

Mainstreaming of Disaster Risk Reduction into GOB Schemes on Water and Sanitation

Gap Analysis and Way Forward



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Secretary
Disaster Management and Relief Division
MoFDM, GoB

FOREWORD

Bangladesh is exposed to natural hazards, such as, floods, river erosion, cyclones, droughts, tornadoes, cold waves, earthquakes, drainage congestion/water logging, arsenic contamination, salinity intrusion etc. Natural disasters such as floods, cyclones, and drought are becoming more frequent and devastating in terms of economic and infrastructural losses and damages and health hazards (outbreak of vector- and water-borne diseases).

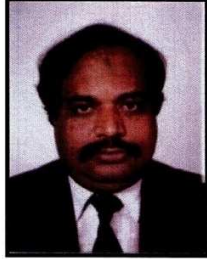
As a result of number of positive initiatives of Government of Bangladesh during last couple of decades in form of setting up robust institutional and regulatory framework, there has been significant achievement in the area of disaster management particularly in reducing death toll, however economic losses continue to rise due to multiple hazards and climate change. Various studies indicates that major floods and cyclones in last decade have caused about 3.5% negative influence on national GDP of Bangladesh, thus country is losing its valuable development gains.

In this context, the Disaster Management Vision of the Government of Bangladesh is to reduce the risk of people, especially the poor and the disadvantaged, from the effects of natural, environmental and human induced hazards, to a manageable and acceptable humanitarian level, and to have in place an efficient emergency response system capable of handling large scale disasters. Post disaster consequence management and pre disaster risk reduction are two important factors to achieve this vision. Mainstreaming of disaster risk reduction into development planning has already been set as one of the important priorities by GoB under its current regulatory framework to facilitate and promote disaster resilient development.

I am happy that National Alliance for Risk Reduction and Response Initiatives (NARRI) consortium has undertaken this important study on "Mainstreaming of Disaster Risk Reduction into GoB schemes on Water and Sanitation; Gap analysis and way forward". I am sure that the outcome of this study provides a good direction and support towards the mainstreaming of disaster risk reduction into water and sanitation sector. I urge all relevant stakeholders to go through this report and apply the recommendations while planning, implementing and monitoring of existing and new water and sanitation programs.

I would like to express my appreciation to NARRI consortium for undertaking this study which would hopefully be helpful to demonstrate effective DRR mainstreaming into water and sanitation sector.

Dr. M Aslam Alam



Chief Engineer
Department of Public Health Engineering
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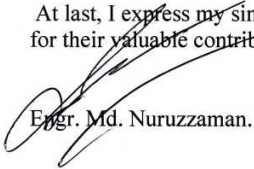
FOREWORD

I am pleased to know that National Alliance for Risk Reduction and Response Initiatives (NARRI) consortium has undertaken this important study “Mainstreaming of Disaster Risk Reduction (DRR) into GoB schemes on Water and Sanitation; Gap analysis and way forward”.

The geographical location, land characteristics, multiplicity of rivers and the monsoon climate render, Bangladesh highly vulnerable to natural hazards. Water and Sanitation being one of the most important basic human needs always at high risk of disasters and put affected people at huge public health risks. Department of Public Health Engineering (DPHE) has already identified natural disasters as one of the risks while implementing Sector Development Plan (2011-25) for water and sanitation and fully committed to address these risks effectively. DPHE has a key role in the event of natural disasters to provide humanitarian assistance and recovery support in terms of water supply and sanitation to reduce suffering of the affected people. It is noted that, after the flood in 2004, DPHE took initiatives with the support from UNICEF to provide disaster resilient water supply and sanitation technologies under a flood rehabilitation project to reduce the suffering and loss of investment during disaster. Afterwards, DPHE also address the DRR in the recently approved DPPs which are now under implementation. As a part of the climate change adaptation activities, DPHE, in a limited scale implementing disaster resilience WSS technologies in the field. However, present endeavor is to be strengthened to meet the future challenges as regards to mitigation of risk caused by disaster.

I am happy to learn that this study reviews range of issues at various levels including planning, implementation and monitoring of water and sanitation programme in context of disaster risks. It is also noteworthy that study outcome are based on both desk research and field findings. The proposed framework and recommendations on mainstreaming of disaster risk reduction in case of water and sanitation seems to be a praiseworthy initiative. This will be helpful to adopt the appropriate policy, strategy and planning for the development project considering DRR. Hope that the outcome of this study would certainly be supportive for DPHE and other concerned stakeholders including development partner for promoting disaster resilient water and sanitation in Bangladesh.

At last, I express my sincere thanks to NARRI consortium and other concerned organizations for their valuable contributions in the study.


Engr. Md. Nuruzzaman.

PREFACE

Water and Sanitation being one of the basic and important needs of every human being, always gets affected due to natural disaster, thus, impact public health of communities living in disaster prone areas in Bangladesh. Many of the post disaster assessment in past have revealed negative impact on public health, directly affects productive working days, thus livelihood loss & negative multiplier effect. Though Bangladesh has achieved reasonably well in terms of drinking water (86% coverage) and sanitation (80% coverage), however the reality on the ground apparently differs significantly in terms of sustainable functioning of these facilities. The recurrent and intensifying impacts of disasters & climate change in the country are putting a huge strain on the water and sanitation facilities, a reality that is not reflected accurately in the current reporting and/or research work. Most of the far-reaching water & sanitation programmes in the country do not include disaster resilience features, which means that the facilities are damaged or washed away every time a disaster strikes, but never repaired or rebuilt.

The outcome of the study "Mainstreaming of Disaster Risk Reduction into GoB schemes on Water and Sanitation; Gap analysis and way forward", commissioned by National Alliance for Risk Reduction and Response Initiatives (NARRI) consortium suggest a framework for mainstreaming of disaster risk reduction (DRR) into existing and new schemes / programme of water and sanitation of government of Bangladesh. The study outcome also suggest various tools and guidelines to provide necessary practical support to responsible officials of GoB involved in planning, decision making, implementing, monitoring etc. to ensure DRR mainstreaming into WATSAN.

The study has been conducted in a comprehensive manner that includes thorough analysis of relevant secondary literature, field survey, dialogue with all responsible bodies / officials from DPHE, Ministry of Planning, Local Government Division, Disaster Management and Relief Division, I/NGOs, Disaster Management Committee (DMCs) at local level, local communities living in disaster prone areas and affected in past etc. We hope and request all concerned including GoB officials / departments / ministries, donor community, I/NGOs to refer this useful resource while planning and implementing their existing and new WASTAN programme.

NARRI consortium would like to acknowledge the sincere efforts of entire team of ACS International involved in this assignment and has put an excellent effort to come out with this useful resource. NARRI consortium also expresses its gratitude to officials from DPHE, LGD and planning commission for critically reviewing the study outcome and providing valuable suggestions. We would also like to extend thanks to Additional Secretary, DMRD for his guidance and support. Finally we would like to appreciate and extend gratitude to all those (DMCs and local communities) who provided all relevant information for the better analysis.

NARRI Consortium, Bangladesh

www.narri-bd.org

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This study report is a product of information, and opinions provided by many people engaged at national, Upazila, Union and Village levels. Our sincere appreciation goes to all persons who took part in this study and contributed their knowledge and ideas which are presented in this report.



ACRONYM AND ABBREVIATIONS

ACS	Appreciative Consulting Services
ADB	Asian Development Bank
ADP	Annual Development Programme
APDS	Asia Pacific Disaster Report
BBS	Bangladesh Bureau of Statistics
BCAS	Bangladesh Center for Advanced Studies
BCPR	Bangladesh Country Progress Report
BDT	Bangladesh Taka
BDHS	Bangladesh Demographic and Health Survey
BIDS	Bangladesh Institute of Development Studies
BRAC	Bangladesh Rural Advancement Committee
BUET	Bangladesh University of Engineering Technology
CAP	Community Action Plan
CRA	Community Risk Assessment
CCA	Climate Change Adaptation
CCVA	Climate Change Vulnerability Assessment
CHT	Chittagong Hill Tract
CDMP	Comprehensive Disaster Management Programme
CHP	Community Hygiene Promoter
CLTS	Community Led Total Sanitation
DAM	Dhaka Ahsania Mission
DARF	Damage Assessment Report of Flood
DFID	Department for International Development
DG	Director General
DG ECHO	European Commission Directorate General for Humanitarian Aid
DIPECHO	Disaster Preparedness ECHO
DMB	Disaster Management Bureau
DMRD	Disaster Management and Relief Division
DOHS	Defence Officers' Housing Society
DPHE	Department of Public Health Engineering
DPP	Development Project Proforma/Plan
DRA	Disaster Risk Assessment
DRR	Disaster Risk Reduction
DTW	Deep Tube-well
ECNEC	Executive Committee of National Economic Council
EIA	Environmental Impact Assessment
ERD	External Resources Division
FGD	Focused Group Discussion
GAR	Global Assessment Report
GKS	Gano Kallyan Sangstha
GoB	Government of Bangladesh
HFA	Hyogo Framework for Action
HIES	Household Income and Expenditure Survey
HYSAWA	Hygiene, Sanitation and Water
IEC	Information Education Communication
IIED	International Institute of Environment and Development

IMED	Implementation, Monitoring and Evaluation Division
INGO	International Nongovernmental Organization
INTAN	INSTITUT TADBIRAN AWAM NEGARA (The National Institute of Public Administration)
IPAM	Implementation Plan for Arsenic Mitigation
IPCC	International Panel on Climate Change
JMP	Joint Monitoring of Progress
KII	Key Informant Interview
Km/h	Kilometer per hour
LFA	Logical Framework Analysis
LGD	Local Government Division
LGED	Local Government Engineering Department
LGIs	Local Government Institutions
M&E	Monitoring & Evaluation
M&EP	Monitoring & Evaluation Plan
MDG	Millennium Development Goal
MICS	Multiple Indicators Cluster Survey
MIE	Monitoring, Inspection and Evaluation
MMS	Manab Mukti Shangtha
MoFDM	Ministry of Food and Disaster Management
MoLGRD	Ministry of Local Government, Rural Development and Cooperatives
MTBF	Mid Term Budgetary Framework
NARRI	National Alliance for Risk Reduction and Response Initiatives
NCSSWSS	National Cost Sharing Strategy for Water Supply and Sanitation
NEC	National Economic Council
NGO	Non-governmental Organization
NPAM	National Plan for Arsenic Mitigation
NPDM	National Plan for Disaster Management
NPIPAM	National Policy and Implementation Plan for Arsenic Mitigation
NPR	National Progress Report
NPSWSS	National Policy for Safe Water Supply and Sanitation
NSAPR II	National Strategy for Accelerated Poverty Reduction II
NSS	National Sanitation Strategy
NWP	National Water Policy
O&M	Operation and Maintenance
PATC	Public Administration Training Centre
PCM	Project Cycle Management
PD	Project Director
PEC	Project Evaluation Committee
PECM	Poverty, Environment and Climate Mainstreaming
PIC	Project Implementation Committee
PIO	Project Implementation Officer
PIPWU	Partnerships for Improving the Performance of Water Utilities
PLA	Participatory Learning and Action
PMC	Project Management Committee
PMU	Project Management Unit
PPD	Programmes for People's Development
PPSWSS	Pro Poor Strategy for Water Supply and Sanitation
PRA	Participatory Rural Appraisal
RRAP	Risk Reduction Action Plan
PSC	Project Steering Committee

PSF	Pond Sand Filter
PSU	Policy Support Unit
R&D	Research & Development
RISHILPI	A local NGO
RRCAP	Risk Reduction Community Action Plan
RWHS	Rain Water Harvesting System
SAE	Sub Assistant Engineer
SC	Steering Committee
SAARC	South Asian Association for Regional Cooperation
SCF	Save the Children Fund
SD	Sustainable Development
SDP	Sector Development Plan
SFA	SAARC Framework for Action
SFYP	Sixth Five Year Plan
SHEWA-B	Sanitation, Hygiene Education and Water Supply in Bangladesh
Sidr	Cyclone that occurred in 2008 at South-Western Part of the Country
SOCMOB	Social Mobilization
SOD	Standing Orders on Disaster
SRWSP	Special Rural Water Supply Project
SST	Swallow Shrouded Tube-well
STW	Shallow Tube-well
ToR	Term of Reference
TW	Tube Well
UBCF	Union Behaviour Change Facilitator
UDMC	Union Disaster Management Committee
UHPF	Union Hygiene Promotion Facilitator
UNDP	United Nations Development Programme
Unicef	United Nations International Children Emergency Fund
UNISDR	United Nations International Strategy for Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
UP	Union Parishad
UST	Unnyan Shahojogy Team
UWSC	Union WatSan Committee
UZWSC	Upazila WatSan Committee
UZP	Upazila Parishad
UZWSC	Upazila WatSan Committee
VGWP	Vetting Guide for WatSan Project
VSST	Very Swallow Shrouded Tube-well
WASH	Water Sanitation and Hygiene
WatSan	Water & Sanitation
WPT	Water Purification Tablet
WS	Water and Sanitation
WSDR	WatSan Disaster Risk
WSDRA & AP	WatSan Disaster Risk Assessment and Action Plan
WSDRR	WatSan Disaster Risk Reduction
WSP	Water Sanitation Programme
WSRRM	WatSan Resource and Risk Mapping
WSS	Water Supply and Sanitation
WSCRA	Water Sanitation Community Risk Assessment

EXECUTIVE SUMMARY

Bangladesh has achieved reasonably well in terms of extending people's access to drinking water and sanitation. Despite its achievement, reality on the ground apparently differs significantly in terms of sustainable functioning of these facilities. Both the MDG Progress Report-2009 and Global Assessment Report 2010 (GAR II 2010) indicate that the MDG achievement of WatSan in Bangladesh needs extra attention. The recurrent and intensifying impacts of disasters and climate change in the country are putting a huge strain on the water and sanitation facilities. A recently conducted BIDS study (Islam N. 2011) divulges that including WatSan loss of infrastructure the highest among others caused by disaster; especially by flood. Therefore, the people's sustainable access to improved WatSan is facing a grave risk of jeopardy. Achieving WatSan MDG and GoB targets would face a robust challenge if disaster risk reduction of WatSan is not seriously considered now and onward. Recognizing the crucial links between HFA-2005-2015 and achievement of WatSan MDG, UNISDR put forward:

"Access to safe drinking water and sanitation (WSS) services is a basic human right, thus DRR is a must to protect such a right. WSS is a key sector in advancing the goals of HFA and should not be overlooked when addressing the challenge of DRR as part of SD and critical factor for MDGs achievements."

Although in line with the HFA GoB policies suggest mainstreaming of both *Risk Reduction* and *Consequence Management* into water and sanitation, but most of the far-reaching water and sanitation programmes on the ground are yet to include systematic analysis and intervention towards WatSan Disaster Risk Reduction.

Within the overall operation of DIPECHO this study was commissioned by National Alliance for Risk Reduction and Response Initiatives (NARRI); a national level consortium consisting of six leading INGOs working in Bangladesh. The overall goal of this study was to contribute to ensure that WatSan programmes of GoB are disaster resilient, thus complement commitment of Government of Bangladesh towards achieving Millennium Development Goal (MDG) number 7 on "Ensuring Environment Sustainability" and priority 4 under Hyogo Framework for Action (HFA) on "Reduce the Underlying Risk Factors". Specific objectives of the study were:

- To establish evidence based learning for the need of DRR mainstreaming into selected rural focused water and sanitation programme of Government of Bangladesh in view of achieving relevant MDG targets and HFA priority.
- To identify to what extent GoB policies of mainstreaming DRR are implemented through the project cycle operation of WatSan projects; gaps and their reasons. and
- To find out probable ways to minimize those gaps and ensure mainstreaming of DRR into WatSan project in compliance with GoB policy suggestions.

The study reviewed two national scale WatSan projects including a GoB and a donor funded namely Special Rural Water Supply (SRWSP) Project (6th phase of GoB funded regular project) and Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) project of DPHE. Three field areas of the study included Kazipur Upazila of Sirajganj; a Char exposed to river flood and erosion in the year 2007, Satkhira Sadar Upazila of Satkhira district; a coastal area exposed to salinity & drainage congestion flooding in the year 2011 and Sariatpur Upazila of Sariatpur district; a flood plain exposed to Sidr 2007. In data generation and gathering, the study ensured exchange and

supplementation between secondary and primary as well as both quantitative and qualitative data. A multidisciplinary study team conducted an extensive review of documents while a total of 364 persons covering National, Upazila, Union and Ward/Village level stakeholders were engaged as respondents. Primary data were generated through application of participatory methods and instruments. Several participatory tools were applied to generate primary data through face to face interaction between the Study Team and stakeholders met. Multiple data generation techniques included sample study, key informant interview, direct observations, focused group discussions, cluster wise WatSan Resource and Risk mapping, and role performance scoring. Based on a framework data were consolidated into information sets at National, Upazila, Unions and Village level. Triangulating all sets of information the findings were developed.

Achieving WatSan MDG & DRR

WatSan MDG for Bangladesh is to achieve 89% population's access to safe drinking water and 70% population's access to improved sanitation by the year 2015. The study finds two reasons posing a serious challenge to achieve MDG and GoB targets. These are achieving accelerated rate of coverage and push back of WatSan by disaster damage. According to the MGD progress report 2009 during last 20 years Bangladesh has made 0.4% yearly progress for the people's access to safe drinking water and 0.75 % for sanitation. Achievement of MDG by 2015 demands an accelerated coverage rate of 0.55% for drinking water and 3.55% for sanitation. The study put forward that only acceleration of coverage rate would not help achieve MDG without having disaster resilient WatSan Facilities because since the year 2009 rural WatSan situation did not improve, instead, the coverage has fallen down in areas affected by disasters, especially by flood.

The study areas which were affected by flood experienced a severe jeopardy of access to the safe drinking water for a period of 2 to 3 months and massive damage of sanitation facilities. About 96% latrines became non-functional among which about 50% were damaged. Study area which was affected by Sidr 2007 without flooding did not experience jeopardy of access to drinking water but partial damage of 33% ring-slab latrines occurred. In all three study communities due to the pressure of post disaster recovery even after a period of four years people could not move from basic standard to the next higher stage of the sanitation ladder but went one step backward. Percentage of HHs with unhygienic and no-latrines has again increased. About 30% ring-slab latrines are being used at present by the study community which are broken and no more hygienic. Areas in Sirajganj district affected by flood 2007, instead of moving up from the 51% (MICS reports-2009), at present about 50% population have access to safe drinking water, denotes fall down of coverage. In Satkhira area flood 2011 caused severe crisis of accessing safe drinking water for a period of three months while Sidr 2007 did not push back access to safe drinking water. The fall of people's access to improved sanitation is alarming. In Sirajganj area flood caused 21% deviation of coverage; in Satkhira 27% by flood 2011 and 20% decline of ring-slab latrine usages in Sariatpur area.

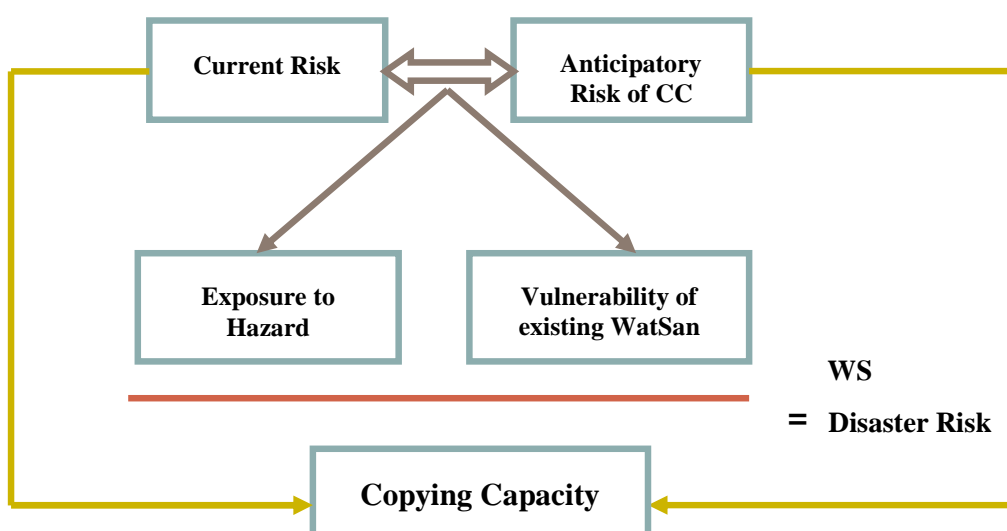
Consequences and negative effects of WatSan Disaster are found multi-pronged, one related to another and it affected women more severely than men. Extremely unhygienic environment, severe loss of poultry resources, increase of livestock diseases, acute scarcity of safe drinking water, increase of diseases and illness, sufferings from anxiety, huge work burden for rebuilding WatSan facilities and extra cost were the effects of WatSan disaster.

Various reasons such as inadequate disaster friendly WatSan facilities, weak structure, inadequate maintenance and renewal, poor quality of materials altogether put across high vulnerability of existing WatSan facilities to be damaged by hazards. Community capacity to manage adverse WatSan conditions and their impacts is low. Frequent and intense exposure, high vulnerability of existing hardware facilities and low community coping capacity altogether denote a very high risk of

rural WatSan Disaster. Further, Bangladesh is currently ranked as the most climate-vulnerable country highlighting the increased susceptibility in terms of flood, drought, and storm surge and salinity ingress. Most respondents held the view that exposure to the same hazards as previous magnitude WatSan disaster would be much higher than the previous ones. Mainstreaming DRR into WatSan is urgent not only for achieving WatSan MDG but also achieving others MGDs.

WatSan DRR: GoB Policy and Execution Gaps

NPDM 2010-2015 firmly states the Disaster Management Vision of the Government of Bangladesh which is to reduce the risk of people, especially the poor and the disadvantaged, from the effects of natural, environmental and human induced hazards, to a manageable and acceptable humanitarian level, and to have in place an efficient emergency response system capable of handling large scale disasters. Bangladesh has conceptualized a model to guide disaster risk reduction and emergency response management efforts. This model includes both current Disaster Risk and Anticipatory Risk of Climate Change in analysis and action. Founding on the government's national level model of DM, the Study Team put forward the following perspective of conceptualizing and understanding WatSan Disaster Risk:



Towards mainstreaming DRR into WatSan scheme/project GoB provides policy guide in terms of both content and process. Content wise the policy suggestion is to include both Risk Reduction & Consequence Management. For the process major sets of policy suggestions are:

- Participatory disaster risk assessment and planning process of project development;
- Promotion of decentralized community participatory and self-reliant process; and
- Inclusion of participatory monitoring and evaluation.

It may not hold the view that GoB WatSan project at the past did not do anything about WatSan DRR. Several WatSan projects of GoB had/have provisions of raising tube-wells during flood, emergency water supply and vector control, and related services to reduce secondary health impacts. However, these provisions and activities were mostly related to consequence management, one of the parts of DRR. Among two sample projects studied SHEWA-B includes construction of some elevated tube-wells and latrines. The SRWSP has provision for emergency preparedness and response such as raising TWs and vector control. Provisions or interventions related to post disaster

reconstruction of disaster resilient facilities are not included as in-built part of these projects. The major gap of provisions is non-inclusion of strategies and activities related to GoB policy suggestions of process which is crucial to build community coping capacity towards reducing WatSan Disaster Risk. Review of GoB policy execution on a Project Cycle Management (PCM) depicts:

At the design: GoB policy suggests designing a WatSan project through participatory assessment of current disaster risk as well as anticipatory risk of climate change. Implementation gap of this policy is gigantic. None of the sample projects reviewed was designed though participatory disaster risks assessment of WatSan.

At appraisal: For the appraisal and approval it appears as imperative that a DPP is appraised and evaluated to examine whether it has included GoB policy suggestions on the content and process stated earlier. As per the present terms of reference of the Project Evaluation Committee (PEC) a DPP is examined from the aspect of financial, economic, environmental and technical viability but DRR is not included.

At implementation: With regard to implementation, GoB policy suggestions are to apply strategies that enhance community capacity development through community participation and self-reliance as key to preparedness, response and recovery. GoB policy also suggests making decision and implementation through LGIs with a priority to non structural mitigation measures such as Community WatSan Disaster Preparedness and Awareness Raising activities. Of the two projects studied, SHEWA-B includes functional participation approach in which local volunteers and community members participate in Behaviour Change Communication activities for hygiene behaviour promotion. Again, SHEWA-B provided orientation to the local WatSan Committee members on their roles and responsibilities in relation to GoB circular. SRWSP lacks interventions related to policy suggestions. However, none of the projects included objectives and activities as deliberate intent for community capacity development towards WatSan disaster preparedness, response and recovery. Inclusion of policy suggestion as operational strategies in a DPP unavoidably becomes a precondition thus implementation of policies starts from the DPP design. As projects were not yet designed involving policy suggestions thus implementation was redundant. UZPs and UPs did not receive any directives from the national level to facilitate multi stakeholder's participatory analysis and action process. In most cases UZWCs and UWCs are not active and functional enough to perform assigned roles in normal time. WS wing of LGD is yet to roll out training programmes on WSDRR for actors engaged in WatSan through NILG.

At Monitoring & Evaluation: GoB policy suggests application of participatory monitoring and evaluation approach. This policy would have been implemented if explicit objectives related to WSDRR were included in the project design. None of the projects studied was designed from the perspective of WSDRR thus no effort was made to involve DRR indicators in the monitoring and evaluation. However, though not related to WSDRR but SHEWA-B project applies PRA tools in monitoring behaviour changes as well as changes related to WatSan facilities. Enormous gap exists in terms of project specific M&E design and application; specially M&E of Process & Effectiveness. M&E framework and plan are not an identical and explicit section of the existing DPP. The development of systematic project M&E framework and tools are yet to be in place. Upazila level DPHE or LGED are not introduced with participatory baseline survey involving local community in M&E. IMED is more concerned about cost rationalization rather than providing inadequate attention to verify achievement of objectives and result. PIC & PSC review the progress in terms of activity implementation, but less on quality of process, results and sustainability.

Operation & Maintenance: There are gaps in O&M of WatSan facilities. The study finds ongoing two national scale project studied as cases having extremely inadequate provision of O&M. Performance monitoring of installed hardware is weak due to non-availability of resources.

Reasons of Gaps

The reasons of above-stated gaps are not absolutely located at the level of project cycle management but they have their extended roots at sectoral policies, strategies and guides. The main reason is that the national level DM policies are yet to be translated at the sector and relevant government agencies dealing with WatSan issues of the country. Specific reasons behind prevailing gaps are:

Lack of conceptual clarity on WSDRR: Several policies and strategies prepared at the past on WS sector lack clear concepts of defining WatSan Disaster Risk and Risk Reduction. There is absence of clear definition of WatSan Disaster Risk Reduction. Lack of shared concepts of WSDRR is one of the reasons of the prevailing gaps.

Inadequate integration of DRR in WS sector policies and plans: Except VGWP - 2009 that has included partial perspective of WSDRR none of the WS sector policies and plans include explicit propositions towards WSDRR. Although it is an approved tool but VGWP - 2009 was not applied for WS DPP design and appraisal. The DPHE perspective Plan 2011-2021 sets four objectives in which DRR into WS is not included. Inadequate integration of DRR in WS sector policies and plans is one of the reasons of prevailing gaps towards mainstreaming DRR into a WS DPP.

Absence of policy accorded strategy: Absence of DRR policy accorded sectoral strategy is another reason of the prevailing gaps. At the national level NSAPR II proposes to include strategies and activities related to WSRR and Consequence Management (including CCA). This strategy has not been converted yet as sectoral strategy.

Absence of methodological guide: Gaps of policy execution are caused by the absence of methodological guidelines. Although the government has provided very appreciative policy suggestions but there are ample gaps in implementation on the ground. One of the main reasons is that the policy suggestions are provided in the forms of what *should be and what to comply* without supportive operational strategies for the actors involved. Absence of the following methodological guidelines discourages mainstreaming DRR into WatSan:

- Methodological guide to resource and service mobilization;
- A coordinated intervention sharing guide;
- Guidelines for multi-stakeholder strategic planning and coordinated operation;
- Transparent and well-defined operational guide for O&M;
- Planning guidelines for special regions and context such as Char, Haor and Coastal;
- Guidelines for GO-NGO collaborative model of local level facilitation

Lack of adequate tools: Gaps in policy execution and role performance of staff and actors are also caused by the absence of needed tools at various stages of a WatSan project cycle. Tools related to DPP design, appraisal and approval, implementation as well as M&E are yet to be in place. Absence of the following tools is discouraging actors at various levels to perform their desired roles to comply with policy suggestions:

- A revised DPP proforma including DRR criteria
- WatSan Risk Assessment and CAP

- Revised progress report format that includes information of damage of latrines, disaster friendly latrines and TWs as well as status of disaster preparedness
- Participatory monitoring & evaluation

Inadequate capacity development input: Compliance to the policies demands new set of understanding and skills among staff at DPHE and other departments involved in WSDRR. Institutional mechanisms and input to the capacity development on needed understanding and skills among staff engaged from the national to local level are extremely inadequate.

Shortage of required person power and financial resources: Relevant government departments at national and local level are suffering from inadequate person power and financial resources, Government polices suggest that WatSan DPP should be developed through local level risk assessment. These risk assessment activities have to be conducted before a DPP is prepared and approved. But at present there is no budgetary allocation for these pre-DPP design activities. This is one of the examples to convey that there is gap in policy complied budgetary alignment and resource allocation.

Inadequate readiness to offer disaster resilient hardware options: Unpredictable behaviour of hazards and lack of disaster resilient hardware technologies are the reasons of prevailing gaps.

Further there are cross-cutting issues which serve as reasons behind gaps are:

- Lack of political commitment;
- Lack of monitoring of policy execution;
- Less emphasis on community participatory process; and
- Absence of genuine bottom up planning process and real empowerment of LGIs.

Opportunities in Bridging the Gaps

The study observes that major GoB policy suggestions have come into being at the mid of 2010. Thus, it is not unusual to have gaps and challenges on its way forward but certainly there are enormous opportunities for bridging the gaps. These opportunities are:

- Favourable support context: MDG, HFA, United Nations Framework Convention on Climate Change (UNFCCC), SAARC Framework for Action (SFA) 2006-2015 offer a favourable support-context for mainstreaming DRR in WatSan. At the national level, needs of mainstreaming DRR into WatSan is recognized though national plans and policies.
- ECNEC decision: One of the potential opportunities to incorporate DRR mainstreaming criteria into project proforma is the favourable minutes of ECNEC meeting held on 8th October 2007 that provides clear decision to integrate DRR in a DPP proforma and Working Paper for the ECNEC. It was informed that by this time Planning Commission has already drafted revised DPP proforma including DRR criteria. However, Although the DPP proforma of Planning Commission is yet to include DRR criteria as an explicit section but it does not restrict designing a project for WatSan DRR.
- Some useful tools: CDMP has already developed CRA tool which can be contextualized and be used for WSDRR. By this time some organizations have started working in the field of WatSan DRR. These organizations are applying various process facilitation tools. Consolidation, refinements and contextualization of existing available tools can easily fill up the gaps of tools needed for process facilitation.

- Existing training facilities & resources: DPHE has institutional facilities for developing training resources. NILG can roll out training programmes to LGIs. For the SHEWA-B project NILG conducts training course for UP on WatSan where DRR can be integrated while CDMP had designed training course for UZDMC in which WatSan can be included. WASH cluster has produced very effective manual on WatSan Emergency response along with LGD Sanitation Catalogue. For a successful capacity development programme the existing institutional facilities and training resources come as a decent opportunity.
- Some hardware options applied: Besides DPHE's capability of doing R&D, some projects and organizations have already implemented disaster resilient WatSan technologies. This offers an opportunity to commission a project to assess, and standardize hardware options suitable for different geo-hazard zones.
- Comprehensive structure of local WatSan & DM Committees: Although in most cases those are not functional (round the year) but the WatSan and DM committees are extended up to union level. These committees can be facilitated to apply a process of participatory assessment, planning and implementation in WatSan Disaster Risk Reduction.
- SHEWA-B facilitation model: GoB-UNICEF SHEWA-B projects demonstrate an effective model of a national scale project implementation that addresses the need of providing intensive person power to facilitate communities. The model of engaging local NGOs as field agencies can be applied in facilitating local WatSan Committees to apply a process of participatory assessment planning and implementation in WSDRR.
- Government's emphasis on Result Based Monitoring and Evaluation: The SFYP clearly describes GoB's emphasis on the Result Based Monitoring and Evaluation.

Way Forward

Based on the findings and government's institutional context as well as national level policies the study put across following key recommendations towards mainstreaming DRR into Government's WatSan project.

- Founding on the national level concepts **LGD and DPHE** should develop a conceptual framework and definitions of WSDRR. It is the responsibility of **WS Wing of LGD** to develop a shared conceptual understanding among national level staff at LGD and DPHE.
- **LGD** should develop a National WatSan DRR Plan and Policies in coordination with other relevant ministries such as Agriculture, Environment, Water Resource and Health and Family Welfare.
- In compliance with NPDM **PSU** of LGD should include criteria related to 'project design approach' in VGWP-2009 and use it for DPP design. **PEC** can use this revised VGWP for DPP appraisal.
- After the development of National WSDRR plan & policy **LGD** should develop a geo-hazard specific Rural WSDRR Strategy in coordination with other relevant ministries such as Agriculture, Environment, Water Resource, Health & Family Welfare and Bangladesh Geological Survey in compliance with national WSDRR plans and policies.
- **DPHE** should develop and introduce detailed methodology of:
 - Participatory assessment and planning process for WSDRR project development;
 - Decentralized community participatory and self-reliant process;
 - Participatory monitoring and evaluation.

- Apply a systematic bottom up process of WSDRR following the same approach as CDMP but contextualizing the process in relation to WatSan.
- **IMED** has a proactive role to play and provide technical support to DPHE in developing systematic and effective Result Based M&E involving participatory methodology.
- **Planning Commission** would have to develop a coordinated intervention sharing framework for ministries and departments dealing with WatSan and DM.
- **LGD & DPHE** have crucial role to develop and introduce methodological guidelines for:
 - Resource and service mobilization guidelines for Union and Upazila level local committees for the implementation of their WSDRR action plan;
 - Multi-stakeholder strategic planning and coordinated operation at Upazila level;
 - Operation and Maintenance (O&M);
 - Planning guidelines for special regions and context such as Char Haor and Coastal.
- **Planning Commission** should develop and introduce a revised DPP proforma that encourages inclusion of DRR objectives, strategies and activities in DPP design and appraisal.
- **LGD** should develop WS contextualized CRA and RRAP tool in collaboration with **CDMP**.
- **MoFDM** and **DMB** should revise and introduce SOS and D-Form having provision to include Sanitation Damage and Needs Assessment.
- **DPHE** to develop and introduce result based tools for project M&E and **IMED** to provide technical support.
- **LGD** to allocate adequate funds and accordingly align with its ADP and MTBF for:
 - Pre project design activities such as, CRA and RRAP;
 - LGI's WSDRR plan implementation;
 - Multi-stakeholder strategic planning and coordinated operation at Upzaila level;
 - Operation and Maintenance;
 - Capacity Development Training and input for staff.
- **MoFDM/CDMP/ LGD** should allocate funds and budget in MTBF and ADP for comprehensive training programme and capacity development of staff at national and local level.
- **WS wing of LGD/NILG/DPHE** should design, plan and roll out training programmes by which staff at national and local level have adequate understanding and skills on:
 - Concepts and principles of WSDRR;
 - International, regional and national policies on the WSDRR;
 - Conduction and facilitation of CRA & RRAP of WatSan; Facilitation of RRAP implementation;
 - Principles and process of facilitating multi-stakeholders participation;
 - Facilitating community participation and mobilization in WSDRR;
 - Designing and implement their effective training programmes for stakeholders involved;
 - Facilitating sustainable organizational development of Union and Upazila WS committees;
 - Designing and application of participatory method and tools for M&E.
- **DPHE:** Design and implement a DPP for developing a catalogue of geo-hazard suitable appropriate disaster resilient hardware options.

The study team strongly recommends that NARRI or any other potential donors may support a pilot program of the relevant government ministry and departments with a focus to demonstrate, learn, and develop the process of WSDRR. This would have cross-cutting effects in terms of methodology and tools development, evidence based advocacy and developing a nucleus group of staff in DPHE and LGD, equipped with practice generated understanding.

Provisions Can be Considered in Designing a DPP

On a study sample of 3676, a total of 2500 TWs needed post flood cleaning and repair that required an approximate amount of Taka 7, 50,000.00. For a sample of 3113 ring-slab latrines a total of 2844 required reconstruction amounting to Taka 28, 44000.00. Investment to promote disaster resilient WatSan can pay great dividends, in terms of avoided damages or reduced costs of response and disaster impacts on life, health, property, economy and the environment. There is discourse among experts and actors about 'what *can we do for the people*'. The study finds that the most important aspect of the government policy suggestions is the application of community and relevant stakeholders' participatory analysis and action process. While for the content government policy suggests to include the current and anticipatory risk of CC, for the process it suggests application of community empowerment oriented decentralized participatory approach of analysis and action. This requires a shift of approach from 'doing for the people' to 'working with the people'. In a diverse, unpredictable, continuously moving multiple local contexts it may not be a right attempt to set standardized options for WSDRR but facilitating the process in the same way CDMP is doing. The study considers it as the most important policy suggestion of the government. Thus the central options to be brought into a DPP is to facilitate LGIs and local WS and DM committees to assess, plan and implement relevant WSDRR activities locally. This process should be flexible and accompanied by community education and awareness creation, minimum resources, appropriate technological options and community management capacity development. Analysis and action needs to be blended with indigenous and scientific knowledge. Deliberations on prevention and reduction of hazard causes would link analysis and actions related to CCA and sustainable development. There is no need to be confined with pre-determined measures but let LGIs and local committees plan based on the local situation and needs. However it would be good to inform them what services and resources they can mobilise from the project and other potential sources. The study submits that besides existing emergency response options, in combination with both software and hardware the following specific provisions can be brought into a WatSan project for the reduction of WSDR:

- Community Mobilization and Awareness Creation on WSDRR including hygiene practices during emergencies;
- Facilitating Community Risk Assessment and CAP for WSDRR through LGIs and local committees;
- Participatory process facilitation;
- Resource supported RRAP implementation;
- Community Management Capacity Development through on the spot coaching, orientation and training;
- Operation & Maintenance of hardware facilities which are established, especially those installed in cyclone and flood shelter as well as other community places;
- Arsenic Testing Facility in each Upazila DPHE;
- Inbuilt component of R&D for disaster resilient WatSan Technologies.

With regard to disaster friendly hardware options it recommends that the relevant government department(s) should undertake an assessment and R&D for standardizing suitable technologies. This will be economically viable, technologically sustainable, environmentally sound and socially

acceptable. The study proposes that WatSan project should have those hardware options which are affordable and replicable at households' level. Elevated TWs and latrines also need to be installed at families and HH level because women face difficulties to access those at community places. If suitable for an area then elevated multi-point deep TWs seem promising cost effective options for WSDRR and establishing effective linkage between water availability and use of hygienic latrine. However, measures need to be taken by which deep ground water is not contaminated by arsenic. Provision of making strong latrine superstructure can also be thought as an option. Another provision needs to be brought into is upgrading quality of ring-slab latrine which does not break or destroy during transportation & use.

