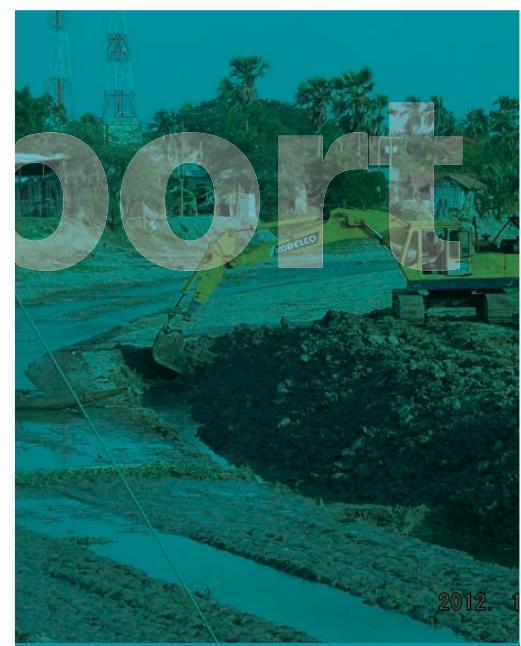


# Final Report



## Country Baseline Assessment **WATER SECTOR INTEGRITY** IN BANGLADESH

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Dr. Sheikh Tawhidul Islam



# Final Report

## Country Baseline Assessment

# WATER SECTOR INTEGRITY IN BANGLADESH

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# Forewords and Acknowledgements

This long due work on water integrity of Bangladesh is carried out under the auspices of BAWIN (Bangladesh Water Integrity Network) aiming to contribute in ensuring more improved water related service delivery mechanisms/processes for the people. The scope of the work includes identifying the disarray in water resources planning and development, inefficiency in legislative framework and institutional makeup, gaps in water administration and governance. Identifying these gaps, in turn, will help agencies to design and deliver actions to guarantee and foster a corruption free, transparent and accountable water services delivery process where people and many other stakeholders may play important roles in participatory decision making. In this backdrop, BAWIN deserves special recognition and thanks for commissioning this study.

This work examined water integrity aspects of Bangladesh keeping in mind the wider physical/ecological and social contextual frameworks within which people generate benefits from many direct and indirect use of water. Special attention has been paid in areas like typical hydro-meteorological processes of the region happening at different scales, landscape morphology (i.e. the delta attributes), and characteristic local use pattern of water resources. People from different government and non-government agencies, civil society representatives, volunteers provided invaluable information on various water integrity aspects to understand the complex issues more clearly.

In this connection, we would like to give sincere thanks to Md. Mozibur Rahman (Executive Engineer, Bangladesh Water Development Board, Khulna), Mr. Selim Sarwar (Engineer, Satkhira Municipality), Mr. Kamal Uddin (DMD, Khulna WASA), Mr. Uttam Kumar (DWASA), Mr. Shahidul Islam (Uttaran, Satkhira), Mr. Faruk (President, Khulna Press Club), Mr. Sumon (Desh TV, Satkhira), honourable SONAK members of TIB in Khulna and Satkhira regions, Engineer Enamul Hoq (Rtd. DG, Water Resources Planning Organization).

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Project Coordinator, Bangladesh Water Integrity Network (BAWIN), Transparency International Bangladesh (TIB), for his continuous guidance and support throughout this consultancy work.

# Abbreviations

ADB	Asian Development Bank	ICRD	Integrated Coastal Resources Database
AEC	Atomic Energy Commission	IFAD	International Fund for Development in Asia
AWGI	Asia Water Governance Index	IWM	Institute of Water Modelling
BADC	Bangladesh Agricultural Development Corporation	JICA	Japan International Co-operation Agency
BAWIN	Bangladesh Water Integrity Network	LGD	Local Government Division
BHWDB	Bangladesh Haor and Wetland Development Board	LGIs	Local Government Institutions
BWDB	Bangladesh Water Development Board	MLD	Million Litres per Day
CBO	Community Based Organization	MoA	Ministry of Agriculture
CDS	Coastal Development Strategy	MoEF	Ministry of Environment and Forests
CEGIS	Center for Environmental and Geographic Information Services	MoWR	Ministry of Water Resources
CIDA	Canadian International Development Agency	NGOs	Non-Governmental Organizations
CPI	Corruption Perception Index	NWMP	National Water Management Plan
CZPo	Coastal Zone Policy	NWRC	National Water Resources Council
DANIDA	Danish International Development Agency	OGDA	Options for Ganges Dependent Area
DFID	British Department of Financing for International Development	R&H	Roads and Highways Department
DoE	Department of Environment	RRI	River Research Institute
DPHE	Department of Public Health Engineering	RS	Remote Sensing
DTWs	Deep Tube Wells	SIDA	Swedish International Development Agency
ECNWRC	Executive Committee of the National Water Resources Council	SWTPs	Surface water treatment plants
FCD	Flood Control and Drainage	TIB	Transparency International Bangladesh
FCDI	Flood Control, Drainage and Irrigation	WARPO	Water Resources Planning Organization
GoN	Government of Netherlands	WASA	Water Supply and Sewerage Authority
GPWM	Guidelines for Participatory Water Management	WB	World Bank
		WIN	Water Integrity Network

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# Executive Summary

Water governance and management aspects appear to be the major issues to meet the bellicose demand for water by different contested sectors in Bangladesh. These aspects stretch from conceptualizing the problem, planning development and implementing projects to delivery of the services in the final leg. Water governance and management aspects evolved from historical times without receiving necessary attention on physical characteristic of the land that this water and silt dominated lower riparian country deserves. Later a set of policy and institutional frameworks came into action that govern and guide the aforementioned water governance and management concerns; these policy and institutional frameworks also supposed to act as the warden for addressing the corruption, transparency and accountability matters and to ensure inclusive decision making processes by involving different stakeholders. But absence of major watchdog in this sector for (i) overseeing the activities (from planning to operational activities), (ii) to make critical comments and suggestions for improvements through systematic investigations, (iii) to undertake advocacy campaigns to improve the water service delivery regimes limited the opportunities to incorporate integrity aspects in policy and institutional compositions and practice processes.

In these contexts, Bangladesh Water Integrity Network (BAWIN) plans to work in water sector to bring a change by addressing the gaps, some of which are indicated above. This baseline study on water integrity is commissioned by BAWIN as part of the commencement of their work in Bangladesh. The study aims to achieve three specific tasks, (i) mapping of the legal and institutional arrangement and capacity for governance and integrity in the water sector in selected city corporation areas and south-west coastal region, (ii) assessment of governance and integrity risks in terms of practice in the selected institutions/areas/region and (iii) identification of priority risk areas/institutions for intervention. Literature review, interviewing key personnel of water sector, group discussions were the key methods adopted in this study to gather data on water integrity aspects of Bangladesh. In addition to policy and institutional review, the water integrity aspects in rural and urban contexts were investigated more elaborately. Activities

of Bangladesh Water Development Board (BWDB) were analysed for understanding rural water integrity context and Dhaka Water Supply and Sewerage Authority (DWASA) was considered to assess the urban context.

Twenty nine water related major law/ legislation/ policy for the management of water resources of Bangladesh were evaluated to examine the presence of issues like equitable service provisions, rights to water, voice and choice, gender, civil society participation, corruption, transparency and accountability, environmental management, water resources management, monitoring and evaluation and institutionalization and decentralization processes. In the similar fashion, the institutions related to water sector planning, governance/management, service delivery were reviewed to examine the degree of integrity aspects they follow in the operational processes. It was observed in the review that the overall management of water resources is shared between state water agencies, users of water including the public, NGOs and other government agencies engaged in agriculture, industry, commerce, water and sewage, public health, municipalities, inland water transport, fisheries, forestry and the environment. Policy and institutional review suggests that some of the aspects like water rights, equitable sharing and gender are to some extent, covered in the legislative frameworks and in the organizational mandates but corruption, accountability and transparency aspects are not clearly defined.

Focused and detailed investigation of water integrity in city corporation area (Dhaka) and in south-western coastal region (Khulna and Satkhira) examining the activities of two major organisations i.e., DWASA in Dhaka city corporation area and BWDB in south-western coastal region of Bangladesh were carried out to check how these organizations perform in typical physical, social and economic contextual settings.

The activities of Dhaka WASA were examined in detail in order to capture water integrity issues in the city corporation area contexts. Lack of capacity to deliver water services/supply against demand, infringement

of informal, unauthorized (e.g., middlemen) entities in different segments of water distribution processes, limited public participation in decision making processes, absence of necessary principles for effective water governance such as transparency, accountability, legitimacy and legality, equity and inclusiveness were identified as the major challenges for DWASA. The chapter also goes beyond the review of DWASA actions, rather commented on actions of other agencies as well and finally concluded that water crisis issues in Dhaka are mainly subject to incapacity of authorities to execute legal procedures against illegal/immoral actions of people and agencies both government and non-government (it may stretch from illegal river/canal occupation, dumping of industrial wastes to unplanned urban area development).

On the other hand, BWDB focuses on planning, development of new projects and engaged in operation and maintenance of existing water regulatory projects in Bangladesh. Flood control, improvement of drainage systems and irrigation facilities for enhanced food production are the prime mandates of this agency. It was also observed that BWDB activities have a lineage with the activities of WAPDA (Water and Power Development Authority) of East Pakistan, although currently this agency has got its own organogram and activity mandates under the auspices of BWDB Act 2000 and also guided by other related acts and policies like National Water Policy 1999 and National Water Management Plan 2001. BWDB is overwhelmed with the actions and programmes already introduced in Bangladesh by the predecessor agency WAPDA and recommendations made by Krug Mission and then by IECO in 1964, where the policies mentioned above were little successful to influence the activities of BWDB. It is important to note that during Pakistan periods the availability of water, water requirements by different sectors, patterns of disaster occurrence and impacts were different from later times when BWDB started working in Bangladesh to ensure best use of water and protect the country from water induced challenges/threats. In addition, increased requirements of water by different

sectors, water shortage at sources, contested nature of water use, increased frequency and new forms of hazards including climate change threats, poisoning (e.g. arsenic, chlorine) and pollution of water, illegal occupation of water courses, canals has emerged as new challenges in water sector and compounded the existing problems. These old and new sets of challenges collectively give new dimension to the pre-existing problems that are hardly addressed through new policies and less reflected in programmatic activities of BWDB. Relevant chapter (Chapter 5) focuses on how faulty and partial reading of delta environment and project implementation create grounds for breakdown of water integrity in Bangladesh. The chapter concludes by identifying major gap that the policies and the institutions once developed to address more simpler types of challenges in earlier times are still remain almost in the same state and trying to address more complicated, multiple forms of impact conditions.

However, major observations of the baseline study on

water integrity aspects are summarized in the following sections, which will highlight the major concerns and at the same time indicate intervention actions and suggestions to improve water integrity aspects in Bangladesh.

### **Partial Understanding/Assumptions Based Project Concepts Caused Permanent Damage to Water Supply Options**

- I. Structural measures based engineering solutions might not be fully effective in Bangladesh context, other non-structural measures should also be investigated.
- II. Impact consequences have multiple facets and dimensions. Any likely water sector (impact) assessments should pay attention in this regard. New project concepts should absorb these lessons.

### **Legal Aspects and Institutions**

- I. DPP (Development Project Proforma) of Planning Commission should be revised to ensure that projects will go in line with environmental/ecological integrity



standards (may be how EIA/SIA/SEA will be carried out by the proponent and be communicated should be declared at the initial stage of project development).

- II. Environment Impact Assessments need to be coherent and correctly aligned. Currently, DoE upholds guidelines mainly for industry sector, LGED maintains their own EIA guideline for screening their projects, Roads and Highways (R&H) maintains their own ones, WARPO keeps water sector guidelines. Most importantly, only DoE guidelines have legal entitlements via Environment Conservation Rules 1997 and the remaining other do not have legal protection. It is also important to note that there are no legal binding exist for Social Impact Assessment (SIA) guideline or Strategic Environmental Assessment (SEA) in Bangladesh. Fulfilling these gaps will ensure strong safeguard measures against actions that damage water storage and supply options in Bangladesh.

### **Breakdown of Ecological Integrity**

- I. Development projects, policies and legislative measures may bring unexpected changes in the ecological integrity of a region. These unexpected alterations may create impediments to incessant supply of necessary amount of waters with standard quality. Therefore projects taking up any stage/scale local, regional or national should go through rigorous appraisal process to make sure it does not undermine regional or local ecological integrity.
- II. Disasters both slow-onset (e.g., saline intrusion) and forceful-sudden, cause different degrees of ecological damage and consequently impact on water supply systems. Many government and non-government agencies have been working on related areas like WASH (Water Sanitation and Hygiene) to ensure better water related service delivery mechanisms to the households and institutions like schools. These project specific interventions should be more aligned with the specific requirements of the sector in the contexts of disasters and climate change.

### **Business as Usual Policy and Institutions**

- I. In many instances, water related problems are handled and managed by old fashioned institutions and inefficient policies. In contrast, changes have happened in reality and impact conditions become more complicated, compounded and multifaceted. This mismatch does not allow intended improvements through project implementation. For example, TRM project is approved by the government, not effectively be implemented due to the absence of required policy and guidelines over the land acquisition issues and related financial cost sharing strategies. As indicated before that EIA, SIA, SEA guidelines are not properly standardized and harmonized.
- II. Many local government agencies like City Corporations, Municipalities have not mandates to develop and execute their own plans; rather other upper level agencies impose activities upon them and asked to carry out. For instance, water supply systems of Satkhira Municipality informed that they have no mandate/capacity to develop their own water development plans although they have in-depth understanding about the requirements. But DPHE do the planning for them.
- III. There are instances that government agencies implement projects or take actions that open the opportunities for other stakeholders to perform wrong actions. These government actions may be happening within legal frameworks, but on moral grounds these should be avoided. For instance, government took actions against a land filling project in Dhaleswari floodplain (i.e., immediate after Gabtali) and at the same time Dhaka City Corporation has developed a large water filling site in the same area that also contributed wetland filling in the area. It is imperative to mention that this wetland is playing important roles in recharging ground water tables of Dhaka city.

## **Corruption and Accountability**

- I. Many water development projects experience allegations over misuse of public resources and corruptions. The Task Force of Bangladesh Water Development Board reviewed many such cases and some of which later telecasted in electronic media. Corruption over purchase of dredging machines, excavation of Jamuna river channel near Sirajganj, corruption over canal excavation in Chandpur all are investigated by BWDB's internal (by the Task Force) investigation teams. But the rectification measures are weak and delicate that does not enforce enough penalties which may provide strong warnings to stop further corruptions. These areas should be taken care of more seriously.
- II. The practice like giving rewards for good deeds is also missing in the institutions. Measures could be taken in this regard.

## **People's Participation and Inclusive Decision-Making**

- I. The opinions of local people (including women) are vital in designing projects. In most of the cases, people's participation still not is happening in a serious manner.

## **People Movements and Identity**

A number of people's movements took place in Bangladesh that aims to ensure more equitable and sustainable way of water resources management. The people's initiative like TRM (Tidal River Management), people's initiative for identifying and enlisting 22 illegally occupied canals in Khulna, people movements to save Arial Beel in Srinagar (Dhaka), Baral river movement in Bogra-Sirajganj, movement for excavating river Jamuna in Satkhira, movements and initiatives against FAP are some important water related movements in Bangladesh. Better understanding (through research activities) of these movements may provide valuable advocacy points for institutions and policy makers for taking up efficient water projects. Commissioning research activities on this water related movement.



# Chapter 1: Introduction

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# Introduction

## 1.1 Background

Water management in Bangladesh is an important issue due to the increasing demand and escalating disagreement between its alternative uses in different sectors. Demand for water is rising rapidly in agriculture (for irrigation), the urban and industrial sectors, fishery, inland navigation and salinity control (Chowdhury, 2010). It is generally agreed among water scholars, policy makers and donors that improving water integrity is one of the key solutions to water insecurity in developing countries like Bangladesh (Araral and Yu, 2012). Water integrity refers to transparent, accountable and inclusive decision-making by water stakeholders on the basis of core values of honesty, equity and sustainability in water management (WIN, 2014). Water Integrity studies can directly help national governments to develop evidence-based strategies to address corruption risks in the water sector, from where, time-bound anti-corruption action plans can be created, which can be monitored using concrete indicators (Jacobson et al., 2010). History of water resources management, development of water institutions, and formulation of water related laws where gaps still remained could be considered while assessing water integrity aspects for Bangladesh.

