to over-abstraction, in and around Dhaka city is a specific problem.

Of the two sources of water supply, surface water and groundwater, groundwater accounts for over 90 percent of the water supply sources in the country. Unlike groundwater, which most times does not need any treatment in Bangladesh, surface water always needs treatment.

## Importance of Water in Life

The WSS is vital for human health, generates economic benefits, contributes to dignity and social development, and helps the environment. Ensuring access to the WSS is also a moral and ethical imperative deeply rooted in the cultural and religious traditions of communities around the world. While advocating the human values, the World Water Council argues that dignity, equity, compassion and solidarity are the values shared all over the world, and that extending the WSS services to the poor households would largely contribute to promoting them. At the 64th General Assembly (July 28, 2010), the United Nations General Assembly declared safe and clean drinking water as a **human right** that is essential for the full enjoyment of the right to live.

The economic benefits of safe WSS are substantial. According to a WHO (2006) estimate, the benefits from investments in water and sanitation in Bangladesh would be over five-fold. A World Bank study estimates that the annual economic impact due to inadequate sanitation and water is 6.3 percent of the Gross Domestic Product (GDP) of Bangladesh.

## Paradigm Shift in Water Supply and Sanitation

### Water Supply

The traditional drinking water sources were mainly ponds, dug wells and rivers before the independence of Bangladesh in 1971. During the early 1970s, handpump tubewells were introduced into the rural areas at first on a large scale by the government to reduce frequent diarrheal outbreaks. The tubewells were provided free of cost, through the DPHE, to promote their use. Over time, the acceptance of this technology increased immensely and, in parallel, the capacities of the local market developed enormously. Only a nominal number of private tubewells were installed from the market during the 1970s by the individuals, but by now the private individuals have installed about 80 percent of the total tubewells in the

country, the majority of which are shallow handpump tubewells for individual households. The NGOs are also providing some tubewells mainly for the poor communities. Till now rural water supply is predominantly handpump tubewell based, and, in a minority of cases, some other water points like pond sand filters (PSFs), ring wells and rainwater harvesting units are used.

Before independence, only a handful of towns had piped water supply. The introduction of piped water supply into many district towns started in the 1980s, mainly through the DPHE. Gradually, the paurashavas are also becoming more involved in water supply service delivery. In response to the needs of the growing large cities, WASAs were established in Dhaka and Chittagong in 1963 and in Khulna in 2008. A WASA has recently been set up in Rajshahi. Piped water supply is being introduced to the small towns at the upazila-level.

### Sanitation

The progress in sanitation was rather slow during the 1980s and the 1990s; the sanitation coverage growth rate was mere one percent per annum. A national baseline survey conducted by the government in October 2003 revealed that only 33 percent of the population used hygienic latrines, 25 percent unhygienic latrines, and 42 percent having no latrine resorted to open defecation. Subsequently, the government launched a National Sanitation Campaign for rapid progress in sanitation. A national sanitation goal of achieving "100 percent Sanitation by 2010" was initially set. However, realizing the practical situation in 2009, the goal was subsequently revised to achieving "100 percent sanitation by 2013."

Since launching the National Sanitation Campaign in 2003, the government has taken several policy and operational decisions including earmarking 20 percent of the Annual Development Programme (ADP) grant to the LGIs. Importantly, the government encouraged a partnership approach with the LGIs, the NGOs, the DPs and the civil society, which has provided a wide platform for multi stakeholder partnerships and created a synergistic effect in increasing the sanitation coverage. As a result, sanitation coverage increased from only 33 percent in 2003 to 80 percent in 2009, according to basic service level (see below). More impressive was the reduction in open defecation practice from 42 percent to six percent during the same period.

## Coverage of Water Supply and Sanitation

In the absence of a clear and common definition of standards for the coverage of WSS, two types of Bangladesh standards have been considered in the SDP. In addition, the WHO-UNICEF Joint Monitoring Programme (JMP) standard is also considered for comparing coverages in other developing countries.

**Bangladesh Basic Service Level:** The water supply facilities by which, at least, the government's target of achieving water supply to all by 2011 and sanitation for all by 2013 would be achieved.

**Bangladesh Improved Standard:** The water supply facilities by which, at least, the targets of the National Policy for Safe Water Supply and Sanitation 1998 would be achieved, and sanitation facilities, at least, in accordance with the standard set in the National Sanitation Strategy 2005 would be achieved.

**JMP Standard:** The WSS facilities by which, at least, the targets of the Millennium Development Goals (MDGs) as defined by the JMP would be achieved.

The WSS coverage in 2010 according to the above standards are given in Table 1.

**Table 1: Water supply and sanitation coverage**

| Areas | Percentage of Coverage | | |
|---|---|---|---|
| | Bangladesh Basic Service Level | Bangladesh Improved Standard | JMP Standard |
| **Water Supply:** | | | |
| Urban | 82 | 34 | 93.3 |
| Rural | 71 | 51 | 83.8 |
| **Country** | **74** | **50** | **85.5** |
| **Sanitation:** | | | |
| Urban | 86.4 | 58.0 | 53.5 |
| Rural | 78.9 | 49.9 | 54.3 |
| **Country** | **80.4** | **51.5** | **54.1** |

When comparing the Bangladesh coverage with those in other developing countries in terms of the JMP standard, the water supply coverage is comparable with South Asia and the world (both 86 percent); the sanitation coverage is higher than South Asia (36percent) but lower than global (61 percent).

# 3. Sector Challenges

It is widely acknowledged that, over the past four decades, the WSS sector has made some great strides towards providing access to basic WSS services. Nonetheless, the coming two decades require the sector to equip itself to meet the emerging challenges of providing improved, equitable and sustainable services for all. The key challenges are summarized below.

## Dual problems of Water Management

Bangladesh is known as a land blessed with plenty of water. However, in the monsoon, there is too much water and, in the dry season, shortage of water creates a drought-like situation. These two extremes dominate and influence the overall planning and management of the country's water resources. The efficient use of surface water resources for Bangladesh, which is a lower riparian country, is constrained by several factors: i) withdrawal of water by upstream countries which has serious effects on the socioeconomic growth, environment and ecology, and fish habitations; ii) availability of too much and too little water in different seasons as well as its erratic occurrence; iii) an intricate network of alluvial rivers carrying huge annual discharge and sediment load, and unstable in nature leading to bank erosion; iv) inland navigation blockages due to siltation; v) increased water demand for domestic use; and vi) increase in salinity in the coastal belt.

## Growing Pace of Urbanization

Urban areas are growing at a rapid pace giving rise to various complexities. By 2035, more than half the people of Bangladesh will live in the urban areas. Cities and towns, particularly Dhaka and Chittagong, are characterized by high population density and growing economic activities, leading to heavy pressure on the available space, infrastructure and environment. These cities and towns are rapidly growing vertically, with many high-rise buildings, requiring high-capacity connections (delivering high volume of water) to serve large offices. These developments are putting pressure on the already stressed water supply and sanitation systems.

Further, about 35 percent people of the city corporations live in slums, and do so on only four percent of the land area. People in the low-income communities in cities and towns mostly lack basic urban services including the WSS. The sanitary condition in the urban slums is deplorable; only 8 - 12 percent dwellers have hygienic latrines. Most slum dwellers have no other option than to dispose in drains, open fields, roadsides or riverbanks.

## Limited Piped Water Supply Coverage in Urban Areas

The coverage by piped water supply is low. Only Dhaka has comparatively high coverage with piped water supply (83 percent) whereas the coverage in the majority of other cities and towns is far lower – about 40-50 percent. Water points like handpump tubewells are generally not appropriate for the large cities with high population density because of their low capacity, and also because they abstract water from the shallow aquifers which are vulnerable to contamination by the densely spaced septic tanks and latrine pits. Thus, the large cities have to rely on the piped water systems.

The urban coverage issue becomes more daunting considering that all the cities are also facing the shortage of water supply sources; groundwater is the major source of water supply. Aquifer yields to meet the growing demand for water in those cities have already become limited. As a result, the new source would mostly have to be surface water, which would, however, require higher investment than the groundwater-based systems would.