Capacity Concerns Deserve Attention in Future

In a broad institutional structure and systems of government, a WatSan project cannot be implemented in isolation rather it should be a part of the relevant institutional structures and systems. The study finds that mainstreaming DRR into a government WatSan project warrants the following cross cutting capacity development concerns which deserve attention in future.

- Departure from the traditional culture of response and recovery to DRR;
- Genuine empowerment of Upazila and Union level LGIs by which they can serve as a forum of sharing between GoB, Civil society and Market actors;
- Capacity to ensure WSDRR service reaching to the marginalized population in an elite dominated socio-political structure;
- Meeting the demand of having multi-expert team to address multiple disciplines;
- Continuous promotion of local innovations in a multiple changing circumstances through linking indigenous and scientific knowledge.

Conclusions

Bangladesh is a disaster prone as well as the most vulnerable country to climate change. It is one of the Asian countries lauded for its significant achievement in Disaster *Consequence Management*. Despite this achievement sustainable development seems a remote possibility if Risk Reduction is not factored in development design and operations. Realizing this fact, GoB policies suggest that now on all DPPs have to include both Disaster Risk Reduction and Consequence Management. Water and Sanitation is more critical than hospitals for the human health and other wellbeing. Achievements of Rural WatSan are facing a snatching risk by being exposed with frequently occurring disasters, denote an unavoidable need of Disaster Resilient WatSan Promotion. Community Led Total Sanitation innovated and grew in Bangladesh gives us lesson that if facilitated then common people can bring desired change in WatSan. Priority discourse of DRR at the global level actors and policy makers, favourable GoB policies, already approved CRA & RRAP tool provide us favourable context. Further, SHEWA-B model of GO-NGO partnership, local WatSan Committees and a technical institution like DPHE altogether offer us a vigorous opportunity to be the champions of Disaster Resilient WatSan Promotion. This is considered as an unavoidable need for the wellbeing of rural people.

CHAPTER 1. BACKGROUND ISSUES AND OBJECTIVES

1.1 BACKGROUND

DIPECHO stands for Disaster Preparedness ECHO; has been set up by European Commission Directorate General for Humanitarian Aid and Civil Protection. DG ECHO provides support to improve the capacities of communities at risk in order to better prepare and protect themselves. In Bangladesh, ECHO is supporting six projects under the Sixth DIPECHO Action Plan which are being carried out by the NARRI Consortium. National Alliance for Risk Reduction and Response Initiatives (NARRI); a national level consortium of six leading INGOs working in Bangladesh for increasing community capacity, awareness and skills to achieve the objective of reducing disaster risks. The NARRI partners are: Action Aid Bangladesh, Concern Universal, Concern Worldwide, Islamic Relief Worldwide, Oxfam GB and Plan International. All these pioneers in the DRR sector are working in the most disaster-prone areas across the country with a multi-hazard approach covering both rural and urban areas. NARRI links disaster and development and consequently disaster risk reduction of WatSan. As a disaster-prone country WatSan in Bangladesh, especially in rural areas is frequently affected and damaged by natural disaster.

Damage of WatSan system eventually affects public health, economy, education, and many other related development fields. Many of the post disaster assessment in the past have revealed that negative impact on public health directly affects productive working days, thus livelihood loss and negative multiplier effect. It is already an established fact that disasters impact the poor most. Approximately 40% (HIES, BBS, 2005) of the Bangladesh population still continues to live below the poverty line and damage to WatSan facilities during disasters affect these populations the most both in terms of public health and livelihood. NARRI & DIPECHO have undertaken this study to investigate the existing mechanisms of mainstreaming of DRR into GoB Schemes related to WatSan. Analysing the gaps between the government policies and their executions this study suggests the way forward to overcome the constraints. Accordingly, Appreciative Consulting Services (ACS) International, a Bangladeshi multidisciplinary consulting firm was engaged to conduct the study. The ultimate goal of the study was not to evaluate and find out gaps but to ensure that the water and sanitation programmes of GoB are disaster resilient. This study complements commitment of Government of Bangladesh towards achieving Millennium Development Goal (MDG) number 7 on "Ensuring Environment Sustainability" and priority 4 under Hyogo Framework for Action (HFA) on "Reducing the Underlying Risk Factors".

1.2 CURRENT WATSAN SCENARIO AND STUDY OBJECTIVES

With regard to drinking water MICS report 2009 revealed that, 71% of rural population had access to the basic and 51% to improved standard of water supply facilities, while JMP standard accounted for 83.8%. For Sanitation, the same report informed that 78.9% of rural population had access to the basic and 49.9% to improved sanitation facilities, while JMP standard accounted put it at 54.3%. A summary of water supply coverage based on the Bangladesh basic standard, Bangladesh improved standard, and JMP standard are given in Table 1:

It is worthwhile to mention here that the government had a target of “Achieving Safe Drinking Water for All by 2011” in its Election Manifesto. However, official data are yet to be made available to confirm the achievement of the commitment.

Table 1: Water Supply Coverage in 2009 Based on the Bangladesh Basic Standard

Areas	Percentage of Water Supply Coverage in 2009		
	Bangladesh Basic Standard	Bangladesh Improved Standard	JMP Standard
Urban	82	34	93.3
WASAs	84	72	-
City Corporations	76	61	-
Paurashavas and growth centres	85	12	-
Rural	71	51	83.8
Country	74	50	85.5

The Government of Bangladesh initially set a national sanitation goal of achieving “100 percent Sanitation by 2010”. However, realizing the practical situation in 2009, the goal was subsequently revised and the present goal is to achieve “Sanitation for all by 2013.” The government has undertaken numerous and effective interventions putting the community at the centre. Since launching the National Sanitation Campaign in 2003, the government made several policy and operational decisions to promote sanitation. The National Sanitation Secretariat was formed and taskforces were established from national to grassroots levels to support and institutionalize the interventions. The month of October is being observed as “Sanitation Month” each year since 2003. A mass-media campaign to create greater awareness among the people about the necessity of sanitation and hygiene practice was organized. The government earmarked 20 percent of the ADP grant to Upazilas specifically for sanitation, for the exclusive use of Upazila and Union Parishads (www.sanitation-bd.org/sacosan-bangladesh-country-paper). Based on the data available in MICS 2009 report, national sanitation coverage, with a break down for different areas, according to the three definitions of sanitation coverage is shown in Table 2.

Table 2: Sanitation Coverage in the Year 2009

Areas	Percentage of sanitation coverage in 2009		
	Bangladesh Basic Standard	Bangladesh Improved Standard	JMP Standard
Urban	86.4	58.0	53.5
City Corporations	87.6	60.2	53.3
Municipalities	85.8	57.5	54.7
Rural	78.9	49.9	54.3
Country	80.4	51.5	54.1

Bangladesh is a low lying country and is built over the flood plains of three major rivers, the Brahmaputra, Meghna, and Ganges. The three rivers converge in Bangladesh and empty into the Bay of Bengal through the largest river delta in the world. When all of the rivers run high with monsoon rains coupled with melting snow from the Himalaya Mountains (the source of the rivers), much of Bangladesh goes under water. The rise in sea water levels, the narrow north tip to the Bay of Bengal, tropical storms that whip up wind speeds of up 140 mph (225 km/h) generate waves (up to 26 feet high) crashing into the coast. Then the shallow sea bed and the fact that water coming

down from the rivers Ganges and Brahmaputra cannot escape when the water level rises all contribute to the severe flooding in Bangladesh. Every year, floods inundate vast parts of the country with varying intensity. Flood water submerges and contaminates the tube wells and other water sources, and latrines are often washed away. Hygiene practice is constrained due to the absence of safe water, latrines and places for waste disposal. Cyclones and storm surges cause similar destruction of water and sanitation installations. The recent cyclones, Sidr and Aila, are examples of extensive damage caused by natural disasters. The women and children suffer most because of their vulnerability and need for privacy. It is evident that flood and other natural disasters are expected to occur every year in Bangladesh due to its geographical location and factors like environmental degradation.

Though Bangladesh has achieved reasonably well in terms of drinking water (86% coverage) and sanitation (80% coverage), yet the reality on the ground apparently differs significantly in terms of sustainable functioning of these facilities. The recurrent and intensifying impacts of disasters and climate change in the country are putting a huge strain on the water and sanitation facilities, a reality that is not reflected accurately in the current reporting and/or research work. It may be likely that most of the far-reaching water and sanitation programmes in the country do not include disaster resilience features, which mean that the facilities are damaged or washed away every time a disaster strikes. This circumstance puts across following critical issues and questions:

- The entire country is highly vulnerable to frequent natural hazards e.g. regular river floods affect 20% of the country, increasing up to 68% in extreme years (recent major flood occurred in 2007 that affected more than 10 million populations in 39 districts) which affect public and private assets including water and sanitation facilities. However, the provisions under water and sanitation facilities remain the same (e.g. provision of 3 rings and 1 slab to hard core poor people for sanitation) for the entire country irrespective of vulnerability to disasters. Therefore the question arises, to what extent, water and sanitation facilities are resilient to frequent natural disasters particularly in rural areas?
- Uninterrupted and effective functioning of both water and sanitation facilities is not monitored during and after the monsoon period particularly in rural areas. Are those water and sanitation standards which have already been achieved being monitored on a regular interval particularly post monsoon and natural disasters and feed into the water and sanitation standards?
- Almost all the policy and legal framework of GoB (e.g. Standing Orders on Disasters, National Plan for Disaster Management) mention about the DRR mainstreaming into development including water and sanitation, however it has not been translated into action due to several reasons which need to be analyzed.
- Is it possible to achieve MDG 7 on environment sustainability (Target 7c: Reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation) without realization of DRR mainstreaming into regular development schemes related to water and sanitation?

1.3 PURPOSE AND OBJECTIVES OF THE STUDY

In order to address the issues stated earlier, this study was commissioned with an overall objectives of ensuring that the water and sanitation programmes of Government of Bangladesh are disaster resilient. Thus, it complements the commitment of government towards achieving MDG 7 of

“Ensuring Environment Sustainability” and priority 4 under Hyogo Framework for Action (HFA) on “Reducing the Underlying Risk Factors” The specific objectives of the study were:

- To establish evidence based strong rationale for the need of DRR mainstreaming into selected rural focused water and sanitation programmes of GoB with a view to achieving relevant MDG targets, HFA priority;
- To provide simple and practical tools and guidelines for the mainstreaming of DRR into selected rural focused water and sanitation programme of GoB;
- To influence relevant stakeholders including GoB policy makers, donors, I/NGOs and raise public awareness on disaster resilient water and sanitation interventions.

The main purpose of this study is evident in its title “Mainstreaming of Disaster Risk Reduction into GoB Schemes/DPP on Water and Sanitation: Gap Analysis and Way Forward”. From a very practical purpose, precisely the unit of analysis of the study was a GoB DPP/scheme/ project of Water and Sanitation. The basis of understanding the gaps and way forward was the GoB provided policy suggestions.

This study was not an evaluation but a case-research in the purposively selected few rural unions of different districts, which are highly vulnerable to the frequent natural disasters focusing on two major government programmes on water supply and sanitation.

CHAPTER 2. STUDY METHODOLOGY

2.1 DEVELOPMENT OF THE DESIGN

At the first step, through identification of specific learning points a framework for data gathering was prepared (see annex 1). The data gathering framework served as a guide to develop data tools. In the whole process of framework and data tools development, sharing between the study team and NARRI consortium team was an inbuilt mechanism in which joint review and enrichment of framework and data tools (see annex 2) was an inseparable part. The following criteria were used to select GoB WatSan project:

- A national scale project/scheme;
- Designed/approved and began to be implemented in the year 2010;
- An ongoing project;
- The project location covers rural area;
- Implemented in hazard prone area such as flood, cyclone, storm surge;
- Includes both water and sanitation component;

In compliance with the above-stated criteria two projects were selected namely:

- Special Rural Water Supply (SRWSP) project (6th phase of GoB funded regular project) of DPHE
- Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) of DPHE

Depending on the scope, time frame and resource availability it was considered that the study would cover three areas, but each of the selected area would have distinctive geo-physical character and exposure with different kinds of prominent hazards. Kazipur Upazila of Sirajganj District represented flood plain Char. The prominent hazards of the area are flood and river erosion. The recent hazard to which communities and their WatSan were exposed was flood 2007. Satkhira Sadar Upazila of Satkhira District represented Coastal area, high risk of being affected by cyclone water surge, flood and water logging. Recent hazard to which population and their WatSan exposed was a 3 month long flood in the year 2011. Sariatpur Sadar Upazila of Sariatpur District also represented flood plain. Besides floods, the area is exposed to river erosion. Recent hazard to which population and their WatSan were exposed was Sidr 2007. In Sariatpur the main force of Sidr was wind speed but there was no water surge or flooding. Other criteria considered were:

- Presence of both GoB regular WatSan and SHEWA-B project;
- WatSan facilities exposed with at least one hazard since the year 2007;
- GoB statistics show the highest coverage of population in terms of access to drinking water and sanitation;

Availability of potential local organizations could cooperate with the study team to organize local level study activities.

2.2 STUDY AREAS AND RESPONDENTS

The presence of SHEWA-B project was not complied for selecting Satkhira, the study covered the following area in compliance with all criteria:

District	Uazila	Union	Ward/ Villages	Presence of selected projects
Sirajganj	Kazipur	Masbari	Salavora, Saoud Tola and Bil Cator	SHEWA-B project of GoB-UNICEF SRWSP of GOB
Satkhira	Satkhira Sadar	Bramharajpur	Goalpota , Ward 9 Beradangi, Ward 1 Maskhole , Ward 3	SRWSP of GOB
Sariatpur	Sariatpur Sadar	Domsar	Char Domsar, Ward 5 Koarpur, Ward 3 Bepari Para, Ward 1	SHEWA-B project of GoB-UNICEF SRWSP of GOB

Besides as exclusive samples for visiting and observing disaster resilient WatSan initiatives and technologies the study team visited villages of neighbouring Upazilas in each of the study areas.

The study engaged a total of 364 respondents covering National, Upazila, Union and Ward/Village level. A total of 20 (19 male & 1 female) were engaged as key informants who were senior staff of Planning Commission, Additional Secretary at LGD, MoFDM, Director General (DG) of MIE Wing of LGD and DMB and senior staff of DPHE and National level NGOs engaged in WatSan. At the Upazila level 29 (26 male & 3 female) respondents were GoB staff, Upazila Parishad, Upazila WatSan and DM committee members as well as NGOs active in the field of WatSan. Similarly at the Union level 24 respondents included UP Chairperson and Members, Union WatSan and Disaster Management Committee (DMC) members as well as NGO staff at Union level. At the ward and villages, 291 (127 male & 164 female) respondents included were farmer, day labourer, masons/mechanics & caretakers, schools teachers and SMC members, students, members of Cyclone or Flood Shelter Management Committees and field level staff and volunteers of NGOs. The numbers of National, Upazila, Union and village level respondents by category are shown in the following tables and the list of respondents is presented as Annex 3.

Table 3: Number of National Level Respondents Involved in the Study by Type by Sex

Type of participates	No. of male	No. of Female	Total
Additional Secretary (WS) and DG (Additional Secretary), MIE, at LGD	1	1	2
Project Directors, and senior staff of planning and M&E of DPHE	5	-	5
Joint Secretary/Additional Secretary/Deputy National Project Coordinator/Project Manager/Senior Project Specialist at MoFDM, DMB & CDMP	5	-	5
Chief Field Operation Officer (NGOs), Resource Mobilization Officer/Chief of NRC/Program Engineer/Sector Team Leader	5	-	5
Joint Chief/Joint Chief & National Project Director/Project Manager at Planning Commission	3	-	3
Total	19	1	20

Table 4: Number of Upazila Level Respondents Involved in the Study by Type by Sex

Category	Kazipur			Satkhira			Sariatpur			Total	
	M	F	Total	M	F	Total	M	F	Total	M	F
Upazila Level Govt. staff in WnatSsan	1	-	1	2	-	2	5	1	6	8	1
WatSan and DM Committee Members	7	-	7	2	-	2	2	1	2	11	1
NGOs engaged in WatSan	1	1	2	2	-	2	4	-	4	7	1
	9	1	10	6		6	11	2	12	26	3

Table 5: Number of Union Level Respondents Involved in the Study by Type by Sex

Categories	Kazipur			Satkhira			Sariatpur			All	
	M	F	Total	M	F	Total	M	F	Total	M	F
	UP Chairperson/ members/WatSan and DM Committee Members	5	2	7	4	2	6	1	-	1	11
NGO Staff and Community level facilitator	4	2	6	-	-	-	-	4	4	5	6
Total	10	4	13	4	2	6	1	4	5	14	10

Table 6: Number of Village/Ward Level Respondents Involved in the Study by Type by Sex

Categories	Kazipur			Satkhira			Sariatpur			All	
	M	F	Total	M	F	Total	M	F	Total	M	F
Farmer	19	-	19	18	-	18	18	-	18	55	0
Day labour	6	3	9	7	3	10	14	10	30	25	18
Small Business	4	-	4	6	3	9	6	2	16	16	5
Mechanic/mason/TW CRAetaker/Mechanic	3	-	2	4	-	4	2	2	5	9	2
Rickshaw van puller/auto driver	1	-	1	1	-	1	3	-	3	5	-
CRApenter/plumber	1	-	1	2	-	2	2	-	2	5	-
School teacher/SMC members	1	1	2	3	1	4	3	5	7	7	7
Student	1	6	7	2	3	5	2	7	9	5	16
Housewife/farming (2 widow)	-	31	31	-	49	49	-	29	29		109
Blanket maker	-	7	7	-	---	---	-	--	-	0	7
Total	36	48	83	43	58	102	50	55	119	127	164

2.3 DATA COLLECTION, CONSOLIDATION AND FINDINGS

In data generation and gathering, the Study Team ensured exchange and supplementation between secondary and primary data as well as both quantitative and qualitative ones. The team conducted an extensive review of documents. The list of documents studied is presented in the bibliographic reference. Primary data were generated through application of participatory methods and instruments. Several participatory tools were applied to generate primary data through face to face interaction between the Study Team members and stakeholders met. Tools applied to primary data generation included:

KII with the DPHE-SAE at Sariatpur

- Direct observation;
- Sample study;
- Key Informant Questionnaire;
- Semi Structured Interview;
- Focused Group Discussion (FGD);
- Village wise WatSan Cluster Resource and Risk Mapping;
- Role performance scoring.

For the quantitative data gathering on coverage of tube wells and latrines multiple techniques were used which included:

- Collecting consolidated data drawn out of cluster mapping exercise conducted by SHEWA project during September 2011;
- Rapid observation and counting by the team in a small area of a village through transect with a groups of people in the village;
- Cluster wise WatSan Resource and Risk Mapping exercise with village community members

The data relating to number and percentage of TWs and latrine were gathered in combination of direct exercise with the sample communities and collection of secondary data recently generated by SHEWA-B project. During the period September-December 2011, in Kazipur Upazila of Sirajganj District and Sariatpur Upazila of Sariatpur District SHEWA-B had generated and synthesized data on the quantity and quality of TWs and latrines by each of the sample wards/villages. In these two fields SHEWA-B generated data were taken by the study team as present data on which TWs and Latrines before recent disaster (for both the field it was in the year 2007) was drawn out by identification and segregation. For the year 2007 secondary data on national rural coverage of TWs and latrines were collected from the *Bangladesh Demographic and Health Survey (BDHS) 2007 report*. As the sample covered in Satkhira Upazila of Satkhira district was not covered by SHEWA-B project, all data related to number of TWs and latrines were generated through the cluster mapping exercise with the community members. In Satkhira sample area as the disaster occurred in September 2011 the cluster mapping exercise was done as such by which community participants who first identified TWs and latrines before September 2011 then marked those which were destroyed by the hazard. Again, for gathering data about the existing process and practices of monitoring and reporting systems, the Study Team collected and studied reporting format and sample report used by the Upazila DPHE offices. Besides literature study and document review, the study included intensive field activities for primary data gathering and generation. Field activities conducted are listed in the annex 4. Quantitative and qualitative data were consolidated by preparation of tables and synthesizing ideas and opinions provided by various stakeholders engaged as respondents. Particular to "gap identification and way forward towards mainstreaming DRR in WatSan DPP" consolidation of data utilized a framework shown in the following exhibit (Exhibit 1):

Exhibit 1: Framework of Data Consolidation

Project Levels	Actors	Roles to policy compliance	Gaps in role performance	Reasons of gap			Opportunities	Way forward	
				Knowledge/ skills/ understanding	Means/ tools / guidelines	Person power/ resource		Suggested tools	Capacity development needs
Planning and Designing a DPP									
Appraisal and approval of a DPP									
Implementation of a DPP									
Monitoring evaluation and reporting									

Prior to the development of the findings and preparation of the report sets of consolidated information were prepared on national level KII, Kazipur, Satkhira, and Sariatpur field exercise. Upon completion of data tabulation, a narrative was developed through triangulation of both tabulated primary data and secondary information.

On March 15, 2012 electronic copy of the draft report was sent to NARRI. On 23 March 2012 feedback was provided on the draft report by NARRI partners that were articulated in the report. On April 16 an experts' panel review session was conducted on the draft findings. This session was participated by senior staff of DPHE, Planning Commission, CDMP, MoFDM, and National NGOs (Annex 6: brief report). The consultant team made a presentation on the study findings soliciting feedback from the session participants. Incorporating the feedback generated through this review session, on April 30 the consultant team submitted the final report.

2.4 COMPOSITION OF THE STUDY TEAM

The study was carried out by a multidisciplinary team composed of the following members:

- **Dr. Shayamal Kumar Saha**, Team Leader cum DRR Specialist & Chairperson, ACSI Bangladesh and Associate Taos Institute USA, Dhaka & Manila;
- **Syed Anwarul Islam**, WSS Policy Expert, MA in Economics, Dhaka University, Certificate in FP Communication, University of Chicago, USA, Senior Staff Course, PATC, Dhaka;
- **Wali ul Islam**, WSS and Local Government Expert, Deputy Secretary & Ex-Project Director, HYSAWA Project, GoB, MA in Economics, University of Chittagong, Fellow of INTAN, Malaysia, Advance Course on Administration and Development, PATC, Dhaka;
- **S.M. Ihtishamul Huq**, Water Supply and Sanitation Engineer/Technology Expert), Post Graduate Diploma equivalent to M.Sc. in Sanitary Engineering from IHE, Delft, the Netherlands B.Sc in Water Resources Engineering from BUET, Dhaka B.Sc in Civil Engineering from BUET, Dhaka;
- **Ms. Zakia Begum**, Field Facilitator & Training Specialist, ACS International, New DOHS, Mohakhai, Dhaka, Bangladesh;
- **Sajedur Rahim Md. Sanwar**, Field Facilitator & SME Specialist, ACS International, New DOHS, Mohakhai, Dhaka, Bangladesh.

CHAPTER 3. STUDY FINDINGS

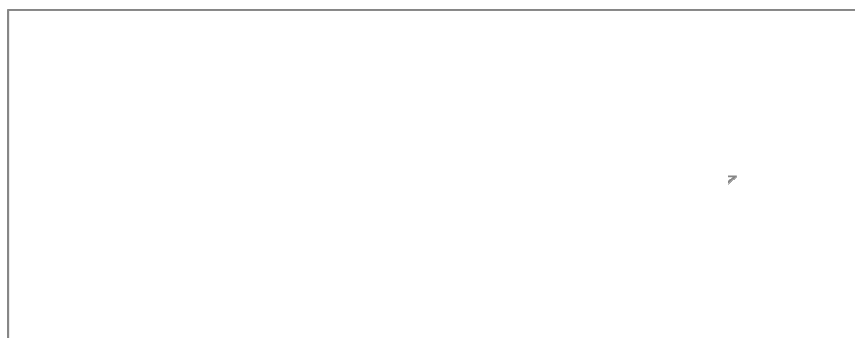
3.1 MDG & HFA: SCENARIO OF GAPS AND URGENCY OF DISASTER RISK REDUCTION MAINSTREAMING

MDG sets its target to reduce the proportion of the people without *sustainable access* to safe drinking water and basic sanitation (Web access <http://www.undp.org/mdg/goal7.shtml>) by half by the year 2015. WatSan MDG for Bangladesh is to achieve 89% population's access to safe drinking water and 70% population's access to improved sanitation by the year 2015. In solidarity with the MDG-target, the GoB set a national sanitation goal to achieve 100 percent coverage by 2013. For achieving both MDG and GoB targets during last two decades Bangladesh drew remarkable attention for the improvements of water and sanitation. Water and sanitation sector received huge efforts from national and international actors. Approach like CLTS was innovated and promoted in this land. Despite all these, both the MDG Progress Report 2009 and GAR 2010 indicate that the MDG achievement of WatSan in Bangladesh needs attention. Two reasons posing a serious challenge to achieve MDG and GoB targets are achieving accelerated rate of coverage and push back of WatSan by disaster damage. A recently conducted BIDS study (Islam N. 2011) divulges that including WatSan the loss of infrastructure is the highest among others caused by disaster; especially by flood. Therefore, population's sustainable access to improved WatSan is facing a grave risk of jeopardy. Without reduction of disaster risk achieving MDG as well as GoB's target of WatSan seems a remote possibility.

3.1.1 ACCELERATION OF COVERAGE RATE: A ROBUST CHALLENGE

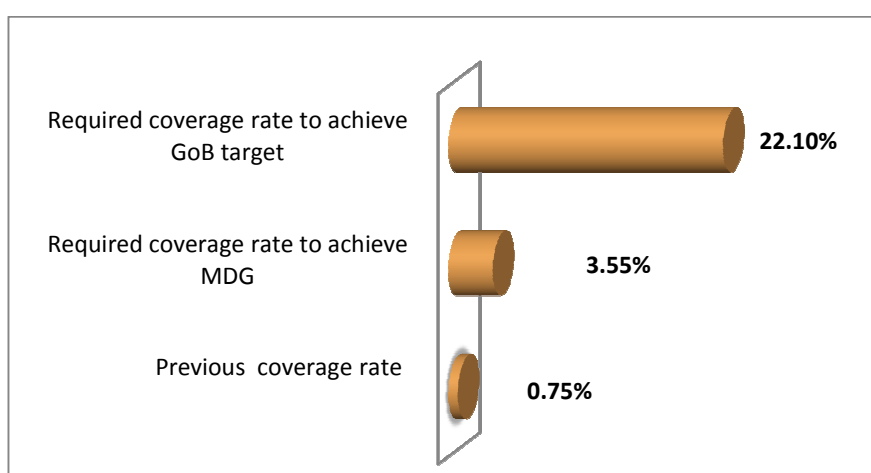
With regard to *drinking water* Bangladesh Country Progress Report (BCPR) on MDG 2009 informs that in the base year 1990/91 the proportion of population using an improved drinking water sources was 78% compared to 86% in the year 2009 (MDG progress report 2009 page 17). It denotes an increase of 8%, achieved in 20 years period and 0.4% per year. In consideration with this yearly coverage rate population's access to improved water by the end of year 2011 would account (86 % + 0.8 %) for 86.8. MDG for Bangladesh is to achieve 89% thus the remaining balance to reach MDG by remaining 4 year (2012-2015) is 2.2% which requires a yearly coverage rate of 0.55%.

Exhibit 2: Achieving MDG & GoB Target of Access to Improved Drinking Water: Past Yearly Coverage Rate and Required Yearly Coverage Rate



For Sanitation, MDG targets are 70% population's access to improved sanitation by 2015, while for the GoB 100% by 2013. BCPR (2009) on MDG informs, in the base year 1990/91 the proportion of population having access to improved sanitation was 39% compared to 54% in the year 2009. It denotes that the net increase by 20 years is 15%, which is on an average 0.75% per year (MDG progress report 2009 page 17). Adding two years (2010 & 2011) cumulative progress the population's access to improved sanitation by the end of year 2011 would be (54% + 1.5%) 55.5%. Thus remaining balance to reach MDG by 2015 is (MDG target 70% - 55.5%) 14.5%, which demands a required coverage rate per year of 3.62%. Target for rural population differs in comparison with national average, because according to JMP proportion of rural people's access to improved sanitation by 2009 was 54.3. Thus addition of next two years' cumulative progress would be (54.3% + 1.5%) 55.8% by 2011. The gap for achieving MDGs by 2015 is about (MDG target 70% - 55.8%) 14.2%. To reach the intended MDG target of 70% by 2015 the required coverage rate (14.2% divided by remaining 4 years) would be 3.55% against the existing coverage rate of 0.75% per year. The required coverage rate per year goes much higher, 22.1% for reaching GoB target of 100% sanitation by 2013.

Exhibit 3: Achieving MDG & GoB Target of Access to Improved Sanitation: Past Yearly Coverage Rate and Required Yearly Coverage Rate



3.1.2 DISASTER BRINGS POVERTY - PUSHES WATSAN BACK

Only acceleration of coverage rate would not help achieve MDG without having disaster resilient WatSan facilities in place that reduces damage by disasters. Although the government damage assessment of flood 2007 did not provide accounts of sanitation damage (see Govt. Damage Assessment Report of Flood –DARF 2007), but a BRAC research finding has noted that being exposed with flood 2007, 73% latrines having 3 rings and 1 slab were damaged in Bogra, Mymensingh, Kishoregonj, Faridpur, Gopalganj, Tangail, Netrokona and Chandpur. Thus in the year 2008 according to the BRAC–WASH Programme baseline findings, sanitation coverage stood at 31.3% (see Ahmed S. 2008). Similarly, the Department of Public Health Engineering (DPHE) reported damage of 11,612 tube wells, 7,155 ponds and over 55,000 latrines caused by cyclone Sidr in the year 2007 (see Govt. Damage, Loss and Needs Assessment Report of Cyclone Sidr - DLNARCS 2008).

In comparison with the secondary information, the study finds that since the year 2009 Rural WatSan situation did not improve, instead the coverage fell down in areas affected by disasters, especially by flood (see Table 8). Flood brings the most disaster to WatSan than any other hazards (see Table 7). Monsoonal, flash and tidal floods leave little place in rural Bangladesh which has less risk of being affected by flood. The study finds that the two sample study areas which were affected by flood no permanent damage was caused to safe drinking water hardware (TWs) but there was severe jeopardy of access to safe drinking water for a period of 2 to 3 months. Massive jeopardy of Sanitation is caused by flood. Two sample study areas affected by flood experienced about 96% latrines becoming non-functional during onset and immediate post flood stage among which about 50% were damaged and required reconstruction. Other sample area which was affected by Sidr 2007 without flooding did not experience jeopardy of access to drinking water but there was partial damage of 33% ring-slab latrines.

The findings of three study communities described later in detail confirm significant decline of population's access to safe drinking water and improved sanitation caused by disaster. In all three study communities due to stress of post disaster recovery even after a period of four years people could not move from basic standard to the next higher stage of the sanitation ladder instead of one step backward. The study finds % of HHs with unhygienic and no latrine has again increased, about 30% ring-slab latrines are being used at present by the study community showed up broken and no more hygienic. Answering to the question "why did not you reconstructed and replaced your broken latrine even after several months and years of the disaster?", most of the respondents replied as it was replied by a day labourer in Satkhira study area.

"After we had flood here in the year 2011 now we cannot even sell our land, no buyer to buy our land with a rate of only one hundred thousand Taka per Bigha. Flood has taken our crops, fish, employment, food, and cattle. We have taken loan form here and there, still struggling to have our livelihood back, repair house and get regular employment it will take time. First we have to be able to eat then we will think about latrine."

Ram Prashad Das (Labourer) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira

Table 7: Non Functionality and Damage of TW & Latrines by the Disasters Comparing Primary and Secondary Data & Reported Amount of Expenditure for Reconstruction per TW & Latrines

Kazipur (2 months long flood-2007), Satkhira (three month long flood 2011), Sariatpur (half-day) cyclone (Sidr) without water surge and flood 2007)												
	No. of samples before the disasters				% & Number of facilities lost functionality during and post disasters period				Number & % damaged			
	KPR	STK	STP	Total	KPR	STK	STP	Total	KPR	STK	STP	Total
TWs	1485	1560	231	3676	1411	1139	0	2550	0	0	0	0
Ring-Slab Latrines	905	1513	678	3113	878	1737	229	2844	425	1054	229	(63%) 1788
<ul style="list-style-type: none"> • Including labour, cleaning/washing and small spare parts for repairing per tube-well had a costs about 200 to 300 taka • Including labour, transportation, buying broken slabs and rings, super structure materials, reconstruction of a ring-slab latrine had a cost about 600 to 1000 Taka. 												

Note:

KPR: Kazipur; STK: Satkhira; STP: Shariatpur

Table 8: TWs and Latrines: Before-After the Disaster and at Present - Comparison with National Level Data by Study Sample

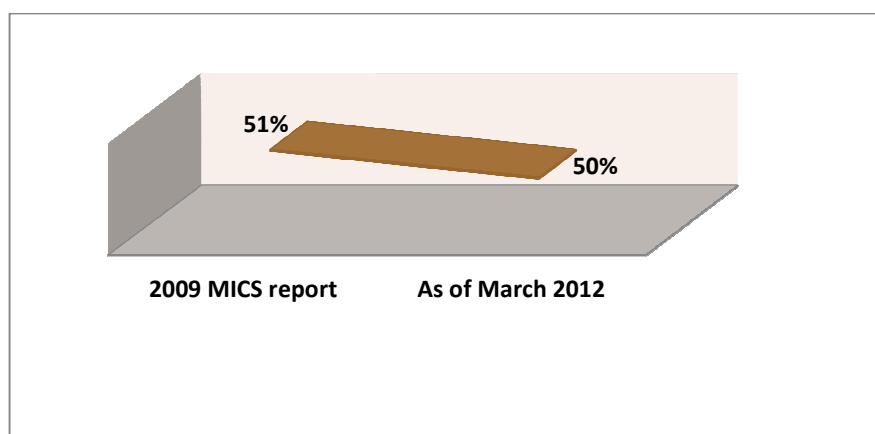
	2007before disaster (as per the study)		2007, as per BDHS report 2007-National average	2009 (As per DPHE)			2009 (MICS report of 2009 National average)	2010 (HIES report of BBS-National average)	Before 2011 Disaster Satkhira	March 2012 (as per the study)		
	Kazi-pur	Sariat-pur		Kazi-pur	Sat-khria	Sariat-pur				Kazipur	Satkhira	Sariat-pur
% of rural HH's with TWs and access to TW water	68.0	54.0	95.7	89 person s per water options	171 person s per water options	72 users per water options	51 (% of population with improved source of drinking water)	94.97	75.0 (only 13 No. DTWs only)	69.0 (37.0 (with pucca platform)	75.0 (among 14 No DTWs only 2 are disorder ed)	86.0
% of rural HHs with access to improved latrines	43.0	81.0	22.0	81.04	100.0	100.0	49.9 (population 's access to improved sanitation)	41.84	78.0	60.0	61.0	80.0
% of rural households using unhygienic latrine										31.0	33.0	11.0
% of rural households have no toilet facilities										9.0	16.0	9.0

The case of Kazipur Upazila of Sirajganj District

Kazipur was affected by flood accompanied by river erosion in the year 2007. The degree of WatSan exposure to this two month long flood was very intense and prolonged. Vulnerability of existing WatSan facilities was high while the Community Copying Capacity was low. No doubt, flood 2007 had pushed back WatSan achievements.

Access to drinking water-hoping for no disaster until we reach at 51%: BDHS reports that 95.7% of the rural HHs with TWs had access to TW water in the year 2007. In comparison with the BDHS data of national average, the study found before flood 2007 among 2174 sample HHs 2485 (68%) HHs had tube-well before the 2007 flood (Table 9). As national average while MICS report-2009 informs 51% rural HHs with improved source of drinking water then DPHE informs that against GoB policy of 50 persons as of June 2009 average number of users per water options was 89 persons in Kazipur Upazila. As of September 2011 data generated through comprehensive cluster mapping exercise by the facilitating agency of SHEWA project informs that 69% households had TWs (Table 11) indicating an increase of 1% during the period 2007-2011. Despite the 1% increase of TWs disaster caused significant decrease of population's access to the safe water. Accompanied river erosion caused forced-migration of people of eroded Chars into a relatively stable Char. Vulnerable river eroded refugee families who had to have their latrines installed again in the new place eventually jeopardising safe distance between a TW and a latrine. At present 37% tube-wells have concrete platform (Table 11) all TWs are shallow with average depth of 30 to 60 feet. The distance between toilet and TWs is less than 30 feet in 50% cases; the TWs do not provide safe drinking water any more. Information presented in Table 7 convey that although flood did not cause permanent damage of TWs but among 1485 TWs 1411 (95%) were submerged and became non-functional for a period of two months. A half of the affected TWs were made re-useable immediately after the flood water receded while other 50% took a bit of time to be repaired and re-useable. Instead of moving up from the 51% (MICS reports-2009), at present about 50% population have access to safe drinking water, which denotes fall in coverage (exhibit 4). Community people hope that there would be no disaster again until they reach 51% coverage.

Exhibit 4: Kazipur, Siranganj Sample Community: Fall in Population's Access to Safe Drinking Water



Access to Improved Sanitation-20% deviation: BDHS reports that 22% rural HHs had access to improved latrine in the year 2007. As national average while MICS report 2009 informs that 49.9% rural population had access to improved sanitation than June 2009 DPHE informs 81.04% HHs had access to improved sanitation in Kazipur Upazila. The study found before the flood (2007) 77% population used latrines of which only 43% latrines were made of rings and slab and rest were pit

latrines (see Table 9). About 97% latrines of all types were submerged and became non-functional for a period of two months while 47% of ring-slab (3 rings one slab) latrines were damaged due to flood in 2007. A half of (50%) of damaged latrines were immediately reconstructed and made re-useable after flood water receded (Table 10). As of September 2011, according to the findings of SHEWA project mapping exercise 60% families had access to hygienic latrine that clearly denotes deviation of 21% coverage. 31% HHs used unhygienic latrine while 9% HHs had no latrine (Tables 7 & 11). However, stakeholders consulted at the UP level held the view that if we consider both kayemi and fragile chars of Masbari union, having total of 22,000/23,000 population then one third (1/3rd) has access to hygienic latrine. 60% population and household are assumed to demonstrate proper hygiene behaviour.