Abundance of water resources in aquifers and surface water systems (e.g. open and closed reservoirs) has been the key consideration to establish settlements, production processes and business systems in Bangladesh. This is true for both urban and rural contexts. All required water comes from natural systems and the availability of water is primarily dependent on seasonal rainfalls that occur between June and October months of the year in this region. Water supply also takes place from aquifers, water flow from the upstream/downstream areas of the catchment and nearby rivers and canals. These processes are also the results of the deltaic characteristics of the landform, relative location of the country in the subcontinent, surface morphology and slope conditions and prevailing tropical pattern of climate. Any change or alterations in these characteristics hugely impact the availability and quality of water. These quantity and quality issues determine investment needs, technological solutions and management systems to ensure meeting the required

amount of water at household or industrial level or for agriculture. The supply of clean uncontaminated water has fallen far short of demand due to inadequate flows in the upstream, pollution caused by the disposal of effluents, salinity intrusion in the coastal area and arsenic contamination (Chowdhury, 2010). On the demand side, irrigation has received higher priority than the supply of safe drinking water whereas on the supply side, the use of groundwater has received more emphasis than surface water.

The budget allocations and expenditures in water sector in Bangladesh are difficult to track since water services and management are cross-cutting issues. These allocations are accounted for agencies like Department of Public Health Engineering (DPHE) and Water Supply and Sewerage Authority (WASA) what have been implementing different projects throughout the country to supply safe drinking water, addressing water logging problems and constructing sewerage system in urban areas. In addition LGD (Local Government Division) through City Corporations and Pourashavas, BWDB (Bangladesh Water Development Board) spend a large amount of budget allocations in water sectors. These large investments give opportunities to different segments of the society to do corruptions and irregularities that finally cost on the efficient supply of water to the consumers that is affordable to them in terms of service rates, quality and quantity of water. In addition, water access issues at consumer level (e.g., domestic use) or at production level (e.g., irrigation) need to be examined to assess equitable access to water supply systems. Climate change related uncertainties have appeared as additional dimension to the existing sets of risks/problems.

BAWIN's vision is to represent highest standards of integrity, transparency and accountability so that the people at large, especially the poor and the disadvantaged are ensured of their right of access

to water for life and livelihood without being affected by governance deficit and corruption. BAWIN's values are transparency, accountability, integrity, honesty and respect for equality of all. The network is committed to promote equitable access to information and meaningful participation of all stakeholders both within the Government and outside, particularly communities, civil society and media as means of achieving its goals. Created at the initiative of Transparency International Bangladesh (TIB) and supported by the Berlin-based Water Integrity Network (WIN), BAWIN's objectives are to stimulate public debate and support for integrity in the water sector in Bangladesh by promoting transparency and accountability in policies and actions affecting the sector; to help institutions in the water sector to measurably improve transparency and accountability in policies, programmes and operations through knowledge and fact-based advocacy, campaign and engagement; and facilitate change that improves content and quality of services in the water sector with particular emphasis on sustainable livelihood of all, especially the poor and disadvantaged sections of the society. This work was initiated by BAWIN, with the support of WIN with the aim of developing a country baseline on the state of integrity in the water sector of Bangladesh.

## 1.2 Objectives

General objective of the study was to undertake a country baseline assessment on the state of integrity in the water sector for Bangladesh. The work also was aiming to attain the following specific objectives:

- Mapping of the legal and institutional arrangement and capacity for governance and integrity in the water sector in selected city corporation areas and south-west coastal region
- Assessment of governance and integrity risks in terms of practice in the selected institutions/areas/region
- Identification of priority risk areas/institutions for intervention

### 1.3 Scopes of the Work

The water integrity baseline of BAWIN provides information on entry points for interventions related to water integrity in Bangladesh. The study was limited to the following geographical parts of the country - Dhaka city and south-west part of the country (Khulna and Satkhira). This work provided scope in following area-

- a) Assessment of national policies and laws on water and relevant/sample investment implementation.
- b) Stakeholders in water governance and management - a mapping exercise of institutions in the City Corporation and Coastal belt, like DWASA and BWDB.
- c) Water governance and management from the perspective (from the consumer side also) of deltas, river basins, trans-boundary, WASH, urban water management in Dhaka, disaster management and climate change. This covers legal dimensions of the institutions, officials, functional capacity including regulatory mechanisms consumers and its practice.
- d) Identification of the most important integrity risks (public, private and consumer). It covers mapping corruption risks in the water sector and the way forward.

### 1.4 Baseline Assessment Methodologies

Initially it was thought that structured questionnaire survey would be carried out for developing a comprehensive baseline report on water integrity. But after discussion with BAWIN and considering budget limitations, it was decided that detailed questionnaire survey would not be required in this study. Rather a critical appraisal on water integrity aspects and identification of entry points for in-depth investigations would help BAWIN to outline their activity plan in the upcoming times.

This study is essentially a qualitative study where secondary data have been collected from related books, journals, articles, reports of government and non-government organizations, seminar papers and citizen charter of water

related institutions in Bangladesh. On the other hand, to gather specific knowledge regarding the water integrity aspects in a region, mixture of research techniques have been taken such as Key Informant Interview (KII), Group Meetings and Case study. Case study was based on fieldwork conducted between November and December 2014 and respondent's observations were taken from personal interviews or group meeting with key persons in water sector. Respondents were selected based on their activities, sex and education level. Besides, KWASA (Khulna Water Supply and Sewerage Authority) Chief Engineer, BWDB (Bangladesh Water Development Board) Chief Engineers of Khulna range, Khulna City Corporation officials, DWASA information officer, NGO activists, journalists and power elites were interviewed in order to gain comprehensive picture of water integrity aspects of Bangladesh, especially in Dhaka City corporation area and in South-west coastal area (Satkhira) (Appendix 5).

**a) Literature Review:** Literature review was considered as the key method to understand the wider contexts of the problem. Macro and sector policies, guidelines, rules, ordinances, annual reports, budgeting and public expenditure processes, citizen charters of agencies were critically reviewed considering several water integrity indicators. Indicators are discussed in Appendix 1 and 3. In addition, activities of different water institutes were also reviewed from available documents. A wide range of books, articles, paper clippings, research documents, seminar papers, concepts notes and related websites had been also reviewed.

**b) Key Informant Interview (KII):** Key Informant Interview was conducted to examine the degree of effectiveness of the practices at agency level against the standard norms and practices declared in their citizen charter and mandated



**Figure 1.1: Flowchart of baseline assessment methodology**

operational processes. Key Informants provided valuable suggestions in regards to governance and integrity risks in terms of practice in the selected institutions/areas/regions.

**c) Group Meetings:** Group meetings were organised at community levels to discuss about the interaction process, satisfaction levels, complaints and response mechanisms in relation to water access from the service bearer agencies.

## 1.5 Report Outline

This report is organized in five chapters and five appendices. Water related policies of Bangladesh were evaluated considering integrity issues are described in **Chapter 2**. The integrity issues for comprehensive policy evaluation are given in **Annexure 1**. Comprehensive policy evaluations in terms of integrity indicators are given in **Annexure 2**.

The water related institutions in Bangladesh and their assessment in terms of integrity criteria are discussed in **Chapter 3**. The integrity indicators for institutional assessment are given in **Annexure 3**. Comprehensive institutional evaluations are given in **Annexure 4**. A mapping exercise of institutions in the City Corporation (Dhaka) and south-western coastal area (Khulna, Satkhira) are given in **Chapter 4** where DWASA for Dhaka city corporation area and BWDB for south-western region of Bangladesh were taken as case studies. **Chapter 5** is the conclusive chapter where historical perspective of water management and integrity issues, integrity risks and main concern of identified risk areas/ institutions for intervention were discussed. Details of key informants and focus groups are given in **Annexure 5**.



## Chapter 2: Review of Water Related Laws and Policies

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# Review of Water Related Laws and Policies

## 2.1 Introduction

Water related laws could be local, regional, national or even international in nature. Laws that are local in nature can bring benefit immediately. But laws those are regional or national, have far reaching and long lasting effects, positive or negative. Any policy cannot be implemented, unless it is enacted as a law by the legislative assembly of the country. With the responsibilities assigned in the rules of business, the different ministries of the government framed some policies and plans, to act as guidelines for different implementing agencies, working in the fields of water resources management.

Although there are number of legal documents present related to water resources management in Bangladesh, twenty-nine major water related laws/ legislations/ policies of Bangladesh are considered for evaluation in this study. Among these legal documents there are eleven acts, four policies, six strategies, two plans, four ordinances, one treaty and one rules (Table 2.1). Twelve legal documents are implemented by the Ministry of Water Resources (The Canals Act, 1864; The Bangladesh Irrigation Water Rate Ordinance, 1983; River Research Act, 1990; Water Resources Planning Act, 1992; Ganges Water Sharing Treaty, 1996; National Policy for Safe Water Supply & Sanitation, 1998; National Water Policy, 1999; National Water Management Plan, 2001; National Sanitation Strategy, 2005; Coastal Zone Policy, 2005; Coastal Development Strategy, 2006; Bangladesh Water Act, 2013), four by the Ministry of Environment and Forest (Bangladesh Wildlife (Preservation) (Amendment) Act, 1974; The Bangladesh Environment Conservation Act, 1995; The Environment Conservation Rules, 1997; The Environment Court Act, 2000), two by the Ministry of Fisheries and Livestock (The Protection and Conservation of Fish Act, 1982; Marine Fisheries Ordinance, 1983), three by the Ministry of Shipping (Ports Act, 1908; The Inland Water Transport Authority Ordinance, 1958; Territorial Waters and Maritime Zones Act, 1974), one by the Ministry of Agriculture (The Groundwater Management Ordinance, 1985), seven by the Ministry of Local Government (Water Supply and Sewerage Authority Act, 1996; National Policy for Arsenic

Mitigation and Implementation Plan, 2004; Pro-poor strategy for Water and Sanitation Sector in Bangladesh, 2005; National Strategy for Water and Sanitation Hard to Reach Areas of Bangladesh, 2011; Sector Development Plan (FY 2011-2025) for Water Supply and Sanitation Sector in Bangladesh, 2011; National Cost Sharing Strategy for Water Supply and Sanitation in Bangladesh, 2012; National Hygiene Promotion Strategy for Water Supply and Sanitation in Bangladesh, 2012).

Integrity issues were evaluated considering policy and legislation, regulation, equitable services provision,

rights to water, voice and choice, gender, civil society participation, corruption, transparency and accountability, environmental management, water resources management, monitoring and evaluation and institutionalization and decentralization issues. Details of water integrity issues are given in Appendix 1 and details evaluation of individual law/ legislation/ policy are given in Appendix 2. A general summary is given in the next section (2.2) and a matrix incorporating all legislations and integrity issues is presented in the Table 2.2 which is prepared based on the evaluation.

**Table 2.1: List of water related major legal documents in Bangladesh**

Legal Documents	Year
<b>Act</b>	
The Canals Act	1864
River Research Act	1990
Water Resources Planning Act	1992
Bangladesh Water Act	2013
The Environment Court Act	2000
Bangladesh Wildlife (Preservation) (Amendment) Act	1974
The Bangladesh Environment Conservation Act	1995
Ports Act	1908
Territorial Waters and Maritime Zones Act	1974
Water Supply and Sewerage Authority Act	1996
The Protection and Conservation of Fish Act	1982
<b>Policy</b>	
National Policy for Safe Water Supply & Sanitation	1998
National Water Policy	1999
Coastal Zone Policy	2005
National Policy for Arsenic Mitigation and Implementation Plan	2004

Legal Documents	Year
<b>Strategy</b>	
National Sanitation Strategy	2005
Coastal Development Strategy	2006
PRO POOR STRATEGY for Water and Sanitation Sector in Bangladesh	2005
National Cost Sharing Strategy for Water Supply and Sanitation in Bangladesh	2012
National Hygiene Promotion Strategy for Water Supply and Sanitation in Bangladesh	2012
National Strategy for Water and Sanitation Hard to Reach Areas of Bangladesh	2011
<b>Plan</b>	
National Water Management Plan	2004
Sector Development Plan (FY 2011-2025) for Water Supply and Sanitation Sector in Bangladesh	2011
<b>Ordinance</b>	
The Bangladesh Irrigation Water Rate Ordinance	1983
The Inland Water Transport Authority Ordinance	1958
The Groundwater Management Ordinance	1985
Marine Fisheries Ordinance	1983
<b>Treaty</b>	
Ganges Water Sharing Treaty	1996
<b>Rules</b>	
The Environment Conservation Rules	1997

## 2.2 Summary for Major Legal Documents Evaluation

### 2.2.1 Acts

The **Canals Act, 1864** is related to the collection of tolls on canals and other lines of navigation and the construction and improvement of lines of navigation in Bangladesh. This act clearly spells out the law related to the collection of tolls on canals and lines of navigation and authorizes the collection of tolls on such other lines of navigation as may hereafter be rendered subjects

to the provisions to this act and to provide for the construction and improvement of lines of navigation.

*But accountability, corruption, water resources management and environmental protection issues are neglected in this act.*

The **River Research Act, 1990** was made to establish a River Research Institute to control, by means of geographical models, the preparation of maps required for river regulation, prevention of embankment breaks, flood control, irrigation and drainage and to co-operate

with such domestic or foreign institutes as are according to their duties, appointed to the same kind of works and to direct joint programs. *Water integrity issues like participatory involvement of stakeholders, right to information, gender participation, accountability and transparency are neglected in this act.*

**Water Resources Planning Act, 1992** was made to ensure the development and balanced use of water resources. The prime functions of the institution is to conduct the general planning of environmentally balanced water resources for the purpose of developing water resources, to determine the national means and methods for the scientific utilization and preservation of water resources and to give advice to other institutions involved in the development, utilization and preservation of water resources. *Voice and choice, gender perspective, commitment to anticorruption and civil society participation are not encouraged as this act does not have mention any clause related to these issues.*

**Bangladesh Water Act, 2013** is an act to make provision for integrated development, management, abstraction, distribution, use, protection and conservation of water resources. For the purpose of this act "National Water Resources Council" was established and the main function of this council is to make policies and give instruction for integrated development, proper use, safe abstraction, proper distribution, proper protection and proper conservation of water resources and to ensure the implementation of national water resources plan. The participation of civil society and print media is encouraged and the development approach is used for sustainability of water resources in this act. The water act is committed to anticorruption and stiff judicial, economic and social sanctions are being imposed on offenders and publicly announced in the media. *But accountability issues are not prioritised in this policy and service providers are not responsive to their responsibilities.*

The objectives of **Bangladesh Wildlife (Preservation) (Amendment) Act** is to provide protection, conservation and management of protected areas and wildlife of Bangladesh. Under this act national park, landscape zone, safari park, eco-park and botanical garden have been declared as protected areas of Bangladesh. There is no commitment to anticorruption and planning and budgeting are not open and transparent because civil society advocacy organization does not monitor budget decisions, allocations and expenditures. Integrity aspects *like equitable service provision, transparency and corruption are not clearly spelled out in this act.*

The **Bangladesh Environment Conservation Act, 1995** is an act to provide for conservation of the environment, improvement of environmental standards and control and mitigation of environmental pollution. Subject to the provisions of this act, the director general may take such measures as he considers necessary and expedient for the conservation of the environment and improvement of environmental standards and for the control and mitigation of environmental pollution and may issue necessary directions in writing to any person for the discharge of his duties under this act. Climate change and its potential impacts are not taken into account and have not been incorporated into the planning, management and use of water resources which is an important issue for water resource management. *Also this act does not clearly point out about transparency and accountability, anticorruption and user community participation in environmental management.*

The **Environment Court Act, 2000** is an act to provide for the establishment of environment courts and matters incidental thereto. This act clearly points out about establishment of environment courts, jurisdiction of environment court, power of entry, procedure for investigation, procedure and power of environment court, environment appeal court, jurisdiction of environment court over offences etc. Committed earlier and power

to make rules. *But this act does not clearly describe about transparency and accountability, climate change issues and user community participation in environmental management.*

The **Protection and Conservation of Fish Act, 1950** was made to provide the protection and conservation of fish resources in Bangladesh. This act clearly point out the power to make rules, power to prohibit sale of fish, penalties, arrest without warrant for offence under the act, cognizance of offences, officers to be deemed public servants and indemnity. *Water integrity issues like gender participation, civil society participation, transparency and accountability and pollution prevention or environmental conservation are not prioritized in this act.*

**Ports Act, 1908** is an act to consolidate the enactments related to ports and port charges. The different chapters of this act describe the powers of the government, port-officials and their powers and duties, rules for the safety of shipping and the conservation of ports, port-dues, fees and other charges, hoisting signals, provisions with respect to penalties. *Priority is given to water safety in policies but voice and choice, transparency and accountability and corruption are not prioritized in any section of this act.* But water management, environmental management and monitoring system in ports are clearly spelled out in this ordinance.

**Territorial Waters and Maritime Zones Act, 1974** is an act to provide for the declaration of the territorial waters and maritime zones. This act describe about territorial waters, contiguous zone, economic zone, conservation zone, continental shelf, control of pollution and power to make rules. *Voice and choice, gender issue, civil society participation, corruption, transparency and accountability are not clearly spelled out in this act.* The government may with a view to preventing and controlling marine pollution and preserving the quality

and ecological balance in the marine environment in the high seas adjacent to the territorial waters, take such measures as it may deem appropriate for the purpose.