## Inadequate and Inappropriate Urban Sanitation

Providing adequate and appropriate urban sanitation is a major challenge. Conventional sewerage systems are absent in all urban areas except Dhaka where only 25 percent of the population is served by a sewer network. All other urban areas use onsite options like septic tanks, pit latrines, unhygienic latrines or none at all. Onsite options are difficult to manage in large cities in terms of safe sludge disposal and environmental pollution control. On the other hand, central solutions like sewerage systems face the challenges of densely populated areas, lack of space and geophysical inclination (except in Chittagong), and heavy traffic. Moreover, sewerage is expensive in terms of investment and operation and maintenance (O&M). Many buildings in the large cities, including high-rises, are not connected to any kind of sanitation system or their septic tanks are overflowing and discharging their effluent either in the drains or straight onto lakes, canals and rivers causing serious pollution and health hazards in the densely populated areas.

The desludging of the pit latrines and septic tanks and their safe disposal is a worrying environmental problem in the urban areas. Although the sanitation coverage in the urban areas is comparable to that in the rural ones, the negative impact is worse because of the high population density. With more people to live in the urban areas in the future and with increasing population density, the environmental situation will further degrade, especially in the urban slums.

In Bangladesh being mostly a flat country, drainage is also an inherent problem. Because of the concentration of heavy rainfall during the monsoons, the cities and the towns are regularly flooded. With the growth in urbanization, the increasingly built up areas also cause obstruction to the natural water flow. The volume of sullage water (kitchen, bath and wash water) from houses is increasing with urbanization. The construction of drainage systems in the urban areas is expensive and has not kept pace with urban development. Moreover, the present drainage system is not being utilized fully because of the poor O&M and disposal of wastes from roads by city authorities. The disposal of garbage and other wastes by the general public adds to the problem.

## Inefficient Operation and Maintenance

The O&M of the water supply system is inefficient, as reflected in high water losses or what is technically termed as Unaccounted for Water (UfW) which is estimated to be around 40 percent. Due to the lack of proper maintenance, the systems deteriorate quickly and experience shows that, within three - four years after completion of development works, many systems collapse. Many of the production wells remain nonfunctioning and the pipelines continue leaking. Only Dhaka can recover a small part of the investment cost whereas the other cities and towns can hardly recover the O&M costs.

Only Dhaka and Chittagong have water meters and a handful of other towns have a limited number of water meters; without water meters the proper assessment of water use and demand management is impossible. No city or town has 24-hour water supply. Dhaka supplies for about 22 hours per day, but there is a serious water crisis during the dry season. Other cities and towns can only supply for six - 12 hours per day. The water supply crisis is compounded by frequent power outages.

## Sliding Rural Water Supply Coverage

Rural water supply in Bangladesh faces the following three major challenges:

**Arsenic Contamination:** Bangladesh was considered to have achieved near universal safe water supply coverage (over 90 percent) in the beginning of the 1990 decade, but it was found that about 19 percent of the handpump tubewells were contaminated by arsenic (above Bangladesh standard of 50 parts per billion or ppb). This finding had vastly reduced the country's coverage of safe water supply. The population exposed to drinking water having arsenic contamination is estimated to be above 20 million (about 13 percent of the country's population). Recent studies have also revealed that about half of the exposed population is living in the severest affected area where more than 80 percent of the water source is contaminated by arsenic. About 37,000 arsenicosis patients had been officially recognized by the Director General of Health Services (DGHS) survey in 2009.

**Lowering of Groundwater Levels:** The withdrawal of groundwater for irrigation is leading to excessive fall in the groundwater levels in many parts of the country, particularly in the North-West and Central regions. As the water levels drop, the shallow tubewells in those areas cannot yield water, causing a serious threat to the present shallow tubewell dominant rural water supply system. The trend of the falling groundwater levels is continuing, and many deep set pump tubewells installed to draw water from the lower depths are also becoming nonfunctional in some areas.

**Gaps in Hard-to-reach Areas:** Bangladesh is a flat alluvial land and, generally, there is an abundance of groundwater sources for water supply. However, due to the geophysical and hydro-geological factors like frequent inundation, hilly areas and unavailability of suitable water sources, there are some hard-to-reach areas in the country where water and sanitation services cannot be provided easily. These areas include chars (river islands), *beels* and *haors* (swampy lands) and water-scarce areas, where no feasible water source, neither groundwater nor surface water, is available. With increasing population, there is a large and growing gap in providing the WSS services in such hard-to-reach areas.

## Difficulties in Climbing the Sanitation Ladder

The sanitation success in Bangladesh is largely credited to the Community-Led Total Sanitation (CLTS) approach that is jointly supported by the government and the NGOs. However, according to the Multiple Index Cluster Survey (MICS) carried out by the WHO and UNICEF, at present, about one-fourth of the pit latrines are with only slab, without water seal, flap or a lid; these latrines are not totally able to block disease transmission routes. Again, one-third of the households shares latrines. These shortcomings indicate that the sanitation level is presently in the early steps of the "sanitation ladder" (the sanitation ladder is used to explain the steps of improvements in the use of sanitation facilities).

Another major concern in the context of climbing up the sanitation ladder is the sustained use of latrines. Most of the latrines are single pit latrines and, once the pit is filled up, a new pit is required to be constructed and the slab needs to be placed over it or be connected to it. However, experience has shown that once the pit is filled up and the existing latrine cannot be used, there is a tendency in many households to revert to open defecation. The poverty level of such households basically hinders them from improving their sanitation facilities. Generally, most households that share latrines, practice open defecation or use unhygienic latrines are poor. The sanitation needs of the poor people will have to be addressed given that the WSS sector intends to achieve 100 percent sanitation coverage.

## Hygiene – the Weak Link in the Sector

The high levels of WSS coverage in Bangladesh have not necessarily been reflected in the public health and well-being of the people. The disease burden due to the use of unsafe water or inadequate supply of safe water is alarming. Diarrhea, dysentery, and pneumonia still remain the main causes of deaths of children in the country. Nearly 64 out of 1,000 children under five die each year; children suffer from three to five episodes of diarrhea each year and suffer for two - three days and sometimes for more than two weeks resulting in severe dehydration and malnutrition often leading to deaths. On an average, 188 per 1,000 persons suffer from illnesses of

which most are attributable to unsafe water and poor sanitation. In other words, the only provision of WSS facilities has not been effective in reducing the transmission of diseases. Health benefits are best achieved when water and sanitation interventions are combined with hygiene promotion.

Hygiene practices like hand-washing, particularly before food preparation and eating, and after going to the latrine or cleaning a child's bottom, are important for limiting the fecal-oral disease transmission as well as the practices related to the storage of prepared food and washing of dishes and utensils. Several hygiene promotion initiatives have been undertaken in Bangladesh over the last 30 - 40 years; however, a common approach towards hygiene promotion that should be followed by all stakeholders and projects is absent. Moreover, recent studies in Bangladesh show that, even when the hygiene knowledge is high, there is limited impact on health benefits as the actual practice is very low. The present hygiene promotion approach emphasizes hygiene knowledge, or germ-related messages, rather than good hygiene practices.

## Unsafe Water Dampening Health Benefits

The safety of supply water is mostly threatened by improper O&M of the water supply system as well as poor hygiene practices. Groundwater accounts for over 90 percent of water sources in both urban and rural areas and is regarded as microbially safe. However, studies have found that 29 percent of the shallow tubewells and nine percent of deep tubewells are contaminated by bacteria. The main factor that leads to contamination is the poor maintenance of tubewells and their surroundings. Moreover, safe water obtained from tubewells or service connections, in the case of piped water systems, may be contaminated during collection, carrying and in-house storage.

The piped water systems in the urban areas are generally characterized by leakages in the pipelines and fittings like sluice valves. Water is supplied during a few hours of a day only and, as such, there is no pressure in the pipeline during the non-supply hours. The absence of pressure in the pipelines allows contaminated water from the surface or even from drains and sewage from pit latrine and septic tanks to seep into the pipes through leakages. Therefore, in many piped supply systems, the water quality is also at high risk.