Exhibit 5: Kazipur, Siranganj Sample Community: Fall in Population’s Access to Improved Sanitation

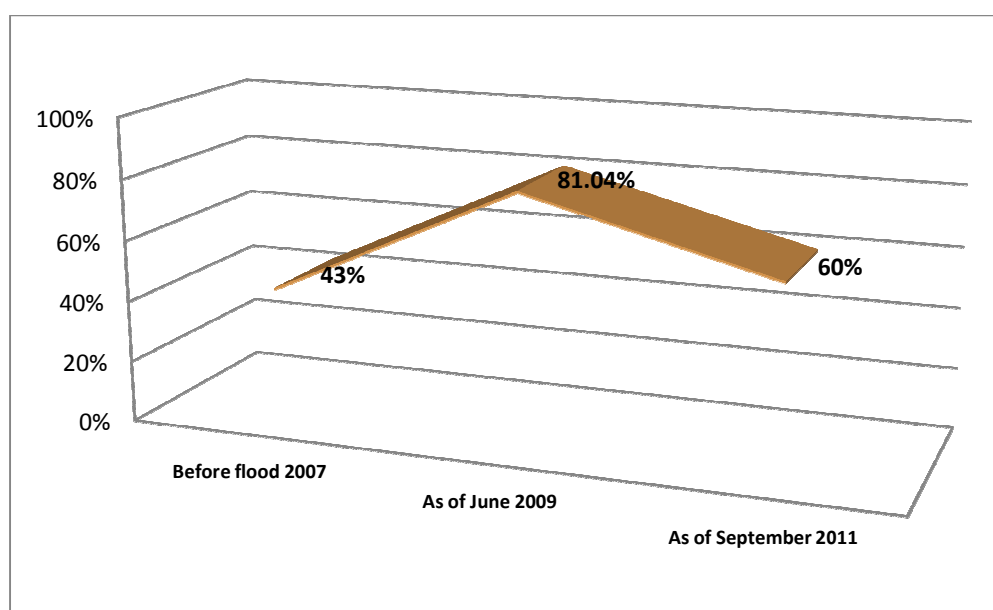


Table 9: Number of Tube-wells and Latrines before the flood 2007 in Sample Community in Kazipur Upazila of Siraganj District

	Saoud Tola	Sala Bhara	Bil Chator	Total
Number of sample HHs	294	1495	385	2174
Tube-wells before the flood 2007 and at present				
Households had tube-well before the flood 2007	51%	78%	43%	68%
Number of tube well at present	63%	82%	62%	69%
Latrines before the flood 2007				
Total No. of households had latrines before the flood 2007	50%	100%	80%	77%
Total number of ring slab latrine before the flood 2007	30%	50%	50%	43%

Table 10: Damage of Tube-wells and Latrines caused by the river flood 2007 in Kazipur sample community, Sirajgnaj

	Saoud Tola	Sala Bhara	Bil Chator	Total
Number of sample HHs	294	1,495	385	2174
Tub-wells Damaged by flood 2007				
Approximate % of TW submerged and became non-functional by the flood 2007 for 2 months	95%	95%	95%	95%
Approximate % of TW remaining functional during the hazard 2007	5%	5%	5%	5%
% of TWs permanently damaged	0%	0%	0%	0%
Approximate % of TW made functional immediately after the flood 2007	50%	60%	40%	50%
Latrine damaged by the flood 2007				
Approximate % of latrine submerged by the flood 2007	95%	98%	99%	97%
Approximate % of ring slab latrines damaged by the flood 2007	50%	40%	50%	47%
Approximate % of ring slab latrine repaired and made reusable immediately after the flood 2007	53%	70%	60%	61%

Table 11: Number of Tube-wells and Latrines as of September 2011 (as per SHEWA-B cluster mapping findings) in Kazipur sample community, Sirajgnaj

	Saoud Tola	Sala Bhara	Bil Chator	Total
Number of Sample HHs	294	1495	385	2174
Tube-wells as of September 2011				
Number of tube well at present	63%	82%	62%	69%
HH don't have TW	37%	18%	38%	31%
TW with concrete platform	37%	10%	63%	37%
TW without concrete platform	63%	91%	37%	63%
No. of deep TW	0	0	0	0
Latrines as of September 2011				
Number of Hygienic latrine at a HH and few used by jointly with 2 to 3 families	56%	45%	78%	60%
Unhygienic latrine at present	16%	55%	22%	31%
HH don't have latrine at present	28%	0	0	9%

The case of Satkhira Upazila of Satkhira District

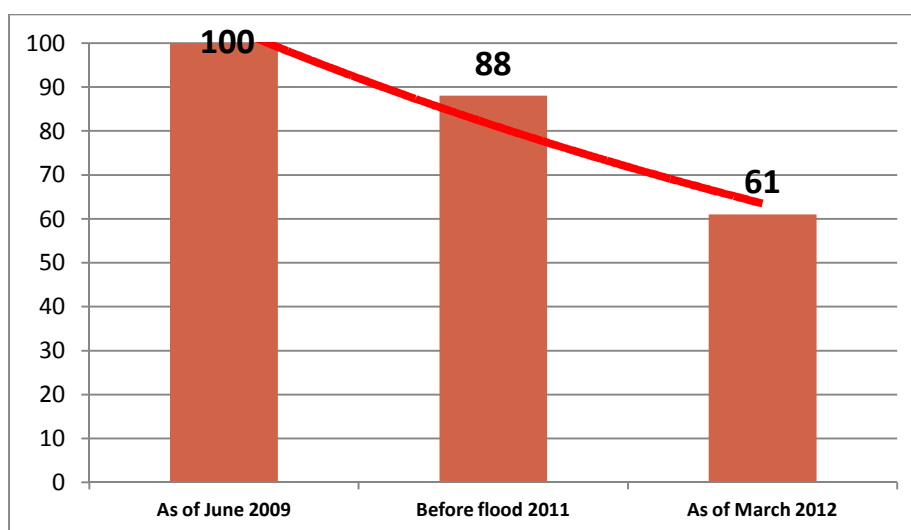
The study sample covered in Sadar Upazila of Satkhira District which was exposed to flood of 2011, caused by river drainage-obstacles to flow the upstream rain water into Bay of Bengal. The duration of the flooding was 3 months from July to September. Other forms of hazards for WatSan were reported as intensive saline and dissolved iron presence in shallow tube-wells water.

Three months without safe water: As of June 30, 2009 central DPHE informed that in comparison with other two areas (Siranganj and Sariatpur) Satkhira population had less access to safe drinking water. In comparison with ideal 50 users in Sathkhira Upazila a water option was used by 171 persons. The study found that on a sample of 2225 households a total of 1560 (75%) households' had access to tube-wells (Table 12). The study findings of cluster mapping exercise showed that since September 2011 only one Deep Tube-well had been added in Goal Pota village. Community

level respondents informed that due to arsenic, iron and salinity in shallow tube-well water they use those for washing and other household works but fetch and use Deep Tube-well water for drinking purpose. The study found that being exposed with the localized nature of flooding 89% TWs in Goal Pota and 100% TWs in Beradangi village were submerged under flood water and became non functional for a period of 3 months while in Maskhola village it was 20% (Table 12). The respondents also informed that surface water sources such as ponds were contaminated by saline and flood water thus they could not use those for drinking purposes. About 83% of submerged TWs were made functional immediately after the flood water receded, but 17% TWs specially owned by poor families took 5 to 6 months time to be repaired and reusable. Respondents reported no permanent destruction of TWs by the flood water. Two DTWs were disordered which were provided by the government, local people could not provide reasons of disorder but assumed mechanical problem.

Access to improved Sanitation - 27% deviation: Government statistics inform that as of June 2009 Satkhira Sadar Upazila had 100% sanitation coverage. However, the study found that before flood hazard 2011, among 2225 HH 1892 (88%) HH had latrines of which 1513 (78%) were water-sealed made of rings and slabs, considered to be hygienic and rest were pit latrines (Table 12). Direct observation of the study team revealed that about 30% water sealed latrines were not cleaned and hygienically used.

Exhibit 6: Satkhira Sample Community: Fall in Population’s Access to Improved Sanitation



A total of 95% latrines were submerged due to flood. Besides all pit latrines, out of 1513 water-sealed latrines 1054 (69%) were damaged. Against 2225 sample HH at present 1303 HH were using water sealed ring-slab latrines which is 61%; indicating a deviation of 27% caused by the flood 2011. At present 33% marginalized HH’s were using unhygienic latrines while 16% had no latrine (Table 12).

Table 12: Number of Tube-wells & Latrines before the Flood 2011 and at present, and WatSan Damage in Satkhira Sample Community

	Goal Pota	Ber adangi	Maskhola	Total
Total Households	357	750	1100	2225
Drinking water				
Households had tube well before the flood hazard 2011	84%	80%	60%	75%
Households having tube well at present	84%	80%	60%	75%
No. of deep TW	6	6	2	14
No. of swallow TW	294	594	658	1547
Approximate % of Drinking water facilities which became non-functional by the flood (2-month period)	98%	100%	20%	73%
No. of TW remaining functional during hazard 2011	2%	0	80%	27%
Approximate % of arsenic contaminated TW (as per 2005 test)	50%	70%	50%	57%
TW with concrete platform	5%	5%	20%	10%
No. of TW functional immediately after flood 2011	80%	80%	90%	83%
Latrines				
Total No. of latrines before the flood 2011	94%	90%	80%	88%
Total number of ring slab latrine before 2011	75%	80%	80%	78%
No. of latrine submerged by flood 2011	99%	90%	95%	95%
No. of ring slab latrines damaged by the flood 2011	68%	70%	70%	69%
No. of ring slab latrines repaired after flood 2011 and made re-useable	81%	80%	80%	80%
Household having ring-slab latrines at present	66%	62%	54%	61%
% Household having pit latrine (unhygienic)	25%	25%	20%	23%
HHs having no latrine	9%	13%	26%	16%

Sadar Upazila of Sariatpur District

The people of study villages and their WatSan were exposed to the Sidr 2007. In Sariatpur the main force of Sidr was wind speed but there was no water surge or flooding.

No flood no problem of having safe water: Before the Sidr 2007, among 982 HH 231 (54%) HH had tube-wells (see Table 13) and no TW was damaged and destroyed by being exposed to Sidr 2007 (see Table 14). Government statistics inform that as of June 2009 in Sariatpur Sadar Upazila users per water option was 72 persons. The study found that at present for a total population of 4950 number of TWs was 422 among which 125 were DTWs and rest were STWs (see Table 18). Due to excessive dissolved iron and saline STWs do not provide safe drinking water. Presently 4950 HHs usages 125 DTWs thus the user per DTW is about 40 persons which goes well beyond the ideal coverage. Communities visited already had some disaster resilient tube-wells and latrines installed by the GoB and other International NGOs.

20% decline of ring-slab latrine use: Government statistics inform that as of June 2009 Sariatpur Sadar Upazila had 100% sanitation coverage. The study found that before Sidr 2007 among 982 HH a total of 678 (81%) HH had latrines (see Table 13). Being exposed the Sidr 2007 a total of 229 (33%) hygienic latrines were damaged (see Table 14). Including ring-slab latrines, offset and a few with septic tank, at present 80% of population used hygienic latrine (see Table 15) which denotes a 20% fall caused by the disaster. Through the village transact the study team observed that about 30% of water sealed latrines were not cleaned and hygienically used. Destructive forces which caused damage of latrines were fall of trees and latrine fence.

Exhibit 7: Sariatpur Sample Community: Fall in Population’s Access to Improved Sanitation

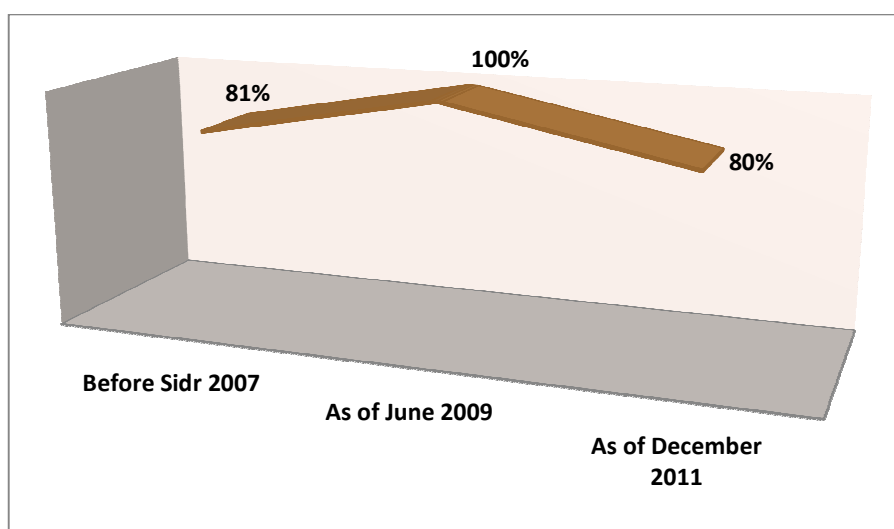


Table 13: Number of Tube-wells and Latrines before the Sidr 2007 in Sariatpur Sample Community

	Char Domsar Ward 5	Koarpur Ward 1	Beparipara Ward 3	Total
Total Households:	210	450	313	982
Total Population	1105	2429	1416	4950
Drinking water before Sidr 2007				
Households having tube-well before the Sidr 2007	60%	61%	42%	54%
No. of arsenic contaminated TWs before the Sidr 2007	No clear idea	No clear idea	No clear idea	
Latrines before the Sidr 2007				
Total No. of households having ring-slab latrines before the Sidr 2007	82%	81%	80%	81%

Table 14: Damage of Tube-wells and Latrines caused by Sidr 2007 in Sariatpur Sample Community

	Char Domsar Ward 5	Koarpur Ward 1	Koarpur Ward 3	Total
Total Households	210	450	313	982
Total Population	1105	2429	1416	4950
Number of tube well damaged by the Sidr 2007	0	0	0	0
Number of Hygienic latrine damaged by the Sidr 2007	30%	41%	29%	33%

Table 15: Number of Tube-wells and Latrines as of December 2011 (as per SHEWA-B cluster mapping findings) in Sariatpur Sample Community

	Char Domsar Ward 5	Koarpur Ward 1	Bepari Para Ward 3	Total
Total Households:	210	450	313	982
Total Population	1105	2429	1416	4950
Tube-wells as of December 2011				
Number HHs with tube well at present	44%	41%	47%	44%
HH don't have TW	56%	59%	53%	56%
TW with concrete platform	78%	60%	73%	70%
TW without concrete platform	33%	40%	27%	33%
No. of deep TW	24%	27%	37%	42%
Latrines as of December 2011				
Number of households having latrines	19%	43%	27%	90%
Number of Hygienic latrine at HHs	91%	74%	75%	80%
Unhygienic latrine at present	0	23%	11%	11%
HH don't have latrine at present	9%	3%	14%	9%

3.1.3 CONSEQUENCES OF DISASTER AFFECTING WATSAN

The study found consequences and negative effects of WatSan Disaster to be multi-pronged, one related to another and it affected women more severely than men. The immediate effect of WatSan disaster commonly reported by the respondents was the horrible smell of rotten excreta coming out of broken and affected ring-slab latrines. Thereafter exposure to flood water was polluted with excreta and other rotten materials. Respondents of Kazipur and Satkhira reported that soon after their courtyards went under flood water diluted with human excreta and other rotten then and there chickens and ducks started to become sick and eventually 70% of those died. Latrines were submerged before the TWs thus people started to defecate directly in the water. Male could defecate at day time but not women. For a period of two to three months women either had to defecate early morning when it was still dark or in the evening. Women suffered from a severe anxiety about "what they will do if they have a call for defecation in day time" thus they had to continue drinking and eating less during first half of the day. These practices continued until flood water receded and latrine at was rebuilt home. An extremely unhygienic environment prevailed, and children defecated unattended. Within first week most tube-wells went under flood water adding another crisis. It is described earlier that 95 to 97% TWs went under water and became non-functional for a period of two to three months. Only a few TWs which did not go under water were the scarce sources of fetching drinkable water for hundreds of families. This acute scarcity of safe drinking water prevailed for a period of two to three months in two sample study communities affected by flood.

The women were affected most in this deluge. They had to bear the major burden of the disruption of normal livelihood in terms of collection of safe water, sanitation, preparing and distributing whatever food they could manage among the family members (keeping little for them and keeping the family together). Due to crisis of fuel wood they could not boil water to purify as it was suggested by actors engaged in disaster response. Lack of income created a state of helplessness that led to increased tension within families; an increase in domestic violence was reported in Kazipur area. This adversely affected the existing poor health conditions of the poor and marginalized populations. The prices of basic food items generally multiplied, with severe burden on

the poor who were dependent on daily wages for survival. Lack of work and increasing uncertainties due to the flood led to increased tension amongst family members, resulting in some incidents of domestic violence. The pregnant and single young women faced the most difficulties. For pregnant women, there was lack of hygiene and medical care, and young women faced the fear of harassment. Many reported a rise in tension among the family members due to this abnormal circumstance. During the flood, poor people suffered from considerable vulnerability ranging from a loss in material resources, to fears of theft and extortion, to becoming separated from their wider social network. Again women had to do lot of extra work for cleaning, rebuilding and reconstructing houses. Families could not afford to provide TW water to their cattle but extremely polluted flood water. Respondents reported increase of cattle diseases and for which they perceived the polluted water was the cause.

There were increased illnesses, particularly diarrhoea, dysentery, respiratory illnesses and fungal infection of the lower part of the legs and hand palm were the most common. Other increased illnesses reported were cold, coughs, flu, sore throats or throat infections, headaches, skin irritations e.g. rashes. There were also gastro-intestinal illness/upset stomachs, excessive mosquito and insect bites, and leech attack. The respondents also reported injuries e.g. cuts while replacing broken rings or slabs of latrines, cleaning garbage, and repairing house. Again, most respondents pointed out that due to huge extra work they faced body pain and stiffness in joints and muscle cramps. Due to unemployment, scarcity of cash resources and difficult communication as well as transportation cost only a few rural rich family members were able to consult a doctor about these illnesses. But poor, marginalized and women could not.

Psychological effects and anxiety during flooding were commonly reported by the women. Most women respondents pointed out that they could not sleep well because of their anxiety of protecting children from falling in the water. Women respondents also reported that due to crisis of employment, money and food males used to behave rough and woman had to bear lot of anxiety that at any time there might be quarrelling or starting domestic violence.

"Male does not understand or feel what kinds of difficulties we face specially related to defecation during flood, even the husband don't do anything to solve this problem."

Salma Khatun in the meeting with women in Bil Chator Village of Masbari Union of Kazipur Uazila, Sirajganj

Information presented in Table 7 convey that fixing each of the TWs cost an amount of 200 to 300 Taka while reconstruction of a ring-slab toilet 600 to 1000 Taka. Respondents of all study area informed that after the disaster, in a very stressful situation in terms of employment and income it was very hard for them to make tube well and latrine reusable. For a sample of 3676 a total of 2500 TWs required post flood cleaning and repair approximately amounting to Taka 750,000.00. For a sample of 3113 ring slab latrines a total of 2844 required reconstruction amounting to Taka 2,844,000.00.

3.1.4 REASONS OF RURAL WATSAN VULNERABILITY

Most respondents in three study fields held the view that exposure to the same hazards as previous magnitude of WatSan disaster would be much higher in future. Reasons pointed out by the respondents were:

WatSan facilities not disaster resilient: The study observed that over the recent past either by government WS projects or by NGOs a few raised platform TWs and latrines have been provided. However, in terms of need it was extremely inadequate. In Masbari Union of Kazipur Upazila the study team identified one Elevated TW cum Latrine. Satkhira did not report having such kind while there were a few in Sariatpur. In most cases those are located and installed at community places such as schools, mosques, markets, cyclone or flood shelters etc. Due to absence of effective care taking and effective management at the local level it was observed that 50% of those TWs and latrines had already become non-functional. Again, women respondents put across that elevated TWs and latrines provided at community places were out of their access. The study team visited two elevated tube-wells cum latrines given at primary schools by GoB-Unicef project and LGED found them non-functional due to mechanical and management problems. During emergency if the community members have to take shelter in those schools there would be crisis of drinking water as well as latrines for hygienic defecation.

"In the year 2011 GoB–Unicef project constructed an elevated TW with supply tank and toilets at the Koarpur Primary school. Student brigade of the school was supposed to fill up the water tank that has three drinking water tap and tube line to the toilet. Problem began when other people of the village used to fetch water from the taps of water tank. On March 3 when the study team had a visit on the spot then it was found that the link pipe from the outlet of TW to the water tank was no longer functional, three water discharging taps of the tank were sealed up and there was no water in the tank for supply to the toilets. The TW head has been reconfigured to make it convenient for using just as a tube-well suspending other accompanied services. Ms. Roksana Parvin, the Head Teacher added "How could I operate the system when out of school time and holidays people use the water and leave the reservoir empty that was filled up by the students?"

During and after the disaster, vulnerability of accessing drinking water by the poor families and HHs was much higher than the rural rich and elite families/HHs. During recent past years either GoB-Unicef project or any other projects implemented by LGED had distributed 90% DTWs among the rich and elite families. Participatory selection of proper TW site by the field agency (NGO) was changed by the Upazila Parishad headed by Upazila Chairpersons.

As per the present policy the final selection of site and Caretaker family is done by Upazila Chairperson through UZWSC meeting, usually selecting sites at elite families. Though GoB rate is 4500 Taka but to have the latrine installed on his/her courtyard a rural elite family negotiates 15,000 to 20,000 Taka with the UP and Upazila Chairpersons. Families can pay to get a GoB DTW on their courtyard.

Respondents unanimously held the view that if the WatSan facilities remain the same than it will give them little or no access to safe drinking water and sanitation during disaster.

Diminishing survival capacity of hardware: The respondents informed that the qualities of rings and slabs of water sealed latrines are not good and strong enough to survive under water. During transect and visiting latrines in the village the study team found that most water sealed latrines were constructed at the backyard of the homes near to ditch and low lying places of the houses. Again, for a significant number of latrines it was observed that rings were not properly grounded in the earth offering high risk of being damaged by the flood. Further, 3 out of 7 ring-slab toilets visited were not cleaned properly and 1 of 7 latrines was observed with broken goose neck. Types of latrine fence made of bamboo/jute sack are weakening by the attack of termite and easily fall on the

ring slab latrine - causing breaks of rings and slabs. At some places sandy soil structure posed extra threat for latrines to be damaged as it easily got eroded causing latrine rings to be exposed.

Community capacity assumed to be the same as before: Actors involved in WatSan still did not include WSDRR perspective in their programme. With regard to developing community capacity, it may be said that although there were little efforts to manage consequences but not risk reduction. However it had been observed that some community level self-help initiatives have been taken by families to elevate their courtyard. In terms of local organization WatSan and DM committees at Upazila, Union and Ward levels were not active and functional as per responsibility and function provided by the SoD 2010. The Upazila DPHE office maintains a stock of TW nipples for raising TWs during emergency period.

3.1.5 DRR MAINSTREAMING AND HFA

According to the Asia Pacific Disaster Report (APDS) 2010, Bangladesh leads the top 10 countries in the Asia-Pacific region based on absolute physical exposure to floods, 5th for storms and 8th for earthquakes (GAR 2010). Contamination of arsenic (As) in groundwater and receding of groundwater table pose additional challenges to improve water and sanitation situation. Again, predicted impact of climate change (PLA Note 60, IIED) warns of increased risk of flooding in Bangladesh due to Glacier melting in the Himalayas. Further, Bangladesh is currently ranked as the most climate-vulnerable country highlighting the increased susceptibility in terms of flood, drought, storm surge and salinity ingress. The WatSan Sector Development Plan (SDP) 2011-2015 clearly states that climate change related hazards, particularly cyclones and storm surge will damage WatSan infrastructure, especially in the coastal region.

Recognizing the crucial links between HFA 2005-2015, and achievement of WatSan MDG, UNISDR added:

"Access to safe drinking water and sanitation (WSS) services is a basic human right, thus DRR is a must to protect such a right. WSS services are critical and vital infrastructures (like hospitals and schools) and their provision a social responsibility – therefore, deserve full recognition and related protection as vital services providers. WSS is a key sector in advancing the goals of HFA and should not be overlooked when addressing the challenge of DRR as part of SD and critical factor for MDGs achievements. (See UNISDR workshop report: Planning Framework for Disaster Prevention in Water and Sanitation under HFA, Bangkok, during 25-27 July 2006)

HFA suggests protecting and strengthening critical public facilities and physical infrastructure and structures through proper design, retrofitting and re-building, in order to render them adequately resilient to hazards (see HFA 19/ii/f). Under the priority action 4 (reduce the underlying risk factors) the HFA suggests protecting WatSan facilities as a critical infrastructure of people's well-being [See HFA section 4 (II) f.]. The UNISDR Bangkok workshop held in the year 2006 on Partnerships for Improving the Performance of Water Utilities (PIPWU 2006) in the Asia and Pacific states that WS services are critical and vital infrastructures (like hospitals and schools) and their provision are a social responsibility – therefore deserve full recognition and related protection as vital services providers (see e.g., www.unisdr.org/asiapacific).

Concerns were reflected in HFA and the findings of the study stated in section 3.1.1 to 3.1.4 clearly divulge that extending WatSan facilities for the people who do not have is obviously important, but

equally important is to make all sorts of effort to protect WatSan gain from the snatching risk of natural disaster.

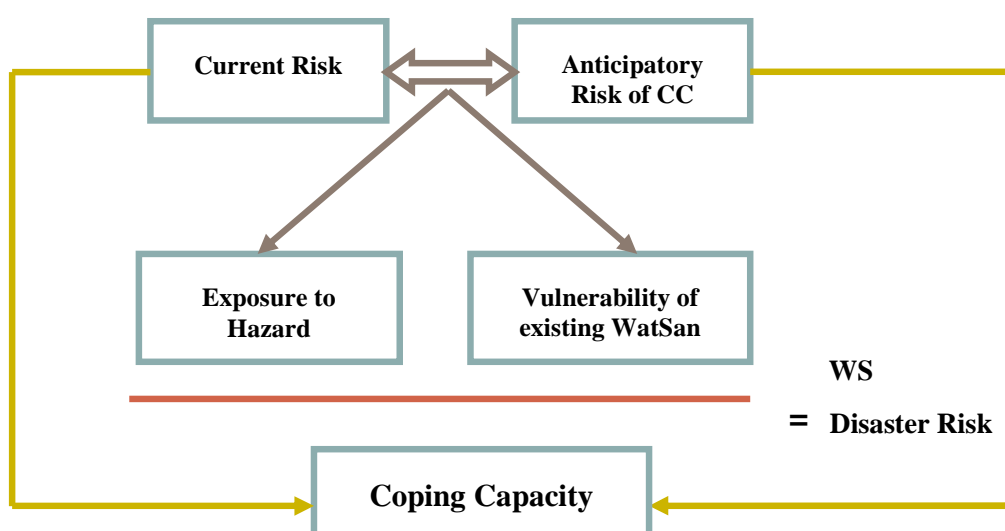
In the context of Bangladesh, achievement of WatSan-MDG and GoB target unavoidably requires mainstreaming DRR into government's WatSan programmes.

3.2 WATSAN-DRR: PERSPECTIVE, GOB POLICIES AND COMPLIANCE

3.2.1 PERSPECTIVE AND GOB POLICY SUGGESTIONS

It is not correct to say that GoB WatSan project in the past did not do anything about WatSan DRR. Several WatSan projects of GoB had/have provisions of elevated tube-wells during flood, emergency water supply and vector control, and related services to reduce secondary health impacts. However, these provisions and activities are related to consequence management, one of the parts of DRR. Again, those analysis and actions did not relate to the risk of climate change. NPDM 2010-2015 firmly states that 'the Disaster Management Vision of the Government of Bangladesh is to reduce the risk of people, especially the poor and the disadvantaged, from the effects of natural, environmental and human induced hazards, to a manageable and acceptable humanitarian level, and to have in place an efficient emergency response system capable of handling large scale disasters'. Bangladesh has created a model to guide disaster risk reduction and emergency response management efforts. This model combines DRR and CCA. Impacts of climate change are visible in Bangladesh in the form of temperature extremes, erratic rainfall, and increased number of intensified floods, cyclones, droughts, prevalence of rough weather in the bay (NPDM-2010). These aspects of climate change and their hazardous exposure needs to be part of WSDRR framework of analysis and action.

Exhibit 8: Conceptualizing and Assessing WatSan Disaster Risk



The NPDM - 2010 clearly states that Disaster Risk Reduction with Climate Change Adaptation offers a win-win opportunity. Both the disaster risk reduction and adaptation to climate change strategies aim at enhancing sustainability, resilient societies and human security. Accordingly the 'Bangladesh

Disaster Management Model (NPDM -2010, Page 37) includes three elements which are Defining and Redefining the Risk Environment, Managing the Risk Environment, and Responding to the Threat Environment. In consideration with GoB's emphasis on both risk reduction and consequence management as well as linking current and anticipatory disaster risk of climate change the Study Team puts forward the following conceptual framework of understanding WatSan Disaster Risk; shown in exhibit 8.

In this formulation (exhibit 8) analysis and action for WatSan DRR is guided by three interrelated variables namely: (1) hazard and hazard behaviour with which WatSan Hardware and Hygiene Behaviour are exposed; (2) In relation to the exposure with the hazard, vulnerability of existing WatSan infrastructure as well as hygiene behaviour; and (3) the capacity of community to cope with the adverse WatSan conditions and their secondary impacts.

The Study Team recognizes that application of this conceptual framework would encompass all components of WSDRR including Prevention, Mitigation, Preparedness, Emergency Response and Post Disaster Reconstruction in which gender disaggregated community capacity development can be integrated as cross cutting issue of analysis and action. The conceptual framework includes analysis and action combining both the Current and Anticipatory Risk of climate change which would enable local communities and actors to determine measures related to mitigation and CCA. Again, the component of prevention would have direct linkage to the CCA aspects such as if the sea level rise causes saline intrusion in water then 'how can we prevent that' for WSDRR. In relation to the stated perspective, GoB acts/ordinances, policies, strategies and plans are:

- National Policy for Safe Water Supply and Sanitation (NPSWSS), 1998;
- National Water Policy (NWP), 1999;
- National Policy and Implementation Plan for Arsenic Mitigation (NPIPAM), 2004;
- National Sanitation Strategy (NSS), 2005;
- Pro-poor Strategy for Water and Sanitation Sector in Bangladesh, 2005;
- WATSAN Committees, LGD Circular- May, 2007;
- Vetting Guide for WatSan Project (VGWP), 2009;
- National Cost Sharing Strategy for Water Supply and Sanitation in Bangladesh (NCSSWSS, 2011);
- Sector Development Plan (FY 2011-25);
- Standing Orders on Disaster (SOD), 2010;
- National Plan for Disaster Management (NPDM), 2010;
- National Strategy for Accelerated Poverty Reduction II (FY 2009 - 11) General Economics Division, Planning Commission, Government of the People's Republic of Bangladesh, October 2008;
- Sixth Five Year Plan (SFYP), 2011-15.

Although not all directions and policy propositions are included in one document, but synthesis of above listed documents (Table 16) would appreciatively spell out that the GoB provides four major but comprehensive policy guides towards mainstreaming Disasters Risk Reduction in any WatSan scheme/project. Of these four policy directions one is related to content and other three are related to process; shown in the following exhibit 9.

Exhibit 9: Major GoB Policy Suggestions towards WSDRR

Related to Content
<ul style="list-style-type: none"> • Inclusion of both disaster risk reduction and consequence management options
Related to Process
<ul style="list-style-type: none"> • Apply participatory disaster risk assessment and planning process of project development • Promotion of decentralized community participatory and self-reliant process • Inclusion of participatory monitoring and evaluation.

Table 16: Mainstreaming DRR into WatSan Project - GoB Policy Suggestions

Policy suggestions	Stated in the document
Inclusion of both disaster risk reduction and consequence management options	
Include strategies and activities related to WatSan risk reduction and consequence management	NSAPR II, NPDM, 2010 & SFYP
Mitigation: Include strategies and activities related to mitigation Design a project that involves R&D for flood/disaster resistant latrines and water points. Design a project that includes measures related to mitigate direct or indirect environmental health risks, arsenic testing and promote a range of arsenic mitigation technology.	NPDM, 2010, VGWP, 2009 & NPIPAM, 2004
Preparedness: Include strategies and activities related to mitigation. Establish and maintain a portion of WS facilities which can be used during and after disaster. Build adequate number of sanitary latrines in shelters, schools and above flood level for use during emergency.	NPDM 2010, NSS 2005 & SDP, 2011-15
Emergency response: Sanitation options applicable to emergency situation shall be adopted such as hygienic trench latrine for shelter, mobile toilet, pot latrine for child and old people, etc	NSS, 2005
Reconstruction: Post disaster operation and maintenance support and services/recovery and reconstruction	SFYP
Apply participatory assessment and planning process for project development	
Designing project through identification of local level risk related to safe drinking water and hygiene practices through community consultation	Standing Orders on Disaster (SOD), 2010 National Plan for Disaster Management (NPDM), 2010
Apply participatory tools, involve users and women in project planning	Vetting Guide for WatSan Project (VGWP), 2009
Conduct EIA at the preparation stage of the project	VGWP, 2009
Promote decentralized community participatory and self-reliant process	
Community participation in preparedness programs	NPDM, 2010
Promote self-reliance as key to preparedness, response and recovery	NPDM, 2010

Policy suggestions	Stated in the document
Community capacity development towards WS disaster risk reduction	NPDM, 2010
Capacity development of local government and community to reduce WS DRR risk	VGWP, 2009
Advance the cause of transformation of service delivery from centralized to decentralized.	VGWP, 2009
Emphasise decision making and implementation by the local government at the local level.	NSS 2005, & NSAPR II
Involve local government bodies as an essential part of the strategy	NPDM, 2010 & NSAPR II
Take non structural mitigation measures such as community WATSAN Disaster Preparedness	NSAPR II, & SFYP
Undertake special awareness raising activities including hygiene practice messages during disaster	NSS, 2005 & SDP 2011-15
Application of participatory monitoring and evaluation	
Conduct baseline study through application of participatory tool	VGWP, 2009
Involve local community in monitoring and evaluation	VGWP, 2009
Post disaster monitoring of operations and maintenance of WatSan facilities/reconstruction and recovery	SFYP

3.2.2 POLICY COMPLIANCE IN TWO SAMPLE PROJECTS

The study finds that two national scale WatSan projects which were studied had little compliance with the GoB policy suggestions to mainstream DRR as cross cutting in DPP design. Although not on DRR content but SHEWA-B project includes some activities related to policy suggestions related to process. Although SRWSP explicitly states one objective related to Disaster Management but activities related to that objectives are not reflected in the plan of operation.

The Case of SRWSP (6th phase of GoB regular project)

<p>SWRSP is the nation wide regular project of the GoB which started many years ago. After completion of the 5th phase with renewed title of SRWSP the on-going 6th phase have been designed and implemented for the period of 2010-2013. The executing agency of the project is DPHE and the project is fully funded by the government. The objectives stated in the DPP are:</p> <ul style="list-style-type: none"> To reduce the incidence of water borne and water related diseases by supplying safe water to rural population. To increase the coverage of safe water supply services. To retain water supply facilities in rural areas during and after natural calamities. 	
Intended Outputs	<p>Output 1: The service coverage increased to a significant amount and people are getting safe water.</p> <p>Output 2: DPHE, LGIs, CBO, communities are capable in management of the water supply facilities established.</p> <p>Output 3: All installed water supply facilities are maintained and functioning properly.</p>

Major activities	<ul style="list-style-type: none"> • Installation of water points using various technologies including Pond Sand Filter, SST/VSST, Shallow Tube Well, Shallow Tara Tube Well with Dev Head, Shallow Tara Tube Well (Modified TaraDev) Deep Tube Well, Dug Well, Deep Tara Tube Well with Dev Head, Rain Water Harvesting. • Introduction of Arsenic Removal Technologies such as Construction of Community Based Arsenic-Iron Removal Unit and Installation of Community Based Reverse Osmosis Unit.
Operational strategies	<ul style="list-style-type: none"> • Implementation through existing operational approach of DPHE • Caretakers training and skills development for Repair and Maintenance • Research and Development, Technology Mapping and Piloting New/Alternative Options • Arsenic Testing and Preparation of Village/Para Maps through LGIs • Community IEC and Awareness Raising on WatSan through UP and WATSAN committee • Refill for Field Testing Kit (As, Fe, Mn and Salinity) • Supply and Services
Sustainability	On completion of the project the users will remain responsible for operation and maintenance of the installed facilities under the guidance of Union Parishads. They may seek technical support from DPHE in that respect.
M&E design	The project document includes a log frame.

With regard to the policy compliance of including *both Risk Reduction and Consequence Management* options the DPP does not include preventive activities related to establishing drinking water facilities which would not lose performance during the disaster period. Activities related to preparedness and post disaster reconstructions are not included except some budget allocation for water supply response during dry season. The project log-frame does not include any intended output related to WSDRR (appendix C of the DPP). It was observed that reports prepared by Upazial DPHE office did not reflect any activity implementation related to WSDRR. Further, the senior level DPHE staff consulted at the national level confirmed that the perspective and actions related to disaster resilient WatSan promotion is not well-built in the DPP design.

Regarding the policy compliance of *applying participatory disaster risk assessment and planning process of project development*, the DPP does not inform activity conduction related to risk assessment. (See Project Summery - Part A and project details - Part B of the DPP/RDPP). Staff consulted at central DPHE office informed that previously for some projects FGDs were conducted as part of project development process but those were not for Risk Assessment.

In terms of policy compliance related to *promotion of decentralized community participatory and self-reliant process*, as the project does not include strategies and activities related to WatSan disaster preparedness there is no inclusion of *community participation in preparedness programs* (see the DPP). With regard to *Promote Self reliance as key to preparedness, response and recovery* some activities included are: training on project orientation, awareness build up process, use of community latrines, O&M of village piped water supply system, water safety plan and improvement of hygienic behaviour but those are not DRR related (Appendix H of the final project document). No activity related to *community capacity developing towards WS disaster risk reductionis included*. The *capacity development of LGIs and community* included activities are related to water supply but not related to DRR (see implementation modality section of DPP). Monthly project progress reports of SRWSP prepared by Upazila DPHE offices do not reflect activity conduction related to LGIs capacity

development. None of the Upazila/Union WatSan Committee or DM Committee members' consulted admitted receiving of any input related to their capacity development from the SRWSP.

In terms of policy compliance *towards Application of Participatory Monitoring and Evaluation* the DPP/RDPP proforma does not include any identical section related to 'monitoring and evaluation plan of the project'. Further, although the DPP/RDPP includes a section of implementation methodology (Appendix - H of the DPP) outlining broader strategy of implementation yet there is no section dealing with detailed operational plan of activities. The DPP/RDPP document does not give sufficient ideas about baseline study except meeting minutes which include discussion of baseline study cost (see Planning Commission Reply - SRWSP). The project to some extent includes involvement of local community in monitoring and evaluation especially for the operation and maintenance of (O&M) of water supply systems and local resource mobilization (Appendix H of the DPP) but they are not related to disaster risk reduction. Monthly progress reports prepared by Upazila DPHE offices do not reflect any activity conduction related to PM&E.