**Water Supply and Sewerage Authority Act, 1996** was enacted to develop water supply and sanitation system and to deliver water supply, sewerage and storm water drainage services. It provides for autonomous corporate management structures of WASAs which are answerable to their respective Boards of Directors representing a range of stakeholders. *In respect of integrity issues equitable service provision, right to water, gender perspective, monitoring and evaluation have been reflected but accountability and transparency have been neglected in this act.*

## 2.2.2 Policies

The objectives of the **National Policy for Safe Water Supply and Sanitation, 1998** are to improve the standard of public health by making water and sanitation services accessible to all within the shortest possible time at a price affordable to all and to ensure improved environment. The gradual success made by Bangladesh in the provision of basic water supply services to its rural population has earned plaudits. In terms of a service level defined as percentage of population living within 150 meters of a tube-well, the present rural water supply coverage is over 90% and the rural sanitation coverage is 16%, though it increases to 42% when homemade latrines are considered. The urban water supply and sanitation coverage are both around 50%. It is globally recognized that, physical provision of services alone is not a sufficient precondition for sustainability or improvement of health and wellbeing of the people. Greater attention needs to be focused on elements of behavioural changes of users and sustainability through user participation in planning, implementation, management and cost sharing with commitment to anticorruption, transparency and accountability of sector officials. The need for change within the conventional programs is recognized by the

government and all the stakeholders in the sector. The government is providing encouragement and supporting the involvement of other partners, such as non-governmental organizations (NGOs) market oriented business organizations and similar private organizations in water and sanitation development.

**National Water Policy, 1999** is designed to ensure continued progress towards fulfilling the national goals of economic development, poverty alleviation, food security, public health and safety, decent standard of living for the people and will guide management of the country's water resources by all the concerned ministries, agencies, departments and local bodies that are assigned responsibilities for the development, maintenance and delivery of water and water related services as well as the private users and developers of water resources. According to this policy, the Water Resources Planning Organization (WARPO) will delineate the hydrological regions of the country, based on appropriate natural features, for planning the development of their water resources and will prepare and periodically update, a National Water Management Plan (NWMP) addressing the overall resource management issues in each region and the whole of Bangladesh and providing directions for the short, intermediate and long runs. The governance and management of the national water resources require a great deal of coordination of existing institutions and in some cases reform and creation of new community based institutions. Properly functioning institutions are essential for effective implementation and administration of the country's water related environmental resource management policies and directives. This policy should have commitment to anticorruption, transparency and separate policy, planning and regulatory functions from implementation and operational functions at each level of government and each institution must be held accountable for financial and operational performance, but these issues are not clearly spelled out in this policy document.

The government has formulated the **Coastal Zone Policy (CZPo)**, 2005 that provides a general guidance to all concerned for the management and development of the coastal zone in a manner so that the coastal people are able to pursue their life and livelihoods within secure and conducive environment without impairing the integrity of the natural environment. The goal of integrated coastal zone management is 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 government has made the coastal zone policy statements in relation to development objectives. Transparency and accountability and corruption perspective is neglected in coastal zone policy because coastal zone planning and budgeting are not transparent and civil society or community participation is not encouraged. The enforcement of existing legal coverage is a key issue in sustainable coastal management. This policy will be given effect, if needed, through revision, modification of existing laws, rules and regulations specifying provisions of the coastal zone policy to facilitate its implementation. The coastal zone policy is unique in the sense that it is a harmonized policy that transcends beyond sectoral perspectives. The CZPo initiates a process that commits different ministries, departments and agencies to agree to harmonize and coordinate their activities in the coastal zone and elaborates the basis for a firm co-ordination mechanism.

**National Policy for Arsenic Mitigation, 2004** has been initiated to mitigating the effect of arsenic on people and environment. This policy states about the nature and extent of the arsenic problem, arsenic mitigation process, institutional arrangement and collaboration among them. This policy recommends for using appropriate alternative and affordable technologies as shallow tube wells can no longer provide safe water for drinking and cooking in arsenic affected areas. *In terms of integrity issues equitable service provision, civil society participation,*

*monitoring and evaluation, transparency, environmental management and institutionalization have been incorporated. But there is no commitment to anticorruption along with gender participation in planning, implementation and monitoring.*

### **2.2.3 Strategy**

**National Sanitation Strategy, 2005** has been adopted with a view to achieve 100% sanitation coverage by 2010. It describes about the relevant policy guidelines (the national policy for safe water supply and sanitation 1998, draft poverty reduction strategy paper, national water management plan, sector framework 2004, pro-poor strategy for water and sanitation sector 2005), major sanitation issues, strategies for sanitation improvement and development action plan. In this strategy priority has been given in equitable service provision, right to water, civil society participation, gender perspective, monitoring and evaluation of activities and decentralization. But the transparency and accountability issues need to be strengthened to reduce the ways of corruption in strategy implementation.

**Coastal Development Strategy (CDS)** focuses on the implementation of the coastal zone policy. The CDS is the linking pin in the ICZM process, linking the CZPo with concrete development programs and intervention. The objectives of the CDS are to select strategic priorities and actions in the implementation of the CZPo with emphasis on the creation of the institutional environment that will enable GoB to embark on a continuous and structured process of prioritisation, development and implementation of concerted interventions for the development of the CZ. The strategy aims to be complementary to the ongoing as well as segmented activities of different government agencies, NGOs and development partners. Though planning and budgeting are open and transparent but there is lacking in transparency and accountability issues because civil society organization does not monitor budget decision

allocations and expenditures and media are not used to publicly羞ing corrupt officials and politicians. *Here, three aspects of governance, such as institutional development, legal frameworks and assessments, based on an indicator framework are prioritized.* By harnessing and exploiting its opportunities in systematic and coordinated way, the coastal zone can make a substantial contribution to achieve the national goals of accelerated poverty reduction and economic growth.

### **Pro-poor strategy for Water and Sanitation Sector in Bangladesh, 2005**

**discusses** about the operational definition of hard-core poor households, basic minimum level of service (drinking water and sanitation), targeting and organizing the hard-core poor households and mechanism of administering subsidies where it is expected that this Pro-poor strategy would be successful in reducing poverty of hardcore poor families. *In respect of integrity issues this pro poor strategy includes equitable services provision, rights to water, gender equality, civil society participation in WatSan activities, monitoring and evaluation and institutionalization & decentralization. But the accountability and transparency issues need to be precise for the responsible authority.*

### **National Cost Sharing Strategy for Water Supply and Sanitation in Bangladesh, 2012**

**describes** policy guidelines, implementation strategies, cost sharing principles and recommendation modalities and operational guidelines for measuring service levels. This document has been developed with a view to provide functional ways and to facilitate a uniform practice with reasonable flexibility regarding cost sharing for water supply and sanitation services in Bangladesh. Various clause of this strategy describe the integrity issues which is an important factor of strategy implementation. *In terms of integrity issues equitable service provision, gender issues, stakeholder participation, transparency and accountability, corruption, water*

*resource management, monitoring and evaluation and decentralization have been discussed.*

**National Hygiene Promotion Strategy for Water Supply and Sanitation Sector, 2012** is a strategy to promote sustainable use of improved water supply and sanitation infrastructures and to ensure comprehensive hygiene promotion to reduce water and sanitation related diseases. *This strategy describes about the development process and key strategies to achieve the objectives. In respect of integrity issues the public participation, equitable service provision, gender participation, monitoring and evaluation and decentralization have been incorporated in this strategy. But this ordinance has no clause related to anticorruption issue, voice and choice with limited accountability and transparency which is important for integrity aspects.*

The primary objective of formulating **National Strategy for Water and Sanitation Hard to Reach Areas of Bangladesh, 2011** is to improve safe drinking water and sanitation coverage in hydro-geologically and socio-economically difficult areas where people have services much less than the national standard. This strategy describes the approach and methodologies for identifying hard to reach areas, (indicators for identifying and classification of hard to reach areas), strategies to improve water and sanitation services, sources of funds and implication strategies for hard to reach areas. Different clause of this strategy state the equitable service provision, gender perspective, civil society participation, transparency and accountability, climate change issues, monitoring and evaluation. *But this strategy have some lacking in the institutionalization and decentralization as the relationships between stakeholders are not clear, legitimized and governed by written procedures, agreements or contracts besides the commitment to anticorruption is not clear.*

#### **2.2.4 Plans**

The fundamental importance to the implementation of **National Water Management Plan (NWMP), 2001** lies in research and information management, participatory planning and management, promotion of women's participation, media and awareness raising, promoting private sector participation, development finance and regulatory and economic instruments. In line with the requirements, the National Water Management Plan (NWMP) is being prepared in a comprehensive and integrated manner, with regard to the interests of all water-related sectors and taking full account of other sectors policies of the government. The plan is intended to provide the necessary advice on follow-up actions to be taken for implementing the NWMP, thereby contributing to national economic development through rational management of water resources in a way that protects the natural environment and improves the quality of life for the people of Bangladesh. The main choices that have guided strategy formulation relate to the emphasis or priority to be given to national goals, the selection of an appropriate future institutional framework and the selection of suitable sub-sectoral and regional development measures, taking account of their social, economic, environmental and technical merits and demerits. To update the water resources management plans participatory involvement have been encouraged and climate change and its potential impacts are also taken into account which is very important for any water management activities.

To achieve the national goals and target, the **Sector Development Plan (FY 2011-15)** have been considered as a planning and strategic tools for sectoral development. Sector Development Plan (SDP) focuses on the thematic areas (surface water resource management, groundwater resource management, water quality, arsenic mitigation, hygienic promotion, water safety plan, public private partnership, vulnerable groups, climate change and disaster management, research and development), sector capacity building, sector investment plan and SDP

implementation. The SDP recommends the immediate actions at a flexible cost for water supply and sanitation sector. *In terms of integrity issues equitable service provision, gender issues, stakeholder participation, transparency and accountability, corruption, water resource management, monitoring and evaluation and decentralization have been discussed on SDP.*

### 2.2.5 Ordinances

**The Bangladesh Irrigation Water Rate Ordinance, 1983** is an ordinance to consolidate and amend the law related to the imposition of water rate for supply, regulation or storage of water for irrigation or drainage. Whereas it is expedient to consolidate and amend the law relating to the imposition of water supply, regulation for storage of water for irrigation or drainage and to provide for certain matters connected therewith. *This ordinance does not give any scope of people's participation, does not commit to anticorruption and neglects right to information.*

**Marine Fisheries Ordinance, 1983** was prepared for the management, conservation and development of marine fisheries in the Bangladesh fisheries waters and to deal with certain matters connected therewith. These ordinances empower the director for the management, conservation, supervision and development of marine fisheries and the implementation of the objectives of this ordinance. This ordinance describes the types, classes and numbers of fishing vessels, matters for which license is valid, duty to provide information regarding catches, license to be subject to certain conditions, local fishing vessel to hold valid certificate of inspection, use of explosives, fishing, dredging, etc. prohibited in marine reserves, power to stop vessel etc. *But climate change impacts, monitoring and evaluation, transparency and accountability issues are not clearly spelled out in this ordinance.*

**The Inland Water Transport Authority Ordinance, 1958** is an ordinance to set up an authority for

development, maintenance and control of inland water transport and of certain inland navigable water ways. This ordinance clearly points out the establishment and incorporation of authority, remuneration and conditions of services, power of the government to supersede the authority, determination of number, designation of the officers and servants of the authority, function of the authority, submission of yearly reports and returns, maintenance of account and power to make rules. *This ordinance leads to some sort of transparency and accountability within the institutions but other integrity issues like water management, environmental management and monitoring are not mentioned in present ordinance.*

The **Ground Water Management Ordinance, 1985** is an ordinance to manage the ground water resources for agricultural production. This document describes the effects of law that are inconsistent with the ordinance, Upazila irrigation committee, license for tube well and existing tube well, suspension and revocation of license, cancellation of license, supply of tube well by corporation, power to make rules and power to exempt. *But this ordinance has no clause related to gender policy, civil society participation and anticorruption issue with limited accountability and transparency.* Data collection, auditing and reporting are not accessible to the public and the sector monitoring system is not able to provide for reliable estimations of access and use of services.

### 2.2.6 Treaty

**Ganges Waters Sharing Treaty, 1996** between the government of the People's Republic of Bangladesh and the government of the Republic of India was determined to promote and strengthen their relations of friendship and good neighbourliness, inspired by the common desire of promoting the well-being of their peoples, being desirous of sharing by mutual agreement the waters of the international rivers flowing through the territories of



the two countries and of making the optimum utilization of the water resources of their region in the fields of flood management, irrigation, river basin development and generation of hydro-power for the mutual benefit of the people of the two countries. *But climate change and its potential impacts have not been incorporated into the planning, management and use of water resources. The joint committee submits a yearly report to the Governments of Bangladesh and India but data collection, analysis and reporting are not transparent and accessible. Public and civil society participation is not prioritised in this treaty.*

#### **2.2.7 Rules**

The **Environment Conservation Rules, 1997** clearly describe the declaration of ecologically critical area, procedure for issuing environmental clearance certificate, pollution under control certificate, determination of environmental standards, application relating to pollution

or degradation of environment, procedure for hearing of appeal, various services and their fees etc. This policy highlights the need to conserve the environment from pollution and particularly in the development of water management through determining various water standards. *But this act does not clearly point out about transparency and accountability, anticorruption and user community participation in environmental management.*

### **2.3 Conclusion**

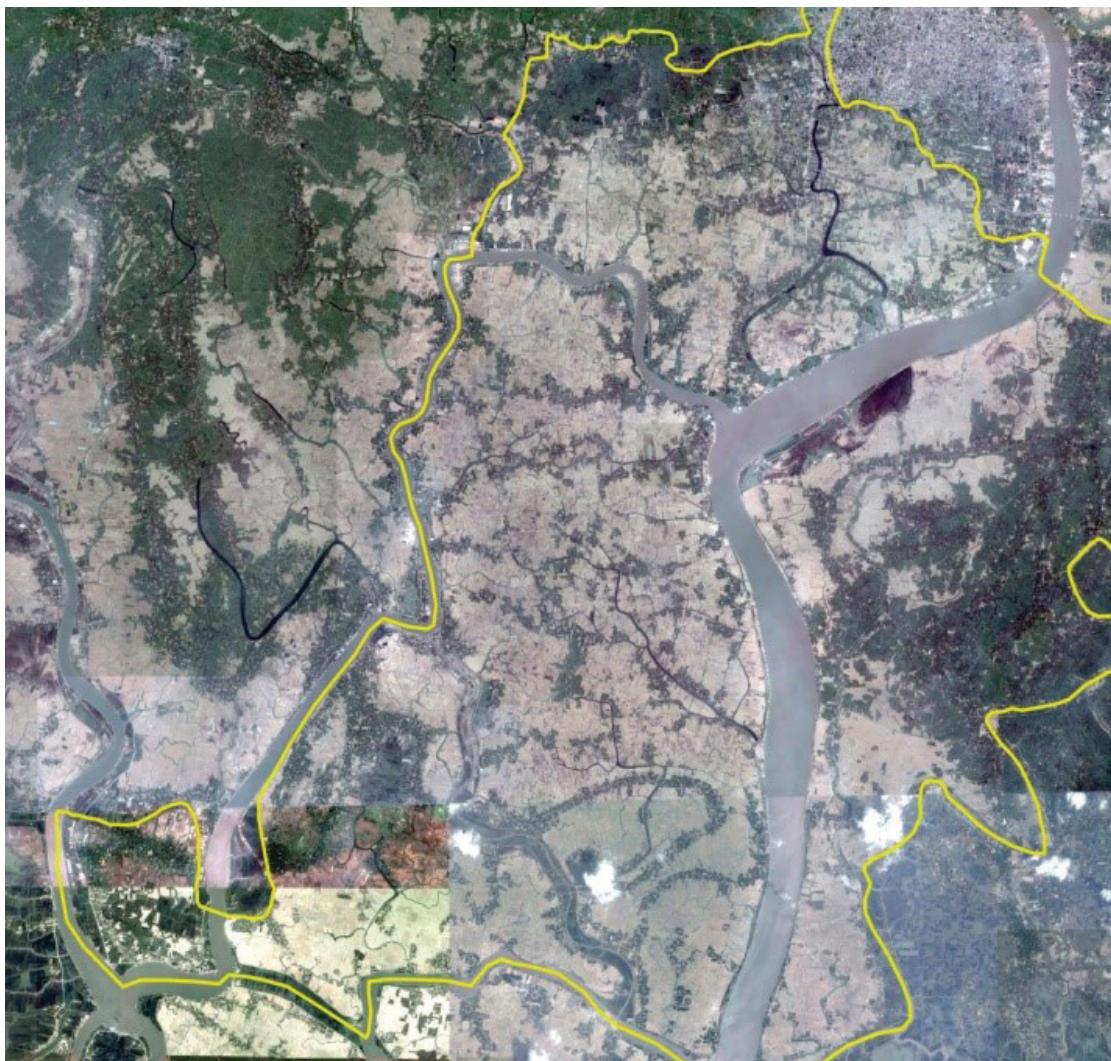
Present evaluation suggests that water integrity issues like gender participation, civil society participation, climate change impacts, right to information, legal accountability of sector officials, transparency, and regulatory mechanism and monitoring should be prioritized in existing law/legislation/policy of Bangladesh for the improvement of water integrity in Bangladesh.

