



Scoping of Integrations of Waterlogging Risk Reduction into Planning and Budgeting Processes



Programming Division
Planning Commission
Government of the People's Republic of Bangladesh



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Message



I am very pleased to learn that the Programming Division of Bangladesh Planning Commission is going to publish the report “Scoping of integrations of waterlogging risk reduction into national and local planning and budgeting processes” which is an attempt to explore scope of a multi-layered and multi-sectoral coordination mechanism both at national and local levels.

Bangladesh has entered into the realm of the Developing Nations and has taken a leadership position at the critical intersection of global and national policies. Hence it is imperative to look back at our success in the past and how we can take lessons so that future investments on disaster risk reduction can be more effective.

The southwest region of Bangladesh is characterized by numerous morphologically active tidal rivers, which are the main drainage network for coastal polders and low lying beels. Over the past 30 years, southwest Bangladesh has routinely experienced localized and prolonged waterlogging after the monsoon rain, with an impact on the environment, economic development and living conditions of the thousands of people. Under these circumstances, the study will play crucial role for making development activities sustainable ensuring the attainment of the Vision-2021 and the associated perspective plan and finally SDGs.

This study is a time worthy action when the Govt. of Bangladesh, through different Ministries/Divisions has invested billions of BDT to solve the waterlogging problem in SW of Bangladesh. I am hopeful that this research will provide a few key entry points and avenues for mainstreaming waterlogging issues into the Annual Development Programme (ADP) and concerned stakeholders will get fruitful insights and directions to improve the planning and budgeting for waterlogging investments. The publication of this report, I am sure, will be beneficial for the policy makers, researchers, academia, planners and development partners to improve public investments in resolving the waterlogging issues in Bangladesh.

Finally, I would like to express thanks to all concerned for their efforts in various capacities in preparing the report.

A handwritten signature in black ink, appearing to be in Bengali script, followed by a long horizontal line.

A H M Mustafa Kamal, FCA, MP

Minister

Ministry of Planning

Government of the People’s Republic of Bangladesh

(Where you have a dream)

Message



I would like to congratulate the Programming Division, Bangladesh Planning Commission, Ministry of Planning for publishing “Scoping of integrations of waterlogging risk reduction into national and local planning and budgeting processes”.

The target of the Government of Bangladesh is to reduce waterlogged areas from existing 2.5% to 0.5% of the coastal area during the 7th Five Year Plan period. This scoping study, led by the Planning Commission and facilitated by the UNDP, is an attempt to develop proposal for better institutional coordination at local and national levels.

Waterlogging as ‘slow onset disaster’, is affecting many areas in Bangladesh, where it is most prominent in the southwest region. Nine Upazilas from Satkhira, Khulna and Jashore districts are affected by waterlogging every year. The problem is complex as it represents life-saving, recovery-rehabilitation as well as development needs simultaneously.

In this regard, I am very happy to know that Programming Division and UNDP-Bangladesh have jointly initiated a scoping study on the institutional mechanisms needed to reduce risks of waterlogging in southwest Bangladesh, which is very timely and much needed to contribute to the evidence-based of policy making for risk informed planning and budgeting. It is evident that from the study that long-term planning and substantial public investment is needed to build the resilience of the people to tackle the waterlogging hazard in the SW region of Bangladesh and minimize the adverse impacts of natural disasters on people’s livelihood.

I hope the findings and recommendations of this study will contribute a lot to make development plan risk informed as well as make the envisioned development disaster resilient nation.

A handwritten signature in black ink, appearing to be 'M.A. Mannan', written in a cursive style.

M.A. Mannan, MP
State Minister
Ministry of Finance and Ministry of Planning
Government of the People’s Republic of Bangladesh

Message



As we all know, waterlogging in the south-west region of Bangladesh represents a ‘slow onset disaster’, affecting primarily the three districts - Satkhira, Jashore and Khulna. Since decades now, this disaster has unfolded but never fully ceased. Therefore, this is also termed as a ‘persistent disaster’. The increased frequency and unpredictability of these events, year by year, make communities more vulnerable. The problem is complex as it represents life-saving, recovery-rehabilitation as well as development needs simultaneously.

To address this problem through the lens of institutional assessment and budgetary mechanisms, Programming Division of Planning Commission and UNDP-Bangladesh have jointly initiated a scoping study on the institutional mechanisms needed to reduce risks of waterlogging in southwest Bangladesh. Under the Action Research an analysis has been conducted on the existing institutional framework and budgetary mechanism for identification of gaps for mainstreaming waterlogging issues into the national, regional and local planning and budgeting process. It has explored if a dedicated fund can be created through this institutional mechanism.

Programming Division has taken small but important initiative to carry out a joint study with UNDP to address the waterlogging issue which is a menace to the lives and livelihood of the people in the affected area. The study is a small step in that end.

Also the study is relevant to the targets of 7th FYP and Delta Plan 2100. The target of the Government of Bangladesh is to reduce waterlogged areas from existing 2.5% to 0.5% of the coastal area during the 7th Five Year Plan period. Also, under the Bangladesh Delta Plan 2100, the target is to reduce waterlogging vulnerable people from 0.9 to 0.2 million by 2020. To support this targeted approach, a systematic and comprehensive study covering the total waterlogged areas with linkage to upstream and downstream is yet to be initiated.

The study has examined the ADP allocations over 15 fiscal years in the near past and it found that 135 waterlogging relevant projects were implemented during 2000/01 to 2015/16. The study also reveals that the overall ADP allocation for these waterlogging projects during the last 15 years is estimated BDT 5,697 crores (USD 605 millions). This is 15 percent of total allocations, in these three districts, at current price spent on waterlogging relevant projects. The ADP WL expenditure in the three districts has increased annually in real terms since 2001/02.

Overall, the study has generated very interesting and important findings to resolve the issue of Waterlogging in the southwest of Bangladesh. As we have learned four specific recommendations have been proposed:

1. Operationalization of the Disaster Management Fund, as indicated in the Disaster Management Act 2012.
2. A multi-layered & multi-sectoral coordination framework: two at the national level and two at the local level, (as shown in the Summary report):
 - A coordination mechanism on waterlogging related investments at the Programming Division of the Planning Commission
 - An Inter-Ministerial Waterlogging Risk Reduction Coordination Committee
 - District Waterlogging Risk Reduction Task Forces in the 3 districts
 - Divisional Coordination Body for Task Forces at Khulna.

3. Formulation of a comprehensive Study & Action Plan to facilitate risk reduction to waterlogging.
4. A dedicated Investment Fund to implement the Action Plan. The study recommended to create a dedicated 'Waterlogging Risk Reduction Investment.

We have considered the various thoughtful comments and valuable observations from a wide range of stakeholders that came up during the study period. The Study findings have been disseminated to a wider audience at the national level.

This study definitely is unique as it opens up an avenue of knowledge based planning process for this specific issue. The huge amount of public investment to resolve waterlogging situation in southwest needs to be effectively and strongly coordinated at both the national and local level. I hope the study has given some new insights to guide public investment for addressing waterlogging disaster.



Md. Ziaul Islam

Member, Programming Division

&

Secretary, Planning Division

Foreword



Bangladesh, home to the largest delta in the world is highly vulnerable to multiple types of natural disasters attributable to its geographical location, flat and low-lying terrain with high population density. Perhaps the most recurrent and pervasive slow onset disaster is waterlogging in southern Bangladesh which severely affects nearly a third of the landmass and 38.5 million population resident there. While the 7th Five-Year Plan recognizes waterlogging as a severe environmental problem and several programmes and projects have already been undertaken, shortcomings in addressing institutional bottlenecks have resulted in the need for recurrent investments.

Thus far, the issue of waterlogging has been largely taken up with single institutions (i.e. line ministries such as MoDMR or Agriculture) or through vertical engagements in single sectors. Such working modalities have produced limited impact of efforts by the government and its development partners. To tackle this, several development partners such as DFID, EU, UNDP, WFP and FAO have gotten together to deliberate on more robust solutions that, are underpinned by institutional arrangements to effectively manage both vertical and horizontal policy and programme coordination and implementation. It is obvious that institutional arrangements for future programmes must also involve multiple ministries with varying mandates who will need to closely engage to address the root causes and multi-dimensional impacts of waterlogging. To take such a multi-ministerial approach forward UNDP has extended its partnership with the Programming Division of the Planning Commission to explore scope for a multi-layered and multi-sectoral coordination mechanism and budgeting processes at the national and local levels to address the problem of waterlogging.

This scoping study which is based on an in-depth analysis of how the various, national actors can best work together also provides valuable ideas on strengthening institutional coordination for sustainable solutions to waterlogging. To that end, the Technical Advisory Committee (TAC) led by the Chief, Programme Division and comprising participants from key government institutions, NGOs, donor agencies, UN agencies and civil society representatives deserve special appreciation for their extensive support. I urge them to continue to promote and drive integration of waterlogging risk reduction initiatives in the mainstream planning and budgeting processes as well as champion the implementation of recommendations of the study through more joined up projects and programmes.

A handwritten signature in black ink, appearing to be 'Sudipto Mukerjee', written in a cursive style.

Sudipto Mukerjee
Country Director
UNDP, Bangladesh

Acknowledgements

This scoping study, is an attempt to develop a proposal for better institutional coordination and financing mechanism to reduce the risk of waterlogging in the southwest Bangladesh.

The study team acknowledges wide spread support from a range of stakeholders both at national and local levels. The first and foremost encouragement has come from the former Secretary, Planning Division and Member Programming Division. Mr. Tariq-ul-Islam. Mr. Ziaul Islam, Secretary Planning Division and Member, Programming Division, Planning Commission has given great support to effectively complete the study.

We also acknowledges full support from the Technical Advisory Committee (TAC), an inter-Ministerial setup, specifically constituted for this study (list of members, Annex I) headed by Chief, Programming Division, Planning Commission. The TAC has contributed greatly by giving intellectual input and direction to the course of study, and also by active participation to the regional workshops and field visit to the waterlogged sites in Jashore, Khulna and Satkhira, and thoroughly reviewing the draft report.

UNDP has supported the study with generous technical and logistics support. Contributions and feedback particularly from Ms. Saudia Anwer, Capacity Building Specialist; Mr. Arif Abdullah Khan, Programme Analyst, Disaster Resilience; Mr. A.K. M. Mamunur Rashid, Climate Change Specialist; Mr. Khurshid Alam, Assistant Country Director UNDP; Dr. Sonia Ashrafee, Communication Expert and Mr. Mohammad Ezabat Ullah at UNDP Khulna office are highly appreciated.

Additional thanks go to the concerned line Ministries and Departments for ensuring access to the data on waterlogging related projects and permission to interview key officials. Valuable data and documents were provided to the consultants from these agencies. Special contribution from IWM and CEGIS is acknowledged.

Thanks are also due to the field level officials of BWDB, LGED and many Govt. and non-govt. officer who extended their active support in carrying out all field activities.

At field level, contributions during the stakeholder consultations from Mr. Md. Abdus Samad, Commissioner, Khulna Division; Mr. Nazmul Ahsan, Deputy Commissioner, Khulna; Mr. Humayun Kabir, Deputy Commissioner, Jessore; Mr. Abul Kashem Md. Mohiuddin, Deputy Commissioner, Satkhira; Mr. Farid Hossain, UNO, Tala, Satkhira; Mr. Khairul Hossain, UNO, Monirampur; Mr. Shahidul Islam, Executive Director, Uttaran and Mr. Goutam Mondal, Executive Director, Human, Environment and Livelihood Promotion Society (HELPS), Khulna, Mr. Mohammad Alauddin, Chairman, Keshabpur Union, Mr. M. Mafidul Haque, Chairman Islamkati Union are also greatly acknowledged. Special thanks to participants at community meetings, meetings at UP offices, group discussions at field and Workshops at Satkhira and Khulna for their valuable contributions.

Finally I would like to thank the officials of Programming Division, Planning Commission for their support in completion of the study.



Md. Syeedul Haque
Chief
Programming Division

Executive Summary

Parts of southwest of Bangladesh, for the last 20-30 years, experienced persistent waterlogging for two to six months during monsoon season. Several programmes and projects have been undertaken to address different aspects of waterlogging problem. Overall results have been mixed, despite increasing investments. While physical interventions are considered important, institutional bottleneck in addressing the problem has often been overlooked.

This scoping study, led by the Planning Commission and facilitated by the UNDP, is an attempt to develop a proposal for better institutional coordination at national and local levels.

The adoption of the Disaster Management Act 2012, subsequent the Disaster Management Policy 2015 and the Disaster Management (Committee Formation & Functions) Rules 2015 have in principle provided the needed governance and institutional structure to address disaster management in Bangladesh. However, the governance mechanism and the institutional structure, though very effective in general, have been found inadequate to address waterlogging issue. This is despite involvement of a large number of organizations and despite increasing budgetary provisions through many public agencies.

An analysis of resource allocations in the ADP for three districts (Khulna, Satkhira and Jashore) indicates that:

- The overall ADP budget for waterlogging projects during the last 15 years is estimated as BDT 4,107 crores (i.e. equivalent to USD 494 million). This is 15 percent of total allocations, in three districts spent in waterlogging relevant projects
- The rate of growth in the waterlogging ADP budget in FY 2015/16 over FY 2001-2002 at current prices is estimated as 10.7 percent, which has exceeded inflation rate. Thus, there is a real growth in the budget for waterlogging projects
- Local Government Engineering Department (LGED) and Bangladesh Water Development Board (BWDB) are the two key agencies in implementing waterlogging relevant projects, accounting for 44 and 33 percent of the total ADP waterlogging budgets respectively
- The ADP waterlogging expenditure in the three districts has increased in real terms since 2001-2002.

The budgetary analysis has further identified entry points to develop an integrated institutional framework promoting horizontal integration. Eight ministries (i.e. Ministry of Local Government, Rural Development and Co-operatives, Ministry of Water Resources, Ministry of Disaster Management and Relief, Ministry of Fisheries and Livestock, Ministry of Agriculture, Ministry of Planning, Ministry of Finance, and Ministry of Land) and five agencies (i.e. Local Government Engineering Department, Bangladesh Water Development Board, Department of Disaster Management, Department of Agricultural Extension and Department of Fisheries) are now considered as key entry points. The proposed institutional co-ordination framework has been developed involving these ministries and agencies.

Key Findings

- There is a clear indication of increased waterlogged areas over the years. Several studies have indicated that waterlogging is expected to be worsen with increased sea level rise. Soil and water salinity of the region is expected to increase. Present vulnerable communities will become more vulnerable and waterlogging will encroach new areas

- To support this targeted approach, a systematic and comprehensive study covering the total waterlogged areas with linkage to upstream and downstream is yet to be initiated
- The target of the Government of Bangladesh is to reduce waterlogged areas from existing 2.5 percent to 0.5 percent of the coastal area during the 7th Five Year Plan period. Under the Bangladesh Delta Plan 2100, the target is to reduce waterlogging vulnerable people from 0.9 to 0.2 million by 2020
- On-going works to address waterlogging include a series of engineering interventions with re-excavation of rivers and canals to improve the flow of drainage. These efforts have given mixed results
- Tidal River Management (TRM), a local innovation, has been found to be in harmony with nature and cost effective but has suffered from implementation problems
- Though there is evidence of increased budget allocations exceeding the inflation rate, this is still found to be inadequate to undertake projects/programmes in a systematic and comprehensive manner. Funding need will be substantial
- Project specific allocations under the Annual Development Programme (ADP) are the only source to fund waterlogging related projects. Increased allocations under the (ADP) will continue to be necessary
- The need for a dedicated fund has been established considering inadequacy from all the available sources of funding
- The Government of Bangladesh, under the Disaster Management Act 2012 has made provisions for two separate funds to address disaster management, in general for all disasters: the National Disaster Management Fund; and the District Disaster Management Fund. A total of only BDT 5 lakh was allocated for each district under the District Disaster Management Fund in FY 2015-2016
- There are strong vertical linkages between agencies and their ministries to address waterlogging following sectoral approach. Horizontal integration is found to be weak, especially at the local level in relevant districts and upazilas
- Instruments to promote horizontal integration to address waterlogging at a regional scale have yet to be developed. A multi-layered and multi-sectoral institutional coordination framework both at the national and local level is seen as a needed instrument
- A comprehensive multi-sectoral and multi-agency Action Plan is seen as another crucial instrument. Implementation of this Action Plan has to be supported by continuous and sustained budgetary allocation, including consideration of a dedicated funding mechanism.

Recommendations

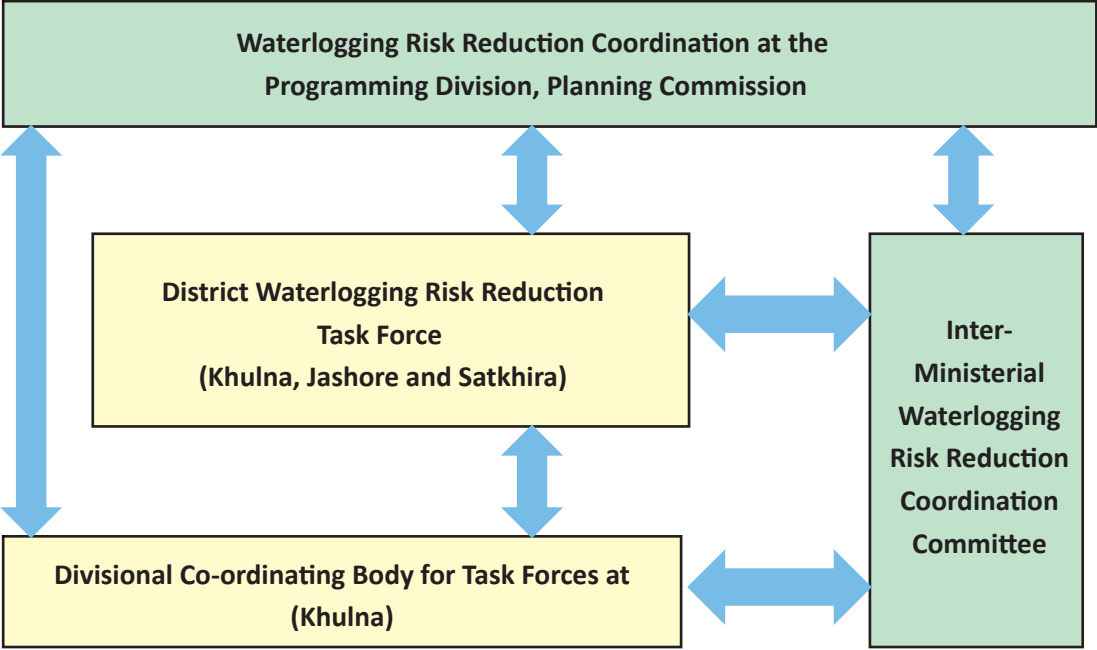
Based on the study findings, review of budgetary allocations, trends and provisions, institutional challenges, existing coordination setups in many sectors, in one-to-one or group discussions with relevant stakeholders nationally and locally, through conducting regional workshops at Satkhira and Khulna and with contributions from the Technical Advisory Committee (TAC) members, the following four recommendations are proposed for consideration:

(a) Operationalization of the Disaster Management Fund, as Indicated in the Disaster Management Act 2012

The Disaster Management Act 2012 has made provisions for two separate funds, National Disaster Management

Fund; and District Disaster Management Fund. However, according to available information, District Disaster Management Fund became available recently. Due to procedural delays, this fund at the district level remained unutilized in FY 2015-16. Smooth operationalization of the Disaster Management Fund at least at the district level is needed and recommended. This can be achieved through a dialogue between the Department of Disaster Management in Dhaka and the relevant district/divisional administrations.

(b) A multi-layered & Multi-sectoral Coordination Framework: National Level and Local Level. The Proposed Framework is Depicted in the Following Diagram:



It is recommended to establish the following setups: A coordination mechanism on waterlogging at the Programming Division of the Planning Commission is proposed as lead national integration/coordination point for all efforts for risk reduction to waterlogging. The Agriculture and Coordination Wing of the Programming Division will coordinate and provide secretarial service to the Inter-Ministerial Waterlogging Risk Reduction Coordination Committee.

The Inter-Ministerial Waterlogging Risk Reduction Coordination Committee will function as a formal linkage for achieving political commitments by reducing waterlogging risk, providing directions and making decisions. It shall provide strategic and operational advices. Existing Technical Advisory Committee can be restructured to develop this coordination committee. This committee is proposed as a small but operational level forum. It would be chaired by the Chief, Programming Division of the Planning Commission.

At the district level it is proposed to establish three District Waterlogging Risk Reduction Task Force, each at Satkhira, Khulna and Jashore districts. These taskforces are considered as the main functioning setup to work at districts affected by waterlogging, the objective of which is to facilitate a coordinated response to reduce risk from waterlogging and to promote horizontal linkage among agencies.

Further, it is proposed to establish a single Divisional Coordination Body for Task Forces at Khulna Division to guide and resolve interdistrict interventions among the three Task Forces. All four institutional structures of the framework can be established through an office order from the Cabinet Division.

(c) Formulation of a Comprehensive Study & Action Plan to Facilitate Risk Reduction to Waterlogging

At present, risk reduction efforts to waterlogging are usually done on an ad-hoc basis. Analytical studies are performed in a few cases covering small areas. No comprehensive study covering the entire waterlogged areas linking upstream and downstream has ever been done. Often, study recommendations are implemented years later. By that time, the deltaic southwest region becomes changed hydro-morphologically and the base data, collected years earlier, do not provide real on-ground picture.

Moreover, waterlogged areas are expected to be impacted by climate change and sea level rise. Hence, the comprehensive study should cover hydrodynamic modelling, detailed area surveys, review of lessons learned from past interventions, socio-economic studies, environmental studies and study on impacts of climate change. This study recommends that time bound, comprehensive, multi-sectoral and multi-dimensional Action Plan is required to reduce risks from waterlogging for now and for years to come. This Action Plan would be a package of structural, non-structural and institutional interventions, including provisions for the Tidal River Management (TRM). The district-level taskforces, as mentioned under (b), are needed to proactively participate in formulating the comprehensive study and developing the proposed Action Plan. The Action Plan needs to be implemented immediately.

(d) A dedicated Investment Fund to Implement the Action Plan

The proposed 'Comprehensive Waterlogging Risk Reduction Study & Action Plan' is expected to identify an investment need. Based on recent budgetary allocations, the investment need is expected to be substantial. Hence, it is recommended to create a dedicated 'Waterlogging Risk Reduction Investment Fund' to ensure immediate and timely implementation of the Action Plan.

The necessary funding to carry out the Comprehensive Study and the Action Plan can be sought from Development Partners. UNDP may take the lead to assist the Government in coordinating who are actively working in this field Asian Development Bank (ADB), World Bank (WB), The Embassy of Kingdom of Netherlands (EKN), Department for International Development (DFID) should be approached to fund the comprehensive study and establish the dedicated fund. The time frame to implement these recommendations is also proposed in this study.



Photo: Study Team, Planning Commission

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Acronyms and Abbreviations

ADB	Asian Development Bank
ADP	Annual Development Programme
BBS	Bangladesh Bureau of Statistics
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
BCCRF	Bangladesh Climate Change Resilience Fund
BD	Bangladesh
BDP	Bangladesh Delta Plan
BELA	Bangladesh Environmental Lawyers Association
BIP	Bangladesh Institute of Planners
BMDA	Barind Multipurpose Development Authority
BRAC	Bangladesh Rural Advancement Committee
BUET	Bangladesh University of Engineering and Technology
BWDB	Bangladesh Water Development Board
CAO	Chief Accounts Officer
CCA	Climate Change Adaptation
CDMP	Comprehensive Disaster Management Programme
CDSP	Char Development and Settlement Project
CEGIS	Centre for Environmental and Geographic Information Services
CEIP	Coastal Embankment Improvement Project
CHT	Chittagong Hill Tracts
CPP	Cyclone Preparedness Programme
DAE	Department of Agricultural Extension
DBHWD	Department of Bangladesh Haor & Wetlands Development
DDM	Department of Disaster Management
DFID	Department for International Development
DPHE	Department of Public Health Engineering
DPP	Development Project Proforma
DRR	Disaster Risk Reduction
DRRO	District Relief and Rehabilitation Officer
ECNEC	Executive Committee of the National Economic Council
EKN	The Embassy of Kingdom of Netherlands
ERD	Economic Relations Division
ERF	Early Recovery Facility
FAO	Food and Agriculture Organization of the United Nations
FAP	Flood Action Plan
FCD	flood control and drainage
FCDI	Flood Control, Drainage and Irrigation
FDG	Focused Group Discussion
FY	Fiscal Year
FYP	Five Year Plan
GBM	Ganges-Brahmaputra-Meghna
GDP	Gross Domestic Product
GED	General Economics Division (of the Planning Commission)
GIS	Geographic Information System

HAER	Humanitarian Assistance and Early Recovery
HELPS	Human, Environment and Livelihood Promotion Society
ICZM	Integrated Coastal Zone Management
IECO	International Energy Consultants Organization
IFAD	International Fund for Agricultural Development
IIED	International Institute for Environment and Development
IMED	Implementation, Monitoring and Evaluation Division
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modelling
JCF	Jagorani Chakra Foundation
JICA	Japan International Cooperation Agency
LCG	Local Consultative Groups
MTBF	Mid-Term Budgetary Framework
NARRI	National Alliance for Risk Reduction and Response Initiatives
ND-GAIN Index	Notre Dame Global Adaptation Initiative Index
NDRCC	National Disaster Response Coordination Committee
NEC	National Economic Council
NGO	Non-Government Organization
NSDS	National Sustainable Development Strategy
NWMP	National Water Management Plan
NWP	National Water Plan
ODA	Official Development Assistance
RC	Regional Council
RDCD	Rural Development and Cooperatives Division
SDG	Sustainable Development Goals
SLR	Sea Level Rise
SSWRDSP	Small Scale Water Resources Development Sector Project
SWB	Southwest Bangladesh
TAC	Technical Advisory Committee
TPP	Technical Project Proposal
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
UNO	Upazila Nirbhahi Officer
VGD	Vulnerable Group Development
VGf	Vulnerable Group Feeding
WARPO	Water Resources Planning Organization
WASH	Water Sanitation and Hygiene
WATSAN	Water and Sanitation
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization
WL	Waterlogging
WMO	Water Management Organization

CHAPTER 1: Introduction

1 Introduction

Waterlogging (WL) is a form of flooding within embankments caused by hydro-geophysical factors where water remains stagnant for a long time due to increased sedimentation of riverbeds and reduced height differential between embankment and peak water level. It is a result of a combination of factors that include excessive monsoon rains, inadequate drainage, mismanagement and a lack of maintenance of embankments, increased sedimentation and siltation of rivers, unplanned shrimp farming and restricted river flows due to embankments.

Waterlogging is slow onset and persistent hydrological phenomenon that triggers disaster in affected areas. It is different from other disasters as identified in the Disaster Management Act 2012. It is localized, more or less predictable, occurs every year for two to six months after monsoon rainfall. Hence, Government and NGOs of the affected areas become active for the period and communities are assisted through relief efforts. This has become *fait accompli* for communities living in the area. Waterlogged communities suffer through, wet homesteads, contaminated drinking water, closed schools, affected by waterborne diseases, absence of employment opportunities in the area and many more (Box 1.1). People are shifting from traditional rice based agriculture to a variety of other systems, such as fish culture, rice-fish culture. Majority of families, mostly poor and landless cannot avail of these new opportunities, where out migration from the area is noticeable.

Box 1.1

Hundreds of unanswerable questions rose in the waterlogged areas of southwest Bangladesh. One among the many was:

'How long shall we remain under water? It's not days, not months, not a few months, it's every year. We are prisoners in our own home. Our children cannot go to school, schools are under water. No work in the vicinity, no dry burial ground, How long, How long?' Quipped Fulbanu of Islamkathi Union, Tala Upazila, Satkhira District.

Many excellent studies in Bangladesh have elaborated and reviewed extent (Uttaran 2005, Rahman et.al 2013; DDM 2014, Hassan et al 2014, FAO 2015), root causes (GED 2015, Joint UN Resilience Programme 2015), sufferings due to waterlogging; and impacts of climate change (Moniruzzan 2012, Mondal 2013) in southwest region of the country.

The Government of Bangladesh, through its many agencies, has invested billions of BDT to solve waterlogging problem. Results have been mixed due to many reasons and waterlogging persists and causes immense suffering. Many programmes and projects have been undertaken to address many aspects of waterlogging problem. While physical/structural interventions have received considerable importance, institutional bottlenecks in addressing the problem have often been overlooked. Two of the main institutional bottlenecks are sectoral silo approach and lack of coordination between implementing agencies at field level.

In this context, the scoping study, led by the Bangladesh Planning Commission and facilitated by the UNDP, is an attempt to develop a proposal for better institutional coordination at national and local levels (Figure 1.1).

Key Questions to Address in this Study:

- How can we enhance coordination between key agencies at the local and national levels? What will be the institutional framework? Who will lead the process of coordination?
- How much have been invested to address waterlogging? Is the investment increasing or decreasing? Which Ministries and Government Agencies are involved significantly to address waterlogging?

- What is the basis of present investments? Is there any comprehensive study? Has the long-term impact of climate change been considered? Is there need of a long term Action Plan?
- What will be the source of funding for future investments to implement the Action Plan? How long will it take to implement?

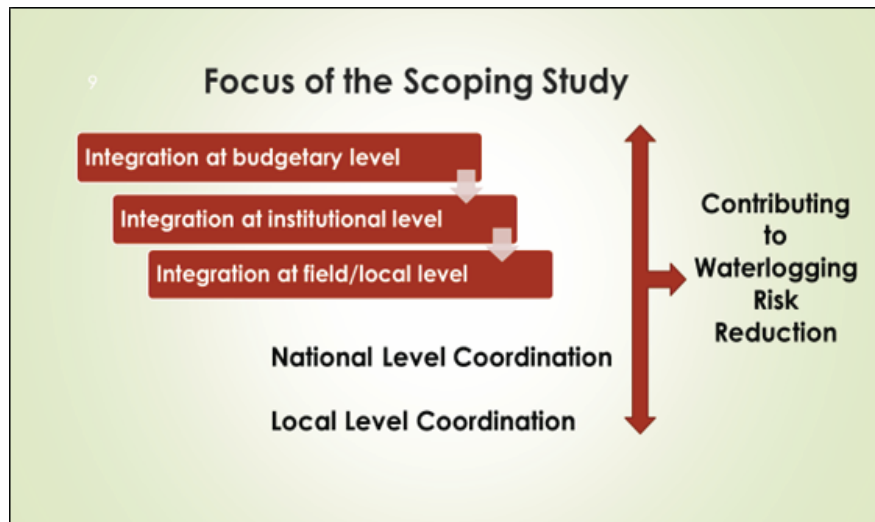


Figure 1.1: Focus of the Scoping Study.

1.1 Study Background

In 2013-2014, WFP and FAO initiated in agreement with donors what is referred to as Phase One of the Joint UN Resilience programme in Satkhira, entitled “Providing Recovery Assistance to Waterlogged Affected People of South-West Bangladesh”. The programme provided humanitarian and recovery support for the selected communities in Satkhira responding to the negative effects of waterlogging and was completed in 2014.

Phase Two of the programme saw the establishment of a Joint UN Resilience Programme referred to as “The Adaptive Early Recovery in Waterlogged Areas of South-Western Bangladesh Programme”. This intervention provided targeted support for ultra-poor households, marginal farmers and local governance institutions affected by waterlogging in Satkhira and to strengthen the related evidence base.

In accordance with the Outline of the Research Component agreed between the Joint UN Programme and DFID, each UN Agency would propose research studies and/or pilot interventions for further strengthening the evidence base. Upon agreement, such research would be managed individually by each agency and coordinated by WFP in capacity of Administrative Agent.

In November 2015, WFP facilitated a Meta-Review of the existing evidence and a Theory of Change exercise addressing the root causes of waterlogging. These, alongside the FAO Mapping Exercise, have suggested topics for further research to improve understanding of the effectiveness of water infrastructure, the level of existing disaster preparedness at community level and institutional arrangements required to address the root causes of waterlogging. For this purpose, the Joint UN Programme suggested the following additional research initiatives.



1. Gross-margin analysis of land use (FAO).
2. Market study (FAO).
3. Scoping of integration of waterlogging risk reduction issues into national, regional and local planning and budgeting process (UNDP).
4. Lessons learned and guideline on adaptive livelihoods (UNDP).
5. Landscape analysis (WFP).
6. Research on safety net systems/arrangements in the waterlogging area (WFP, FAO).

Among these, the suggested 'Scoping of integration of waterlogging risk reduction issues into national, regional and local planning and budgeting process' has been described as:

Waterlogging in southwest Bangladesh is a multi-dimensional and multi-faceted problem; therefore the solutions require a multi-dimensional approach with different ministries and stakeholders to be engaged in a coordinated and sequential manner in the arena. The Action Research will undertake a serious effort to have a critical analysis and appraisal of existing institutional, planning and budgeting provisions in relation to the needs of the people, effective coordination and lessons from government, development partners, civil society organizations, academicians, politicians, experts, and others. This scoping analysis will be used as a basis of large-scale project implementation in the area under a programmatic view beyond a project niche. Under the Action Research an analysis will be conducted on the existing institutional framework and budgetary mechanism for identification of gaps for mainstreaming waterlogging issues into the national, regional and local planning and budgeting process. The outcome of the study will provide a few key entry points and avenues for mainstreaming waterlogging issues into the Annual Development Programme (ADP) and District Budget of the waterlogged areas. Key government stakeholders including the Planning Commission, ERD, Finance Division, BWDB, DDM, LGD, LGED and DAE will be closely involved in the Action Research process.

The Programming Division of the Planning Commission provided leadership role to carry out this study and thus assumed ownership of the study, on behalf of the government. The Programming Division established the Inter-Ministerial Technical Advisory Committee (TAC) and chaired the TAC meetings. The TAC membership is presented in Annex I.

This study, thus, complements and contributes to other studies being conducted by FAO, WFP and UNDP and different Ministries of the Government.

1.2 Objectives

Response to the issue of waterlogging has largely been addressed through single institutional arrangements (i.e. line ministries or single sectors) which are organized vertically from the national to the local level. Such working modalities have produced limited impact of efforts by the government and its development partners in the discussion, which include DFID, EU, UNDP, WFP and FAO. The group acknowledges that future aid impact in sync with the Government of Bangladesh's effort is likely to be conditioned on an institutional arrangement that effectively manages both vertical and horizontal policy and programme coordination and implementation. This also means that a renewed institutional arrangement is required to host future programmes in order to address mandated causes and effects within more than one ministry.

Against this backdrop, a multi-layered and multi-sectoral coordination mechanism, under the leadership of Planning Commission, appears quite feasible in UNDP's view, as it is an existing mechanism mandated for programme coordination and the transfer of funds. It can also anchor donor funds and thereby channel to various ministries.

The objective of this study is to explore scope of a multi-layered and multi-sectoral coordination mechanism both at national and local levels. It is also to be explored if a dedicated fund can be created through this institutional mechanism.

1.3 Deliverables

The study commenced on 24 October 2016 with the following deliverables.

- Deliverable 1: Inception report including a detailed work plan for the assignment. This was submitted on 31 October 2016
- Deliverable 2: Draft Study Report including an outline of an institutional arrangement that manages both vertical and horizontal policy and programme coordination and implementation for discussions at various levels. This was submitted on 30 November 2016
- Deliverable 3: Revised Draft Study Report including an agreed institutional arrangement that manages both vertical and horizontal policy and programme coordination and implementation. The report also included guidance notes on recommendations and way forward. This was submitted on 30 December 2016.