The Case of SHEWA-B

<p>With the funding support of DFID this project is designed and implemented jointly by the Unicef and GOB. The previous phase of the project began in the year 2006 and ended in 2010. The ongoing phase of the DPP was prepared as an extension up to 31/12/2012. The execution agency of the project is DPHE. The project covers 60 Upazilas from 16 plain land districts and 600 para centres in 16 Upazila of 3 CHT districts, as well as 18 Pourashavas within those 19 districts as urban component. The Objectives stated in the DPP are to:</p> <ul style="list-style-type: none"> • Reduce mortality, morbidity and malnutrition due to water and excreta related diseases, especially among poor women and children. • Improve standards of hygiene behaviours on a sustainable basis e.g., hand washing with soap before taking food and with soap/ash after defecation particularly among the poor. • Improve access of safe water in un-served and underserved areas, including those affected with arsenic contamination. • Increase sanitation coverage to 100% in programme areas as per GoB goal by 2013 	
Intended Outputs	<ul style="list-style-type: none"> • Improved hygiene behaviour adopted and practiced habitually by in project areas including schools. • Communities in project areas including schools have access to and use sustainable technologies for environmental sanitation (excreta disposal, solid and liquid waste management). • Whole communities (in project areas have year round access to adequate quantities of safe water for drinking, food preparation, and hygiene practices. • GOB-Unicef project tested demand responsive approaches that seek to improve sustainability, reaching the poorest. • Accountability and community choice replicated at scale within programme areas and disseminated widely in the sector. • WASH (including GOB-Unicef project) strategies approaches principles and innovations (including for emergency) positively influence sector legislation policies programme regulation policies strategies and resource allocations.
Major activities	<ul style="list-style-type: none"> • Installation of water sources in rural areas.

	<ul style="list-style-type: none"> • Installation of urban pipe water supply system, construction of shared latrines (Twin pit), Community latrines (Two unit), Compost toilets, Public toilets, Drain and compost plants. • Sanitation and hygiene education in primary and secondary including supplying of Information, Education and Communication (IEC) materials. • Construction of WatSan facilities in primary and secondary schools. • Repair WatSan facilities in primary and secondary schools. • Awareness creation among communities regarding sanitation, hygiene and safe water through SOCMOB. • Training, orientation and skill development of concerned personnel. • Strengthen water quality testing capacity of DPHE. • Strengthen collaboration and coordination among different stakeholders of WatSan sector.
Operational strategies	<ul style="list-style-type: none"> • Community level facilitation, mobilization, education and motivation through NGO called Field Agency. • Social Mobilization for Awareness Building. • BCC for community education and awareness creation. • Development of Community Hygiene Promoters through training to work for creating awareness on sanitation and hygiene behaviour. • Community (Ward) Action planning through Participatory Rural Appraisal (PRA) method. • Hardware and other support for implementation of Community Action Plans. • Involvement of District, Upazila and Union WatSan committees in project implementation and providing necessary support and advice. • Community participation in the form of contribution money fixed by the government for each type of water sources to be borne by the community.

As for the compliance with the policy of *including both DRR and consequence management options* although the main text and project log-frame did not state objectives related to WSDRR but the project includes following activities related to it:

- Design, promotion and quality control of piped systems and multiple pump installation especially in arsenic emergency villages; (Appendix-Note for Record-2nd RDPP);
- Water quality (esp. arsenic, microbiological) testing capacity set-up at local level (Appendix-Note for Record-2nd RDPP);
- Flood/climate resilience building of water points and public and community sanitary facilities (e.g. Appendix-Note for Record-2nd RDPP).

For the rural areas, constructions of different types of water points are included but not latrines (see procurement plan of the RDPP). For the R&D for developing Disaster Resilient WatSan facilities the DPP include the following (see final procurement plan of the RDPP):

- Study on appropriate latrine options for flood prone, wetland and river eroded areas;
- Piloting on appropriate latrine options for flood prone, wetland and river eroded areas.

The project does not include activities related to consequence management such as preparedness, emergency response and recovery. The study team observed that the elevated TW cum latrines at

schools were installed by the project. However progress report prepared by Upazila DPHE office as well as Field Agency (NGO) did not inform Disaster resilient Ws facility construction as a category.

With regard to *designing project through identification of local level risk*, section 15 of the DPP proforma (DPP proforma page 23-37)) encourages pre assessment/pre-investment study before formulation of the project. The 2nd Revised Development Project Proposal (RDPP) Dated March 2011; prepared by DPHE (see the narrative document of the RDPP dated March 2011) and the main DPP Dated March 2006 (see Main DPP 2006) did not include clarification of this section thus it is not clear whether the project development process included pre assessment process or not. Senior project staff at DPHE informed the risk assessment was not in the perspective when the main DPP was developed in the year 2006.

In terms of policy compliance related to *promotion of decentralized community participatory and self-reliant process* the project design included support to private water point owners and WatSan committees through training on O&M. With regard to *promote Self-reliance as key to preparedness*, the project conducts intensive activities related to community awareness creation on hygiene behaviour promotion. The project does not include inputs related to WatSan Disaster preparedness and recovery. As for the *community capacity development towards WSDRR* the project implements various activities. These include formation and facilitation of village committee, engaging NGOs for community mobilization and awareness building. CHP development, PRA and CAP are other relevant activities included in the projects. The study team observed that variation between the design and implementation is significant. The UP Chairman of Masbari Union of Kazipur Upazila was not aware about an elevated TW cum latrine constructed in his union. The project has provision of providing training to the UP chairperson and members on their roles and functions for WS.

Concerning the policy compliance *towards Application of Participatory Monitoring and Evaluation* although the DPP does not include a narrative section of project M&E plan, yet (Appendix D/9) it includes list of activities for monitoring and evaluation. Some of the listed activities for project M&E provide sense of involving participatory M&E such as:

- Periodic review meeting with frontline workers;
- Support for monitoring activities by adolescent girls.

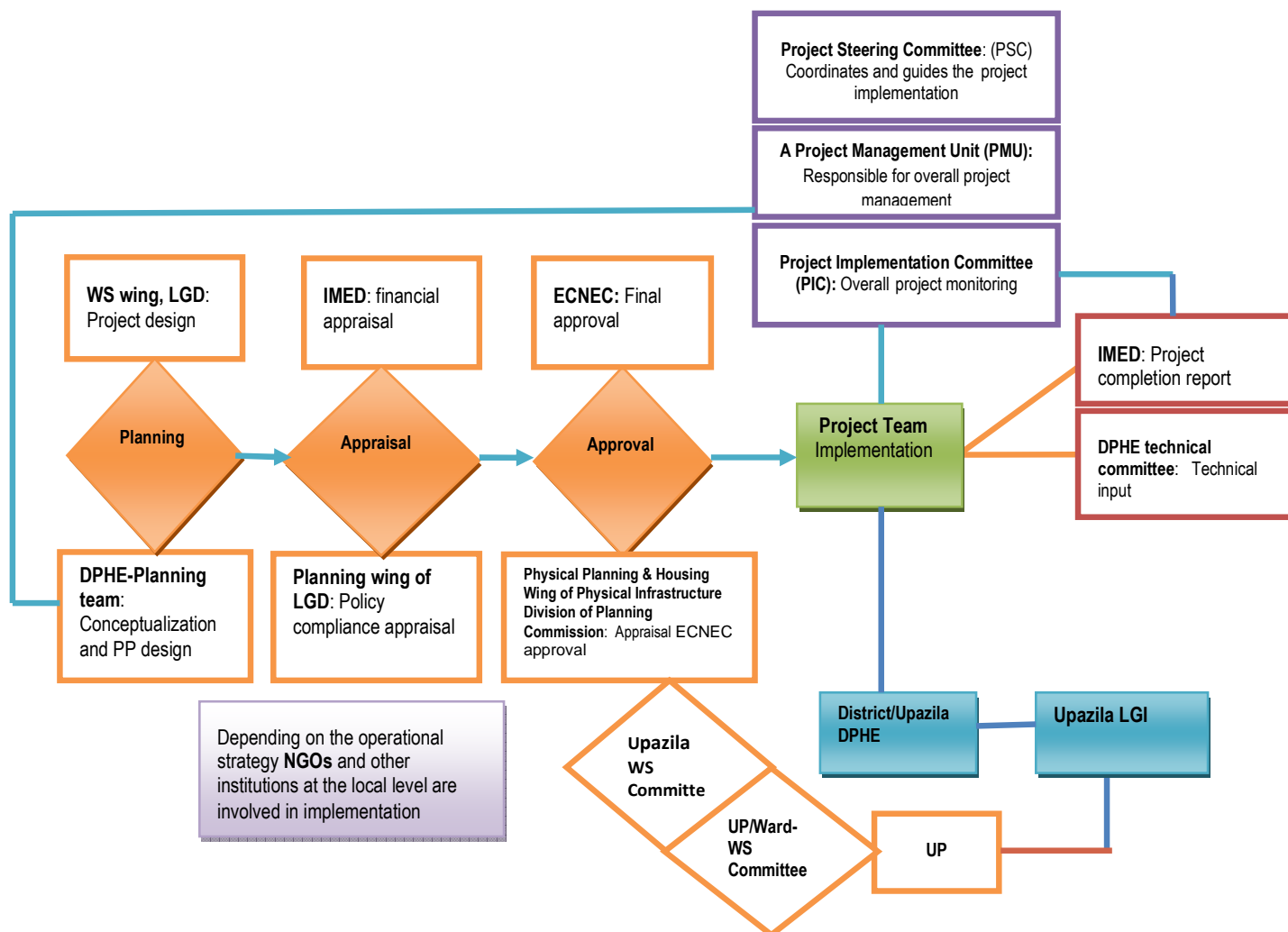
Further, the project design includes facilitating CAP in community participatory review of plan implementations. Communities are engaged in cluster basis PRA exercise to review and evaluate changes in WatSan facilities and hygiene behaviour. The DPP does not have provision of post disaster monitoring as well as O&M.

3.3 WATSAN DPP: PROCESS AND ACTORS

The process and actors of a GoB led WatSan DPP design and implementation may vary depending on the strategy of a project. Generally a project has to go through several steps in which multiple actors are involved (see Exhibit 10). This engagement is required for planning, appraisal, approval and implementation as well as monitoring and evaluation. The exhibit 8 presents a diagram of process and actors involved, in case of a GoB WatSan project for which DPHE is the implementing agency. However, it is important to note here for any kind of government DPP design a prescribed format provided by the Planning Commission should be followed.

Planning a DPP: In DPHE, a planning team is formed comprising the senior staff members under direct supervision of the Chief Engineer. This team initially designs the DPP based on the sector priority and resource availability as per the Planning Commission's prescribed format. In planning and designing the DPP regular contact and sharing are done between DPHE and WS wing of LGD.

Exhibit 10: Planning, Approval and Implementation of a GoB WatSan Project of DPHE: Process & Actors



Appraisal of DPP: The Planning Wing of LGD does initial appraisal then forwards the DPP to the concerned sector division of Planning Commission. If required IMED of Planning Ministry also does the appraisal including financial aspects. Planning Wing of LGD appraises DPP's compliance with the GoB policy. In case of donor funded DPP, respective donor or donors' consortium obviously becomes one of the central actors of DPP appraisal. The ERD of Ministry of Finance has a vital role to play in the process of donor searching and negotiation, if the DPP requires foreign assistance. For any kinds of revision and correction feedback notes of appraisal are sent to DPHE on which DPHE finalizes the DPP design.

Approval: Once the DPP design is final then the LGD forwards the same to the Physical Planning & Housing Wing of Physical Infrastructure Division at Planning Commission. The Physical Infrastructure Division assisted by the Physical Planning & Housing Wing acts as both appraisal and recommending body. Before submission to the ECNEC the Division appraises the DPP through organizing pre-ECNEC meeting. Based on the notes and recommendation of the pre-ECNEC the LGD & its relevant department recast the DPP if required and submit it again to the sector division of Planning Commission. After completion of all necessary processes the respective division submits the DPP to ECNEC for the final approval. However, in case of donor funded project before submission of the DPP at Planning Commission it has to be submitted to ERD along with donor commitment letter to have ERD clearance.

Implementation: The approved project is implemented as per the strategy and mode of operation set in the DPP. Typically for smooth implementation and management of the project a Project Steering Committee (PSC) is set that coordinates and guides the project implementation. A Project Management Unit (PMU) responsible for overall project management is set, while a Project Implementation Committee (PIC) is given the charge of overall project monitoring. Managerial leadership is provided by a Project Director. From the central to local level the implementation of the project is done through the established set-up of DPHE. For the integration of any technical aspects DPHE technical committee at the central is made instrumental. Within the scope of the DPP Upazila DPHE office in collaboration with Upazila WatSan Committee makes decision of service delivery through the local government institutions at Unions and Wards. Depending on the design the project implementing actors may vary from project to project.

Monitoring and evaluation: Monitoring and evaluation of the project is done as per approaches and activities included in the project design. Monitoring and evaluation of the project may take place periodically either by the executing agency, the LGD or the IMED. The IMED or any other agency including the LGD may also undertake the Impact Evaluation.

Besides, Planning Commission (Programming Division) circulates ADP guideline in March of each year describing the key criteria and priorities for undertaking development projects by different ministries and agencies. Among other Public funds, ADP also known as block grant (*Thok boraddo*) is the most popular central government's grant for union level. ADP allocation is a form of central government's grant to the Union level. The allocation of ADP is centrally determined, has been a way of channelling government funds to union level. The Upazila Parishad Development Fund Utilisation Guidelines provides absolute liberty in decision making on need based development activities. This means that if there is need and priority then a Upazila Parishad can even invest the entire amount of development fund for Disaster Resilient WatSan Promotion. Moreover, the National Sanitation Guidelines earmark 20% of ADP block grant for the implementation of WatSan activities. Block Grant received by the UP also can be used for Disaster Resilient WatSan Promotion.

3.4 POLICY DESIRED ROLE PERFORMANCE – BRIDGING THE GAPS: MATRIX OF KEY FINDINGS

PLANNING AND DESIGNING STAGE						
Policy suggestions						
<ul style="list-style-type: none"> Designing project through identification of local level risk related to safe drinking water and hygiene practices through community consultation (NDMP- 2010 & SOD-2010) Application of participatory tools and involvement of users and women in project planning (VGWP-09) 						
Sl No.	Level/ Stakeholders	Desired role	Current gaps	Opportunities	Suggestive tools and guidelines for DRR mainstreaming	Capacity building needs
1	National level: ECNEC- Planning Commission	Provide appropriate DPP pro-forma and guide that ensures DRR in WatSan DPP.	Existing DPP proforma does not include explicit DRR criteria in DPP design but initiated a process of revision.	2007 ECNEC meeting dated 08 October decided to integrate DRR in DPP. Although the existing DPP proforma did not include criteria for DRR mainstreaming but it does not prohibit any planning team or department to design a project for WSDRR.	A revised DPP pro-forma includes WSDRR at a DPP objectives, strategies, activities and budget provisions; a classical 4X4 matrix of project logical framework analysis (LFA) and a section of project M&E plan.	Advocacy to Planning Commission.
2	National level: Planning team at DPHE or other departments	Facilitate local level staff and actors to conduct participatory assessment of WSDR & Action Planning.	DPPs are not developed through local risk assessment; thus no facilitation of local staff to conduct local risk	Recognition of the needs by policy makers and national level actors as it is clearly stated in SOD, 2010 NPDM, 2010. CRA tools developed by CMDP in which WSDR assessment can be	Integration of WSDR assessment in CRA tool which has already been introduced by MoFDM at union level. Strategies and guide to resource and service mobilization by the local committees for CAP	Conceptualize approach to WSDRR. Application of CRA tools

			assessment. Lack of fund, tools & staff capacity at local and national level.	integrated.	preparation and implementation. Tool for community WSDRR action planning. Planning guidelines for special regions and context such as Char, Haor and Coastal.	
		Develop standard but flexible disaster resilient hardware options.	Yet to be performed.	Opportunity to asses already installed disaster resilient hardware options by different government departments and NGOs. R&D wing at DPHE.	A project to asses existing /already installed hardware and R&D for new technology development; and package learning.	Resource and technical capacity to design and implement such project.
		Prepare geo-hazard specific DPP of WSDRR based on the finding of local risk assessment.	National level key informant consulted informed DPPs are not designed on the basis of local risk assessment.	Comprehensive structure of local WatSan Committees from the Upazila to Ward level. SHEWA-B: Tested and effective multi-stakeholder facilitation model on the ground.	Revised DPP pro-forma includes DRR mainstreaming criteria.	Detail understanding about concepts of WSDRR and GoB policies to mainstream as well as HFA.
		Capacity building through an organised structure (institution) of their own officials (national to local) on new	Training and capacity development programme for own staff on a regular basis is not yet in place.	DPHE resource centre NILG. Physical infrastructure of training centre spread all over the country under various government Departments and NGOs.	Capacity building strategy	An organized training and capacity development set up within DPHE

		roles/tasks and mainstreaming DRR as cross cutting capacity building initiatives.	Some DRR training was provided through contracting external organisations.			
3	Upazila level: DPHE/LGE	Conduct WSDRA at the local, supply findings to national level planning team.	Systems and tasks yet to be designed and rolled out from the national to Upazila.	Same as above.	Integration of WSDR assessment in CRA tool which has already been introduced by MoFDM at union level.	Apply CRA tools and consolidate findings. Skilled person power.
4	National level: WS wing-LGD	Establish coordinated intervention mechanisms in the DPP design.	Yet to be established.	Recognition to the needs by policy makers and national level actors.	A coordinated intervention sharing framework.	Initiate the process and develop the framework.
APPRAISAL AND APPROVAL STAGE						
Sl No.	Level/ Stakeholders	Desired role	Current gaps	Opportunities	Suggestive tools and guidelines for DRR mainstreaming	Capacity building needs
1	National Level: Planning wing of LGD	Organize project evaluation committee meeting and go thorough initial appraisal of the DPP and recommend for approval by Planning	Perform this task but as the DRR has not been considered as explicit mandatory criteria of the DPP proforma thus the PEC does not apply	2007 ECNEC meeting minutes have decision to integrate DRR in DPP.	DRR criteria in the Terms of Reference (see DPP proforma, page 37, annex Kh) of the PEC.	DRR understanding at the planning wing of LGD for thorough assessment and appraisal of a DPP.

		Commission.	DRR criteria for its appraisal.			
2	Physical Planning & Housing Wing of Physical Infrastructure Division of Planning Commission	Appraisal and recommending for the final approval of the DPP by the ECNEC.	DRR criteria are not included for appraisal.	2008 ECNEC meeting minutes have decision to integrate DRR in DPP.	DRR criteria in the Terms of Reference (see DPP proforma, page 37, annex Kh) of the PEC.	DRR understanding at the Physical Planning & Housing Wing of Physical Infrastructure Division for thorough assessment and appraisal of a DPP
IMPLEMENTATION STAGE Policy suggestions : <ul style="list-style-type: none"> • Community capacity developing towards WS disaster risk reduction through community participation and Self reliance as key to preparedness, response and recovery (NDMP 2010) • Decision making and implementation by the local government at the local level (VGWP 2009, NSS, 2005 & NSAPR FY 2009 - 11) • Priority on non-structural mitigation measures such as community WatSan Disaster Preparedness and awareness raising activities (NSS-2005 and SDP 2011-15) 						
Sl No.	Level/ Stakeholders	Role	Current gaps	Opportunities	Suggestive tools and guidelines for DRR mainstreaming	Capacity building needs
2	National level: DPHE or any other relevant departments	Conduct R&D to develop and standardize geo-hazard specific disaster resilient WatSan hardware technologies.	Absence of well-designed R&D programmes for developing geo-hazard specific disaster resilient hardware technologies.	Opportunity to consolidate knowledge on technological options from the projects of different actors conducted at the recent past and ongoing. R &D wing at DPHE	DRR resilient WatSan technology guide including special context such as Char, Haor and Coastal.	Resource to design and implement a project to assess present hardware technology and R&D for developing new technology.
		Building capacity of actors & organizations involved in	No program to develop capacity of actors engaged in WSDRR.	National Plan for Disaster Management does mention about sector specific guideline (NPDM page 53).	Capacity Development Framework for actors involved in WSDRR.	Strengthen training/capacity development resource centre at DPHE.

		WatSan to apply DRR resilient WatSan hardware technologies.				
3	National level: WS wing of LGD	Roll out training programmers on WSDRR from the national to local level actors engaged in WatSan through NILG.	<p>DRR of WatSan is not included in GoB-Unicef Training Program on "Capacity Building of UP" which is conducted by NILG.</p> <p>WatSan DRR is not included in the training of UZDMC committee training on Disaster Management; conducted by DMB.</p> <p>Training is not linked with on the ground process facilitation to enable the Union WatSan and DM committees.</p>	<p>Institutional facilities of NILG & DPHE to implement training programmes.</p> <p>Existing GoB-Unicef Training Program on "Capacity Building of UP" conducted by NILG</p> <p>Existing training programme of UZDMC training on Disaster Management conducted by DMB</p>	<p>Review of existing training module of GoB-Unicef and DMB and integrate contents related to:</p> <ul style="list-style-type: none"> • Community and institution level WSDRR including water, sanitation and hygiene • GoB policies towards WSDRR • Organization development of local committees 	Process facilitation skills person power at local/ Upazila level

4	Upazila level: DPHE, LGED, Upazila Parishad and Upazila WatSan Committee	Facilitate multi stakeholders participatory analysis and action process through local government institutions.	Relevant stakeholders consulted at the sample Upazilas and Unions informed they have not received any directives from the national level about how to facilitate multi stakeholder's participatory analysis and action process through local government institutions.	Full fledged Upazial Parishad offer opportunity to bring multi-stakeholders in its umbrella. Willingness of Upazila and Union Parishad.	Guidelines for multi-stakeholder strategic planning and coordinated operation at Upazila level. Data base of actors of WSDRR in a Upazila. Revised charter of duties for local level GoB staff.	Facilitating diverse stakeholders with differing interests. Establishing and updating data base of Upazila level WatSan actors. Process facilitation and organizational development. Advocacy to have genuine authority, directives and resource at the Upazila Parishad from the central government towards multi-stakeholder strategic planning and coordinated operation at Upazila level.
		Organize and conduct training and education activities for local committees on WSDRR	Upazila level actors consulted held the view that they have not yet received any directives and resources from the relevant national government authority or any other project to conduct	Willingness of local actors. Interest of local community members to participate in training.	Content training manual on family, community and institution level WS-DRR.	Developing local level trainers/trainers pool with adequate training skills and resources.

			training and education activities for local committees on WSDRR, thus they did not do.			
		Provide technical support to promote hygiene and maintain the standards	DPHE does not include monitoring on the status of distributed latrine. Some Upazila level DPHE offices have no capability of arsenic testing.	Demand in the community. Set norms and procedure to provide technical support.	Include damage of latrine in the monthly reporting format of Upazila DPHE	Arsenic screening at regular intervals.
5	UP and Union WatSan Committee	Asses, Plan, Implement and Evaluate – WSDRR activities at the wards and unions involving active community (both male and female) participation in analysis, action and decision making.	UP and Union WatSan Committee did not show active and functional interest to perform roles in normal time.	Opportunity to apply the process though already placed community level organization structure.	Tool for facilitating the process of participatory assessment, planning, monitoring and evaluation of WSDRR activities at local WS committees.	Design and application of process facilitation tool. Resource for implementing CAP.

MONITORING & EVALUATION STAGE						
Policy suggestions						
<ul style="list-style-type: none"> • Conduct of baseline though application of participatory tools and involve local community in monitoring and evaluation (VGWP 2009) • Emphasize on the post disaster monitoring of operations and maintenance of WatSan facilities / reconstruction and recovery (SFYP) 						
SI No.	Level/ Stakeholders	Desired role	Current gaps	Opportunities	Suggestive tools and guidelines for DRR mainstreaming	Capacity building needs
1	National Level: Planning team of DPHE or any other department	Design a DPP as such by which it has explicit objectives related to WSDRR and accordingly has well defined monitoring framework and plan ensuring participatory monitoring and evaluation approach.	M &E framework and plan is not an identical and explicit section of existing DPP proforma.	Growing realization among national level actors for strengthening project M&E.	Classic 4X4 LFA: As basis to design M& E framework and tools for a DPP. Project M&E plan section in the existing DPP proforma.	Advocacy to Planning Commission for incorporating M&E framework and plan as an identical and explicit section in the existing DPP proforma.
		Collaborate with central level monitoring and evaluation cell/team and facilitate local level staff to apply participatory approach to baseline development.	In case of two sample projects studied, none of the three Upazilas DHE offices is aware of project specific baseline conduction and use of participatory methods and	Opportunity to explore relevant PRA tools used for baseline development and project M&E activities from the perspective of WSDRR. SHEWA-B project already using some PRA tools such as cluster WatSan mapping exercise in which WatSan Risk can be integrated.	Project M&E Framework based well defined guide and tools for M&E. Review and integrate WS disaster risk identification in SHEWA-B cluster mapping tool. Review CRA tools and integrate WS disaster risk assessed in the tool. Simple PRA tools can easily be used by the local staff for project specific baseline	Design and application of participatory methods and tools for project baseline development and M&E.

			tools.	CRA tool developed by CDMP.	exercise and project M&E activities.	
2	National Level: M&E cell/team	Together with planning team develop project log frame, M&E framework and tool for data collection, preservation, analysis and report preparation.	Development of systematic project M&E framework and tools is not yet in place. Existing DPP pro-forma does not include an identical section entitled "project M&E plan". Project activity reporting formats do not include DRR aspects.	Growing realization among central level DPHE and LGD staff about importance of doing result based project M&E.	Review existing DPP pro-forma and include an identical section entitled "Project M &E framework and plan." Review monthly project progress report prepared by Upazila DPHE office and incorporate information related to WSDRR such as number of elevated TWs, Latrines etc.	Design project M&E.
		Guide, coach, and orient project implementation team at national and local level to establish baseline, and perform M&E activities of the project as per project M&E design and plan.	None of the sample Upazila level DPHE staff covered by the study has received training from the national level team on how to establish project specific M&E baseline.	Skilled and knowledgeable staff at national level.	Project specific participatory M&E tools which include relevant tools to monitor and evaluate a project including all fields such as process, effectiveness, efficiency an impact.	Design Training of local level staff in application of M&E tools and conducting project M&E activity.

		Consolidate project M&E data supplied by Upazila district and prepare periodic M&E report of the project.	Performed based on the data supplied by the Upazila and District offices but only on GoB distributed TWs and latrines.	Opportunity to strengthen qualitative dimensions of M&E.	Same as above.	Same as above.
3	National level: DPP implementation team	Ensure application of project M&E framework and tool through supervising local level staff.	While visiting provide input on the traditional monthly reporting format.	Regular district level meeting provides venue for national level staff for coaching upazila level staff as part of supervision.	No additional tools required.	Thorough understanding on the purpose and application of tools used by the local level staff.
4	National level: PIC & SC	Review progress of the DPP implementation and achievements and provide strategic directions to the project implementation team.	Does review the progress of DPP in terms of implementation of target activities, but less on quality of process and results as well as sustainability of WatSan infrastructure.	Advocacy opportunity to augment PIC and SC members' concerns to review quality of process and results as well as sustainability of WATSAN infrastructure	Advocacy strategy .	Advocacy
5	National level: MIE Wing of LGD	Verify project M&E report supplied by DPHE project	Does traditional verification but not thorough.	Strong interest of MIE Wing of LGD to review thorough	No tool required.	Skilled person power for thorough verifications.

		team.				
6	National level: IMED of Planning Ministry.	Verify project M&E report supplied by the project team.	Very much concerned about cost cutting in the name of cost rationalisation but less attention to verify achievement of project objectives and result.	Advocacy opportunity to augment IMED's concerns to review to shift emphasis from the cost rationalization to review project goal and objectives.	Advocacy strategy.	Advocacy
7	Upazila level : DPHE or LGE	Conduct participatory baseline survey in a Upazila involving local community in monitoring and evaluation.	Not yet imparted.	Presence of union and ward WS-committee structure in the community.	Project M&E Framework based well defined guide and tools for M&E.	Capacity development for operating bottom- up structure of participatory M&E.
		Prepare and update WatSan data base of the Upazila	Three sample Upazilas covered by the study had no updated WatSan data base.	Upazila where SHEWA-B project is in place has already created valuable data per Ward and Union of a Upazila can be utilized.	Dynamic data entry and updating software at the local.	Person power and resource/

Operation & Maintenance

Policy suggestions

- Establish and maintain a portion of WS facilities which can be used during and after disaster, establish number of sanitary latrines in shelters, schools and above flood level for the use during emergency NPDM 2010 (NPDM 2010, NSS 2005 & SDP, 2011-15)
- Provide post disaster operation and maintenance support and services/recovery and reconstruction

SI No.	Level/ Stakeholders	Desired role	Current gaps	Opportunities	Suggestive tools and guidelines for DRR mainstreaming	Suggestive capacity building needs for DRR mainstreaming in view of tools and guideline
1	National Level: DPHE	<p>Normal time DRR:</p> <p>Provide directives, technical support, & resource to the local actors and monitor the O&M.</p>	<p>National: Absence of transparent and well-defined operational strategy.</p> <p>Project specific O&M training provided to the caretakers in some cases.</p> <p>After GoB-5 project, less allocation for post instalment O&M.</p>	<p>Prominent discourse of sustainability at the national level actors including GoB, Donors</p> <p>Technical capacity for providing Caretaker taker training.</p>	Transparent and well-defined operational strategy and Standing Order.	Person power and resource provision for O&M.
		<p>Emergency Preparedness & Response</p> <p>Keep ready stock of all relevant materials as per SOD.</p> <p>Arrange emergency water supply and sanitation</p>	<p>Some emergency items cannot be preserved due to very short self-life such as bleaching and WPTs.</p> <p>Procedural delay in procurement.</p> <p>Insufficient ready stock of</p>	Available suppliers at national and local.	Enter into an agreement with enlisted suppliers so that they can deliver materials immediately as and when required.	Create emergency revenue budget head with adequate funding provision.

			<p>materials requires new procurement – take time.</p> <p>Lack of ready-Cash for prompt response.</p> <p>No emergency revenue budget for WatSan disaster response.</p>			
		<p>Post Disaster:</p> <p>Commission damage and needs assessment for O&M, provide required materials and technical support</p> <p>Supervision and Monitoring of O&M</p>	<p>Difficult to assess as fast as desired due to inaccessibility to the affected area</p>	<p>Ready damage assessment tools of DMB and DPHE existing format</p> <p>Coordination process and mechanisms already established</p> <p>Cell Phone</p>	Not required	Person power & Logistics
2	Upazila level DPHE	<p>Normal time DRR:</p> <p>Monitor performance of WatSan facilities in the Upazila</p>	<p>Performance monitoring of already installed hardware is weak</p>	<ul style="list-style-type: none"> • Community level trained caretaker. • O&M manuals & folder available • Local level hardware shops, mechanic and mason. • Local level private 	Not required	Continued training on caretaking and O&M at local level.

				sanitary latrine production centres.		
		<p>Emergency Preparedness & Response</p> <p>Keep ready stock of all relevant materials as per SOD at Upazila level.</p> <p>Arrange emergency water supply and sanitation</p>	<p>Do not get delivery in time.</p> <p>Insufficient ready stock of materials.</p> <p>Lack of ready-Cash for prompt response.</p> <p>No emergency revenue budget for WatSan disaster response.</p>	Some items are available at local market.	Not required	Continued training on emergency preparedness and response for WatSan.
		<p>Post Disaster</p> <p>Undertake damage and needs assessment for O&M, provide required materials and technical support</p> <p>Supervision and Monitoring of O&M</p>	<p>Difficult to assess as fast as desired due to inaccessibility to the affected area.</p>	<p>Ready damage assessment tools of DMB and DPHE existing format.</p> <p>SOD provides clear guides for coordination process and mechanisms.</p> <p>Cell Phone.</p>	Not required.	

3.5 MAINSTREAMING DRR INTO DPP PROCESS: GAPS IN DESIRED ROLE PERFORMANCE AND REASONS

3.5.1 GAPS

At the design: GoB policy suggests designing a WatSan project through participatory assessment of current disaster risk as well as anticipatory risk of climate change. The Implementation gap of this policy is gigantic. None of the sample projects reviewed was designed through participatory disaster risks assessment of WatSan. Neither of the three Upazilas and three UPs covered by the study could show any forms of WatSan profile at their level. None of the sample Upazila, Union and Village level actors engaged as study respondent was involved in any kind of activities related to participatory assessment of WSDR & RRCAP. As the process of local level WSDRA & RRCAP was absent thus a logical gap extended at the upper tier in preparation of geo-hazard specific DPP through consolidation of local community level WSDRA & CAP findings. However, the central level staff of DPHE pointed out that this task was performed at the past. FGDs were conducted to assess needs but not on continuous basis neither from the perspective of DRR. Further, it was informed that recently a few other DPPs had been designed for DRR but not through consolidation of local community WSDRA & CAP findings.

At the appraisal and approval: For the appraisal and approval it appears as imperative that a DPP is appraised to examine whether it has included GoB policy suggestions on the content and process stated earlier. Both the Wing of LGD and Planning Commission perform their roles of appraisal but the DRR have not been considered as mandatory criteria for the DPP appraisal. The assessment does not verify compliance with DRR mainstreaming aspects. Further, both of these two actors suffer from inadequate person power for doing thorough appraisal of a DPP. Moreover, political pressure for quick approval hampers detailed appraisal of a project. Absence of an identical section of project M&E plan in the existing DPP proforma eventually does not help appraisals and approval actors.

At the implementation: With regard to implementation, GoB policy suggestions are to apply strategies that enhance community capacity development through community participation and self-reliance as key to preparedness, response and recovery. GoB policy also suggests making decision and implementation through LGIs with a priority to non structural mitigation measures such as Community WatSan Disaster Preparedness and Awareness Raising activities. The SHEWA-B project includes good sharing of learning on hygiene behaviour promotion. None of the two projects taken as cases includes generating and sharing knowledge on disaster resilient WatSan technologies as deliberate intent. The study explores that the existing manuals and resources did not include content related to WSDRR technologies. However, Ward and Union WatSan committee members engaged as the study respondents pointed out that SHEWA-B project provided them training and orientation on roles and responsibilities of those committees in line with GoB circular and SHEWA-B project implementation plan.

The study observes that, there is a prevalence of drastic gaps towards desired role performance at the Upazila level actors. The Upazila level actors consulted in three studied Upazilas unanimously confirmed that they had not yet performed yet desired roles to develop multi-stakeholders coordinated strategic plan and operations as per policy proposition. They are yet to play the facilitation roles towards enabling local WS and DM committees to assess, plan and implement WSDRR activities. In accordance with the SOD 2010 UZPs and UPs did not receive any directives from the national level to facilitate multi stakeholder's participatory analysis and action process. In

most cases UZWC and UWCs are not active and functional to perform roles in normal time. WS wing of LGD is yet to roll out training programmes on WSDRR for actors engaged in WatSan through NILG. When consulted the national level stakeholders opined that facilitation roles are performed by Upazila level actors but not continuous nor from the perspective of WSDRR. Roles to identify disaster prone areas are yet to be performed. SHEWA-B project has provided some disaster friendly water & sanitation options. The DPHE at Upazila maintains a stock of TW nipples that can be used to raise TWs in need. Other roles related to emergency response and preparedness is performed by the Upazila actors but not as intensive as it should be in terms of needs.

The desired role performance of Union level actors stated earlier, that the major part is not performed yet. The UP Chairperson and members added that they had not been proposed by any government projects to do assessment of WSDR. None of the UPs covered as study samples could show Union WatSan profile.

At the M&E: GoB policy suggests application of participatory monitoring and evaluation approach. This policy would have been implemented if explicit objectives related to WSDRR were included in the project design. Unlikely national levels where multiple parties are involved in a WatSan DPP monitoring and evaluations local level actors are the regular local staff of relevant departments. If a WatSan DPP were designed for WSDRR then to comply with policy suggestions local actors (such as Upazila DPHE or LGED) had to perform the following desired roles:

- Conduct participatory baseline survey in a Upazila;
- Involve local community in monitoring and evaluation;
- Prepare and update WatSan data base of the Upazila;
- Facilitate UP to prepare and update WatSan data base of the UP.

In terms of converting policies (stated earlier) into practice the study found that none of the projects were designed from the perspective of WSDRR. There is no process and approach adapted yet to include DRR indicators in the monitoring and evaluation. The national level DPP planning team did not perform the role of developing M&E baseline through participatory process. Although previously in some cases situation assessment was done though conducting FGDs but the baseline was not developed on project objectives and indicators. Upazila DPHE uses a monthly reporting format for individual project as a single M&E tool for reporting. This report only includes information of drinking water options and latrines distributed and repaired by the project. This reporting format does not include category of information about elevated TWs and latrines provided. In case of GoB-Unicef SHEWA-B project, the study found that besides third party M&E approach the central team successfully designed and enabled CHF's and UBCF of field agencies to apply participatory process through PRA tools. With regard to facilitating and training local level staff on project specific M&E activities Upazila DPHE staff informed that they had not received any formal training and orientation on the project specific M&E functions and tools.

The study found that local staff get orientation on report preparation through informal ways which is not systematic as the project-customized tools and process is not available. The national level respondents pointed out that the PIC and SC does review the progress of DPP in terms of implementation of target activities rather than quality of process and results. Similarly MIE Wing of LGD does traditional verification but which is thorough. IMED of the Planning Ministry is more concerned about cost rationalization but pays inadequate attention to the achievement of project objectives and result. In relation to desired role performances by an Upazila level government department such as DPHE stated earlier yet to be performed.

At the O&M: With regard to the O&M government WatSan projects only include TWs and other water option but not latrines. The Study Team visited disaster resilient water and water cum latrine options provided by LGED, and SHEWA-B projects. It was observed that some of the options already had become non-functional due to technology failure, ground water depletion and inefficient community management. Again, screening of arsenic at regular interval is another issue. While visiting study samples at the communities it was found that a significant portion of ring-slab latrines were no more in hygienic condition. Though not disordered by technology failure but in Satkhira area functionality of Pond Sand Filter (PSF) had stopped because of the use of pond for other purpose. It has also been learnt that community DTW had been given to a courtyard of elite family few years back, now is being used only by elite family and the poor families lack the access. The existing M&E largely centered on extension of WatSan hardware. It renders less emphasis on O&M and qualitative dimensions including damage that occurs naturally even without being affected by hazards. The SRWSP does not have adequate provision of caretaker training for TWs. Procedural procrastination in procurement put forward difficulties to provide Emergency Response during crisis situation. Neither at the central nor at the local level DPHE has any ready cash for rapid response. There is no revenue budget allocation to DPHE for WatSan disaster response.

3.5.2 REASONS

Lack of conceptual clarity on WSDRR: SOD-2010, NPDM 2010 and BCCSAP 2009 complementing each other offer a national level conceptual model of DRR that combines both current and anticipatory risk in defining DRR. However, several policies and strategies prepared at the past on WS sector lacked clear concepts of defining WatSan Disaster Risk and Risk Reduction. There is absence of clear definition of WatSan Disaster Risk. Lack of shared understudying among staff on the clear concepts of WSDRR is one of the reasons of prevailing gaps.

Inadequate integration of DRR in WS sector policies and plans: NPSWSS 1998, NWP 1999, NPIPAM 2004, all these sector policies and plans were developed before BCCSAP 2009 NPDM 2010 and SFYP thus did not include DRR into WS. SDP 2011-15 discusses about DRR inclusion in WS. In the year 2009 the Policy Support Unit of LGD prepared a Climate Management Plan of WS. Though this document was named as '*Climate Management Plan*' but basically its provided analysis of climate change mainstreaming gaps in WS. In the same year VGWP-2009 was prepared which included criteria of DRR and Climate Change. However, inclusion of criteria related to designing DPPs through DRR risk assessment would make it completed. The study found VGWP-2009 was not applied for WS DPP design and evaluation. The DPHE Perspective Plan 2011-2021 sets four objectives in which DRR into WS is not included. Inadequate integration of DRR in WS sector policies and plans is one of the reasons of prevailing gaps towards mainstreaming DRR into a WS DPP.