Table 2.2: List of integrity issues in major legal documents in Bangladesh

### Issues for Policy Assessment

Name of the Law/Policy	Policy and Legislation	Regulation	Equitable Services Provision	Rights to Water	Voice and Choice	Gender	Civil Society Participation	Corruption	Transparency and Accountability	Environmental Management	Water Resources Management	Monitoring and Evaluation	Institutionalization & Decentralization
Marine fisheries ordinance, 1983	x	+	x	+	x	x	x	x	x	x	x+	x	+
Ports Acts, 1908	x	x+	x	+	x	x	x	x	x	x	x	x	+
The Inland Water Transport Authority Ordinance, 1958	x	+	+	+	x	x	x	x+	x+	x	x	x	+
Territorial Waters and Maritime Zones Act, 1974	x	+	+	+	x	x	x	x	x	x+	x+	x	x
The Ground Water Management Ordinance, 1985	x	+	+	+	x	x	x	x	x	x+	x	x	x
Water Supply and Sewerage Authority Act, 1996	+	+	+	+	x	+	x	x	x	+	+	+	+
PRO POOR STRATEGY for Water and Sanitation Sector in Bangladesh, 2005	+	+	+	+	+	+	+	x	x	+	+	+	+
National Cost Sharing Strategy for Water Supply and Sanitation in Bangladesh 2012	+	+	+	+	+	+	+	+	+	+	+	+	+
National Hygiene Promotion Strategy for Water Supply and Sanitation Sector, 2012	+	+	+	+	x	+	+	x	x	+	+	+	+
National Strategy for Water and Sanitation Hard to Reach Areas of Bangladesh, 2011	+	+	+	+	+	+	+	x	+	+	+	+	x
National Policy for Arsenic Mitigation 2004	+	+	+	+	+	+	+	x	x	+	+	+	+
Sector Development Plan (FY 2011-25)	+	+	+	+	+	+	+	+	+	+	+	+	+

Note: "+" Means the selected issue is present, "-" Means the selected issue is not present; "+<" Means Some of issues are Present



## Chapter 3: Institutional Mapping

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# Institutional Mapping

## 3.1 Introduction

For proper management of water resources there is a need for effective institutions and a legal framework to take care of the water management issues. The overall management of water resources depends on state water agencies, NGOs and other government agencies in agriculture, water and sewage, public health, municipalities, inland water transport, fisheries, forestry and the environment. List of water related organisations along with their institutional settings and functions are given in Table 3.1.

Integrity issues (equitable services provision, rights to water, gender, corruption, transparency and accountability, environmental management, water resources management, monitoring and evaluation) have been evaluated in the available institutional documents. Detailed of integrity issues are given in Appendix 3 and the evaluations of individual institution are given in Appendix 4. A general summary of institutional evaluation is given in next section (3.2) and a matrix incorporating all institutions and integrity issues is presented in Table 3.2.

**Table 3.1: List of water related institutions in Bangladesh**

Organisation	Institutional Settings and Functions
1. Ministry of Water Resources (MoWR)	The Ministry of Water Resources is the apex body of the Government of the People's Republic of Bangladesh for development and management of the whole 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.
a) Bangladesh Water Development Board (BWDB)	The Bangladesh Water Development Board (BWDB), implements the FCD/FCDI and other development projects. It also collects, processes, stores and disseminates hydrological and hydraulic data and information through BWDB. It provides flood forecasting and warning information through Flood Forecasting and Warning Center (FFWC) of BWDB. The Ministry prepared the Guidelines for Participatory Water Management (GPWM) and that is being widely followed by the stakeholders at all levels.
b) Water Resources Planning Organization (WARPO)	The Water Resources Planning Organization (WARPO) prepared National Water Policy, the Coastal Zone Policy, National Water Resources Database (NWRD), National Water Management Plan (NWMP) and Integrated Coastal Resources Database (ICRD).
c) River Research Institute (RRI)	River Research Institute (RRI) is responsible for physical and mathematical water modelling;
d) Bangladesh Haor and Wetland Development Board (BHWDB)	Bangladesh Haor and Wetland Development Board (BHWDB) is responsible for the development of haors and wetlands.
e) Joint Rivers Commission (JRC)	Institute of Water Modelling is responsible for mathematical water modelling
g) Center for Environmental and Geographic Information Services (CEGIS)	Center for Environmental and Geographic Information Services (CEGIS) responsible for integrated environmental analysis using GIS, remote sensing (RS), database and IT.
2. Ministry of Local Government, Rural Development and Co-operatives	
A. Local Government Engineering Department (LGED)	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 programs. LGED works closely with the local stakeholders to ensure people's participation and bottom-up planning in all stages of project implementation cycle.

<b>Organisation</b>	<b>Institutional Settings and Functions</b>
B. Department of Public Health Engineering (DPHE)	The Department of Public Health Engineering (DPHE) is the national lead agency for provision of drinking water supply and waste management in the country excepting Dhaka, Narayanganj and Chittagong cities where WASAs operate. With the challenges generate by the discovery of arsenic in incremental areas since its first detection in 1993, DPHE with its development partners is trying to ameliorate the sufferings caused by the lack of safe water. Alternative options for safe water supply are being catered in worse affected areas. Similarly for excreta and other waste management DPHE is implementing different projects to achieve an improvement environment.
C. Water Supply and Sewerage Authorities (WASA)	WASAs are semi-autonomous bodies formed in accordance with the 1996 WASA Act. Presently there are 4 WASAs (in Dhaka, Chittagong, Khulna and Rajshahi cities). WASAs are responsible for providing WSS services to urban areas under their jurisdictions.
D. Local Government Institutions	
a) City Corporation	All the local government institutions are under LGD. There are six City Corporation is the metropolitan cities i.e. Dhaka, Chittagong, Khulna, Sylhet and Barisal. Four city corporations have WASAs where the WSS responsibility is with WASAs. In other three the responsibilities are with City Corporations and the WSS development works are normally supported by DPHE.
b) Paurashava (Municipalities)	Responsible for providing WSS services. Development works are normally supported by DPHE.
c) Zila Parishad (District Council)	Presently their roles are limited
d) Upazila Parishad	Supervise and provide administrative and technical support to the UPs
e) Union Parishad (UP)	Implements development schemes including WSS in rural areas with their own funds and funds available from Centre. DPHE also implements in WSS schemes in collaboration with UPs.
3. Ministry of Agriculture (MoA)	
a) Bangladesh Agricultural Development Corporation (BADC)	Under MoA pioneered the introduction of mechanized minor irrigation, laying the foundation for the rapid expansion that has since occurred through the private sector.
b) Barind Multipurpose Development Authority (BMDA)	It is assigned to develop agriculture and mainly engaged in deep tube well irrigation in northwest area of Bangladesh.
4. Ministry of Land	Owner of all Kash (public) land including rivers. The Ministry of Land or its representative at local level (District Commissioners) give permission to establish infrastructure related to river water use like boat landings, other structures in rivers, etc.
5. Ministry of Fisheries and Livestock	The Ministry of Fisheries is responsible for development of capture and culture of fisheries
6. Ministry of Health	Public health management including hygiene education, standardization and quality control of food, water and other health related commodities.

Organisation	Institutional Settings and Functions
7. Ministry of Environment and Forests (MoEF)	Sets policies for environmental protection and management and is responsible through DoE for enforcement of environmental rules and guidelines for all sectors
a) Department of Environment (DoE)	It is under MoEF and is mandated to regulate and enforce environmental management, including pollution control of water resources. Its responsibilities include ensuring the adequacy of Environmental Impact Assessments
Non-Governmental Organizations	
a) WaterAid	WaterAid supports projects with NGO partners and works in the field of capacity building and training, technical support and advice, research and development, advocacy and networking. The WaterAid programme has grown considerably over the past few years and the varied strategies it tries out may deserved to be studied, through field visits, for the insights they could provide.
b) NGO Forum	NGO Forum, an apex organization, works exclusively in the water and sanitation sector in partnership of more than 600 local NGOs covers 10,894 villages in all districts of the country. Its partners have thus far covered 1.5 million households, installed 39,000 shallow tube wells and tested 44,000 tube wells for arsenic. It has installed 1.83 million latrine units and supported NGOs and CBOs to establish 628 VSCs and local producers to establish 212 Village Sanitation Committees. The core communication package of NGO Forum is shared with all NGOs working in water supply, sanitation and health promotion, including BRAC. BRAC sits on the NGO-Forum Board. NGO-Forum also operates an information resource centre that might be of use to the proposed BRAC programme in providing key sector materials.

## 3.2 Summary of Institutional Mapping

As water is needed in all areas of society there is a need for effective institutions and a legal framework to take care of the water management issues. The overall management of water resources have been shared between state water agencies, users of water including the public, NGOs and other government agencies in agriculture, industry, commerce, water and sewage, public health, municipalities, inland water transport, fisheries, forestry and the environment. The ministry of water resources is responsible for flood management, irrigation, drainage control, erosion protection, land reclamation, integrated management of coastal polders, river flow augmentation, water sharing from trans-boundary rivers and wetland conservation through participation of local people and coordinated programs with all the ministries dependent

on water resources. Major public organizations under the Ministry of Water Resources are WARPO, BWDB and River Research Institute (RRI). Organizations in other sectors that have inter-linkages with this sector are the Department of Public Health Engineering (DPHE), the Local Government Engineering Department (LGED), the Water and Sewerage Authority (WASA), the Department of Fisheries (DoF), Bangladesh Inland Water Transport Authority (BIWTA), the Roads and Highways Department (R&H), the Department of Environment (DoE), Bangladesh Agricultural Development Corporation (BADC), Barind Multipurpose Development Authority, Joint Rivers Commission (JRC), Institute of Water Modelling (IWM), respective municipal authorities and various national and international NGOs.

The National Water Resources Council (NWRC) is the highest national body for the formulation of water

policy. It coordinates different water agencies and makes recommendations on all water policy issues to the cabinet. The national water policy formulated in 1999, has guidelines for agriculture, fisheries, industry, navigation, environment, basin-wide planning, water rights and allocations, public and private investment, water supply and sanitation. The policy underscores the broad principles of water resource development and its rational utilization. It emphasizes both public and private actions and highlights the importance of conjunctive use of ground and surface water. Water Resources Planning Organization (WARPO) is a principal agency of the government of Bangladesh under the ministry of water resources. It has a mandate to ensure coordination of all relevant ministries through the NWRC and to plan all aspects of water development including major and minor irrigation, navigation, fisheries and domestic water supply. It is responsible for three main assignments: a) Preparation of the National Water Management Plan (NWMP) for the period to 2025 according to the national water policy formulated in January 1999; b) Establishing and updating the National Water Resources Database (NWRD) and c) Acting as a clearing-house for all water sector projects undertaken by any agency involved in the water sector. The Mission of WARPO is to achieve sustainable water resources development in Bangladesh by pursuing Integrated Water Resources Management (IWRM). WARPO is working to improve the national water resources and progress have been made towards meeting national goals in water resources management because they have a good number of technical report and papers. The major contribution in this regards includes National Water Policy (NWPO), National Water Management Plan (NWMP), Draft State of Water Resources Report, Coastal Zone Policy, National Water plan, Options for Ganges Dependent Area (OGDA) etc. In respect of water integrity issues, except corruption other issues like equitable service provision, right to water, gender, environmental management, water resources management and monitoring and evaluation

are functional in Water Resources Planning Organization (WARPO).

Bangladesh Water Development Board (BWDB) carries responsibility for the planning and execution of various projects ranges from flood control, drainage and irrigation to coastal protection and erosion control. Major investments in the water sector are made by the ministry of water through the BWDB and by the ministry of local government and rural development through its LGED. As WARPO is responsible for national and regional level plans BWDB is supposed to develop projects fulfilling the requirements of their plans. BWDB is also a major collector of water resources information and as such it is a major partner of WARPO in sustaining the NWRD. The vision of Bangladesh Water Development Board (BWDB) is to develop a state of knowledge and capability that will enable the country to design future water resources management plans by itself with economic efficiency, gender equity, social justice and environmental awareness to facilitate achievement of water management objectives through broad public participation. According to the vision of BWDB, progresses have been made towards meeting national goals in water resources management with economic efficiency, gender equity and environmental awareness through broad public participation. Except accountability and corruption, other issues like equitable service provision, right to water, environmental management, water resources management and monitoring and evaluation are prioritized in agenda of Bangladesh Water Development Board (BWDB).

River Research Institute (RRI) is a national organization working as a statutory public authority under the ministry of water resources and has been established in view of devising plans and actions to develop water resources in a sustainable manner to meet the development needs of Bangladesh. According to citizen charter, river research institute provides the services like studies for design supports, mathematical model, perform tests

on construction materials in river training, riverbank protection, flood control, irrigation & drainage works and conduct training program on the above mentioned subjects and publish reports periodically related to technical aspects. The government, semi-government, autonomous, other authorities and person can get this service.

The Joint Rivers Commission (JRC) is responsible for 57 identified border rivers and have data on cross boundary water resources. The prime concern of JRC is to negotiate with the co-riparian countries on development, management and sharing of water resources of common rivers and monitoring and sharing of the Ganges waters at Farakka. Joint Rivers Commission (JRC) was formed to maintain liaison between countries that share the Ganges-Brahmaputra-Meghna basin, to ensure common river management, which is lagging far behind from its mandate. There are 54 common rivers between Bangladesh and India. Of the 54 rivers, India has signed only one treaty in 1996 for the Ganges water. The strategy to share the waters of the Teesta, Dharala, Dudhkumar, Monu, Khowai, Gomti and Muhuri rivers are still pending. Progress is not being made towards meeting national goals in water resources management. Except corruption, transparency and monitoring other issue like equitable service provision, right to water and water resources management are prioritized in the activities of Joint Rivers Commission (JRC).

Institute of Water Modelling (IWM) provides world-class services in the field of water modelling, computational hydraulics & allied sciences for improved integrated water resources management. The applications of IWM modelling tools cover a wide range of water related areas such as flood control, flood forecasting, irrigation and drainage, river morphology, salinity and sediment transport, coastal hydraulics, port, coast and estuary management, environmental impact assessment, bridge hydraulics and related infrastructure. Transparency, accountability, corruption and gender issues have

been neglected but other issues like equitable service provision, right to water, environmental management, water resources management and monitoring and evaluation are functional in Institute of Water Modelling (IWM).

Department of Public Health Engineering (DPHE) facilitates rural and urban water supply. DPHE is also responsible for arsenic problems and planning. Mandates of DPHE are to improve water supply and sanitation facilities throughout the country excluding Dhaka & Chittagong cities and Narayanganj and Kadamrasul Pourashavas where WASAs operate, to provide advisory service to GoB in framing policy and action plans for WSS and to provide support to the local government institutions (LGIs) in the development and O&M of the water & sanitation facilities. Three foreign aided and nine GoB related projects related to water supply and sanitation have been taken to increase the capacity of service. For water quality improvement DPHE have 11 zonal testing laboratory and 22 parameters are measured for water quality monitoring and improvement. Water integrity principles for effective water governance such as corruption, transparency, accountability, legitimacy and legality and inclusiveness have not been put on Department of Public Health Engineering (DPHE) agenda.

The mandatory or primary functions of Bangladesh Agricultural Development Corporation (BADC) are to make suitable arrangements throughout Bangladesh for the production, procurement, transport, storage and distribution of essential agricultural inputs such as seed and fertilizers and providing irrigation facilities through utilization of surface and underground water to the farmers. According to citizen charter, they are working to improve the surface and groundwater condition and their proper utilization for production and they have taken various projects regarding the water management. Except corruption, environmental management and transparency and accountability other integrity issues

like equitable service provision, right to water, water resources management and monitoring are reflected in the agenda of Bangladesh Agricultural Development Corporation (BADC).

Barind Multipurpose Development Authority (BMDA) is assigned to develop agriculture and mainly engaged in deep tube well irrigation in northwest area of Bangladesh. According to their citizen charter, they provide service to Barind region through deep tube well and distribution by underground pipeline and connecting electricity for water supply. Almost 30 projects have already been completed and various projects are ongoing for the improvement and management of water services in this area. Except corruption and transparency other water integrity issues like equitable service provision, right to water, gender issues, environmental management and water resources management are reflected in the objectives, functions and citizen charter of Barind Multipurpose Development Authority.