Since then, the Planning Commission and UNDP facilitated further TAC meetings, field visits of TAC members and a divisional level workshop in Khulna in April 2017. The Final Report has undergone gradual approval processes, initially at the TAC meeting and later at a national dissemination seminar held on 29 January 2018 under the presence of the Hon'ble State Minister for Planning. Based on submitted and approved Inception Report, the study was conducted in three phases: Inception, Study and Consolidation, and Final. Methodology/Approaches have been presented in Annexures II and III. Study Methodology was presented to and endorsed by the Technical Advisory Committee at the Inception Workshop on 31 October 2016.

1.4 Study Limitations

This scoping study had limitations mainly resulting from the short period available. The study had to be completed in two months (November – December, 2016) though originally planned for a longer period. The time limitation was recognized by the Technical Advisory Committee during the Inception Workshop. A limited scope of the study was agreed and accordingly executed. This draft final report was reviewed accordingly. The study team has attempted, with positive cooperation from the TAC led by Programming Division and also Early Recovery Facility, UNDP, to provide as complete a report as possible within the study period.

Due to time and resource constraints, resource allocation and budget analysis, involving a large number of projects under ADPs for a period of 15 years could not be as comprehensive as expected. In the absence of required number of DPPs some of the budgetary data were extracted by examining project objectives and activities, mainly through expert judgments, which was somewhat erroneous. Due to the extraction complexities, validation at field level was not feasible.

In the absence of any methodology of expenditure review, an approximate method of quantification of relevance was adopted. The method involved assigning two sets of weights, one for waterlogging and one for districts. The two sets of criteria were then combined, to derive a single weight, which was albeit a complex process. Under this condition the results from the budget and expenditure review in this study should be treated as indicative.





CHAPTER 2: Evidence Base of Waterlogging & Related Issues in Southwest of Bangladesh (SWB)

2. Evidence Base of Waterlogging & Related Issues in Southwest of Bangladesh (SWB)

In this chapter, a summarized understanding is provided on the southwest of Bangladesh, extent of waterlogging in the area, causal effect of waterlogging, probable structural solutions to address waterlogging and then the issue of risk-informed planning.

2.1 Southwest of Bangladesh (SWB)

Southwest of Bangladesh is located in the coastal zone of Bangladesh which is affected by salinity, cyclonic storm surge and tidal amplitude. Tidal amplitude is approximately 1.5m. This part of coastal area has the Sunderbans forest covering the first 60 to 80 km inland from the coastline, which provides the hinterland to the north with a considerable degree of protection from cyclonic surges. This area is characterized as moribund delta formation; the area has long drainage routes of low gradient and very little fresh water flow from the parent river (the Ganges). Tidal flows extend far inland, and many polders have been constructed, some of them 150 km from the coast. The dominant problem is therefore restricted drainage. The area is also attributed with the transverse depressions (sometimes called beels) running roughly parallel to the coast: these are especially difficult to drain for agriculture but can offer other possibilities, like use for tidal basin for tidal river management for restoring the drainage conditions by increasing the tidal prism. River floods are not a major problem, since the catchments of the rivers passing through this area are relatively small and flat but the area has been experiencing severe waterlogging (GED, 2015a).

The southwest of Bangladesh is regarded by numerous morphologically active tidal rivers, which are the major drainage network for coastal polders and low lying beels. The natural drainage pattern of the area is largely influenced by the incoming tide from the sea. Tidal flow brings huge amount of silt from the sea into the river systems of the coastal area (Figure 2.1). Major parts of this incoming silt, before polderization in early sixties and seventies, used to be deposited naturally on the low-lying land (*beels*). Moreover, there was significant amount of fresh water flow from the Ganges which helped to maintain a perennial tidal river in this part of Bangladesh. The continued fresh water flow from the Ganges helped to flush the incoming sediment with the high tide from the sea and thus the proper drainage capacity of these tidal creeks was maintained naturally (GED, 2015a).

There are about 11 polders existing in the southwest (Satkhira, Jashore, Khulna, and Bagerhat) of Bangladesh. However, after polderization and significant reduction of fresh water flow from the Ganges, these natural processes have been hindered significantly. The presence of coastal polders prevents the spreading of the natural tidal flows and restricts sedimentation on the low-lying lands. This leads to large scale river bed sedimentation in the peripheral rivers of polders and reduced tidal prism. Reduction of tidal volume or tidal prism of the surrounding rivers due to confinement of the flow within the river territory and due to construction of embankment along the bank of peripheral rivers caused a gradual decrease of drainage capacity or conveyance of the rivers, which implies these rivers have been adjusting with the changing tidal prism. Also the reduction of dry season flow in the downstream of Ganges and its distributaries due to withdrawal of water upstream by operation of Farakka barrage contributed to increase sedimentation in the distributary tidal rivers. This reduction of fresh water had increased the salinity concentration which proportionately increased sediment concentration and simultaneously silt deposition in the peripheral rivers during tidal movement (GED, 2015a).

2.2 Waterlogging in Southwest Bangladesh (SWB)

Over the past 30 years, southwest Bangladesh has routinely experienced localized and prolonged waterlogging after the monsoon rain, with an impact on the environmental, economic development and living conditions of the thousands of people. The term 'waterlogging', here refers to poor drainage of monsoon rain, with standing water

persisting for any period up to six months. This continuous siltation process over the years resulted in rise of river bed level and thereby reduction of the conveyance capacity of the peripheral rivers of the coastal polders significantly leading to large scale waterlogging problems inside the polders particularly in the Satkhira, Jashore, Khulna and Bagerhat districts.

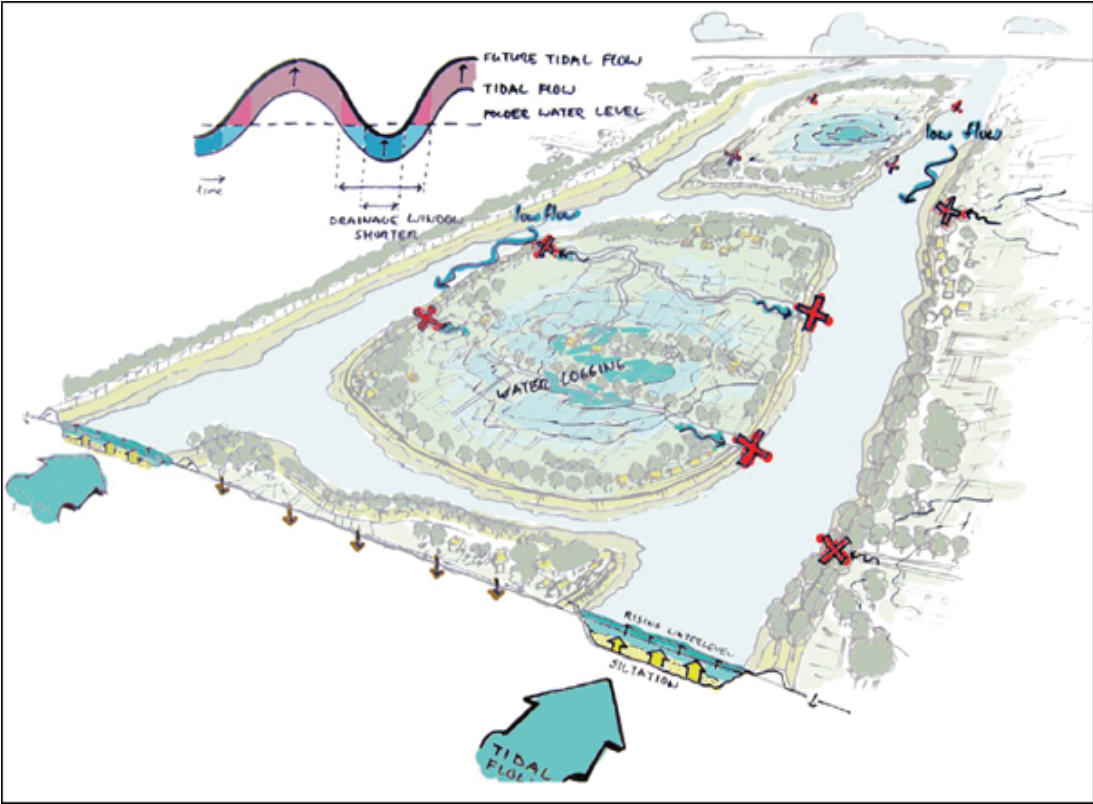


Figure 2.1: Illustration on several causes of waterlogging and future changes in the coastal zone (GED, 2015a)

FAO (2015) has analysed waterlogged areas in the years 2006, 2009 and 2014 in eight Upazilas in three districts under study using the satellite images and ground-truthing (Tables 2.1 and 2.2; Figures 2.2 to 2.5).

Table 2.1 Waterlogged areas of 8 selected upazilas under three districts in 2013

District	Number of affected upazilas	Total area (ha.) of affected upazilas	Waterlogged area (ha.)	
			Area (ha.)	%
Jashore	3	94,911	15,700	16.5
Khulna	2	51,245	19,023	37.1
Satkhira	3	96,298	33,470	34.8
Total	8	242,454	68,194	28.1

Source: FAO, 2015

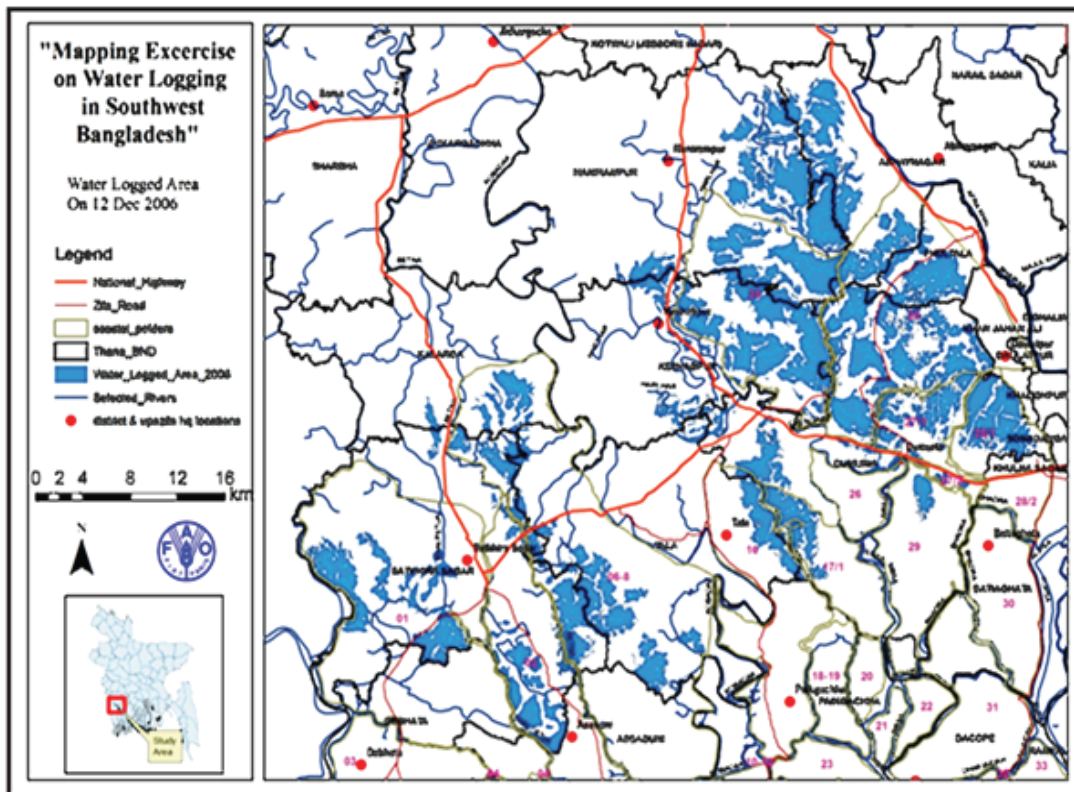


Figure 2.2: Waterlogged area as of December 2006

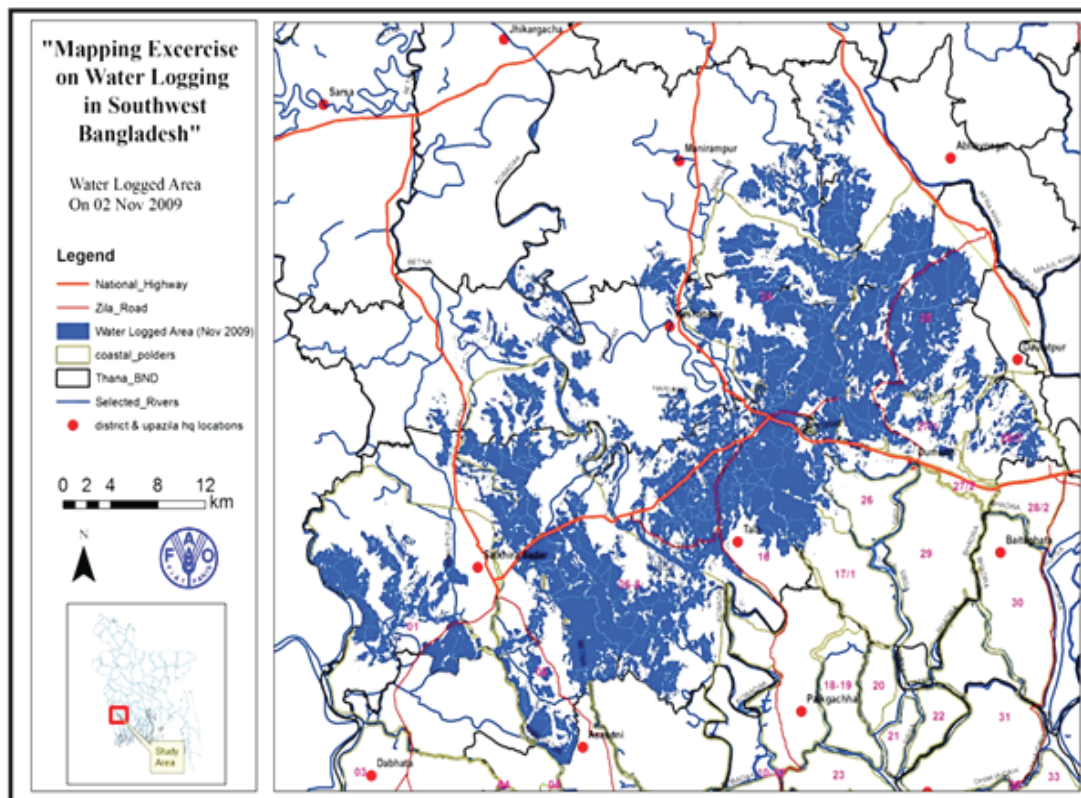


Figure 2.3: Waterlogged area as of November 2009

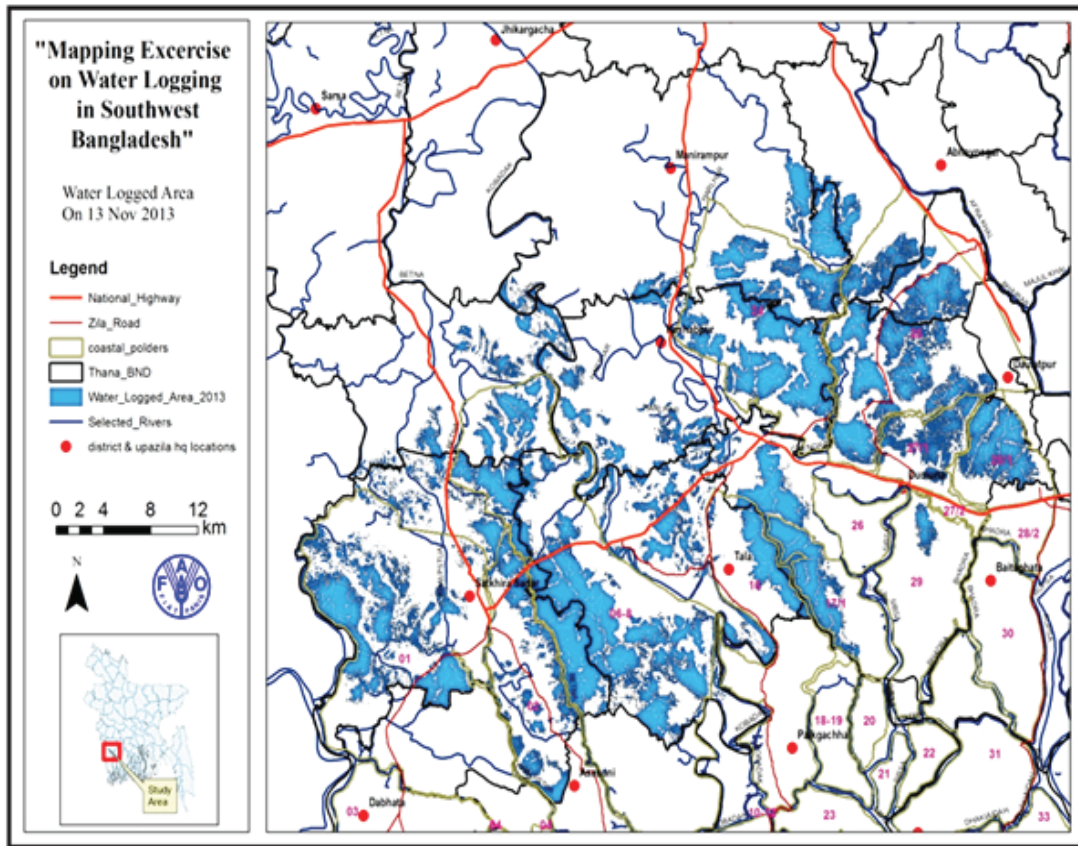


Figure 2.4: Waterlogged area as of November 2013

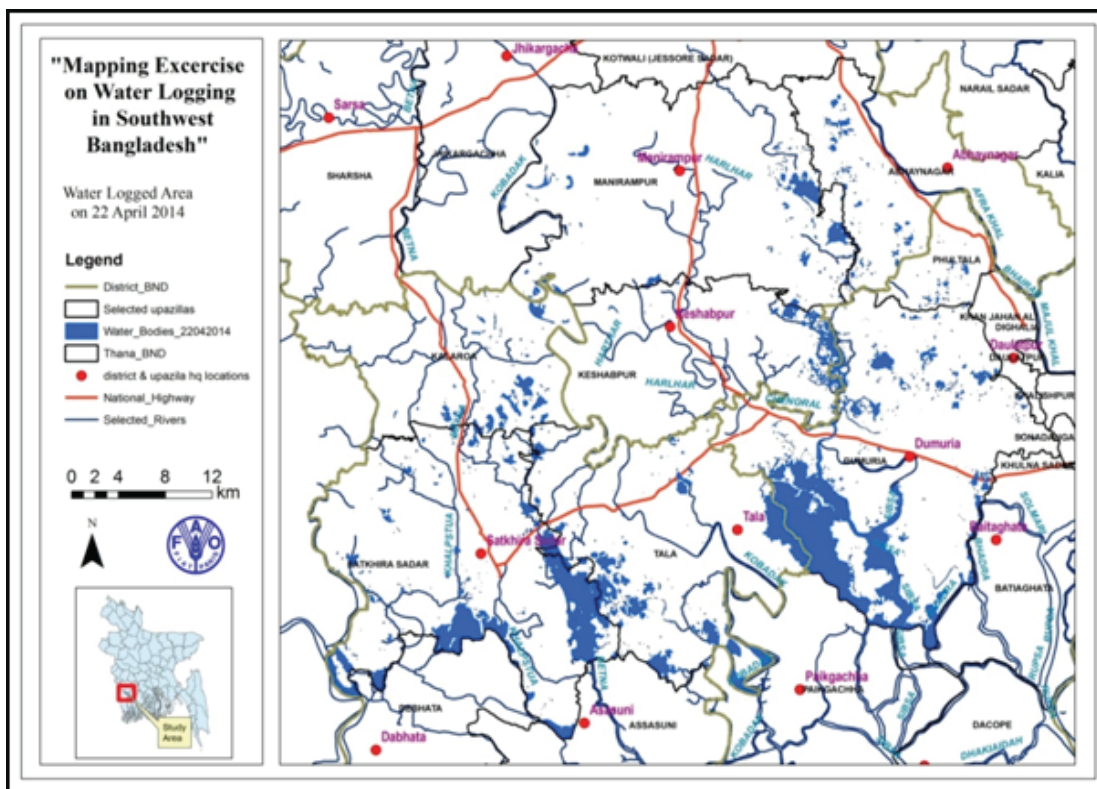


Figure 2.5: Waterlogged area as of April 2014

The area and the extent of waterlogging differ in different years depending on monsoon rainfall, flooding time and period. For example, waterlogging was severe in Keshabpur but less in Tala Upazila in 2016. Waterlogging can be experienced in other Upazilas and districts of the country. In many studies, there is a clear indication of increased waterlogged areas over the years (Rahman et.al., 2013, Hasan et.al., 2014) which can also be seen in table 2.2 below, where Dumuria, Khulna had the most waterlogged area in 2013 and Sathkhira district was the most affected by waterlogging in both 2009 and 2013.

Table 2.2: Upazila wise waterlogged areas in Jashore, Khulna and Satkhira in different years identified through satellite image analysis

District	Upazila	Waterlogged areas (ha)		
		2006	2009	2013
Jashore	Abhaynagar	4,475	4,001	2,198
	Keshabpur	6,322	9,242	7,905
	Manirampur	8,374	6,979	5,596
	Total	19,172	20,222	15,700
Satkhira	Kalaroa	1,292	3,110	3,741
	Sadar	9,086	15,013	16,046
	Tala	4,904	16,244	13,683
	Total	15,282	34,367	33,470
Khulna	Dumuria	14,370	16,524	16,813
	Phultala	2,101	2,586	2,210
	Total	16,470	19,110	19,023
Grand Total		50,924	73,698	68,194

Source: FAO, 2015

Waterlogging has been attributed to drainage congestion, morphological changes in the area (Paul et.al. 2013), siltation in rivers, encroachment of river banks, poorly executed infrastructures, illegal structures, and unplanned aquaculture (FAO, 2015). Among other causes of waterlogging, stakeholders under the present study cited the following:

- Unplanned and nonsequential TRM efforts
- Faulty selection of TRM locations
- Non-payment of compensation to the owners/users of land under TRM projects (resulting in delayed or inefficient TRM)
- Faulty and ineffective earth works
- The culture of late start of earth works immediately before monsoon (and partial completion of the work)
- Faulty placement of roads, culverts and bridges
- Unplanned structures for gher farming
- Leasing out of non-leasable water bodies and khas land
- Precarious condition of the sluice gates and their ineffective management
- Effect of the Farakka Barrage and the consequent reduced water flow leading to silting up and poor drainage.

The relationship between external and internal drivers, pressures and impacts in relation to waterlogging is visualized in the diagram below (Figure 2.6).

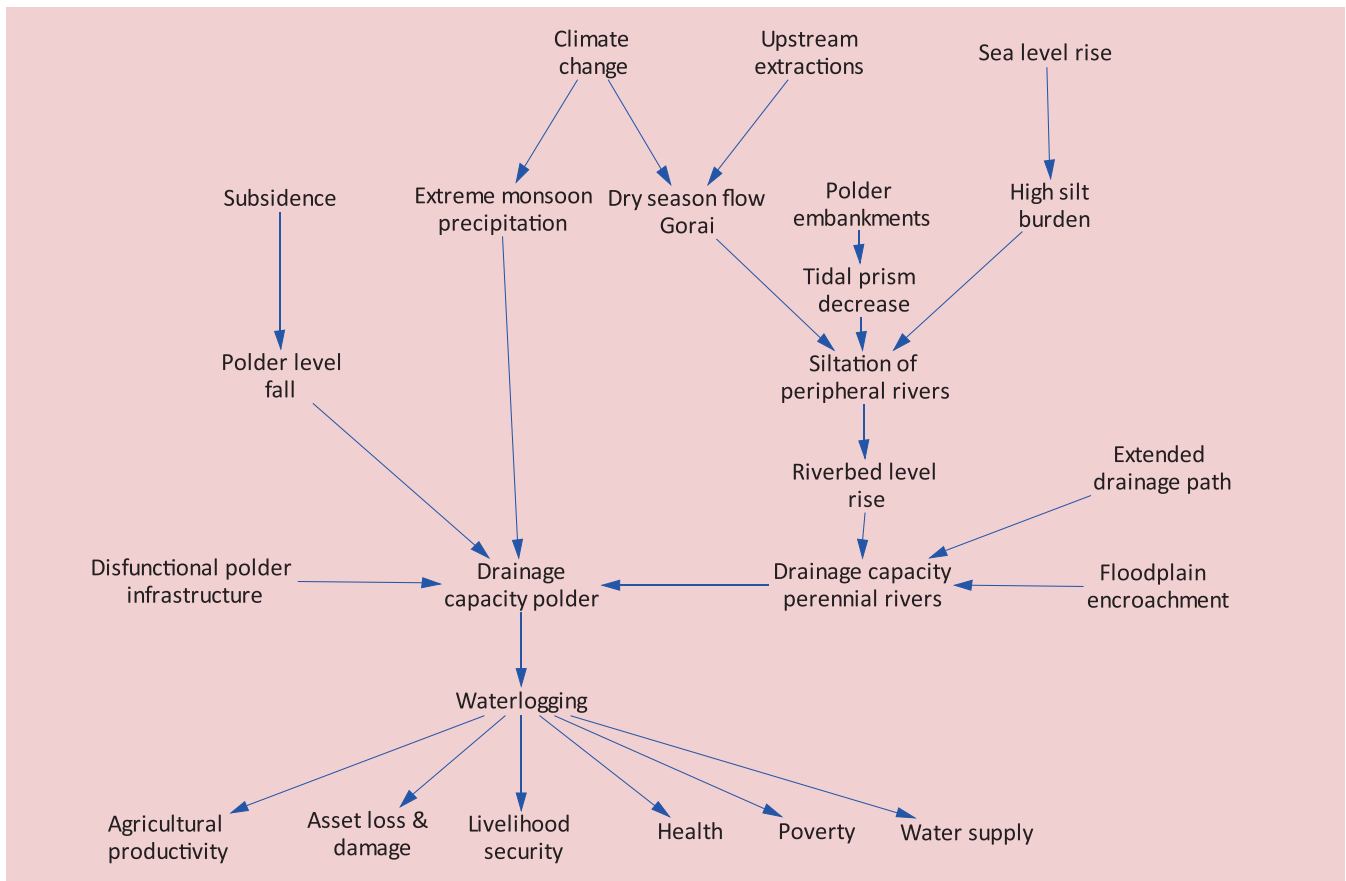


Figure 2.6: Causal effect diagram on waterlogging problem in the coastal zone (GED, 2018)

2.3 Strategic Alternatives to Solve Waterlogging

On-going works to address waterlogging include a series of engineering interventions, with re-excavation of rivers and canals in Khulna, Jashore and Satkhira districts, to improve the flow of drainage (FAO, 2015).

Tidal River management (TRM) is widely appreciated as one important solution to the problem of waterlogging, being seen as in harmony with nature and a cost-effective process of silt management. However, the process experiences some challenges after having successes initially, mostly associated with compensation for land acquisition for operation (FAO, 2015). Implementation of TRM in Beel Khukhsia could not be completed even in seven years instead of stipulated three years, remaining the occupied land under control of BWDB. BWDB & CEGIS (2014) identified lack of proper compensation plan, bitter experiences from TRM in beel Khukhsia, conflicts within project affected people, improper management, over extended duration of TRM, political reasons etc. as major reasons behind local disputes over TRM.

During the implementation of the “Removal of Waterlogging in Adjacent Area under Jashore District Project 1st Phase (2006-2013)” project by BWDB, it was reported that the TRM is an innovative process by the people to remove sedimentation through letting sediment to settle in the beels. Although there are differences in opinion regarding success and effectiveness of TRM, but it is considered as cost effective in removing waterlogging.

In the Bangladesh Delta Plan 2100 (GED, 2018), formulated as a long-term holistic plan for the Bangladesh delta, the following seven alternatives to solve waterlogging issues have been proposed:

1. Ganges Barrage for effectively improving drainage capacity of peripheral rivers in the dry season. It is estimated that this intervention may be effective for 30 years under the most favourable future scenario. In the least favourable situation, it is estimated the barrage will only be effective for 20 years. Further information is given in Box 2.1.

Box 2.1

Bangladesh will build the barrage, according to Water Resources Minister Barrister Anisul Islam Mahmud, for removing waterlogging in the south-west including Bhabodaha area in Jashore (BSS, 19 October 2016). "If we can build the barrage and connect the rivers and canals of the downstream region to upstream with the Padma, the entire waterlogging problems of the region would be solved "He said the two major rivers -- Gorai and Mathabhanga -- flowed from the Padma and its branches in the region would be excavated soon for ensuring water flow from upstream to downstream. Small rivers and canal towards the Sundarbans would also be re-excavated for removing waterlogging from the southwestern zone, especially in the Bhabodah area, he added.

2. Maintenance and dredging of the Gorai river: The main freshwater source of the area, this will improve drainage conditions of the peripheral rivers for a short time (two to three years), unless it is executed periodically. Maintenance dredging is a no-regret measure and supports every other proposed measure. It is however not sustainable in the long-term and not effective to solve the (expected) waterlogging in different futures on its own.

3. TRM for 10 years: This involves cutting embankments at strategic locations in order to bring polders for a certain period (+- 10 years) under normal tidal influence. Sediment will be supplied to the lowest locations, and tides will scour the peripheral rivers, improving the drainage capacity of the water system. This measure can have large socio-economic consequences for the current population, and they have to be compensated. It is estimated that TRM at strategic locations in the coastal zone may improve drainage capacity for 20 years in the most favourable future and 15 years in the least favourable. TRM can be applied in a cyclic way.

4. Pump and drainage improvement: Waterlogging within drainage-controlled areas (e.g. polders) can be diminished by small and large mechanical pumping. This measure is including improvement and reparation of the current drainage infrastructure (e.g. khals, sluices). These measures will improve the situation for several years (10 – 20 years in favourable conditions, depending on pumping capacity, 7-15 years in the least favourable future conditions).

5. Revitalize regional rivers or provide channels: Several regional rivers have died during the last decades in this region. This measure comprises a huge intervention in the water system of the Ganges tidal floodplain, but first estimates show effectiveness for more than 60 years in the most favourable future conditions to more than 40 years in the least favourable.

6. Adapt land use: As currently observed in the area and what may be considered as autonomous adaptation; many areas are increasingly exploited for aquaculture, sometimes in rotation with rice or fish production. It, however, requires a minimum water quality level (e.g. salt level, biotic deterioration), that can be managed with adequate water infrastructure. It further, changes the polder configuration regarding land management (larger plots, less people profit) and sometimes leads to conflicts between traditional farmers, fisherman and aquaculture farmers. This autonomous adaptation is considered effective for the long term.

7. Depolderization: This process is often seen as the last resort, when living conditions have deteriorated below an acceptable minimum. This measure can also be used in a strategic sense, as it may enhance drainage capacity in its neighbourhood or enhances protection/restoration of environmentally sensitive areas (e.g. Sundarbans). As population density in Bangladesh is generally high, this measure may be very costly (in social terms) in order to resettle the current population. When considered, however, as part of an integral strategy for the coastal zone, it may be of interest considering national stakes. This measure is also considered effective for the longer term.

2.4 Climate Risk-informed Planning for Waterlogging in SWB

Bangladesh is widely seen as one of the most vulnerable countries to climate change. Bangladesh is ranked 6th in the Global Climate Risk Index 2018 (Eckstein et. al., 2017) and ranks 160 among 181 countries in the ND-GAIN index (Notre Dame Global Adaptation Initiative Index) in 2016.¹ It is also the 33rd most vulnerable country and the 25th least ready country meaning that it is vulnerable to climate change.

Comprehensive, quantifiable risk assessment including the impact of climate change and/or sea level rise on waterlogged areas is yet to be done for SWB. However, many studies have indicated enhanced negative impact of climate change on already vulnerable waterlogged areas of the SWB. Ahmed (2008) and Moniruzzaman (2012) have indicated that sea level rise under climate change will contribute to increase water-logged area in southwest Bangladesh.

A combination of sea level rise, changes in monsoon rainfall and more extreme events will have large scale impacts on the country such as increase in flood and drought risks, monsoon river flows, storm surge induced flooding, riverine coastal flooding, coastal erosion, waterlogging and salt water intrusion in the southwest of the country. As a result it will have large impacts on water management and water related sectors. Moreover, it will not only have an impact on the environment but will also have serious consequences on overall economic development of the country (GED, 2015b). Figure 2.7 overleaf outlines the extent of different categories of soil and water salinity due to sea level rise by 2050.