## Effects of Environment, Climate Change and Disaster

The physical environment comprising land, water and air changes over time through development, disasters, climate change and environmental degradation. These issues have strong interdependency – each influencing and being influenced by the others.

**Environment:** Water is an important component of the environment that makes significant contributions to human life, but the water sources, such as rivers, lakes, and ponds, are being polluted due to unplanned human activities. Contaminated surface water seeps underground and eventually pollutes the groundwater as well. Water pollution is severe in and around the large cities, particularly Dhaka and Chittagong. It occurs mainly due to inadequate facilities of treating sewage and industrial effluent water, especially from the tanneries. Due to the rapid growth in urbanization and industrialization, water pollution is feared to be much higher. Pit latrines, which are widely used in the rural areas, are generally flooded during the rainy season and spread fecal pollution to adjacent land and water bodies on a large scale.

**Climate Change:** At the global level, it is now indisputable that the climate is changing. Climate change makes the development challenges more complicated and particularly affects the developing countries severely. Bangladesh is identified as one of the worst victims of climate change. It is estimated that the change could affect more than 70 million people due to the country's geographic location, low elevation, high population density, poor infrastructure, high levels of poverty, and high dependence on natural resources.

Due to climate change, the shortage of safe drinking water is likely to become more pronounced in the country, especially in the coastal belt and drought-prone areas of the north-west region. It is also likely that the saline water boundary will be pushed further inland, and vast areas will face severe water crises in the future. The people now having access to fresh water will no longer enjoy this service. Due to more frequent cyclones and storm surges, huge volumes of saline water will come onto the land area and contaminate the freshwater ponds and other drinking water sources.

**Disaster:** The geographical location, land characteristics, multiplicity of rivers and the monsoon climate render Bangladesh highly vulnerable to natural disasters. Every year, floods inundate vast parts of the country with varying intensity. Flood water submerges and contaminates the tubewells and other water sources, and often washes the latrines away. Hygiene practice is constrained due to the absence of safe water, latrines and places for waste disposal. The recent cyclones, Sidor and Aila, are the two examples of extensive damages caused by natural disasters. The biggest challenge is the scale of disaster which leaves hundreds of thousands of people affected. Another issue is that most actions are taken only during the emergency and recovery periods; less attention is paid to the preparatory measures.

## Limited Research and Development

There is a pressing need for research and development (R&D) to provide solutions to some persistent problems in the WSS sector. Widespread arsenic contamination was

detected in tubewell water in the early 1990s, yet there is no practical solution. Excessive iron and manganese in the water from many tubewells are the other water quality problems that need to be resolved. Water supply coverage gaps remain in the hard-to-reach areas mainly due to the absence of appropriate technologies. The lack of appropriate sanitation technologies for the urban areas is also a burning issue. Further, there is a need to better understand the behavioral changes for designing more effective targeted hygiene promotion measures. In addition, new technology is required to combat the emerging problem of declining groundwater levels in vast parts of the country. Even when there is a strong need for innovation, the research activities in the WSS sector in Bangladesh are fragmented and limited to only few organizations. Further, there is shortage of personnel having skills in research methodology. The lack of institutional support and the dearth of equipment are other limitations.

## Diversities of Chittagong Hill Tracts

The Chittagong Hill Tracts (CHT) differs from the rest of Bangladesh in terms of history, topography, ethnic composition, social organization, religion and the way of life. About 1.16 million people living in the CHT make up about 50 percent ethnic minorities divided into 13 main ethnic groups. The institutional set-up of the CHT is quite different and more complex than that in the other parts of Bangladesh. Besides the national administrative system and the local government systems, there is a traditional system of tribal administration (Kingships of Chakma, Bomang and Maung). Following the CHT Peace Accord 1997, another parallel system for administration and development, that is, the CHT Regional Council and three hill district councils, were established.

The WSS coverage in CHT is lower than that in the rest of the country. According to JMP standard, water supply coverage is 59 percent and sanitation coverage 40 percent compared to the national coverage of 85.5 percent and 54 percent respectively. The hydrogeology is complex in the CHT, and finding suitable water sources is often difficult. It is not always possible to find water-bearing aquifers for round-the-year use or stream water nearby. Other than the handpump tubewells, alternative technologies, such as ring wells and gravity flow systems, are widely used. Due to the scarcity of drinking water sources, people have to fetch water from a distance. This is a significant burden, particularly for the women who have to collect water in the context of the hilly terrain.

Often sanitation is based on indigenous options like *Machang* (a type of hanging latrine). Open defecation is still widely practiced in many areas. The installation of conventional sanitation options is complicated due to difficult transportation and social practices. Hygiene practice in the CHT is very poor. Language is sometimes a barrier to communicating messages as some tribal people who do not know *Bangla*,

remain excluded from the national hygiene promotional campaigns through radio and television.

# 4. Sector Opportunities

Despite the challenges facing the WSS sector in Bangladesh, a range of ongoing and emerging political, socioeconomic, institutional and environmental development initiatives promoted by the government, both outside and inside the sector, has created an enabling environment and provided new opportunities for the sector to implement its policies, strategies and plans. The opportunities are described below.

## Supportive Sectoral, National and International Policies, Strategies, Plans and Goals

As highlighted earlier, at the sectoral level, a number of policies, strategies and plans already exist to guide and develop the sector. The SDP has undertaken a comprehensive review of the sector and recommended appropriate measures to respond to the changing needs of the sector.

At the national level, to accelerate the pace of poverty reduction and pro-poor growth, the government has prepared the second PRSP or NSAPR-II (Revised), FY 2009-11, entitled *Steps Towards Change*. The supporting strategies include: i) ensuring participation, social inclusion and empowerment; ii) promoting good governance; iii) ensuring efficient delivery of public services; iv) caring for the environment and tackling climate change; and v) enhancing productivity and efficiency through science and technology. While the effective implementation of all strategies is important, promoting good governance is central to all development sectors including the WSS sector. The NSAPR focuses, among others, on: i) reforming and strengthening the public service system; ii) reforming the legal and judicial system to ensure judicial help for the poor and the women; iii) the strengthening of local government; iv) improving project implementation capacity; and v) improving sectoral governance.

The government has also created a long-term vision for the development of the country which will be reflected in the long-term Perspective Plan (2010-2021). The Perspective Plan, under preparation, will set the development goals for the future and develop a course of action to achieve these goals by 2021, which will coincide with the Golden Jubilee of the Independence of Bangladesh.

The government aspires to the successful achievement of its long-term vision that will transform Bangladesh into a middle income country by 2021. It is estimated that the GDP growth, which was six percent in FY 2010, will rise to eight percent by 2013

and 10 percent by 2021. In the context of the WSS sector, this impressive GDP growth implies that people's purchasing power will rise as well triggering a demand for better services and technologies.

## Strong Political Commitment

To achieve the long-term vision, 12 sets of targets for different sectors have been set. One such target is **"***Ensure living accommodation for the entire population by 2015, supply pure drinking water for the entire population by 2011 and bring each house under hygienic sanitation by 2013.***"** This target indeed reflects the high priority or political commitment that the government attaches to the WSS sector in its development agenda.

## International Pledge

At the international level, of the eight MGDs adopted by world leaders in 2000, MDG 7 (Target 10) aims to halve the proportion of people without sustainable access to safe drinking water and basic sanitation by 2015.

## Access to Funds

At the WSS sector level, for the past five years, public sector budget allocations have increased steadily. Of the total national ADP, the allocation to the WSS sector was 2.3 percent in FY 2007 and 5.6 percent in FY 2011, which is more than a two-fold increase. In actual terms, it was BDT 6,734 million in FY 2007 and BDT 22,398 in FY 2011, which is again a more than three-fold increase. The donor contribution was about 50 percent of the total ADP allocation to the WSS sector during the same period. Given the government's commitment to develop the WSS sector, it is expected that the increasing trend of budgetary allocation will continue during the SDP implementation as well. Further, as demonstrated by the donors' active participation in the preparation of the SDP, the DPs will continue to support the sector.