DoE's mission is to help secure a clean and healthy environment for the benefit of present and future generations; through the fair and consistent application of environmental rules and regulations; through guiding, training and promoting awareness of environmental issues and through sustainable action on critical environmental problems that demonstrate practical solutions and that galvanise public support and involvement. All water sector projects need to conform to DoE rules and guidelines. It endorsed a set of EIA guidelines operated by the ministry of water resources. Most of the ministry's projects are subject to DoE scrutiny when they are submitted to the planning commission. WARPO and DoE share overlapping responsibilities like setting standards, monitoring compliance, data acquisition and storage. In principle WARPO, NWRC, the Ministry of Environment and Forestry and DoE all have some extent overlapping roles. Special attention is needed to ensure cooperation between these

institutions. At WARPO's level a close link with DoE is of mutual advantage particularly in the area of standards and guidelines development for the water sector.

A number of NGOs are working in water sector and in different parts of the country. Among them WaterAid and NGO forum are two major organisations. WaterAid supports projects with NGO partners and works in the field of capacity building and training, technical support and advice, research and development, advocacy and networking. Progress is being made towards integrated water resources management and sanitation coverage through pilots or on-going programmes. WaterAid is currently working with Bangladesh government to build the national sanitation strategy, which would help them to reach universal access to sanitation by 2015.

NGO Forum is a national networking and service delivery organisation in the area of water, sanitation and environment dedicated to contribute to the improvement of Public Health situation, especially for the poor, marginalized and excluded segment of the society of Bangladesh. Being an adaptive learning and rights-based organization, NGO Forum is committed to contribute to the promotion of public health through providing facilities and services in safe WatSan, hygiene, health care and environmental issues. Except corruption, transparency and accountability other issues like equitable service provision, right to water, gender, environmental management, water resources management and monitoring are functional to these NGOs.

### 3.3 Conclusion

Given the differential activities of the various water institutions, legal opportunities of improved coordination of the activities of these institutes are required for better governance. Information and planning sharing are the area where all the water related organisations should give priority.

**Table 3.2: Integrity issues in different water related institutions in Bangladesh**

Organization	Institutional Matrix Based on Following Issues							
	Equitable Service Provision	Right to water	Gender	Corruption	Transparency and Accountability	Environmental Management	Water Resources Management	Monitoring and Evaluation
Bangladesh Water Development Board (BWDB)	+	+	+	+	+	+	+	+
Water Resources Planning Organization (WARPO)	+	+	+	+	+	+	+	+
River Research Institute (RRI)	+	+	+	+	+	+	+	x
Institute of Water Modeling (IWM)	+	+	+	+	+	+	+	+
Joint Rivers Commission (JRC)	+	+	+	+	+	+	+	x
Local Government Engineering Department (LGED)	+	+	+	+	+	+	+	+
Department of Public Health Engineering (DPHE)	+	+	+	+	+	+	+	+
DWASA	+	+	+	+	+	+	+	+
Local Government Institutions	+	+	+	+	+	+	+	+
Bangladesh Agricultural Development Corporation (BADC)	+	+	+	+	+	+	+	+
Bairind Multipurpose Development Authority	+	+	+	+	+	+	+	x
Ministry of Land	+	+	+	+	+	+	x	+
Ministry of Fisheries and Livestock	+	+	+	+	+	+	x	+
Ministry of Health & Family Welfare	+	+	+	+	+	+	x	+
DoE	x	+	x	x	x	+	+	+
WaterAid	+	+	+	x	x	+	+	+
NGO Forum	+	+	+	x	x	+	+	x

Note: "+" Means the selected issue is present "x" Means the selected issue is not present

# Chapter 4: Case Studies on Integrity Practices in Selected Institutions

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# Case Studies on Integrity Practices in Selected Institutions

## A. Case Study 1: Dhaka City Corporation Area

### 4.1 Introduction

Dhaka became the capital of Bangladesh with the independence in the year 1971. In 1978, Dhaka Municipality was awarded the status of Corporation. In 1990, Dhaka Municipal Corporation was renamed as Dhaka City Corporation and was divided into 10 zones. The population of Dhaka (areas under the jurisdiction of the Dhaka city corporation) stands at approximately 7.0 million. The city, in combination with localities forming the wider metropolitan area, is home to over 15 million as of 2013. The city lies on the lower reaches of the Ganges Delta and covers a total area of 360 square kilometres (140 sq mi) and in total the city has 130 wards. The corporation was statuted with the introduction of Dhaka Municipal Corporation Ordinance, 1993, repealing the application of Pourashava Ordinance, 1977. The Local Govt. (City Corporation) Act 2009, (Amendment-2011), Dhaka City Corporation has divided as Dhaka South City Corporation (DSCC) and Dhaka North City Corporation (DNCC). The activities of DCC regarding the water managements is to provide permission for using government land for constructions of water points, to undertakes technical supervision during constructions phase, to mobilize public opinion through elected ward commissioners and to undertake policy advocacy.

Dhaka City Corporation is entrusted with the responsibilities for ensuring civic services of the city dwellers including water management. DCC has been playing the key role in providing approval of using public land, particularly the land they own and administer. To date it has accorded over 516 permissions to DSK and other NGOs for the installation of water points and the community sanitation block (community toilets having separate service provisions for male and female) (Akash and Singha, 2011). Various government organisations are working for the water management of Dhaka city corporation area such as Dhaka Water Supply and Sewerage Authority (DWASA), Bangladesh Water Development Board (BWDB),

Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE), Rajdhani Unnayan Kartripakkha (RAJUK), Department of Environment (DoE) and nongovernment organizations like WaterAid, NGO Forum etc. But the main responsible organization for water supply in Dhaka city corporation area is DWASA.

## 4.2 Arrangement of Dhaka Water Supply and Sewerage Authority (DWASA)

Dhaka WASA (Water Supply & Sewerage System) was established in the year 1963 as an independent organization and the drainage system of Dhaka city also handed over to DWASA from DPHE. Again in the year 1990, water, drainage & sanitation service of Narayanganj city handed over to DWASA. At present the service area of DWASA extended to Mirpur and Uttara in the North and to Narayanganj in the South. For better operation, maintenance and customer care, the total service area of DWASA is divided into 11 geographic zones, which includes 10 in Dhaka City and 1 in Narayanganj. DWASA

is under the authority of the Ministry of Local Government, Rural Development and Cooperatives. DWASA's Board consists of 13 members and is chaired by a customer representative. The Ministry is represented by a joint secretary from the local government division. Two board members are appointed by the municipal authority and one by the Minister of Finance. The executive head of DWSASA is also an ex officio member of the Board. Other board members are appointed by professional associations and the chamber of commerce and industry. The organizational structure of Dhaka WASA is divided into four wings along with the office of the chief executive (Managing Director) and they are administration, finance, operation & maintenance, research and planning and development. Actually all services (Water Supply, Sewerage, and Drainage System) of Dhaka WASA is correlated and the ratio of manpower engaged in two main streams are Water Supply System (87.6% of total manpower) and Sewerage System (13.4% of total manpower).

The vision of DWASA is to be the best water utility in the public sector of Asia with commitment towards



people and environment. The mission of DWASA are to constantly seek ways to better serve the customers, to implement the projects effectively and speedily for increasing water production to meet the demand of the city dwellers, to reduce the dependency from ground water to surface water, to practice a corporate culture in its management and operation, to ensure a high level of transparency and accountability in all its services and activities and to improve efficiency in all DWASA activities and reduce the operation cost.

### 4.3 Main Responsibilities of DWASA

The mission of Dhaka WASA is to provide safe and sufficient water for drinking, industrial and commercial use, to ensure sanitation and good hygienic condition through proper disposal of domestic and other sewerage and to ensure efficient storm-water drainage system in Dhaka city. The main responsibilities of Dhaka WASA are:

- a) Construction, operation, improvement, and maintenance of the necessary infrastructures for collecting, treating, preserving, and supplying potable water to the public, industries and commercial concerns.
- b) Construction, operation, improvement, and maintenance of the necessary infrastructures for

collecting, treating, and disposing domestic sewerage and other sewerage and

- c) Construction, operation, improvement, and maintenance of the necessary infrastructures for storm water drainage facilities of the city.

### 4.4 Achievements of DWASA in 2012-13

According to annual report of 2012-13, the achievements of DWASA in year 2013 are as follows-

- DWASA is currently producing surplus water against the demand of city dwellers.
- The revenue income of DWASA has been increased by 14.49 percent in the last FY.
- The operating cost has been reduced to 0.66 per cent.
- Timely measures taken by DWASA through cleaning the drains and box culverts have reduced the water congestion in the capital during this rainy season.
- Customers are now paying their WASA bills through online and SMS through 3 mobile phone operators.
- Various administrative measures have improved discipline in the administration.

**Table 4.1: Achievement of DWASA in 2013**

Sl. No.	Subject Area	Year 2008	Benchmark	Year 2013
1	NRW %	40.38	25.00	26.66
2	Bills Sent Out %	93.00	99.50	99.00
3	Revenue Collection %	64.50	95.00	95.00
4	Debt Age / Receivable (month)	14.58	3.00	5.46
5	Manpower/1000 connections	16.20	12.00	9.16
6	Operating Ratio	0.90	0.65	0.66

## 4.5 DWASA in the Contexts of Water Demand Supply and Production

Water supply in Bangladesh relies mainly on groundwater. In rural areas, more than 97 percent of the population extracts groundwater to fulfil drinking water demands. Whereas, 87.72 percent of the Dhaka city's water supply is dependent on groundwater resources (Uddin and Baten, 2011). Even though Dhaka city is surrounded by the four rivers namely Buriganga, Balu, Turag and Tongi Khal, only 12.28 percent of supplied water is obtained from these rivers. Dhaka city faces two major problems in supplying water to its residents: i) gradual decrease of raw water sources and ii) discharge of large quantities of polluted water (Serajuddin, 1993). Surface water sources from surrounding rivers and lakes have already exceeded the standard limits of many water quality parameters because of the discharge of huge amount of untreated industrial and municipal waste materials. Treatment of this water has become so expensive that water supply agencies have to depend on groundwater aquifer for drinking water production (Biswas et. al, 2010). Other than these four over-polluted rivers, the nearest water body is the river Padma and the Meghna that have acceptable water quality and ability to fulfil the demand. However, those rivers are located within a distance of 17 km and 50 km respectively from Dhaka.

DWASA projects total water demand considering per person per day water demand as 150 litre and accordingly supplies water to the city dwellers. The total length of the water line across the Dhaka city is 3040 km including 3,25,717 household connections and 1643 roadside tap. Total water demand in Dhaka city varies from 2100 to 2300 MLD with seasonal variation. However, total production capacity of DWASA is 2420 Million Litre per Day (MLD) (both groundwater and surface water). Apparently, DWASA is able to fulfil current water demand through their capacity. However, DWASA has reached its production target and actual production for groundwater and surface

water is 2420 MLD (Table 4.2) with no demand-supply gap. To supply water in Dhaka city, DWASA runs 644 deep tube wells (DTWs) and four surface water treatment plants (SWTPs). Of them two water treatment plants are situated at Saidabad (Phase-1 & Phase 2) and Chadnighat in Dhaka and other two are at Sonakanda and Godnail, Narayanganj. The water production, demand and supply of DWASA are given in Table 4.2.

**Table 4.2: Water production, demand and supply system of DWASA (2012-13)**

Production System	Value
Population (in million approximately)	15.00
Water connection	325717
Demand of water (Million litres per day)(MLD)	2250
Water supply capacity (Million litres per day)(MLD)	2420
Daily water production (Million litres per day)(MLD)	2420
Water line (Km)	3040
Deep tube wells (DTWs) in operation	644
Water treatment plant (WTPs)	4
Storm water pumping station	2
Storm water drainage line (Dia 450 mm to 3000 mm)	315 Km
Connection to religious institutions	1898

Source: DWASA Annual Report (2012-13)

## 4.6 Water Governance and Integrity Aspects of DWASA

DWASA is responsible for water supply in Dhaka City Corporation and Narayanganj, but in some areas various NGOs were found to be working. According to DWASA annual report of 2012-13, DWASA is currently able to provide water without scarcity. But in reality, it is very difficult for people to get access to pure water regularly

and adequately in some areas of the city (Sakib and Islam, 2014). Water distribution in Dhaka City is informally governed by various groups such as political leaders, intermediaries sometimes with the help of DWASA officials (Sakib and Islam, 2014). Water governance is facing different challenges (e.g. strategic, regulatory, planning related; see Table 4.3) and access to fresh water by the city dwellers remains major challenges. Various reports on DWASA corruption practices are also exist in daily newspapers (The Daily Star, 7 May 2014; Kaler Kantha, 21 June 2014; Ittefaq, 16 August 2014; Jugantor, 19 December 2014; Bangladesh Protidin, 02 March 2015; see Table 4.3 as well). Although DWASA won prize from UNESCO in recognition of their role in water distribution, but it is still associated with a number of trail off in their work force (Sakib and Islam, 2014). For example, lack of

accountability and mismanagement of DWASA officials and roles of informal intermediary agents and sometimes DWASA officials is a very regular practice as reported in number of news articles (Table 4.3). There is a general impression (as per the published reports) among the city dwellers that if water supply is hampered or interrupted there is no one to complain and will not get any result out of complaining.

Water and sewerage services are not provided equitably across wealthy and low income groups in city areas (Table 4.3), though DWASA annual report suggests progress have been made towards meeting national goals in water resources management and water supply and sanitation services in Dhaka City Corporation areas as a result of significant increase in water production

**Table 4.3: Integrity aspects of water service delivery by DWASA reflected in daily newspapers**

Source	Main content of the report	Major observations
Kaler Kantha; Sunday, 17 August 2014	Violation of public procurement laws in revised order and excess work order. According to public procurement law, 2006 and PPR, 2008, project director can adjust up to 15% of the estimated price. But on 29 April DMD of DWASA issued an order for taking permission of high official for revised order and excess work.	Violation of public procurement Law
Kaler Kantha; Wednesday, 14 November 2012	The MD of DWASA Dr Taqsim A Khan admitted while addressing a seminar in Hotel Sonargaon that corruption is still there in DWASA but situations are improving.	DWASA MD admitted corruptions cases but said situations are improving.
Ittefaq; Saturday, 16 August 2014	Scarcity, bad smell and impurity in supplied drinking water is acute in the old Dhaka. This problem is severe in old Dhaka especially in Shakhari Bazar, Tati Bazar, Islampure, Nayabazar, Armanitola, Kulutola, Ghoslen, Narinda, Chokbazar, Bonshal, Nayatola, Mugdha, Dholakhal, Shantinagar, Gendaria, Koltabazar, Suritola, Bongram, Owari etc.	Supply of poor quality of water
Samokal; 17 April 2014	Severe water crisis in Dhaka city area especially in summer season make the livelihood harder for the inhabitants. From field investigations it was observed that before starting summer season acute water crisis had been occurred in Badda, old Dhaka, Nakhalpara, Banglamotor and Rampura. In 10th April it was observed that in demand of 248.42 core liter, the production was 226.54 core liters due to electricity crisis.	Shortage of water production

Source	Main content of the report	Major observations
Kaler Kantho; Saturday, 21 June 2014	<i>Escherichia coli</i> were found in the supply water of DWASA in Dhaka city area which is very much alarming for the inhabitants as it spreads through the human excrete.	Supply of poor quality of water
Kaler Kantho; Sunday, 1 April 2012	Corruption is observed in the job sector in WASA. Appointment of first class officer without job circular was witnessed.	Corruption reporting
Samokal; 19 November 2012	WASA is one of the leading public service provider hence it has significant role to reduce the want of people. But due to the mismanagement, lack of transparency and accountability of officials the city people are deprived from their expected service. The installation of pump house without marinating the scientific strategy lessens the service of the pump house. Besides the place kept for pump house have been occupied by some high officials of WASA. From an investigation of WASA it was found that about 250 acre of land has by encroached by the WASA officials.	DWASA lands encroached by officials
Kaler Kantho, Saturday, 21 April 2012	About 3 cores taka have taken as bribery for giving the work of 5 core taka. According to this report the high officials took money from the contactor/businessman for giving the work through tender. The sufferer Sadek, Saidul Islam, Ruhul Amin gave statement regarding this issue and they claimed that the high officials took huge amount of money from them for giving the opportunity to work.	Bribes taken by DWASA officials.
The Daily Star; Wednesday, 7 May 2014	Every summer, Dhaka city faces an acute water scarcity. Polluted water carrying germs of water borne diseases make the crisis even worse. The root of the crisis lies in imbalanced use of ground water vis-a-vis surface water. Reportedly, 85 per cent of the city's water demand is met by ground water sources.	Inefficient strategic planning over use of water sources.

and productivity, improved service quality, increased revenue, reduction of nonrevenue water and provision of water supply at low cost. It is imperative to mention here that DWASA have well established computerized billing system including giving customers provisions to pay bills via SMS. Through this system and other measures revenues increased by 25% in a year and a half from 2009 on, while tariffs were adjusted only about 5% in July 2010. The annual report, audit report and MIS report are available in the WASA website and they are accessible. To increase the transparency e-tender is introduced and water connection system is also well developed.