¹ ND-GAIN index summarizes a country's vulnerability to climate change and other global challenges in combination with readiness to improve resilience. <https://gain.nd.edu/our-work/country-index/>

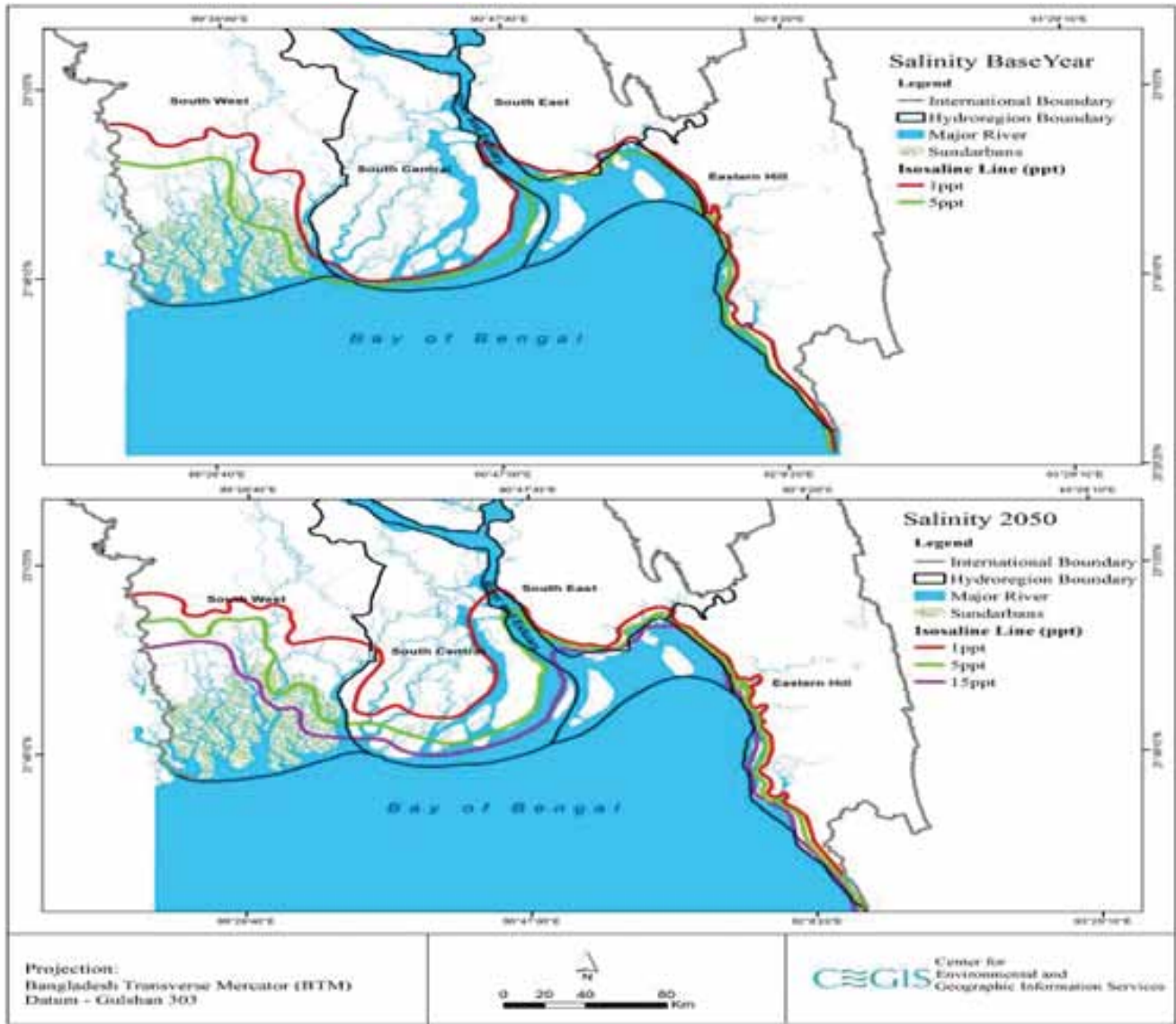


Figure 2.7: The extent of different categories of soil surface salinity (source: GED, 2018)

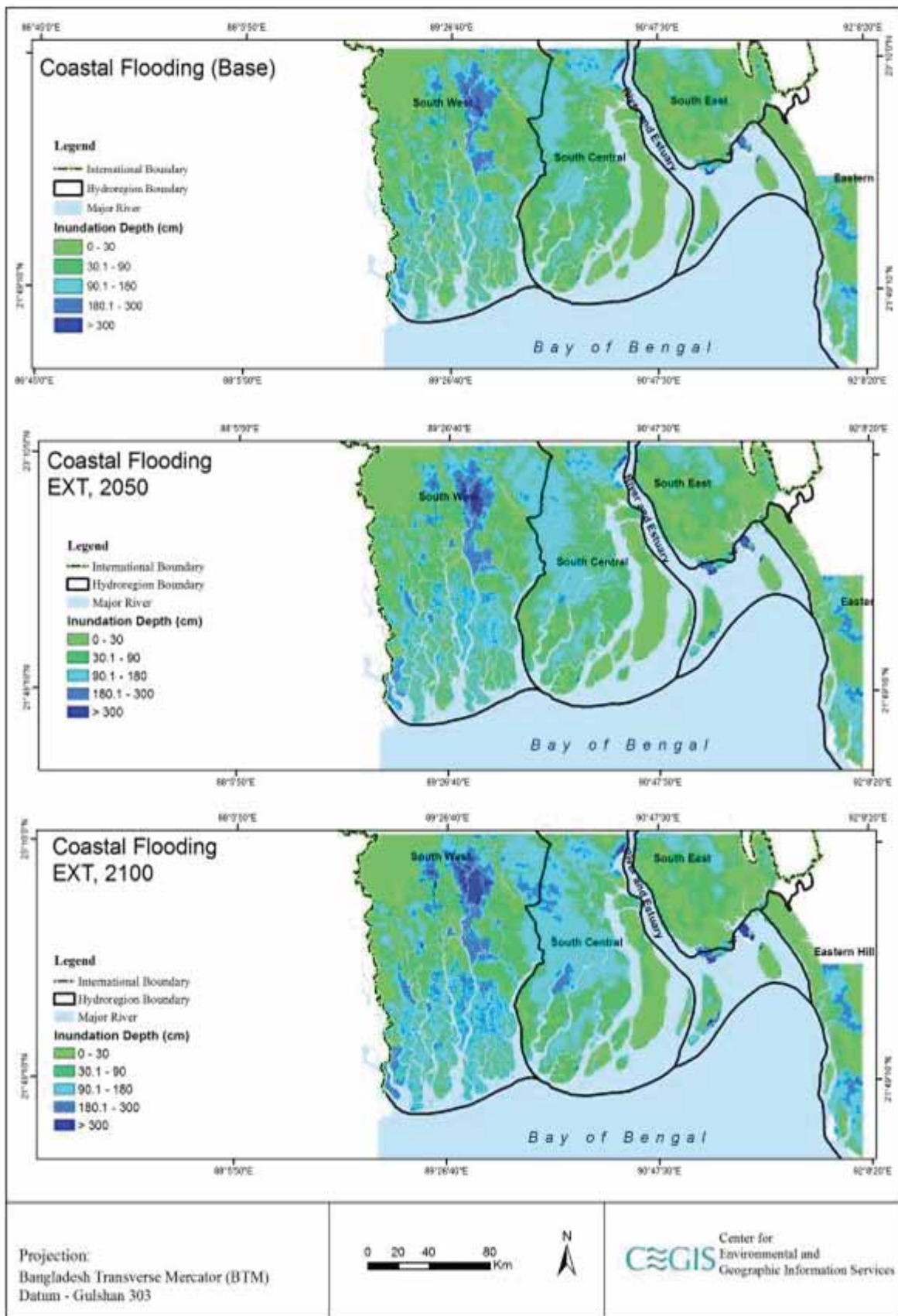


Figure 2.8: Coastal flooding under extreme scenario (source: GED, 2018)

Khulna, the third largest city, with a population of about 1.5 million is also located in this region. The city has been identified as one of the 15 most climate change vulnerable cities of the world (IIED, 2009). Rainfall is increasing in terms of both magnitude and number of rainy days. However, the annual maximum rainfall and the number of days with high intensity rainfall have remained almost static. The annual maximum tidal high-water level is increasing and the annual minimum low water level is decreasing at a rate of 7 - 18 mm and 4 - 8 mm per year, respectively (Mondal et.al., 2013).

Relative sea level change is the local change in sea level relative to the elevation of the land at a specific point on the coast. Thus, relative sea level change is variable along the coast of Bangladesh depending upon the local and regional factors. Trend analysis of water level along the coast of Bangladesh shows that increase in annual mean water level in the southwest coast (Hiron point), Meghna estuary (Khepupara) and Chittagong coast (Rangadia) by 6.8mm, 3.7mm and 4mm per year respectively (IWM, 2014).

The anticipated effect of climate change on coastal polders and chars as far as water management is concerned, is overtopping of embankment, damage of drainage systems, waterlogging, crop damage and decline of livelihood opportunities for farmers and fishers.

The combined effect of sea level rise and increased precipitation in the changing climate implies subsidence inside polders and sedimentation of peripheral rivers will deteriorate the drainage condition. Under this scenario, waterlogging is expected to become worse (Figures 2.7 and 2.8). Restoration of tidal plain for tidal inundation in increasing the tidal prism of the tidal river, sediment management allowing free movement of tide into Polders for certain periods of the year to raise the low lying land are very likely measures for solving waterlogging problems. In order to obtain faster drainage in times of climate change pumping might be required in addition to gravity drainage of polders. Tidal River Management could become standard procedure for all coastal polders. This would counter balance subsidence and reduce the problem of waterlogging.

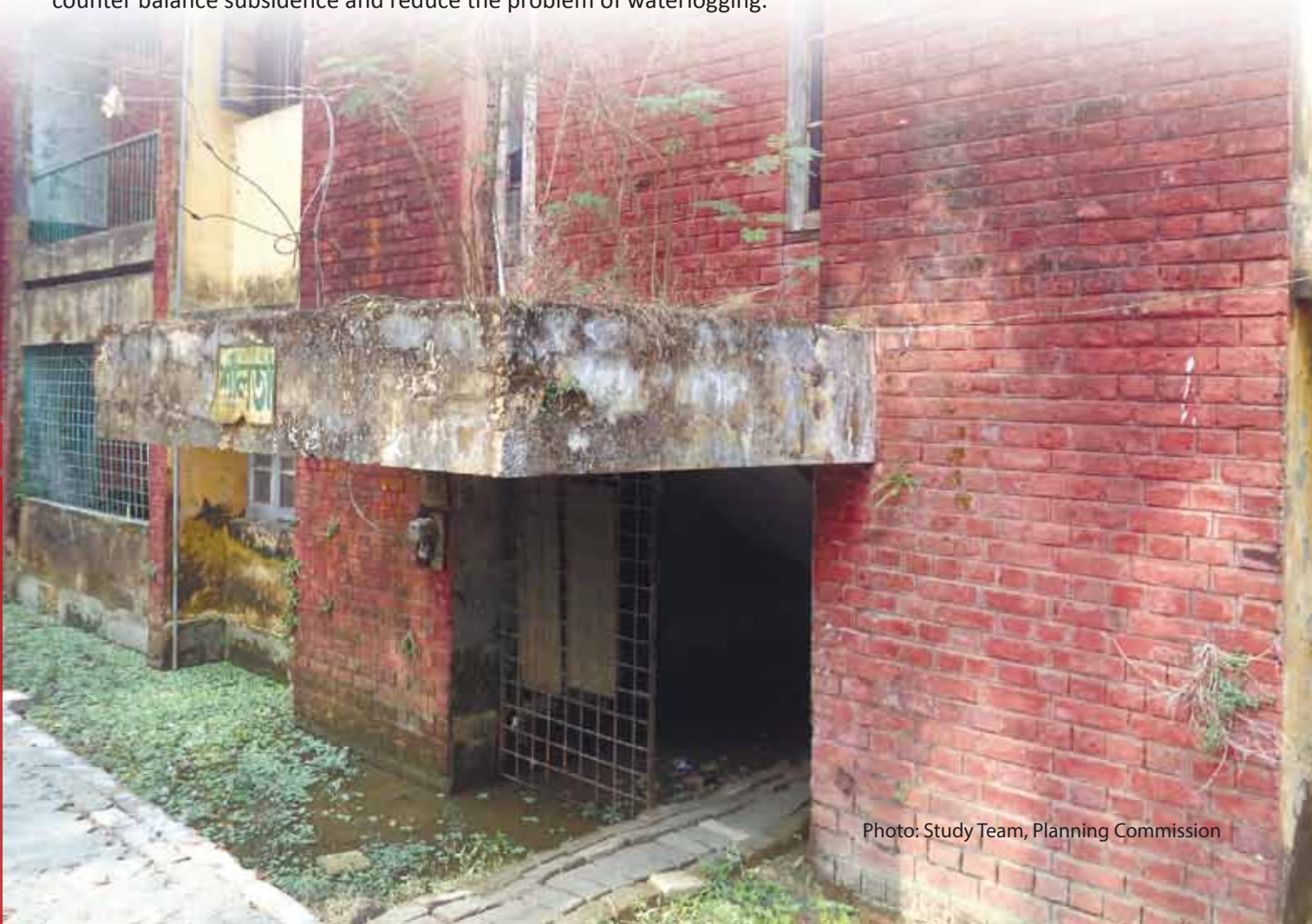


Photo: Study Team, Planning Commission

CHAPTER 3 : Regulatory Framework, Planning & Budgeting

3 Regulatory Framework, Planning & Budgeting

A brief narrative is provided in this chapter on regulatory framework, institutions involved in national planning and budgeting processes and their functions, the processes specially formulation and approval processes of the Annual Development Programme (ADP), Local Government Institutions and their capacity to generate funds and finally weaknesses in public investment management. This narrative provides probable entry points through which to seek pathways to address waterlogging problem.

3.1 Regulatory Framework

Bangladesh's regulatory framework for disaster management provides for the relevant legislative, policy, and best practice framework under which the activity of Disaster Risk Reduction and Emergency Management in Bangladesh is managed and implemented. The framework includes:

- Standing Order on Disaster, 2010
- National Disaster Management Plan, 2010-2015
- Disaster Management Act 2012
- National Disaster Management Policy, 2015
- Disaster Management (Committee Formations and Functions) Rules, 2015
- Guidelines for Government at all levels as best practice models.

Persistent waterlogging is, as per Disaster Management Act 2012, considered as one of the recognized disasters in Bangladesh. In September 2015, Government of Bangladesh has adopted the Disaster Management Policy (MoDMR, 2015). For reducing risk from waterlogging, policies are:

- To identify waterlogged risk areas and affected communities. Adopt long-term plan to reduce risk through identifying causes of waterlogging
- To reduce risk of waterlogging, devise modern early flood warning system
- To facilitate speedy drainage from water logged areas, re-excavate rivers and canals and recover occupied/grabbed land
- To construct shelters in water-logged areas and ensure their management
- Modernize traditional system of damage assessment by using latest technologies to collect data and information.

Translating the Disaster Management Policy, the 7th Five-Year Plan (GoB, 2015) emphasizes 'Develop policy framework for addressing slow onset disasters such as waterlogging in southwest, river bank erosion etc'. Water management will emphasize the sustained and balanced use of water resources for irrigation, drinking water and water transport while reducing vulnerabilities from flooding, waterlogging, salinity and river siltation. While making plans for river dredging, priority may be given for rivers of Khulna, Jashore, Satkhira and Bagerhat to mitigate the perennial waterlogging and intrusion of saline water to Sundarbans.

The target of the 7th Five Year Plan (2016-2020) is to reduce waterlogging from existing 2.5 percent to 0.5 percent of the coastal area (GED, 2015a). Under the long-term Bangladesh Delta Plan 2100, the target is to reduce waterlogging vulnerable people from 0.9 to 0.2 million by 2020 (GED, 2018).

A long-term vision for the coastal area of Bangladesh was initially formulated in the Coastal Zone Policy 2005 (MoWR, 2005) and mentions: to create conditions, in which the reduction of poverty, development of sustainable livelihoods and the integration of the coastal zone into national processes can take place.

The National Water Policy (MoWR, 1999) states that, through its responsible agencies, the Government will ‘de-silt watercourses to maintain navigation channels and proper drainage.’

The responsibilities of the Bangladesh River Conservation Commission, an advisory body, are:

- To advise the Government measures to prevent illegal encroachment into river and their recovery
- To advise the Government regarding excavation of dead and almost dead rivers
- To advise the Government regarding undertaking short and long term plans to conserve rivers.

On global scale, the Sustainable Development Goals (SDGs) in general provide goals and targets regarding water-related disasters, though not specifically mentioning waterlogging, such as:

- Support and strengthen the participation of local communities in improving water and sanitation management (SDG target 6.b)
- By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations (SDG target 11.5)
- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries (SDG target 13.1).

Policy and regulatory environment are supportive of long-term planning to remove waterlogging condition. In the following section, institutions related to national planning and their functions are described which are pertinent to the current study.

3.2 Institutions for Planning & the Programme Division, Planning Commission

The Bangladesh Planning Commission is the central planning entity of the Government. As part of its executive function, it determines the objectives, goals, and strategies of medium and short-term plans within the framework of long-term perspective and formulates policy measures to achieve planned goals and targets under the guidance of the Prime Minister. Its activities include the following elements of development planning:

- (i) Policy planning to determine the goals, objectives, priorities, strategies, and policy measures for development plans.
- (ii) Sectoral planning to identify the roles that the various sectors of the economy are required to play in the context of the plan objectives and goals.
- (iii) Programme planning to formulate detailed resource allocation to realize the plan objectives and goals.
- (iv) Project planning to appraise projects embodying investment decisions to implement the sectoral plans and.
- (v) Evaluation for impact analysis of projects, programmes, and plans on the people’s living.

The coordination function of the Planning Commission encompasses the whole range of planning activities in order to ensure consistency of investments with overall and sectoral objectives of plans of the relevant ministries and divisions (Figure 3.1). Planning Commission determines objectives, goals and strategies of medium-and short-term plans within the framework of long-term perspective plans and formulates policy measures for the achievement of planned goals and targets.

Within the Planning Commission there are six divisions; two of which (i.e. the General Economics Division (GED) and the Programming Division) deal with general macroeconomic issues and four are Sector Divisions in charge of planning and policy issues in the country's different economic sectors. These Sector Divisions are the Socio-Economic Infrastructure Division; Physical Infrastructure Division; Industry and Energy Division; and Agriculture, Water Resources and Rural Institution Division (Figure 3.1). The Sector Divisions of the Planning Commission initiate project approval processing only after they receive the same from the respective ministries/divisions. They work in close collaboration with different line ministries/divisions/functional departments and maintains close liaison with development partners through Economic Relations Division (ERD). With reliance on external aid for implementation of plans, programmes and projects; the task of negotiation and lining up of foreign aid has been assigned to ERD. Finance Division and the Internal Resources Division are responsible for internal resource mobilization. Ultimate national planning related decision-making rests with the head of the government i.e. the Prime Minister who is the chairperson of the National Economic Council (NEC).

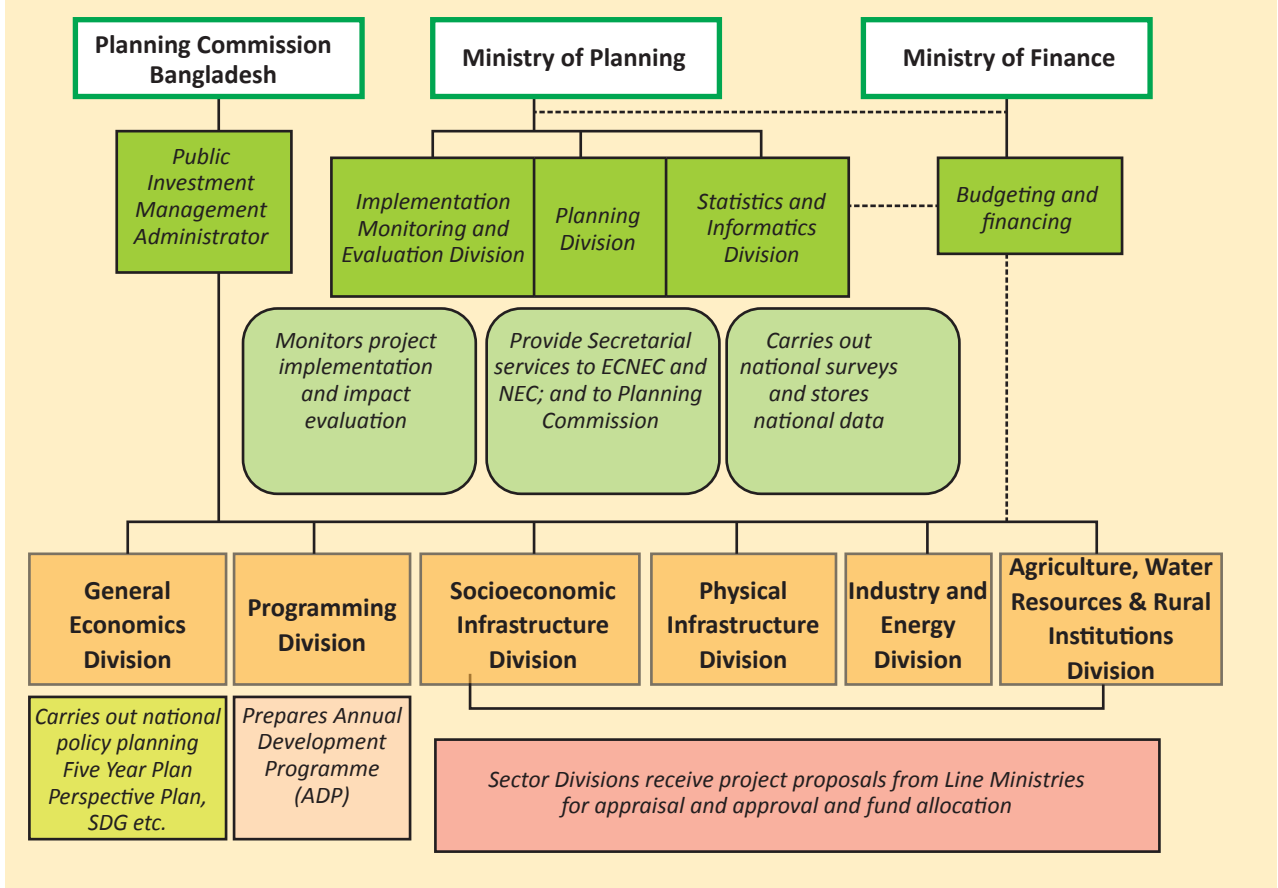


Figure 3.1: Institutions for development planning in Bangladesh

The allocation of funds to individual projects in the ADP is done by the Programming Division of the Planning Commission being guided by the progress reports on projects prepared by Implementing, Monitoring and Evaluating Division (IMED). The data requirement of the Planning Commission is met by the Bangladesh Bureau of Statistics (BBS). The ADP is structured into 17 economic sectors for resource allocation and planning purpose, and the four Sector Divisions deal with the projects under these sectors according their allocation of business. The national development administration is depicted in Figure 3.2.

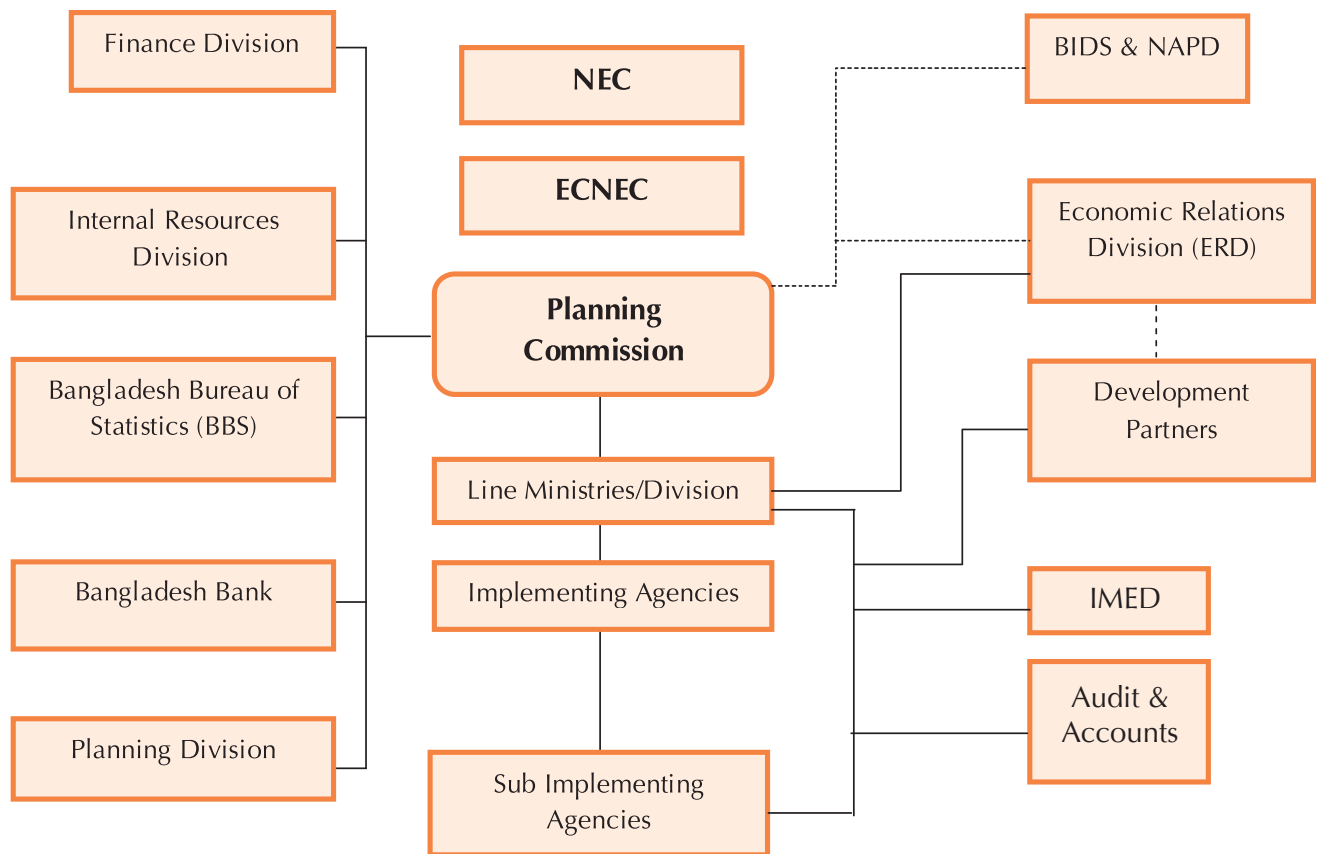


Figure 3.2: Development administration in Bangladesh

The Prime Minister is the Chairperson of the Planning Commission and Minister for Planning is the Vice-Chairperson of Planning Commission. The Planning Division provides the administrative and secretarial support to the Planning Commission.

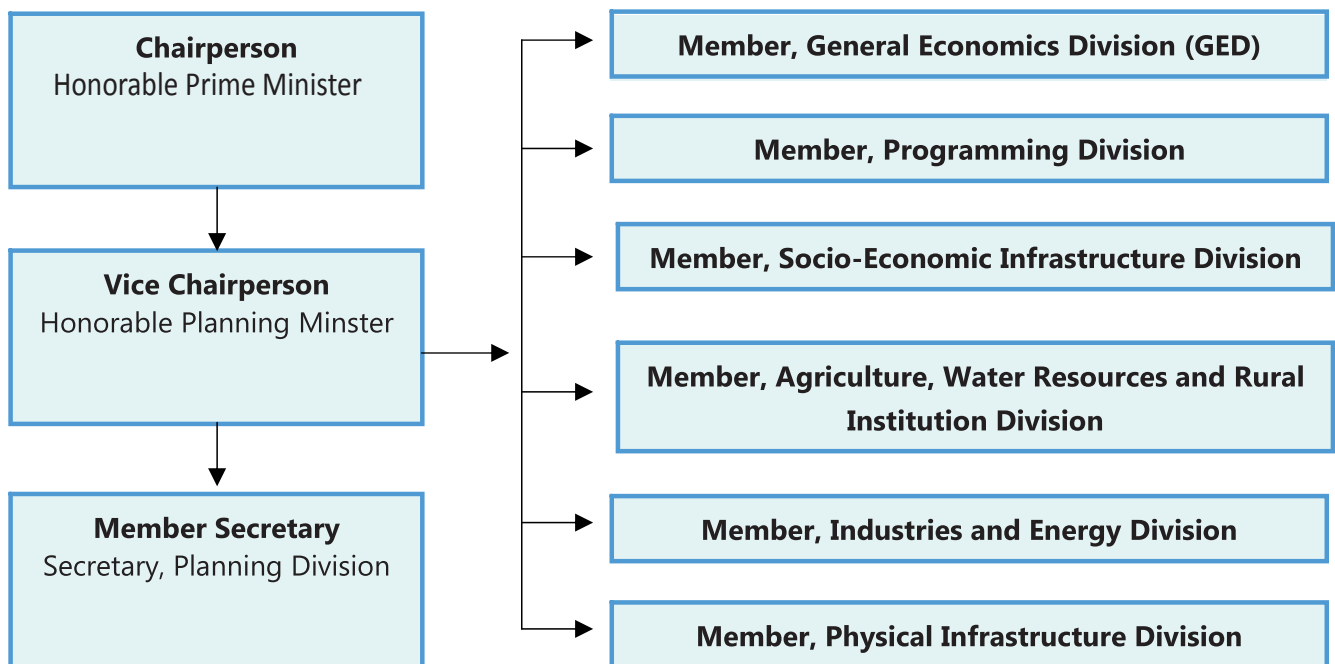


Figure 3.3: Structure of Bangladesh Planning Commission

Functions of the Programming Division

- Determination of the sizes of the Annual Development Programmes (ADP) and sectoral allocations/ proportions
- Formulation of ADP and revision of ADP
- Recommend release of ADP funds in relevant cases
- Oversee ADP implementation/ administration
- Determination of external assistance requirements for ADP financing
- Inter-Ministerial and intra-Planning Commission co-ordination in matters of ADP preparation, revision and appropriation/re-appropriation of funds
- Provide secretarial service to the Programming Committee of Planning Commission
- Keeping records of resource use.

Allocation of funds to new projects through ADP: The Planning Commission is responsible for approving development projects from various ministries following a formal appraisal system. The Programming Division plays an important role in preparing the list of pipeline projects proposed by different line ministries for inclusion in the ADP. In consultation with the Sector Divisions, the Programming Division screens the proposed projects (project ideas) according to the ADP/Revised ADP (RADP) Guidelines². The proposed new projects are prioritized and prepared into a list of pipeline projects, which are not assessed for climate change aspects. The list of candidate projects is submitted to the high-level Programming Committee headed by the Minister of Planning for approval. Approved project ideas are prepared by concerned government agencies/departments into detailed DPPs/TPPs, which are in turn submitted to the line ministries for technical and financial assessment, and later to the Sector Divisions of the Planning Commission for further review and endorsement. Approved project proposals are sent to the Programming Division for budget allocation from the ADP/RADP

3.3 Development Budgeting Process (i.e Annual Development Programme)

The budget preparation for the next year usually commences soon after the start of the current financial year. The preparation culminates in their presentation to the Parliament and their approval in the Appropriation Act. Therefore, there are two targets in the budget preparation process:

- a) Completion of the process in time for the proposals to be incorporated in the budget speech by the Minister of Finance; and
- b) Presentation of the budget to Parliament sufficiently prior to the financial year end to allow time for final printing and distribution of the budget prior to the commencement of the new Fiscal Year.

The Finance Division of the Ministry of Finance has an overall responsibility for the orchestration of the Revenue and Development Budget preparation process. The Planning Commission is responsible for preparation of the Annual Development Programme (ADP) which after preparation is converted into the Development Budget by the Ministry of Finance. Following approval by Parliament and promulgation of the legislation, the spending ministries are notified of their allocations by the Finance Division in a circular accompanied by the approved sections of the budget books appropriate to them. This constitutes the formal approval for sanctioning to issue sanction orders authorizing the incurring expenditure.

²The Annual Development Programme (ADP) is the main tool for achieving the sectoral economic objectives and targets in line with the economic development strategies outlined in the Perspective Plan (2010-2021) and the Five-Year Plans. The Programming Division issues the guidelines for ADP formulation and allocation of funds as a first step in the ADP formulation process. Among the criteria for prioritization, climate change risks and disaster risk reduction are also included as priority issues.

3.3.1 Annual Development Programme

Development projects are included in the ADP and RADP, which are prepared by the Planning Commission on the basis of initial budget proposals received from line ministries, in line with guidelines in the Mid-Term Budgetary Framework (MTBF) and prioritisation criteria. On the basis of total size of the ADP/RADP fixed by the Finance Division in consultation with the Planning Commission, the Planning Commission prepares the sectoral allocation. The Planning Commission in consultation with the line ministries finalizes the allocations to projects within given sectoral allocations.

Thus, the budgeting process is basically built on an institutional relationship between the Finance Division and the Planning Commission. In respect of any project or activity, especially, water management or waterlogging, it is crucial that this aspect of relationship functions efficiently to ensure that sectoral/national funding reflect the priorities.

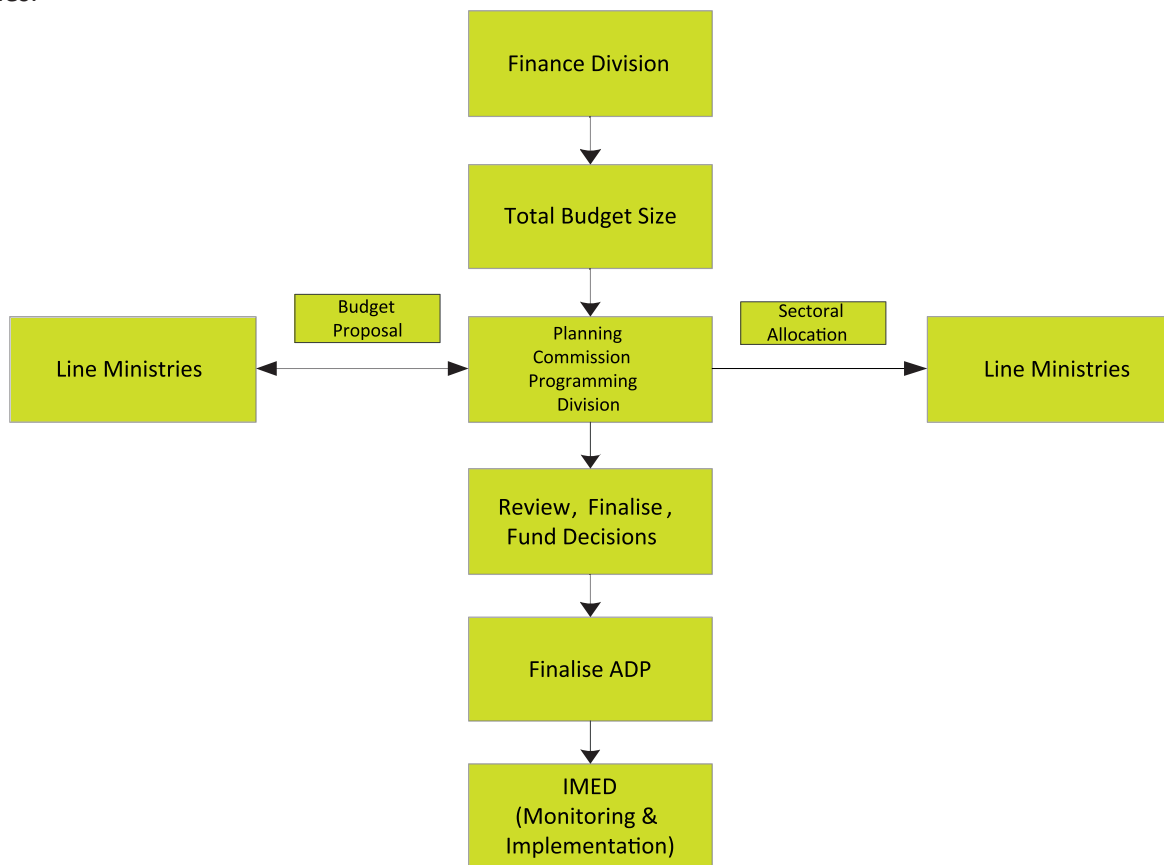


Figure 3.4: ADP preparation process

3.3.2 Approval of Development Projects

The process of development projects for approval involves several steps. At the formulation stage, a project may be an idea with preliminary studies of its desirability in terms of national needs, and likely cost and benefits. At this stage, it has to be spelled out in greater details and specific terms in order to enable the decision-making bodies to evaluate and to approve (or postpone or reject) it. Broadly, after formulation of development project proposal by executing agencies whether investment or technically concerned ministries scrutinize the DPPs/TAPPS, and then Sector Divisions of the Planning Commission appraise the DPPs. This is followed by recommendation for approval by the Project Evaluation Committee (PEC). Then, the Minister for Planning or the ECNEC approves the project depending on its estimated cost. The approved projects are included in ADP or RADP for fund mobilization and implementation.

3.3.3 Modalities and Flow of Funds to Local Level

Since waterlogging is essentially local in nature, it is important that local level institutions are made involved in combating waterlogging in the localities concerned (similar observation was also obtained from filed investigation). Hence, in order to explore the existing institutional arrangement (i.e., line ministries) in addressing the waterlogging problem it is worth discussing features regarding modalities and flow of funds to local level institutions. Each line ministry has a Chief Accounts Officer (CAO). Most line ministries that have involve in activities at the district level have offices in district headquarters. Each of those district offices of ministries has a District Accounts Officer. At the upazila level, there is an upazila Accounts Officer. Funds flow from the line ministry through the office of CAO to the district accounts office, and from the district accounts office to the upazila accounts office. Financing of any local development project(s), overseen by the District Council is made by the concerned line ministry (depending upon the jurisdictional coverage of the project) through grants-in-aid.

3.3.4 Local Level Stakeholders, Power and Authority in Addressing Waterlogging

Local government, civil society organizations (CSOs), non-governmental organizations (NGOs) and other local bodies have important roles to play in strengthening steps to address waterlogging problem. This means that an effective action should be of an integrated nature. In the absence of an integrated institutional arrangement, it is difficult to effectively manage both vertical and horizontal policy and programme coordination and implementation.

Thus, strengthening local government capacity to manage waterlogging has no alternative. It is important to understand the linkage between policy and implementation level, which are expected to promote transparency in how waterlogging related investments are translated into local expenditures. The following analysis is expected to help devise policies to strengthen governance at the local level by ensuring elected local government bodies are playing a role in the formulation and decision making of waterlogging finance and expenditure.

At the local government levels, there are two structures: a local elected body and a local administrative office. Local elected bodies exist at the District, Upazila and UP levels in rural areas and at City Corporations and Pourashavas in urban areas. All local elected bodies are under the direct responsibility of the Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C), and receive funds from the Local Government Division (LGD) of this ministry.