Absence of policy accorded strategy: Absence of DRR policy accorded sectoral strategy is another reason behind the prevailing gaps. At the national level NSAPR II proposes to include strategies and activities related to WatSan Risk Reduction and Consequence Management (including CCA). This strategy has not been converted yet as sectoral strategy. NSS 2005 includes strategies related to WS emergency preparedness and response. PPSWS 2005 & NCSSWSS 2011 did not include any strategies related to WSDRR. The strategy section of DPHE Perspective Plan 2011-2021 states '*DPHE will assist Upazila and Union Parishad to take necessary measures for ensuring safe water supply and sanitation facilities during and post disaster period*' convey traditional approach of emergency response.

Absence of methodological guide: Gaps of policy execution are caused by the absence of methodological guidelines. Although the government has provided very appreciative policy suggestions yet there remain ample gaps in implementation on the ground. One of the main reasons is that the policy suggestions are provided in the form of what *should be and what to comply* without supportive operational guidelines for the actors involved. At the national level NPDM 2010, SOD 2010, & NSAPR II are complementing each other to suggest applying participatory assessment and planning process for project development and promoting decentralized community participatory self-reliant process. At the WS sector, although several policies and strategies did not discuss much about operational methodology and role performance but NSS 2005 & VGWP 2009 suggest applying:

- participatory assessment and planning process for project development;
- decentralized community participatory and self-reliant process;
- participatory monitoring and evaluation.

However, there is absence of methodological guide about 'how to do' and it did not help actors to act accordingly. The study finds absence of the following operational and methodological guidelines discouraging actors to act as per GoB policy suggestions:

Guide to resource and service mobilization: Both Upazila and Union Level WatSan as well as DM committee members pointed out that responsibility and tasks assigned for these committees in the SOD now require regular works at the normal time (specially for DRR) as well as emergency situation. Again planning and implementation of WSDRR action plan require resources and fund. At present neither the WS nor the DM committee members have directions about how they will mobilize resource and services.

A coordinated intervention sharing guide: WSDRR encompasses wide range of interventions category related to prevention, mitigation, preparedness, reconstruction, vulnerability reduction and capacity development. Further, all those categories of interventions relate to water, sanitation, hygiene behaviour, environmental cleanliness and other related development issues. No denying application of all those together can create better synergy and efficiency. Coordinated operation is required between departments doing DM and WatSan from the national to local level. As an example SHEWA-B project provides training to the UP on WS, then DMB on DM. Linking these two can create better synergy and efficiency, for which a coordinated intervention sharing is essential; not yet in place.

Guidelines for multi-stakeholder strategic planning and coordinated operation: This has been suggested by SOD, but without having clear strategy and operational guide the Upazila Parishad and Upazila WS committees are not encouraged to do so.

Transparent and well-defined operational guide for O&M: While this is one of the crucial needs but the study finds that at present DPHE and its WatSan project are doing little. Local level DPHE staff informed that the main responsibility of O&M belongs to the caretakers. There is little provision of providing O&M services by DPHE including caretaker training. The study team observed some TWs, DTWs, PSF were installed during last 2 to 4 years have been disordered. Those are beyond the capacity of local caretakers to repair but there is no guide and direction about what to do for maintaining operation of those.

Planning guidelines for special regions and context such as Char, Haor and Coastal: Due to their distinctive character and context Char, Haor and Coastal area warrant context specific planning guide which is not yet in place.

Guidelines for GO-NGO collaborative model of local level facilitation: Compliance to the government's policy suggestion requires intensive person power for process facilitation at the local level. Facilitation of CRA, RRAP and intensive follow up for its implementation and other capacity development of local WS and DM committees and LGIs crucially require facilitating staff at the local level. It is almost impossible for any government department to employ such a large number of staff. The best possible way is to have local NGOs perform these roles. Involving NGOs as field level facilitators demands a well defined strategy, which is yet to be in place.

Lack of tools: Gaps in policy execution and role performance of staff and actors are also caused by the absence of needed tools at various stages of a WatSan project cycle. Tools related to DPP design, appraisal and approval, implementation as well as M&E are yet to be in place. Absence of the following tools is discouraging actors at various levels to perform their desired roles to comply with policy suggestions:

- A revised DPP proforma including DRR criteria
- WatSan Risk Assessment and CAP
- Revised progress report format that includes damage of latrines, disaster friendly latrines and TWs as well as status of disaster preparedness
- Participatory monitoring & evaluation
- Dynamic data entry and updating software at the local

Inadequate capacity development input: Compliance to the policies demands the following new set of understanding and skills among staff at DPHE and other departments involved in WSDRR.

- In-depth understanding on the concepts and principles of WSDRR;
- Thorough understanding on the international, regional and national policies on the WSDRR;
- Understanding of DRA of WatSan and facilitating CAPs and their implementation;
- Principles and process of multi-stakeholders planning and implementation;
- Facilitating community participation and mobilization for WSDRR;
- Designing and implementing effective training programmes for stakeholders involved;
- Facilitating sustainable organizational development of Union and Upazila WS committees;
- Designing and applying participatory method and tools for M&E.

Institutional mechanisms and input to augment the above-stated understanding and skills among staff engaged from the national to local level are extremely inadequate.

Shortage of required person power and financial resources: Shortage of required person power and financial resources is also another constraint impeding policy compliance and desired roles performance. At present relevant government departments at national and local level are suffering from inadequate person power and financial resources, especially at the local level. Government policies suggest WatSan DPP should be developed through local level risk assessment. These risk assessment activities have to be conducted before a DPP is prepared and approved. But at present there is no budgetary provision for these pre-DPP design activities. Again, budgetary alignment and allocation is needed for the LGIs to implement their action plans, multi-stakeholder strategic planning and coordinated operation at the Upazila.

Inadequate readiness to offer disaster resilient hardware options: Unpredictable behaviour of hazards and lack of disaster resilient hardware technologies is another reason behind the prevailing gaps. DPHE is yet to get ready to offer multiple options of disaster resilient hardware technology.

Further, there are cross-cutting issues which are:

Lack of political commitment: It is expressed in a sense that most policy documents direct different actors about 'what should be done' without clarity on 'how to do'.

Lack of monitoring of policy execution: Implementation of policies largely depends on the individualistic capacity and orientation of high officials. There is a lack of institutional mechanisms of regular monitoring of policy implementation.

Less emphasis on community participatory process: Appropriate disaster resilient WatSan facilities relevant in the local context relevant which is better known by the local communities. Community participatory process of analysis and action can promote appropriate disaster resilient WatSan facilities. There is further scope for government projects of WatSan to give due attention on this aspect.

Absence of genuine bottom up planning process and real empowerment of LGIs: LGIs have been given a lot of responsibilities but without adequate authority in decision making and accessing government resources. Though there is provision but preparation of five year plan is not in practice by Upazilas. Block grant budget for the LGIs is insignificant compared to total ADP budget.

CHAPTER 4. WAY FORWARD

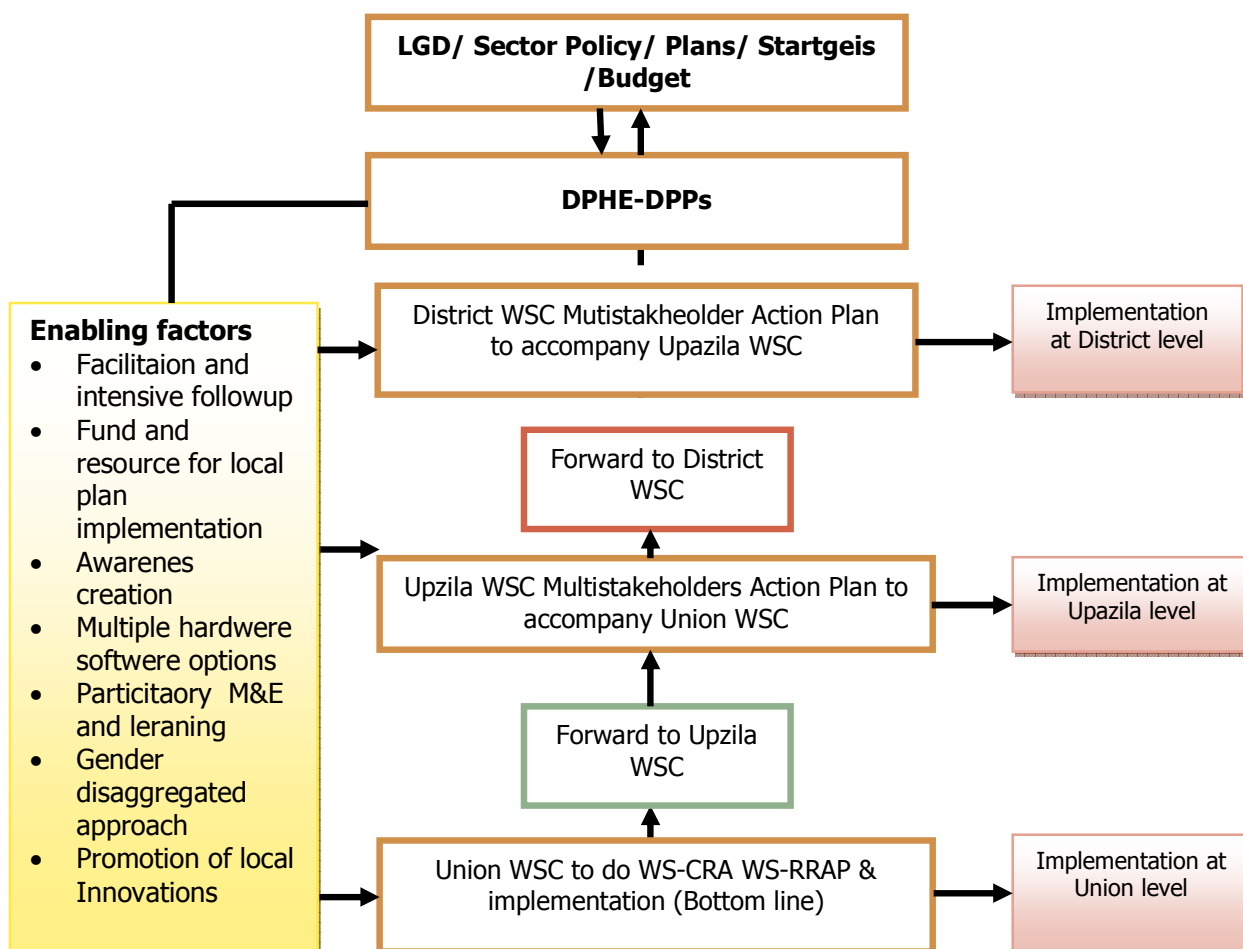
4.1 KEY RECOMMENDATIONS

In accordance with the findings described earlier the study puts forward a framework of DRR mainstreaming into WatSan DPP which summarises the prevailing situation and recommended actions (see section 4.2). This framework is prepared in relation to Rural WSDRR. It does not include cross sector policy compatibility and conflict analysis. This can be seen as a limitation of the study. Thus the Study Team recommends a separate and detailed study on Cross Sector Policy Compatibility and Mismatching. Based on the findings and in relation to government's institutional context as well as national level policies the framework defines a hierarchy of indicators at three levels such as National, Sectoral and Department. The study is about Mainstreaming DRR into Government Rural WatSan projects thus the sectoral agency means LGD and the department is DPHE. The sets of indicators applied to this framework are shown in exhibit 12. Recommendations presented are drawn out of the framework justifying the links and needs of following action:

- Founding on the national level concepts **LGD** and **DPHE** should develop and introduce a conceptual framework and definitions of WSDRR (proposed conceptual framework presented in exhibit 8). It is the responsibility of **WS Wing of LGD** to develop a shared conceptual understanding among national level staff at LGD and DPHE.
- **LGD** should develop a National WatSan DRR Plan and Policies in coordination with other relevant ministries such as Agriculture, Environment, Water Resource and Health and Family Welfare.
- In compliance with NPDM, **PSU of LGD** should include criteria related to 'project design approach' in VGWP-2009 and use it for DPP design. **PEC** can use this revised VGWP for DPP appraisal.
- After the development of National WSDRR plan & policy **LGD** should develop a geo-hazard specific Rural WSDRR strategy in coordination with other relevant ministries such as Agriculture, Environment, Water Resource, Health & Family Welfare and Bangladesh Geological Survey in compliance with national WSDRR plan and policy.
- **DPHE** should develop and introduce detailed methodology of:
 - Participatory assessment and planning process for WSDRR project development;
 - Decentralized community participatory and self-reliant process;
 - Participatory monitoring and evaluation.

The study proposes to apply a systemic bottom up process of WSDRR following the same approach as CDMP thought contextualizing the process in relation to WatSan; shown in the following exhibit 12. A contextualized CRA and RRAP tool is presented in the section 4.5.2. However, the study team strongly recommends that the contextualization of CRA and RRAP tools needs to be developed and finalized through field exercise piloting.

Exhibit 11: Proposed Systemic Bottom-Up Process of WSDRR

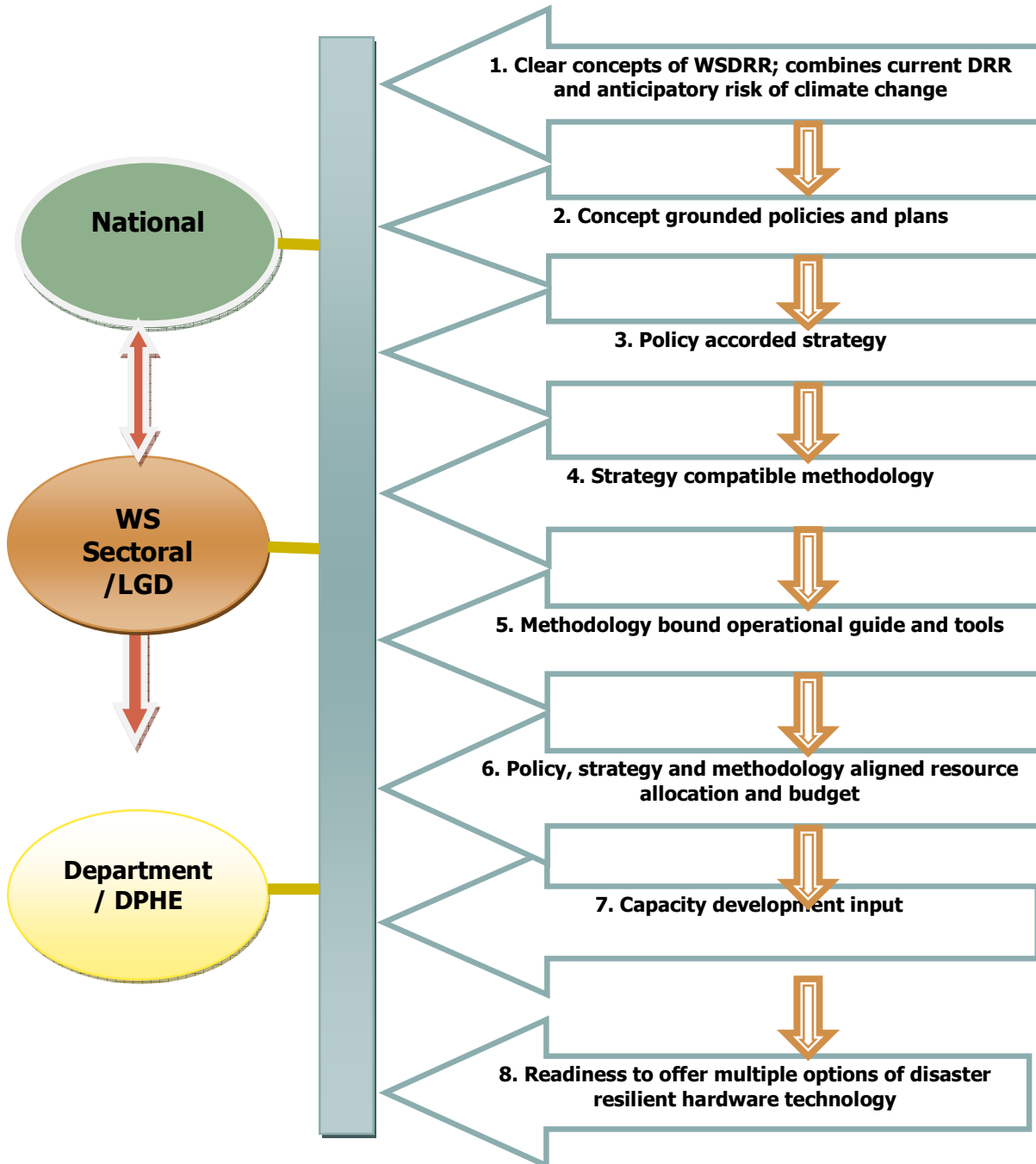


- **IMED** has a proactive role to play and provide technical support to DPHE in developing systematic and effective Result Based M&E involving participatory methodology.
- **Planning Commission** would have to develop a coordinated intervention sharing framework for ministries and departments dealing with WatSan and DM.
- **LGD & DPHE** have crucial role to develop and introduce methodological guidelines for:
 - Resource and service mobilization for Union and Upazila level local committees for the implementation of their WSDRR action plan;
 - Multi-stakeholder strategic planning and coordinated operation at Upazila level;
 - Operation and Maintenance (O&M);
 - Planning for special regions and context such as Char Haor and Coastal.
- **Planning Commission** should develop and introduce a revised DPP pro-forma that encourages inclusion of DRR objectives, strategies and activities in design and appraisal.

- **LGD** to develop and WS contextualized CRA and RRAP tool in collaboration with **CDMP**.
- **MoFDM** and **DMB** to prepare and introduce revised SOS and D-Form include Sanitation Damage and Needs Assessment
- **DPHE** to develop and introduce result based tools for project M&E IMED to provide technical support
- **LGD** to allocate adequate funds and accordingly align with its ADP and MTBF for:
 - Pre project design activities such as CRA and RRAP;
 - LGIs WSDRR plan implementation;
 - Multi-stakeholder strategic planning and coordinated operation at Upzila level;
 - Operation and Maintenance;
 - Capacity development training and input for staff.
- **MoFDM/CDMP/LGD** should allocate funds and budget in MTBF and ADP for comprehensive training programme and capacity development of staff at national and local level.
- **WS wing of LGD/NILG/DPHE:** Design, plan and roll out training programmes by which staff at national and local have adequate understanding and skills on:
 - Concepts and principles of WSDRR;
 - International, regional and national polices on the WSDRR;
 - Conduction and facilitation of CRA & RRAP of WatSan;
 - Facilitation of RRAP implementation;
 - Principles and process of facilitating multi-stakeholders participation;
 - Facilitating community participation and mobilization in WSDRR;
 - Design and implement effective training programmes for stakeholders involved;
 - Facilitating sustainable organizational development of Union and Upazila WS committees;
 - Design and application of participatory method and tools for M&E.
- **DPHE:** Design and implement a DPP for developing a catalogue of zero-hazard suitable appropriate disaster resilient hardware options.
- **DPHE:** Design and implement a DPP for developing a catalogue of zero-hazard suitable appropriate disaster resilient hardware options.

The study team strongly recommends that NARRI or any other potential donors may support a pilot program of the relevant ministry or government with a focus to demonstrate, learn, and develop the process of WSDRR. This would have cross-cutting effects in terms of methodology and tools development, evidence based advocacy and developing a nucleus group of staff in DPHE and LGD equipped with practice generated understanding.

Exhibit 12: Indicators of Systematic Mainstreaming of DRR into Government's Rural WatSan Program



4.2 DRR INTO WSS: MAINSTREAMING FRAMEWORK

Indicators ↓ Level →	Prevailing situation			Recommended actions
	National	WS Sector /LGD	Department /DPHE	
Clear concepts	Although prepared by two separate ministries but SOD-2010, NPDM 2010, BCCSAP 2009 overlapping component of both DRM and CCA offers a conceptual model of DRR. It combines both current and anticipatory risk of climate change in conceptualizing Disaster Risk.	Although several policies and strategies are prepared at the past on WS sector but those lack clear concepts of defining WatSan Disaster Risk.	*Absence of clear definition of WatSan Disaster Risk. *Lack of shared understanding among staff. Prevailing understanding of staff dwells on the pre-during-post paradigm of disaster response.	Founded on the national level concepts of DRR LGD and DPHE should develop a conceptual framework and definitions of WSDRR. WS Wing of LGD to develop a shared understanding among national staff at LGD and DPHE. The study proposes a conceptual framework; shown in exhibit 8.
Concept grounded plans and policies	BCCSAP 2009, NPDM 2010, and SFYP complementing each other propose that all DPP should include DRR. Specifically these national plans and policies suggest inclusion of both DRR and Consequence Management in any DPP.	NPSWSS-1998, NWP- 1999, NPIPAM- 2004, all these sector plans and policies were developed before BCCSAP 2009, NPDM 2010 and SFYP. Those did not include DRR in WS. However the SDP 2011-15-advocates of DRR inclusion in WS.	In the year 2009 the LGD prepared a Climate Management plan of WS. This document though named as 'Climate Management Plan' but provided analysis of climate change mainstreaming gaps in WS. In the same year VGWP - 2009 was adopted. It included criteria of DRR and Climate Chnage. However, inclusion of criteria of designing DPPs through DRR risk	LGD has to develop a National WatSan DRR Policy and Plan in coordination with other relevant ministris such as Agriculture, Environment, Water Resource and Health and Family Welfare. In compliance with NPDM, PSU to include criteria related to "project design approach' in VGWP- 2009 and use it for DPP design so that PEC could use it for DPP appraisal.

Indicators ↓ Level →	Prevailing situation			Recommended actions
	National	WS Sector /LGD	Department /DPHE	
			assessment would make it complete. VGWP is no more in use. The DPHE Presepctive Plan 2011-2021 sets four ojectives in which DRR into WS is not included.	
Policy accorded strategy	NSAPR II proposes to include strategies and activities related to WSDRR and Consequence Management (including CCA)	NSS- 2005 includes strategeis related to WS emergency preparedness and response. PPSWS 2005 & NCSSWSS 2011 do not include any strategeis related to WSDRR.	The strategy section of Presepctive Plan 2011-2021 of DPHE states 'DPHE will assist Upazila and Union Parishad to take necessary measures for ensuring safe water supply and sanitation facilities during and post disaster period'. It conveys traditional approach of emeregency response.	In compliance with national WSDRR policy plans LGD to develop geo-hazard specific rural strategy in coordination with other relevant ministries such as Agriculture, Environment, Water Resource , Health and Family Welfare & Bangladesh Geological Survey.
Strategy compatible methodology	NPDM 2010, SOD 2010, & NSAPR II complementing each others suggest applying participatory assessment and planning process for project development and apply decentralized community participatory self-relient	Although sectoral policies and strategies did not discuss much about operational methodology and role performace but NSS 2005 & VGWP 2009 suggest to apply: <ul style="list-style-type: none"> participatory assessment and planning process for project development; decentralized community participatory and self- 	*Absenc of wel-defined methodology. *Absence of well defined guideline for collaborative GO-NGO partenrhship approach of process facilitation at the local level.	DPHE to develop & introduce standard operational methodolgy of: <ul style="list-style-type: none"> Participatory assessment and planning process for project development; Decentralized community participatory and self-relient process; Participatory monitoring and evaluation.

Indicators ↓ Level →	Prevailing situation			Recommended actions
	National	WS Sector /LGD	Department /DPHE	
	process.	reliant process; <ul style="list-style-type: none"> Participatory monitoring and evaluation. 		IMED to provide technical support to DPHE in developing systematic and effctive result based M&E involving participatory methodology.
Methodology bound operational guidelines and tools	Absence of coordinated intervention and service sharing guidelines among departments dealing with WatSan and DM.	*Absence of resource and service mobilization guidelines for Union and Upazila level local committees towards implementation of their WSDRR action plan. *Absence of guidelines for multi-stakeholder strategic planning and coordinated operation at Upazila level.	*Absence of transparent and well-defined operational guidelines for O&M. *Absence of planning guidelines for special regions and context such as Char, Haor and Coastal.	LGD to develop coordinated intervention sharing framework for departments dealing with WatSan and DM. LGD & DPHE to develop and introduce the other remaining methodological guidelines.
	*Absence of a DPP proforma includes a section that pursues WS DPP planners to include promotion of DRR resilient WatSan in the DPP. *SOS and D-Form does not include emergency Sanitation Damage and Needs Assessment.	*Absence of contextualised CRA and RRAP tool for WSDRR. * Absence of systematic monitoing and evaluation.	*A report format includes information related to disaster friendly WatSan facilities.	Planning Commission to develop and introduce a revised DPP proforma that encourages inclusion of DRR objectives, strategies and activities in design and appraisal. LGD to develop WS contextualized CRA and RRAP tool in coloboraion with CDMP . MoFDM and DMB to prepare and introduce revised SOS and D-Form include Sanitation Damage and Needs Assessment. DPHE to develop and introduce result based tools for project M&E. IMED to provide technical support.
Policy, strategy and	-----	Absence of adequate funds and budgetary allocation in	-----	LGD to allocate adequate funds and accordingly align MTBFand ADP of LGD

Indicators ↓ Level →	Prevailing situation			Recommended actions
	National	WS Sector /LGD	Department /DPHE	
methodology aligned resource allocation and budget		ADP block grant or in DPPs on following: <ul style="list-style-type: none"> - Pre project design activities such as CRA and RRAP; - LGIs to WSDRR plan implementation; - Multi-stakeholder strategic planning and coordinated operation at Upzaila level; - Operationa and Maintenance; - Capacity development traning and input. 		MoFDM/CDMP/LGD: Allocate fund and budget in MTBF and ADP of LGD for comprehensive training programme.
Capacity development input	-----	Absence of comprehensive capaicity development programme for staff and actors involved.	Inadequate provision of capaicity development activitiesand input in DPPs.	WS wing of LGD/NILG/DPHE: Deisgn , plan and roll out training programmes by which national and local level staff have adequate understsnding and skills on: <ul style="list-style-type: none"> • Concepts and principles of WSDRR; • International, regional and national policies on the WSDRR; • Conducting and facilitating of CRA & RRAP of WatSan as well as implementation; • Principles and process of facilitating multi-stakeholders participation; • Facilitating community participation and mobilization in WSDRR; • Designing and implementing effective training programmes for stakeholders involved;

Indicators ↓ Level →	Prevailing situation			Recommended actions
	National	WS Sector /LGD	Department /DPHE	
				<ul style="list-style-type: none"> Facilitating sustainable organizational development of Union and Upazila WS committees; Design and application of participatory method and tools for M&E.
Readiness to offer multiple options of disaster resilient hardware technology	-----	----	DPHE yet to be raedy to offer multiple options of disaster resilient hardware technology	DPHE: Design and impement a DPP for developing a catalogue of geo-hazard suitable appropriate disasater resilient hardware options.

4.3 OPPORTUNITIES FOR BRIDGING THE GAPS

As mainstreaming DRR into WatSan would face challenges the following opportunities can be tapped towards creating enabling environment for the actors, eventually overcoming the challenges.

Favourable support-context: MDG, HFA, United Nations Framework Convention on Climate Change (UNFCCC), SAARC Framework for Action (SFA) 2006-2015, offer a supportive context for mainstreaming DRR in WatSan. At the national level the needs of mainstreaming DRR into WatSan are recognized by national level actors and policy makers. For developing operational strategies the main opportunities are favourable policies. The commitment of policy makers would provide operational guidelines and strategies to the relevant actors at various levels.

ECNEC decision: One of the potential opportunities to incorporate DRR mainstreaming criteria into project proforma is the favourable minutes of ECNEC meeting held on 8th October 2007 that provides clear decision to integrate DRR in a DPP proforma and Working Paper for the ECNEC. It was informed that by at time the Planning Commission had already drafted the revised DPP proforma including DRR criteria. Although the DPP proforma of Planning Commission is yet to include DRR criteria as an explicit section, however it does not restrict designing a project for WatSan DRR

Some useful tools: The congenial opportunity is already helpful to develop tools in which WSDRR can be integrated. CDMP has already prepared CRA & RRAP tools which can be used for WSDRR. The on-going GoB-Unicef SHEWA-B project applying tool called cluster basis WatSan mapping seems very appropriate in which WSRA perspective can easily be built. The comprehensive disaster damage assessment tools developed by DMB are already in place. Further, while Unicef has Ground Water Maps, DPHE has the Aqua maps. By this time some organizations have started working in the field of WSDRR such as DAM, Water Aid, OXFAM, Concern Universal, Save the Children and probably some more who are yet to be known. Some NGOs like Dhaka Ahasania Mission and Concern Universal are practicing WatSan Vulnerability Mapping and CAP tools. Collection, consolidation, refinements and contextualization of available tools can fill up the gaps of tools needed.

Existing training facilities & resources: DPHE has institutional facilities for conducting training programmes. NILG can roll out training programmes for LGIs. For the SHEWA-B project NILG conducts training courses for UP on WatSan where DRR can be integrated. CDMP had designed training course for UZDMC in which WatSan can be integrated. WASH Cluster has produced an effective manual on WatSan Emergency Response. Now a days one can easily get access to ideas through Internet and study web-based resources. Practice oriented learning can also be generated and shared through piloting small scale projects. CDMP and other international and regional organizations involved in DRR can also be explored for developing staff capacity. Obviously, there are government, autonomous institutes and relevant consultancy companies which can be instrumental to develop and roll-out need based capacity development programmes. For conducting decentralized training and capacity development programmes there are physical facilities spread around every part of the country which can be utilized. Further, provision of IEC activities is included in regular revenue budget of the GoB, can be explored for training and community education.

Some hardware options applied: DPHE has an R&D Wing. In the recent past and at present there are actors including DPHE, LGED, UNDP, GOB-Unicef, NGOs such as DAM, Concern Universal, OXFAM, SCF, RISHILPI, Water Aid, Wash Cluster member organizations. DMB and probably some other national and international organizations have already implemented or are implementing

disaster resilient WatSan technologies. These offer an opportunity to commission a project to assess, package and share knowledge on appropriate technologies suitable for different geo-hazard zones.

Comprehensive structure of local WatSan & DM Committees: Although in most cases those are not functional (round the year) but the WatSan and DM committees are extended down to Union level. These committees can be facilitated to apply a process of participatory assessment, planning and implementation in WatSan Disaster Risk Reduction.

SHEWA-B: facilitation model: The magnitude of needs may not allow the government or any other actors to be free from the challenge of providing great volume of human resources required for policy compliance. However, there are opportunities to overcome deficit of person power needed at the local level through involving local NGOs as field agency. A GoB-Unicef SHEWA-B project demonstrates an effective model of a national scale project implementation that addresses the need of providing intensive person power at the community to promote hygiene behaviour. This model of engaging local NGOs as field agencies can be applied to facilitate community level process.

Government's emphasis on Result Based Monitoring and Evaluation: The SFYP clearly describes GoB's emphasis on the Result Based Monitoring and Evaluation. This emphasis would encourage actors and staff at national and local level to design and apply systematic approach to monitoring and evaluation encompassing all fields of M&E including process, effectiveness, efficiency and impact.

4.4 PROVISIONS CAN BE BROUGHT INTO A DPP

It is stated earlier that out of 3676 TWs in the studied area a total of 2500 TWs needed post flood cleaning and repair requiring an amount of Taka 750,000. For a sample of 3113 ring-slab latrines a total of 2844 required reconstruction amounting to Taka 2,844,000. BIDS study report 'Public Expenditure Tracking on Disaster Management Projects (Islam, 2011)' notes:

"Expenditure on disaster prevention and preparedness can pay great dividends, in terms of avoided damages or reduced costs of response and disaster impacts on life, property, economy and the environment" (Islam, 2011)."

Investment on the prevention and preparedness for WSDRR becomes more important due to its immediate and long term widespread impact. Based on the suggestions provided by the respondents the study puts forward various options which can be brought into a WatSan project for the reduction of WSDR.

There is a discourse in government departments and actors about 'what *can we do for the people*'. The study finds the most important things the government policy suggested is the application of community and relevant stakeholders' participatory analysis and action process. While for the content government policy suggests inclusion of current and anticipatory risk of CC, for the process it suggests application of community empowerment oriented decentralized participatory approach of analysis and action. This requires a shift of approach from '*doing for the people*' to '*working with the people*'. In a diverse, unpredictable, continuously moving multiple local contexts it may not be a right attempt to set standardized options for WSDRR but it may facilitate a process the way CDMP is doing. The study finds this to be the most important policy suggestion of the government, thus the central options to be brought into a DPP is to facilitate LGIs and local WS and DM committees to assess, plan and implement locally relevant WSDRR activities. This process should be flexible and

accompanied with community education and awareness creation, minimum resource, appropriate technological options and development of community management capacity. Analysis and action need to be blended with traditional-local and scientific knowledge. Deliberations on prevention and reduction of hazard causes would link analysis and actions related to CCA and sustainable development. There is no need to be confined with pre-determined measures but let LGIs and local committees do the planning depending on the local situation and needs. However, it would be good to inform them what services and resources they can mobilise from the project and other potential sources. The study submits, besides the existing emergency response options, in combination with both software and hardware, the following specific provisions which can be brought into a WatSan project for the reduction of WSDR:

Community mobilization and awareness creation on WSDRR: People are the main strengths of reducing WSDRR. If they are aware about what can be done to reduce WSDRR at the family and community then they can make effort. A government WatSan project can easily include provision of community mobilization and awareness creation on 'Family and Community Level WSDRR' through UPs, Local communities and local NGOs. The UPs, Upazila Parishads, Local Committees on WS, DPs and NGOs could be provided relevant IEC materials by which as part of their regular work they can augment community awareness through non-formal and semi-formal activities such as meetings, workshops and seminars. Preparation and disseminating of appropriate IEC materials can be the other provisions.

CRA and CAP for WSDRR: CDMP has already prepared CRA and RRAP tools and guide which is already approved by the government. The government WSDRR projects can integrate WSDRA actions as part of this CRA and CAP. However, the study proposes that in WatSan projects resource for CAP implementation at the UP and regular follow up and facilitation should be provisioned. SHEWA-B model of involving local NGO as field agency can be an effective provision towards facilitating UPs to do CRA, RRAP and its implementation.

Facilitation of Participatory process: It has been stated earlier that presently there is no resource support for developing DPP through conducting CAR and RRAP. This aspect can be an in-built part of a DPP as approach and process of a project with justification of community empowerment for WSDRR.

Resource support for RRAP implementation: It is evident from observations that without resource support it is difficult to activate local committees and LGIs to have proper implementation of RRAPs. A DPP can also include this provision of resource support for RRAP implementation. This provision should also include intensive on-spot facilitation & follow-up. Further, orientation to the local WS and DM committees and LGIs about ways to resource and service mobilization from potential sources could be included as another provision.

Development of Community Management Capacity: Provisions must be brought into a WatSan project towards developing the capacity of UPs local WS and DM committees. The areas of capacity development should include:

- Local planning, implementation and management;
- Joint planning and action between UDMC and UWSC;
- Effective organizational development and management of WatSan and DM committees;
- Coordinated planning and operation mechanisms between government, private and NGO across under local government systems from the UP to UZP.

Government has taken a plan to excavate the Betag river but it will not help us because the amount of alluvial comes with the tidal spring would soon sediment again. The solution is not to re-excavate but allow natural river-flow and create flow-pressure by which alluvial can go down again to sea. We have tried to make this thing understand by the policy makers and higher government officials, and MPs but it seems that they don't want to listen to our opinion.

Kalipada Maondol
Assistant Teacher, Goal Pota Village of Bramharajpur Union

Besides others stated earlier, the following provisions need to be brought into a WatSan project especially for Satkhira area, probably relevant to other coastal area too:

- Immediate desalinisation of ponds contaminated by the flood water;
- Excavation of Dighi (big pond) and pipe water supply by utilizing surface water source through filter and overhead;
- Piped water supply through deep tube well with overhead tank.

Operation & Maintenance: O&M of hardware facilities installed at the community places is much more difficult than the one installed at private household. A recent BIDS study (Islam: 2011) on the Public Expenditures Tracking on Disaster Management Projects notes *existing shelters are in a terrible state of physical conditions, in term of maintenance and facilities such as provision of water and sanitation*. The study team visited several elevated TWs cum latrines installed at community places, 30% of which were found disordered due to lack of O&M. The reasons are technology failure, absence of effective community based caretaking systems, and lack of local caretakers' capacity to fix. WatSan project should include provision of O&M services which can include direct service by the DPHE mechanics and developing community based mechanics.

Arsenic Testing Facility: Respondents of all the areas covered by the study recommended for arsenic screening of TW water at regular intervals. However, from the perspective of cost involved instead of DPHE giving door step services, in each of the office testing facilities should be available which would help persons having TW bring water sample and have the test through cost sharing.

Inbuilt component of R&D: In a WatSan project components can be built into for R&D as well as for assessing already applied disaster resilient hardware technologies.

Disaster friendly hardware options: The study team firmly states its limitation in terms of suggesting specific disaster-resilient hardware technological option to be brought into a WatSan project. Some NGOs and some other government projects already tried out disaster-friendly hardware option, but those are not yet assessed and evaluated to be recommended as standard options. A separate study is recommended for assessing geo-hazard specific hardware options. Relevant government departments should undertake an assessment and R&D for standardizing suitable technologies which are economically viable, technologically sustainable, environmentally sound and socially acceptable. Earlier it is mentioned that if the main and accompanied destructive force of hazard is water then WatSan Disaster is high. Hazard without water surge or flood also causes destruction but it seems that people can cope with and manage that limited-scale disaster. The study team visited some disaster friendly hardware options already installed by SHEWA-B project and some other government departments and international NGOs which are described in annex 5.

Based on the observations and listening to the respondents the study puts forward that a government WatSan project should have those options which are affordable and replicable by families. The study found that destruction of latrines created more environmental and health hazards than periodic performance jeopardy of TWs. Culturally defecation is a secret act. During disaster actors provide drinking water as relief but rarely there are options for safe defecation. Although emergency trance latrines and others are constructed during emergency but women have difficulties to use those. Again the magnitude and long-duration of disaster like flood emergency shelter with provision of drinking water and latrine serve little for huge number of affected people. Considering this circumstances the study recommends that for the provision of disaster resilient latrines a project should consider a family or HH as unit of hardware target. This poses challenges for actors and thinkers of WSDRR to devise sustainable sanitation hardware which is disaster (especially flood) resilient and families can afford.