## 4.7 Role of Stakeholders, Governments and NGOs

Various stakeholders along with governmental organization can play vital role regarding good water governance. From the study we found few thoughts, comments and observations from the respondent over CBO and NGOs role in water governance. The role of community based organisation (CBO) is not found to be significant rather occasional in low income areas. Although, theoretically CBO is a non-profit, run on a voluntary basis and are self-funded; but in practical it is very different in real (Sakib and Islam, 2014). Through

CBO, the local leaders, owners of the households and DWASA officials earn fairly a lot of money in every month (Kaler Kontho, 21 April 2012).

## 4.8 Conclusion

Literature review suggests that DWASA has been coping with multi-faceted internal (including challenges related to water integrity and governance aspects) and external/residual challenges that hamper the agency to better serve the city dwellers. On the other hand, despite having efforts to put better systems in place, improvements are happening slowly in delivering high quality water supply, drainage and sewerage services. For instance, in 2012 the MD of DWASA admitted the existence of corruption in DWASA (Kaler Kantha, 14 November 2012, see Table 4.3) and in 2015 relevant Parliamentary Standing Committee expressed dissatisfaction over the same issue (Kaler Kantha, 02 March 2015). These two judgments given in two different times (i.e. one in 2012 and the other in 2015) from significant entities/bodies indicates that systematic improvements are still necessary for ensuring more efficient and accountable service delivery processes of DWASA. However, despite having all the challenges faced by DWASA (accounts given above), the overall

performance the agency deserves appreciation for two reasons; firstly the agency has evolved to develop its capacity to supply nearly 100% of water supply demand of Dhaka megacity having population (Dhaka Statistical Metropolitan Area; as per Population Census 2011) more than 14.5 million by managing many external challenges (e.g. electricity failure and related malfunction of water production wells, water pollution by different stakeholders, grabbing of drainage canals by the powerful people etc.). Secondly DWASA has taken certain steps to improve the accountability and quality of service delivery processes (e.g. introduction of e-tendering systems, computerized billing systems including introduction of SMS, setting of call centres to receive complaints etc.). The UNESCO prize thus could be considered as recognition of better performance exhibited by the agency. However, it can be said that further improvement in water governance aspects such as transparency, accountability, participation, legitimacy and legality, equity and inclusiveness, at both strategic and practice level will immensely contribute in ensuring more effective water service delivery processes for Dhaka city dwellers.

## B. Case Study 2: South-Western Region of Bangladesh

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### 4.9 Introduction

This section examines the activities of different agencies engaged in water service delivery in south-western coastal areas of Bangladesh. Geographically this region covers districts like Kustia, Meherpur, Jessore, Gopalganj, Khulna, Satkhira, Bagerhat and bounded by river Ganges in the east in the upper part and Meghna systems in the east in the lower parts. Upper parts of the region fall in the mature delta and lower Jessore areas in moribund delta and southern-most parts represent active deltaic regions. However, the chapter starts from giving a glimpse on who is doing what in the region and then paying special attention on BWDB as to show how this agency has been working in the area to give better access to different users of water resources.

The agencies those are playing roles water sector in south-western areas could be grouped into three categories based on types of service they deliver. These are agencies those contribute in flood control, improvement of drainage conditions and irrigation facilities, agencies those contribute roles in water supply systems at household level and agencies that use water resources directly or indirectly from different sources.

Bangladesh Water Development Board (BWDB) is the major player in the first category who is engaged in water sector planning, water regulatory activities from regional scale mega projects to local level polder maintenance. The Ganges-Kabatakh (GK) project in Kustia-Jessore, Goral River Restoration Project phase I and II taking place in many parts of the region, implementing Tidal River Management Project (TRM) lower deltaic regions, operation and maintenance of existing polders are some examples that BWDB has been undertaken in southwestern parts of Bangladesh. These actions of BWDB are directly connected to water supply systems in small towns and municipalities. In parallel, Water

Resources Planning Organization (WARPO), Institute of Water Modeling (IWM) also contributes in the water resources planning process and to facilitate BWDB works. The second category takes in both government and non-government agencies; the municipal (Pourashava) water supply systems, roles played by Department of Public Health and Engineering (DPHE) are the major government sector entities engaged in water supply processes in secondary towns of the regions. These agencies are in many ways supported by donors like Asian Development Bank (ADB), DANIDA, JICA etc. In parallel, non-government sector agencies like WaterAid Bangladesh, NGO Forum and many small scale local NGOs also play roles in water supply processes at community and household levels. The third category includes agencies those directly use water or advocate their clients to use water for different purposes. Bangladesh Agricultural Development Corporation (BADC), Department of Agriculture Extension working under the supervision of Ministry of Agriculture is the major government agencies who use large amount of water for irrigation purposes. In addition, Bangladesh Inland Water Transport Authority (BIWTA) uses water canals, rivers for navigational purposes. Detail investigations about the works of all these agencies are not possible given the limited scope of this work. Only BWDB is taken as a case to elaborate their activities in south-western regions from the perspectives of water integrity and given in the following sections.

### 4.10 Actions and Accountability of BWDB

The following sections examine the activities of Bangladesh Water Development Board (BWDB) aiming to assess the integrity aspects the agency have been practicing/maintaining in water development and providing related services to the people of south-

western regions. This public agency focuses on planning, development of new projects and engaged in operation and maintenance of existing water related projects in Bangladesh. Flood control, improvement of drainage systems and irrigation facilities for enhanced food production are the prime mandates of this agency. BWDB activities have a lineage with WAPDA (Water and Power Development Authority) of East Pakistan, although currently this agency has got its own organogram and activity mandates under the auspices of BWDB Act 2000 and also guided by other related acts and policies. The case study on BWDB provided in this chapter highlights the fissures that provide opportunities to breach the rule and break the integrity in water sector. It also focused on some specific corruption cases as to provide a critical appraisal so that further improvements can take place by improving those conditions.

#### **4.11 The Development and Operation of BWDB**

Bangladesh Water Development Board (BWDB) evolved from the organization WAPDA (Water and Power Development Authority) in 1972 by Presidential Order (P.O 59 of 1972). After separation from WAPDA, this agency took over the major responsibility for the water sector in areas of flood control, drainage conditions and irrigation facilities. BWDB Act 2000, National Water Policy 1999 and National Water Management Plan 2001, are the major policy drivers that guided to develop the organogram and programme activities of this agency. But the fact is the activities of this newly formed agency is overwhelmed with the actions and programmes already introduced in Bangladesh by the predecessor agency WAPDA and recommendations made by Krug Mission and then by IECO in 1964, where these policies were little successful to influence the activities of BWDB. It is important to note that during Pakistan periods the availability of water, water requirements by different sectors, patterns of disaster occurrence and impacts were different from later times when BWDB started working in Bangladesh



to ensure best use of water and protect the country from water induced challenges/threats. In addition, increased requirements of water by different sectors, water shortage at the sources, contested nature of water use, increased frequency and new forms of hazards including climate change threats, poisoning (e.g. arsenic, chlorine) and pollution of water, illegal occupation of water courses, canals has emerged as new challenges in water sector and compounded the existing problems. These old and new sets of challenges are hardly addressed through new policies and less reflected in programmatic activities of BWDB. It is also important to mention in this connection that bringing big change (i.e., reversing the condition) is not possible since ecological integrity of water related processes have already been broken down through the introduction large number of physical structures in floodplains and deltaic plains of the country.

#### **4.12 Faulty Reading of Delta Environment**

##### **4.12.1 Ecological Integrity**

The abundance of water in large number of streams/ canals and related dynamic functions, e.g., seasonality aspects, changing forms of landscapes happening as results of erosion, accretion processes are the outcomes of interplay of different hydro-meteorological processes

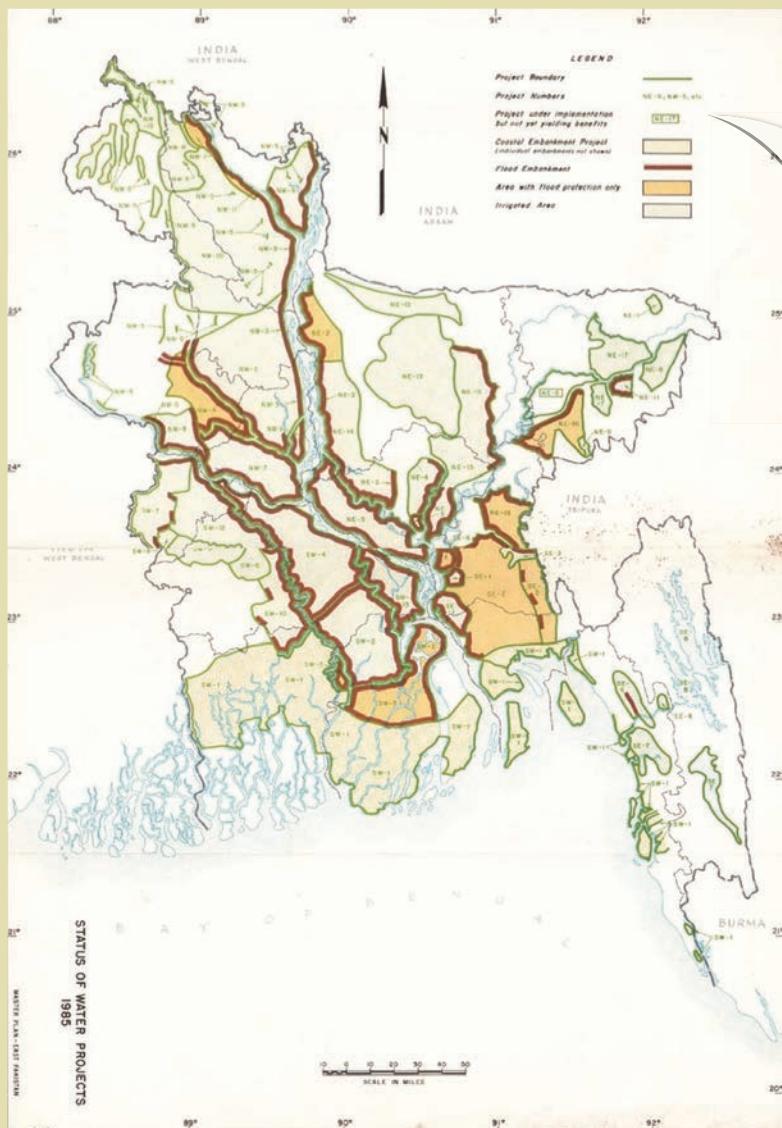
and morphological characteristics occurring at different scales (i.e., continental, regional and local). Natural intrinsic changes have continuously been occurring in these hydrological, physical environmental processes and sometimes some of the extreme events put human populations in slow-onset (e.g., gradual depletion of ground water table, salinity intrusion) and rapid-strong (e.g., strong current and flooding, river bank erosion) challenges/hazards. But people living in this floodplains/delta plains showed strong resilience to cope with uncertainties based on their traditional knowledge and deep reading of water related systems and functions. Their prudent use of water resources helped them to firmly settle primary production systems that in turn supported many other forms of economic activities and finally help to establish settlements, villages and gradually these centres evolved as urban agglomerations in later times. In those times people used seasonal earthen embankments, overflow irrigation systems to protect lands from flood waters for certain times of the year and allow flood waters to enter into the fields/expanse in other times of the year. This process allowed the lands to be productive by replenishing with fresh silt and soil nutrients. In addition, seasonal sediment deposition helps to raise the back swamps (naturally grown marsh lands behind the natural levees of the river) and vast floodplains and thus land building process gradually made progress on top of deltaic depositions in the bottom. This land building process helps to keep the river adjoining floodplains above the water courses and thus helps avert water congestions and flooding problems.

#### **4.12.2 Historical Contexts**

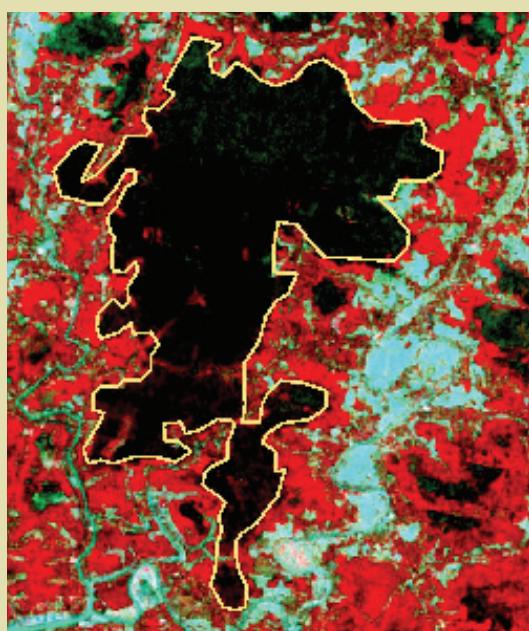
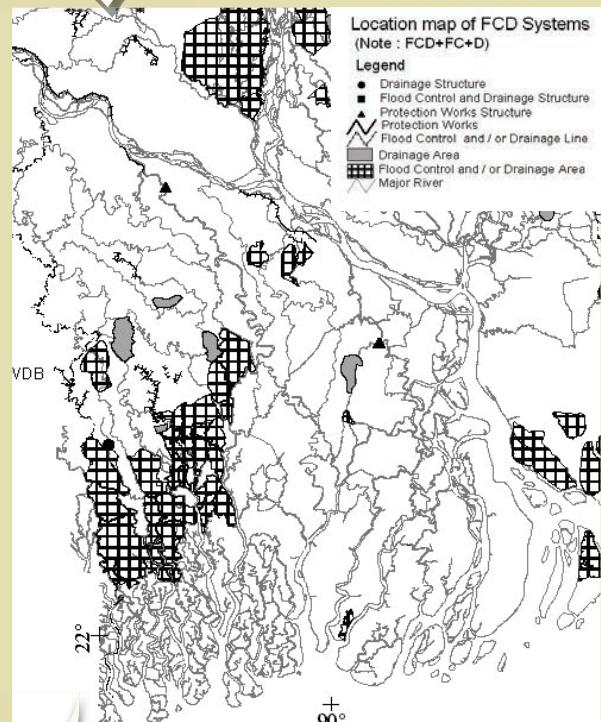
The local knowledge based water management processes mentioned above helped to make a balance between land resources and water systems that plays key roles in ensuring ecosystem services including water supply for sectors like productions, communications, domestic and industrial use, human health etc. It is important to note here that the necessity of keeping ecological integrity that keeps water supplies agile and active for this region was

mentioned by P.C. Mahalanobis in 1927, by Satish Chandra Mitra in 1916 in "Khulna-Jessorer Itihas (History of Khulna and Jessore)". Mahalanobis (1927) examined time series rainfall data to identify cause and consequences of north-Bengal floods using scientific methods and suggested not to construct physical structures like embankments, roads/railways across the floodplains because it may cause floods. He also suggested combining structural and non-structural measures to combat flood impacts. In the similar way, Satish Chandra Mitra (1916) showed how irrigation (for agriculture) is linked with prevalence/spread of Malaria in lower Jessore areas. These suggest that knowledge about good and bad use of water resources were existed long before in Bangladesh.

But later devastations happened due to three successive big floods occurred in 1954, 1955 and 1956 in Bangladesh drew international attention and subsequently a UN mission was formed named "Krug Mission" to investigate flood impacts and to suggest necessary protective measures for deltaic and flood plain regions of Bangladesh. Based on the recommendations of Krug Mission suggesting flood control structural measures another California based engineering company named International Engineering Company, California (IECO) was appointed and developed a Master Plan for 20 years (1965 to 1985). This company recommended developing embankments and polders (polder is a Dutch word, meaning an enclosed area by embankment where allowing water in or out of the polder is regulated by human control/decisions) in coastal areas and other parts of the country to safeguard crop lands from floods and to ensure irrigation facilities. The then Pakistan Government mandated Water and Power Development Authority (WAPDA) to implement this FCDI project based Master Plan. WAPDA and later renamed as BWDB (Bangladesh Water Development Board) by presidential Order in 1972, has been playing roles in constructing and maintaining the polders, prescribed by IECO. This IECO's propositions were based on flood experiences of Mississippi river of USA, which did not fit for delta and flood plain characteristics of Bangladesh (Figure 4.1).



Flood Control infrastructures were proposed in 1964 by IECO (left); proposed project implemented by Bangladesh Water development Board (BWDB) by 1985 (below).



Fifty years later the impact of engineering solution (i.e. the Flood Control infrastructure) proposed in 1964, implementation completed by 1985 under the guidance of BWDB, created huge water logged areas in Khulna region. Satellite image show one of such Beel (wetland) called 'Beel Bhutia' located in the northern parts of Khulna City Corporation.