The local elected bodies are different to the local administrative offices, where appointed officials from other ministries are responsible for implementing the priorities of its own ministries. They receive funds directly from their corresponding line ministries (vertical interaction) and are accountable to them. This does not facilitate horizontal interaction. Therefore, the main objective of the study is to find out a horizon interaction between different local level administrative offices.

In practice, elected local government bodies in rural areas have limited financial autonomy (GED, 2012). For example, Upazila Parishad work alongside the local administrative offices of central government, led by the officer-in-charge, UNO, who has significant executive power. While there is an elected Chairperson in each Upazila Parishad, they have limited decision-making power on the choice of activities that is implemented at the local level. In urban areas, local elected bodies, such as Municipalities, work directly with central government ministries and therefore enjoy more freedom in the area of planning and prioritizing of funds.

3.3.5 Sources of Finance and Funding Modalities

Currently, there are no water management (not to speak of waterlogging) specific funds available to any local bodies, such as UPs, in none of the three districts under study. There is hardly any sort of national disaster funds available to UPs. However, based on the “waterlogging expenditure,” (classification explained out later in Chapter 4), there are funds available to UPs that are somewhat relevant to water management/waterlogging specific funds.

There are five key sources of finance identified at the local level, some of which have relevance to waterlogging. These are: (1) central government funds, (2) donor funds, (3) local government (locally generated) revenue funds, (4) household spending, and (5) private funds. There are various modalities used for channelling these sources of funds to the local level.

Modalities include: central government grant to local government bodies; donor funds to local government bodies through central government financial system; donor funds channelled directly to NGOs; and private sector donations to NGOs and households.

ADP/RADP Block Allocation (Thok Boraddo)

The Government’s ADP/RADP block grant, also known as ‘Thok Boraddo’, is a resource from central government for UPs/Pourashavas mainly used for spending on infrastructure projects, including water management activities. There are five of such development funds for the local governments, namely Upazila Council Development Assistance, Union Council Development Assistance, City Corporation Development Assistance, Municipality Development Assistance and District Development Assistance Fund. The amount for union ‘thok’ is centrally determined by the size and population of each union and dispersed to UPs from the LGD of MoLGRD&C through the District and Upazila administrative offices. Each Union/Pourashava prepares its own budget and makes a request for ADP/RADP block grant. In many cases, however, the allocation tends to be lower than the amount requested and there are also reports of late or inadequate allocation.

The UPs/Pourashavas spend the ADP/RADP grant in line with the guidelines on infrastructure, agriculture, public health and sanitation set out by the Upazila administrative office. Some of the UPs and Pourashavas’ budgets are considered relevant to waterlogging, such as reinforcing embankment, sluice gates and desalinization.

Safety Net Programmes

Safety net programmes are the most prominent funds allocated to local levels such as UPs from central government. These include funds for Food for Work (Kabikha), Test Relief (TR), 100 Day Employment Generation Scheme, relevant Vulnerable Group Feeding (VGF), Vulnerable Group Development (VGD) and so on. These funds are administered by different line ministries, such as Ministry of Disaster Management and Relief, Ministry of Women Affairs and Ministry of Social Welfare. They are channelled to and coordinated by the upazila level government office and dispersed to UPs for implementation.

Some of them are spent on activities that are significantly relevant to waterlogging. For example, the VGF scheme distributes food to the most relevant, which could help build resilience to waterlogging. The 100-day employment generation scheme reduces economic vulnerability through job opportunities and income generation for waterlogged communities. For example, Kabikha, TR and 100-day employment generation schemes fall under the directive of the Ministry of Disaster Management and Relief and are aligned to the Ministry’s medium-term budget framework, which includes water management/waterlogging specific objectives.

While these funds are mostly channelled to UP level for implementation, UPs generally do not have any control over the use of these funds. However, by and large, these programmes are effective in addressing the needs of the marginalized people. Some of the SSNP (Social Safety Net Programmes) funds, spent on activities relevant to water management/waterlogging have been included in the ADP expenditure review presented in Chapter 4.

Internally Generated Revenue

The internally generated revenue funds of local government (e.g. UPs) are made up of revenues such as holding tax and land tax. The amount of income derived from these internal sources is inadequate to meet the growing needs of local bodies. The spending of this revenue money includes expenditure on local salaries, office operations, road construction, tube well and latrine distribution to vulnerable households, usually including on activities directly related to water management.

3.4 Shortcomings in Public Investment Management

This is an attempt to identify the key gaps and shortcomings that have relevance to waterlogging related programmes/projects.

- Each year, the Programming Division issues a guideline in the light of the existing policies/strategies of the Five-Year Plan for inclusion of new projects. Although in the present 7th FYP, a target has been set to reduce waterlogging areas from 2.5 percent to 0.5 percent of coastal areas during the plan period, yet projects linked to this target are not visible. But this guideline is not properly followed for the selection of priority projects. As a result the number of projects included exceed the medium-term budget ceiling. Projects of similar nature can be brought under one umbrella project for rationalizing costs and avoiding duplications.
- Each year Finance Division determines the ceiling for each Ministry/Division under MTBF. But often it does not commensurate with the demand of the Ministry/Division. As the demand is much higher than the ceiling stipulated in MTBF it becomes almost impossible to allocate adequate fund for all ongoing and new projects (Table 3.1). An increasing number of projects are included every year in the ADP without adequate assessment of resource availability and economic feasibility study due to various reasons. Table 3.1 also shows the inadequacy of fund allocation of projects calculated for the Bangladesh Water Development Board as an example and indicates that yearly allocation is made only up to around 10 percent of the total estimated cost. As a result, due to inadequate allocation, time overrun is inevitable which ultimately leads to cost overrun for the projects. With long implementation period projects become ineffective. This could be a major driver behind why sectoral approach is failing to address waterlogging problem. Multi-dimensional nature of waterlogging cannot be addressed through sectoral projects, hence, multi-year funding is required.

Table 3.1: Cost, allocation, expenditure and estimated completion year of BWDB projects (in crore Taka)

ADP	No of Projects	No. of New Projects (Green page)	Total Project cost (GoB)	Cumulative expenditure	Required total allocation (Col 4- 5)	GoB Allocation	Ratio of Allocation	Estimated completion year
ADP 2010-11	53	16	9249	1136	8113	784	8%	12
ADP 2011-12	49	21	10548	1491	9057	1000	9%	11
ADP 2012-13	47	13	11157	2139	9018	1277	11%	9
ADP 2013-14	43	17	10678	1946	8732	1244	12%	9

Source: ADP and RADP, 2010-13, Planning Commission

Programming Division has undertaken Public Investment Management Reforms to address these shortcomings through more integrated and inclusive project formulation by stakeholders at the field level.



Photo: Study Team, Planning Commission



Photo: Study Team, Planning Commission

CHAPTER 4: Budgets, Expenditure and Funding

4 Budgets, Expenditure and Funding

4.1 Introduction

The study component has conducted expenditure and budgetary analysis, to explore scope of risk-informed planning and budgeting for addressing waterlogging in three districts: Jashore, Khulna and Satkhira. Objectives of this budgetary analysis are:

- To review waterlogging sensitive projects in the Annual Development Programmes (ADPs) and Revised Annual Development Programmes (RADPs) and their allocations in three districts of southwest Bangladesh; and
- To identify the scale and trends of ADP allocations on waterlogging activities.

The analysis uses financial information published in the ADPs.³ The analytical framework for budget analysis is presented briefly as follows (the detailed methodology is outlined in Annex III):

4.2 Methodology

Currently, there are multiple stakeholders and government agencies working in these three districts. With implementation of numerous development projects and programmes, different ministries and agencies are involved in the development of the districts/regions, implicitly or explicitly. Thus, one of the major activities would be to critically review the ADPs for projects with a waterlogging dimension and categorize them according to expenditure (see Annex III for the list of waterlogging related projects under review). This is based largely on an expenditure review methodology of “Relevance Analysis” through use of relevant DPPs⁴ (GED, 2012). The analysis covers a period: 2001/2-2015/16, based on their allocations (considered as a proxy to actual investment). This period has been chosen considering possible availability of soft copies of DPPs.

There is no agreed methodology for assessing the exact share of activity and expenditure within projects/programmes that contribute to addressing waterlogging problems, for example. This is particularly true given the complex linkages within development as there is a wide range of ministries and agencies delivering a wide range of project activities relating to water management in general and waterlogging in particular. Some of the projects contribute directly to addressing waterlogging vulnerability whilst others help indirectly to achieve outcomes that build towards resilience in terms of waterlogging. Even some of the implemented projects might have caused further sufferings by worsening waterlogging situations (e.g., unplanned gher operation). Expenditures on waterlogging are, by definition, focused on activities dealing with the impacts and consequences arising out of the situation. These impacts and consequences broadly comprise categories, direct and indirect, tangible and intangible, short and long run. For example, direct impact activities refer to physical activities with “visible” effects e.g., expenditures to sluice gates, polders, bridges and culverts to protect from adverse impacts; and indirect expenditure may include spending on consequences of waterlogging e.g., Social Safety Net Programmes and livelihoods. Indirect activities can again involve those with both short and long run effects.

³ It must be noted that allocations and other information throughout this report represent those of ADPs for each relevant year.

⁴ Within the time available for the review, it was not feasible to consult all the 135 project DPPs (see Annexure II for the list of Waterlogging projects under review). In consequence, we have consulted DPPs for major projects implemented by major agencies on a sample basis. For the remaining projects, an approximate quantification of expenditure was made using qualitative judgments based on expert knowledge. Hence, the current analysis is indicative.

Thus, a programme with a waterlogging dimension does not necessarily indicate that all of the resources in that programme are of direct relevance. Also, a programme or a project with a waterlogging dimension does not necessarily indicate that all of the resources in that programme/project are spent in entirely three study districts. For example, a waterlogging related project implemented in the entire southwest region or entire coastal region would have partial allocation and expenditure relevant to the three study districts. Accordingly, a further analysis needs to be conducted, based on two sets of 'relevance' criteria. Each "relevance" criteria has thus two dimensions: one is related to waterlogging and the other related to the three districts under study. Each programme identified is evaluated against combination of the two sets of such criteria.⁵

An approximate quantification of expenditure was made, using with qualitative judgments based on expert knowledge as well as a review of a few available development project proposals (DPPs), for each programme and a weighted average for each "band of relevance" was calculated.

Identification of Projects

One of the problems with waterlogging is to define the limits of waterlogging for the purpose of the study - a seasonal drainage problem – as distinct from perennial water bodies in southwest Bangladesh. Water stagnation is a state of waterlogging when water accumulates in an area and stops moving or flowing.

Following the above definition of waterlogging, the current analysis considers waterlogging related projects as those broadly related to the following major activities carried out in the three districts (see Annexure III for the list of Waterlogging projects reviewed) :⁶

- Removal of drainage congestion from beels/khals
- Excavation/re-excavation/dredging of rivers
- Rehabilitation of damaged embankments (e.g., CEP)
- Construction and reconstruction of structures, sluice/regulators,
- Flood control infrastructure development and irrigation projects
- Aquaculture and fisheries management (e.g., in Bhabodaha Area)
- Operation and maintenance activities (e.g., in KJDRP area)
- Drainage improvement activities (e.g., in Kobadak river basin)
- Drainage improvement of beels/polders (e.g., in Bhutiar Beel Project)
- Improvement of rural road, hat/bazar, bridge/culvert/Infrastructures
- Emergency 2007 cyclone recovery and restoration (e.g., ECRRP)
- Rural infrastructure development activities
- Roads/bridge/culvert/market/ghat and tree plantation activities
- Union infrastructure development activities
- Rehabilitation of Aila affected rural infrastructure (e.g., RAILA)
- Construction of bridges on upazila and union roads
- Greater Khulna/Jashore/Satkhira district Infrastructure development activities
- Rural employment and roads maintenance activities
- Development of public priority upazila road, bridge/culvert

⁵ Considering the study limitations including time and resource constraints (see Section 1.4), the evaluating results should be treated as indicative.

⁶ Some of the projects contribute directly to addressing waterlogging vulnerability whilst some help indirectly to build towards resilience. Even some of the implemented projects or activities might have caused further sufferings by worsening waterlogging situations (e.g., unplanned Gher operation).

- Maintenance of rural infrastructures, roads and culverts
- Southwestern rural development project (e.g., SWBRDP) .

Relevance (to waterlogging) Assessment Method

In absence of any methodology of expenditure review, an approximate method of quantification of relevance is adopted. The method involves assigning two sets of weights: one is a weight (% - degree of relevance with respect to waterlogging) to individual projects, considering type of projects/impact variables; and the other is a weight considering locations in or in the periphery of three study districts. The two sets of criteria are then combined to arrive at a single weight. The current assessment considers public allocations as proxy to actual public expenditures. Weightage are assigned to various degrees of relevance: “highly relevant”, “significantly relevant”, “somehow relevant”, and “implicitly or not so relevant” as presented in Table 4.1. In the process, a trend analysis of waterlogging related development expenditure and the budgeting process is also undertaken. The methodology is outlined in full in Annex III: Analytical Framework.

Table 4.1: Weights and scales used in relevance analysis

Scale	Relevance to (1) waterlogging and (2) 3 study districts	Combined weight (%)	Rationale of investment activities
1	Highly relevant	75 +	Highly (potentially) relevant investment - activity which is fundamental in the design of the activity, in terms of waterlogging impacts/variables and 3 study districts
2	Significantly relevant	50 <75	Potentially significantly relevant - in terms of waterlogging impacts/variables. and 3 districts and 3 study districts
3	Somehow relevant	25 <50	Indirectly relevant - in terms of waterlogging impacts/variables and 3 study districts
4	Implicitly relevant	0 <25	Implicitly relevant in terms of waterlogging impacts/variables and 3 study districts

4.3 Analysis of Waterlogging Budgets and Expenditure

4.3.1 Waterlogging Relevant Projects in ADPs

Under the ADP 5,390 distinct (non-overlapping) projects were financed by the government in the last 15 years upto FY 2015-16, the average being 359 implemented in each year (Table 4.2). This is the figure for number of distinct projects under study. It should be noted that projects under ADPs often are not different over the years and the total number of overlapping projects estimates as 17,261 over the last 15 years (Annex V, Table A1.1).

In the three study districts, there are 352 distinct projects implemented over the 15 financial year considered under the study, which is 6.5 percent of the total number of nationally-implemented projects (5,390). The number of projects, relevant directly or indirectly to waterlogging, in the three districts estimates as 135, the average number being 9 each year under ADP (Annexure III). In addition, 38 percent of the total number of projects implemented in the three districts (352) is found to be relevant to waterlogging in different scales.

In terms of fund allocations during 2001/02-2015/16, BDT 27,686 crores were spent on 352 projects in the three districts. This accounts for 5.3 percent of total ADP allocations (fifteen financial years), out of which BDT 4,107 crore (15 percent of total allocations) was spent on Waterlogging relevant projects (Table 4.2).

Table 4.2: ADP projects in Bangladesh and 3 districts, 2001/02-2015/16

ADP Projects	2001/02 - 2015/16		
	Total No.)*	Average(No.) *	Allocation (Crore BDT)
ADP projects (Entire Bangladesh)	5,390	359	520,669
ADP projects (3 districts)	352	23	27,686
WL related ADP projects (3 districts)	135	9	4,107

* Distinct projects (non-overlapping across years)

4.3.2 Waterlogging Relevant Projects in Three Districts

The distribution of waterlogging relevant projects across three districts shows that the district of Khulna has the highest number of projects (35.9%), followed by 34.3 percent in Jashore and 29.8 in Satkhira (Table 4.3 and Figure 4.1). Similarly, the distribution of ADP allocation across the three districts shows that district of Khulna has the highest allocations (37.1%), followed by 34.2 percent in Jashore and 28.7 in Satkhira (Table 4.3 and Figure 4.1). Considering all the three districts, it is noted that ADP funds to the 135 projects comprise almost entirely capital component (88%) while revenue component constitutes around 12 percent. However, project-aid component accounts for 55%-58% of the total budget in programmes. There is, however, no noticeable difference within funding, capital and revenue across districts.

Table 4.3: ADP Waterlogging relevant projects and allocation in three districts, 2001/02 – 2015/16

Districts	No. of WL relevant project		ADP WL relevant project allocation (Crore TK)		% of ADP WL relevant project Allocation		
	Total	%	Total	%	Capital	Revenue	Project Aid
Jashore	46	34.3	1404	34.2	89.0	11.0	55.6
Khulna	48	35.9	1524	37.1	88.8	11.2	55.4
Satkhira	41	29.8	1179	28.7	87.0	13.0	57.6
Total	135	100.0	4107	100.0	88.3	11.7	56.1

* Distinct projects (non-overlapping across years)

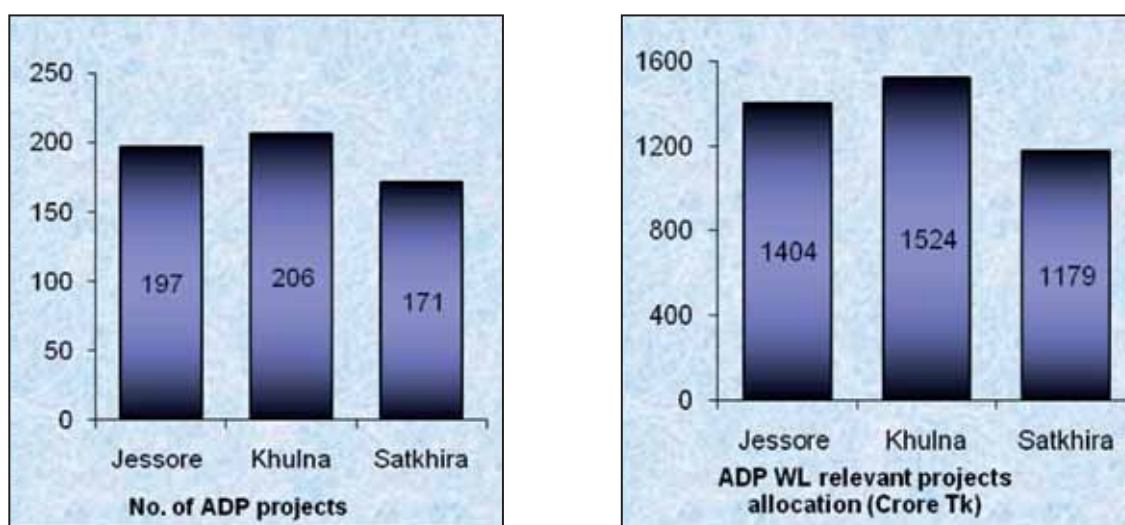


Figure 4.1: ADP waterlogging projects and allocation in three districts, FY 2001/02 – 2015/16

4.3.3 Waterlogging Relevance Analysis in ADPs – Indicative Financial Significance

Overall in the ADPs, in terms of number of projects, 58 percent of the projects are either highly or significantly relevant. The remaining 42 percent are either somehow or implicitly relevant (For year-wise and ministry-wise information, see relevance analysis in Annex V Tables A1.2 and A1.3). In terms of amount of allocation in three districts, 80 percent are found to be allocated to projects either highly or significantly relevant to waterlogging (Table 4.4; Figure 4.2). The remaining 20 percent are either somehow or implicitly relevant.

Table 4.4: Relevance assessment of ADP Waterlogging projects in terms of allocations

FY	Total allocations (Crore TK)	% of ADP WL relevant allocation by relevance				
		Highly	Significantly	Somewhat	Implicitly	All
2001 -02	214	39.5	41.7	17.8	1.0	100.0
2002 -03	224	48.5	33.3	17.3	0.8	100.0
2003 -04	147	32.2	34.4	31.4	1.9	100.0
2004 -05	182	23.2	47.7	27.8	1.3	100.0
2005 -06	299	47.1	29.8	22.5	0.6	100.0
2006 -07	347	62.8	18.5	18.3	0.5	100.0
2007 -08	189	25.1	37.1	36.4	1.4	100.0
2008 -09	196	7.0	61.8	29.8	1.5	100.0
2009 -10	236	9.1	73.9	15.1	1.9	100.0
2010 -11	182	22.3	59.5	18.1	0.0	100.0
2011 -12	230	20.3	63.1	12.3	4.4	100.0
2012 -13	267	14.5	62.2	12.6	10.8	100.0
2013 -14	390	24.4	55.9	14.0	5.7	100.0
2014 -15	448	42.2	45.5	11.7	0.5	100.0
2015 -16	556	29.8	60.8	8.5	0.9	100.0
All	4,107	31.6	48.7	17.4	2.2	100.0

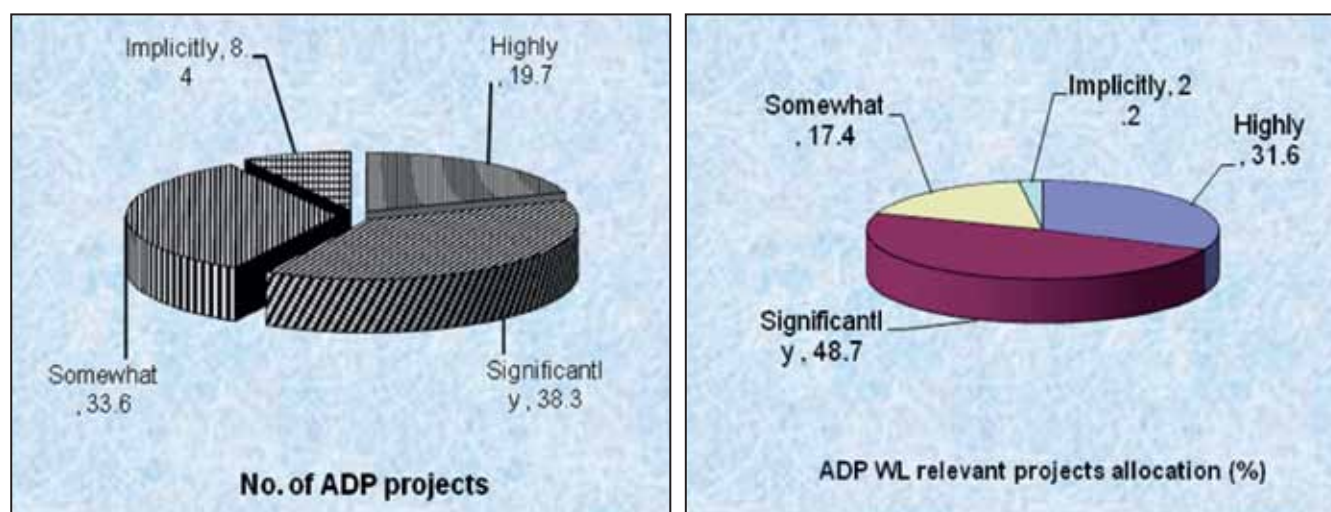


Figure 4.2: Relevance assessment of ADP Waterlogging projects

4.3.4 Relevance Analysis of Waterlogging Budgets Over Years

The overall ADP budget for waterlogging projects during the last 15 years is estimated BDT 4,107 crores (Table 4.5). The rate of growth in the ADP budget in 2015/16 over 2001/02 is estimated as 10.7 percent, which has exceeded inflation rate. Thus, there is a real growth in the budget for waterlogging projects in the three districts. There is, however, a noticeable difference in overall allocations of the ADP programmes with a waterlogging dimension within the ADP. For example, this varies in the range of BDT 214 crores in FY 2001/2 and BDT 556 crores in FY 2015/16 (Table 4.5).

Table 4.5: Waterlogging ADP allocation as % of development budget and GDP

Fiscal Year	WL ADP allocation (Crore TK.)	WL ADP allocation as % of development budget	WL ADP allocation as % of national GDP
2001 -02	214	1.40	0.08
2002 -03	224	1.37	0.07
2003 -04	147	0.80	0.04
2004 -05	182	0.94	0.05
2005 -06	299	1.47	0.07
2006 -07	347	1.71	0.07
2007 -08	189	0.91	0.03
2008 -09	196	0.90	0.03
2009 -10	236	0.87	0.03
2010 -11	182	0.54	0.02
Trend (%)	0.4	-6.7	-13.0
2011 -12	230	0.58	0.02
2012 -13	267	0.53	0.02
2013 -14	390	0.67	0.03
2014 -15	448	0.62	0.03
2015 -16	556	0.64	0.03
Trend (%)	22.8	3.5	12.2
ALL	4,107	0.73	0.03
Trend (%)	5.5	-6.6	-8.3

Over the 15 year-period, the annual trend rate of growth in allocations estimates as 5.5 percent (Figure 4.3 and Table 4.5). In the last 5 years, the trend rate of growth in allocations has been significantly high, 22.8 percent compared to only 0.4 percent in the first 10 years since FY 2001/02.

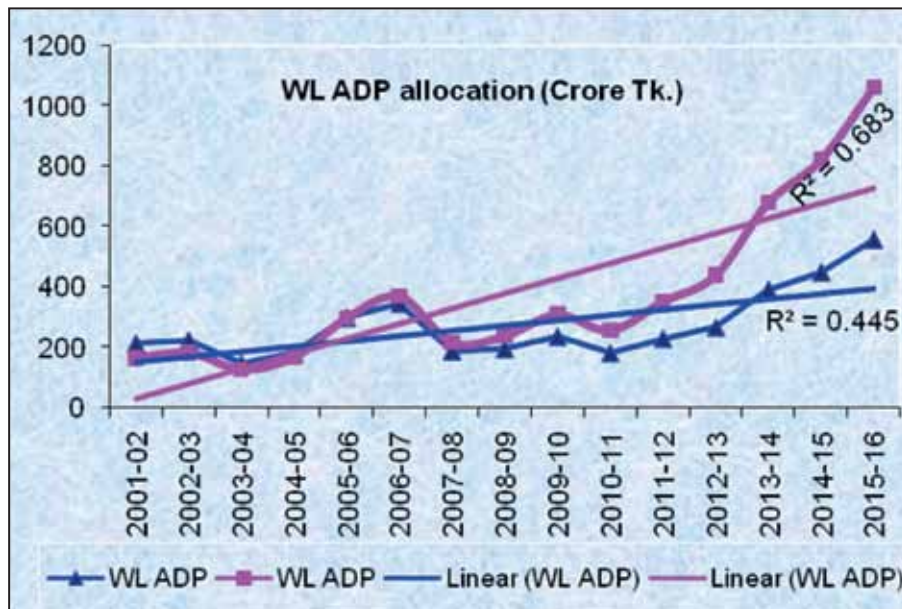


Figure 4.3: Waterlogging ADP allocation over years (current prices)

4.3.5 Waterlogging ADP Allocation and National Budget and GDP

Averaged over the last 15 years, Waterlogging ADP allocation in the three districts at current prices is estimated as less than one percent (0.73%) of development budget and only 0.03 percent of GDP (Table 4.5). During FY 2001/2 to FY 2010/11, the allocation as percentage of development budget shows a decreasing trend (-6.7%); later, it has an increasing trend during FY 2011/12 to FY 2015/16 (3.5%).

Overall, the allocation as percentage of development budget shows a declining trend over the entire period up to FY 2015/16 (-6.6%). Similar is the trend for allocation as percentage of GDP (Figure 4.4).

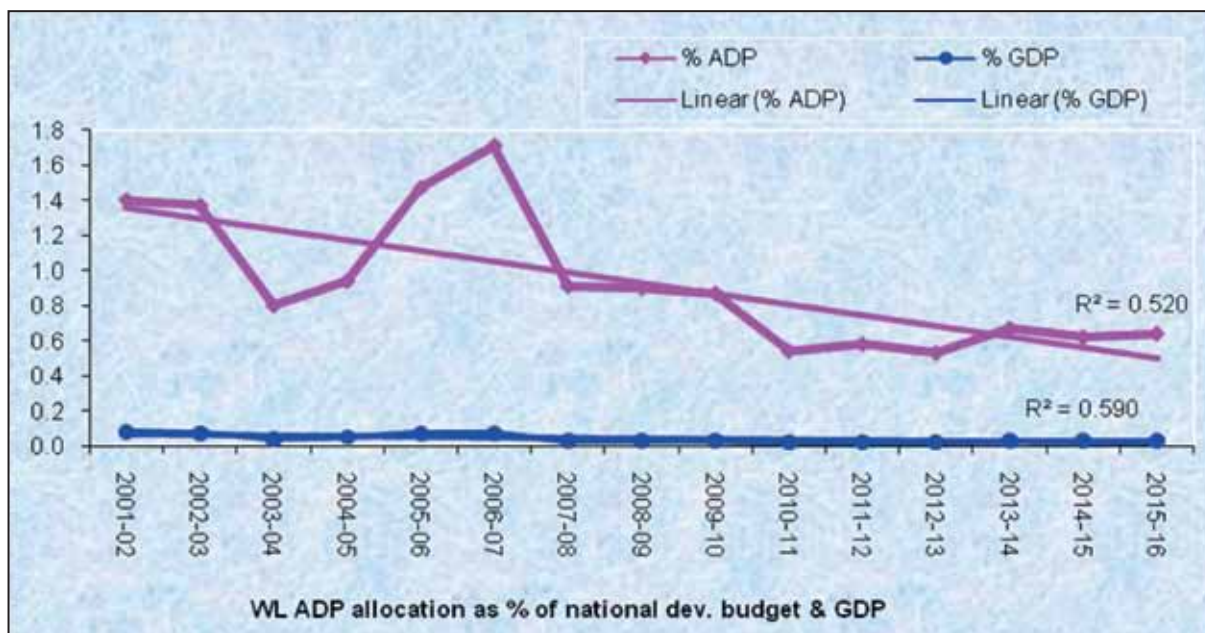


Figure 4.4: Waterlogging ADP allocation as % of development budget and GDP

4.3.6 Waterlogging Budget Implemented by Agencies

The Local Government and Engineering Department (LGED) and the Bangladesh Water Development Board (BWDB), the two key agencies in implementing waterlogging relevant projects, were implementing 44 and 33 per cent of the total ADP Waterlogging budgets, respectively (Table 4.6 and Figure 4.5). This amounts to more than three-fourths (76.2%) of the total resources spent by these two agencies in Waterlogging project activities.

Table 4.6: ADP Waterlogging project allocations by agencies

Agency	ADP allocation WL relevant (In Crore TK.)		% of total ADP allocation (TK) WL relevant		
	Total	%	Capital	Revenue	Project Aid
BWDB	1345	32.7	82.1	17.9	53.1
LGED	1785	43.5	94.0	6.0	58.0
DPHE	63	1.5	89.6	10.4	63.9
DDM	171	4.2	78.9	21.1	34.2
DoF	56	1.4	36.3	63.7	66.8
DAE	75	1.8	62.2	37.8	72.7
Others	612	14.9	93.7	6.3	69.9
All	4107	100.0	88.0	12.0	57.7

Notes: MoDMR acted as an agency to have directly implemented a few projects. For simplicity, projects implemented by the Ministry of Disaster Management and Relief (MoDMR), the Department of Disaster Management (DDM) and the Directorate of Relief and Rehabilitation (DRR) are merged under DDM. Projects implemented by WARPO are included under BWDB.

Notes: *Distinct projects (non-overlapping across years) The small number of projects implemented by the Water Resources Planning Organization are included under BWDB.

Those spending comparatively low level of resources are Department of Disaster Management (DDM) (4.2%), Department of Agricultural Extension (DAE) (1.8%), Department of Public Health Engineering (DPHE) (1.5%) and Department of Fisheries (DoF) (1.4%). This is illustrated in Figure 4.5 (See also Annex IV Tables A1.4 and A1.5). Similar pattern is observed for the number of Waterlogging relevant projects implemented by various agencies (Figure 4.6).

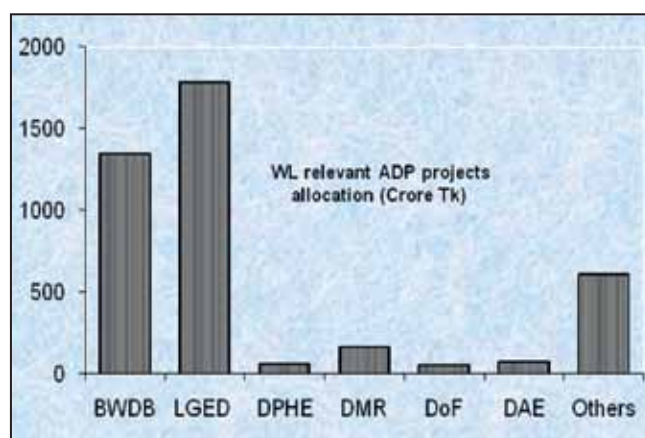


Figure 4.5: Waterlogging relevant ADP allocation by agencies, FY 2001/02 – FY 2015/16

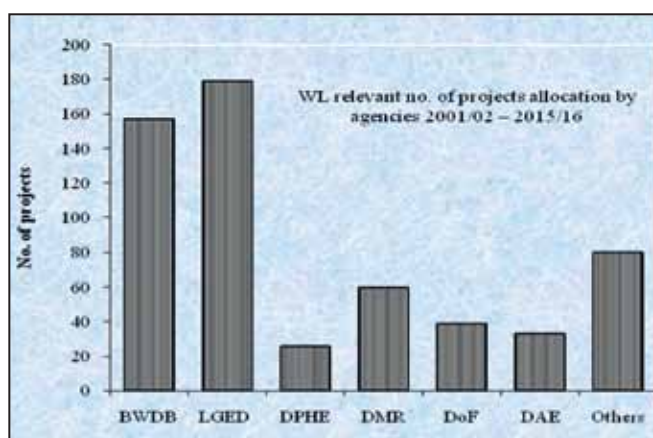


Figure 4.6: Waterlogging relevant number of projects by agencies, 2001/02-2015/16

4.3.7 Waterlogging Budget Implemented by Agencies by Budget Components

Keeping all other agencies aside, capital component budget as percentage of ADP allocation is the highest for LGED (94.0%), followed by DPHE (89.6%) and BWDB (82.1%) (Table 4.6). These are the agencies demanding for

comparatively low level of revenue resources in the total ADP Waterlogging budgets. Capital component in the ADP spending is much lower for DoF (36.3%), DAE (62.2%) and DDM (78.9%) which are using comparatively high revenue resources in the total Waterlogging budgets (Figure 4.7).

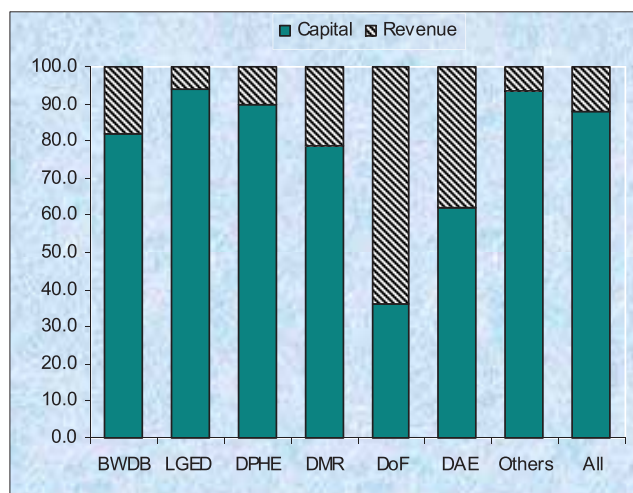


Figure 4.7: Waterlogging relevant ADP allocation by components by agencies

4.3.8 Waterlogging Budget Implemented by Ministries

The Ministries of LGRD & Cooperatives, Water Resources, Disaster Management & Relief, Fisheries and Livestock, and Agriculture are the five key ministries implementing waterlogging relevant projects, accounting for 34.8, 27.0, 10.5, 9.9, and 7 percent of the total number of ADP Waterlogging projects respectively (Table 4.7). In terms of allocations, the Ministries of LGRD & Cooperatives, Water Resources, Roads Transport and Bridges, Disaster Management and Relief and Agriculture are the five key ministries in implementing Waterlogging relevant projects, accounting for about 45, 32.7, 13.2, 4.2 and 2.0 percent of the total ADP Waterlogging budgets, respectively (Table 4.7). This is 97 percent of the total resources spent by these ministries in Waterlogging project activities. (See also Annex V, Table A1.6).