The WSS sector is also eligible to access three recently established intra-sectoral funds, two of which are provided from the government's own resources: i) the PPP fund of BDT 25,000 million (equivalent to US$357 million); ii) Climate Change Fund of BDT 7,000 million (equivalent to US$100 million); and iii) Climate Change Resilience Fund of BDT 7,700 million (equivalent to US$110 million) with DPs' contributions.

## Experience of Health and Education Sector-wide Approaches (SWAp)

SWAp is a form of program-based approach applied at the sector level. It has been widely acknowledged in the development field that individual or discrete projects

usually only provide fragmented improvements which cannot be sustained after project termination. Recognizing the advantages of a SWAp, the LGD has decided, in principle, to adopt a SWAp for the WSS sector.

To date, there have been two SWAPs in Bangladesh: one in the health sector and the other in the primary education sector. The two programs present valuable lessons for designing a possible SWAp in the WSS sector. Globally, while the adoption of a SWAp in the WSS sector is a relatively new development, it has been initiated in a number of developing countries, such as Vietnam, Uganda and Kenya. In the context of Bangladesh, several important developments have already taken place in the WSS sector that would smooth out the initial challenges in transition from a project approach to a program approach. These developments, which are essentially key elements of a SWAp, include: (a) existence of national and sector policies and strategies for the WSS sector; (b) demonstrated ownership of adoption of the medium-term budgetary framework for financing activities of the WSS sector; (d) implementation of a system for effective coordination among the DPs, government ministries and agencies, and other sector stakeholders through the establishment of sector steering committees and a national WSS sector forum; and (e) the adoption of a partnership framework agreement between the GoB and the relevant DPs on providing support for Dhaka, Chittagong and Khulna WASAs.

### A Vibrant Private Sector

The private sector continues to make valuable contributions to the development of the WSS sector by supplying goods and services. Currently, the private sector installs around 300,000 handpump tubewells and one million latrines per year. In the rural areas, the supply of WSS facilities is dominated by the small-scale hardware market (about 80 percent of rural water supply and sanitation) and this trend is expected to continue and intensify in the near future to meet the ever increasing demand.

## Successful Community-based Approaches

The WSS sector has demonstrated a number of successful community-based WSS delivery approaches at the grassroots level that are supported by the LGIs and the NGOs. The approaches are being rolled out across the country and have also spread to other countries. A number of factors have contributed to this success, namely, strong social capital in the community, involvement of the community in all stages of the program, effective coordination and working relationship between the local government institutions and the NGOs, and appropriate choice of technology. Given the high unmet demand for WSS services, there is great potential for scaling up such approaches. Some successful approaches are: i) Community-led Total Sanitation (CLTS), which focuses on the behavioral changes needed to ensure sustainable

improvements and which is largely credited for the sanitation success in Bangladesh; ii) the Hygiene, Sanitation and Water (HYSAWA) project, the LGI-funded community-based program which is considered a new approach to decentralized rural WSS services; and iii) the urban slum community-based approach, which focuses on improving the right to water supply for slum dwellers without legal entitlement to land.

# 5. Action Points

The SDP has analyzed the challenges in the context of the opportunities and prepared a detailed road map for the implementation of the plan. The key action points of the road map have been broadly categorized into some major topics and are listed below. The detail road map is attached (Annex-3).

## Revamp Legal Instruments, Policies and Strategies

### ACTS AND RULES

- **Local Government Acts 2009 for City Corporation, Paurashava, Upazila Parishad and Union Parishad:** Ensure the LGD delegate more administrative and financial powers to the LGIs in particular, and delegate authority to the city corporations and the paurashavas for the smooth functioning of their water supply sections.
- **WASA Act, 1996:** Ensure the LGD delegate authority to increase water tariff from five percent to 10 percent.
- **Environmental Conservancy Act, 1995 and the Environmental Conservation Rules, 1997:** Ensure the LGD initiate amendments to the Environment Conservation Rules 1997 to revise the drinking water standards and the wastewater standards.
- **Bangladesh Water Act (Draft):** Incorporate specific measures for groundwater management; and, in parallel, prepare a National Groundwater Strategy.
- **Bangladesh Water Services Act (new):** Initiate the enactment of the Act that will, among others, establish the Water Supply Regulatory Commission in two phases: i) Water Supply Cell; and ii) the Commission.

### POLICIES AND STRATEGIES

- **National Policy for Safe Water Supply and Sanitation 1998:** Ignore any immediate revision of the Policy at present; however, consider a review after three - four years.

- **National Policy for Arsenic Mitigation and Implementation Plan 1994:** Separate the joint Implementation Plan for Arsenic Policy, and prepare sector-wise Implementation Plans for Water Supply (by LGD), Health (by MoH&FW), Agriculture (by Ministry of Agriculture) and Water Resources (Ministry of Water Resources).
- **Sector Strategies:** Consolidate the existing strategies and the ones under preparation into two strategies: i) National Urban Water Supply and Sanitation Strategy; and ii) National Rural Water Supply and Sanitation Strategy.

## Strengthen Capacities of the Institutions

- **Local Government Division:** Prepare a tripartite agreement between the LGD, the DPHE and the LGIs specifying their roles and responsibilities regarding the WSS services. Integrate the PSU as a permanent unit in the LGD organogram. Create specialized units like Climate Change, Environment and Disaster Management unit. Designate a focal person for the vulnerable groups and create positions of groundwater specialists in the sector agencies.
- **WASAs:** Implement the Policy Matrix as contained in the Partnership Framework Agreement between the GoB and the DPs.
- **DPHE:** Restructure the DPHE to address the increased and new roles and responsibilities, particularly to provide more support for the urban subsector. Strengthen the DPHE capacity based on a comprehensive human resources development plan, logistics, improved systems, procedures and guidelines. Prepare projects to provide capacity and investment support for the LGIs under the tripartite agreement.

- **City Corporations and Paurashavas:** Enhance the capacities of the water supply sections and provide them with more autonomy in the long run to operate in commercial terms.

- **Union Parishads:** Formulate committees at the village level with support from the NGOs or at their own initiatives, and establish their linkage with the formal committees (WATSAN committees). Improve the working procedures and accounting, and gradually take over the roles of planning, implementation and monitoring of the rural water and sanitation programs.

## Establish Sector Coordination and Monitoring Mechanism

- **Streamline the existing committees and groups.** At the national level, ensure the NFWSS remain functional and have under it: (i) Policy and Monitoring Support Committee; and (ii) Technical Support Committee. At

the local level, integrate the functions of the Union Tubewell Site Selection Committee and the Union Arsenic Mitigation Committee into the Union WATSAN Committee. Similarly, integrate the functions of the arsenic mitigation committees into the different WATSAN committees at the Upazila and district levels.

- **Expand the Secretaries' Committee on Arsenic** to Secretaries' Committee on Water to include water resources and WSS issues.
- **Establish a Sector Information System** for the WSS sector.
- **Facilitate coordination at the local level by the LGIs:** Ensure the LGIs coordinate the planning and development activities of government projects and those of other sector partners like the NGOs and the private sector, and also the intra-sector partners like the health assistants at the ward level of the MoH&FW.

## Expand Coverage, Increase Service Levels and Ensure Sustainability

- **Rehabilitate and upgrade the systems and improve the operational efficiencies** by increasing connections, introducing zone management, water demand management, and improving operational efficiencies including collection efficiency.
- **Expand and improve the piped water supply coverage in the urban areas.** Extend piped water systems in the existing cities and towns and gradually introduce them in all upazila headquarters and other urban centers. Ensure the extension of sewer lines and improvement of sewerage treatment, and appropriate onsite sanitation options with safe handling and disposal of sludge.
- **Ensure inclusive planning and development.** Ensure the participation of and provide services for the low income communities and other vulnerable groups, such as women, children, persons with disabilities, and indigenous communities. Consider the diversities of the CHT and the need for different technological options and service standards.
- **Focus on bridging the rural WSS coverage gaps** in the arsenic-affected areas (also see below), places where the water table is becoming lower, the CHT and other hard-to-reach areas like the coastal belt.
- **Take arsenic mitigation measures.** Take immediate actions for arsenic mitigation in 188 unions with very high arsenic contamination and low safe water coverage and in 212 unions with high arsenic contamination and low safe water coverage, as identified by DPHE-JICA Study 2010.
- **Consider hygiene promotion the backbone** of all water and sanitation interventions and incorporate it into national strategies and guidelines.