Figure 4.1: IECO suggested master Plan (1964), implemented by 1985 and consequential impacts.



The master plan did plan for water aspects but did not pay attention to silt management since the rivers of this region carry huge amounts of suspended sediments. By early 1980's (Islam, 2014), people in different floodplain regions have started feeling the negative experiences of these polders as water logging (Beel Dakatia in Khulna, Bhabadah in Jessore, water logged regions in Tala in Satkhira districts etc.) happened in many places, rivers silted up because suspended silts were not being distributed in the vast floodplain areas. This breakdown of physical rhythm of floodplain characteristics triggers many secondary forms of problems like shortage of water for domestic use, agricultural patterns breakdown, biodiversity is seriously threatened, breakdown of human occupation, health, education of children etc. Later on, introduction of shrimp cultivation specially in coastal plains, occurrence of natural disasters like storm surge

and cyclonic disturbances in regular intervals made the situation very complicated, compounded and created grounds of multiple hazard conditions, what becomes challenging by government and other agencies to handle. Box 4.1 listed number of drivers that collectively made the situation complicated in south-western coastal areas of Bangladesh. This faulty reading of deltaic characteristics and related project implementation contributed in breaking down the ecological integrity and pushed the community to completely different forms of environmental conditions to which they are less familiar with. Most importantly the physical characteristics of landforms, dynamic ecological functions of this delta region took hundreds of years to get a certain form which has permanently destroyed due to the implementation of the structural measures to control water. The destruction is also attributed to the shortage of natural water supplies from the upstream neighbouring countries.

## Box 4.1: Major water induced problems in south-western regions of Bangladesh

**Contextual settings of the region:** The southwestern part of Bangladesh is unique in its characteristics since the whole region is developed on deltaic deposition. Thick sediment deposition over Precambrian rocks occurs in the range between 6 to 10 kilometers in this region. Outward (river flow towards the Bay) and inward (back water flow from the Bay) water and sediment flow and related discharge contributed in developing special geo-morphological pattern in the region and also in generating conditions that offer various types of land and water based resources. People managed to live in these regions for thousands of years by adapting to these very physical conditions/processes and on the natural resources that this deltaic plain offers.

**The disaster triggering factors:** The factors that contributed in sparking disasters in the region are of different kinds, which could be grouped in two categories, i.e. natural and human-induced. However, the factors that are responsible for water related problems in the region are mentioned in the following sections.

- (i) **Unplanned structural measures** implemented in these areas in the name of flood control, drainage and irrigation project (FCDI) that emplodered vast areas of lands and cause breakdown of natural/physical patterns that affect the integrity of environmental/natural resources. Introduction of these inappropriate structures and poor maintenance of the artificial drainage systems cause water logging in many parts of Khulna, Satkhira and Jessore regions which resulted in huge production loss for the community.
- (ii) **Inappropriate business ventures** like shrimp cultivation (started in 1990s onwards) caused huge salinity problems in the region and also contributed in breaking down the natural drainage systems in the area. This situation also contributed in deteriorating soil, water and air quality and also caused serious biodiversity loss. Force eviction of local inhabitants by powerful shrimp cultivators also created huge social tensions and made small farmers landless.
- (iii) The area has been facing **unexpected disasters** like floods and cyclones (sudden flood occurred in 2000, 2004, 2011; cyclone impacted in 2007, 2009) on regular intervals. These disturbances and related impacts always compel people to bring down to miserable conditions and situations continue as a vicious cycle.
- (iv) **Drying up of the rivers and canals** and occurrence of water congestions in the upper parts is a characteristic natural pattern of a delta. Water logging in the southwestern deltaic coastal areas has also happened as part of natural process.
- (v) Finally, **climate change** induced hazards like sea level rise related threats; salinity intrusion, increased frequency of cyclonic disturbances etc. are causing problems in the area.

**Table 4.4: Change in the regimes of water and lives and livelihoods of people**

Timeline	Lives and livelihood of the southwest people
Pre 1950's	Farming activities in the southwest were centred on the natural tidal system which occurred throughout the region's river and canal system. Soil was rich and fertile, benefiting from the sedimentation which built up throughout the year, making agricultural farming profitable.
1950's	While this natural tidal system worked to enhance the fertility of the region, it was nevertheless vulnerable to hazards such as floods and cyclones. In the 1950's a series of devastating cyclones struck the region causing the Government of East Pakistan's Water and Power Development Authority (EPWPDA) to convert the area into a dry zone and work towards enhancing protection of the coastal belt.
1960's	With the goal of enhancing resilience in the region, the World Bank assisted East Pakistan (and later the Government of Bangladesh (GoB)) to establish a series of polders and embankments designed to enhance agricultural production and protect the region from the intrusion of saline water, floods and other disasters.
1970's	During the 1970's some farmers, entrepreneurs and the GoB recognized the opportunity for an expansion of commercial shrimp farming in the region. With an increasing demand and high price for shrimp on the international market, shrimp farming was seized upon as part of a 'Blue Revolution', seen as an opportunity to bring economic stability and prosperity to both the southwest and the national economy alike.
1980's	Twenty years after its implementation and under increasing pressure, the embankment system began to struggle. Maintenance of sluice gates and management of sedimentation build-up within the river and canal systems were poor.
1990's	By 1994 the GoB, in favour of the shrimp industry, declared the coastal area a "free zone" for shrimp cultivation. Quickly, the most powerful villagers and outside business people entered the region and established extensive illegal pipes and gates to trap brackish water to cultivate shrimp in agricultural land. Installing these piping systems through embankment walls significantly weakened infrastructure, obstructed the flow of water and increased the risk of flood from embankment breach or collapse.
Now	<p>Shrimp production in Bangladesh is highly concentrated in the southwest with Satkhira, Khulna and Bagerhat producing 80% of Bangladesh's bagda (saltwater) shrimp. Intensive shrimp production has led to a substantial decrease in diversified livelihood options, reduced resilience and enhanced the vulnerability of communities.</p> <p>As saline water now infiltrates local water tables, many communities are facing safe drinking water crises. As a result, women and children are required to walk longer distances to fetch fresh drinking water or are forced to rely on rain water collection or on water vendors.</p> <p>High salinity levels are also affecting people's health. Women in particular reported a rapid increase in skin and genital diseases due to pollution and the use of salty water for washing.</p>

Source: Water Aid Bangladesh, 2014 (personal communication).

#### **4.12.3 Interventions to Fix Water Intervention Impacts**

The policies and the institutions once developed to address more simpler types of challenges in earlier times are still remain almost in the same state and trying to address more complicated, multiple forms of impact conditions. Later on, many interventions implemented in deltaic plains to address these consequential impacts of previously implemented interventions, but results found to be unimpressive. Table 4.5 shows how different interventions from Government and non-government agencies try to address some impacts of water sector interventions by implementing new interventions.

**Table 4.5: Projects in water sector in the south-western region of Bangladesh**

RVCC (Reducing Vulnerability to Climate Change), CARE	<b>Water Logging in the South West Region</b> <b>Consolidated recommendations and proposed actions (NGOs joint assessment, WFP/FAO joint assessment; UNDP/ERF gap analysis)</b>	<b>Approach to address slow-onset persistent disasters in the south-western regions. Local Consultative Group, LCG (Disaster Emergency Response) of GoB and UNDP</b>
<p>Interventions for reduction of vulnerability</p> <p>1. Increase food through agriculture 2. Increase income through alternative livelihoods 3. Increase food availability/storage 4. Improve health and personal safety 5. Increase access to safe water 6. Improve safety of housing and other property</p> <p>Measures being piloted include: drought-resistant crops, floating gardens, duck and poultry rearing, rainwater harvesting, cottage industries, introduction of portable cooking stoves and flood-proof food storage, and storm-resistant housing, among others.</p> <p>In addition to promotion of adaptation measures at the household level, activities to market the products produced through agriculture and livelihoods measures have been undertaken, along with research activities on hydroponics and water logging/flood-tolerant rice varieties.</p> <p>Community-level Interventions</p> <p>Two community-level adaptation strategies, and corresponding measures, have been identified that complement the work being done at the household level.</p> <p>For reducing threats at the community level, the approach taken is to work with Union Parishad (UP) chairs, members and community leaders to build their capacity to plan and implement community-level measures that will reduce threats from the vulnerability contexts of flood, salinity, cyclone and water logging. The measures promoted include Tidal River Management (TRM), raising embankments, cyclone shelters and canal excavation.</p> <p>Implementation of the measures to reduce threats is not within the scope and resources of the RVCC project; however the aim is for each UP to develop an action plan for the measure within the project's lifetime.</p>	<p><b>Interventions - short &amp; medium term</b></p> <p><b>Food security</b></p> <p>Conditional cash transfer (CFW, CFT) and homestead gardening for 5 months (Feb to June 2012)</p> <p>Nutritional intervention for pregnant and lactating women, and children under 5</p> <p><b>Livelihood recovery</b></p> <p>Cash grants, free seed distribution, easy &amp; low interest loan for farming and homestead gardening/poultry/fisheries</p> <p>Training on disaster preparedness and post disaster crop management</p> <p><b>WASH</b></p> <p>Rehabilitation of water sources damaged by WL</p> <p>Rehabilitation of latrines</p> <p><b>Shelter</b></p> <p>Support to HHs whose houses have been totally destroyed (19,534HHs) and partially damaged (25,283HHs)</p> <p>Shelter support to incorporate disaster resilient features (raised plinths, concrete pillars, secure roofing)</p> <p><b>Health</b></p> <p>Proper water, sanitation, and hygiene response to reduce incidence of water borne diseases</p> <p>Medical assistance within remote areas still water logged</p> <p><b>Education</b></p> <p>Develop special education programmes for children who have dropped out of school</p> <p>Support families to cover education expenses to avoid further drop out</p> <p>Rehabilitate schools damaged by water logging</p> <p>Recommendations - long-term</p> <p>GoB and DPs to study the root causes to the water-logging problem and identify long-term solution</p> <p><b>Rehabilitation of embankments</b></p> <p>Promote salinity resistant high yielding crop varieties including salinity management technologies</p> <p>Excavation and dredging of coastal rivers</p> <p>Replicate Tidal River Management (TRM) as a model for sustainable river basin management</p>	<p><b>Understanding the nature of problem</b></p> <p>They undertook a literature review at the beginning that indicates there isn't a clear narrative that is broadly understood by all stakeholders in regards to disaster conditions in the region. It is seen as a (i) water problem, (ii) an infrastructure problem, (iii) a food security problem, (iv) a humanitarian problem, (v) a livelihoods problem, (vi) a development problem, (vi) a community mobilization problem etc. Actually it is all of those things, but so far they remain fragmented parts of one picture where the dots haven't been properly connected as yet.</p> <p>The situation is complex; there are various different causes to the situation, it impacts individuals, communities and the environment in multiple ways and it is further complicated by conflicting interests (such as the tension between shrimp farming and agriculture, and the relationship between micro-credit and disaster relief).</p> <p>If we can identify a way of jointly addressing the challenges in southwest region, it is hoped this will provide us with a model we can adapt to other parts of the country.</p>

All these propositions, project implementations, impact conditions created huge frustrations and agony among the local people since these did not able provide solutions and many forms of social movements were formed. In these contexts, the TRM (Tidal River Management) initiative proposed and implemented by the local people near the river Hari, which can better be called sediment management approach of water management. Impressive initial results of this people's initiative, i.e., the TRM project drew attention of formal/regular agencies and later some systematic research has been carried out (Detailed analysis carried out by IWM, CEGIS, Uttaran and local Paani Committee and report on TRM produced in 2013 titled "People's Plan of Action for Management of Rivers in Southwest Coastal Regions of Bangladesh") and recommendations proposed for successful implementation of the project different southwestern (TRM project is proposed to implement in 11 different tidal influenced areas where government will provide necessary financial resources. The proposed 11 areas are Sholmari-Salta-Lower Bhadra Catchment. 2. Hamkura-Bhadra-Joykhali Catchment. 3. Hari-Mukteshwari Catchment. 4. Upper Bhadra-Buri Bhadra-Harihar Catchment. 5. Teligati-Ghengrile Catchment. 6. Salta-Gunakhali-Haria Catchment. 7. Shalikha Catchment. 8. Kapotakshi Catchment. 9. Betna Catchment. 10. Morichap-Labonyoboti Catchment. 11. Shapmara-Galghesiya Catchment coastal areas of Bangladesh. Local people and some key personnel indicated that the some of the issues like policy guidelines regarding land acquisition and related financial issues are not settled yet, even the institutional involvement aspects are not clear up till now.

## **4.13 Corruption and Integrity Aspects of BWDB**

### **4.13.1 Technical Skills Gap**

The integrity aspects (accountability, transparency and participatory decision making) for water sector where Bangladesh Water Development Board is concerned

are primarily rooted in the inefficiency or inability in some technical areas, specially the agency has to depend on external agencies like IWM, BUET for proper understanding the hydraulic conditions, morphological change, sediment dynamics etc. This technical skills gap sometimes causes the agency to invite the external agencies in the middle of a project, sometimes at a time when the project is over. This unscheduled/unplanned project activity creates disagreements, confusions and mistrust between the parties and always there remained a chance that finally incurs financial loss at government side. This lack of technical gap also did not allow the agency to correctly apprehend the volume or works and related scope of activities to be carried out by the would-be contractors and thus the agency might not be able to include these aspects into the DPP descriptions. As a result other related agencies like Planning Commission (for ECNEC review and approvals), Ministry of Finance (for budgeting), Ministry of Environment and Forests (for assessing environmental and social compliance aspects), Ministry of land (for land acquisition processes) might not be clear about their roles to play for successful implementation of the project. In addition, this gap might also mislead the common people about the real facts of the project, thus limit the opportunity for public participation. The disagreements arisen in BWDB's contract (2011/12) with China Harbour Engineering Company Limited (Box 4.2) to remove silts from river Jamuna at Sirajganj could provide detail insights in the regard and valuable lessons for improvements.

### **4.13.2 Financial Corruptions**

Allegation regarding financial corruptions is commonly held against the project personnel of BWDB and these are widely reflected in local and regional print and electronic media. Recent telecast of series of corruption reports on BWDB's project activities in Channel 24 (5th, 6th, 7th and 8th of September 2014), Daily Jugantor Report (9th of May 2014) titled "Suspension of additional seven BWDB officers over financial irregularities" are the few instances of many such cases. These financial



irregularities are evidenced in big national level projects to small scale local projects. Lack of independent Watch Dog, unwillingness of information disclosure, insignificant penalty are the major factors why the financial corruptions remain unabated despite reports on corruptions are widely published and strongly sensed by the public.

#### **4.14 Project Activity Processes**

It is mentioned in sections earlier that many challenges that are currently faced by different water sector agencies were thoroughly discussed in many earlier water related documents; for example documents regarding advocacy for silt management along with water management (William, 1919), structural measures with non-structural measures (Mahalanobis, 1927), disaster warning and precautionary measures to be put in place (Ibid), suggestions not to erect embankments/roads across the floodplains (Ibid) could be cited as local knowledge on water resources in Bangladesh that were held in

the knowledge domain for long times, even before the recommendations made by Krug Mission and IECO. But the fact is information from this rich knowledge pool was less examined and absorbed in developing structural measures based water management for many parts of the country. As a result after completion many projects did not sustain or did not able to serve the purpose that it was aimed at initially. Polder development in the south-western coastal parts and consequential current water longing aspects are some strong indications of many such problems.

#### **4.15 Integrity Standards of BWDB**

Daytoday activities of BWDB is supervised and maintained by the Director General of the agency. Another supervisory body (formed with the support of BWDB Act 2000) is in existence to foresee all the activities of the agency; the DG of the agency has to report the activities to the board for approvals. The board is also entitled to approve non-

## **Box 4.2: Corruption allegations against BWDB's project activities**

### **Case 1 .....**

#### **Allegation -**

Not following the technical specification of two silt removing dredgers which were procured for Gorai River Restoration Project (2nd Phase). Purchased 22" diameter dredger against 26" specified. Local inspection team did not check the machines as per the Terms of Reference and not produced report.

#### **Opinion of the Task Force and Director (Audit) of BWDB-**

Allegation found genuine (6th December 2012)

Allegation genuine as no local inspection report submitted (6th December 2012)

Director (Audit, BWDB) reported (4th July 2013) to Steering Committee that Public Procurement Act 2008 was not properly followed.

### **Case 2 .....**

#### **Financial corruption and opinion of the Task Force of BWDB-**

Task Force reported to Chief Monitoring (6th October 2013, BWDB) that Executive Engineer, Chandpur Office has engaged in corruption in various water development projects like wrong information supply about geobag dumping, fake bills submitted without creating pitching/dumping blocks, corruption in Sacher Khla excavation project funded by Climate Change Trust Fund (CCTF) of the government.