Table 4.7: ADP Waterlogging projects (allocation) by ministries by budget components, FY 2001/02 – 2015/16

Ministry	WL Projects		ADP Allocation (Crores BDT)		ADP Allocation (Crores BDT)		
	No *	%	Total	%	Capital	Revenue	Project Aid
LGRD & Co-operatives	200	34.8	1,848	45.0	1,734	114	1,076
Agriculture	40	7.0	82	2.0	48	34	60
Disaster Management & Relief	60	10.5	171	4.2	134	36	58
Environment and Forest	13	2.3	20	0.5	11	9	19
Fisheries and Livestock	57	9.9	78	1.9	40	38	42
Industries	9	1.6	3	0.1	1	2	0
Water Resources	155	27.0	1,345	32.7	1,104	241	714
Planning	8	1.4	16	0.4	1	14	15
Road Transport & Bridges	32	5.6	544	13.2	539	6	385
All	574	100.0	4,107	100.0	3,613	494	2,368

Notes: *Distinct projects (non-overlapping across years) The Ministry of Disaster Management & Relief includes projects implemented by the Ministry of Food.

4.3.9 Trend Analysis of ADP Waterlogging Projects

Trend analyses of ADP Waterlogging projects, in terms of allocations, for the selected agencies are carried out (Table 4.8). It is revealed that trend estimates for most of the agencies (during the 15 year period) are significantly increasing (Detailed results are shown in Annex V Tables A1.7 through A1.14).

Table 4.8 : Trend estimates of ADP Waterlogging project allocations by agencies

Agency	Annual trend (%)		
	Allocation	Capital	Revenue
BWDB	9.9	7.9	22.5
LGED	7.9	7.2	20.5
DPHE	-3.6	-5.2	6.2
DDM	27.2	25.6	28.5
DoF	11.9	2.1	35.0
DAE	12.5	9.9	15.9
Others	-18.0	-24.1	25.9
All	5.5	3.8	22.1

Notes: The Ministry of Disaster Management and Relief (MoDMR) acted as an agency to have directly implemented a few projects. For simplicity, projects implemented by The Ministry of Disaster Management and Relief (MoDMR), the Department of Disaster Management (DDM) and the Directorate of Relief and Rehabilitation (DRR) are merged under DDM. Projects implemented by Water Resources Planning Organization are included under BWDB.

The trend analysis shows the overall the allocations of Waterlogging projects have the tendency to increase over the 15 year period under study, at an average rate of 5.5 percent (Table 4.8). Keeping other agencies aside, the agencies showing an increasing trend in Waterlogging project allocation are: DDM (27.2%), DAE (12.5%), DoF (11.9%), BWDB (9.9%), and LGED (7.9%). With regard to capital component, the overall increasing trend is 3.8 percent. The DDM (which includes also MoDMR and DRR) experiences the highest trend growth, estimating as high as 25.6 percent and the lowest by DPHE, -5.2 percent. With regard to revenue component, all agencies show an increasing trend, the average annual trend being as high as 22.1 percent. The DoF experiences the highest trend growth, estimating as 35 percent and lowest by DPHE, 6.2 percent.

4.4 Disaster Management Fund & Evidence of Dedicated Funding

As evident from the above analysis, funding is pre-requisite for implementation of the risk reduction projects for waterlogging. Allocation under the ADP is the only funding source available to implement waterlogging related projects. This will continue to remain as a major source of required funding. In addition, the Government of Bangladesh has clearly created a specific funding to support disaster management in general.

4.4.1 Disaster Management Fund

The Disaster Management Act 2012 has made provisions for two separate funds to address disaster management:

(i) National Disaster Management Fund and (ii) District Disaster Management Fund.

These Funds receive money from following sources:

- (a) Grant allocations from both the Government
- (b) Grants/ Technical assistance received from development partner countries, agencies, organisation and UN organisations on permission from the Government
- (c) Grant from any national organisations

- (d) Grant from any respectable person locally
- (e) Any other government approved sources.

National Disaster Management Fund and District Disaster Management Fund are maintained in a scheduled government bank. The account of the National Disaster Management Fund will be operated under the Ministry of Disaster Management & Relief.

Operational procedures of both the National Disaster Management Fund and the District Disaster Management Fund are guided by a legal operational rules document. During the field visit, an enquiry was made on the funds. It was informed that an allocation of BDT 500,000 was received for the first time in 2015-16. However, due to procedural delays, the fund has remained unutilized in that year. In any case, allocation under the Disaster Management Fund is not adequate to finance required waterlogging related projects.

4.4.2 Some Evidence of Dedicated Funds for Specific Purposes

As mentioned above, to support disaster management, the GoB has instituted the Disaster Management Fund but it is perceived that the fund will be inadequate to support substantial investment needed to implement waterlogging related projects in a timely and continuous manner. Hence the need for establishing a dedicated fund has been voiced from many stakeholders at community, Upazila and district levels of all three districts. This has directed us to explore if there is any example of a specific purpose dedicated fund in Bangladesh. It transpired that there are few evidences for dedicated funding for specific purposes. These are reviewed here:

Bangladesh Climate Change Trust Fund and Bangladesh Climate Change Resilience Fund

To support the implementation of the Bangladesh Climate Change Strategy and Action Plan (2009), two funding mechanisms were established:

- i. The GoB has established the Bangladesh Climate Change Trust Fund (BCCTF) from its own resources. BCCTF is a block budgetary allocation in the form of an endowment by the Government. It has been established within the revenue budget. During FY 2009-10 to FY 2015-16 r, a total of BDT 3,000 crores were allocated for the BCCT Fund.
- ii. Development Partners and the World Bank, in coordination with the Government, established the Bangladesh Climate Change Resilience Fund (BCCRF) in May 2010 to enable the Government to channel over US\$188 million grant funds to millions of Bangladeshis to build their resilience against the effects of climate change. This funding, for many reasons, has proceeded beyond June 2016.

Primary Education Development Programme (PEDP) III

PEDP III is a programme based approach implemented by the Ministry of Primary and Mass Education (MoPME) where donors (a total of 10 Development Partners led by ADB) provide 18%-30% and GoB provides 70%-82% of finance through a matching mechanism. The goal is to provide quality education for all children of primary education. Money goes through a single account using the government treasury. Programme expenditure is reimbursed by donors – following a previously agreed expenditure profile. This expenditure includes both capital and recurrent spending, on an almost equal (50:50) basis. Donors undertook a Joint Financing Agreement with the government to pool their resources. The total cost of the revised programme is \$9.8 billion of which \$1.7 billion is being provided by development partners.

From discussions at various levels, the need for a similar dedicated fund to address waterlogging has been identified and established as a solution.

CHAPTER 5 : Institutions, Issues & Co-ordination

5 Institutions, Issues & Co-ordination

This institutional canvass is built on institutions operating both at national and local levels that attempt to address waterlogging in SWB. The canvass include:

Ministries: *Ministries of Planning, Finance, Water Resources, Local Government, Disaster Management & Relief, Agriculture, Fisheries & Livestock, Environment & Forests, Industries, Road Transport & Bridges.*

Government agencies: *Bangladesh Water Development Board (BWDB); Local Government Engineering Department (LGED); Department of Disaster Management (DDM), Department of Public Health Engineering (DPHE), Department of Agricultural Extension (DAE), Department of Fisheries (DoF), the relevant District administration.*

Local Government Institutions (LGIs): *relevant District, Upazila and Union Parishads.*

Administration at Upazila, District and Divisional levels

NGOs: *Shushilan, Uttaran, Agrogoti, Bhumij Foundation, Samadhan, Rupantar, Dhaka Ahsania Mission, BRAC, Grameen Bank, SUS and Paritran). In addition, there are programmes of international NGOs (Oxfam, Islamic Relief, ACF, Solidarities, Christian Aid, World Vision, etc.).*

UN agencies: *UNDP, FAO, WFP, UNICEF and others.*

Development Partners: *WB, ADB, bilateral partners etc.*

These institutions address one or multiple aspects of multi-dimensional features of waterlogging. In this chapter, roles and programmes of some of the ministries, agencies and local government institutions have been outlined to understand the existing complexity of the institutional canvass to resolve waterlogging issues.

5.1 Institutional Canvass

5.1.1 At National Level

As emerged from the budgetary analysis (Chapter 4), the Ministry of Local Government, Rural Development and Co-operatives; Ministry of Water Resources; Ministry of Disaster Management and Relief; Ministry of Fisheries and Livestock; Ministry of Agriculture are the five key ministries implementing waterlogging relevant projects, accounting for 34.8, 27.0, 10.5, 9.9, and 7 percent of the total number of waterlogging projects under the ADP, respectively. These five ministries along with the Ministries of Planning, Finance, and Land are considered as core ministries to address waterlogging. Also emerged from the budgetary analysis shown in Chapter 4, the LGED and the BWDB are the two key agencies for implementing waterlogging relevant projects, implementing 77 percent of the total ADP waterlogging budgets. Other active agencies are the Department of Disaster Management (DDM), the Department of Agricultural Extension (DAE) and the Department of Fisheries (DoF). These Government agencies are also considered as core agencies.

There are strong vertical linkages between agencies and their ministries to address waterlogging following sectoral approach. The identified eight ministries and five agencies, from budgetary analysis, are now considered as entry points to develop an integrated institutional structure promoting horizontal integration.

Brief Descriptions of the Core Ministries

The Ministry of Local Government, Rural Development & Cooperatives is responsible for the regional and rural policy, municipal and cities administration and finances, and the conduct of elections. It has two self-contained Divisions: Local Government and Rural Development & Co-operatives.

Local Government Division (LGD) aims to improve the standard of living of the people by strengthening local government systems and institutions and implement activities for social, economic and infrastructure development, including waterlogging related infrastructure. The LGD is very important from the point of view of good governance in as much as it facilitates the process of decentralization, people's participation, empowerment, better utilization of resources and many other attributes (Huda, 2001). Without suitable programmes for poverty alleviation and economic development will not be sustained in the long run

Rural Development and Co-operatives Division (RDCD) aims at to reduce poverty and improve socio-economic conditions of the rural poor people through rural development, co-operative based activities, development of co-operative based marketing system and continuous research on rural development.

The Ministry of Water Resources (MOWR) is the apex body for development and management of the water resources of the country. It formulates policies, plans, strategies, guidelines, instructions and acts, rules, regulations, etc. relating to the development and management of water resources, and regulation and control of the institutions reporting to it. It prepares and implements development projects relating to flood control and drainage (FCD); flood control, drainage and irrigation (FCDI); riverbank erosion control; delta development and land reclamation; etc. and provides irrigation, drainage, flood protection, bank erosion protection, land reclamation facilities by constructing barrages, regulators, sluices, canals, cross-dams, embankments and sea-dykes along the banks of the rivers and the coast etc.

The Ministry of Disaster Management and Relief (MoDMR) has been given the mandate to drive national risk reduction reform programmes. The Ministry is the main governing and supervising authority in any disaster related matters, issues and incidences. Hence, it is the focal point of all activities and initiatives at all stages of disaster risk reduction and emergency response management. Risk reduction from waterlogging is one of the programmes of this Ministry. The Ministry has enacted the Disaster Management Act in 2012 and adopted the Disaster Management Policy in 2015. Both these documents specifically provide policy directions to address waterlogging.

The Ministry of Fisheries & Livestock seeks to preserve fisheries resources, fulfil the requirement of animal protein through proper management and planned development, increase socio-economic conditions of fishermen, create employment opportunities for rural unemployed and landless people, expand foreign exchange earnings by exporting fish, livestock and poultry products and to innovate new technologies through research for fisheries development and preservation.

The Ministry of Agriculture (MoA) is one of the largest ministries of the Government of Bangladesh. The MoA seeks to achieve its objectives by directly supporting extension, agricultural research and supply of agricultural inputs and arranging other support services needed for agriculture. The MoA is endeavouring to identify appropriate best practices for waterlogged areas.

The Bangladesh Planning Commission is the central planning organization of the country. It determines objectives, goals and strategies of medium and short-term plans within the framework of long-term perspective and formulates policy measures for the achievement of planned goals and targets. Further details are presented in section 3.2 of this report.

The Ministry of Finance is responsible for state finance, including the state budget, taxation and economic policy in Bangladesh. It is led by the Finance Minister of Bangladesh. It contains four divisions: (i) Finance Division, (ii) Economic Relations Division, (iii) Internal Resources Division, and (iv) Bank and Financial Institutions Division. The Ministry of Finance can facilitate resource mobilization for programmes/projects related to waterlogging through external or internal sources and negotiate with development partners.

The Ministry of Land is responsible for all activities related to land. Some of the activities are operation and management of khas (government owned) land; land development tax and revenue collection; management of Jal Mahal (water bodies), land acquisition, land records and surveys; formulation of land laws and rules, land zoning, rehabilitation of landless communities and others. There are a number of Boards and Directorates work under this Ministry. The Commissioner at the divisional level, the Deputy Commissioners at the district level, the Assistant Commissioner (Land) at the Upazila level, and the Union Land Assistant Officer at the Union level work for the Ministry. Many of the activities of the Ministry of Land such as operation and management of Khas (government owned) Land, management of Jal Mahal (water bodies), land acquisition, land zoning etc. are highly relevant to address waterlogging.

Brief Descriptions of the Five core Agencies to Address Waterlogging

Local Government Engineering Department (LGED) is one of the largest public sector organizations in Bangladesh entrusted for planning and implementation of local level rural urban and small-scale water resources infrastructure development programmes. The broad objectives of LGED's development activities are to improve the socio-economic condition of the country through supply of infrastructures at local level and capacity building of the stakeholders. LGED promotes labour-based technology to create employment opportunity at local level and uses local materials in construction and maintenance to optimize the project implementation cost with preserving the desired quality. LGED works in a wide range of diversified programmes like construction of roads, bridges/ culverts and markets to social mobilization, empowerment and environmental protection.

The LGED consists of head office at Dhaka and three-tiered set up of local offices - regional, district and sub-district (upazila). The Chief Engineer heads the overall head office of LGED in Dhaka, and has Additional Chief Engineers – for maintenance, implementation, urban management, planning, and education. The major functions of LGED can be broadly categorized as follows:

- Rural infrastructure development
- Urban infrastructure development
- Small scale water resources development.

Other than the above, LGED is extensively involved with the rural infrastructure maintenance programmes throughout the country. With regard to local government, it is supporting training on local small scale water resources development and management at Union Parishad level- focusing on the enhancement of local production and employment and on participatory operation and maintenance through WMCA's (LGED, 2012).

Bangladesh Water Development Board (BWDB) is an autonomous organization under the Ministry of Water Resources. BWDB has had the responsibility for carrying out flood control, drainage and irrigation projects since 1959. A restructuring of BWDB took place in 1998, further consolidated by the BWDB Act (MoWR, 2000) with a greater focus on decentralization.

The BWDB mainly carries out two types of interventions - structural and non-structural. The former involves construction of water control structures, re-excavation/ de-siltation of water channels and removal of obstacles from the mouths of rivers for improvement of water flows or diversion of water for livelihood/ environmental up-gradation. Non-structural functions include flood and drought forecasting and warning, hydrological survey and investigation, development of forestry and fishery on land available around the BWDB's infrastructure and construction of roads on embankments in conjunction with relevant government agencies, for the preservation and improvement of the environment as well as the establishment and support to various types of Water Management Organisations (WMOs).

From its origins, most of the staff of BWDB are engineers by training. However, the 1990s experienced a push for decentralization in water management, and community participation; requiring BWDB to change its approach. At this point, BWDB began to engage more with water management organizations rather than the previously state-funded sluice 'gatekeepers' (khalashi's).

Under a Director General, with five Additional Directors General, BWDB divides the country into 9 zones on the basis of water resources. In addition, BWDB also has a Water Management Division to promote agricultural technology in project sites. They are mostly diploma graduates in agriculture assigned in the project sites whose principal responsibility is to organize local WMOs.

Department of Disaster Management (DDM) under the Ministry of Disaster Management and Relief was set up in November 2012 following enactment of the Disaster Management Act 2012. The Department has the mandate to implement the objectives of the Act by reducing the overall vulnerability from different types disasters. DDM is organized with different wings (Administration, Planning and Development, Food for Work, Relief, Monitoring and Information Management, Training and Research, Monitoring and Evaluation, and Vulnerable Group Feeding).

The DDM has been implementing social safety net, humanitarian assistance and risk reduction programmes/projects. The major activities involved with the programmes include building cyclone shelters, rural road construction, employment opportunity through food for work, bridge and culvert construction etc.

Department of Agriculture Extension (DAE) mission is to provide efficient and effective needs-based extension services to all categories of farmer, to enable them to optimize their use of resources, in order to promote sustainable agricultural and socio-economic development towards achieving food and nutrition security for the country. Clearly, water availability (including flooding and drainage) issues have a major bearing on the work of this key department.

The organization is unique in Bangladesh among the technical departments of the Government in having a network which reaches right down to union and even block level. DAE is headed by the Director General who is assisted by eight Directors (Field services, Horticulture, Training, Plant Protection, Plant quarantine, Horticulture, Crops, Planning and project implementation and Admin and finance wings). The director of Field Services Wing supervises the country wide network extension service. The extension service at the field level is organized with 14 regional offices headed by the Additional Directors, and each district office is headed by a Deputy Director.

Department of Fisheries (DoF) is under the Ministry of Fisheries and Livestock, is headed by a Director General, who is assisted by four Directors and two Principal Scientific Officers (equivalent to Director). There are over 1500 technical officers of different grades, and supporting staff within the DoF. Besides these, there are three Fish Inspection and Quality Control stations nationally under the DoF, one of which is located in Khulna. Furthermore, DoF also comprises of Marine Fisheries Station, Fisheries Training Academy, Fisheries Training and Extension Centers, and Fish Hatcheries.

5.1.2 At Local Level

In this study, local level is perceived as all institutions operating from Divisional to Union level.

Local Administration

The Commissioner is the executive head of the Division, an administrative unit of Bangladesh. The Commissioner is appointed by the government from a Joint Secretary of B.C.S. Administration Cadre.

The Deputy Commissioner (popularly abbreviated as DC) is the executive head of the district. Deputy Commissioner is appointed by the government from a Deputy Secretary of B.C.S. Administration Cadre.

The Upazila Nirbahi Officer (often abbreviated as UNO) is the chief executive of an upazila (sub-district) and a junior-level officer (senior assistant secretary) of the Bangladesh Civil Service (Administration Cadre).

Elected Institutions

The Jatiyo Sangsad, often referred to simply as the Sangsad is the supreme legislative body of Bangladesh. The current parliament of Bangladesh contains 350 seats, including 50 seats reserved for women, which are apportioned on elected party position in the parliament. Elected occupants are called Members of Parliament or MP. Under normal conditions, elections are called every five years. Members are elected by direct polls in their respective constituencies. MPs have profound influence in facilitating local development works including efforts to address waterlogging.

District Council: The District Councils are constituted through an election process. The 21-member district council are elected by all elected representatives of the district's local government bodies. It also paved the way for inclusion of Vice-Chairmen of the upazilas in the “electoral college”.

The functions of District Council include construction and maintenance of roads, and bridges, building hospitals, dispensaries, schools and other educational institutions, health facilities and sanitation, tube well for drinking water, rest houses and coordination of activities of Union Parishads within the District. In addition to grant from the government, the District Council is empowered to manage funds based on taxes, rates, fees, tolls, etc.

Upazila Parishad: The parishad is chaired by the elected Chairman of the upazila and Members are elected representatives. Responsibilities include preparation of five-year plan, coordination and supervision of development works that are transferred to the parishad by the public agencies, repair and maintenance of roads, implementation of irrigation schemes, awareness building about education, activities related to the development of agriculture and rural development, etc.

Union Parishad (UP): Union Parishads are the smallest rural administrative and local government units formed under the Local Government (Union Parishads) Act, 2009. A UP consists of a Chairman and 12 Members including 3-member positions exclusively reserved for women. There are 4,550 Unions in Bangladesh. Each Union is made up of nine Wards, covering one or more villages depending on population. A Union Council or Parishad is primarily responsible for agricultural, industrial and community development within the local jurisdiction of the union.

Major functions involves preparation of a comprehensive Union Plan and inclusion of inter-ward development projects after identification and prioritization, assist and cooperate for the development of primary schools, supervise their functioning and motivate people for spreading literacy, ensure provision of health services, arrange for supply of safe drinking water and promote sanitation programme, construction of inter-ward roads, maintenance of the same, management of small scale irrigation and water resources etc. The chairman and members work full-time and receive honorarium from the government. Every Union Parishad has a fund known as the Union Fund consisting of:

- Taxes, rates, fees and other charges levied by the Union Parishad under The Local Government (Union Parishads) Act 2009;
- Rents and profits payable or accruing to the Union Parishad from its own property;
- Money received by the Union Parishad in the performance of its functions;
- Money contributed by individuals or institutions or by any local authority; Receipts accruing from the trusts placed under the management of the Union Parishad;
- Grants made by the Government and other authorities.

Local Offices of Core Government Agencies

These are the offices that play key role in addressing waterlogging risk reduction efforts. These offices naturally have strong vertical linkages with their head offices (Figure 5.1). At local level, horizontal linkages are weak. Any effort to develop integrated planning has to done at this level. An institutional structure has to be found that will bind these local level offices to work cooperatively to address waterlogging issue.

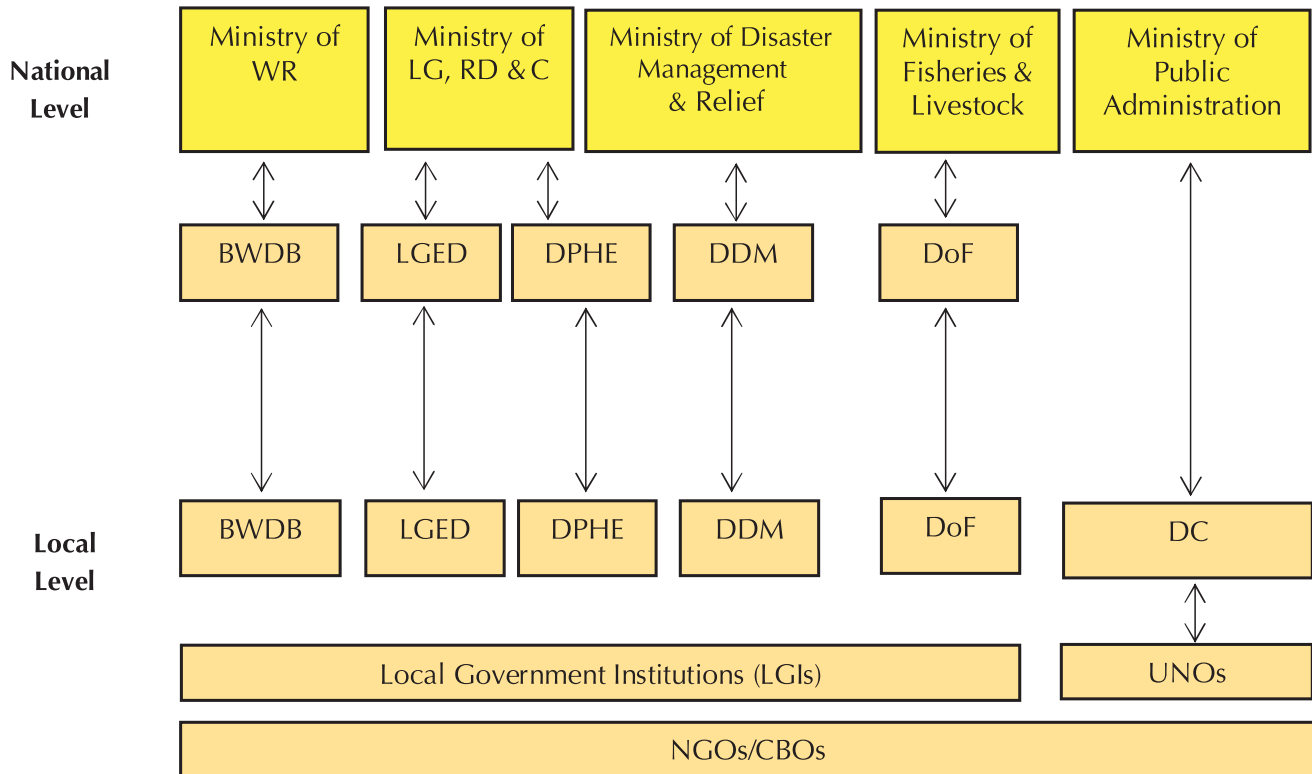


Figure 5.1 Waterlogging Risk Reduction Relevant Ministries and agencies and their present vertical linkages

Local Government Engineering Department (LGED) consists of a head office and three-tiered set up of local offices - regional, district and sub-district (upazila). Regional offices were created nationwide to monitor and supervise the activities of district offices. District offices are set up in each of the districts to supervise activities of the upazilas. An Executive Engineer, with 12-13 staff, heads each district office.

The upazila offices are each headed by an Upazila Engineer, with around 18 support staff. The district and upazila offices are principal agents for the planning and implementation of LGED projects. Decision-making authority regarding procurement, financial management, etc. below a certain value is largely delegated to them.

Over the last 15 years, LGED has implemented 179 projects and allocated/spent BDT 1785 crores in waterlogging related projects in three districts.

Bangladesh Water Development Board (BWDB) in SWB is under the Additional Director General of western Zone, which is divided into four further zones namely: north zone, south zone, northwestern zone and southwestern zone. A Chief Engineer is in charge of a zone. Each zone is divided into a number of circles. Southwestern zone is divided into four circles - Faridpur Circle, Khulna Circle, Kushtia Circle and Jashore Circle. A Superintendent Engineer is in charge of a circle.

In Khulna circle there are four further divisions: i) Khulna division-2, ii) Satkhira division-1, iii) Satkhira division-2, and iv) Bagerhat division. Each division is coordinated by an Executive Engineer, and comprise of a Deputy Chief Extension Officer, a Sub-Divisional Engineer, a Deputy Chief Economist, an extension overseer and support staff.

Over the last 15 years, BWDB has implemented 157 projects and allocated/spent BDT 1345 crores in waterlogging related projects in three districts.

Department of Disaster Management (DDM) has the mandate to implement the objectives of the Disaster Management Act 2012 by reducing the overall vulnerability of the population from different impacts of disasters by undertaking risk reduction activities; by increasing the efficiency of these activities, strengthening and coordinating programmes undertaken by various government and non-government organizations related to disaster risk reduction and emergency response. The Department is responsible for executing the directions and recommendations of the Government concerning disaster management, for advancing the national disaster management principles for implementing the national disaster management planning efforts and for implementing social safety net programmes to enhance the capacity poor and disadvantage through ensuring food security.

Over the last 15 years, DDM has implemented 60 projects and allocated/spent BDT 170 crores in waterlogging related projects in three districts.

Department of Agriculture Extension (DAE) is unique in Bangladesh among the technical departments of the Government in having a network which reaches right down to union level. The director of Field Services Wing supervises the country wide network extension service. The extension service at the field level is organized with 14 regional offices headed by the additional directors, and each district office is headed by one deputy director.

The Upazila Agriculture Officer heads the unit at the upazila level with three technical support staff; agriculture diploma graduates are posted at the union level, as Sub Assistant Agriculture Officers (SAAOs) – typically up to three per union. Much of agricultural extension work depends on project funding for operations in the field (logistics, inputs, other costs of demonstration and outreach activities). DAE also maintains one Agriculture Training Institute (ATI) in Daulatpur, Khulna for formal training in diploma in agriculture.

Over the last 15 years, DAE has implemented 33 projects and allocated/spent BDT 75 crores in waterlogging related projects in three districts.

Department of Fisheries (DoF) has field staff at division, district and upazila levels, headed respectively by a Deputy Director, a District Fisheries Officer and a Senior/Upazila Fisheries Officer.

DoF district offices maintain five technical staff within the study area. One of the major activities of DoF in the SWB is to popularize scientific cultivation of brackish water as well as fresh water shrimp and other fishes, and provide extension support for rice cum shrimp/fish culture in order to maximize farmer's profits from scarce land and water resources. Providing legal and administrative support to shrimp industry (and quality control measures) is another main activity of DoF in the south.

A Shrimp Culture Demonstration farm is located in Satkhira. There is a Demonstration farm cum training center at Kaliganj Upazila of Satkhira district supported by (a) a Regional Fisheries Officer (shrimp), (b) 2 Assistant Directors, (c) Farm Manager (d) a Hatchery Officer (e) 2 Assistant Farm Managers (e) 4 Field Assistants /Hatchery Assistants and number of office staff. There are four service centers (shrimp landing stations) constructed at Satkhira, Debhata, Kaliganj and Symnagar Upazila and rented out to frozen food factory owners for better post-harvest handling and pre-processing.

Over the last 15 years, DoF has implemented 39 projects and allocated/spent BDT 56 crores in waterlogging related projects in three districts.

Key NGOs

There are around 30 registered NGOs active in the SWB region. Key NGOs specifically working to resolve waterlogging are:

Uttaran based at Tala, Satkhira works across the coastal region of southwest Bangladesh. Work is focused on human rights, land rights and agrarian reform, sustainable water management, community-based river basin management, adaptation to climate change, sustainable agriculture and food security. Uttaran has published 32 publications including publications on waterlogging and water management. It has 831 full time and part time staff and 320 volunteers.

Shushilon, with headquarter in Khulna, works towards improving livelihoods of vulnerable communities with special attention to coast, riverbank, wetlands, and hill tracks. Improve education & health condition of vulnerable people, secure human rights and good governance. It is working in 1039 Unions, 197 Upazilas and 42 districts. Shushilon has completed 14 numbers of researches in the areas of its mandate. It maintains offices all over the country.

Islamic Relief, Bangladesh is an international NGO, started its operation in Bangladesh in April 1991. At present, 297 staff work across 30 districts. It works on Humanitarian Assistance and Early Recovery (HAER), Disaster Risk Reduction (DRR), Sustainable Livelihoods, Orphan and Child Welfare.

Jagorani Chakra Foundation (JCF), a Jashore based NGO works to improve the situation of poor communities. It works in 32 districts and 149 upazila in the country. This NGO is involved in humanitarian assistance, coping and preventions of waterlogging and have experiences, capacity and logistics.

Besides, one of the avenues to reach the local level in coastal Bangladesh is through the **Cyclone Preparedness Programme (CPP)**. It is a joint programme of the Bangladesh Government and the Bangladesh Red Crescent Society. The CPP is the sole organization which disseminates warning signals to the communities in the coastal area. It operates in 13 coastal districts; 37 upazilas; 322 unions and 3291 units. It has 49,365 volunteers (including 16,455 female). This programme is extremely effective during cyclone season.

5.2 Relevant Issues & Challenges for Disaster Management

Structure of Institutions and Governance Mechanism

The adoption of the Disaster Management Act 2012, subsequent Disaster Management Policy 2015 including the Disaster Management (Committee Formation & Functions) Rules in 2015 has, in principle, provided the needed governance and institutional structure to address disaster management in Bangladesh. However, the governance mechanism and institutional structure have been found inadequate to address waterlogging issue. This is despite the involvement of a large number of organisations in addressing waterlogging issue and also despite adequate budgetary provisions through many public agencies.

One reason for the lack of substantive progress may be that, each of the agencies tends to work only within its own area of competence. An explicit commonly shared analysis of the nature of this complex problem seems to be absent and the possible solutions which could properly accommodate the range of environmental, social and economic considerations needed to address waterlogging. While physical interventions are considered important, institutional bottleneck in addressing the problem is often overlooked. Several attempts were made to develop sustainable institutions to manage water-related infrastructure across the region, including such tasks as operating of sluice gates and conducting routine maintenance. The main issues and challenge can be further described as:

- First, public agencies and even NGOs work in silos. They implement infrastructural or non-infrastructural interventions as per their own expertise and mandates. They do not need to

integrate their works with other agencies although information sharing occurs sometimes. Regarding mandates, many agencies do the same work e.g. canal excavation. This is done by many agencies such as BWDB, LGED, DDM, BADC, LGIs and district administration. Canal excavation facilitates drainage and has direct relevance to risk reduction efforts for waterlogging. There is need for integration of activities by different agencies

- Second, as shown in chapter 4, there is an increasing budget provision for efforts to address waterlogging. However, outcome from these budget allocations is not fruitful resulting in persisting waterlogging in the region. One reason is that allocations are not continuous and sustained. Further, southwest Bangladesh is hydro-morphologically active and dynamic. Any non-continuous investment in this environment does not create long lasting impact. Hence, there is need for long-term continuous investment in the region
- Third a comprehensive, region-wise plan, linking upstream and downstream, to address waterlogging is absent. However, there exist a few local area plans, for example a plan around Bhabadhaha regulator. Furthermore, plans are executed with time gaps of 3-5 years. These plans become obsolete if implementation is not immediate in this dynamic hydro-morphological environment. It is known that climate change and sea level rise will have profound negative impact on waterlogging condition. There is a need for a comprehensive action plan considering the impacts of climate change. Implementation of this plan should be immediate and tied to an integrated institutional structure with adequate continuous budget allocations.

All the above three issues are key to address waterlogging in the region. In addition, the following issues and challenges of generic nature are also of crucial importance.

Responsibility of Addressing Waterlogging is Vested Among Many Ministries and Agencies

The responsibility for addressing waterlogging is vested among many ministries. Among key Ministries, only the MoWR is a dedicated water ministry; the other two, especially the MoLGRD&C and MoDMR, have multiple areas of accountability. Importantly, the number of individual entities under each ministry is large and diverse. The interests are similarly diverse and inter-ministerial coordination is a tough challenge. Competition for limited funding is substantial among Ministries. Consequently, waterlogging issues are managed more as an individual service in each entity rather than an integrated service for the region.

Agencies Generally Follow a Response Based Approach

For example, the BWDB, DDM and LGED continue to follow a response-based approach rather than seeking a long-term and sustainable solution to waterlogging. The effectiveness has been limited by continuous budget, limited human resources, limited number of development projects, insufficient maintenance budget and tools (i.e. modelling support, risk-informed planning, information system etc.), limited planning capacity and traditional performance and culture. Current management practices are also inflexible in dealing with the dynamic nature of the river system and adapting to climate change. This has increased the risk of waterlogging and undermined opportunities to safeguard economic development.

Capacity Constraints in Public Agencies

The implementation of the 2012 Disaster Management Act, subsequent Disaster Management Policy including the Standing Order on Disasters are still a long way to go. Capacity constraints exist in all public agencies. Additionally, DDM tend to work mostly in relief and rehabilitation. The coordination guidance for inter-ministerial institutions to work together is needed. This is an important challenge that needs to be addressed.

Community Participation in Waterlogging Management

A key lesson from water sector experiences is the importance of community participation in waterlogging management. Historically, Bangladesh has pursued a top down approach to address waterlogging with little community involvement. Participatory approaches inducted by agencies supporting these investments were simply add-ons with less sustainable gains. However, the SWB has a long history of community involvement to address waterlogging. Tidal River Management (TRM) is one of local innovation to address waterlogging. Therefore, local capacity needs to be nurtured and sustained.

Research and Knowledge Agenda

Research and knowledge agenda that are critical input for long term waterlogging management is not well organized in Bangladesh. The major research on waterlogging related issues are done by local universities or local NGOs. Technical institutes like CEGIS and IWM have long association to generate knowledge. Joint or interactive research that is critical to understand the impact of climate change on waterlogging, for example, is yet to come. Importantly, the concept of a knowledge bank is gradually developing. As a result, global research as well as local research done in the private sector including in universities on waterlogging are not well known or disseminated for policy use. Consequently, there is knowledge gap on vulnerabilities, challenges, institutions, outlook and solutions that remain unaddressed.