Earlier it has been stated that reconstruction of a partially damaged ring slab latrines costs about 1000 Taka, thus families can be motivated to invest than the affordable amount for a disaster resilient latrine. Again, if house courtyard goes under two to four feet of flood water then using an elevated latrine by the members of that family would have difficulties. Thus most village respondents suggested to elevate the whole courtyard. Elevation of existing TWs and latrines with relatively strong structure in schools, emergency shelters and other community places can also be brought into a project provision. Elevated of TWs and latrines are also needed to be installed at families and HH level because women face difficulties to access TWs and latrines established at community places. Community motivation to elevate their household TWs and latrines can be brought into a project. In terms of priority site of community TWs and latrines schools should be given first priority because it creates invaluable utilities for hundreds of children and students studying in a school. However, in order to reduce the cost and avoid management complexities instead of having a compact unit of TW plus water reservoir then piped supply of water to the latrines simple elevation can be done. It was informed by family members of Palar Char union in Jajira Upazila of Sariatpur that construction of an elevated platform of existing TW had cost about 10,000 Taka. WSDRR project can have provision of raising platform of the existing TWs which will reduce opportunity cost of raising TWs with nipples during emergency period. If suitable for an area then elevated multi-point deep TWs seem a promising and cost effective option for WSDRR which will establish effective linkage between water availability and use of hygienic latrine.

It was reported that if the destructive force of a hazard is excessive wind speed then damage of ring-slab latrine is mostly caused by the fall of weak superstructure. Sidr affected families in Sariatpur informed that including labour cost, a bamboo and other fence materials reconstruction of a latrine superstructure cost about 400 to 600 Taka. Provision of making strong latrine superstructure can also be considered as a provision. The respondents informed that a significant portion of ring-slab latrines were damaged because rings were not properly grounded in the earth and exposed got. Provision of awareness creation on proper site selection and maintenance of a ring-slab latrine can also be considered as a provision of WSDRR project. Another provision which needs to be brought into is about upgrading quality of ring slabs of latrine which it do not break or destroy easily.

4.5 TOOLS COULD BE USEFUL

4.5.1 A FAVOURABLE DPP PROFORMA

Specific purpose and objectives. The specific purposes of this revised proforma are to enable DPP designers to incorporate:

- DRR at a DPP objectives, strategies, activities;
- A classical 4X4 matrix of project LFA;
- An identical section of project M&E plan;
- As part of program management, revision of manpower section as such that explicitly states tasks of staff at national and local level;
- Inclusion of some relevant DRR assessment criteria for PEC.

Rationale: As the GoB policy is to apply DRR and CCA as cross cutting component in each of the DPP thus inclusion of an identical section entitled 'DRR objectives, output and, activities will pursue DPP designers and planners to consider it as mandatory inclusion in the DPP. The present format of the LFA lacks 'Intervention Logic'. Inclusion of a 4X4 classical log-frame would not only enable DPP planners to establish effective means-end relationships but also would have a succinct basis of developing project M&E plan. The present DPP does not include an identical section entitled "project M&E plan". Inclusion M&E plan as an identical section would allow project planners and M&E personnel to make it result based including relevant field such as process, effectiveness, efficiency and impact. Although the existing DPP prforma includes a section 'project management set-up' but often it does not clarify what specific tasks a field level staff would perform and how. DPP planners to explicitly identify what are basic task-category of the project and what specific tasks field level staffs have to perform. This would eventually help in determining the appropriate resource provision. A project budget is prepared based on three sections which are: (1) project implementation plan (2) project monitoring and evaluation plan and (3) project staffing (see exhibit 13 & 14)

Exhibit 13: The Project Process

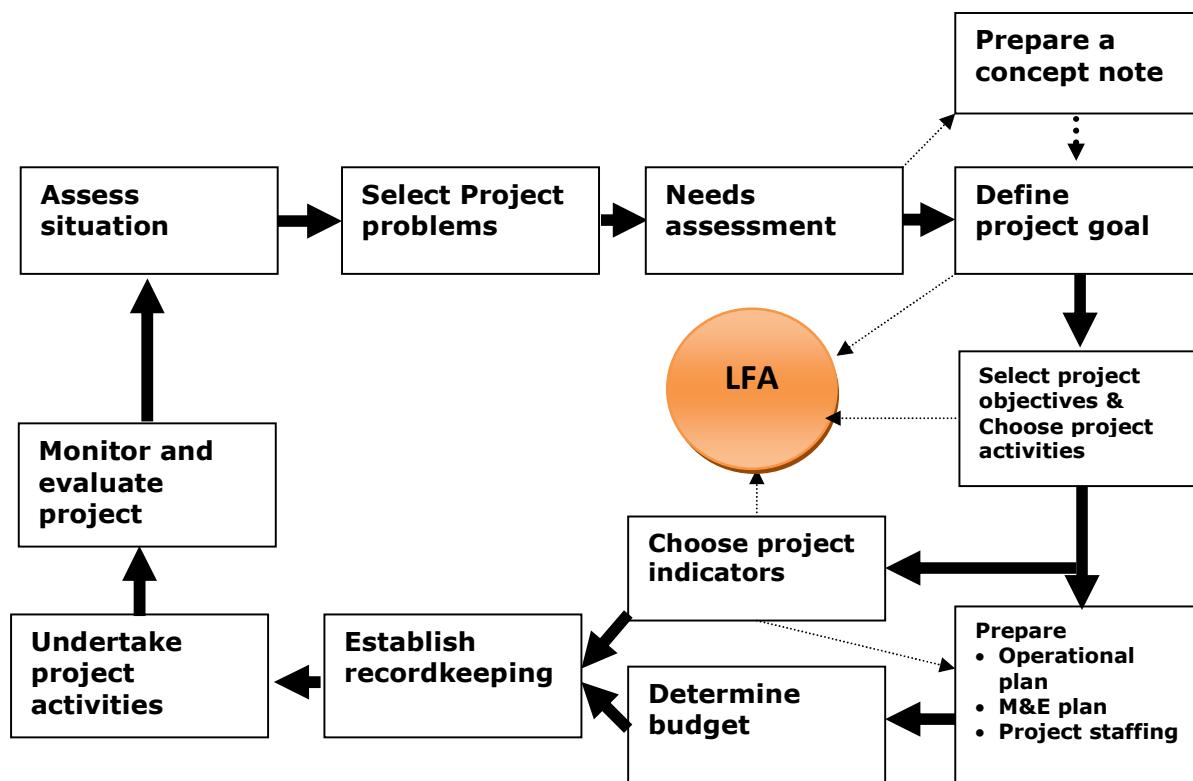


Exhibit 14: Globally Accepted Generic Parts of a Project Proposal

<ol style="list-style-type: none"> 1. PROPOSAL COVER LETTER 2. PROJECT SUMMARY 3. PROBLEM STATEMENT: (PROBLEM THE PROJECT WILL ADDRESS) 4. PROJECT GOAL AND OBJECTIVES 5. PROJECT DESCRIPTION/ STRATEGIES 6. PROJECT WORK PLAN 7. PROJECT MONITORING AND EVALUATION PLAN 8. PROJECT STAFFING 9. CAPABILITY STATEMENT, & 10. PROJECT BUDGET

What can be done to revise?

DEVELOPMENT PROJECT PROFORMA (DPP)

PART-A
Project Summary

- Project title :
- a) Sponsoring Ministry/Division
- b) Executing Agency
- Objectives of the project
(Please specify in bullet form and in number and /or percentage)

Revision proposal 1: Making DRR Objectives, Strategies and Output Explicit in the Project Summary

The section 3 of the summary can pursue inclusion of DRR objective as mandatory by following revision or recast:

Objectives of the project *including DRR, then in between number 3 and 4 inclusion of following matrix may make things more explicit for the DPP planners as well as PEC.*

DRR Objectives	Major Strategies	Intended output

- Location of the project

Revision proposal 2: Replacing Existing Log Frame with Classics 4 X4 Matrix

Section 10 of the Project Summary of the existing DPP Proforma includes Log-Frame shown in exhibit 15 & 16.

Exhibit 15: Matrix of a Logical Framework Analysis Used by Special Rural Water Supply Project

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Goal			
Purpose			
Output			
Input			

Exhibit 16: Matrix of a Logical Framework Analysis Used by SHEWA-B Project

Narrative summary	Verifiable Indicators (OVI)	Means of Verification (MOV)
Goal		
Purpose		
Outputs		

Table 17: Concepts and Definitions Involved in a Project Log Frame

Intervention logic	Does the basic strategy underlying the project cover all the steps to be taken within the project in order to contribute to the Development Objective.
Objectively Verifiable Indicators (OVI):	Are measures are designed to classify the Development and the Project Objectives as well as the Outputs, they should be quantifiable and of course verifiable. Examples of OVI might be x Km of mangroves replanted within three years, decrease by 10% of collected bird eggs within one year, x number of meetings with the local population to discuss wetland management within 4 years, x number of training sessions provided for public civil servants within two years.
Sources of Verification	Are the elements (results of survey, reports, photos, etc.) which give the data needed to check the outputs against the indicators of success (OVI). If the expected output is to restore coastal wetlands in a Ramsar site, the OVI could be 10 Km of mangroves replanted along a wetland shore. Aerial photos would be a good source of verification to demonstrate that the indicator has been reached.
Assumptions	Are the factors external to the project over which project managers have no control but which nevertheless have potentially great influence on the project output: civil war, travel restrictions, weather, etc.
Development Objective	Is also sometimes called "Overall Objective" or "Development Goal". This is the broad purpose to which the project is meant to contribute.
Project Objectives	Are also called "Project Purposes" or "Immediate Objectives". This is what the project itself is expected to achieve. Be careful not to confuse project purpose with results or activities. If you have too many project objectives, the project becomes confused and may be difficult to deliver.
Outputs	Are the concrete results of the intervention (the project), physical outputs are the ones we can actually touch or see: an infrastructure built, a management plan created, a successful consultation process implemented, a new legislation in place, a site delimitation put on map, an inventory finalised, etc. Non-physical results are more difficult to evaluate and therefore often under-evaluated but are nevertheless very important: positive changes in policies, better trained staff, new mentality or new approach to problems, more positive behaviours,

	politicians and local communities more aware of the importance of DRR. A very common mistake is to start defining an output by a verb, making it an activity!
Activities/ Input	Is the work needed to be carried out to achieve the outputs. There can be numerous activities but it is important to be very realistic and link activities with Resources and Cost. Each activity should be linked to an output. An activity always begins with a verb: buy, contract, implement, do, visit, distribute, train, etc.

Instead of 4X4 Log-Frame Matrix the existing DPP proforma uses 4X3 matrix excluding intervention logic. This exclusion of Intervention Logic at each of the objectives hierarchy is not helpful for DPP planners to have basis of designing project M&E framework and application of effective M&E. The study proposes replacing existing Log Frame Matrix with the following 4X4 matrix shown in exhibit 17.

Exhibit 17: Matrix of a Classical 4X4 Logical Framework Analysis

LOGFRAME	(1) Intervention logic	(2) Objectively Verifiable Indicators	(3) Sources of Verification	(4) Assumptions
(1) Development Objective				
(2) Project Objectives				
(3) Outputs				
(4) Activities				

Revision proposal 3: Include Local Risk Assessment Process and Findings in the PART-B (Project Detail)

Section 15 (PART-B-Project Detail) of the existing DPP states "*Whether any pre-assessment /pre-investment study was done before formulation of this project?. If so, attach summary of findings & recommendations.*" As the GoB policy suggests to develop project through conduction of participatory local risk assessment, the study therefore proposes reformulation as follows:

Whether any pre-assessment/pre-investment study was done including EIA, DRA and CCVA before formulation of this project? If so, attach summary of methodology, findings & recommendations."

Revision proposal 4: Include Project M&E Framework and Plan in PART-B (Project Detail)

The existing DPP proforma does not include any identical section of Project Monitoring and Evaluation. Section 23 of the existing DPP includes the following shown in the box.

<p>Briefly describe the effect/impact and specific mitigation measures thereof, if any on:</p> <ul style="list-style-type: none"> • Other projects/existing installation; • Environment like land, water, air, bio-diversity etc.; • Women and children; • Employment, poverty alleviation; • Institutional, productivity; • Regional disparity.

This section deals with “adverse effects/impact” and not the positive effects and impact the project intends to achieve. For any project M&E encompasses the basic four fields which are process, effectiveness, efficiency and Impact, which is constructed on the basis of project Log-Frame. Absence of M&E framework and plan not only disables project team in doing systematic M&E but also in identifying and allocation person power, logistics, resources required for doing effective M&E. The study team proposes to include a section just after the section 10 (log frame) as follows:

Project M&E Plan

a) Project Motioning & Evaluation Framework

M &E Frame	Indicators	Information needed	Source of information	Method of information gathering	Frequency of Information gathering
Process					
Efficiency					
Effectiveness					
Impact					

- Briefly state what activities will be undertaken and how; for the implementation of above framework.

Revision proposal 5: Revision of Staffing Format is included in the Annexure II of the DPP

The annexure II of the existing DPP is ‘Project Management Setup’ in which the following matrix is used for describing staff requirement and their responsibilities:

Table to use for showing the manpower requirement of each category

Name of the post	Quantity	Qualifications	Scale/Amount	Responsibilities/Accountability

The two sample projects studied show this section as heavily dominated by the description of responsibilities of PD, PMC and SC. Rarely it gives project specific tasks to be performed by the local staff but responsibility and roles are stated in the regular charter of duties. Absence of explicit identification of tasks does not help local staff perform the required additional tasks for a particular project. In order to make it more explicit the study proposes replacing the existing format with the following:

Table to be used for showing the personpower requirement of each category

Level	Name of the post	Quantity	Qualifications	Scale/Amount	Specific tasks to be performed	accountability
National						

Level	Name of the post	Quantity	Qualifications	Scale/Amount	Specific tasks to be performed	accountability
District						
Upazila						
In case of NGO and other organization required to be involved briefly state their roles and functions:						

Revision proposal 6: Inclusion of DRR criteria for PEC (Annexure Kh of the DPP)

The criteria given in the existing DPP do not include DRR criteria. Annexure *Kh* of the DPP states to 'Examine financial, economic, environmental and technical viability' but not DRR. The study proposes inclusion of DRR criteria. In order to incorporate DRR the sentence can include the word 'DRR' as:

"Examine financial, economic, environmental, DRR and technical viability"

For the PEC the DPP can have inclusion of following criteria:

- Has been designed based on the findings of properly conducted WS disaster risk and needs assessment?
- Has included specific objectives to reduce disaster risk of WatSan?
- Has included appropriate strategies, activities and operational plan in accordance with DRR objectives included?
- Have indicators and plan of monitoring and evaluation of DRR aspects of WatSan?

4.5.2 CONTEXTUALIZED CRA & RRAP TOOL FOR WSDRR

CDMP has developed a CRA tool. The Principles and processes included in CRA are absolutely relevant to the GoB suggested policy of developing project based on local risk assessment and CAP. However, in terms of sectoral priority it is cross-sectoral and open ended. How the primary stakeholders prioritize their problem caused by hazard becomes the determining factor for selecting a sector for which LGIs will work for DRR. In comparison with other priority and local situation people may or may not identify WatSan as their problem. However, CRA can be used not only for WSDRR but also for any other development sector if it is contextualized in relation to particular sector. The process and methodology of CRA is approved by the government and hence to keep uniformity with government institutional structure this tool can be explored comfortably for WSDRR. While open-ended CRA tool can be used by local DM committees then WSCRA can be utilized by local WatSan committees. Maintaining the same principles and process the following adjustment can make the CRA useful for WSDRR.

First group work:

Don't need any adjustment but use as it is to identify present and future probable hazards.

Second group work:

- Preparation of a list of WatSan problems the local community would face if exposed to the identified hazards.

Example form:

Present Hazrad	What WatSan problems these hazards are creating	Future Hazards	What WatSan problems these hazards will create

Note:

On completion of second group work facilitators will prepare a list of problems identified and do priority ranking of those problems, later work on 1 to 10 ranked problems.

Third group work:

- On completion of second group work identification of five causes behind each of the problems
- It should be noted here that identified reasons are as same as vulnerabilities

Example form:

Problem	Main causes that create problem

Fourth group work:

Preparation of risk description:

Write in statement form that if causes are not addressed then what risks will appear.

Example:

Problem: Massive damage of water sanitation facilities, 95% latrines and tube-wells of the village become non-functional for a two months period by the flood, acute crises of drinking water, extremely unhygienic situation.

Causes: (1) There are no elevated TWs and latrines in the village
(2) Grounds of houses are not above flood water level
(3) Family and village level preparedness is very weak

If causes are not addressed then what risks will appear (example).

If the same flood as the year 2011 happen in future, if TWs and latrines are not elevated, grounds of houses are not raised and family level preparedness is weak then in future there will be serious jeopardy of WatSan in our village and health problem will increase such as:

- Crisis of drinking water;
- Crisis of safe sanitation;
- Increase of diseases thus loss of employment and income.

Fifth group work:

Risk prioritization (for WSDRR or for any other sector CRA the study suggests skipping this step. Because in open ended CRA risks related to many other sectors such as livelihood, housing, health, food security, education all may appear thus there is need to prioritize but for single sector like WatSan there would be around 10 risks, thus there is no need to do priority.

Sixth group work:

Identify and prioritize measures/ways of reducing risk

Sl. No.	Probable measures /ways

Seventh group work:

Multi-year WSDRR plan preparation of a Union.

Which can be implemented by the local communities?

Locally implementable measures	Who will do	When	How	Where	Approximate expenditure	Considerations for implementation

Eighth group work:

Measures which are essential and urgent but local community have less capacity to implement for those measured prepare a list using following form and forward it to the Upazila WatSan Committee.

The existing forms on the CRA tool

What measures to be forwarded to UZWC	Who will forward	How to forward	By how many days will be forwarded

The above form seems a bit of confusing because once the UWC has prepared the list of measures to be undertaken by UWSC then the UP Chairperson (who is usually the Chairperson of UWSC) can forward the list. Thus there is no need to have plan for forwarding each of the recommended measures. Instead, the study proposes following form.

WSDRR measures recommended for UZWSC

Date of the Planning exercise at the UP	Names and designation of UWSC members and others participated in the planning exercise		
	Recommended measures (list in bullet form)		
Who will send	To whom	By when	

4.5.3 A REVISED SOS FORM INCLUDING SANITATION DAMAGE

Existing SOS form does not include sanitation damage and urgent sanitation needs assessment. The study proposes the following SOS format including sanitation damage and needs assessment.

(SOS form: Approximate Damage and Emergency Needs)

• Name of the Upazila:	
• Affected Population (Approximate)	
• Affected house:	
• Number of death (approximate):	
• Search and rescue:	Needed/Not needed
• First aid:	Needed/Not needed
• Drinking water :	Needed/Not needed
• Emergency Latrines:	Needed/Not needed
• Ready food:	Needed/Not needed
• Cloth:	Needed/Not needed
• Emergency shelter:	Needed/Not needed

Similarly the D-Form also does not include damage assessment of latrine, needs to be included

4.5.4 A REVISED VETTING GUIDE INCLUDING CRITERIA OF DPP DESIGN PROCESS

Suggested revision/inclusion shown in italic

Vetting Guidelines Matrix

Project: _____	Village: _____ (If applicable for Sub-project)
Agency: _____	Union: _____
Line Ministry: _____	Upazila: _____
	Pourashava/City: _____
	District: _____

Sl. No	Principles to be checked at the LGD	Relevant issues to be checked at the Agency Level	Possible Indicators as described in the project proposal	Supports Strongly	Supports Mildly	Works against	Not Applicable
*	Designed through Disaster Risk Assessment	<i>WSCRA-RRAP conducted before the DPP design</i>	<i>Design includes findings and recommendations of CRA and RRAP</i>				
01.	Demand Responsiveness and Cost-sharing	Project assess demand and willingness to pay for WSS services	Baseline study through participatory tools				
		People have access to information and choice of technology options and level of services?	Range of technology options				
		People have a choice of financing options?	Choice of payment: upfront or in instalments				
		Users contribute to the capital cost of services (Where community pays the full cost, tick NA)	Average contribution per household/community				
		Users contribute to the cost of O&M of services	Water tariff or user fee				
		Project does not provide subsidy on private household latrines, private water points or other options except innovative options under test	Users pay cost of hardware				
02.	Consideration to impact of natural disasters such as floods and cyclones	At least a proportion of facilities are designed to be useful in post disaster situations	WS facilities in emergency shelters or building likely to be used as such WSS located at flood free elevation				
		R&D into flood resistant latrines	Innovative technology devised and promoted				
		R&D into flood resistant water points	Innovative technology devised and promoted				

Sl. No	Principles to be checked at the LGD	Relevant issues to be checked at the Agency Level	Possible Indicators as described in the project proposal	Supports Strongly	Supports Mildly	Works against	Not Applicable
03.	Local Government Involvement	Builds capacity in local government/community	Training Sessions for LGIs Community, NGOs				
		Involvement of local government in planning and implementation of WSS services	LGIs sits on the committees that plan, implement, supervise and monitor; Local government has authority to plan, implement				
		Process of planning and implementation are transparent	Project uses participatory tools,-involves users				
04.	Community/User Involvement	Users have a say in planning, implementation and O&M	Rapport building at community levels; User representatives members of different committees; Legal standing, Bank account for CBOs				
05.	Women Roles	Involvement of women in planning, implementation and O&M of services	Women as members of CBOs/user committees; Women as caretakers; Women in monitoring; and Women in creating awareness				
06.	Sector Development Programme	Investment conform to the SDP	Contributes to WSS targets SDP identifies				
		Advances the cause of transformation of service delivery from centralised to decentralised mode	LGIs involved at different stages from planning to service management; LGIs in driving seat with agencies assisting				
07.	Poverty Reduction and relevant issues	Project subsidizes services for the poor and the disadvantaged	Targeting of subsidy				
		Project does not restrict	No pre-conditions for poor on				

Sl. No	Principles to be checked at the LGD	Relevant issues to be checked at the Agency Level	Possible Indicators as described in the project proposal	Supports Strongly	Supports Mildly	Works against	Not Applicable
		service access for the disadvantaged/poor	access to services				
		User contribution based on household income category	A varying scale of contribution				
		Project uses pro-poor criteria to identify the poor	Projects identifies poor and targets subsidy to them				
08.	Private Sector Participation	Encourage and support private sector involvement	Service Contract; Outsourcing; Direct investment of private sector				
		Does not undermine private sector	Does not offer across the board subsidy where market forces operate well such as private sector in latrine				
09.	Technology Options	Does not have a technology fix	Promotes a range of technology options;				
		Information on options	Conducts information campaigns				
		Devises and tests new options	R&D to devise new options				
10.	Hygiene and Sanitation Promotion	Has hygiene and sanitation promotion as a separate component	Courtyard and tea stall sessions, rallies, and posters; Training on promotion of hygiene and sanitation; Adopts the Information Education and Communication (IEC) Approach				
11.	Monitoring and Evaluation	Monitoring system of the project interface with the monitoring system of the sector	Involves local community in evaluation and monitoring;				

Sl. No	Principles to be checked at the LGD	Relevant issues to be checked at the Agency Level	Possible Indicators as described in the project proposal	Supports Strongly	Supports Mildly	Works against	Not Applicable
12.	Environmental Assessment	Must not have irreversible impact on natural resources (land, water, soil, minerals, forest resources, etc.)	Evidence in form of study from project preparation phase				
		Must not have activities within or adjacent to protected and environmentally sensitive areas	Evidence in form of study from project preparation phase				
		Give rise to direct or indirect environmental health risks	Proposal includes measures to mitigate such risks				
13.	Arsenic Mitigation	Tube well sinking	Follows tube well sinking protocol				
		Tests all new wells for arsenic before commissioning	Provision for testing available				
		Promotes a range of arsenic mitigation technology options	Option validated by relevant authority				
14.	Water Quality	Mechanism for water quality surveillance exist	Training on concept and practice of water quality surveillance and set-up				
		The project proposes to apply Water Safety Plan at the local level as a means of water quality surveillance	Provision for training on concept and use of water safety plan and set-up				

Sl. No	Principles to be checked at the LGD	Relevant issues to be checked at the Agency Level	Possible Indicators as described in the project proposal	Supports Strongly	Supports Mildly	Works against	Not Applicable
15.	Climate Change	Build awareness on climate change and possible adaptation in the future	Awareness campaigns				
		R&D to devise options that offsets the impact of climate change	Provision for R&D; Testing of such options				
		Be at risk in the medium or long term from climate change	Measures to mitigate negative impacts				

Applying Entity:

.....

Name of Entity:

.....

Name of Applicant

.....

Position of Applicant

.....

Date

Approving Agency

.....

Name of Agency

.....

Name

.....

Position

.....

Date

4.5.5 DISASTER FRIENDLY WATSAN FACILITIES: A REPORTING FORM

SHEWA-B Project has already constructed some elevated TWs. There may be other projects also which have done the same. But presently Upazila DPHE reporting format does not include information related to disaster friendly TWs and latrines constructed. Upazila DPHE office can introduce an additional report format as follows:

Quarterly report of disaster friendly TW and Latrine Installation

Name of the District:

Reporting period:

Name of the Upazila:

Sl. NO	Name of the union	Number of Elevated TWS			Status		No of elevated latrines			Status	
		Later quarter	This quarter	Total	Functional	Non-functional	Last quarter	This quarter	Total	Functional	Non-functional
		1	2	3	4	4	6	7	8	9	10
1											
2											
3											
4											
5											
N											
Again, at present the reporting just includes quantitative aspects. The study proposes to include the following in each and every project progress report format which could give good learning for better implementation:											
Problem faced:						Helping factors:					
Recommendations for better achievements											

4.6 INVENTORY OF USEFUL TRAINING AND IEC RESOURCES

Related to WSDRR although relevant training manuals and IEC materials are yet to be available but there are training courses, handouts & manuals already developed by GoB projects and NGOs which are useful and in need content related to WSDRR can be integrated without much effort.

Name of the training manual/resource/course	Prepared by	Intended participants	Conducting departments/institutions	Major content /subject involved	Contents can be included related to WSDRR
Training course on " Capacity Development of UP"	SHEWA-B and NILG	Chairperson and members of UP	NILG	<ul style="list-style-type: none"> • Background, formation function and Standing Committees of a UP • WS Committee & Union Coordination Committee: formation and functions • Plan, participatory planning and integrated WASH plan • MDG and WASH in the context of Bangladesh • Resource identification and WASH budget preparation • WASH principles, strategies and inclusion of target population in WASH • Sanitation management • Safe water supply • Health practice and social behaviour change • Financial management, book keeping and auditing • Office management • Receiving money from development partners, expenditure and adjustment process: Coordinated procedure of fund release and reporting. • Supervision, monitoring, report 	3-day training already includes huge content. With extended course period the following content can be included: <ul style="list-style-type: none"> • GoB policy of WSDRR • Measures can be taken to reduce WSDRR • Incorporation of WSDR in Annual Plan

Name of the training manual/resource/course	Prepared by	Intended participants	Conducting departments/institutions	Major content /subject involved	Contents can be included related to WSDRR
				<ul style="list-style-type: none"> preparation and sustainability of WASH Government purchase, principles and procedure 	
Handout of Training –Workshop for UZDMC	DMB	UZMC members	DMB	<ul style="list-style-type: none"> Disaster Management Concept & Cycle Disaster & Bangladesh SOD Cyclone Preparedness UZDMC: Formation, Roles and Functions Use of SOS form Use of D forms Action planning 	<ul style="list-style-type: none"> Difference between DRR and consequence management Working in coordination with WatSan Committees for WSDRR Include latrine assessment in both SOS and D-Form
Practical Guide for CRA and RRAP	CDMP	UDMC, UZDMC	CDMP	<ul style="list-style-type: none"> A comprehensive process facilitation guide for Climate Change - DRR 	<ul style="list-style-type: none"> It is a very good process facilitation manual and can be used for WSDRR through contextualization (see section 4.3.2)
Operational Guidelines for WASH in Emergencies in Bangladesh	WASH Cluster and MoLGRD	Actors engaged in WS & DM	WASH cluster and MoLGRD	All aspects of WatSan Disaster Response including visuals of different appropriate technological options	<ul style="list-style-type: none"> Promotion of disaster resilient sustainable WASH facilities at families and communities
Sanitation Catalogue	LGD and WSP, World Bank	Actors engaged in WS & DM	LGD	<ul style="list-style-type: none"> Types of latrine and cost Appropriate latrines for special geographic zone Low cost hand washing technologies Solid waste management methods and technologies Liquid waste management methods and technologies 	<ul style="list-style-type: none"> Geo-hazard specific disaster resilient WS technology and cost
Disaster Friendly	DAM-	Actors	DAM	<ul style="list-style-type: none"> Various model of disaster friendly 	<ul style="list-style-type: none"> Advantages and

Name of the training manual/resource/course	Prepared by	Intended participants	Conducting departments/institutions	Major content /subject involved	Contents can be included related to WSDRR
Water and Sanitation Technology Album	supported by Cordid, Irish Aid and European Commission Humanitarian Aid	engaged in WS & DM		TWs and Latrines model including description of materials required and cost involved	disadvantages of each the options

4.7 CONCERNS DESERVEING ATTENTION IN FUTURE

In a complex and broad institutional structure and systems of government, a WatSan project cannot be implemented in isolation rather it can be a part of the relevant institutional structures and systems. The study finds that mainstreaming DRR into a government WatSan project warrants following cross cutting capacity development and institutional attention in future:

Departure from the traditional culture of response and recovery to DRR: From the national to local level actors involved in WatSan and DRR are absorbed by the understanding and culture of response and recovery. Without shift from this old to new paradigm of DRR which encompasses both WSDRR and development it would not be easy for such a project to run in isolation. Achieving capacity to depart from the narrow concepts of response and recovery to the DRR would require developing clear understanding of local and national level staff on conceptual framework as well as awareness on HFA and government policies.

Genuine empowerment of Upazila and Union level LGI: The WSDRR unavoidably requires cooperative collaboration and participation of the government, civil society and market. With regard to multi-stakeholders participation and cooperation the discourse is centred on blame-game fomented by putting forward each other's deficiency rather than what is best in each other to appreciate. A genuinely empowered LGI can be seen as a non-biased guard for all actors having potential to bring together relevant actors and transform blame giving relationship into cooperation and appreciation. The capacity to empower Upazila and Union level LGIs would require genuine political commitment of the government to equip them with proper authority, methodology, person power and resources.

Capacity to ensure that WSDRR service reaches the marginalized population: Power structure plays everywhere even in WatSan service delivery in rural communities. It is a prominent phenomena that elite captures the most WS services and input provided by the government projects. The field agencies of SHEWA-B project expressed their dissatisfaction about Union and Upazila Chairperson's unjustified decision to provide tube-well to rural elite families excluding marginalized families. The capacity to ensure WSDRR service reaching to the marginalized population obviously requires empowerment of LGIs so that they serve marginalized population.

Meeting the demand of having multi-expertise teams: Designing and implementation of WSDRR project requires expertise of WatSan hardware technologist, DRR and expertise for project planning and management. It also requires experts on social development, climate change analysis and adaptation, organizational and sustainable institutional development and community mobilization and participation. Having a multi disciplinary team could develop synergy in designing and implementing effective programs towards WSDRR.

Continuous promotion of local innovations: The main and accompanied forces of hazard can have different impact on the jeopardy of WatSan. Only flood water and water accompanied by sand can create different impacts on the WatSan. In a haor area construction of sanitary latrines at household is difficult but community toilets may not be culturally appropriate. Varied hazard, hazard behaviours, destructive forces and varied socio cultural situation demand capacity to deal with diverse local situations. The capacity to deal with diverse local situations would require application of a process oriented approach that promotes continuous local innovations and adaption in WSDRR.

Capacity to establish coordinated operational strategies: The operational strategies which are developed often are not coordinated between ministries and departments. A coordinated

strategy development is crucial. Otherwise there would be conflict of strategies between ministries and departments. Coordinated strategies also have to be established between departments to share roles to address measures related to prevention, mitigation, preparedness, response and recovery for WSDRR. Absence of coordinated operational strategy at the national level encourages individual ministry, division or department to work with LGIs separately. At present there are 13 standing committees under one UP and most of those committees are inactive.

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ANNEXES

Annex -1: Information Gathering Framework

Objective 1: To establish evidence based strong rational for the need of DRR mainstreaming into the selected rural focused water supply and sanitation program of the Government of Bangladesh in view of achieving relevant MDG targets, and HFA priorities.		
Research questions	Information needed	Sources of information
To what extent water supply and sanitation facilities provided by the government schemes at the recent past (2007 to date) are perceived as resilient to natural disasters by the sample community members and stakeholders?	Nature and types of natural hazards occurred in study communities/ samples since the year 2007 (such as Flood 2007, Flood 2008, SIDR 2007, Rasmi 2008, Bijli 2009, Aila 2009) and how those hazards affected the water supply and sanitation facilities.	<p>Secondary: Damage assessment report of DMB on various disasters during the period from 2007 to date.</p> <p>Local stakeholders of selected study community: Study community members, mason, Caretakers, union, Upazila DM and WatSan Committee members, Upazila DPHE.</p>
	Latrines and wells/tube-wells/ponds/ and other technologies installed through the government schemes in the study communities/samples during the periods 2007 to date by quantity and types.	Secondary: Any study reports UP and Upazila DPHE record.
	Proportion of established wells/tube-wells/ponds/and other technologies installed through the government schemes in the study communities/ samples during the periods 2007 to date were destroyed and survived by natural hazards during the same period (2007 to date)	<p>Secondary: Union/Upazila damage assessment reports/records from UP/Upzilla DPHE/and NGOs engaged (if any).</p> <p>Primary: Study community members, mason, caretakers', union, DM and WatSan Committee members.</p>
	Proportion of the destroyed (by hazards) water supply and sanitation facilities reconstructed and left, if not then what are the reasons.	<p>Secondary: Union/Upazila damage assessment reports/records from. UP/Upazila DPHE/and NGOs engaged (if any).</p> <p>Primary: Study community members, mason, caretakers',</p>

		union, DM and WatSan Committee members.
	Disaster vulnerability of existing water and sanitation facilities established by the government schemes	Primary: Study community's members, mason, Caretakers', union, DM and WatSan Committee members.
What is the variation in functionality of water supply and sanitation facilities in comparison with normal period, during and post disaster situations as well as post monsoon period in the rural areas?	Difficulties the study communities face towards utilization of established water supply and sanitation facilities during and post disaster situations.	Primary: Study community members, mason, caretakers', union, DM and WatSan Committee members
	Difficulties the study communities face towards utilization of established water supply and sanitation facilities during monsoon period.	Primary: Study community members, mason, caretakers , union, DM and WatSan Committee members
What are the gaps between the government policies and legal frameworks/Standing Orders on mainstreaming DRR into water supply and sanitation and their implementation, reasons of gaps?	Policies/legal frameworks/standing orders of the government related to mainstreaming DRR in water supply and sanitation programming.	Secondary: policy literature/ documents from LGRD/DMB and Ministry of Environment.
	Existing mechanisms and practices of ensuring policies, legal framework/standings orders of the government related to mainstreaming DRR in water supply and sanitation projects/programs.	Secondary: literature/document review Primary: National level staff of Planning Commission, LGRD/LGD, DPHE, MoFDM/DMB.
	Policies/legal framework/standings orders of government were translated and did not translate into action in implementation of government water and sanitation projects in the study communities.	Primary: Upazila DPHE and LGED staff, Upazila and Union WATSAN committees
To what extent the provisions of the ongoing popular government water supply and sanitation schemes include disaster resilience?	Inclusion and non-inclusion of sanitation disaster vulnerability assessment in the process of existing water supply and sanitation planning, determination of DRR measures in the interventions.	Secondary: project documents/plans/ proposals of on going popular government schemes such as (2) Sanitation, Hygiene Education and Water Supply in Bangladesh (SHEWA-B) supported by DFID & Unicef (2) Water supply and Sanitation in Coastal Belt Project – Supported by DANIDA (4) Local Government based Community Water and Sanitation services implemented by WSP supported by SDC, DANIDA, DFID

		<p>and AusAid (5) Char Livelihood Projects.</p> <p>Primary: (National level) stakeholders involved Unicef, DFID, DANIDA and DPHE.</p> <p>Primary: (Local Level) Union and Upazila level actors such as UP/Upazila WatSan and DM committee members, local NGO partners.</p>
	Adequacy of funding allocation to WATSAN committees at different tiers of LGIs for establishing disaster resilient water supply and sanitation facilities and post disaster reconstruction.	<p>Primary: National level DPHE staff.</p> <p>Primary: Upazila, Union WATSAN committees.</p>
	Adequacy of fund-allocation to DMCs at different tiers of LGIs for establishing disaster resilient water supply and sanitation facilities and post disaster reconstructions.	<p>Primary: National level DMB staff.</p> <p>Primary: Upazila, Union DMCs.</p>
What is the existing process and practice of monitoring standard of the prevalence and sustenance of water supply and sanitation facilities and how the findings of monitoring are utilized in the reporting system?	Tools used in monitoring the standard of the prevalence and sustenance of water supply and sanitation facilities.	<p>Secondary: Existing monitoring tools.</p> <p>Primary: National and Upazila DPHE.</p>
	Reflection of the prevalence and sustenance of water supply and sanitation facilities in the existing reporting system.	<p>Secondary: Existing sample reports of DPHE.</p> <p>Primary: National and Upazila DPHE staff.</p>
How the possibilities of achieving the MDG 7 as well as the national sanitation goal would affect if DRR is not mainstreamed in the regular development schemes related to water supply and sanitation?	Targets of the MDGs and the national sanitation goal.	Secondary: Literature on MDG, UNDP's recent country report on MDG achievements
	Relationships between probable exposure of climate change, probable disaster occurrences, and their effects on water supply and sanitation coverage.	Secondary: MoEF 2009 Bangladesh Climate Change Strategy and Action Plan. IPCC prediction, BCAS study and publications.
	Causes of impediments to achieve the MDGs and the national goals of water supply and sanitation if the	Primary: Study communities, Upazila, Union WATSAN and DMC committees, Upazila DPHE.

	DRR mainstreaming gap are not addressed.	
Objective 2: To provide simple and practical tools and guidelines for mainstreaming DRR into the selected rural focused water supply and sanitation programs of the GoB		
Research questions	Information needed	Sources of information
What are the existing models of cost effective, sustainable and disaster resilient WatSan facilities can be replicated towards mainstreaming DRR into the rural focused water supply and sanitation programs of the GoB?	Models of cost effective, sustainable and disaster resilient WatSan facilities at the government and NGO programs.	Secondary: literature, case stories on the models of cost effective, sustainable and disaster resilient WatSan facilities. Primary: NARRI partner NGOs, NGO Forum for DWSS, DPHE,
What challenges the relevant departments (e.g. DPHE and DMB) at local level would face to implement disaster resilient WatSan programs?	Perceived challenges by the government bodies at the local level to implement disaster resilient WatSan programs.	Primary: DPHE at Upazila, Upazila LGED, Upazila and Union WatSan Committee, Upazila and Union DMCs
What provisions to be brought into the schemes of DRR resilient WatSan programming including funding size?	Perceived adequacy and deficits of the provisions to make water supply and sanitation facilities disaster resilient.	Primary: DPHE at national and Upazila levels, Upazila and Union WatSan committees and DMCs
	Perceived capacity gaps of the relevant government departments (e.g. DPHE, DMB) particularly at local level in terms of human resource and funding.	Primary: Planning Commission, LGD, DPHE at National and Upazila levels, Upazila and Union WatSan Committees and DMCs.