- **Climb up the sanitation ladder** by encouraging people to use higher levels of technologies with sustained use.
- **Support research and development.** Scale up R&D activities in the development projects. Build partnerships with international institutes and create a network of national and international professionals.

## Manage Water Resources

- **Consider surface water availability factors** like possible upstream withdrawal, seasonal variations, and increased salinity due to climate change when designing the surface water treatment plants, especially for large cities.
- **Establish a water quality monitoring system** including water quality surveillance, and delineating the roles and responsibilities of the local and national government institutions.
- **Integrate the Water Safety Plan** into the service delivery guidelines and scale up its implementation.

## Stimulate the private sector

- **Provide technical and management support** to strengthen the existing businesses and develop new businesses like sludge management in the urban areas.
- **Follow a transition path** to public-private partnership (PPP) in the urban water supply by starting with simple types, such as service contracts and management contracts.

## Safeguard Environment, Tackle Climate Change and Manage Disasters

- **Build capacities of the sector institutions and communities** to protect the environment, adapt to climate change and build resilience for disaster management.
- **Pursue and coordinate water pollution control measures** especially in areas around the large cities.
- **Take early preparedness steps,** such as mobilizing staff, vehicles and supplies during the warning period. Construct at least a few disaster-resilient water and sanitation installations in the disaster-prone areas..

## Ensure Increased Funding

- **Consult with Planning Commission and the External Resource Division**

for increased government budget allocation and financial assistance from the DPs.

- **Explore funding from inter-sectoral sources,** such as Climate Change funds and the PPP fund.

# 6. Sector Investment

The investment required to achieve the objectives of the SDP, in accordance with the policies and strategies set therein, has been assessed. Investment requirements have been calculated for the short (FY 2011-15), medium (FY 2016-20) and long (FY 2021-25) terms.

### Development Scenarios

As a result of the implementation of the SDP, the level of development that the WSS sector is expected to achieve would mainly depend on: i) factors internal to the WSS sector like the budget allocated to the WSS sector by the government and other DPs, implementation of the sector capacity building programs set in the SDP, and people's participation in the sector development activities; and ii) factors external to the WSS sector, including the country's macroeconomic and political stability and the status of governance as well as the impact of the global economic situation.

In order to accommodate the range of impacts of the internal and the external factors, three different development scenarios are considered as given below. Each scenario is described in terms of two parameters: service level and operating efficiency; the first indicating the quality of the WSS facilities and user convenience, and the second indicating the level of operating performance of the technology options and/or service providers.

- **Scenario 1 (*base case*)** – which is the present sector condition characterized by low service level and low operating efficiency
- **Scenario 2 (*moderate*)** – moderate service level and moderate operating efficiency
- **Scenario 3 (*high*)** – high service level and high operating efficiency

The investment costs of the three scenarios are determined. Given the global and country economic trends and the planned development policies and strategies of the government, it is expected that the development pace of the WSS sector would be higher than the past trend of development. Thus, in this consideration of the prospects of budget availability, Scenario 2 (moderate) is considered to be feasible and is proposed in the SDP.

## Physical Targets in the SDP Terms

In accordance with the government's goals on the WSS, in the short term, 100 percent people would be provided with water through piped water supply, tubewells or other water points. The piped water supply by the WASAs would raise the coverage to 70-90 percent from its present 40-83 percent (Khulna 40 percent and Dhaka 83 percent). The piped water supply coverage would be 70-80 percent from the present 40 percent in the city corporations, 70 percent from the present 40 percent in the large paurashavas, and 50 percent from the present 30 percent in the small paurashavas. In the rural areas, water supply would still be predominantly tubewell based, with some increase in piped water systems but, importantly, the access to arsenic mitigation technologies would be ensured. Similar to water supply, 100 percent people would be provided with sanitation facilities ranging from sewerage systems to pit latrines. The sewerage coverage would be increased from its present 35 percent to 50 percent in Dhaka and a sewerage system would be initiated in the second city – Chittagong.

In the medium term, the three cities with WASAs would receive 100 percent coverage through piped water supply. The city corporations would also receive 100 percent piped water supply coverage, the large paurashavas 80 percent, and the small paurashavas 70 percent. In addition, piped water supply will be introduced in urban centers having 40 percent coverage and about 5-10 percent of villages will have piped water supply. The sewerage coverage will be increased to 55 percent in Dhaka, and 10 percent in Chittagong Innovative offsite sanitation technologies like small bore sewerage systems with treatment facilities and decentralized sewerage treatment plants would be introduced on a limited scale in Khulna and other city corporations. The rural areas will see an increase in the use of advanced sanitation options, about 10 percent use of septic tanks.

In the long term, piped water supply will be further expanded with the large paurashavas having 90 percent, the small paurashavas having 85 percent, the urban centers having 40 percent and rural area having 10-20 percent coverage. Sewerage coverage would be increased to 60 percent in Dhaka, 30 percent in Chittagong, 25 percent in Khulna and 10 percent in the city corporations. Sewerage systems would be introduced in the large paurashavas having about 10 percent coverage.

## Sources of Funds

The SDP will be implemented in collaboration with all sector partners. Accordingly, the investment cost would also be shared by the WSS sector partners, broadly classified into three groups:

- **public sector** (including the ADP allocations by the government and the

DPs, and revenue generation by the WSS utilities like WASAs and paurashava water supply sections);

- **private sector** (including community contribution as cost sharing, private household investment and private entrepreneurs); and
- **NGOs** (including direct funding from the donors and their own funds).

The required investment costs, broken down into different categories and in the three SDP terms, are given in Table 2.

**Table 2: Investments required in different categories and terms of the SDP (BDT million)**

| Categories | Short Term (2010-2015) | Medium Term (2016-2020) | Long Term (2021-2025) | Total |
|---|---|---|---|---|
| Urban water supply | 165,220 | 280,467 | 269,257 | 714,945 |
| Urban sanitation | 133,999 | 173,004 | 209,361 | 516,364 |
| Rural water supply | 44,687 | 42,824 | 55,111 | 142,622 |
| Rural sanitation | 36,504 | 27,726 | 27,360 | 91,590 |
| **Totals** | **380,410** | **524,021** | **561,089** | **1,465,520** |

The total investment cost is about BDT 1,465,400 million (equivalent to US$21,000 million) for the 15-year SDP period, and about BDT 380,500 (equivalent to US$5,400 million) for the short term. The majority of investment in the short term would come from the ADP allocations (55 percent) and from the revenues generated by the WSS utilities (23 percent). The contribution of private households (for example, for their own tubewells and latrines) is also significant (18 percent). The NGOs would contribute about two percent. No significant contribution is expected from the private sector in the short term (however, three percent and five percent contributions are expected in the subsequent terms, respectively).

## Budget Availability

There has been a sharp increase in the budget allocation, especially in the last two years but there is no significant increase in the Mid-Term Budget Framework (MTBF) allocation in FY 2011 and FY 2012. The total budget available in the short term was assessed taking the MTBF allocations for the first two years and projected for the next three years (FY 2013-15) based on the present allocation trends, that is, considering average MTBF allocations for FY 2011 and FY 2012 and with a five percent annual increase. The ADP allocations required for the WSS sector in the short term of the SDP are BDT 210,456 million against the total budget availability of BDT 110,528 million, which means a budget gap of 47 percent (about US$1,400

million). In summary, ***the ADP allocations have to be doubled.*** It is expected that half the budget gap would be minimized by the government and half by the DPs.