Gaps in Monitoring and Evaluation (M&E)

Without a well-developed monitoring and evaluation (M&E) system and a systematic approach to data collection, updating and research, waterlogging management will be impossible. This is a huge institutional gap in Bangladesh.

Co-ordinated Approach to Waterlogging Related Investments

Another area of concern is co-ordinated approach to related investments, setting investment priorities and arranging financing. Efforts will be needed to establish the priority in the limited resources, mobilizing appropriate resources and ensuring their best use in the context of the agreed Action Plan. Traditionally, line Ministries take the lead in advocating investment priorities and carrying those through the formal vetting process involving the Planning Commission and the Executive Committee of the National Economic Council (ECNEC). Non-development budget (non-investment financing) is provided by the Ministry of Finance on an annual basis based on a dialogue with the concerned line ministries. *De facto* though, the budget funding remains an annual feature with no carry overs, the sharp distinction between non-development and development budget prevails, and the allocation system for these two categories of spending remains substantially disjointed.

Public-Private Partnership

A final area of concern is the under-developed public-private partnership in addressing waterlogging investments. The government has an interest in developing private participation for increasing the total investment to boost growth. This will be needed from long-term perspective.

5.3 Evidence Base of Institutional Coordination Mechanisms

Following from wide institutional canvass and institutional issues in the previous sections, a brief narrative is provided in this section on evidences of existing institutional coordination mechanisms. Four different types of co-ordination mechanisms exist:

- i) Coordination of disaster related activities as described under the Disaster Management Act 2012 and subsequent Disaster Management (Committee Formation & Functions) Rules 2015.

- ii) Local level co-ordination setup to specifically address waterlogging.
- iii) Multi-agency working together model – CDSP model.
- iv) Dedicated institutions for specific purposes.

Lack of co-ordination among different stakeholders has been identified as the key impediment to effective approach to waterlogging risk reduction strategy. Hence, an attempt has been made to investigate further the existing institutional coordination mechanisms.

5.3.1 Co-ordination Bodies under the Disaster Management Act 2012 and Subsequent Disaster Management (Committee Formation & Functions) Rules 2015

At National Level

Under the Disaster Management Act 2012 and subsequent Disaster Management (Committee Formation & Functions) Rules 2015, there are nine national level bodies that act as national mechanism to provide policy guidance and co-ordination support in overall disaster management. This includes be seven National level disaster management committees, to fulfil the objectives of this Act. They are:

1. National Disaster Management Council. It is a 41-member apex body, wherein the Prime Minister is the Chairperson and Secretary, Cabinet Division the Member-Secretary, to provide guidelines to concerned authority and persons about formulation of policies and plans on disaster management and other related issues. The council meets at least once in a year.
2. National Disaster Response Co-ordination Group. This 13-member group, with the Minister of Food & Disaster Management as Chairperson, is to conduct the response programme well organized and effective during large scale disaster.
3. Inter-Ministerial Disaster Management Co-ordination Committee. It is a 33-member committee to facilitate policy making, planning, programming, implementing measures in disaster management. It will meet at least twice a year.
4. National Disaster Management Advisory Committee. It is a 47-member committee to advise on technical, socio-economic matters; meet at least twice a year.
5. Policy Committee of Cyclone Preparedness Programme. A 6-member committee is to provide policy directives and guidelines to the implementation board of CPP.
6. Cyclone Preparedness Programme Implementation Board. A 14-member body is to determine the content of the programme and supervise their implementation.
7. Earthquake Preparedness and Awareness Increase Committee. It is a 34-member committee whose main responsibility is to review national earthquake preparedness and awareness programme and recommend suggestions for concerned organizations.
8. National Platform for Disaster Risk Reduction. A 34-member committee to co-ordinate various stakeholders for interrelated social, economic and environmental risks and vulnerabilities.
9. Committee for Speedy Propagation of Disaster Warning message, strategy determination and implementation. A 11-member committee is to decide ways, methods and strategy required for publicity for disaster management.

All these bodies are to address all types of disasters, as identified in the Disaster Management Act 2012 except three, one to specifically address earthquake and two to address cyclone preparedness. There is no body to specifically address waterlogging.

At Local Level

To fulfil the objectives of the Disaster Management Act 2012, at local level following disaster management committee or, in case, Health Management Committee should be formed, such as:

- City Corporation Disaster Management Committee; a 14-member committee
- District Disaster Management Committee; a 52-member committee
- Upazila Disaster Management Committee; a 36-member committee
- Pourashava Disaster Management Committee; a 13-member committee
- Union Disaster Management Committee; a 23-member committee.

All these committees discharge responsibilities and play roles in risk reduction and emergency response and all phases of disasters – pre, during and post disasters. Detailed descriptions of roles and responsibilities, institutional structures are provided in the Disaster Management Act 2012 and the Disaster Management (Committee Formation & Functions) Rules 2015 ([http://www.ddm.gov.bd/.](http://www.ddm.gov.bd/))

5.3.2 Waterlogging Related Local Institutional Initiatives

Despite existence of disaster management committees at all tiers of the local government, the need for waterlogging specific bodies was felt. Both Government and community led setup exist to address waterlogging at specific locations for a set period.

Government Initiatives

Ministry of Water Resources, through an official order, dated 17 December 2014, has constituted Upazila Committee in relevant Upazilas to facilitate successful implementation of re-excavation of Kobadak river and TRM operation. The composition of the Upazila Committee is as:

1.	Hon'ble Member of Parliament	Chief Advisor
2.	Chairman, Upazila Parishad	Advisor
3.	Upazila Nirbahi Officer (UNO)	Chairperson
4.	Assistant Commissioner – Land	Member
5.	Thana Officer-in-Charge	Member
6.	Upazila Agricultural Officer	Member
7.	Upazila Engineer	Member
8.	Upazila Fisheries Officer	Member
9.	Representative Department of Environment	Member
10.	Representative of Commanding Officer, BGB	Member
11.	President Local Press Club	Member
12.	NGO representative (to be nominated by DC)	Member
13.	Two civil society representatives (to be nominated by DC)	Member
14.	Chairman, local Union Parishads	Member
15.	Sub-Divisional Engineer, BWDB	Member-Secretary

According to available information, this committee met occasionally. Under this Committee, Tala Upazila Committee constituted (vide a UNO Tala office circular dated 25 June 2015) sub-Committee to assist owners to receive compensation for TRM projects and to make public aware of the project. The Members are:

1.	Assistant Commissioner – Land	Convenor
2,	Representative of Executive Engineer, BWDB, Jashore	Member
3.	Chairman Union Parishad Kheshra /Jalalpur, Tala	Member
4.	Kanungo, Upazila Land Office, Tala	Member
5.	Mr. Hashem Ali Fakir, Member, Paani Committee, Uttaran, Tala	Member
6.	Ward members of relevant Union Parishad	Member
7.	Land Assistant Officer of relevant Unions, Tala	Member
8.	Mr. Sarder Rafiqul Islam, Ex Chairman, Jalalpur UP, Tala,	Member
9.	Mr. Sana Ayub Ali, Member, Dohar, Jalalpur, Tala	Member
10.	Mr. Md. Rabiul Islam (Mukti), Jalalpur, Tala	Member
11.	Mr. Tafez Morol, Balia, Kheshra, Tala	Member

Uttaran was given responsibility to develop plans, guidelines etc. to facilitate activities of this sub-committee. These Guidelines are still being finalised.

Community Initiatives

Paani Committee

It is a civil society organization in southwest Bangladesh being present in Khulna, Bagerhat, Satkhira and lower part of Jashore. The vision of this Committee is to conserve wetlands as well as environment of the coastal zone and thereby ensuring rights of citizens. This Committee had been a pioneer organisation and still vocal to raise the issue of waterlogging at various levels. They advocated for the concept of the TRM. They have written many booklets, brochures on waterlogging issue.

Association of Waterlogged Unions

In order to address waterlogging, an ‘Association of Waterlogged Unions’ was formed in 2004. All Union Parishads of affected water logged Union Parishads of three districts were members of the Association. This association worked as a lobby group to press for solutions to waterlogging. The Association remained active only till 2006-07.

Paani Nishkation (water drainage through pumping) Committee

This is a local initiative reported from Tala Upazila. This is a sub-committee of the Upazila Disaster Management Co-ordination Committee. Under the leadership of the UNO, Tala, the Committee organised 15 water pumps to drain water from water logged areas. Operational costs of these pumps were later recovered from ‘Gher’ owners of the area.

Coordination Committee for Resolving Bhabodaha Waterlogging in Dhaka

Purpose and activities of this co-ordination committee were not readily available. However, Mr. Modhusudan Mondal, BFUJ Treasurer, acts as the Convenor:

5.3.3 CDSP model: Model for ‘Working Together’

There exist only a few examples of different agencies working in an integrated manner. The ‘Char Development & Settlement Project (CDSP)’ in Noakhali region at its 20 years of existence and now at its phase IV, is a unique example of ‘working together’. At the national level, the project is based on agreements between the Government of Bangladesh, the Netherlands Government and the International Fund for agricultural development (IFAD). The sponsoring (umbrella) ministry is the Ministry of Water Resources, while six implementing agencies are:: Bangladesh Water Development Board (BWDB as lead implementing agency), Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE), Ministry of Land, Forestry Department and the Department of Agricultural Extension (DAE). This set up is supported by four local and national NGOs: Sagarika Samaj Unnayan Sanstha, Dwip Unnayan Sangstha, BRAC and Society for Development Initiative.

The BWDB is the lead agency and is responsible for the coordination at project level among the implementing agencies. In addition, the BWDB is responsible for the construction of all water management related infrastructure, like embankments, sluices, drainage khals, and the periodic maintenance of most structures. Finally, the BWDB is responsible for the formation, support and monitoring of the Water Management Organisations.

The construction of all the internal infrastructure such as rural roads, culverts, bridges, cyclone shelters, cluster villages, Union Parishad Complexes, rural markets and other structures are the responsibility of LGED. Additionally, LGED is charged with the periodic maintenance of the roads and many other structures.

The DPHE is responsible for public water supply and sanitation, mainly through the instalment of deep tube wells, rainwater collection ponds with sand filters, and production of rings and slabs for individual household latrines.

The DAE works on agricultural development including establishment of marketing mechanism of agricultural produce.

The MoL is responsible for all activities related to the process of land settlement of the population in the project areas and for the strengthening of the land settlement bureaucracy, including the computerisation of land management systems.

The Forest Department (FD) is responsible for roadside and embankment plantations, foreshore afforestation, killa and institutional plantations, and block and mangrove plantations.

The overall objectives, structure and contents of CDSP have been planned at the national level. In the preparations the Ministry of Water Resources and the implementing state agencies were closely involved. The Project Concept Paper was to a considerable extent based on contributions of those agencies. The leading principle was that planning should be done together, while implementation was left to each of the implementing agencies, with of course proper forms of consultation and coordination during the implementation.

According to Koen & Islam (2002), in its eight years of existence, the CDSP has proven that it is possible to bring together different levels of administration, different geographical administrative units and different sorts of units (bureaucratic, elected) into one programme of activities for a particular area. The principle of common planning and parallel implementation is a sound one, if proper coordination mechanisms are in place.

5.3.4 Evidence of Dedicated Institutions

Co-ordination is often advanced through establishing dedicated institutions created for specific purposes. Examples of coordination through institutions in Bangladesh are:

For integrated development of haor areas, Government of Bangladesh formed Haor Development Board by an

ordinance on 22nd February of 1977. It was abolished on 21st September 1982 by the then government. Later, this was revived in 2000 and at present it is known as the 'Department of Bangladesh Haor & Wetlands Development (DBHWD)'. The Department performs under the Bangladesh Haor & Water Bodies Development Board Act 2014. The DBHWD has prepared the 'Haor Master Plan' in 2012.

The major function of the DBHWD is to 'coordinate the integrated development of the haors and wetlands of Bangladesh among the ministries, agencies and local government bodies. The Department does not have implementation capacity on its own and the BWDB or other agencies implement the projects as deposit works.

The Barind Multipurpose Development Authority (BMDA) was created on 15 January 1992 to speed up the implementation of development projects of the Barind area under the Ministry of Agriculture. The part of greater Rajshahi, Dinajpur, Rangpur and Bogra District is geographically identified as Barind Tract. The hard red soil of these areas is very significant in comparison to that of the other parts of the country. The Development priorities of the Barind Area particularly concerning the development of Agriculture include: augmentation of surface water resources and its use, increasing irrigation facilities by using underground water through installation of Deep Tube Wells, formulate and implement command area development project creating water distribution system for irrigation and development of irrigation.

The BMDA was created with the commitment of self-financing that means all the O&M and maintenance cost including the salary of all officers and staffs will be maintained from the income of the authority. Total number of officers and staffs is around eleven hundred. Achievements in this aspect need to be reviewed.

The institutional set-up of the Chittagong Hill Tracts (CHT) is quite different and more complex than the other local setup of Bangladesh. There is a traditional system of tribal administration (Kingships of Chakma, Bomang and Maung). Following the CHT Peace Accord 1997, another parallel system for administration and development, that is, the Chittagong Hill Tracts Regional Council and three hill district councils (HDC), were established. A separate ministry, the Ministry of CHT Affairs, was also established. The CHT, RC and HDCs work under this Ministry. Following the establishment of the HDCs, 18 government departments and agencies were deputed under the HDCs as transferred subjects.

The Chittagong Hill Tracts Regional Council formally started its functions from 27 May 1999 as per Chittagong Hill Tracts Regional Council Act 1998. Functions of the Chittagong Hill Tracts Regional Council:

1. Overall supervision and co-ordination of all development activities under the Hill District Councils and all other matters entrusted to them.
2. Supervision and co-ordination of the local councils including municipalities.
3. Overall supervision and co-ordination of the Chittagong Hill Tracts Development Board set up under the Chittagong Hill Tracts Development Board Ordinance, 1976.
4. Supervision and co-ordination of the general administration of the hill districts, law and order and development.
5. Supervision and co-ordination of tribal traditions, practices etc. and social justice.
6. Issuing licenses for setting up heavy industries in hill districts in keeping with the National Industrial Policy.
7. To conduct disaster management and relief work and co-ordinating of NGO activities.

CHAPTER 6 : Study Findings, Recommendations & Implementation Time-frame

6 Study Findings, Recommendations & Implementation Time-frame

In this chapter, findings of the study are summarized. Based on the findings, key recommendations are made. Finally, a time-frame for implementation of recommendations is presented.

6.1 Study Findings

Study findings have been derived from facts, statements and analyses presented previously in chapters 2-5. Findings are presented in three sub-headings: general, expenditure and budget and institutional.

6.1.1 General

1. Eight Upazilas under three studied districts (i.e. Khulna, Jashore and Satkhira) are continuously being subjected to annual waterlogging. Affected Upazilas are Abhaynagar, Keshabpur, Manirampur, Kalaroa, Satkhira Sadar, Tala, Dumuria and Phultala. At least 25- 30 percent of these Upazila areas are usually waterlogged.
2. There is a clear indication of increased waterlogged areas in the SWB over the years. Several studies have indicated that waterlogging is expected to worsen with sea level rise. Soil and water salinity of the region is expected to increase. Present vulnerable communities will become more vulnerable. New areas will be waterlogged.
3. Ongoing works to address waterlogging include a series of engineering interventions including re-excavation of rivers and canals to improve the flow of drainage. These efforts have given mixed results.
4. Tidal River Management (TRM), a local innovation, has been found to be in harmony with nature and cost effective but has suffered from implementation problems.
5. Waterlogging has been identified as one of specific disasters under the Disaster Management Act 2012. Policies have been developed to address waterlogging in the Disaster Management Policy 2015.
6. The target of the Government of Bangladesh is to reduce waterlogged areas from existing 2.5 percent to 0.5 percent of the coastal area during the 7th Five Year Plan period. Under the Bangladesh Delta Plan 2100 (GED, 2018), the target is to reduce waterlogging vulnerable people from 0.9 to 0.2 million by 2020.
7. To support these targets, however, a systematic and comprehensive study covering the total waterlogged areas with linkage to upstream and downstream has not yet been initiated. Such a study is urgently needed.

6.1.2 Resource Allocations & Budgets

8. The overall ADP budget for waterlogging projects during the last 15 years, FY 2001/02-2015/16, is estimated as BDT 4,107 crores (\$494 million). This means that 15 percent of total ADP allocations is spent on waterlogging relevant projects.
9. Khulna District had the highest allocation (37.1 percent), followed by Jashore (34.2 percent) and Satkhira (28.7 percent). It is noted that ADP funds for programmes with waterlogging dimension comprise mostly capital component (88 percent), while revenue component constitutes only 12 percent. However, project-aid component accounts for as high as 56 percent of the total budget.
10. As regards the degree of project relevancy, as high as nearly 80.3 percent of allocations are on projects, either highly or significantly relevant to waterlogging.
11. The rate of growth in the waterlogging ADP budget in FY 2015-2016 over 2001-2002 is estimated as 10.7 percent, which has exceeded inflation rate. Thus, there is a real growth in the budget for waterlogging projects in the three districts.

12. Over the 15 year-period, the overall annual trend rate of growth in allocations in the three districts estimates as 5.5 percent.
13. The Local Government Engineering Department (LGED) and the Bangladesh Water Development Board (BWDB) are the two key agencies in implementing waterlogging relevant projects, accounting for 44 and 33 percent of the total ADP waterlogging budgets respectively.
14. Capital budget component as percentage of ADP allocation is the highest for LGED (94 percent), followed by DPHE (89.6 percent) and BWDB (82.1 percent).
15. The ADP waterlogging expenditure in the three districts has increased in real terms year on year since 2001-2002. This indicates that the Government is paying much emphasis in projects to address waterlogging
16. Though there is evidence of increased budget allocations exceeding the inflation rate, this is found to be inadequate to undertake projects/programmes in a systematic and comprehensive manner. Funding need is substantial.
17. Project specific allocations under the ADP are the only source to fund waterlogging related projects. Increased allocations under the Annual Budget will be emphasizing on.
18. The need for a dedicated fund has been established considering inadequacy from all the available sources of funding. The study explored modalities of some of the specific purpose dedicated funding: the Bangladesh Climate Change Trust Fund, the Bangladesh Climate Change Resilience Fund, and Funding for the Primary Education Development Programme III.
19. Currently the Government of Bangladesh, under the Disaster Management Act 2012, has made provisions for two separate funds to address disaster management, in general for all disasters:
 - o National Disaster Management Fund; and
 - o District Disaster Management Fund.

A total of BDT 5 lakh was allocated for a district under the District Disaster Management Fund in FY 2015-2016.

6.1.3 Institutional

20. Institutional canvass that attempt to address waterlogging include, ministries, government agencies, local government institutions, local administrative offices, NGOs, UN agencies and development partners.
21. The Ministries of LGRD & Cooperatives, Water Resources, Disaster Management & Relief, Fisheries and Livestock, and Agriculture are the five key ministries; at present, implementing waterlogging relevant projects. These five ministries along with the Ministries of Planning, Finance and Land are considered as core ministries to address waterlogging.
22. The Local Government and Engineering Department (LGED) and the Bangladesh Water Development Board (BWDB) are the two key agencies in implementing waterlogging relevant projects, implementing 77 percent of the total ADP waterlogging budgets. Other active agencies are the Department of Disaster Management (DDM), the Department of Agricultural Extension (DAE) and the Department of Fisheries (DoF). These five Government agencies are considered as core agencies.
23. These public agencies and even some NGOs work in silos meaning in their own area of expertise and mandates. Waterlogging problem being multi-dimensional in nature; can only be addressed following an integrated and holistic approach.
24. The adoption of the Disaster Management Act 2012, subsequent Disaster Management Policy and the Disaster Management (Committee Formation & Functions) Rules in 2015 has, in principle, provided the

needed governance and institutional structure to address disaster management in Bangladesh. However, the governance mechanism and institutional structure, though very effective in general, have been found inadequate to address waterlogging issue.

25. There are strong vertical linkages between agencies and their Ministries to address waterlogging following sectoral approach. Horizontal integration is found to be weak, especially at the local level in relevant districts and Upazilas.
26. Instruments to promote horizontal integration to address waterlogging at a regional scale have never been developed. A multi-layered and multisectoral institutional coordination framework both at the national and local level is seen as a needed instrument.
27. A comprehensive multisectoral and multi-agency action plan is also seen as another needed instrument. Implementation of this Action Plan has to be supported by continuous and sustained budgetary allocation, including consideration of a dedicated funding mechanism.
28. The SWB has a long history of community involvement to address waterlogging. Tidal River Management (TRM) is a locally developed concept. Paani Committee, Association of Waterlogged Unions, Paani Nishkation Committee and Coordination Committee for Resolving Bhabodaha Waterlogging are fine examples of community organizations. These local capacities need to be nurtured and sustained.
29. The need for declaring a separate zone with a single authority for addressing the development of waterlogged areas was voiced during regional workshops. The study explored workings of some of the specific purpose organisations: the Department of Bangladesh Haor Development Board, the Barind Multipurpose Development Authority, and the Chittagong Hill Tracts Regional Council.

6.2 Recommendations

Based on all the study findings, review of budgetary allocations, trends and provisions, institutional challenges, existing coordination setups in many sectors, one-to-one or group discussions with many stakeholders nationally and locally, through regional workshops at Satkhira and Khulna and with contributions from the inter-Ministerial Technical Advisory Committee members the following four recommendations are proposed for consideration:

A. Operationalization of the Disaster Management Fund, as Indicated in the Disaster Management Act 2012

Funding is necessary for risk reduction to waterlogging. Although the Disaster Management Act (2012) has made provisions for two separate funds (sec.19) according to available information, the District Disaster Management Fund became available only in FY 2016-2017. This Fund is for all kinds of disaster management activities and is supposed to operate through the District Disaster Management Coordination Committee. However due to procedural complexity, this fund at the district level remained unutilized in that year.

As previously indicated, the district or Upazila administration has organized funds on loan for emergency works to mitigate local waterlogging situation. Smooth operationalization of the Disaster Management Fund at least at the district level is needed and recommended for any emergency intervention. This can be achieved through a dialogue between relevant district/divisional administrations and the Department of Disaster Management.

B. A multi-layered & multi-sectoral coordination framework: two at the national level and two at the local level

The agenda to address waterlogging is essentially cross-sectoral and implementation arrangements involve multiple line ministries, local government institutions, communities and private sector. Clarity of role,

interdependence of actions and a co-ordinated approach are essential requirements of the institutional set up. The stakes are large and so are the resource requirements. Yet, resources are limited and there are competing demands.

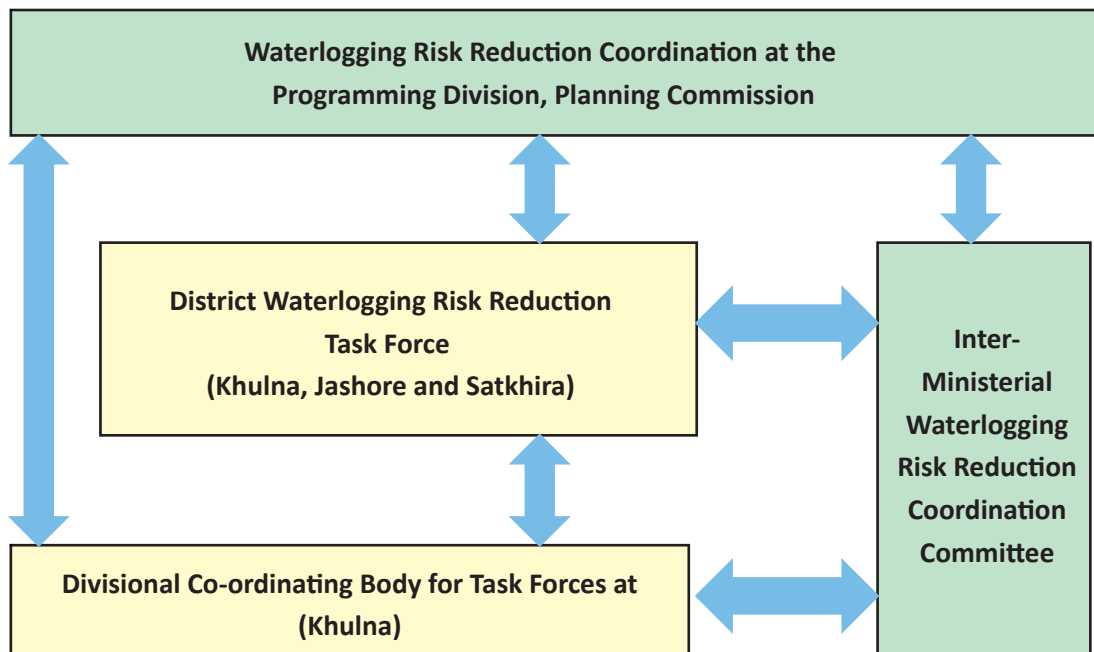
With the co-ordination of the Programming Division of the Planning Commission, it is recommended to establish the following setups:

National Level

- Waterlogging risk reduction co-ordination at the Programming Division, Planning Commission
- Inter-ministerial waterlogging risk reduction co-ordination committee.

Local Level

- District waterlogging risk reduction task forces at Khulna, Jashore and Satkhira
- Divisional co-ordination body for task forces at Khulna.



It is proposed to establish three District Waterlogging Risk Reduction Task Forces, each at Satkhira, Khulna and Jashore districts. These taskforces are considered as the main functioning setup to work at districts affected by waterlogging. The objective is to facilitate a co-ordinated response to reduce risk from waterlogging and promote horizontal integration among agencies.

To guide and resolve inter-district interventions among three Task Forces, it is proposed to establish a single Divisional Coordination Body for Task Forces at the Divisional level at Khulna.

At the national level, the Inter-Ministerial Waterlogging Risk Reduction Co-ordination Committee will function as a formal linkage for achieving political commitments regarding waterlogging risk reduction, providing directions and making decisions. It shall provide strategic and operational advices. Existing Technical Advisory Committee can be restructured to develop this co-ordination Committee. This Committee is proposed as a small but operational level forum. It would be chaired by the Chief, Programming Division, Bangladesh Planning Commission.

A co-ordination mechanism on waterlogging at the Programming Division of the Planning Commission is proposed as leading national integration/co-ordination point for all efforts for risk reduction to waterlogging. The Agriculture, Industries and Water Co-ordination Wing of the Programming Division will coordinate and provide secretarial service to the Inter-Ministerial Waterlogging Risk Reduction Co-ordination Committee.

All four institutional structures of the framework can be established through an office order from the Cabinet Division. Membership, tasks and responsibilities of each of these setups have been described in detail in Annex VI.

Of all the proposed setups, taskforces at the district level are considered as the key functioning setup. Both planning and budgeting functions to reduce waterlogging risk are initiated and finally co-ordinated at this level. The path to achieving the proposed structure needs to be delineated as this question was raised many times during the discussions.

- The proposed taskforces at the district level should essentially meet in December/January of each year, before projects/programmes are proposed and forwarded to head offices of respective agencies. During this meeting, each agency shares their planning for the coming financial year and thereby eliminate duplications, co-ordinate on focus areas and value added to their proposed projects
- The proposed taskforces at the district level should again meet in July/ August of each year, after national budget has been approved and agencies received funding allocations. During this meeting, each agency shares and discusses implementation of their allocated budget and logical sequencing of implementation to facilitate risk reduction to waterlogging.

C. Formulation of a Comprehensive Study & Action Plan to Facilitate Risk Reduction to Waterlogging

At present, risk reduction efforts to waterlogging are usually done on an ad hoc basis. Analytical studies were conducted in a few cases covering small areas. No comprehensive study covering the entire waterlogged areas linking upstream and downstream has ever been done. Often, study recommendations are implemented years later. By that time, deltaic southwest region becomes changed hydromorphologically and base data, collected years earlier, does not provide real on-ground picture.

Moreover, waterlogged areas are expected to be impacted by climate change and sea level rise. Hence the comprehensive study should cover hydrodynamic modelling, detailed area surveys, review of lessons learned from past interventions, prospects of TRM, socio-economic studies, environmental studies and study on impacts of climate change. Based on this study, it is recommended that there should be time bound comprehensive multisectoral and multidimensional Action Plan to reduce risks from waterlogging for now and for years to come. This Action Plan is a package of structural, nonstructural and institutional interventions, including provisions for the tidal river management (TRM). The Action Plan needs to be implemented immediately.

The district-level taskforces, as mentioned under (b), are needed to proactively participate in formulating the comprehensive study and developing the proposed Action Plan.

D. A dedicated Investment Fund to Implement the Action Plan

The Government of Bangladesh, as indicated in previous chapters, is regularly investing fund for waterlogging risk reduction projects. These have been channelled, as normally through implementing agencies. These investments were sectoral in nature and there was no integration of the purpose for investments. Development partners have also made substantial investments in waterlogging risk reduction projects.

The proposed 'Comprehensive Waterlogging Risk Reduction Study & Action Plan' is expected to identify an investment need. Hence, it is recommended to create a dedicated 'Waterlogging Risk Reduction Investment Fund'. The need and importance of a dedicated Investment Fund can be elaborated as:

- The dedicated investment fund will support implementation of the Action Plan, a package of structural, nonstructural and institutional interventions
- It is expected that the total investment need will be substantial. Current allocation through Annual Budget will be inadequate
- Disaster Management Fund, created under the Disaster Management Act 2012, is only adequate to meet emergency works. This cannot support implementation of the Action Plan
- The Dedicated Fund will ensure timely and immediate implementation of the Action Plan. Any delay in implementation of the Action Plan will render the Plan outdated considering dynamic hydromorphological nature of the area
- Timely implementation of the Action Plan, using the dedicated fund, will ensure timely achievement of the target to reduce waterlogged area and number of vulnerable population
- Timely implementation of the Action Plan, using the dedicated fund, will ensure speedy recovery and enhanced economic activities in waterlogged areas, providing further social and environmental benefits.

Funding to carry out the Comprehensive Study and implementation of the Action Plan can be sought from development partners. UNDP may take the lead to assist the Government in this effort. Development partners, who are active in the area such as ADB, WB, EKN, and DFID; should be approached to fund the comprehensive study and establish the dedicated fund.



Photo: Study Team, Planning Commission

6.3 Implementation Time Frame

The time frame to implement the recommendations are also proposed in this study.

Immediate Term (by the end of 2019)

- Establishment of a Coordination mechanism on waterlogging at the programming Division
- Formation of Inter-agency Task Forces called 'District Waterlogging Risk Reduction Task Force' at three districts
- Formation of a Divisional Coordination Body for Task Forces
- Formation of the Inter-Ministerial Waterlogging Risk Reduction Coordination Committee
- Operationalization of the Disaster Management Fund, as indicated in the Disaster Management Act 2012
- Preparatory works to initiate comprehensive study (e.g. identification of development partners, field missions, ToR, and Tendering).

Short Term (by the end of 2020)

- Completion of a comprehensive waterlogging risk reduction study and action plan considering impacts of sea level rise and climate change, based on hydrodynamic modelling of up and downstream river system.

Medium to Long Term (2021 – 2030)

- Establishment of an investment fund to facilitate implementation of the Action Plan jointly by the GoB and development partners to reduce the risk of waterlogging
- Continued implementation of the Action Plan
- Continued M&E of impacts at field level.



CHAPTER 7 : References

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Photo: Study Team, Planning Commission

ANNEX

ANNEX I Technical Advisory Committee

The Technical Advisory Committee (TAC), a multi-Ministerial setup, specifically constituted for this study. The TAC has met several times during the study period to contribute with their intellectual input, visited waterlogged sites in Jashore, Khulna and Satkhira, attended regional workshops and finally reviewed several versions of the draft report.

Name & Designation	Work Place
Chair	Mr. Md. Syeedul Haque, Chief, Programming Division Planning Commission
Member	Mr, Prashanta K. Chakraborty, Joint Chief, Programming Division Planning Commission
Member	Mr. Shamim Ahmed Khan, Joint Chief , SEI Division Planning Commission
Member	Mr. Swapon Kumar Ghosh, Joint Chief, Industries& Energy Division Planning Commission
Member	Mr. Montu Kumar Biswas ,Joint Chief, Ministry of Water Resources Bangladesh Secretariat
Member	Mr. Khandakar Ahsan Hossain, Joint Chief, General Economics Division Planning Commission
Member	Mr. Asraful Mosaddek, Joint Secretary, Rural Development and Co-operative Division, Bangladesh Secretariat
Member	Mr. Md.Sayeduzzaman, Joint Chief, Programming Division Planning Commission
Member	Mr. Md. Abdul Salam Khan, Deputy Chief, Agriculture, WR & Rural Institutions Division, Planning Commission
Member	Ms. Begum Naila Ahmed, Deputy Secretary, Ministry of Disaster Management and Relief, Bangladesh Secretariat
Member	Mr. Shamsur Rahman Khan, Deputy Secretary, Ministry of Environment, Forest and Climate Change, Bangladesh Secretariat
Member	Mr. Md. Mahmudur Rahman, Senior Assistant Chief Ministry of Agriculture, Bangladesh Secretariat
Member	Mr. Md. Anisul Islam, Project Director, Bangladesh Water Development Board
Member	Dr. Md. Aminul Haque, Principal Scientific Officer Water Resources Planning Organization (WARPO)
Member	Mr. Dinesh Sarkar, Assistant Chief, Programming Division Planning Commission
Member Secretary	Dr. Nurun Nahar, Deputy Chief, Programming Division Planning Commission

ANNEX II Study Methodologies/Approaches

Inception phase

Introductory Workshop: This workshop is proposed to meet with the Technical Advisory Committee and obtain a better understanding of the tasks required. This also provides opportunity to share initial ideas of the course of actions and expectations from the clients.

This workshop was held on 24 October 2016. A preliminary understanding of the tasks was presented. Members of the TAC commented on various aspects of the study. The workshop recognised availability of limited period for the study and instructed the team to focus on core issues.

Literature Review (meta review of existing evidence base) : Efforts will be made to review a large number of relevant background documents for the study including reports, scientific articles, workshop proceedings and booklets. The scientific articles studied included engineering, livelihood and ecological studies by academia.

Focus of the literature review will be reports, papers that have discussed institutional and financial aspects in general and in particular addressing waterlogging in southwest or elsewhere in Bangladesh.

Efforts will be made to collect national budget documents like ADPs, RADPs reports of project feasibility, performance, and monitoring of different investments in the region by national agencies or multilateral donors.

In order to understand risk informed planning, efforts will be made to collect papers that addresses impacts of climate change on Bangladesh and in particular impacts of climate change on waterlogging.

Efforts have already been initiated and an initial analysis has been presented in this Inception Report. The Study Team acknowledges availability of recent reviews by FAO and Joint UN Resilience Programme (WFP, UNDP, FAO).

Study Team also acknowledges the efforts of the Programming Division to make relevant ADPs available

These efforts continued throughout the study period.

Key Informant Interviews (KII): Information will be collected through discussions with key personnel at different Ministries, head offices of different agencies, knowledge institutions, UN agencies, development partners, NGOs and also from the local administration, government departments, business personnel, professional organizations, local NGOs, donor-funded project leaders, community and local service providers of various Government organization and private organizations. Issues to be discussed with them relates to institutional and budgetary issues to address waterlogging, strategies for adaptation to the problems, limitations of the implementing agencies, LGIs including Union Parishads.

The Study Team conducted KII with the Programming Division of the Planning Commission, Early Recovery Facility and Resilience & Inclusive Growth unit of the UNDP, Institute of Water Modelling and FAO, Bangladesh.

These efforts continued throughout the study period.

Presentation of the Inception Report: A presentation on the draft Inception Report will be made to the TAC

A TAC meeting was held on 31 October 2016 when a presentation of the Inception Report was made in presence, among others, Member, Programming Division and Assistant Country Director of the UNDP.

Constructive feedback were provided by members of the TAC and other participants in the meeting. The Inception Report was endorsed and approved pending incorporation of provided feedback.