Annex 2: Data Collection Tools Used

Tool 1: Guide questions for KII or SSI with DPHE planning cell/division	
Date:	Time: Place:
Name and designation of respondents:	
To be used at the level of	Dhaka/ National
Intended respondent	Staff DPHE planning cell/division involved in designing the project
Time required	2 hours
Objective	<p>To generate data on following questions:</p> <ul style="list-style-type: none"> • What are the compliances and gaps in addressing vetting criteria (2009) and DM policies in designing and planning the project? • What are reasons of gaps (if any) in terms of knowledge/skills/understanding, means/tools/ guidelines and person power/resource? • What are prevailing opportunities can be tapped to address those gaps? • What kind of adjustment needed for the already existing tools and what tools needs to be introduced newly towards compliance? • What kind of capacities to be developed in addressing vetting criteria (2009) and DM policies in designing and planning the project?
Reference document can be collected from the respondent	Project planning pro-forma, monitoring format, need assessment format/report (if any),
<p>Guide questions</p> <ul style="list-style-type: none"> • What strengths and weaknesses do you see in terms of inclusion and non-inclusion of DRR aspects in the project proposal? • What strengths and weakness do you see in terms of involving following DM act, polices in designing the project? <ul style="list-style-type: none"> • Designing project through identification of local level risk related to safe drinking water and hygiene practices through community consultation (SOD); • Using participatory tools, involves users and women in project planning (VG); • Design a project that involve strategies and actions towards capacity development of local government and community to reduce WSDRR risks (VG); • Design a project that involve strategies and actions towards establishing and maintaining a portion of WSS facilities can be used during and after disaster (VG); • Design a project that involve R&D for flood/disaster resistant latrines and water points (VG); • Conduct EIA at the preparation stage of the project (VG); • Design a project that include measures related to mitigate direct or indirect environmental health risks (VG); • Design project that has provision of arsenic testing and promote a range of arsenic mitigation technology (VG); 	

- Design project that include strategies and activities to advance the cause of transformation of service delivery from centralised to decentralised (VG).
- What are reasons of gaps (if any) in terms of knowledge/skills/understanding, means/tools/guidelines and person power/resource?
- What are prevailing opportunities can be tapped to address those gaps?
- What kind of adjustment is needed for the already existing tools and what tools needs to be introduced newly towards the compliance?
- What kind of capacities needs to be developed in addressing vetting criteria (2009) and recent DM policies in designing and planning the project?

Tool 2: Guide questions for KII or SSI with Planning wing -LGD & Physical Planning & Infrastructure Division of Planning Commission	
Date:	Time: Place:
Name and designation of respondents :	
To be used at the level of	Dhaka/ National
Intended respondent	Planning wing -LGD & Physical planning & housing Wing of Physical Infrastructure division of Planning commission
Time required	2 hours
Objective	<p>To generate data on following questions:</p> <ul style="list-style-type: none"> • How Planning wing LGD & Physical planning & housing Wing of Physical Infrastructure division of Planning commission ensure the vetting criteria (2009) and polices provided by DM act, policies and SOD 2010 in verifications and appraisal of WatSan project designed after 2009? • What are reasons of gaps (if any) in terms of ensuring those criteria in project verifications and appraisal ? • What are prevailing opportunities can be tapped to address those gaps? • What kind of adjustment is needed for the already existing assessment tools and what tools needs to be introduced newly to include WatSan project vetting criteria in assessing the project? • What kind of capacities to be developed in addressing vetting criteria (2009) and polices provided by DM act, policies and SOD 2010 in assessing WatSan project?
Reference document can be collected from the respondent	Project planning pro-forma, monitoring format, need assessment format/report (if any),
<p>Guide questions</p> <ul style="list-style-type: none"> • What strengths and weakness do you see in terms of involving following DM act, polices and SOD 2010 in assessing the WS project (refer SHEWA-B and SRWSP)? <ul style="list-style-type: none"> • Designing a project through identification of local level risk related to safe drinking water and hygiene practices through community consultation (SOD); • Design a project using participatory tools, ÷ involves users and women in project planning (VG); • Design a project that involve strategies and actions towards capacity development 	

<p>of local government and community to reduce WSDRR risks (VG);</p> <ul style="list-style-type: none"> • Design a project that involve strategies and actions towards establishing and maintaining a portion of WS facilities can be used during and after disaster (VG); • Design a project that involve R&D for flood/disaster resistant latrines and water points (VG); • Conduct EIA at the preparation stage of the project (VG); • Design a project that include measures related to mitigate direct or indirect environmental health risks (VG); • Design project that has provision of arsenic testing and promote a range of arsenic mitigation technology (VG); • Design project that include strategies and activities to advance the cause of transformation of service delivery from centralised to decentralised (VG); <ul style="list-style-type: none"> • What are reasons of gaps (if any) in terms of ensuring those criteria in project verifications and appraisal and reasons? • What are prevailing opportunities can be tapped to address those gaps? • What kind of adjustment is needed for the already existing assessment tools and what tools needs to be introduced newly to include WatSan project vetting criteria in assessing the project? • What kind of capacities to be developed in addressing vetting criteria (2009) and polices provided by DM act, policies and SOD 2010 in assessing WatSan project?

<p>Tool 3: Guide questions for KII or SSI with Project Implementation Team of DPHE and WS wing of LGD (IMED and M&E cell of DPHE would be respondent only on the question no 8, 9, 10, & 11).</p>	
Date:	Time: Place:
Name and designation of respondents :	
To be used at the level of	Dhaka/ National
Intended respondent	Staff of DPHE Project Implementation Team & WS wing- LGD IMED and DPHE M&E cell: only question No 8, 9, 10, & 11.
Time required	2 hours
Objective	<p>To generate data on following questions:</p> <ul style="list-style-type: none"> • What are strengths and weaknesses of existing project design in-terms of clarity of roles and task? • What changes would have to take place in stakeholders' configuration in implementing WSDRR project and what gaps? • What are gaps and reasons of role performance in implementation of a WSDRR project? • What are gaps in monitoring and evaluation towards: <ul style="list-style-type: none"> • Compliance with DM policies and reasons? • Monitoring of WatSan situation particularly post disaster.} • What is needed in terms of tools and capacity development? • What are the gaps for O&M of WATSAN facilities particularly post disaster in disaster prone areas?
Reference	Any documents relevant to project implementation guide/ tools.

document can be collected from the respondent	
<p>Guide questions</p> <ul style="list-style-type: none"> • What strengths and weaknesses do you see in the project proposal in terms of clarifications in roles and task to be performed by different staffing positions included in the project (<i>refer: there is no explicit identification of tasks /jobs to be performed by each of the position as well as local DPHE staff, except PD in the project management section</i>)? • As per recent GoB DM policies (<i>refer DM policies and vetting criteria of a WSS project</i>) If a WSS project is designed in which mainstreaming of DRR is fully integrated then: <ul style="list-style-type: none"> • Who are other/additional stakeholders would have to be included in project implementation at the central as well as field level? • What kind of coordination would have to be established between GoB WS and DM actors at central and field? • What new/additional/changed/desired roles and tasks the central DPHE project implementation team would have to perform in relation to ensure proper coordination among those? • If you were to implement a DRR friendly WS project that involve strategies and actions related to prevention, mitigation, emergency preparedness and community capacity developing towards WSDRR then what desired roles and tasks performance would you expect from the project implementation team at the central and local level DPHE, what gaps do you see in comparison with assumed desired roles/tasks and existing roles and tasks? • What are the reasons of those gaps in terms of knowledge/skills/understanding, means/tools/guidelines and person power/resource? • What are existing opportunities that we can tap towards bridging those gaps? • Gaps that have indentified in terms of tools and guide, what is your suggestions towards improvement of existing tools and to introduce new tools (if any needed)? • What are capacity development needs in terms of resource, person power, knowledge and skills? • What strengths and weaknesses do you recognize in existing monitoring and evaluation of the project, do you prepare and use a M&E framework based on M&E tools and design tools in M&E • What strengths and weaknesses do you recognize in terms of post disaster M&E of WatSan? • What gaps do you recognize towards compliance with following two vetting criteria related to M&E? What are reasons of gaps? <ul style="list-style-type: none"> • Conduct baseline study through participatory tool (VG); • Involve local community in monitoring and evaluation (VG). • What gaps that have indentified in terms M&E tools and guide,what is your suggestions towards improvement of existing tools and to introduce new tools (if any needed)? • What M&E capacity development needs to be addressed in terms of resource, person power, knowledge and skills? • What kind of activities/support the project has about post disaster operational maintenance of Watson facilities ,do you see any gaps, what is your suggestions to bridge those gaps? <p>Question around O&M</p> <p>Question around post disaster M&E</p>	

Tool 4: Guide questions for KII/SSI with National level NGOs & other agencies engaged in WatSan	
Date:	Time: Place:
Name and designation of respondents:	
To be used at the level of	National/Dhaka
Intended respondent	Senior level staff of NGOs and other agencies Engaged in WatSan such as NGOF, DAM
Time required	1 hours
Objective	To generate data on following questions: <ul style="list-style-type: none"> • What can be done to reduce WS Disaster Risk; • What tools they are using in WSDRA, planning, monitoring and evaluation
Reference document to be collected	Any relevant documents relevant to Disaster Friendly WatSan, tolls related to Disaster Risk Assessment, Planning, Monitoring and Evaluation
Guide questions <ul style="list-style-type: none"> • What do you recognize about strengths and gaps of ongoing government WatSan project in terms of mainstreaming DRR into the projects? • What kind of capacities the relevant government agencies at national and local level to be developed towards enabling them to design and implement effective WSDRR programme? • Do your organization has an ongoing programme/project related to disaster friendly WatSan, if then what approaches, strategies the project applying? • What kind of process and tools your project applies to assess, plan, monitor and evaluate the disaster friendly WatSan project? • Based on the lessons and experiences drawn out of the project what factors do you recommend to be considered in designing and implementing an effective disaster friendly WatSan project? • What is your suggestion to establish and promote effective GO-NGO collaboration towards disaster friendly WatSan programming? • What kind of technical and knowledge resources your organization would be able to offer if asked by the relevant government agencies to design and implement disaster friendly WatSan project? 	

Tool 5: Guide questions for KII/SSI with DMB/CDMP	
Date:	Time: Place:
Name and designation of respondents:	
To be used at the level of	Dhaka/National
Intended respondent	Senior staff of DMB/CDMP
Time required	2 hours

Objective	To generate data on the view of DMB and CDMP in terms of mainstreaming DRR in government WatSan project, and Opportunities, services resources/skills tools can be tapped from DMB/CDMP to bridge gaps and address needs of mainstreaming DRR into government WatSan project?
Reference document can be collected	CRA tool, CAP tool, training manuals developed by CDMP, proposed pro-forma prepared (if any) by DMB for ministries & departments to integrate DRR in development projects.
<p>Guide questions</p> <ul style="list-style-type: none"> • From your perspective what kind of strengths and weaknesses do you see in the design and implementation of government WatSan projects in terms of mainstreaming DRR into the project? • In comparison with the DM policies strategies and SOD 2010 compliance, what gaps do you see in the design of government WatSan projects? What could ensure the mainstreaming DRR into the project design? • What kinds of opportunity and technical input the DMB and CDMP could provide to project planning team of relevant government agencies towards ensuring DRR mainstreaming into WS project design? • In comparison with the DM policies strategies and SOD 2010 compliance, what gaps do you see in the appraisal and assessment and approval process of government WatSan projects? • What could ensure the mainstreaming DRR into the project design while appraisal and assessment of project by the relevant agencies at LGD and Planning Commission? • What kinds of opportunity and technical input the DMB and CDMP could provide to project assessment and approval agencies towards ensuring DRR mainstreaming into WS project design? • What kind of institutional configuration do you think of at national to local level towards achieving better coordination between DM and WatSan? • If the relevant agency such as DPHE implement a disaster friendly WS project that involves strategies and actions related to prevention, mitigation, emergency preparedness, and community capacity developing towards WSDRR then what desired roles and tasks performance would you expect from the project implementation team at the central and local level? • What gaps do you see in comparison with assumed desired roles/tasks and existing roles and tasks? • What do you think of the reasons of those gaps in terms of knowledge/skills/understanding, means/tools/guidelines and person power/resource? • What are existing opportunities that DMB/CDMP can offer towards bridging those gaps? • Gaps that have indentified in terms of tools and guide, what is your suggestions towards improvement of existing tools and to introduce new tools (if any needed) ? • What capacity development needs at the WS project to be addressed in terms of resource, person power, knowledge and skills? • What strengths and weaknesses do you recognize in existing monitoring and evaluation of the project, specially in terms of M&E of disaster damage of WS? • What gaps do you recognize towards compliance with following two vetting criteria related to M&E? What are reasons of gaps? <ul style="list-style-type: none"> • Conduct baseline study through participatory tool (VG); • Involve local community in monitoring and evaluation (VG). • Gaps that have indentified in terms of M&E tools and guide, what is your suggestions 	

<p>towards improvement of existing tools and to introduce new tools (if any needed)?</p> <ul style="list-style-type: none"> • What M&E capacity development needs to be addressed in terms of resource, person power, knowledge and skills?

Tool 6: Guide questions for FGD with Upazila level DPHE and stakeholders	
Date:	Time: Place:
Name and designation of respondents:	
Intended respondent	Assistant & SAEs of DPHE, PIO, LGED, 2 staff of NGO partners of SHEWA-B project directly involved 3 to 4 leading members of Upazila WatSan committee - who are not government officers, 3 to 4 members of Upazila DM committee who are not government officers.
Objective	<p>The main objectives of this tool is to generate data on the:</p> <ul style="list-style-type: none"> • Gaps in desired role performance by the Upazila level actors in compliance with policies related to DRR mainstreaming in WatSan project design, implementation, monitoring an evaluation; • Reasons of gaps; • Way forward and; • Capacity development needs.
Document to be collected from upazila DPHE	<ul style="list-style-type: none"> • Upazila WatSan profile/information sheet; • Consolidated information of number of TW and latrines provided by the SHEWA project for the sleeted union and village of the study; • Information on damage of WATSAN facilities due to disasters in recent past; • Other documents relevant to monitoring; • Reporting format; • Damage assessment format and report; • Report of any repair and maintenance; • Report of disaster – onset and post-disaster emergency support related to WATSAN.

Step 1: SSI

- What is the water and sanitation situation in your Upazila?
- When was the last hazard occurred in this Upazila, how that hazard impacted WS facilities and sanitation behavior of the community?
- What was the secondary health impact?
- In your Upazila, is there any water sanitation facilities created which can be used during emergency period?
- What are strengths and weaknesses of those facilities in terms of maintenance and usability?
- What I your suggestion to make those facilities more effective?
- Would you please share with us government policies towards mainstreaming DRR into WatSan project?

Step 2: Desired role performance gap scoring exercise

(With reference to two projects under study)

Desired role to comply mainstreaming policy propositions	Gaps in performance			Reasons of gaps
	High	Medium	Low	
DPP design and planning				
Conduct DRA of safe drinking water and hygiene practices through community consultation and prepare the risk reduction action, supply the findings to DPHE central				
Develop joint strategy to utilize the resources of the government, NGOs and other private sector actors in ensuring implementation of the risk reduction action plan developed				
Implementation/DRR				
Coordinate activities of NGOs and other private sector actors to ensure synergies and avoid duplication				
Provide technical support to promote hygiene and maintain the standards				
Facilitate ward, union upazila WatSan & DM committee and local NGOs to conduct WatSan DRA, action planning and implementation of the action plan				
Provide training to the ward, union Uazila WatSan & DM committee members and other relevant actors on the content of WatSan DRR at family community and institution				
IEC and create community awareness on WatSan DRR and encourage construction of hygienic low cost water resistant latrines				
Facilitate multi stakeholders participatory analysis and action process through local government institutions at Ward, UP, and Upazila				
Facilitate Upazila Union and Ward sanitation committee as such by which they are functional and active				

round the year based on well defined action plan and implementation				
Develop capacities of UZ, UP, Ward committees by which those organizations can run the process self-reliantly				
Implementation: Preparedness				
Identify disaster prone areas and ensure sinking of sufficient number of tube-wells for continuous supply of safe drinking water				
Maintain stock piles of spare parts and bleaching and keep ready a technical/repair team for employment				
Keep reserve tube-wells and water resistant latrines for distribution in relief camps, cyclone shelters or in areas where such facilities have been damaged				
Ensure the availability of cash fund for meeting contingency expenditure in emergency				
Provide training to the potentially vulnerable population for the effective use of Water Purification Tablets (WPT) and beaching powders				
Implementation: Alert and Warning Stage				
Form tube-well repair teams and keep them on stand-by for travelling to possible distressed areas.				
Examine the position of spare parts of tube-wells in areas threatened by disaster and if necessary arrange for additional stock.				
Implementation: Disaster Stage				
Order repair teams for travelling to the affected areas washed away by tidal bore/flood waters for repairing/tending/cleaning of tube-wells/water supply lines.				

Arrange for the supply of drinking water on emergency basis to areas where normal supply has been disrupted (Man can live for longer period without food than without water).				
Implementation: Rehabilitation Stage				
In coordination with the DMC and on orders of the Committee assess WatSan damage and prepare damage assessment report				
Maintain the supply of drinking water under special arrangement				
Make available sufficient quantity of bleaching powder for maintaining adequate hygienic condition in shelters, relief camps, etc.				
Supervise repair/rehabilitation work of tube-well/water supply system and ensure availability of required manpower/spare parts for speedy completion of work				
Monitoring and evaluation				
Establish an effective monitoring and evaluation mechanism to ensure effective utilization of resources				
Conduct participatory baseline survey				
Involve local community in monitoring and evaluation				
Facilitate UP, Union and ward WatSan committees to do self-monitoring and evaluation				
Prepare and update WatSan data base of the Upazila				
Facilitate UP to prepare and update WatSan data base of the UP				

Step 3: SSI

- What kind of tools would enable you to play desired role effectively?
- What are your suggestions about modification of existing tools or to have new tools?

- What kind of capacity development would you need to play desired role effectively?
- What differences do you see between previous SOD and SOD 2010 in terms of duties and responsibilities of a UZDMC?
- How active is the UDMC what is their action plan of the year? What challenges they are facing/would face in terms of imparting roles and responsibilities stated in the SOD 2010 (refer the SOD 2010 UDMC-page 37)
- What are capacity development needs of a UDMC towards enabling them to perform roles and duties vested on them by the SOD 2010 special to reduce water sanitation disaster risk?
- How active is the Upazila WatSan Committee, what is their action plan of the year? What challenges they are facing/would face in terms of imparting roles and responsibilities stated by the WatSan SOD 2007 (refer the WatSan SOD 2007)
- What are capacity development needs of a UZ WatSan committee towards enabling them to perform roles and duties vested on them by the SOD 2007 specially to reduce water sanitation disaster risk?
- In terms of WSDRR what kind of coordination and its mechanisms between DMC and ASC? What do you suggest? How that can be achieved?

Tool 7: Guide questions for FGD with Union level stakeholders	
<p>Special note: During the day of FGD with Union level stakeholders the study team would like to visit and directly observe following and take note. Local organizers of the events should organize the union level FGD in place that provide opportunity to the team to visit and observe:</p> <ul style="list-style-type: none"> • Primary and secondary schools where SHEWA-B project has constructed WatSan facilities; • Emergency community toilets, water points constructed by GoB project- few years back; • During the school visit the team would short discussions with the teacher and student team of the school formed by the SHEWA-B project 	
Date:	Time: Place:
Name and designation of respondents:	
Intended respondent	UP chairperson, women UP members, 2 staff of NGO partners of SHEWA-B project directly involved 3 to 4 leading members of Union WatSan committee, 3 to 4 members of Union DM committee, 2 SMC member of a school of the union where SHEWA-B has constructed WatSan facilities.
Objective	<p>The main objectives of this tool is to generate data on the:</p> <ul style="list-style-type: none"> • Gaps in desired role performance by the UP level actors in compliance with policies related to DRR mainstreaming in WatSan project design, implementation, monitoring and evaluation • Reasons of gaps • Way forward and • Capacity development needs
Reference document can be collected from the respondent	<ul style="list-style-type: none"> • Union WatSan profile/information sheet; • Consolidated information of number of TW and latrines provided by the SHEWA project for the selected union and village of the study; • Consolidated information of number of TW and latrines provided by the SRWSP project for the selected union and village of the study; • Information on damage of WATSAN facilities due to disasters in recent past; • Other documents relevant to monitoring; • Reporting format;

	<ul style="list-style-type: none"> • Damage assessment report; • Report of any repair and maintenance of WatSan facilities; • Report of disaster-onset- and post-disaster emergency support related to WATSAN.
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Step 1: SSI

- What are the strengths and weaknesses do you see about WatSan situation in your Union? How many % of households/population of your union have access to safe drinking water? How many % of household/populations have access to improved sanitation? What % of households/families in your union are aware of and practices personal and family level hygiene?
- When was the last hazard occurrence in this Union, how that hazard impacted WS facilities and sanitation behavior of the community? (ask specifying what percent of sanitary toilets, water points destroyed by the last hazard occurrences, were those replaced, what was the secondary health impact?)?
- In your union, is there any water sanitation facilities created which can be used during emergency period? What are strengths and weaknesses of those facilities in terms of maintenance and usability? What is your suggestion to make those facilities more effective?

Step 2: Desired role performance gap scoring exercise

(With reference to two projects under study)

Desired role to comply mainstreaming policy propositions	Gaps in performance			Reasons of gaps
	High	Medium	Low	
Implementation/ DRR				
Conduct DRA of safe drinking water and hygiene practices through community consultation and prepare the risk reduction action plan in the union				
Prepare WSDRR action plan and implementation of the action plan				
Awareness creation on WSDRR at household and communities				
Arrange training and workshops on regular basis on disaster issues including Water and Sanitation				
Hold a hazard, vulnerability and risk analysis at Union level				
Raise fund at local level to implement the risk reduction action plan				
Capacity building of relevant persons				

Desired role to comply mainstreaming policy propositions	Gaps in performance			Reasons of gaps
	High	Medium	Low	
and institutions, union authority, volunteers and people				
Ensure supply of safe water and if necessary other services from specific points near the Shelter/centre with the help of Upazila authority				
Train the students, youths, local club members and volunteers on community based water purification technology. So that during disaster, they can supply water-purifying technology during emergencies in their community until external □□□□□□ reaches the high-risk people.				
Implementation: Preparedness				
Review the practicality of water supply sources nearby the shelter/centre and if necessary, fill the gaps that people can get safe water supply during disaster from these water sources.				
On a minimum scale, conduct a mock or drill to ensure that the trained students, youths, clubs and volunteers can prepare water-purification technology at their locality and can supply to the victims during emergencies and to monitor that adequate materials are ready to prepare such water-purification technology				
Review the stock of life saving medicines at union level and evaluate its adequacy for supply among the victims during disaster				
Implementation: during disaster-On set				
Prepare water purification technology (tablet) at local level with the help of trained students,				

Desired role to comply mainstreaming policy propositions	Gaps in performance			Reasons of gaps
	High	Medium	Low	
youths, clubs and volunteers; and distribute those products at emergency among the people at risk before being caught by diarrhoea or other water borne diseases.				
Take necessary actions to protect environmental degradation by quick funeral of corpses and burying the animal dead bodies.				
Implementation: Post Disaster				
Collect statistics of loss incurred in disaster (including WatSan) in the light of guidelines of Disaster Management Bureau and Upazila Disaster Management Committee and send the same to UDMC				
Monitoring and evaluation				
Prepare and update WatSan data base of the Union				

Step 3: SSI

- What kind of tools would enable you to play desired role effectively?
- What are your suggestions about modification of existing tools or to have new tools?
- What kind of capacity development would you need to play desired role effectively?
- What differences do you see between previous SOD and SOD 2010 in terms of duties and responsibilities of a UDMC?
- How active is the UDMC what is their action plan of the year? What challenges they are facing/would face in terms of imparting roles and responsibilities stated in the SOD 2010 (refer the SOD 2010 –UDMC page 37)
- What are capacity development needs of a UDMC towards enabling them to perform roles and duties vested on them by the SOD 2010 specially to reduce water sanitation disaster risk?
- How active is the Upazila WatSan Committee, what is their action plan of the year? What challenges they are facing/would face in terms of imparting roles and responsibilities stated by the WatSan SOD 2007 (refer the WatSan SOD 2007)
- What are capacity development needs of a UZ WatSan committee towards enabling them to perform roles and duties vested on them by the SOD 2007 specially to reduce water sanitation disaster risk?
- In terms of WSDRR what kind of coordination and its mechanisms between DMC and WSC do you suggest? How that can be achieved?

Tool 8: PRA with community: in each village one session with male and one session with female	
Date:	Time: Place:
Name and designation of respondents:	
To be used at the level of	Village
Intended respondent	<p>Male: Ward WatSan Committee Members- 1 per ward , TW caretakers (better taken training orientation/training) from any of the two projects , male community hygiene promoters of SHEWA-B, 1 or 2 UP member, 2 to 3 person form hardcore poor, 5 to 6 persons representing each para of the village/ward</p> <p>Fe male: Female Ward WatSan Committee Members, Female UP member, female community hygiene promoters of SHEWA-B, 2 to 3 women from hardcore poor, 5 to 6 female representing one from each para of the village</p>
Objective	The main objective of this PRA session is to assess and identify TWS, latrines, other water options by types and status in the village/ward before and after the hazard and at present. Disaster Risk of the WatSan of the study village and to identify community perceived measures to be taken for WDRR
Reference document can be collected from the respondent	Ward WS action plan facilitated by SHEWA-B
Materials needed	Marker pen, flip paper

PROCESS

Before the Session

Step 1: Enter into the village and with few people of the village have transect in the village, observe directly WatSan facilities specially ask people to show toilets and TWs provided by government regular projects and SHEWA–B, while walking continue to discuss with the people about last hazard, what happened in the village, what happened to the WatSan

Session proper

Step 2: Ask the participants when the last hazards occurred- what was the hazard and how the village community affected by the hazard, what kinds of difficulties they faced with regards to WatSan? Ask and take answer on following specific questions and fill up following format with the answer:

Water		Sanitation	
% of households/population of the village had access to safe drinking water before the hazard occurrence (mentioned year		% of households/population of the village had access to hygienic latrines before the hazard	

Water		Sanitation	
and hazard)		occurrence (mentioned year and hazard)	
% of water facilities destroyed/became non-functional by the hazard		% of toilets destroyed/became non functional by the hazard	
% of household/ population has access to safe drinking water immediate after the hazard occurrence		% of household/population has access to hygienic toilets immediate after the hazard occurrence	
% of destroyed/ disordered water facilities destroyed have been repaired/reconstructed by now		% of destroyed/disordered toilets have been repaired/reconstructed by now	
% of households/population of the village had access to safe drinking water at present		% of households/population of the village had access to safe drinking water at present	

Step 3: Divide participants per cluster in small group. Facilitate each group to draw a **WatSan Resource and Risk Map** of their cluster. Facilitate them to identify ponds, wells, tube-wells, toilets at houses, institutions (by type- by status - ok, broken, disordered, platform not constructed or broken- with legend) in their village. Facilitate participants to identify and mark what TW and latrines are provided by the government- Regular project and SHEWA- B project. Now facilitate participants to mark those water points/sources and toilets are under risk of being affected/destroyed. Have the plenary of cluster group exercise and count latrines, TWs ponds before and after - now, number of TWS, latrines destroyed by the hazard , number of TWS and latrines they think will be destroyed of same hazard will take place in the future. Take notes.

Step 4: Facilitate participants to discuss what difficulties they would face if those WatSan resources are non-functional or destroyed – and how long they would face that difficulties - how would they cope; what kind of health impact it will create for the adult and children of the village ?

Step 5: Facilitate participants to discuss how disaster risk of village WatSan resources can be reduced? "What restrict them to make their family level water and sanitation facilities disaster safe? Discuss and take note

Step 6: Linking the previous discussions facilitate participants to determine locally relevant effective measures to prevent, mitigate, emergency preparedness and community capacity development towards reduce disaster risk of village WatSan.

Annex 3: List of Respondents

National Level /Dhaka

LG Division

1. Zuena Aziz (Ms.), Additional Secretary (WS) LGD, Bangladesh Secretariat, Dhaka.
2. Swapan Kumar Sarkar (Mr.), Director General (Additional Secretary), MIE Wing, LGD–and NPD, LGSP, Bangladesh Secretariat, Dhaka. Phone: 02-7167911. Mobile: 01711977019 email: skslgd@gamil.com

DPHE – SHWEA Project

3. Engr. Nurul Islam Khan (Mr.), Project Director, (Additional Chief Engineer), Sanitation, Hygiene and Water Supply Projects (GoB-Unicef) Project, DPHE, DPHE Bhaban (3rd Floor) 14, Shaheed Captain Monsur Ali Sharani, Kakrail, Dhaka - 1000, Tel: + 88-02-9349744 (off) Mobile: + 88-01554 322033 email: pdnik@dphe.gov.bd
4. Engr. Md. Golam Moktadir (Mr.), Executive Engineer, Sanitation, Hygiene and Water Supply Projects (GoB-Unicef) Project,. DPHE, DPHE Bhaban (3rd Floor) 14, Shaheed Captain Monsur Ali Sharani , Kakrail, Dhaka 1000, Tel: + 88-02-9349744 (off) Mobile: + 88-01552-384505 email: miltonbuet@yahoo.com
5. Md. Muktadir Harun (Mr.), Social Development Officer, Dhaka Circle, Sanitation, Hygiene and Water Supply (GoB-Unicef) Project, DPHE, DPHE Bhaban (3rd Floor) 14, Shaheed Captain Monsur Ali Sharani , Kakrail, Dhaka 1000, Tel: + 88-02-9349744 (off), Email: muktadirharun@yahoo.com

DPHE – Special Rural Water Supply Project

6. Engr. Shaheed Iqbal (Mr.), Project Director, Special Rural Water Supply Project, DPHE, DPHE Bhaban (2nd Floor) 14, Shaheed Captain Monsur Ali Sharani, Kakrail, Dhaka – 1000., Tel: + 88-02-9338722 (off), Mobile: 01715-222886 Email: sdiqbal_dphe@yahoo.com
7. Shudir Kumar Ghosh (Mr.), Superintending Engineer, DPHE, Groundwater Circle , Dhaka, DPHE Bhaban (2nd Floor) 14, Shaheed Captain Monsur Ali Sharani , Kakrail, Dhaka - 1000 mobile : 01199487159

MoFDM, DMB & CDMP

8. Mohammed Abdul Wazed (Mr.), Additional Secretary (DM), Disaster Management and Relief Division, Ministry of Food & Disaster Management, Bangladesh Secretariat, Dhaka – 1000. Phone: 02-7161081 (office) 8155289n(Res), Cell: 01715 - 082620, Email: wazed_73@ymail.com
9. Ahsan Zakir (Mr.), Director General (Additional Secretary), DMB Disaster Management & Relief Bhaban, 92-93 Mohakhahli C/A Dhaka – 1212. Tel: 880-2-8858755 (PA), 880-2-88477795 (off) Cell: 01715017268. Email: dg@dmb.gov.bd
10. Md. Shamsul Alam (Mr.), Deputy National Project Coordinator, (CDMP), (UNDP), Disaster Management and Relief Bhaban, (6th floor) 92-93 Mohakhahli C/A Dhaka – 1212., Tel: +88-02 - 9890937, 8821255, 8821255 Ext. 101. Cell 01731828500. Email: shamsul.alam@cdmp.org.bd
11. Dr. Puji Pujiono (Mr.), Project Manager,(CDMP), (UNDP), Disaster Management and Relief Bhaban, (6th floor) 92-93 Mohakhahli C/A Dhaka – 1212. Tel: +88- 02- 9890937, 8821255, 8821459 Ext. 110, Cell: 01730 63398. Email: puji.pujiono@cdmp.org.bd

12. Mohammad Mohiuddin (Mr.), Senior Project Specialist (Rural Risk Reduction), (CDMP) (UNDP), Disaster Management and Relief Bhaban, (6th floor) 92-93 Mohakhahli C/A Dhaka – 1212. Tel: +88- 02- 9890937, 8821255, 8821459 Ext 105. Cell: 01720167948 Email: mohiuddin.mohammad@cdmp.org.bd

National NGOs and Relevant Agencies engaged in WS

13. Md. Ziaul Haque (Mr.), Chief Field Operation Officer, NGO Forum for Public Health, 4/6, Block E, Lalmatia, Dhaka – 1207. Tel: 02- 8154273-4, 8128258-150, Mobile: 01720090669, Email: zia@ngof.org
14. Md. Saiduzzaman Khan (Mr.), Resource Mobilization Officer, NGO Forum for Public Health, 4/6, Block E, Lalmatia, Dhaka – 1207. Tel: 02- 8154273-4, 8128258-150, Mobile: 01722-029902, Email: saiduzzaman@ngof.org
15. Rizwan Ahmed (Mr.), Chief, National Resource Centre, NGO Forum for Public Health, 4/6, Block E, Lalmatia, Dhaka – 1207. Tel: 02- 8154273-4, 8128258-9, Email: rizwan@ngof.org
16. A. B. M. Sadiqur Rahman (Mr.), Programme Engineer, NGO Forum for Public Health, 4/6, Block E, Lalmatia, Dhaka – 1207. Tel: 02- 8154273-4, Ext-151, Mobile: 01711-978554, Email: sadiq@ngof.org
17. Engr. Imam Mahmud Riad (Mr.), Sector Team Leader/Head, WatSan Sub-Sector, Programme Division, Dhaka Ahsania Mission, House # 19, Road # 12 (new) Dhanmondi RA, Dhaka - 1209, Tel: 02- 9124152, Cell: 01711232093, Email: imafraj@yahoo.com

Planning Commission

18. S. M. Zahir Khan (Mr.), Joint Chief, Planning Commission, Physical Planning and Housing Wing, Physical Infrastructure Division, Ministry of Planning, Bock 4, Room 21, Sher-e-Bangla Nagar, Dhaka – 1207., Phone: 8115713, Mobile 01552-445575, Email: zahirkhan_56@yahoo.com
19. S. M. Nasim Uddin (Mr.), Joint Chief & National Project Director, Poverty, Environment and Climate Mainstreaming (PECM) Project, General Economic Division, Planning Commission, Bock 14, Room 24 1st floor, Sher-e-Bangla Nagar, Dhaka - 1207. Tel: 02-8116751, Email: nasim.uddin@pecm.org.bd
20. A. K. M. Mamunur Rashid (Mr.), Project Manager, Poverty, Environment and Climate Mainstreaming (PECM) Project, Climate Change, Environment and Disaster Cluster, UNDP General Economic Division, Planning Commission, Block 14, Room 27, Sher-e-Bangla Nagar, Dhaka - 1207. Cell: 01733814139, Email: nemoibsru@gmail.com

Upazila Level

21. Mr. Mozzamel Haue Sarker, Upazila Chairman, Kazipur Upazila, Sirajgonj, Chairperosn Upazila WatSan and DM Committee
22. Ms. Rehana Parveen, Vice Chairman, Kazipur Upazila & Member, Upazila WatSan and DM Committee
23. Mr. S.M Ziaul Haque, Chairman, Kazipur Union, Kazipur, & Member, Upazila WatSan and DM Committee
24. Mr. Talukder Jahangeer Alam, Chaiman, Majdia Union, Kazipur, & Member, Upazila WatSan and DM Committee
25. Mr. Rafiqul Alam, Member, Kazipur Union, Kazipur, & Member, Upazila WatSan and DM Committee
26. Ms. Sabiha Sultana, UP member, Sonamukhi Union, Kazipur
27. Mr. Shahidul Alam, SHEWA-B project

28. Ms. Jui, UP member
29. Md. Abdur Rashid, SAE, DPHE, Kazipur Upazila
30. Rokeya Bithi, Programme Manager, Facilitating Agency of SHEWA B – Programme for People's Development
31. Md. Sarowar Hossain, Sub Assistant Engineer, DPHE, Satkhira Sadar Upazila
32. Md. Abdul Jalil, Mechanic, DPHE, Satkhira Sadar Uazila
33. Md. Abdul Alim, Chirman, Lapsa Union, Satkhira Sadar Upazila,
34. Md. Nazrul Islam, Upazila Chairman, Satkhira Sadar Upazila
35. Md. Irfan Hossain, Project Engineer, DAM-(NGO)
36. Md. Rafiqul Islam, DAM field staff, Satkhira
37. Sakwat Hossain SAE, DPHE, Shariatpur Upazila
38. Nithish Chandra Halder, DPHE Mechanic, Shariatpur Upazila
39. Abul Fazal, Upazila Chairpeson, Shariatput Upazila
40. Golam Mostofa, Vice Chairperson, Shariatpur Upazila
41. Md. Abdus Salam Hawlader, Upazila WatSan and DM Committee Member, Shariatpur Upazila
42. Ms. Nurun Nahar, PIO, Shariatput Upazila
43. Md. Shakawat Hossain, Upazila Engineer, Shariatpur Upazila
44. Md. Moslem Uddin, Upazila Asistant Engineer, Shariatpur Upazila
45. Md Abul kahem Ajad, Health Inspector, Shariatput Upazila
46. Md. Dural Huda, Coordinator, UST (NGO)
47. Shahidul Islam, Aassistant Coordinator, UST(NGO)
48. Shahriar Hossain, UST (NGO)
49. Mahfuz, Programme Officer UST (NGO)

Union Level

50. Mr. Talukder Jahangir Alam, Chairman, Majbari UP, Kazipur Upazila, Sirajganj.
51. Mr. Md. Shahidul Islam, UP Memer, Chairperson, UDMC, Bilchatal 6 no. Ward.
52. Mr. Md. Nazrul Islam, UP Member, 4 no. Ward, Majbari UP, Kazipur Upazila, Sirajganj.
53. Mr. Md. Subod Mondol, UP Mmber, 7 no. Ward, Majbari UP, Kazipur Upazila, Sirajganj.
54. Mr. Maksadur Rahman, UP Member, 5 no. Ward, Majbari UP, Kazipur Upazila, Sirajganj.
55. Ms. Salma Khatun, UP Member, 7-9 no Ward, Majbari UP, Kazipur Upazila, Sirajganj.
56. Ms. Fatema Khatun, UP Member, 4-6 no. Ward, Majbari UP, Kazipur Upazila, Sirajganj.
57. Mr. Md. Asraful Alam, Community Hygiene Promoter of Facilitating NGO, SHEWA-B Project (PPD), 8 no. Ward, Majbari UP, Kazipur Upazila, Sirajganj.
58. Md. Belal Hossain, Community Hygiene Promoter of Facilitating NGO, SHEWA –B Project, 7 no. ward, Masbari Union.
59. Ms Salma (CHP-SJEW A B), Community Hygiene Promoter of Facilitating NGO, Ward No. 6, Kazipur Sadar Union.
60. Sulatan Begaum Lili, Community Hygiene Promoter of Facilitating NGO, PPD - SHEWA B), Ward no. 7, Kazipur Sadar Union.
61. Md. Shamim Hossain, Union Behaviour Change Facilitator (UVCH) PPD-SHEWA, Masbari Union.
62. Md. Ashraful, Community Hygiene Promoter (CHP), Ward 8, Masbari Union.
63. Ms. Rebaca Khatun, Member, 4-6 Ward, Bramorajpur union, Satkhira Sadar Upazila.
64. Mr, Shake Kawsar Ali, Panel Chairman, 5 no. Ward, Bramorajpur union, Satkhira Sadar Upazila.
65. Mr. Adul Khair, Member, 3 no. Ward, Bramorajpur union, Satkhira Sadar Upazila.
66. Mr. Md. Kamruzzaman, Member, 4 no. ward, Bramorajpur union, Satkhira Sadar Upazila.
67. Mr. Md. Serajur Rahman, Secretary, Bramorajpur union, Satkhira Sadar Upazila.