## 7. Implementation Plan

The LGD has given the PSU the responsibility to facilitate, coordinate and monitor the SDP implementation. The government will incorporate the PSU, which is presently functioning as a project, into the LGD's regular organogram by 2014 to mainstream the WSS sector's policy support functions. The Thematic Groups established to provide expert inputs during SDP preparation will remain functional and guide and coordinate the implementation of the respective themes. The existing NFWSS would continue to be the main platform for the stakeholders' participation and, under this Forum, several committees and groups consisting of various stakeholders would function. The sector agencies---the DPHE, WASAs, city corporations, paurashavas and union parishads---will implement their respective components of the SDP. The NGOs and the private sector are expected to align their activities within the SDP framework.

## 8. Risks and Mitigation Measures

It is likely that, during the implementation of the SDP, a variety of risks, ranging from low to medium, might adversely affect the pace and quality of implementation. It is envisaged that the SDP implementation would not be impacted by any risk that could be categorized as high. Nonetheless, even if the other two types of risks, medium and low, are minimized, the impacts would be within manageable limits due to the application of mitigation measures. For example, of the two medium type risks, the capacity building of the LGD and the agencies under it, particularly the DPHE and the LGIs, might not materialize. However, the likelihood of such an occurrence is minimal as the LGD and the different agencies under it, such as the DPHE and WASAs, had signed an Agreed Statement committing to undertake the reforms and capacity building measures. It is thus expected that the agencies under the guidance of the LGD would take up the capacity-building programs on a priority basis. The capacity-building of the LGIs depends on the government's policies and political considerations and, as such, may take some time. However, the SDP suggests that, meanwhile, the government agencies and the NGOs should provide support to bridge the capacity gaps in the WSS sector.

# Annex- 1

## Thematic Groups and their Members

| Sl. no. | Thematic Area | Group Members/Agencies (focal agency in bold) |
|---|---|---|
| 1. | Water Supply and Sanitation | **DPHE** and **UNICEF** |
| 2. | Hygiene | **UNICEF,** and Directorate of Health |
| 3. | Environmental Sanitation | **DPHE**, BRAC, and WaterAid |
| 4. | Sector Reforms and Institutional Reforms | **PSU**, ADB, World Bank, DPHE, WASA, LGED, and DANIDA |
| 5. | Water Safety Plan and Water Quality Monitoring | **WHO**, DPHE, and JICA |
| 6. | Arsenic Mitigation | **JICA/UNICEF,** DPHE, WHO, WSP, Ministry of Health, Ministry of Agriculture, and Ministry of Water Resources |
| 7. | Drinking Water Resource Management | **DPHE**, WASAs, WARPO, Ministry of Water Resources, The World Bank and Embassy of the Kingdom of the Netherlands (EKN) |
| 8. | Lagging Behind Areas | **WaterAid**, LGED, and NGO-F |
| 9. | Cross-cutting Issues | **WSSC,B**, DPHE, WSP, WAB, NGO–F, and DANIDA |
| 10. | Research and Development (R&D) | **ITN**, DPHE, and WASA |
| 11. | Monitoring and Evaluation | **PSU**, DPHE, WASA, and LGED |
| 12. | Climate Change and Disaster Response | **UNICEF,** DPHE, Disaster Management Bureau |

# Annex- 2

## Members of Peer Review (Not in order of seniority)

| Sl.no. | Name |
|---|---|
| 1. | Mr. Ainun Nishat, Vice Chancellor, BRAC University (BRACU) |
| 2. | Mr. Feroze Ahmed, Professor, Civil/Environmental Division, BUET |
| 3. | Mr. Habibur Rahman, Pro-Vice Chancellor, BUET |
| 4. | Dr. Md. Mujibur Rahman, Professor, Civil Engineering, Environmental Engineering Division, BUET |
| 5. | Mr. S. M. Ihtishamul Huq, Project Director, GoB-5 Completed, DPHE |
| 6. | Mr. Shamsul Gafur Mahmud, National Professional Officer, Water, Sanitation & Health Environment, WHO |
| 7. | Mr. Hans Spruijt, Chief, Water and Environmental Sanitation (WES) Section, UNICEF |
| 8. | Mr. Mark Ellery, Water and Sanitation Specialist, WSP |
| 9. | Mr. Rafiqul Islam, Senior Project Implementation Officer, ADB |
| 10. | Dr. Md. Khairul Islam, Country Representative, WaterAid Bangladesh |
| 11. | Mr. S. M. A. Rashid, Executive Director, NGO Forum for DWSS |
| 12. | Mr. Kazuyuki SUENAGA, Arsenic Mitigation Technical Advisor, JICA Expert, JICA |