A revised version of the approved Inception Report was submitted to the UNDP and the Programming Division of the Planning Commission.

Study Phase

Stakeholder Identification: An indicative list of possible stakeholders has been provided in the Inception report. It is recognised that stakeholders concerning institutional and financial issues may be different than stakeholders involved in addressing waterlogging issues in general. This will be developed from available literature and in consultation with clients.

Site Visits: Considering the extent of interactions with local level agencies at district level, LGIs, local communities and the limited time allocated for the work, the team plans to visit water logged areas (Khulna, Jashore and Satkhira) for a maximum of three times at different phases of the study. At the same time, the team will continue to interact with different stakeholders in the region, and in Dhaka, throughout the study period, to form the broadest possible picture of institutional and financial issues related to waterlogging.

Three site visits were made:

November 2-4: Khulna, Jashore & Satkhira

November 24-27 Jashore & Satkhira

December 21-24: Khulna, Jashore & Satkhira

Focus group discussion (FGD): A maximum of six FGDs will be organised mainly at local levels, with agencies, administration, LGIs and NGOs/CBOs/WMOs. Issues to be discussed will include, among others:

- Perception on roles and responsibilities of existing institutions
- Which institution (s) should be involved and lead in addressing waterlogging.
- Are available resources adequate to address waterlogging in the area.
- Is local/national level coordination necessary to integrate efforts of many agencies
- Is climate change a threat to waterlogging condition of the area. Are you aware of the risks involved?
- What improvements will you suggest in institutional coordination and resource mobilisation

Key Informant Interview (KII)

KII will be held with some of these multi-agency setups: Bangladesh Climate Change Trust (BCCT) Office under the Ministry of Environment & Forest, Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP) of the Programming Division within the Planning Commission; Char Development & Settlement Project (CDSP) under the Ministry of Water Resources.

Further local level coordination will be explored at divisional, district, LGIs and local agency levels to deliver projects and programmes. The Department of Disaster Management (DDM) also has institutional mechanisms in place at different levels of administration to manage disasters. Efforts will be made to analyse lessons learned from these set-ups, what can be replicated and what should be avoided.

Assessment of budgetary provisions in recent years to address waterlogging: Recent ADPs and RADPs will be collected and analysed to assess investments in water logged area to address waterlogging. Efforts will be made to assess needs and gaps in resource allocations. Investments through NGOs and/or international programmes will also be assessed.

With regard to the review of the Annual Development Programmes (ADPs), a 15-year time period (2001/02-2015/16) is considered suitable particularly because of time available for the study. A discussion with the Programming Division also suggests that given the time it is rather not feasible to undertake the analysis for any time period beyond 2001 largely because of unavailability of ADPs and relevant data, not to speak of the related DPPs. As of 11 November 2016, we have collected only the 15 ADPs – we are in the process of collecting the DPPs for all, or at least some of the selected 190 investment projects.

Assessment of resources/fund mobilization mechanisms: An assessment will be made to understand the mechanisms of resource/fund mobilizations and delivery in multi-agency programmes including contributions from the development partners. Many modes exist: own funding, single stream, multi-stream or basket funding. Modalities in BCCT Fund, BCCRF (now closed) and other funds need to be explored

Conceptual Models for coordination at national and local levels: Based on analytical assessments, an attempt will be made to develop conceptual model(s) for coordination at national and local levels. Efforts will be made to use models normally adopted in Bangladesh

Development of an outline of the proposed model for coordination at national and local levels: Based on conceptual models, an outline of the institutional structure and financing mechanisms, considering both horizontal and vertical linkages, will be proposed for discussion internally with the TAC and eventually with all relevant stakeholders. Results from activities described under study phase are now presented in this Draft Study Report and submitted.

Consolidation & Final Phase

The focus of this phase is consultation, brainstorming sessions to build up a consensus with an aim to reach to an agreed institutional structure and financing mechanism and develop recommendations for the way forward.

Regional Workshop at Satkhira (27 November 2016): Workshop was organized by DC Satkhira. Attended by relevant district level government offices, BWDB, LGED, DAE, DoF, DPHE, DoE, representatives of FAO and WFP, Union Parishad Chairmen, UNO Tala, NGOs, notable citizens of Satkhira and journalists. An introductory presentation was made by Uttaran regarding waterlogging issue. This was followed by a presentation from International consultant on waterlogging issues, results from the past, institutional stakeholders, need for integration and national and local level, an outline of local level institutional structure, need for fund for emergency works. Participants contributed in an hour-long open discussion. In general, participants supported the proposal of a district level task force on waterlogging but demanded the creation of an Authority. They also supported immediate start of comprehensive study on waterlogging.

Divisional Workshop at Khulna (8 April 2017): Workshop was organized by Divisional Commissioner, Khulna. Attended by DC Khulna, ADC Jashore, ADC Satkhira, relevant divisional and district level government offices, BWDB, LGED, DAE, DoF, DPHE, DoE, Department of Health, Bangladesh Police, Radio Bangladesh, representatives of Khulna University, FAO and WFP, Union Parishad Chairmen, UNO Tala, NGOs like Uttaran, Shushilon, Paani Committee, notable citizens of Khulna and journalists including President of the Khulna Press Club. After the formal and introductory opening from Commissioner Khulna, Chief Programming Division of the Planning Commission, DC Khulna, a presentation was made by the International consultant on waterlogging issues, results from the past, institutional stakeholders, need for integration and national and local level, an outline of local level institutional coordination framework, need for fund for emergency works. Participants contributed in a two hour-long open discussion. In general, participants supported the proposal of both divisional and district level committees on waterlogging. Participants contributed the following suggestions:

- Citizen's monitoring of all waterlogging related projects
- Emphasis on public consultation
- Need for a comprehensive study
- Increased funding allocations
- Simpler compensation mechanism
- Inclusion of the representative from the Department of Environment at the Divisional Body
- A definite plan for soil management for any excavation activity.

- Declaration of waterlogged areas as a separate zone
- Construction of Ganges barrage for better water flow management
- Adopt TRM as an adaptation mechanism for expected SLR.

Brainstorming sessions: A brainstorming session is a tool for generating as many ideas or solutions as possible to a problem or issue. Two to four brainstorming sessions are planned to discuss the proposed outline of the institutional structure and financing mechanisms, with relevant government agencies and with the Technical Advisory Committee (TAC).

Three brainstorming sessions were held to present and discuss the draft report and recommendations:

- Programming Division, Planning Commission and UNDP 15 December 2016
- Technical Advisory Committee, 22 March 2017
- District Commissioner Jashore & Satkhira, 24-27 November 2017,

Along the way the draft report and proposal for institutional coordination framework were further refined and revised as a process for consensus building.

Finalization of the Report: Draft Study Report will be further revised accommodating written feedback received from stakeholders and comments and contributions during brainstorming session. The Final Report has been submitted to the UNDP and the Programming Division of the Planning Commission for final approval

National Dissemination of the Report: Programming Division of Planning Commission and UNDP Bangladesh jointly organized a national level seminar on the joint study “Scoping of Integration of waterlogging risk reduction into planning and budgeting processes” on 29 January 2018 at the NEC Conference room.

The seminar was organized to disseminate the scoping study with a range of stakeholders both at national and local level. The study also proposes for better institutional coordination at national and local levels along with a mechanism for enhanced budgeting and resource mobilization. Speakers at the seminar stressed the importance on better coordination among the ministers and stakeholders to address the decade long problem of waterlogging.

Dr. Rafiqul Islam, Consultant, UNDP presented the key note paper while Mr. Md. Syeedul Haque, Chief, Programming Division, Planning Commission highlighted the importance of this seminar.

Mr. Muhammad Abdul Mannan, MP, State Minister Ministry of Finance and Ministry of Planning, addressing the seminar as the chief guest said, “Many programmes and projects have been undertaken to address many aspects of the waterlogging problem but it still exists in southwest. This study will help for better institutional coordination at national and local levels.”

Mr. Ziaul Islam, Secretary, Planning Division & Member, Programming Division, Planning Commission while chairing the seminar highlighted the technical support from UNDP to conduct the study which came with a set of recommendations to resolve the problem.

Among others Ms Kyoko Yokosuka, Deputy Country Director, UNDP; Mr. Arif Abdullah Khan, Programme Specialist, Disaster Resilience, UNDP; Mr. Proshanta Kumar Chakraborty Joint Chief, Programming Division, Planning Commission also discussed about the importance of collaboration and collective efforts to solve the problem.

ANNEX III Analytical Framework for Budget Analysis

This study component relates to conducting budgetary analysis, in order to explore scope of risk-informed planning and budgeting, for waterlogging crisis in southwest Bangladesh. More specifically, the objectives of this budgetary analysis are:

1. To review waterlogging projects in Annual Development Programme (ADP) and their allocations in three districts of southwest Bangladesh ;
2. To identify the scale and trends of ADP allocations on waterlogging activities ;⁷
3. To understand allocation patterns of waterlogging sensitive spending by the central government and other agencies; and
4. To review budget process and procedures.

The analysis is based on secondary sources apart from generating some primary information through key informant interviews (KIIs) and focus group discussions (FGDs) to help supplement what would be achieved from the secondary sources. The analytical framework for budget analysis is as follows:

A. Literature Review

It is important to first conduct a review of relevant background documents for the study including local level documentations, reports, articles and workshop proceedings. The documents include issues covering engineering, livelihood, ecological and socio-economic aspects of the complex problem of waterlogging in three districts of southwest Bangladesh, namely Khulna, Jashore and Satkhira.

B. Expenditure Review of Projects/Programmes in ADPs with a Waterlogging Dimension– Relevance Analysis

Methodology

Currently, there are multiple stakeholders and government agencies working in the districts, affected by waterlogging. With different development projects and programmes, different ministries are involved in the development of the area-based programming, implicitly or explicitly.

Thus, one of the major activities is to critically review the projects under Annual Development Programme (ADPs) with a waterlogging dimension for a few years and categorize them according to expenditure (see Annexure I for the list of Waterlogging projects under review).

This will be based largely on expenditure review methodology of “Relevance Analysis” through use of relevant DPPs (GED 2012). According to ready availability of relevant ADPs and DPPs, the analysis covers a time period: 2001/02-2015/16, based on their ADP allocations (considered as a proxy to actual investment).

It is, however, recognized that there is no agreed methodology for assessing the exact share of activity and expenditure within programmes that contribute to addressing waterlogging problems, for example. This is particularly true given the complex linkages within development as there is a wide range of ministries and agencies delivering a wide range of project activities relating to water management in general and waterlogging in particular. Some of the projects contribute directly to addressing waterlogging vulnerability, whilst others help indirectly to achieve outcomes that build towards resilience in terms of waterlogging. Even some of the implemented projects or activities might have caused further sufferings by worsening waterlogging situations (e.g., unplanned ‘Gher’ operation).

⁷ One may note that allocations under ADPs throughout this report represent those of Revised Annual Development Programmes (RADPs) for each relevant year.

Expenditures on waterlogging are, by definition, focused on activities dealing with the impacts and consequences arising out of the situation. These impacts and consequences broadly comprise categories, direct and indirect, tangible and intangible, short and long run. For example, direct impact activities refer to physical activities with usually “visible” effects (e.g., expenditures to sluice gates, polders, bridges and culverts) to protect from adverse impacts; and indirect expenditure may include: spending on consequences of waterlogging (e.g., SSNPs and livelihoods). Indirect activities can again involve those with both short and long run effects.

Thus, a programme with a waterlogging dimension does not necessarily indicate that all of the resources in that programme are of direct relevance. Also, a programme or a project with a waterlogging dimension does not necessarily indicate that all of the resources in that programme/project are spent entirely in the three study districts. For example, a waterlogging related project implemented in the entire southwest region or entire coastal region would have partial allocation and expenditure relevant to the three study districts. Accordingly, a further analysis needs to be conducted, based on two sets of “relevance” criteria. Each “relevance” criteria has thus two dimensions: one is related to waterlogging and the other related to the three districts under study. Each programme identified is evaluated against combination of the two sets of such criteria.⁸

Hence, expenditure review is carried out through undertaking “Relevance Analysis.” An approximate quantification of expenditure, often using with qualitative judgments based on expert knowledge as well as a review of a few selected development project proposals (DPPs), as available, within each programme, is apportioned and a weighted average for each “band of relevance” is calculated. Each public programme identified is evaluated against some criteria, which are described as follows:

Technically, waterlogging refers to a situation when the level of ground water meets plants’ root zone (FAO 2015). In some localities, this may last for at least three months, and may prolong up to 8-9 months or even become perennial. The depth of flooding varies, according to the topography of the area, and can reach up to 3m. Soils become highly reduced due to changes in physio-chemical properties, thereby supporting certain land use only.

Relevance (to waterlogging) assessment method

In the absence of any methodology of expenditure review, an approximate method of quantification of relevance is adopted. The method involves assigning two sets of weights: one is a weight (% - degree of relevance with respect to waterlogging) to individual projects, considering type of projects/impact variables; and the other is a weight, considering locations in or in the periphery of three study districts. The two sets of criteria are then combined to arrive at a single weight. The current assessment considers public allocations as proxy to actual public expenditures.

There is a wide range of project activities. Each of the project activities has separate investment allocation as available in relevant DPPs. Some of the activities are directly water relevant. Some projects (e.g., drainage, drought, irrigation etc.) are water–logging related, either “highly relevant” or “significantly relevant,” depending on locations or climate/waterlogging impact/vulnerability factors. Expert judgment is combined with the above criteria, particularly in assigning degree of within relevance/vulnerability ranges (Table A.1). Results are cross checked, where feasible, by examining project activities elaborated in relevant DPPs.

⁸ One may note that the results from these analyses are indicative.

Weights/Scales

Weights are assigned to various degrees of relevance: “highly relevant”, “significantly relevant”, “somewhat relevant,” “implicitly or not so relevant,” and “not relevant.” Table A.1 shows five weights and scales that are used in the analysis.

Table A1: Weights and scales used in relevance analysis

Scale	Relevance to (1) waterlogging and (2) 3 study districts	Combined weight (%)	Rationale/Sample examples of investment activities
1	Highly relevant	75 +	<p><u>Highly (potentially) relevant investment</u> - activity which is fundamental in the design of the activity, in terms of waterlogging impacts/variables, and also relevant to 3 districts.</p> <ul style="list-style-type: none"> - Efforts for removing waterlogging - Dredging, re-excavation, construction, - New sea- and interior- dykes, polders, hydraulic structures, sluices - River trainings, slope/bank protection/protective works - Rehabilitation programme for Aila affected areas - Risk sharing and risk transfer - Saline soil and saline water tolerant crops - Floating cultivations
2	Significantly relevant	50 <75	<p><u>Potentially significantly relevant</u> - in terms of waterlogging impacts/variables</p> <ul style="list-style-type: none"> - Roads, culverts/bridges construction - Building resilience (roads/homestead raising) - Livelihood improvement, supply of clean water, PSF - Innovation of new crop varieties
3	Somewhat relevant	25 <50	<p><u>Indirectly relevant</u> - in terms of waterlogging impacts/variables</p> <ul style="list-style-type: none"> - Rehabilitation of embankments, polders, water and sanitation - O&M, emergency measures, training and research, capacity/resilience building (droughts, flooding, tidal surges) - Causeway, embankments - Irrigation facilities/efficiency - Efforts towards combating CC - Vulnerable Group Development Programmes - Modernization of facilities to increase agri productivity, crop diversification - -SSNPs
4	Implicitly relevant	0 <25	<p><u>Implicit relevance</u></p> <ul style="list-style-type: none"> - Emergency disaster damage rehabilitation - CC adaptation/mitigation activities - Forestation activities - Other implicitly relevant activities
5	Not relevant	0	<p><u>Not related to waterlogging/causes/impacts</u></p> <ul style="list-style-type: none"> - construction of a office building, for example

In the process, a distribution of water (investment) projects for ADPs by three districts is prepared to understand the relative investments profile of the relevant districts. Additionally, a critical analysis of the existing investments and approaches of addressing waterlogging, namely Dredging, Tidal River Management (TRM) (with their limitations and long term impacts), is undertaken. In the process, a trend analysis of waterlogging related development expenditure is carried out. An analysis on the budgeting process is also undertaken.

C. Primary Data Collection

The main purpose of primary data collection is to help supplement what is achieved from secondary sources. The primary data collection will largely involve focus group discussions (FGDs) and key informant interviews (KIIs). The persistent waterlogging in the southwest region is a problem caused by multiple factors. The major research question, thus, is related to immediate and root causes, and impact of waterlogging including various strategies in coping with the complex problems, and impact of CC on waterlogging. Information is collected from the key personnel such as local administration, government departments, social elite groups, donor-funded personnel and politicians. The main issues to be discussed with them cover as to how best to address the problem of waterlogging and limitations of the implementing agencies, particularly on technical, political, social and management issues. Field observations are also likely to supplement information towards working out an appropriate institutional arrangement for addressing waterlogging crisis in the districts under study.⁹

Considering the magnitude of the waterlogging problems, the FGDs and KIIs are conducted in the following areas

1. Sadar and Tala upazilas of Satkhira district
2. Abhaynagar, Munirampur and Keshabpur upazilas of Jashore district
3. Dumuria and Fultala upazilas of Khulna district

Farmers, fishermen and other professions (in homogeneous and heterogeneous groups) are under investigations. It is important to include 'Gher' operators in the investigations. In terms of different strategies adopted, one can consider of three categories: Risk-informed, Risk-neutral and Risk-blind ones. The strategies, particularly adapted by housing, crop agriculture, fishery (open water and aquaculture), livestock, small enterprises and so on are the focus of investigation.

D. Checklist on budget Issues in Addressing Waterlogging (FGDs/KIIs)

District level Accounting and Budgeting System

- Is the system in action? The experiences, so far?
- Existing accounting system- practices-operational problems
- Coordination gaps/remedies
- Future upcoming changes in the system
- Suggested changes for better effectiveness.

District Budget: budget allocation, priorities, participation issue

- Is district going for an integrated public budget? Done or will be done? Features? Problems/gaps?
- How the allocation takes place? Needs and priority issues
- How widely this budget is participated by the stakeholders.

⁹ Assistance provided by Mr Goutam Mondal, Executive Director, Human, Environment and Livelihood Promotion Society(HELPS), during the field survey is highly appreciated.

Disaster Management Policy

District level Development Fund: practice, experience, issues.

- How development funds are allocated and used? Limitations. Way forward
- Experience in using similar funds at the local levels.

District Level Disaster Management Fund

- What are the district level disaster management funds available?
- Whether the funds are being used effectively?
- How much operational they are? Limitations/ Suggestions -Way forward?

District/Upazila Level Committees/

Development Committees, Disaster Management and Other Committees

- How much effective in playing roles? Issues of coordination, transparency and accountability?
- Are meetings of these committees held regularly?
- Present complexities, bottlenecks in coordination and action
- Way forward for better effectiveness.

Stakeholder Interactions

The persistent waterlogging crisis and management demands a multi-sectoral and multi-layered approach for its solution. So, it is important to interact with major stakeholders in the region, according to a list of stakeholders (prepared in advance), with relevant experience on the issues to be addressed.

Stocktaking of lessons and knowledge from different development partners and government initiatives is important. So, extended visits are made to the areas across three districts to conduct meetings with various stakeholders to share ideas about the study, and to obtain information on the intensity of waterlogging and strategies adopted in the areas. Relevant local administration will include officers such as Deputy Commissioners, Upazila Nirbahi Officers and other government officials including officers of the department of agricultural extension, fisheries, livestock, social welfare and women affairs. Visits will also made to such organizations as BWDB, LGED, Blue Gold (Dutch-funded project) and NGOs to capture information and lessons on institutional aspects. This will give ideas of how good are the institutions currently working to address the complex problems of waterlogging in the areas.

All these data/analyses above are used by research team to help identify an institutional arrangement that can be better suited to address the complex problem of waterlogging in southwest Bangladesh.

List of WL Projects under Review

SLN	Project Title
1	Jessore-Khulna Drainage Rehabilitation Project (1/7/93 - 31/12/2003)
2	KopotakkhaRiver Re-excavation Project (1/7/2000 - 30/06/2006)
3	Mitigation of Drainage Congestion of Polder nos. 1& 2 under Coastal Embankment Project in Satkhira District (1/7/2005-30/6/2009)
4	Removal of Drainage Congestion from the Beels Adjacent to Bhabodaha Area Under Jessore District (1st Revised) (1/7/06-30/6/2015)
5	Removal of Drainage Congestion from the KobadakRiver Basin (Phase-2) (01/07/2011-30/06/2015)
6	Rehabilitation of Bhutiar Beel and Barnal-Salimpur-Kulabashukhali Flood control and Dranage Project in Khulna Districts (2nd Phase) (01/10/2013-30/06/2018)
7	South West Flood Damage Rehabilitation Project (Part-D) (1/7/2000-30/6/2005)
8	Aquaculture and Fisheries Management in Bhabodaha Area, Jessore (01/07/2009-30/06/2014)
9	Development of Salt Industries in Khulna Satkhira Region (2nd Phase) (1/7/97 - 30/06/2004)
10	Development of Salt Industry in Khulna-Satkhira Region (Phase-III) (1st Revised) (01/07/2005-31/12/2010)
11	ADB Assisted Emergency Flood Damage Rural Infrastructure Rehabilitation Project-2004 (1/1/2005-31/03/2008)
12	Agricultural Diversification and Intensification Project (1/07/97-30/06/2005)
13	Agricultural Support for Small Holders in South-Western Region of Bangladesh (01/07/2013-30/06/2018)
14	Blue Gold Program (BWDB Component) (01/01/2013-31/12/2018)
15	Cyclone Rehabilitation Project: Entire Coastal Areas (Phase-II) (Revised) (1/7/01 -30/6/2010).
16	Emergency Disaster Damage Rehabilitation (Sector) Project-2007 (Part-B: Rural Infrastructure) (01/01/2008-31/12/2010)
17	Emergency Disaster Damage Rehabilitation (Sector) Project-2007 (Part-C, Municipal Infrastructure) (01/01/2008-31/03/2011)
18	Emergency Disaster Damage Rehabilitation (Sector) Project-2007 (Part-E: Water Resource) (2nd Revised) (01/01/2008-31/03/2011)
19	Emergency Disaster Damage Rehabilitation Project (Road Transport), 2007 (01/01/2008-31/12/2010)
20	Emergency Flood Damage Rehabilitation Assistance Project, 2004, Part-D (1/7/2004-30/6/2008)
21	Emergency Support for Immediate Rehabilitation of Most Vulnerable in Five Upazillas of the Satkhira District of Southern Bangladesh (01/08/2012-28/02/2013)
22	Empowerment of Coastal Fishing Communities for Livelihood Security (01/07/2000-30/11/2005)
23	IDA and WFP Aided 1988 Flood Damage Emergency Rehabilitation Project (01/07/1998 - 30/06/2003)
24	Integrated Planning for Sustainable Water Management (IPSWAM) Project (2nd Revised) (1/7/99 - 30/6/2011)
25	Procurement of Saline Water Treatment Plant (01/04/2013-31/04/2016)
26	Project for Rural Water Supply in South Western Part of Bangladesh (1/7/2007-30/6/2013)
27	Project for Drinking Water Supply from Ponds in Arsenic and Salt Affected Areas (1/7/99 - 30/6/2005)
28	Rahabilitation of South-West Flood- 2000 Project (1/11/2000 - 30/6/2005)
29	Re-excavation of BairabRiver Project (01/07/2014-30/06/2016)
30	Rehabilitation of Structure of BWDB Damaged by Cyclone Aila in Costal Area (South-Western Zone) (01/07/2010-30/06/2015)
31	Rehabilitation of Water Supply and Sanitation System in Western and South Western Bangladesh Damaged by Flash Flood in 2000 (1/7/2001-30/6/2004)

SLN	Project Title
32	River/Canal Re-excavation Project (Cluster Project) (1/7/2000-30/6/2005)
33	Small Scale Flood Control, Drainage and Irrigation Project (Phase-II, 27 Sub-projects) (1/7/97 - 30/6/2006)
34	Small Scale Flood Control, Drainage and Irrigation Project, Phase III (Cluster Project) (Revised) (1/7/2000 - 30/6/2006)
35	South West Flood Damaged Rehabilitation Project under ADB Assistance (BADC Part) (1/1/2001-30/6/2003)
36	Southwest Area Integrated Water Resources Planning and Management Project. (2nd Revised) (1/4/06-30/6/14)
37	Transfer of Technology for Agriculture Production under Blue Gold Program (01/01/2013-31/12/2018)
38	Water Supply in the Coastal Areas of Bangladesh (1/7/98 - 30/6/2003)
39	CapacityBuilding for Disaster Risk Financing (01/01/2013-30/06/2015)
40	Coastal Embankment Rehabilitation Project (Phase-II) (1/7/95 - 30/6/2004)
41	Community Based Adaptation to Climate Change through Coastal Afforestation in Bangladesh (1st Revised) (01/07/2009-30/06/2014)
42	Construction of Flood Shelter in the Flood Prone And River Erosion Areas (Revised) (01/07/2008-30/06/2010)
43	Construction of Flood Shelters in the Flood-Prone and River Erosion Areas (Phase-2) (01/07/2013-30/06/2016)
44	Construction of Flood Shelters in the Flood Prone Areas (1/7/2004-30/6/2006)
45	Costal Climate Resilient Infrastructure Improvement Project (01/07/2012-30/06/2017)
46	Emergency 2007 Cyclone & Restoration Project (ECRRP): Disaster Management Response Fund/Facility (01/08/2008-30/06/2013)
47	Emergency 2007 Cyclone & Restoration Project (ECRRP): Recovery of Agriculture Sector (Crops) and Improvement Programme (01/08/2008-30/06/2014)
48	Emergency 2007 Cyclone Recovery & Restoration Project (ECRRP) (01/07/2008-30/06/2014)
49	Emergency 2007 Cyclone Recovery & Restoration Project (ECRRP): Disaster Risk Mitigation and Reduction (Sub Component D-1) (Revised) (01/08/2008-30/06/2014)
50	Emergency 2007 Cyclone Recovery & Restoration Project (ECRRP): Project Co-ordination & Monitoring Unit (1st Revised) (01/08/2008-30/06/2014)
51	Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP) (01/08/2008-30/06/2014)
52	Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP) (BWDB Part) (01/08/2008-30/06/2014)
53	Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP) (Revised) (01/08/2008-31/12/2017)
54	Flood Rehabilitation Project for Completed Projects of BWDB Damaged in 1998 (1/7/99 - 30/6/2003)
55	Flood Rehabilitation Project in the Area of Completed Rural Development Project-18 (Greater Khulna, Jessore and Kushtia Districts) (1/7/2000-30/6/2003)
56	Flood Rehabilitation Project of 1998 for EIP (1/7/99 - 30/6/2001)
57	IDA Assisted Flood Damage Rehabilitation Project(1/1/04-31/1/07)
58	Rehabilitation of Bhutiar Bill and Barnal, Salilpur Kolabashukhali Flood Control and Drainage Project in Khulna District (1/2/2010-30/06/2013)
59	Second Small Scale Water Resources Development Sector Project (1st Revised) (1/7/2001-31/12/2009)
60	Shrimp Culture Development Activities (1/7/99-30/6/2005)
61	Enhancing Resilience under Bangladesh Country Programme (01/07/2008-30/06/2012)
62	IDB Assisted Water Supply Facilities in the Coastal Belt of Bangladesh (Phase-II) (1st Revised) (1/7/2003- 31/12/2008)
63	Integrated Fisheries Livelihood Project (Preparatory Phase) (01/09/2011-31/08/2012)
64	Rehabilitation of Aila Affected Rural Infrastructure (RAARIP) (1st Revised) (01/01/2011-30/06/2015)

SLN	Project Title
65	South-West Area Integrated Water Resources Management Project (01/07/2003 - 30/06/2005)
66	South West Region Livestock Development (01/04/2015-30/06/2018)
67	Southwest Area Integrated Water Resources Planning & Management (2nd Phase) (01/07/2015-30/06/2022)
68	Construction of Multipurpose Cyclone Shelters in the Area Affected by the Cyclone (SIDR) (01/07/2009-30/06/2011)
69	Construction of Multipurpose Cyclone Shelters in the Coastal Belt of Bangladesh (01/03/2011-30/06/2015)
70	Construction of Multipurpose Cyclone Shelters with Japanese Assistance (Phase-II) (2nd Revised) (1/7/98 - 30/6/2006)
71	Construction of Multipurpose Disaster Shelter (01/07/2015-30/06/2020)
72	Greater Khulna-Jessore-Kushtia Integrated Agricultural Development Project (1/7/2005-30/6/2008)
73	Greater Khulna-Jessore-Kustia Integrated Agricultural Development Project (2nd Phase) (01/07/2009-30/06/2014)
74	South-West Road Network Development Project (1/7/99 - 30/6/2007)
75	Union Infrastructure Development Project (Khulna, Bagerhat and Satkhira District) (Revised) (01/07/2010-30/06/2016)
76	Agriculture Services Innovation and Reform Project (1/7/99-31/3/2004)
77	Bank Projection Work of BNS Titumir Area from Errosion of the BhairabRiver in Khulna District (01/07/2007-30/06/2010)
78	Coastal Embankment Improvement Project Phase-1 (CEIP-1) in Satkhira, Khulna, Bagerhat, Pirojpur, Barguna and Patuakhali District (01/07/2013-30/06/2015)
79	Construction and Reconstruction of Roads, Bridges and Culverts in Rural Areas on Priority Basis (1/7/2008-30/6/2015)
80	Construction and Reconstruction of Roads, Bridges and Culverts in Rural Areas on Priority Basis (Part-II) -(3rd Revised) (1/7/97 - 30/6/2006)
81	Construction and Reconstruction of Roads, Bridges and Culverts in Rural Areas on Priority Basis (Part-III) (2nd Revised) (1/7/2001-30/6/2010)
82	Construction of Small Bridge/Culverts (Upto 12 Metters Long) on the Rural Roads (Revised) (1/7/05-30/6/2009)
83	Construction of Small Bridges/Culverts (upto 12m long) on the Rural Roads (01/07/2012-30/06/2015)
84	Construction of Small Bridges/Culverts (upto 12m long) on the Rural Roads (3rd Phase) (01/07/2012-30/06/2016)
85	Construction of Small Bridges/Culverts (upto 40 feet lenght) on the Roads constructed under Food for Works Programme (1/7/99 - 30/6/2006)
86	Greater Jessore District Infrastructure Development (Jessore, Jhinaidah, Magura and Narail District) (01/03/2011-30/06/2015)
87	Greater Jessore District Infrastructure Development Project (Revised) (1/7/98 - 30/6/2009)
88	Increased Post Flood Agricultural Production through Block Demonstration (TCTTIP Model) (1/7/99-30/6/2004)
89	Integrated Agricultural Productivity Project (01/07/2011-30/06/2016)
90	Integrated Fisheries and Livestock Development Project in Flood Control, Drainage and Irrigation Project Area and Other Water Bodies (01/07/2011-30/06/2014)
91	Integrated Fisheries and Livestock Development Project in Flood Control, Drainage and Irrigation Project Area and Other Water Bodies (3rd Phase) (1/7/2005-30/6/2010)
92	Integrated Fisheries and Livestock Development Project in Flood Control, Drainage and Irrigation Project Area and Other Water Bodies (4th Phase) (1st Revised) (01/07/2011-30/06/2017)
93	Integrated Fisheries and Livestock Development in Food Control & Irrigation Project Area and Other Water Bodies (Phase-II) (1/7/2001-30/6/2003)

SLN	Project Title
94	Participatory Small Scale Water Resources Sector Project (3rd Phase) (01/01/2010-30/06/2017)
95	Project Preparatory Technical Assistance (PPTA) Project for Costal Towns Infrastructure Improvement Project (01/10/2012-30/04/2014)
96	Raising and Reconstruction of 38th to 42+500 M of Khulna-Chuknagar- Satkhira Road and Construction of 7 RCC Box Culvert (01/10/2009-30/06/2015)
97	Rehabilitation of Flood Damaged urban Physical Infrastructures in 2004. (1/1/2005-31/7/2008)
98	Rehabilitation of Most Risk Oriented Coastal Polders (1st Revised) (01/07/2003-30/06/2011)
99	River Bank Protection & Development and Town Protection Project (Phase-IV) (2nd Revised) (1/7/2008 - 30/6/2014)
100	River Bank Protection Project (1/7/95 - 30/6/2001)
101	River Protection & Development and Town Protection Project (Phase-II) (1/7/98 - 30/6/2008)
102	River Protection & Development and Town Protection Project (Phase-III) (1/7/99 - 30/6/2008)
103	River Protection & Development and Town Protection Project ((1/7/96 - 30/6/2004)
104	Rural Development Project-25 : Greater Kushtia, Jessore, Khulna, Barisal and Patuakhali Districts (Revised) (1/07/2003-30/06/2010)
105	Rural Infrastructure Development Project (Khulna, Bagerhat and Satkhira District) (01/07/2008-30/06/2016)
106	Small Scale Water Resources Development Sector Project at Thana and Union Level-Revised (1/7/95 - 31/12/2002)
107	Sustainable Arsenic Mitigation under Integrated Local Government System in Jessore (1/9/2005-31/8/2008)
108	Union Road & Other Infrastructure Development Project (Greater Jessore and Kushtia District) (1/7/08- 30/6/2014)
109	Water Sector Improvement Project ((1/10/97-31/12/2003)
110	Fresh Water Prawn Culture Extension (2nd Phase) (01/07/2012-30/06/2017)
111	Fresh Water Prawn Culture Extension Project (Revised) (1/7/2005-30/6/2010)
112	Important Rural Infrastructure Development Project on Priority Basis (01/03/2010-31/12/2014)
113	Climate Change Adaptation Project (01/07/2015-30/06/2017)
114	Climate Resilient Infrastructure Improvement in Costal Zone (01/10/2011-29/02/2012)
115	Construction of 3 nos Bridges under Khulna Zone of Different Roads Division (01/01/2013-31/12/2015)
116	Construction of Disaster Shelter in South-West Region of Bangladesh (1/7/2002-30/6/2005)
117	Construction of Large Bridges/Culverts on Important Feeder and Rural Roads (3rd Revised) (1/7/97 - 30/6/2007)
118	Construction of Low Cost Bridges/Culverts on Rural Roads-Revised (3rd Revision) (1/7/95 - 30/6/2003)
119	Construction of Low Cost Bridges/Culverts on Rural Roads (Phase-II) (1/7/2000-30/6/2007)
120	Greater Khulna District Infrastructure Development Project (Revised) (1/7/2000-30/6/2009)
121	Rural water Supply and Sanitation Project at Coastal Areas/Belt (Danida Assisted) (1/7/99 - 30/6/2006)
122	Rural Development Project (Development of Road, Bridges,/Culverts Growth Centres/Bazars, etc.) (1/7/2000- 30/6/2010)
123	Bagda Shrimp Culture Technology Extension (2nd Phase) (01/07/2007-30/06/2012)
124	Comprehensive Disaster Management Programme (01/01/2003-31/12/2009)
125	Comprehensive Disaster Management Programme (2nd Phase) (01/01/2010-31/12/2014)
126	Development of Fresh Water Prawn Hatchery and Assistance to Extension of Culture Technology (1/7/98- 30/6/2004)

SLN	Project Title
127	Environment and Biodiversity Conservation and Development for Greater Jessore District (1st Revised) (1/7/2005-30/6/2012)
128	Environmental Impact Assessment (EIA) Study of 30 Different BWDB Projects to be Implemented under Climate Change Trust Fund (CCTF) (01/08/2012-31/12/2015)
129	Strengthening of Coastal Marine Fisheries Management (1/7/97-30/6/2002)
130	Strengthening the Resilience of the Water Sector in Khulna to Climate Change (01/04/2009-31/01/2010)
131	The Rights Based Planning and Monitoring : Disaster Preparedness (1/7/2002-31/12/2006)
132	Consolidation and Strengthening of Flood Forecasting and Warning Services (1/1/2000 - 31/12/2004)
133	Integrated Coastal Zone Management Plan (01/07/2002-31/01/2006)
134	Integrated Coastal Zone (1/1/2006-30/6/2006)
135	Small Holder Livestock Development in Five Southern Districts (01/07/2000-30/09/2006)

ANNEX IV KIIs and FGDs Conducted During the Study

Key Informant Interviews (KIIs)

Dr. Z. H. Khan, Director, Institute of Water Modelling (Wednesday, 26 October 2016)

- Climate change is going to impact water logged areas with 20-26% increase in rainfall
- In addition, sea bed is rising and subsidence is also playing role
- Autonomous urbanisation is also impacting in rural areas
- Long term land use planning is essential
- Local knowledge should be seriously considered in any planning
- TRM should be based on comprehensive plan and sequential operation of TRM needed.