68. Mr. Subash Chandra Mondol, Member, 9 no. Ward, Bramorajpur union, Satkhira Sadar Upazila.
69. Alhaj Master Mujibar Rahman Khan, UP Chairman, Domsar Union.
70. Ms. Asma Akter, Union Behaviour Change Facilitator of Facilitating agency (UST) of SHEWA-B project.
71. Ms. Saleha Begum, CHP, UST, SHEWA-B project.
72. Ms. Slama Akterm CHP UST, SHEWA-B project.
73. Ms. Shefali Akter, CHP UST, SHEWA-B project.

Village Level

74. Md. Shah Jamal, Tube well Mechanic/Masion, Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
75. Md. Aim Uddin, Farmer, Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
76. Mr. Dudu Jah, Farmer, Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
77. Md Latif, Rickshawa van puller, Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
78. Md. Afsar Uddin, Small Shop Owner, Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
79. Md. Loman Kahim, Day Labourer, Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
80. Md Shorab Uddin, Assistant Teacher, Chalita Danga Primary School, Union Masbari, Kazipur, Sirajganj.
81. Md. Abdus Salam, CRApenter/plumner, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
82. Al Mahmud, Day Labourer, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
83. Md Jakiul Islam, Rickshawa van puller, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
84. Md Al Amin, Farmer, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
85. Md. Tarek Ali, Small Shop Owner, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
86. Md. Jakir Hossain, Small Shop Owner, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
87. Md. Amir Hossain, Farmer, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
88. Md. Mustafijur Rahman, Tube well Mechanic/Masion, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
89. Md. Dulal, Student, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
90. Md Rustam Ali, Farmer, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
91. Md. Elias, Day Labourer, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
92. Amjad Hosain, Day Labourer, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
93. Gaji Shah Ali Sharker, Farmer, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
94. Masud Rana, Small Shop Owner, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
95. Jamal Mandol, Farmer, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
96. Haroon or Rashid, Farmer, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
97. Buruj Ali Day Labourer, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
98. Ms. Jesmin Akther, House Wife/Farming, Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
99. Ms. Dulali Khatun, House Wife/Farming, Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.

100. Ms. Parvin Akter, Student, Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
101. Ms. Afroza Begum, Student Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
102. Ms. Anawara Bengum, House Wife /Farming Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
103. Ms. Ajiron Nesa Begaum, Widow/Farming Village Shaud Tola, Kazipur Sadar union Kazipur Upazila, Sirajganj.
104. Ms. Josna Banu, House Wife/Farming Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
105. Ms. Ajina Begum, House Wife/Farming Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
106. Ms. Amina Begum, House Wife/Farming Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
107. Ms. Ajia Khatun, House Wife/Farming Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
108. Ms. Begum Akter, House Wife/Farming Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
109. Ms. Shimul Begeum, House Wife/Farming Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
110. Ms. Shapla Beguem, House Wife/Farming Village Shaud Tola, Kazipur Sadar union, Kazipur Upazila, Sirajganj.
111. Ms.Sahana Begum, Assistant Teacher, Chalita Danga Primary School, Union Masbari, Kazipur, Sirajgang.
112. Ms. Nargis Akter, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
113. Ms. Jahanara Kahatun, House Wife/Farming, Village Sala Vhara, Union Masbari, Kaipur Upazila, Sirajganj.
114. Ms. Firoja Khatun, Student, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
115. Ms. Hajera khatun, House Wife/Farming, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
116. Ms. Tahera Khatun, House Wife/Farming, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
117. Ms. Shahera Khatun, House Wife/Farming, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
118. Ms. Buty Khatun, House Wife/Farming, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
119. Ms. Jharna Begum, Student, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
120. Ms. Moharani Khatun, House Wife/Farming, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
121. Ms. Selina, Student, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
122. Ms.Selina Khatun, House Wife/Farming, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
123. Ms. Maya Rani, Student, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
124. Ms. Rekha Khatun, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
125. Ms. Shamima Akter, House Wife/Farming, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
126. Ms. Rahima Khatun, House Wife/Farming, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
127. Ms. Shamoli Akter, Student, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
128. Ms. Parul Akter, Student, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.

129. Ms. Asia Khatun House Wife/Farming, Village Sala Vhara, Union Masbari, Kazipur Upazila, Sirajganj.
130. Ms. Sanura Begum, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
131. Ms. Lata Begum, House Wife/Home tailoring Blanket Maker, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
132. Ms. Shilpi Khatun, House Wife/Home tailoring Blanket Maker , Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
133. Ms. Salma Khatun, House Wife/Home tailoring Blanket Maker, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
134. Ms. Hameli Khatun, House Wife Home tailoring/Blanket Maker, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
135. Ms. Tara Banu, House Wife/Home tailoring Blanket Maker, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
136. Ms. Doli Begum, House Wife/Home tailoring Blanket Maker, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
137. Ms. Rokeya Begum, House Wife Home tailoring/Blanket Maker, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
138. Ms. Shahida Begum, House Wife/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
139. Ms. Sundari Begum, House Wife/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
140. Ms. Omela Khatu, House Wife/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
141. Ms. Morgina Begum, House Wife/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
142. Ms. Rahima Khatun, House Wife/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
143. Ms. Ratna Khatun, House Wife/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
144. Ms. Jahanara Begum, Student, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
145. Ms. Maksuda Begum, Student, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
146. Ms. Mukta Khatun, Student, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
147. Ms. Rina Masuda, Student, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
148. Ms. Pavin, Student, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
149. Ms. Jharna Begum, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
150. Ms. Shima Akter, Student, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
151. Ms. Shukali Begum, Widow/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
152. Ms. Laiju Begum, House Wife/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
153. Ms. Manjta Begum, House Wife/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
154. Ms. Ramisa Khatun, Widow/Farming, Village Bil Chator, Union Masbari, Kazipur Upazila, Sirajganj.
155. Kalipada Mandol, Primary School Teacher, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
156. Lalit Mandol, Primary School Teacher, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
157. Utpal Mandol, Business/small shop owner, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.

158. Sitol Biswas, Fishing/Shrimp farming, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
159. Gopal Mandol, Social worker, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
160. Shankar Sharker, Rickhawa van Puller, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
161. Dulal Gyen, Day Labourer, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
162. Maohadev Mondaol, Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
163. Rup Chad sharker, Day Labourer, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
164. Akhay Gayen, Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
165. Tilok Chandra Biswash, Small scale shrimp fishery, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
166. Sudhir Chandra Biswas, Small scale shrimp fishery, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
167. Kartik Biswah, Day Labourer, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
168. Shuren Mandol, CRApenter/Plumber, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
169. Arjun Gayen, Tube-well Mechanic, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
170. Godai Mondol, Fisherman, Village Goalpota, Union Brahmarajur, Upazila Satkhira sadar, Satkhira.
171. Sridam Biswash, Coconut Business, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
172. Shapan Kumar Mandol, (farmer), Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
173. Tapan Kumar Das (farmer), Village Beradanga, Union- Bramharajpur, Upazila Satkhira Sadar, Satkhira.
174. Shaontos Kumar Das (day labourer) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
175. Ram Krishna Das (student) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
176. Shuil Das (Small business) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
177. Sundar Das (Fisherman) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
178. Naren Das (tube-well Mechanic) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
179. Dhiren Das (Busines) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
180. Biren Das (Farmer) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
181. Gopal Das (Farmer) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
182. Chitta Ranjan Gayen (Village Police) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
183. Bimal Das (Fisherman) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.

184. Ram Prashad Das (Labourer) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
185. Rakhil Das (Farmer) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
186. Vharib Das (Day Labourer) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
187. Jhuru Das (Plumber) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
188. Md. Abu Kashem (Rickshwa-Van Puller), Village Maskhola, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
189. Md. Golam Mostafa (Student) Village Maskhola, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
190. Md. Abdul Salehk (SMC Member) Village Maskhola Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
191. Md. Nur Islam (Tubewell Mechanic) Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
192. Md. Ruhul Kuddus (business) Village Maskhola Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
193. M., Mahbaubu (Business) Village Maskhola Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
194. Md. Abdur Razzak (Farmer) Village Maskhola Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
195. Md. Asadul Islam (Farmer) Village Maskhola Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
196. Md. Salam Hazari (Farmer) Village Maskhola Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
197. Md. Badsa (Farmer), Village Maskhola Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
198. Din Mohammed (Day labourer), Village Maskhola Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
199. Md. Jahangr (Day labourer), Village Maskhola Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
200. Krishna Pada Mundal, Farmer, Village Horin Khola, Upazila Tala, Satkhira.
201. Ganesh Mundal, Farmer, Village Horin Khola, Upazila Tala, Satkhira.
202. Prashanta Mundal, Farmer, Village Horin Khola, Upazila Tala, Satkhira.
203. Joydev Mundal, Farmer, Village Horin Khola, Upazila Tala, Satkhira.
204. Ms. Bandana Gyen, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
205. Ms. Pramila Mandol, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
206. Ms. Shefali Mandol House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
207. Ms. Shankari Sharker, Day Labourer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
208. Ms. Luxmi Rani Gyen, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
209. Ms. Monika Mandol, School Teacher Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
210. Ms. Swarsmati Mandol, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
211. Ms. Anjali Sharker, Duck rearing Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.

212. Ms. Urmila Rani Day Labourer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
213. Ms. Tapati Mondol, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
214. Ms. Bima Gayen, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
215. Ms. Nirmala Biswas, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
216. Ms. Chitra lekha Maondol, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
217. Ms. Madhabi Rani Biswas, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
218. Ms. Ganga Rai Mondol, House wife/Farmer, Village Goalpota, Union Brahmarajur, Upazila Satkhira Sadar, Satkhira.
219. Ms. Anjana Das ,(student) Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
220. Ms. Minoti Rani Das, (House Wife), Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
221. Ms. Karuna Rani Das, (House Wife), Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
222. Ms. Santi Rani Das, (House Wife), Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
223. Ms. Mamota Rani Das, (House Wife), Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
224. Ms. Urmila Das, Day Labourer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
225. Ms. Basonti Rani Das, Duck rearing, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
226. Ms. Baouni Das, House wife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
227. Ms. Dipali Das, House wife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
228. Ms. Suvadra Das, House wife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
229. Ms. Durga Rani Das, Housewife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
230. Ms. Archana Rani Das, House wife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
231. Ms. Shasti Rani Das, Housewife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
232. Ms. Houshlal Rani Das ,House wife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
233. Ms. Dipali Rani Das, School Teacher, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira
234. Ms. Luxmi Rani Das, Day Labourer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
235. Ms. Kalpona Rani Das, Day Labourer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
236. Ms. Jhakki rani Das, Housewife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.

237. Ms. Swapna Das (Student), Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
238. Ms. Pramila rani Das, Small Scale Shrimp Farming, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
239. Ms. Shuchitra Rani Das, Housewife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
240. Ms. Amjali rani das, Housewife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
241. Ms. Rekha rani Das, Housewife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
242. Ms. Jharna rani Das, (Student), Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
243. Ms. Nomita rani Das, Housewife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
244. Ms. Kalyani rani Das, Housewife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
245. Ms. Anjali Rani Das, House wife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
246. Ms. Parul Rani Das, House wife/Farmer, Village Beradanga, Union- Bramharajpur, Upazila-Satkhira Sadar, Satkhira.
247. Ms. Duli bewa (Day labourer) Village Maskhola, Union- Bramharajpur, Upazila-Satkhira
248. Ms. Jarina begum, Housewife/Farmer, Village Maskhola, Union- Bramharajpur, Upazila-Satkhira.
249. Ms. Momota khatun, Housewife/Farmer, Village Maskhola, Union- Bramharajpur, Upazila-Satkhira.
250. Ms. Akliia begum, Housewife/Farmer, Village Maskhola, Union- Bramharajpur, Upazila-Satkhira.
251. Ms. Lili Parvin (Student), Village Maskhola, Union- Bramharajpur, Upazila-Satkhira.
252. Ms. Feroja begum, Housewife/Farmer, Village Maskhola, Union- Bramharajpur, Upazila-Satkhira.
253. Ms. Kalpana kahtun, Housewife/farmer, Village askhola, Union- Bramharajpur, Upazila-Satkhira.
254. Ms. Kejuri Begam, (Day Labourer), Village Maskhola, Union- Bramharajpur, Upazila-Satkhira.
255. Ms. Parul Begum, (Day Labourer), Village Maskhola, Union- Bramharajpur, Upazila-Satkhira.
256. Ms. Marjina Khatun, (Day Labourer), Village Maskhola, Union- Bramharajpur, Upazila-Satkhira.
257. Ms. Josna Begum, (Day Labourer) Village Maskhola, Union- Bramharajpur, Upazila-Satkhira.
258. Ms. Mamota Munda Farmer, Village Horin Khola, Upazila Tala, Satkhira.
259. Ms. Hari Dashi Munda Farmer, Village Horin Khola, Upazila Tala, Satkhira.
260. Ms. Durga Rani Mundal, Farmer, Village Horin Khola, Upazila Tala, Satkhira.
261. Rab Matbar, Farmer, Paler Char, Jajira Upazila, Sariatpur.
262. Tota Mia, Business Chairperson of CRAe taking committee of bazar cum community latrine at Paler Char, Jajira Upazila, Sariatpur.
263. Ali Asgar Munshi, Business, Member of CRAe taking committee of Bazar cum community latrine at Paler Char Jajira Upazila, Sariatpur.
264. Abul Hashem, Business, Member of CRAe taking committee of Bazar cum community latrine at Paler char Jajira Upazila, Sariatpur.
265. Md. Abdul Malek, Assistant Teacher Korarpur 15 no. Govt. Primary School, Domsar Union, Sariatpur.
266. Md. Nuru Kha, SMC, Kirti Nagr primary School Cum Cyclone Shelter, Domsar Union, Sariatpur.

267. Abdul Hakim Fakir, Land Donor, Kirti Nagr Primary School cum Cyclone Shelter, Sariatpur.
268. Sorab Hasain, (Rickshaw van Puller), Village Char Domsar, Union Domsar, Upazila Sariatpur.
269. Ali Asgar (Day Labourer) Village Char Domsar, Union Domsar, Upazila Sariatpur.
270. Rahmat Ali (Auto Driver) Village Char Domsar, Union Domsar, Upazila Sariatpur.
271. Bardul Alam (Farmer) Village Char Domsar, Union Domsar, Upazila Sariatpur.
272. Gazi kamal, (Day labourer/Bricks Field Worker) Village Char Domsar, Union Domsar, Upazila Sariatpur.
273. Keramat Haowlader (Day Labourer/Bricks Field Worker) Village Char Domsar, Union Domsar, Upazila Sariatpur.
274. Abdul Rshid Bepari (Plumber) Village Char Domsar, Union Domsar, Upazila Sariatpur.
275. Abul Kashem Bepari, TW Mechanic Village Char Domsar, Union Domsar, Upazila Sariatpur.
276. Liakat Ali Hawlader, (Farmer) Village Char Domsar, Union Domsar, Upazila Sariatpur.
277. Ali Asgar Bepari (Farmer) Village Char Domsar, Union Domsar, Upazila Sariatpur.
278. Muktar Bepari (Farmer) Village Char Domsar, Union Domsar, Upazila Sariatpur.
279. Yusuf Bepari (Day Labourer/ Power Tiller Operator) Village Char Domsar, Union Domsar, Upazila Sariatpur.
280. Mamun Khan (Student) Village Char Domsar, Union Domsar, Upazila Sariatpur.
281. Aiub Ali Khan (Farmer) Village Char Domsar, Union Domsar, Upazila Sariatpur.
282. Mannan Khan (Farmer) Village Char Domsar, Union Domsar, Upazila Sariatpur.
283. Jakir Ali, (Day Labourer), Village Koarpur, Union Domsar, Upazila Sariatpur.
284. Habibur Rahman Hawladar (Business) Village Koarpur , Union Domsar, Upazila Sariatpur
285. Mostafiz Molla (Day Labourer) Village Koarpur, Union Domsar, Upazila Sariatpur.
286. Abdul Halim Bepari (Farmer) Village Koarpur, Union Domsar, Upazila Sariatpur.
287. Sadek Ali (Farmer) Village Koarpur, Union Domsar, Upazila Sariatpur.
288. Mijanur Rahman (Rickshaw Van Puller), Village Koarpur, Union Domsar, Upazila Sariatpur.
289. JulfiCRA Ali (Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
290. Taj Uddin (Farmer) Village Koarpur, Union Domsar, Upazila Sariatpur.
291. Monsur Ali (Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
292. Babar Ali Khan (farmer/ Livestock Rearing).
293. Golam Mowla Khan (Chicken Farmer).
294. Shahis Mia, (Small Business/Ricksah Van Mechanic), Village Koarpur, Union Domsar, Upazila Sariatpur.
295. Atiar Mia (Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
296. Adam Ali Bepari (Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
297. Keramot Ali Bepari (Farmer) Village Koarpur, Union Domsar, Upazila Sariatpur.
298. Majid Ali Bepari (Small Business- Latrine ring -slab production), Village Char Koarpur, Union Domsar, Upazila Sariatpur.
299. Akkas Ali Bepari (Day Labourer / Bricks Field Worker) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
300. Omor Ali ((Day Labourer/ Bricks Field Worker) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
301. Abu Bakar Hawlader (Day Labourer / Bricks Field Worker) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
302. Harun Ur Rashid (Day Labourer / Bricks Field Worker) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
303. Yakub Ali (TW CRAetaker) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
304. Sadar Ali Molla (Plumber) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
305. Gnai Bapari (Farmer) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
306. Monirul Islam (Student) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
307. Kismot Ali (Farmer) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
308. Asmot Ali (Auto Driver) Village Char Koarpur, Union Domsar, Upazila Sariatpu.r

309. Sirajul Islam (Small Business/Selling Cloth) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
310. Majobar Rahman (Day Labourer/Dresser Operator) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
311. Josim Uddin (Day Labourer/Dresser Operator) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
312. Samsul Islam Hawlader (Day Labourer/Dresser Operator) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
313. Siddikur Rahman (Day Labourer/Dresser Operator) Village Char Koarpur, Union Domsar, Upazila Sariatpur.
314. Ms. Kamrun Nahar, Assistant Teacher Korarpur 15 no. Govt. primary School, Domsar Union, Sariatpur.
315. Ms. Jharna begum, CRAetaker, Raised platform TW at home, Palr Char, Jajira upazila, Sariatpur.
316. Ms. Momotaj Begum, CRAetaker, Double layer platform TW at home, Palr Char, Jajira upazila, Sariatpur.
317. Ms. Hosneara Khanam, Head Teacher, Koarpur 15 no. Govt. Primary School, Domsar Union, Sariatpur.
318. Ms. Umme Kulsum Parvin, Assistant Teacher Korarpur 15 no. Govt. Primary School, Domsar Union, Sariatpur.
319. Ms. Nargis Akter, Assistant Teacher Korarpur 15 no. Govt. Primary School Domsar, Union, Sariatpur.
320. Ms. Helena Akter, Assistant Teacher, Kirti Nagr Primary School cum Cyclone Shelter, Domsar Union, Sariatpur.
321. Ms. Asma Khatun, (Day Labourer) Village Char Domsar, Union Domsar, Upazila Sariatpur.
322. Ms. Masuda Begum, (Small Business), Village Char Domsar, Union Domsar, Upazila Sariatpur.
323. Ms. Shahida (Student).
324. Ms. Hashi Begum, (House Wife/Farmer), Village Char Domsar, Union Domsar, Upazila Sariatpur.
325. Ms. Amena Begum, (Day Labourer).
326. Ms. Sharmin Akter, (House Wife/farmer), Village Char Domsar, Union Domsar, Upazila Sariatpur.
327. Ms. Helena Khatun, (House Wife/Farmer), Village Char Domsar, Union Domsar, Upazila Sariatpur.
328. Ms. Roksana Parvin, (House Wife/Farmer), Village Char Domsar, Union Domsar, Upazila Sariatpur.
329. Ms. Rahima Khatun (House wife/Farmer), Village Char Domsar, Union Domsar, Upazila Sariatpur.
330. Ms. Manjuara Parvin, (House Wife/Farmer), Village Char Domsar, Union Domsar, Upazila Sariatpur.
331. Ms. Rina Akter, (Student) Village Char Domsar, Union Domsar, Upazila Sariatpur.
332. Ms. Sharifa Akter, (House Wife/Farmer), Village Char Domsar, Union Domsar, Upazila Sariatpur.
333. Ms. Sajeda Parvin, (House Wife/Farmer), Village Char Domsar, Union Domsar, Upazila Sariatpur.
334. Ms. Najma Akter, (Student), Village Char Domsar, Union Domsar, Upazila Sariatpur.
335. Ms. Nargis (Student), Village Char Domsar, Union Domsar, Upazila Sariatpur.
336. Ms. Farida Parvin (Student), Village Char Domsar, Union Domsar, Upazila Sariatpur.
337. Ms. Bilkis Parvin, (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
338. Ms. Shirin Akter, (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.

339. Ms. Jahanara Parvin, (Home tailoring/Small Business), Village Koarpur, Union Domsar, Upazila Sariatpur.
340. Ms. Majeda Parvin, (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
341. Ms. Asia Khatun, (Widow/Day Labourer), Village Koarpur, Union Domsar, Upazila Sariatpur.
342. Ms. Joytun Begum, (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila ariatpur.
343. Ms. Shuva Tara Rani, (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
344. Ms. Irin Khatun, (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
345. Ms. Sormili Pervin, (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
346. Ms. Rina Akter (Student), Village Koarpur, Union Domsar, Upazila Sariatpur.
347. Piara Begum, (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
348. Ms. Momena Khatun, (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
349. Ms. Fatema Parvin (Student), Village Koarpur, Union Domsar, Upazila Sariatpur.
350. Ms. Kulsum Begeum (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
351. Ms. Popi Rani (Housewife/farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
352. Ms. Sar banu Begum (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
353. Ms. Hanufa Begum (Housewife/Farmer), Village Koarpur, Union Domsar, Upazila Sariatpur.
354. Ms. Bilkis begum, (Housewife/Farmer), Village Char Koarpur, Union Domsar, Upazila Sariatpur.
355. Ms. Shirin Akter, (Housewife/Farmer), Village Char Koarpur, Union Domsar, Upazila Sariatpur.
356. Ms. Farida Pervin, (Housewife/Farmer), Village Char Koarpur, Union Domsar, Upazila Sariatpur.
357. Ms. Jahanara Begum, (Housewife/Farmer), Village Char Koarpur, Union Domsar, Upazila Sariatpur
358. Ms. Majeda, (Housewife/Farmer), Village Char Koarpur, Union Domsar, Upazila Sariatpur.
359. Ms. Nargis Parvin, (Housewife/Farmer), Village Char Koarpur, Union Domsar, Upazila Sariatpur.
360. Ms. Nazma Khatun, (Housewife/Farmer), Village Char Koarpur, Union Domsar, Upazila Sariatpur.
361. Ms. Bul Buli (Student), Village Char Koarpur, Union Domsar, Upazila Sariatpur.
362. Ms. Roksana Khatun, (Housewife/Farmer) , Village Char Koarpur , Union Domsar, Upazila Sariatpur.
363. Ms. Jarina begum, (Housewife/Farmer), Village Char Koarpur, Union Domsar, Upazila Sariatpur.
364. Ms. Piara Begum, (Housewife/Farmer), Village Char Koarpur, Union Domsar, Upazila Sariatpur.

Annex 4: List of Field Activities Conducted

Time period: Jan 14 - February 8, 2012

Task accomplished: KII with national level stakeholders

Activities conducted:

- KII with key persons at DPHE;
- KII with key persons at LGD;
- KII with key persons at CDMP and DMB;
- KII with key persons at Planning Commission;
- KII with national level NGOs involved in WatSan.

Time period: February 14 - 16, 2012

Task accomplished: Field activities at Kazipur Upazila of Sirajganj District

Activities conducted

- Visit and discussions with DPHE office staff at Kazipur, collection of reporting format and samples;
- KII with Kazipur Upazila level actors;
- Visit Chalita Danga primacy school and observe Disaster Resilient Tube-well and Latrine and discussion with school teachers;
- Visit GKS office and talk with GKS DIPECHO-VI staff;
- FGD with the UP, UDMC and UWSC committee members of Masbari Union;
- Village level transects and PRA session with male and female (separately) in ward no. 6 of 5 no. Kazipur Sadar Union;
- Village level transect and PRA session with male and female (separately) in ward no. 7, Village Sala Vara of Masbari Union;
- Village level transect and PRA session with male and female (separately) in ward no. 6, village Bill Chatal of Masbari Union;
- Meeting with relevant CHP and UHPF (Union Hygiene Promotion Facilitator) SHEWA by facilitating agency PPD (Programme for People's Development), collection of WatSan coverage data drawn out of cluster mapping.

Time period: February 26 - 28, 2012

Task accomplished: Field activities at Satkhira Sadar Upazila of Satkhira District

Activities conducted

- FGD with Sub Assistant Engineer, Mechanic of DPHE, Mr. Abdul Alim, Chairman Lapsa Union Parishad, Satkhira Sadar Upazila, Satkhira;
- KII with Upazila Chairman, Satkhira Sadar Upazila, Satkhira;
- Visit DAM's Disaster Resilience Water Supply plant in Boksha, Kolaroa Upazila
- Meeting with UP Chairman and Members of Brmarajpur, Satkhira Sadar Upazila, Satkhira;
- Visit raised platform DTW with iron filter, at Horinkhola village in Tala Upazila;
- Village level PRA exercise at Goal Pota village (Ward 9 of Bramharajpur Union), Satkhira Sadar Upazila two sessions Separately with male and female;
- Village level PRA at Sallye Das Para/Beradangi village, (Ward no. 1 of Bramharajpur Union) Satkhira Sadar Upazila - two sessions separately with male and female;
- Village level PRA at Mas Khola, Satkhira Sadar Upazila - two sessions separately with male and female (Ward no. 1 of Bramharajpur Union), two sessions separately with male and female, (Ward no. 3 of Bramharajpur Union)

Time period: March 26 - 28, 2012

Task accomplished: Field activities at Sariatpur Sadar Upazila of Sariatpur District

Activities conducted

- FGD with Upazila level stakeholders including Upazila Chairperson, Vice Chairperson, Staff of Upazila DPHE, LGED and PIO
- Visit Disaster Friendly TWs at Palar Char Union of Jazira Upazila
- KII with UP Chairman of Union Domsar
- Transect & PRA session with the male and female of Char Domsar village (ward no. 5 of Domsar Union)
- Transect and PRA session with the male and female of Koar Pur village (ward no. 3 of Domsar Union)
- Transect and PRA session with the male and female of Beparipara village (ward no. 1 of Domsar Union)
- Visit GoB-UNICEF Elevated Tube-well cum Latrine at Kaorar Pur 15 no. Primary School
- Visit LGED constructed School cum Cyclone Shelter Tube-well and Latrine at the 2nd floor of school building at 65 no. Kirti Nagar primary school cum cyclone shelter.

Annex 5: Short Profile of Disaster-Friendly TWs and Latrines Visited

Kazipur Uazila of Sirajganj District

Tara Dev Head tube-well cum toilets at Chalita Danga Primary School: The team visited an elevated Tara Dev Head tube-well cum toilets at Chalita Danga Primary School which was constructed in the year 2010 by DPHE under Gob-UNICEF project, found working well which could be use as source of drinking water during the flood. The UP members and Chairman informed that some places of Kazipur Upazila emergency latrines and TWs constructed besides embankment has been destroyed or disordered due to absence of care taking mechanisms.



The Sub Assistant Engineer of DPHE informed that in some unions and Chars there are some raised-platform Tara Dev Head TWs. Both the SAE and the teachers of Chalita Danga Primary School held the view that there is no problem of maintenance but Tara-dev-head is not preferred by women, neither it is necessary for this areas because almost in all places in the char areas of Kazipur upazila drinkable water can be found in 21 to 80 feet, so number 6 model TW would be more suitable. However, it was reported that situation of Tarash Upazila is different because the water layer is much lower there and in dry season most shallow TWs fails to lift water.

Elevated TWS at Market and Mosques: Further, some of the UP members of Masbari Union informed that few years back Practical Action installed some elevated tube wells in other unions of the upazila. According to the local people, elevated TWs and toilets installed in mosque, market places and schools are good for having water during emergency. However, women respondents opined that for defecation they cannot go to emergency toilets and latrines constructed at community places.

Satkhira Uazila of Satkhira District

Safe water plant in Bakha (Hotathgonj): This water supply plant is constructed by DAM on a small piece of land, donated by the community. Electricity operated DTW that has overhead water reservoir accompanied with iron and arsenic removal devices. The cost of this plant installation is about 7, 00,000.00 (Seven Hundred Thousand) Taka. Water lifting capacity is 200 liters per hour. Electricity cost about Tk. 700/month. As per present arrangement each family is allowed to fetch water 2 times a day and 6 gallons of water for which have to pay Tk. 35 per month. A management committee has been formed and local CRAe taker has been selected and trained – who has to remove iron sediment every day. Responsible DAM staff informed us users do not want to pay. The plant has been installed recently thus operational and management efficiency yet to be learnt. It was reflected that promotion through private entrepreneur might have better sustainability potential. Detail information about the plant can be



obtained from DAM.

Raised platform deep TW (Horin khola of Tala Upazila): This raised platform DTW has been installed recently by the Save the Children in collaboration with its local partner NGO Uttaran. Local people cannot inform exact depth but informed the DRW required 52 pipes, about 650 feet. A normal DTW without raised platform cost about 50000 to 60000 Taka. In addition for rising platform it would cost about 10000 Taka. The water doesn't have arsenic and salinity. Detail information can be obtained from Uttaran (local NGO) and the Save the Children.



Raised platform STW with iron removal plant: In a Munda ethnic community of Harinkhola village of Tala Upazila this STW with iron removal filter was installed by a Satkhira based NGO named RISHILPI. The first step iron-contained water is stored in a reservoir which then goes into iron removal filter. Users have clear understanding about cleaning and maintenance. Easy to operate, last 10 years about 30 families of a Muda community using this raised platform STW with iron removal plant. Detail information can be obtained from the Satkhira based NGO- RISHILPI.



Sariatpur Uazila of Sariatpur District

Elevated concrete platform of existing STW: Visited in Paler char of Jajira Upazila. Elevation cost about 10000 Taka, local families contributed about 900 Tk. Detail information can be obtained from

Water Aid and UST. Family members reported no other problem to use except elderly people face some problem of using the TWs need help of others.

Combined raised and flat concrete platform multi-point DTW: Visited in Paler Char of Jajira Upazila of Sariatpur District. A raised platform DTW has been constructed closed to the previously used STW that had already flat-concrete platform. The previous STW is now used as extension point of main DTW. Elderly people can use the extension point set on flat platform.



Elevated Bazar cum community latrines and tube well: About 4 feet high from the ground, with a provision of two sanitary latrines, a TW and two separate urinals this elevated Bazar cum Community WatSan Facility is constructed by WaterAid on March 30, 2010. Total cost of the construction was 1, 35,252 Taka of which community



contribution was 9,800 Taka. The bazaar committee manages and take care of the toilets and latrines. The regular users of the facility are about 22 shop owners of the bazaar. One of the two latrines designated for women are not used regularly but kept locked and the key is kept in a neighbouring house. Whenever needed the shop owners of the bazaar collect subscription and repair the TW.

Elevated Multipoint DTWs: Elevated multi-point DTWs had been installed in the community reported to be effective and disaster friendly options. The team visited two multi-point DTWs, one with one extension point and other with two. Quantity of water discharge per main and extension point observed very well for both two-points and three-points DTW.

Elevated tube-wells cum latrines at community places: The study team visited two community elevated tube-wells cum latrines given at primary schools by GoB-UNICEF project and LGED found non functional due to mechanical and management problems thus during emergency if the community members have to take shelter in those schools will have crisis of drinking water as well as latrines for hygienic defecation.



Annex 6: Brief Report of the Expert's Panel Review of the Draft Study Report

NARRI consortium appointed Appreciative Consulting Services (ACS) to conduct a study on the "Mainstreaming of Disaster Risk Reduction into GoB Schemes on Water and Sanitation: Gap Analysis and Way Forward". Through the consultation with relevant stakeholders at national and local levels the study team prepared a draft report. On April 16, 2012 a panel review of the draft report took place at Hotel Lakeshore, Goulash Dhaka. Through this exercise a panel of experts drawn out of relevant government agencies critically reviewed the report and provided their feedback. Facilitated by the consultants' team of ACSI-BD this panel review session was participated by following participants:

1. Mr. Mohammad Abdul Wazed Additional Secretary (DM Wing), Disaster Management and Relief Division (DMRD), MoFDM.
2. Engr. Dewan Naquib Ahasan, Additional Chief Engineer (Planning), DPHE, LG division, Ministry of LGRD&C
3. Engr. Shaheed Iqbal, Project Director, Special Rural Water Supply Project DPHE, LG division, Ministry of LGRD&C
4. Engr. Anwar Hossain, Superintendent Engineer (Store) and Focal point for Disaster Management, DPHE
5. Mr. M. A. Noor, Project Director, Policy Support Unit, LGD
6. Engr. Shudir Kumar Ghosh, Superintending Engineer, DPHE, Groundwater Circle, Dhaka, DPH.
7. Engr. Tanvir Akkas, Planning Commission, Physical Infrastructure Division, Ministry of Planning
8. Mr. A. K. M. Mamunur Rashid, Project Manager, PECM Project, Climate Change, Environment and Disaster Cluster, UNDP General Economic Division, Planning Commission
9. S.M. Ihtishamul Huq, Consultant, ACS International
10. Waliul Islam, Consultant, ACS International
11. Shayamal K. Saha, Consultant Team Leader, ACS International
12. M.A. Kashem, ACS International
13. Ms. Sanjukta Sahany, PM DIPECHO, Concern universal
14. Mr. Manish Kumar Agrawal, PM DIPECHO, Oxfam
15. Mr. Asish Barua, Project Officer, Oxfam
16. Ms. Runa Jesmin; Asst. PM, Concern Universal



Before three days of the panel review session a complete draft report was sent to each of the participants for their individual review. The session proper began with welcome address and clarity on the Background of the study provided by Mr. Manish K. Agrawal followed by a key findings presentation by the Lead Consultant Dr Shayamal Kumar Saha. On completion of the findings presentation each of the participants provided their

feedback on the report. At the end part of the session synthesized points of the feedback were presented by ACS consultant Mr. Wali ul Islam.

As an outcome of the meeting following specific feedback was provided by the participants; among which a significant number of feedback went beyond the ToR in terms of "project as unit of analysis of the study.

Simple corrections and addition

- In page 38 last Para first line – IMED is not a division of Planning Commission; rather it is an independent Division. This line would be rewritten as 'IMED of Planning Ministry'
- IMED is not responsible for financial appraisal, it does so if asked only
- Page 39 first Para - Physical Planning Division do not approve DPP, this is the responsibility of ECNEC.
- Use of shared latrines (25%) may be mentioned (pp presentation, page 4)
- Upazilla level DPHE or LGED are introduced to participatory baseline survey involving local community in M&E but not project specific (pp presentation, page 14)
- There is a provision for improved design (pp presentation, page 15)
- Review of existing tools required- needed tools (pp presentation, page 17)
- In specific area, resource mobilization aspect to be included for implementation in the report.
- Water source recovery is suggested in place of tube well recovery.

Inclusion

- DRR should be looked broadly with Climate Change Adaptation, so that it would not create new hazards – say for salinity is a great challenge for water supply. DRR and environmental management, climate change aspects need to be mentioned.
- In policy sphere, DRR entry point to be mentioned we need to find an entry point of mainstreaming DRR. These entry points may be SFYP, sector policies, MTBF, Planning stage of DPP, etc. Have a clear picture of these entry points a mainstreaming framework with a set of indicators can be developed and included in the report.
- MTBF objectives to be analyzed & highlighted. Sectoral priority should be assessed according to MTBF; otherwise construction of roads will get more priority than water supply and sanitation. The report need to review MTBF and ADP Guidelines- Analysis of ADP guidelines to be mentioned.
- Sectoral & cross scrotal policy analysis is missing in the report- to be included.
- DRR mainstreaming framework to be included in addition to suggestions.
- Bulk allocation of budget & contingency measures to be mentioned in the report.
- Capacity building & orientation on DRR for the relevant departments to be mentioned as part of suggestion.
- Adaptation aspect & collaboration with other/relevant stakeholders to be suggested.
- Risk Assessment is done at pre appraisal stage, but the agencies are facing problem to conduct it. There is no resource base say for conducting EIA. The report should focus on it .Risk assessment paradox to be highlighted.
- The report shall include a Mainstreaming Framework in a matrix form with key indicators for assessment.
- A set of indicators to be included which will suffice the matrix 3.4. Policy Desired Performance, page 40 of the Study Report
- Sustainability measures to be mentioned in the report.
- Hygiene behavior and contingency mechanism to be included.
- What will be the mechanisms – mitigation or coping? The report should focus on it
- The report did not mention anything about sustainability. Achieving the target of sustainability should be clearly explained

- There should be at least some technical classification such as hygienic and unhygienic options
- The study addressed water and sanitation but not hygiene behaviour

Supplement existing text by mentioning

- Existing DPP format has the provision for identifying Risk and Mitigation measures. The agencies usually mention risk in implementation of the project.
- Based on the decision of ECNEC in 2008 the proposed revised DPP format has already been submitted to the authority
- Whatever resources are available the target group should be linked to it so that the provision for coping with the disaster would be easier
- In the sphere of Gap Analysis policy suggestions and adjustments are appreciable. The existing policies are unique and many of them are applicable in the present context. NPSWSS 1998 is the best example in which many of the emerging issues is addressed
- The recommendations are not clear, so elaborate recommendation is required
- Mitigation & coping mechanism to be mentioned as those are closely linked to DRR.

Other highlights

- GoB has its DRR vision & goal which could have been referred by NARRI for commissioning the study. However, some mention on the DRR vision, goal and strategy of GoB may be included in the report.
- ToR in consultation with the Ministry would have been developed for better coordination & involvement.
- In case of geographical area selection- Saline area could have been more purposeful for the Government & the people in general.

All participants made a comment that the study and the report based on the findings are really a good work. They thanked NARRI for undertaking and the consultant team for conducting such an important and timely study. The session ended with closing remarks by Mr. Mohammad Abdul Wazed, Additional Secretary (DM Wing), Disaster Management and Relief Division (DMRD), MoFDM. In his remarks first of all the Additional Secretary expressed his appreciation to NARRI for commissioning this study and the consultant team to do a god job. Besides, he pointed out that it would have been better if relevant government departments and the sector agencies were consulted by NARRI before formulation of ToR.