# Annex- 3

## Road Map for SDP Implementation

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | Short Term (2010-15) | Medium Term ( 2015-20) | Long Term (2020-25) |
| **LEAD RESPOBSIBILITRY: LGD (supported by PSU)** | | | | | |
| **ACTS** | | | | | |
| Local Government Acts 2009 for city corporations, paurashavas, upazila parishads and union parishads | LGD to delegate more administrative and financial powers to LGIs<br><br>LGD to delegate authority to the city corporations and the paurashavas to:<br>i) recruit staff,<br>ii) fix water tariff, and<br>iii) demarcate, protect and maintain water bodies by issuing executive orders or approval of the regulations formulated by the paurashavas and the city corporations | DPHE / LGIs | Government Order on staff recruitment issued by 2012.<br><br>Regulations reviewed and approved by 2012 | Reviewed and updated | Reviewed and updated |
| 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 | Government order issued by 2011 | Reviewed and updated | Reviewed and updated |
| Environmental Conservation Act 1995 and the Environmental Conservation Rules 1997 (MoEF) | LGD to initiate amendment to the Environment Conservation Rules of 1997 to:<br>i) revise drinking water standards,<br>ii) include more detailed surface water standards,<br>iii) revise point source discharge standards, and<br>iv) include sewerage treatment plants in the | MoE&F | Amendment proposal sent by LGD to MoEF by 2012<br><br>Amendment initiated by MoEF and finalized by GoB by 2013 | - | - |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| | industrial emission standards | | | | |
| Bangladesh Water Act 2008 (Draft prepared by MoWR) | LGD to send proposal to incorporate specific measures for groundwater management as follows:<br>i) defining the water-stressed areas to include groundwater quantity and quality issues, and<br>ii) ii) Issuing licenses for well drilling, abstraction, etc. | MoWR | Proposal sent by the LGD to the MoWR by 2012<br><br>To be completed by 2013 | | |
| | In parallel, the LGD will assist the MoWR in preparing a National Groundwater Strategy. | DPHE / WARPO | Draft strategy submitted by the DPHE to the LGD by 2011<br><br>Strategy approved by the MoRW by 2012 | | |
| Bangladesh Water Services Act | LGD to draft and initiate the enactment of the Act that will, among others, establish Water Supply Regulatory Commission | WASAs & DPHE | Draft Act sent to Cabinet Division by the LGD by 2012<br><br>Act enacted by 2013 | Reviewed and updated | Reviewed and updated |
| | Water Supply Regulatory Commission to be established in two phases:<br>i) Water Cell; and<br>ii) Water Supply and Sanitation Regulatory Commission | LGD/PSU | Proposal for the WC and the WRC sent to Cabinet Division by the LGD by 2012<br><br>Water Cell established by 2012 | WRC established by 2017 covering WASAs and city corporations | WRC established covering the WSS sector by 2025 |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | Short Term (2010-15) | Medium Term ( 2015-20) | Long Term (2020-25) |
| **POLICIES** | | | | | |
| National Policy for Safe Water Supply and Sanitation 1998 | No immediate revision required | DPHE | Present policy used | Reviewed and updated | Reviewed and updated |
| 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 | Separation proposal sent by LGD to Secretaries' Committee/ Cabinet Division by 2011<br><br>IP separated by 2011 | Reviewed and updated | Reviewed and updated |
| | LGD to prepare the Implementation Plan for Water Supply (IP-WS) | DPHE | Draft IP-WS sent to Secretaries' Committee/ Cabinet Division by 2011<br><br>IP-WS approved by 2012 | Reviewed and updated | Reviewed and updated |
| **STRATEGIES** | | | | | |
| National Urban Water Supply and Sanitation Strategy<br><br>National Rural Water Supply and Sanitation Strategy | Review the existing strategies and those under preparation, and consolidate them into the two strategies: urban and rural | DPHE | Draft strategies prepared by the LGD by 2012<br><br>Strategies approved by the LGD by 2012 | Reviewed and updated | Reviewed and updated |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | Short Term (2010-15) | Medium Term ( 2015-20) | Long Term (2020-25) |
| **INSTITUTIONAL STRENGTHENING** | | | | | |
| LGD capacity strengthening | Integrate the PSU as a permanent unit in the LGD organogram | LGD | Proposal sent by the LGD to Cabinet Division by 2012<br><br>PSU set-up transferred to revenue head by 2014 | Reviewed and updated | Reviewed and updated |
| | Prepare Tripartite Agreement between the LGD, the DPHE and the LGIs specifying their roles and responsibilities regarding WSS services. The DPHE to initiate the process and the LGD to issue executive orders | DPHE | Proposal sent by the DPHE to the LGD by 2011<br><br>Executive Order issued by the LGD by 2011 | Reviewed and updated | Reviewed and updated |
| **COORDINATION AND MONITORING** | | | | | |
| Streamlining the existing committees and groups | The NFWSS at the national level and under it (i) Policy and Monitoring Support Committee; and (ii) Technical Support Committee | PSU | Proposal sent by the PSU by 2011<br><br>Committees restructured by 2011 | Reviewed and updated | Reviewed and updated |
| | At local levels, integrate the functions of Union Tubewell 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 the upazila and district levels. | DPHE | Proposal sent by DPHE to LGD by 2011<br><br>Local level committees streamlined by 2012 | Reviewed and updated | Reviewed and updated |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| Sector Information System (SIS) | Establish a dedicated SIS for the WSS sector | DPHE WASAs, LGIs, NGO, and private sector | Key monitoring Indicators agreed upon by stakeholders by 2011<br><br>National survey done by 2012<br><br>SIS established by 2013 | Reviewed and updated | Reviewed and updated |
| **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 | Negotiations with the DPs completed by 2012<br><br>Fund flow and monitoring mechanisms established by 2013, in line with the principles of aid alignment (Paris Declaration) | Sub-SWAps implemented in i) cities with WASAs, ii) city corporations and paurashavas, iii) rural areas, and iv) CHT | SWAp established at WSS sector level |
| **THEMATC AREAS** | | | | | |
| **Research and Development** | Create a dedicated "R&D Fund" to increase funding and create opportunities for interested researchers. | PSU | Proposal prepared by the PSU by 2011<br><br>Agreement reached by sector stakeholders by 2012<br><br>R&D Fund established by 2012 | Reviewed and updated | Reviewed and updated |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| **Climate Change, Environment and Disaster Management** | Operationalize the 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 disaster. | DPHE | Proposal prepared by the DPHE send to LGD by 2011<br><br>Disaster response system for the WSS sector functional under new Standing Order | Reviewed and updated | Reviewed and updated |
| **Public-Private Partnership (PPP) (Urban Utilities)** | Appoint a facilitating agency (e.g., IIFC or consultants) to build capacity of the LGD/PSU and sector institutions to gradually introduce the PPP and support preparation of the PPP guideline as mentioned in the National Policy of WSS 1998. | PSU | Facilitating agency appointed by 2012<br><br>PPP guidelines prepared by 2012 | | |
| | Follow a transition path to the PPP by first starting with simple types like service contracts and management contracts. | WASAs, DPHE, city corporations and Paurashavas | Contract guidelines prepared by WASA, the DPHE and the LGIs by 2012<br><br>Service contracts and some management contracts on a pilot basis initiated by 2013 | Management contracts scaled up | Higher forms of PPP initiated |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| **LEAD RESPOBSIBILITRY: Common to Sector Agencies (WASAs, DPHE & LGIs)** | | | | | |
| **Surface Water** | In the context of increased future need, particularly in large cities, consider the availability of surface water carefully in terms of factors like seasonal variations, possible upstream withdrawal and increased salinity due to climate change. | BWDB WARPO | Coordination mechanism with BWDB and WARPO established with sector agencies by 2011<br><br>Guideline for surface water use, including artificial recharge, prepared by sector agencies by 2012 | Reviewed and updated | Reviewed and updated |
| **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 | Proposals sent by agencies to their ministries by 2011<br><br>Groundwater specialist position included in agency organogram by 2012 | Reviewed and updated | Reviewed and updated |
| **Vulnerable Groups** | Designate the focal persons for vulnerable groups in concerned WSS sector agencies for coordination and technical guidance<br><br>Undertake a learning approach and prepare guidelines, design tools and specific approaches for the different vulnerable groups | NGOs | Focal persons designated by 2011<br><br>Guidelines and tools prepared by agencies by 2012 and mainstreamed by 2013 | Reviewed and updated | Reviewed and updated |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| **Research and Development (R&D)** | Scale up R&D activities in the development projects and disaster management programs.<br><br>Build partnerships with international institutes and create a network of national and international professionals.<br><br>Strengthen institutional capacities of the WSS agencies through organizing training and guidance programs, and arranging equipment and proper testing facilities. | PSU, DPHE | R&D capacities and budgets increased<br><br>Successful R&D mainstreamed<br><br>Network made operational by 2012 | R&D capacities and budgets increased<br><br>Successful R&D mainstreamed | R&D capacities and budgets increased<br><br>Successful R&D mainstreamed |
| **Climate Change, Environment and Disaster Management (CCEDM)** | 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 the DPHE. Build staff capacities, including training on related subjects. | DPHE, WASAs | Proposal sent to the LGD by agencies by 2011<br><br>Specialized units on CCEDM established in sector agencies by 2012 | CCEDM capacities strengthened | CCEDM capacities strengthened |
| | Pursue and coordinate water pollution control measures especially in areas around the large cities which are the major contributors to pollution.<br><br>Build capacities of sector institutions (WASA, DPHE & LGED) and communities to protect environment, adapt to climate change and build resilience for disaster management. | DOE | Inter-ministry coordination meetings held regularly<br><br>Agencies cooperating with the DOE and other agencies for prevention of river pollution in large cities<br>Training programs conducted | Capacities of WSS sector institutions and communities strengthened | Capacities of WSS sector institutions and communities strengthened |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| | Take early preparedness steps, such as mobilizing staff, vehicles and supplies during the warning period. Ensure that the water and sanitation facilities are available in strategic locations like cyclone shelters. | DMB | Office Orders issued by agencies by 2011<br><br>Preparedness steps ensured and routinely monitored by agencies | Preparedness steps ensured and routinely monitored by agencies | Preparedness steps ensured and routinely monitored by agencies |