Mr. Giasuddin Chowdhury, Deputy Team Leader, Bangladesh Delta Plan & former ADG Bangladesh Water Development Board (Tuesday, 1 November 2016)

- Morphological processes and sedimentation patterns are already altered for many reasons
- Engineering solution like dredging of rivers regularly is too costly and not sustainable
- TRM has been successful in some beels but not be suitable for others
- Alternative land use should be considered away from agriculture
- Compensation payment is delayed due to problems of ownership
- Need for a comprehensive study on morphological processes and sedimentation patterns
- Need for a comprehensive plan for total water logged areas.

Deputy Commissioner, Khulna, Mr. Nazmul Ahsan (Wednesday, 2 November 2016)

- Co-ordination through District Co-ordination Committee and District Disaster Management Co-ordination Committees are mostly used for information sharing. Programme co-ordination not possible through these committees
- Co-ordination to solve waterlogging will require strong dedicated unit
- Government, UN agencies and NGOs need to declare financial resources to be made available for the next financial year to tackle waterlogging. Based on resources, planning should be done through this dedicated co-ordination unit
- Local level implementation should be done through Union Parishads.

Mahfuz Alam, Team Leader, WFP, Khulna (Wednesday, 2 November 2016)

- WFP mainly conducts recovery efforts and an intensive programme continued during the period 2011-2016
- Though WFP did canal digging to help flow of water, but as the river was not excavated, the canal eventually became water reservoir for drinking water
- The area is transitioning from rice to fish agriculture. This has significant socio-politico-economic implications
- To solve waterlogging, there should be fully empowered 'Waterlogging Management Authority' and total political commitment.

Deputy Commissioner, Satkhira, Mr. A. K. M. Mohiuddin (Thursday, 3 November 2016)

- Political and social support are must for solving waterlogging

- There should be a dedicated committee on waterlogging with inclusion of peoples representatives. This could be a strong coordination body at district or divisional level
- TRM should be implemented sequentially. Maintenance fund should be included in the project cost
- Quality of constructed embankments are often not good
- There should be a mechanism of social auditing.

Mr. Shahidul Islam, Executive Director, Uttaran and President Paani Committee and many others (Thursday, 3 November 2016)

- South west Bangladesh has unique physio-ecological characteristics. Many, working in the administration, are not familiar with this uniqueness – not familiar with problems of waterlogging
- There should be program of capacity building for people being posted in the region
- Like Department of Sunderban affaires (West Bengal), Barind Multi-purpose Development Authority or Haor Development Board, there should be a separate institution to address waterlogging in the region
- TRM is a socially and technically acceptable option to solve waterlogging
- Ministry of Water Resources established a 13-member Upazila Committee to facilitate and monitoring of implementation of Kabodak river re-excavation and TRM implementation on 17 December 2014. The Committee sits infrequently. Received a copy of proceedings of the meeting dated 6 June 2015
- People suffer from irregularities in compensation payment. Under the present system, district administration needs 12 different types of papers to claim. This is costly, often difficult to secure all documents. Hence people are reluctant to cooperate in TRM operation
- As per decision of the 6 June 2015 meeting, the UNO, Tala Upazila constituted a committee to help land owners to receive compensation. The NGO Uttaran was given responsibility to develop guidelines. Draft of these guidelines has been prepared and ready for public consultation
- A special law with simple ‘Crop Compensation’ package can be considered without going through the provision of requisition of land
- There used to be once an ‘Association of Water-logged Unions’. This is not functioning any more
- Paani Committee exists in 42 Unions in the area and mainly has advocacy role. This Committee has no interaction with WMOs under the BWDB. WMOs become almost non-functional once the project activities cease.

Md. Farid Hossain, UNO, Tala, Satkhira. (Thursday, 3 November 2016)

- Lack of comprehensive plan is the key reason for unresolved waterlogging issue
- Construction of under designed bridges and culverts are forcing rivers to die
- Impact of climate change will worsen waterlogging situation in the area
- Unplanned ghers often prevents water to drain
- Like Chingri Mohal, there should be a gher policy bringing ghers under commercial tax system.

Focus Group Discussions

FGD at Union Parishad Office, Keshabpur, Jessore (Thursday, 3 November 2016)

Chair : Mr. Mohammad Alauddin, Chairman, Keshabpur Union 6

Participants (27 – 23 male and 4 female): UP members, NGOs (Samadhan, Uddokta, IDO, MSWO, Pajia Samaj

Kalyan Sangstha, UDC, CCDB), President & GS of the Press Club, Gram Police, farmers, teachers, press and media people, local respectable citizens.

As part of the Union area is still water logged, discussion did not move beyond damages, relief needs and relief efforts.

This year Keshobpur is seriously affected, probably worst in hundred years:

- 33768 ha affected, Taka 189 crores damaged
- 28207 gher affected
- 2319 tubewells under water
- Schools under water, even closed today
- 8,000 families did not receive any support from any agencies. Urgent relief efforts are needed for these families for next six months.

Peoples' involvement is must in implementation and planning to solve waterlogging in the area. BWDB, along with LGED and DC office, are responsible for TRM implementation.

All rivers and canals are silted up, eg., original Hari river bed was 20 feet deep. Dredging of rivers provides temporary solution and lasts for a year or so. In addition, earthen cross dams should be constructed before the end of monsoon season to store water. At onset of monsoon season, cross dams should be dismantled to force river excavation with stored water. Implementation of works should be done through Local Government, especially Union Parishad.

FGD at Islamkati Union Office (Friday, 4 November 2016)

Chair : Mr. M. Mafidul Haque Litu, Chairman, Islamkati Union

Participants (41 – 39 male, 2 female): UP members, farmers, traders, gher owners, day labourers, doctor and local respectable citizens.

Waterlogging is permanent in the area – occurs almost every year. Water logged area is increasing every year and the . waterlogged period is also expanding. During that period, even burial ground is not available.

Kabodak re-excavation has improved waterlogging situation. However, neither UP nor general public were informed about details of re-excavation prior to the work.

- Kabodak re-excavation is done by outside contractors. They do not have social responsibility to local people. Mechanism of social auditing should be established
- TRM is being operated at Pakhimara beel. People have received no compensation
- People are out migrating
- There is mutually beneficial agreements between farmers and gher operators
- Community toilet, with elevated plinth level, can be considered for water logged areas.

Community level meeting at village Bhabanipur (Friday, 4 November 2016)

Participants (34 – 4 male, 30 female): mat makers, mat trader, home maker and UP member

- NGOs involved in the area are Uttaran, Muslim Aid, Shushilon and Nabalok
- Issues about inadequate relief in the area was raised
- As UP members are easily accessible to communities, people suggested increased participation of Union Parishad in all local activities.

Field Observations: Budget and Expenditure Review

Key field observations from field work during 21-24 December 2016 (Khulna, Jessore and Satkhira)

- Visited a few ADP projects/ investments – Embankments, structures, sluices/regulators, roads (e.g., KJDRP, IPSUM, Blue Gold); also visited a few TRMs
- Validated relevance weights used in WL expenditure review, by discussing with stakeholders, experts and people in the field
- Some investments are found to be relevant positively, while some are maladaptive (e.g., a few roads with inadequate/inappropriate drainage outlets).

Observations Related to Investment Expenditure

- After implementation, Periodical and regular follow-ups, few sustainable/O&M Plans and allocations for O&M have to be placed, but WL cannot be removed wholly – possible only to keep in tolerance levels
- Gorain river and Kopotakkha river have to be kept alive at any cost
- Activities such as cutting points for TRM by excavators are vital –often earthworks are defective and resources wasted
- The choice of cutting-point location according to maximum water flow, is important, wrong selection of this leads to extended implementation time, and failures and thereby wasting of resources – Example : Beel Kalaria
- Instead of river excavation, canal excavation is taking place. People observed “Rivers are converted to canals”
- Delay in disbursement; allocation continues for years, leading to inefficient investments
- Lack of monitoring, leading to inefficient resource use; dredging of rivers – earths and sands piled up through dredging get back to rivers again as the dredging activity goes on. Example : Sree Nadi excavation
- For silt management dredging needs to be continuous- piecemeal work is not helpful – placement of excavator every now and then is needed
- Before planning and implementing new projects, one should consider the potential impact of existing ones
- Peoples’ views and recommendations are to be reflected in design and planning of projects
- Conflicts among competing resource (e.g., land, water) users. In many cases, polders undergo innumerable fragmentation to facilitate Gher operation, leading to persistent waterlogging.



Photo: Study Team, Planning Commission

ANNEX V Budget Analysis - Detailed Tables

Table A1.1: ADP and revised ADP total allocation: Bangladesh, 2001/02 – 2015/16

Fiscal Year	No. of projects*	ADP allocation (Crore Tk.)	Revised ADP allocation (Crore Tk.)
2001-02	1235	17271	15324
2002-03	1158	18170	16391
2003-04	1111	17542	18390
2004-05	1014	18984	19402
2005-06	1098	20502	20286
2006-07	1100	21760	20264
2007-08	1057	23956	20829
2008-09	1037	23526	21689
2009-10	1061	26865	27177
2010-11	1184	34357	33748
2011-12	1230	38825	39341
2012-13	1204	51156	50348
2013-14	1253	60692	58048
2014-15	1204	74424	72350
2015-16	1315	89838	87082
Total *	17,261	537,868	520,669
Trend	0.9	11.8	12.1

* Overlapping projects across years, source: Programming Division.

Table A1.2: Relevance assessment of ADP Waterlogging projects (nos.) in three districts over years

Fiscal Year	Total no. WL project	% of projects by relevance				
		Highly	Significantly	Somewhat	Implicitly	All
2001-02	48	25.0	31.3	35.4	8.3	100.0
2002-03	49	22.4	26.5	40.8	10.2	100.0
2003-04	40	20.0	25.0	42.5	12.5	100.0
2004-05	37	18.9	32.4	35.1	13.5	100.0
2005-06	40	15.0	32.5	37.5	15.0	100.0
2006-07	32	25.0	28.1	37.5	9.4	100.0
2007-08	33	21.2	39.4	33.3	6.1	100.0
2008-09	40	12.5	50.0	32.5	5.0	100.0
2009-10	41	14.6	53.7	24.4	7.3	100.0
2010-11	36	19.4	52.8	25.0	2.8	100.0
2011-12	34	17.6	44.1	32.4	5.9	100.0
2012-13	36	19.4	41.7	33.3	5.6	100.0
2013-14	42	19.0	42.9	31.0	7.1	100.0
2014-15	37	24.3	40.5	29.7	5.4	100.0
2015-16	29	20.7	37.9	31.0	10.3	100.0
All	574*	19.7	38.3	33.6	8.4	100.0

* Overlapping projects across years

Table A1.3: Relevance assessment of ADP Waterlogging projects (nos.) three districts by ministries

Ministry	No of WL relevant Project by relevance*				
	Highly	Significantly	Somewhat	Implicitly	All
LGRD & Co-operative	4	17	22	3	47
Agriculture	3	4	3	0	10
Disaster Management and Relief	0	6	7	1	14
Environment and Forest	0	1	0	2	3
Fisheries and Livestock	3	2	6	2	13
Industries	2	0	0	0	2
Water Resources	13	16	4	3	36
Planning	0	2	0	0	2
Road Transport and Bridges	2	3	3	1	8
All	27	52	45	11	135
%	19.7	38.3	33.6	8.4	100.0

Notes: * Distinct projects (non-overlapping across years)

The Ministry of Disaster Management and Relief includes projects implemented by Ministry of Food.

Table A1.4: ADP Waterlogging project allocations by agencies three districts, 2001/02–2015/16

Agency	No. of projects*	ADP WL relevant (Core Tk.)		
		Allocation	Capital	Revenue
BWDB	37	1345	1104	241
LGED	42	1785	1678	107
DPHE	6	63	56	7
DDM	14	170	134	36
DoF	9	56	20	36
DAE	8	75	47	28
Others	19	612	574	39
All	135	4107	3613	494

Notes: * Distinct projects (non-overlapping across years)

The Ministry of Disaster Management and Relief (MoDMR) acted as an agency to have directly implemented a few projects. For simplicity, projects implemented by the Ministry of Disaster Management and Relief (MoDMR), the Department of Disaster Management (DDM) and the Directorate of Relief and Rehabilitation (DRR) are merged under DDM.

The small number of projects implemented by the Water Resources Planning Organization are included under BWDB.

Table A1.5: ADP WL projects by ministries by budget components, 2001/02 – 2015/16

Agency	Projects*		ADP allocation WL relevant (In Crore TK.)		% of total ADP allocation (TK) WL relevant		
	N	%	Total	%	Capita	Revenue	Project Aid
BWDB	37	27.4	1345	32.7	82.1	17.9	53.1
LGED	42	31.2	1785	43.5	94.0	6.0	58.0
DPHE	6	4.5	63	1.5	89.6	10.4	63.9
DDM	14	10.5	170	4.2	78.9	21.1	34.2
DoF	9	6.8	56	1.4	36.3	63.7	66.8
DAE	8	5.7	75	1.8	62.2	37.8	72.7
Others	19	13.9	612	14.9	93.7	6.3	69.9
All	135	100.0	4107	100.0	88.0	12.0	57.7

Notes: *Distinct projects (non-overlapping across years)

The Ministry of Disaster Management and Relief (MoDMR) acted as an agency to have directly implemented a few projects. For simplicity, projects implemented by the Ministry of Disaster Management and Relief (MoDMR), the Department of Disaster Management (DDM) and the Directorate of Relief and Rehabilitation (DRR) are merged under DDM.

The small number of projects implemented by the Water Resources Planning Organization are included under BWDB.

Table A1.6: ADP WL project allocation by ministries by GoB contribution, 2001/02 – 2015/16

Ministry	Allocation (Crore TK)		
	Total	GoB contribution	Donor contribution
LGRD & Co-operatives	1848	772	1076
Agriculture	82	22	60
Disaster Management and Relief	171	113	58
Environment and Forest	20	1	19
Fisheries and Livestock	78	36	42
Industries	3	3	0
Water Resources	1345	631	714
Planning	16	1	15
Road Transport and Bridges	544	159	385
All	4,107	1,739	2,368

Trend analysis agency wise

Table A1.7: Local Government Engineering Department: ADP allocation Waterlogging relevant, 2001/02 – 2015/16

Fiscal Year	Core Tk.															Trend %	
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16		All
No. of projects*	13	14	11	13	13	11	11	15	14	12	11	11	11	10	9	179	-1.9
Allocation	52.2	52.7	47.7	76.1	158.5	188.7	117.1	111.1	108.2	73.4	111.4	157.9	179.8	129.8	220.8	1785.3	7.9
Capital	51.3	51.3	46.1	74.0	154.4	184.7	113.3	104.5	99.6	67.1	105.7	147.7	164.9	113.6	200.0	1678.2	7.2
Revenue	0.9	1.3	1.6	2.1	4.1	4.0	3.8	6.6	8.6	6.3	5.8	10.1	14.9	16.2	20.8	107.1	20.5

* Overlapping projects across years

Table A1.8: Department of Public Health Engineering: ADP allocation Waterlogging relevant, 2001/02 – 2015/16

Fiscal Year	Core Tk.															Trend %	
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16		All
No. of projects	4	3	2	2	2	2	2	2	1	1	1	1	1	1	1	26	-9.5
Allocation	8.31	4.76	2.56	1.68	2.95	3.52	3.39	0.72	1.40	3.80	3.00	3.18	0.52	21.49	1.29	62.56	-3.6
Capital	7.60	4.53	2.48	1.63	2.88	3.44	3.30	0.67	1.31	3.60	2.80	2.93	0.51	17.59	0.76	56.03	-5.2
Revenue	0.71	0.22	0.07	0.05	0.06	0.08	0.09	0.05	0.09	0.20	0.20	0.25	0.01	3.90	0.53	6.53	6.2

* Overlapping projects across years

Table A1.9: Bangladesh Water Development Board#: ADP allocation Waterlogging relevant, 2001/02 – 2015/16

Fiscal Year	Core Tk.															Trend %	
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16		All
No. of projects	17	16	13	11	10	8	10	9	9	9	7	8	11	11	8	157	-3.8
Allocation	88.9	82.2	34.6	31.7	37.1	45.4	45.5	41.5	70.4	68.3	79.5	67.0	139.9	231.5	281.6	1345.1	9.9
Capital	83.9	77.1	32.7	30.3	33.8	40.3	40.2	36.1	58.8	55.7	72.4	42.3	103.9	177.4	218.7	1103.7	7.9
Revenue	5.0	5.0	1.9	1.4	3.3	5.1	5.3	5.4	11.6	12.5	7.1	24.7	36.0	54.1	62.9	241.4	22.5

* Overlapping projects across years, #The small number of projects implemented by the Water Resources Planning Organization are included under BWDB.

Table A1.10: Department of Disaster Management#: ADP allocation Waterlogging relevant, 2001/02 – 2015/16

Fiscal Year	Crore Tk.															Trend %
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	
No. of projects*	1	4	4	5	6	2	2	5	4	3	3	5	6	4	60	4.9
Allocation	0.58	1.21	1.43	2.66	3.86	3.14	4.05	6.51	7.77	8.68	7.55	11.15	34.74	41.37	169.74	27.2
Capital	0.57	1.15	1.27	2.10	3.40	2.00	2.13	4.32	6.09	6.33	3.87	6.67	29.03	33.87	133.86	25.6
Revenue	0.01	0.06	0.16	0.56	0.46	1.14	1.92	2.20	1.68	2.34	3.69	4.48	5.70	7.50	35.88	28.5

* Overlapping projects across years

#The Ministry of Disaster Management and Relief (MoDMR) acted as an agency to have directly implemented a few projects. For simplicity, projects implemented by the Ministry of Disaster Management and Relief (MoDMR), the Department of Disaster Management (DDM) and the Directorate of Relief and Rehabilitation (DRR) are merged under DDM.

Table A1.11: Department of Agricultural Extension: ADP allocation Waterlogging relevant, 2001/02 – 2015/16

Fiscal Year	Crore Tk.															Trend %	
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16		Tot
No. of projects*	4	4	3	1	1	1	1	1	2	2	2	3	4	2	2	33	0.4
Allocation	4.39	4.10	2.47	0.52	0.62	2.06	4.13	2.69	3.19	6.77	13.71	7.24	8.11	5.01	10.03	75.03	12.5
Capital	2.52	2.96	1.83	0.38	0.48	1.44	3.51	1.12	2.07	5.09	7.34	5.12	4.78	1.40	6.63	46.65	9.9
Revenue	1.88	1.14	0.64	0.13	0.14	0.62	0.62	1.58	1.13	1.68	6.37	2.12	3.33	3.61	3.40	28.38	15.9

* Overlapping projects across years

Table A1.12: Department of Fisheries: ADP allocation Waterlogging relevant, 2001/02 – 2015/16

Fiscal Year	Crore Tk.															Trend %	
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16		All
No. of projects*	4	3	3	1	2	2	2	3	4	3	4	3	3	1	1	39	-3.0
Allocation	1.05	1.50	1.51	1.71	1.21	0.81	0.80	3.91	3.07	7.74	7.05	8.38	14.09	1.82	1.76	56.40	11.9
Capital	0.96	1.45	1.42	1.67	1.14	0.63	0.42	0.45	0.74	3.08	1.12	1.42	4.02	0.80	1.15	20.48	2.1
Revenue	0.09	0.05	0.08	0.04	0.07	0.18	0.37	3.46	2.33	4.66	5.93	6.96	10.07	1.01	0.61	35.92	35.0

* Overlapping projects across years

Table A1.13: Other agencies: ADP allocation Waterlogging relevant, 2001/02 – 2015/16

Fiscal Year	Crore Tk.															Trend %	
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16		All
No. of projects	5	5	4	4	6	6	5	5	7	6	6	5	6	6	4	80	1.0
Allocation	58.5	77.4	56.9	67.8	94.8	102.9	14.1	29.6	41.8	13.0	8.2	12.4	12.6	17.2	5.4	612.4	-18.0
Capital	58.0	77.0	56.7	67.6	94.5	102.3	13.7	26.4	36.9	9.7	3.9	6.1	7.5	11.3	2.2	573.6	-24.1
Revenue	0.6	0.4	0.2	0.2	0.3	0.5	0.4	3.2	5.0	3.4	4.3	6.3	5.1	6.0	3.3	38.8	25.9

* Overlapping projects across years

Table A1.14: All agencies: ADP allocation Waterlogging relevant, 2001/02 – 2015/16

Fiscal Year	Crore Tk.															Trend %	
	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16		All
No. of projects*	48	49	40	37	40	32	33	40	41	36	34	36	42	37	29	574	-1.8
Allocation	213.9	223.8	147.1	182.1	299.1	346.5	189.0	196.0	235.9	181.7	230.4	267.1	389.7	448.3	555.9	4106.6	5.5
Capital	204.8	215.6	142.5	177.6	290.7	334.9	176.5	173.5	205.5	150.6	197.0	212.2	314.7	356.0	460.5	3612.6	3.8
Revenue	9.1	8.2	4.7	4.4	8.4	11.6	12.5	22.5	30.4	31.1	33.4	54.9	75.1	92.3	95.5	494.0	22.1

* Overlapping projects across years

Annex VI Proposal for Institutional Coordination Framework

Based on study findings, a proposal for institutional coordination framework has been developed and elaborated in this Annex.

The purpose of the institutional framework is to address the lessons learnt and governance challenges and to improve the governance in order to bring the existing institutional framework and government agencies in a better position of consistent and coordinated governance and to play an active and required role in addressing waterlogging issue programme Institutional development and good governance are probably the most important factors for achieving the ambitions for zero waterlogging, security of life, livelihood improvement and economy growth in the south west Bangladesh. There is an urgent governance challenge which can be characterized as 'collaborative planning and implementation'. This is an issue on national level requiring horizontal coordination but also in terms of multi-level governance, requiring so called vertical coordination between national and local government. The recent and future anthropogenic changes in the hydrological cycle due to climate change, emergence of gher farming in combination with increasing waterlogged areas are expected to make future water governance and management of collaborative implementation more challenging. The development culture could be transformed more profoundly from a short to mid-term sector and project approach to a long term consistent programme approach with a strong emphasis on coordination of planning and resource allocation as well as on adequate collaborative implementation.

Sound implementation of policies and programmes depends upon the prevailing governance environment and underlying institutional arrangements. The agenda to address waterlogging is essentially cross-sectoral and implementation arrangements involve multiple line ministries, local government institutions, communities and private sector. Clarity of role, interdependence of actions and a coordinated approach are essential requirements of the institutional set up. Yet, resources are limited and there are competing demands. How resources are allocated among competing demands, how trade-offs are made and how effectively programmes are implemented to get the best results from limited resources are major political economy issues that depend critically upon the prevailing governance environment.

Institutions are not static. They are dynamic in the sense that they evolve over time. Starting with a thoughtful design that involves pragmatic solutions based on the present socio-political realities of Bangladesh and working within the umbrella of the overall capacity constraints in public administration, institutional changes can further evolve as implementation progress is made.

Waterlogging in south-west Bangladesh is a multi-dimensional and multi-faceted problem, therefore the solutions require a multi-dimensional approach with different ministries and stakeholders to be engaged in a coordinated and sequential manner in the arena (UNDP, 2014). Recommendation, among others, from a national consultation meeting on waterlogging in southwest Bangladesh includes 'Develop innovative institutional mechanisms for stronger coordination among government departments and involving local communities' (FAO, 2016). FAO (2015) recommended:

- Strengthen district government setup – improve collaboration among agencies
- Coordinate at different level across multiple disciplines – may require a new institutional set up (task force, agency etc.)- critical for complex development process, one entity to oversee development plan and implementation
- Work to establish a maintenance culture, with local government ownership (and new funding for running costs)- non-functional project based community participation, linking with LG with innovative funding arrangement.

The Bangladesh Delta Plan 2100 (GED, 2018) has proposed ‘Establishment of Issue Based Coordination Mechanism and Problem Solving’:

Delta issues show in many cases challenges or problems which require dedicated involvement and real input and commitment of the stakeholders. In some issues, like waterlogging in South-West Bangladesh or drainage congestion in South-Central area, none of the stakeholders can solve the problem individually nor has the exclusive mandate to decision making. In these cases, an Issue Based Coordination and Problem Solving approach offers effective possibilities to address the long lasting issue, identify an agreed problem definition and agree on relevant organizations to play a role. A lead government organization needs to be identified which could form a Council or Task Force as temporary joint institutional setup at field level consisting of relevant government agencies including district administrations but also other LGIs, NGOs, civil society. The issue should be addressed in a comprehensive manner and strategies and measures will be developed phase wise as per community feedback.

Against the backdrop of the above, a framework of the basic core institutional arrangement that must underlay the formulation and implementation of an Action Plan to address waterlogging has been described in this Annex. The suggested institutional framework recognizes the socio-political environment of Bangladesh and suggests institutional set up that is realistic and will likely work in Bangladesh.

After reviewing existing coordination setups in many sectors, in one-to one or group discussions with many stakeholders nationally and locally, through conducting regional workshops in Satkhira and Khulna, a consensus has been reached to propose the following four institutional structures; two at the national and two at the local levels.

National Level

- Waterlogging Risk Reduction Coordination at the Programming Division, Planning Commission
- Inter-Ministerial Waterlogging Risk Reduction Coordination Committee.

Local Level

- District Waterlogging Risk Reduction Task Forces at Khulna, Jashore and Satkhira
- Divisional Coordination Body for Task Forces at Khulna.

Institutional Framework at the National Level

Planning and budgetary processes in Bangladesh is still national centric. As shown in chapter 5, there are a number of Ministries and agencies mandated to address waterlogging in Bangladesh. No Ministry or agency has leadership role. However, to address waterlogging, it is necessary to identify a single agency or set up to assume leadership. Naturally the Bangladesh Water Development Board, because of their extensive involvement in waterlogging risk reduction activities like river re-excavation, embankment, regulators, polders, hydro-morphological monitoring activities and also investments, could have been the lead agency to coordinate. Somehow, BWDB is also perceived to be the agency that has caused this ‘man made’ waterlogging

Against this backdrop, a multi-layered & multi-sectoral coordination mechanism, under the leadership of Planning Commission, appears quite feasible (UNDP, 2016), as it is an existing mechanism mandated for programme coordination and the transfer of funds. It can also anchor donor funds and thereby channel to various ministries.

Based on these evidence, the study proposition is that the Planning Commission in general and the Programming Division in particular shall provide leadership in future efforts to solve waterlogging situation, based on following reasoning described in Box A.

Box A

Why Planning Commission to lead?

- The Bangladesh Planning Commission is the central planning entity of the Government. As part of its executive function, the Planning Commission is responsible for preparing, processing and approving development plans, programmes as well as projects. The coordination function of the Planning Commission encompasses the whole range of planning activities in order to ensure consistency of investments with overall and sectoral objectives of plans of the relevant ministries and divisions
- The allocation of funds to individual projects in the ADP is done by the Programming division of the Planning Commission in close interaction with the Ministry of Finance
- Hence, the Planning Commission in general and the Programming Division in particular is the best suited agency to lead risk reduction efforts.
- The Programming Division has close interaction with Ministries, Agencies at the national level and the local level administration
- Furthermore, the Programming Division is already leading this Scoping Study. It has the institutional memory and conceptual setting
- The Programming Division has already expressed its willingness to lead this multi sectoral, multi-agency initiative.

Establishment of a Coordination Mechanism at the Programming Division

It is proposed to establish a coordination mechanism on waterlogging at the Programming Division of the Planning Commission. This is proposed as lead national integration/coordination point for all efforts for risk reduction to waterlogging. The Agriculture, Industries and Coordination Wing of the Programming Division will coordinate and provides secretarial service to the higher level Inter-Ministerial Waterlogging Risk Reduction Coordination Committee.

Structure

- Joint Chief, Agriculture, Industries and Coordination Wing, Programming Division, Planning Commission
- Deputy Chief, Programming Division, Planning Commission
- Assistant Chief, Programming Division, Planning Commission
- A small support staff.

Functions

- Provides leadership to integrate/coordinate all efforts for risk reduction to waterlogging
- Sensitizes waterlogging issue at national level and continue to keep the issue in national agenda
- Formulation of programme portfolio of interventions in waterlogged areas
- Facilitates resource allocation to the programme in co-ordination with Finance Division, ERD and Agriculture, Water Resources and Rural Institutions Division
- Determination of external assistance requirements for waterlogging risk reduction investments
- Facilitates coordination of capacity building, knowledge generation and management and M&E efforts
- Provides secretarial service to the Inter-Ministerial Waterlogging Risk Reduction Coordination Committee.

Functions of Officers involved in coordination mechanism are regarded as additional responsibilities to their normal functions at the Wing.

Inter-ministerial Waterlogging Risk Reduction Coordination Committee

It is proposed to establish a coordination committee to facilitate inter-Ministry and inter-agency coordination.

This Committee is proposed as a small but operational level forum. It would be chaired by the Chief, Programming Division, Planning Commission. The Inter-Ministerial Coordination Committee functions as a formal linkage for achieving political commitments regarding waterlogging risk reduction, provides directions and makes decisions. It provides strategic and operational advices.

The composition of the Committee is:

Chief, Programming Division, Planning Commission	Chair person
Joint Chief, Programming Division, Planning Commission	Member
Joint Chief, Agriculture, WR & Rural Institutions Division, Planning Commission	Member
Joint Chief, Agriculture, Industries and Coordination Wing, Programming Division, Planning Commission	Member-Secretary
Joint Secretary/ Joint Chief, Ministry of Water Resources	Member
Chief Planning, Bangladesh Water Development Board	Member
Additional Chief Engineer, LGED	Member
Representative, Ministry of Public Administration	Member
Representative, Ministry of Disaster Management and Relief	Member
Representative, Ministry of Environment & Forests	Member
Representative, Department of Disaster Management	Member
Representative, Ministry of Fisheries	Member
Representative, Ministry of Agriculture	Member
Representative, Ministry of Land	Member
Director, Institute of Water Modelling	Member
Director, CEGIS	Member
Representative of the Academia	Member
Representatives of Development Partners	Member
Representative of NGOs	Member

The Coordination Committee sits at least once every four months.

The Committee would have the following functions:

- (a) to provide a formal linkage for achieving political commitments regarding waterlogging risk reduction, provides directions and makes decisions;
- (b) to give instructions for integrated efforts for risk reduction to waterlogging to meet long-term challenges of climate change and sea level rise;
- (c) to steer comprehensive studies related to waterlogging risk reduction.;
- (d) to guide Waterlogging Risk Reduction Task Forces at district level; and
- (e) to perform such other functions, as may be determined by the Committee.

Institutional Coordination Framework at Local Level

Institutional canvass of the local waterlogged area has been described in Chapter 3. South West Bangladesh is naturally the proponent of creative problem solving in advancing the concept of 'Tidal River Management' and also institutions like 'Pani Committee' or 'Association of Waterlogged Unions'. Also, formulation of master plans for Upazilas are progressing according to Article 23 of Upazila Parishad Act 1998 which clearly stipulates that Upazilas are obliged to establish a Five Year Plan and plans for different planning period.

Key Challenges:

- In Bangladesh, planning and budget for district and upazilla level are centrally managed
- District and upazilla level managers have experienced problems dealing with area-specific issues. More could be done at the local level to conduct evidence based analysis and action plan implementation as per local priorities
- Planning, resource mobilization and implementation at local level are not distant dreams but coming to reality through a gradual process. Though local people have the right knowledge mix to solve local problems, yet they lack capacity to develop structured projects. 'The Union Digital Centres being established at every Union Parishad will be beneficial.

It is proposed to establish two setups 'District Waterlogging Risk Reduction Task Force's at three districts, Satkhira, Khulna and Jessore and the 'Divisional Coordination Body for Task Forces' at Divisional Level at Khulna.

District Waterlogging Risk Reduction Task Force

A task force (TF) is a unit or formation established to work on a single defined task or activity. These Task Forces are proposed to be constituted under the existing Disaster Management Act 2012. The Study proposed to establish three Task Forces, one each at Satkhira, Khulna and Jessore districts. These taskforces are considered as the main functioning setup to work at districts affected by waterlogging.

Objective: To facilitate a coordinated response to reduce risk from waterlogging

Membership

- Deputy Commissioner, Convenor
- Executive Engineer, BWDB, Member-Secretary
- Executive Engineer, LGED
- Executive Engineer, DPHE
- District Agricultural Officer, DAE
- District Fisheries Officer, DoF
- District Officer, Primary & Mass Education Department
- District Relief & Rehabilitation Officer, DDM
- UNOs of affected upazilas
- NGO representative.

The Task Force can co-opt any other agencies deemed relevant for the objective.

Tasks & Responsibilities

- Provides leadership at district level to integrate/coordinate all efforts for risk reduction to waterlogging
- Propose and discuss among taskforce members of projects {related to waterlogging risk reduction} being communicated from the district level to head offices for budget allocation. Make efforts to avoid duplications and reach out for a consensus proposal
- After budget allocations each year, analyse resources available for projects related to waterlogging risk reduction at the district level and make judicious use of resources available. Consider, if possible, resource pooling
- Support operationalization of emergency fund (when available) for waterlogging risk reduction
- Support and facilitate the team preparing a comprehensive waterlogging risk reduction action plan
- Keep linkage with Upazila and Union Disaster Management Co-ordination Committees
- Receive and act upon guidance from the waterlogging Risk Reduction Co-ordination Cell/Desk and the Inter-Ministerial Waterlogging Risk Reduction Co-ordination Committee
- Any other task and responsibilities identified by the Task Force.

Divisional Coordinating Body for Task Forces

It is proposed to establish a single Co-ordination Body to guide and resolve inter-district interventions among three Task Forces.

Objective: To facilitate a co-ordinated response among three Task Forces

Membership

- Commissioner, Khulna Division, Convenor
- Chief Engineer, South-West Zone, BWDB, Khulna, Member-Secretary
- Deputy Commissioners, Khulna, Jessore & Satkhira
- Executive Engineers, BWDB, Khulna, Jessore & Satkhira
- Executive Engineer, LGED, Khulna, Jessore & Satkhira
- District Relief & Rehabilitation Officer, DDM, Khulna, Jessore & Satkhira
- NGO representative.

The Body can co-opt any other agencies deemed relevant for the objective.

Tasks & Responsibilities

- Provides leadership at divisional level to integrate/co-ordinate all efforts for risk reduction to waterlogging
- Resolve any inter-district issues for waterlogging risk reduction
- Support and facilitate the team preparing a comprehensive waterlogging risk reduction action plan
- Keep linkage with Divisional Disaster Management Co-ordination Committees
- Receive and act upon guidance from the waterlogging Risk Reduction Co-ordination Cell/Desk and the Inter-Ministerial Waterlogging Risk Reduction Co-ordination Committee
- Any other task and responsibilities identified by the Co-ordination Council.

For more Information please contact

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