| | Construct at least a few disaster-resilient water and sanitation installations in the disaster-prone areas that are so that the local people can use those during emergency.<br><br>Coordinate with local administration, NGOs and other agencies, specifically through the local disaster management committees (DMCs) for effective response | DMB/NGOs | Coordination and monitoring mechanisms developed and followed by agencies<br><br>Some WSS installations established by 2012 | WSS installations increased and improved | WSS installations increased and improved |
| **LEAD RESPOBSIBILITRY: WASAs** | | | | | |
| **INSTITUTIONAL STRENGTHENING** | | | | | |
| Policy Matrix | Implement the Policy Matrix as contained in the Partnership Framework Agreement between the GoB and the 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 | Policy Matrix implemented according to the agreed upon schedules plans | Policy Matrix assessed and updated | Policy Matrix assessed and updated |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| Corporate Image | Involve the customers more in planning, implementing, operating and maintaining the WSS programs and facilities.<br><br>Create a positive corporate image by highlighting the customer excellence in the provision of services, and maintenance of transparency and accountability in its operations. | City corporations, Rajuk, Chittagong Development Authority (CDA), Khulna Development Authority (KDA) | Customer satisfaction survey reports prepared by WASAs and reviewed by the LGD<br><br>One-stop customer service units established by 2012 | Customer survey reports prepared by WASAs and reviewed by the LGD | Customer survey reports prepared by WASAs and reviewed by the LGD |
| **IMPLEMENTING AGENCY: DPHE** | | | | | |
| **INSTITUTIONAL STRENGTHENING** | | | | | |
| Restructuring DPHE | Restructure the DPHE to address the increased and new roles and responsibilities with regard to:<br>– more support to the urban subsector;<br>– climate change, environment and disaster management;<br>– R&D and groundwater monitoring;<br>– private sector participation;<br>– Hygiene promotion<br>– planning and implementation, including social issues like involvement of communities and vulnerable groups; and<br>– institutional strengthening support to the LGIs | LGIs | Concept note on restructuring and capacity building submitted by the DPHE to the LGD by 2011<br><br>DPHE restructures organogram approved by GOB and functioning by 2013 | DPHE organogram reviewed and updated | DPHE organogram reviewed and updated |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| DPHE organization and HR development | Strengthen the DPHE capacity based on a comprehensive HRD plan, logistics, improved systems, procedures and guidelines to carry out its new roles.<br><br>Increase the capacities and outreaches of water-testing laboratories and field testing facilities. | LGD | First Capacity Building Program (TPP/ DPP) implemented by 2015 | Second Program implemented by 2020 | Third Program implemented by 2025 |
| Support to the LGIs | Prepare a program to provide capacity and investment support to the LGIs under the tripartite agreement:<br><br>– Support the city corporations and the paurashavas to: i) prepare master plans, ii) build operational and financial management capacities, iii) install water meters, iv) take repair, wastage and leakage control and upgrade the water supply systems, v) take consumer care and build customer relationship, and vi) improve management of sludge from septic tanks and pit latrines;<br><br>– support the union parishads to plan, implement and monitor rural water supply and sanitation. | LGD | First Capacity Building and Investment Program implemented by 2015 | Second Capacity Building Program implemented by 2020 | Third Capacity Building Program implemented by 2025 |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | Short Term (2010-15) | Medium Term ( 2015-20) | Long Term (2020-25) |
| **THEMATC AREAS** | | | | | |
| **Water Quality** | Review the existing water quality-testing protocol and develop a comprehensive protocol.<br><br>Establish a water quality-monitoring system including water quality surveillance, and delineating the roles and responsibilities of local and national government institutions. | BCSIR / BSTI /LGIs/ NGOs | A water quality-testing protocol developed by DPHE by 2011<br><br>A water quality-monitoring system integrated in the SIS by 2014 | Reviewed and updated | Reviewed and updated |
| **Arsenic Mitigation** | Take immediate actions for arsenic mitigation in 188 unions with very high arsenic contamination and low safe water coverage, and in 212 unions with high arsenic contamination and low safe water coverage, as identified by DPHE JICA Study 2010. | LGIs/ NGOs | Priority projects completed in 188 and 212 unions by 2013 | Arsenic mitigation projects implemented in other areas | Arsenic mitigation projects implemented in other areas |
| **Water Safety Plan (WSp)** | Prepare an integrated Information, Education and Communication (IEC) Guideline for WASH promotion which will include Water Safety Plan, hygiene promotion, proper operation and maintenance of water and sanitation facilities.<br><br>Build capacities of the 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 | IEC Guideline prepared by the DPHE by 2011 and mainstreamed in existing and new projects by 2012<br><br>Training program for master trainers conducted by 2012 | Review and improved | Review and improved |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| **Hygiene Promotion** | Prepare an Integrated IEC Guidelines as mentioned above. | MOH&FW/ LGI/ ITN/ NGOs | As in Water Safety Plan above | As in Water Safety Plan mentioned above | As in Water Safety Plan mentioned above |
| | Coordinate with the sector partners like the NGOs and the private sector and inter-sector partners like health assistants at ward level of the MoHFW. | MoH&FW/ LGI/ ITN/ NGOs | Stakeholders' meetings held regularly<br><br>Project implementation and monitoring conducted in collaboration with MoH&FW | Reviewed and updated | Reviewed and updated |
| **Public-Private Partnership** | In the rural market:<br>– build capacities of the rural entrepreneurs to face the present and future challenges; and<br><br>– Use the social, administrative and legal instruments of the LGIs to monitor and ensure the quality of services delivered at the household level. | LGIs/ private sector | Private sector capacity building program implemented and regularly monitored by the DPHE and the LGIs | Private sector capacity building program implemented and regularly monitored by the DPHE and the LGIs | Private sector capacity building program implemented and regularly monitored by the DPHE and the LGIs |
| | Small Scale Service Provider:<br>– Continue piloting and assessing different rural piped water supply models with an objective to scale up appropriate models.<br><br>– Provide technical and management support to strengthen the existing businesses and develop new businesses like sludge management in urban areas. | LGIs/private sector | Lessons learned from pilots reviewed and scaled up<br><br>Participation of small-scale service providers increased | Participation of small-scale service providers increased | Participation of small-scale service providers Increased |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | **Short Term (2010-15)** | **Medium Term ( 2015-20)** | **Long Term (2020-25)** |
| **Environment, Climate Change and Disaster Management** | Formulate an integrated CCEDM Guideline, in line with the EIA, to incorporate climate change adaptation, environment pollution control and disaster risk reduction for planning and implementation of WSS development projects. | DMB/NGOs | CCEDM Guidelines prepared by the DPHE and submitted to the LGD and the DMB by 2011<br><br>Guidelines incorporated in the existing and new projects by 2012 | Reviewed and updated | Review and updated |
| **LEAD RESPOBSIBILITRY: City Corporations and Paurashavas** | | | | | |
| **INSTITUTIONAL STRENGTHENING** | | | | | |
| Capacity building of Water and Sanitation Sections | Enhance the capacities of the PWSS of city corporations and paurashavas in the short run through, among others,: i) staff recruitment and training, ii) establishment of separate accounts for the PWSS and introduction of double entry accounting system.<br><br>Provide the PWSS with more autonomy in the long run to operate on commercial terms. | LGD, DPHE | First, Capacity Building and Investment Program implemented by 2015 | Second, Capacity Building Program implemented by 2020 | Third, Capacity Building Program implemented by 2025 |
| Participation and customer care | Evolve the TLCC to oversee and ensure accountability of the operations of the PWSS.<br><br>Engage the customers more in planning, implementing, operating and maintenaning the local WSS facilities.<br>Create a positive corporate image by highlighting customer excellence in the provision of services, and maintaining transparency and accountability in its operations. | | TLCC established in all city corporations and paurashavas by 2012<br><br>One-stop customer care unit established in city corporations and paurashavas by 2013 | Reviewed and updated | Reviewed and updated |

| Items | Actions Points | Associate Responsibility | Indicative Milestones | | |
|---|---|---|---|---|---|
| | | | Short Term (2010-15) | Medium Term ( 2015-20) | Long Term (2020-25) |
| **LEAD RESPOBSIBILITRY: Union Parishads** | | | | | |
| **INSTITUTIONAL STRENGTHENING** | | | | | |
| **Union Parishads** | Formulate village-level committees either with support from the NGOs or by their own initiatives, and establish their linkage with the formal committees (WATSAN Committees). | LGD/ DPHE/ NGOs | Village committees formed by 2012 and participating in union WATSAN committees for local planning, implementing and monitoring the WSS facilities | Reviewed and updated | Reviewed and updated |
| | Improve the working procedures and accounting by participating in capacity-building programs arranged by the DPHE and other organizations.<br>Gradually take over the roles of planning, implementation and monitoring of the rural water and sanitation. | DPHE | First, Capacity Building and Investment Program implemented by 2015 | Second, Capacity Building Program implemented by 2020 | Third, Capacity Building Program implemented by 2025 |