### **Case 3 .....**

#### **Argument over capital dredging project-**

BWDB contract out a work to China Harbour Engineering Company Limited (CHEC) to remove silt from 14 kilometre stretch of Jamuna river near Sirajgonj under the project titled " Capital Dredging (pilot) of River System in Bangladesh" (Contract no. CDRSB-01/2011-12 and CDRSB-02/2011-12). But the tender document did not mention "vertical tolerance limit" and "side slope limit" of the dredging activity that resulted confusion in real works done that is acceptable to BWDB and related bill payments aspects. Finally, based on the investigations on soil removal from river bed and recommendations made by IWM (Institute of Water Modelling), BWDB changed and approved the project design after the project is over. It suggests technical incapacity of BWDB in designing, implementing large and complicated projects.

tendered financial spending for the agency. It is also mentioned in the Act that the board has to strictly follow the relevant rules and guidelines of the government for ensuring transparency and accountability in performing activities. The Act asked the board to develop guidelines for different sectors like capacity development guideline, anti-corruption guideline etc. But in many instances these guidelines are not fully developed and operational or institutionalized. As per the Act, the DG has to submit an annual report about financial spending within three months of completion of each financial year along with the annual audit and other relevant documents.

BWDB generally generate financial resources from government through submission of DPP (Development Project Proforma), where the agency provide detailed project planning and related budget estimations for scrutiny and approval. Planning Commission and Ministry of Finance remain closely engaged with the processes. Any deviation in project planning and budget estimations after this process may create opportunities to misuse of resources and unaccountable actions. In addition, The BWDB Act 2000 indicates six other sources for generating funds. These are (i) grants made by the local authorities, (ii) loans obtained from the Government, (iii) foreign loans and grants obtained by the Board with prior approval of the Government, (iv) service charges and other moneys

collected from the beneficiaries of completed projects, (v) funds received from deposit works, (vi) funds received from other sources.

An internal audit team, named "Task Force" works to assess the irregularities for the organization. The Task Force investigates corruption allegation and related processes and informs their observations and recommendations to the board via DG. This internal audit team perform whistle blowing activities and at the same time recommend penalties if allegations are found genuine. The corruption cases mentioned in Box 4.2 are taken from the excerpts of the Task Force of the BWDB and analysed further. The analysis indicates in integrity sections that many different irregularities or inefficiency create conditions that finally incur financial losses of different kinds. It is imperative to mention here that the Act also gave full protection of the board members and the employees what is done in good faith as it says "No civil or criminal case or any legal proceedings can be instituted or taken against the Board or the Chairman or any Member of the Board of Directors, Director General and other officers and employees of the Board for any action taken in good faith under this Act or any rules or regulations framed there under that may or could have adversely affected any person".



# Chapter 5: Water Integrity Challenges in Bangladesh: Conclusive Appraisal

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# Water Integrity Challenges in Bangladesh: Conclusive Appraisal

## 5.1 Introduction

Water integrity challenges in Bangladesh lies in the historical development of the area and its landforms. The relative position of Bangladesh in the South Asian region and location at the bottom tip of the slope of three mighty river systems (e.g. Ganges system, Brahmaputra system and Meghna system) cause to receive huge amount of regional waters into the national territory that finally drained into the Bay of Bengal. In addition to this slope and gradient issues, the presence of world highest Himalayan mountain range in the north and continental monsoon climatic conditions collectively influences to generate large water mass that contributes in recharging surface and ground water systems. This large quantity of waters also have been carrying significant amount of sediment as (river) bed loads and suspended loads and contributed to develop this land over thousands of years through deposition. Woodroffe et al. (2006) suggested that Ganges river drains water from a catchment of 11,14,000 km<sup>2</sup>, Brahmaputra river from 935000 km<sup>2</sup> and these two river systems have been supplying more than a billion ton of sediments per year into this part of Bengal Basin. This supply of water and sediment are continuously occurring and helping the land building process and finally resulting to produce different types of land features (e.g. floodplains of various depths, river islands, off shore islands, natural levees, swamps and lakes etc.). Water courses, i.e., rivers, canals and other water storage systems are also the features of this sediment deposited landforms. Continuous shifting of river courses and alignments, erosion and accretion processes, braiding nature of rivers are some significant attributes that the river systems of Bangladesh has been demonstrating as results of the prevailing active and strong regional triggering conditions mentioned above. It is also important to note that among the total deltaic plains, i.e. 1, 15,000 km<sup>2</sup> (Woodroffe et al., 2006), the lower Meghna estuary is showing active depositional processes and the upper part located in the Kustia-Jessore districts has arrived at matured stage. These two physical conditions, i.e. active deposition in one place and no deposition on the other, influenced to develop different types of land forms, including water supply systems in these places.

## 5.2 Water Resources for Sustenance of Urban and Rural Settings

There is no need to make it a point that water resources have been strongly supporting human habitation in both urban and rural settings in Bangladesh for centuries. In agricultural production systems and related minor occupations in rural areas and in supporting amenities and industrial growth in urban clusters, water resources have been playing key vital roles. In Bangladesh, the urban people have strong rural connections and similarly rural households have ties in urban areas. Even the city outskirts are still rustic in nature. Khulna City Structure Plan (1999) mentioned that 19% of the households in the city area are still rural type where a large portion of households got water ponds in the homestead premises. Even the food supplies (especially rice) of a large portion of urban households come from their villages sources/kinfolks. Even those who are based on market purchase, they are also dependent on rural supplies in the market centres. Thus urban areas of Bangladesh could be marked as urban area in rural settings, where rural-urban systems should be considered as a continuum and separation of these two is unimaginable, where natural resources especially water play the most significant roles.

## 5.3 Illegal Land Grabbing, Environmental Degradation and Breakdown of Ecological Integrity Vis-À-Vis Water Supply

Impacts of polders, siltation processes and consequential dry-up of lower delta rivers, illegal grabbing of rivers lands and canals, salinity intrusion in surface and ground water tables, depletion of ground water tables are the major issues of water crisis in the lower deltaic parts of the country. But other parts of the country like middle and northern parts developed on the floodplains of different rivers also experience water crisis, but conditions in these regions are not alike lower parts of the delta, i.e.

south-western coastal areas. For example, water crisis in Dhaka city and adjoining areas are mainly the results of heavy industrial and domestic pollution. In addition, illegal grabbing of river lands and canals and unplanned urbanization squeezed the opportunities to get the aquifers recharged either by rainwater and sub-surface flow from upstream and nearby rivers. Even government initiatives/projects go along with private enterprises to destroy water supply systems. Figure 5.1 shows how green canopy coverage and distributions of steam networks have been seriously changed or degraded as government is implementing Purbachal housing project in Dhaka. It is imperative to mention that along with the government (i.e., WASA) many privately installed tube wells are drawing waters from deep aquifers, which creates imbalance between recharge-discharge relations in Dhaka. However, the major man-made projects that created controversies over water aspects are (i) embankments created through Flood Action Plan (FAP) and (ii) DND (Dhaka-Narayanganj-Demra) project. These two projects brought mixed results among the city dwellers and at the same time put the institutions in challenging conditions to address problems (especially water logging conditions).

However, the major observations generated in this baseline report contributes in shaping out the baseline status of water integrity aspects for Bangladesh and finally helped to develop 'way forward' that BAWIN could consider as intervention components to ensure water integrity aspects in Bangladesh. The major observations generated in this baseline report are as follows:

### **Partial Understanding/Assumptions Based Project Concepts Caused Permanent Damage to Water Supply Options**

Structural measures based engineering solutions might not be fully effective in Bangladesh contexts; other non-structural measures should also be investigated.



November 2008 (Purbachal, Dhaka)



February 2012 (Purbachal, Dhaka)

**Figure 5.1: Watershed, flood flow zones, steams and water canals are seriously disrupted in Purbachal New Town (Dhaka) as a result of government decision of land use change**

Impact consequences have multiple facets and dimensions. Assessments should pay attention in this regard. Project concepts should address these aspects as well.

### **Legal Aspects and Institutions**

DPP (Development Project Proforma) of planning commission should be revised to ensure that projects will go in line with environmental/ecological integrity

standards (may be how EIA/SIA/SEA will be carried out by the proponent and be communicated should be declared at the initial stage of project development).

Environment Impact Assessments need to be coherent and correctly aligned. Currently, DoE upholds guidelines mainly for industry sector, LGED maintains their own EIA guideline for screening their projects, Roads and Highways (R&H) maintains their own one, WARPO

keeps water sector guidelines. Most importantly, only DoE guidelines have legal entitlement via Environment Conservation Rules 1997 and the remaining others do not have legal protection. It is also important to note that there do not have any legal binding for Social Impact Assessment (SIA) or Strategic Environmental Assessment (SEA) in Bangladesh. Fulfilling these gaps will ensure strong safeguard measures against actions that damage water integrity aspects in Bangladesh.

### **Breakdown of Ecological Integrity**

It is argued in chapters 2, 3, and 5 that development projects, policies, legislative measures may bring unexpected changes in the ecological integrity of a region. These unexpected alterations may create impediments to incessant supply of necessary amount of waters with standard quality. Therefore, projects taking up any stage/scale local, regional or national should go through rigorous appraisal process to make sure it does not undermine regional or local ecological integrity.

Disasters both slow-onset (e.g. saline intrusion) and forceful-sudden, cause different degrees of ecological damage and consequently impact on water supply systems. Many government and non-government agencies have been working on related areas like WASH (Water Sanitation and Hygiene) to ensure better water related service delivery mechanisms to the households and institutions like schools. These project specific interventions should be more aligned with the specific requirements of the sector in the contexts of disasters and climate change.

### **Business as Usual Policy and Institutions**

In many instances, water related problems are handled and managed by old fashioned institutions and inefficient policies. In contrast, changes have happened in reality and impact conditions become more complicated, compounded and multifaceted. This mismatch does not allow intended improvements through project implementation. For example, TRM project is approved

by the government, not effectively be implemented due to the absence of required policy and guidelines over the land acquisition issues and related financial cost sharing strategies. As indicated before that EIA, SIA, SEA guidelines are not properly standardized and harmonized. Many local government agencies like City Corporations, Municipalities have not mandates to develop and execute their own plans; rather other upper level agencies impose activities upon them and asked to carry out. For instance, authority of water supply systems of Satkhira Municipality informed that they have no mandate/capacity to develop their own water development plans although they have in-depth understanding about the requirements. But DPHE do the planning for them.

### **Corruption and Accountability**

Many water development projects experience allegations over misuse of public resources and corruptions. The Task Force of Bangladesh Water Development Board reviewed many such cases and some of which later telecasted in electronic media. Corruption over purchase of dredging machines, excavation of Jamuna river channel near Sirajganj, corruption over canal excavation in Chandpur all are investigated by BWDB's internal (by the Task Force) investigation teams. But the rectification measures are weak and delicate that does not enforce enough penalties which may provide strong warnings to stop further corruptions. These areas should be taken care of more seriously.

The practice like giving rewards for good deeds is also missing in the institutions. Measures could be taken in this regard.

### **People's Participation and Inclusive Decision-Making**

The opinions of local people (including women) are vital in designing projects. In most of the cases, people's participation are minimum to nil which should be considered seriously.

## **People Movements and Identity**

A number of people's movements took place in Bangladesh that aims to ensure more equitable and sustainable way of water resources management. The people's initiative like TRM (Tidal River Management), people's initiative for identifying and enlisting 22 illegally occupied canals in Khulna, people movements to save Arial Beel in Srinagar (Dhaka), Baral river movement in Bogra-Sirajganj, movement for excavating river Jamuna in Satkhira, movements and initiatives against FAP are some important water related movements in Bangladesh. Better understanding (through research activities) of these movements may provide valuable advocacy points for institutions and policy makers for taking up efficient water projects. Commissioning research activities on this water related movements are recommended.

## **5.4 Baseline results of water integrity**

### **5.4.1 Challenges to capture baseline results**

This baseline study captured different dimensions of integrity aspects of water sector which comprised of multiple thematic components working at different levels. The policies that were examined for this study may indicate the differences and diversity of water sector components. For example, Box 5.1 indicates that some policies aim at framing a governance system for collecting tolls/charges, some are for creating institutions and regulating and better managing water resources, while some policies play supportive roles. In the similar fashion, the focus, roles and responsibilities of institutions are diverse.

It is indicated before that the times when many of the policies and legislative frameworks were introduced in Bangladesh, water sector challenges

### **Box 5.1: Thematic dimensions of water sector policies in Bangladesh**

Policies related to collection of charge/tolls (e.g. Canal Act 1864)

Policies for creation of institutions (e.g. River Research Institute Act 1990; Inland Water Transport Authority Ordinance 1958)

Policies for control, regulation and management of water sector (e.g. Territorial waters and maritime Zones Act 1974, National Water Policy 1999; NWMP 2004, Coastal Zone Policy 2005, Water Act 2013, Ground Water Management Ordinance 1985 etc.)

Water sharing principles/rationales at international level (Ganges Water Sharing Treaty 1996)

Policy for WASH (1998)

Supportive policies like Environmental Conservation Act 1995, Environment Conservation Rules 1997, Environment Court Act 2000

were comparatively simple and less contested. But over the years problems and challenges become complicated and multifaceted but policies remain in the same state as it was introduced in earlier times. This situation resulted to overcrowding of policies that stand as non-coordinated fashion, in many instances expertise of the staffs is weak, institutional commitments are unclear, engagement with people and related stakeholders is feeble and economic viability is absent. Table 5.1 showed how policies, institutions, programmes and people's participation aspects have evolved over time in Bangladesh and how cumulative nature of problem-conditions have generated. These multiple dimension conditions made it challenging to capture baseline results for water sector in Bangladesh.

**Table 5.1: Evolution of policies, programmes, institutions and public participation in water sector in Bangladesh**

<b>Historical times (up to 2000's)</b>	<b>Present (competitive use of water and emerging CC threats) (2000 to 2015)</b>	<b>Future uncertainties (in CC conditions)</b>
Regime of formulation of policies and institutions; address natural drivers	Regimes of experiencing impacts of past policies and actions and to address natural drivers	Past + the then future impacts (cumulative impact conditions) (2020+)
Attributes	Situations and attributes	Situations and attributes
<b>Policies</b>  Policies were introduced to address one/two problems (e.g. irrigation and flood control dimensions) BWDB activities, FCD, FCDI (Krug Mission and IECO) Water Policy 1999	<b>Policies</b>  Past policies based failed to address newly emerged needs/challenges Policies of the past failed to project future demand resulting to the failure of efficient service delivery and compel agencies to run services on ad-hoc basis, that created fissures to breakdown of integrity (Salinity in river Rupsa; Satkhira Pourasava water supply with salinity level beyond acceptable tolerance limit could be cited as example). Impacts are worsened as disaster impacts becomes more common in this regime.	Situation will be very complicated and competitive (due to internal displacement, migration, high intensity disaster impacts reflexive to the scale of economy). City authorities may fail to provide water related services to the people more efficiently and equitably.
<b>Programmes</b>  Inappropriate development/land use planning Impact due to lack of scale consideration Introduction of shrimp cultivation	<b>Programmes</b>  Urbanization happened unabated, canals/streams clogged up and grabbed by the powerful people (Khulna as a case). Unsustainable projects are taken (e.g. water importation project of KWASA where water will be brought in from Gopalgonj district costing about 2500 crore BDT). River dredging taking place but no attention given to solve the root cause of water unavailability problem. With limited technical feasibility study. Shrimp farming becomes unpromising but continuing.	Water sector are heading with the existing set of policy and institutions. Although public sector agencies are trying to understand the current impacts conditions and introduce new and effective policies. Undertaking of CPEIR study, government's initiative to develop Climate Fiscal Framework are some examples in this regard. In addition, BCCSAP, NAPA have already come into hand (although no special attention is given on water sector, rather livelihoods and food security received the prominence). The likely deviation from existing policies is the introduction of upcoming SDG (Sustainable Development Goals), Vision 2021 of the government and some indicative study done by other agencies (i.e. urban resilience study of Oxfam). These may provide rationale for making a major shift in the water policy.
<b>Institutions</b>  Non-coordinated, sector specific plans. Conflicts remained between institutions, such as DPHE versus Pourasava BWDB vs LGED BIWTA vs DoE	<b>Institutions</b>  Non-coordinated, sector specific plans continues. In the mean time ICZMP project, TRM project to address impacts generated from previous projects, Capital dredging of rivers project by BWDB, different climate change adaptation project (in water sector) took place but results are unpromising.	
<b>People's engagements</b>  People's engagements implied and taken for granted in most of the cases. Less competitive water use. Later people's movements took place (specially against shrimp cultivation; Murder of Karunamoyee, Jayeda in south-western region could be mentioned.	<b>People's engagements</b>  People's demand for water increased; though opinions are diversified (TRM could be an example). Confrontation between public and institutions emerged and becomes common (Water supply authorities versus people; institution versus institution; civil societies versus institutions) People are more informed and organized, but less powerful to make their voice heard. Government allowed 'Access to Information' by the people by law.	

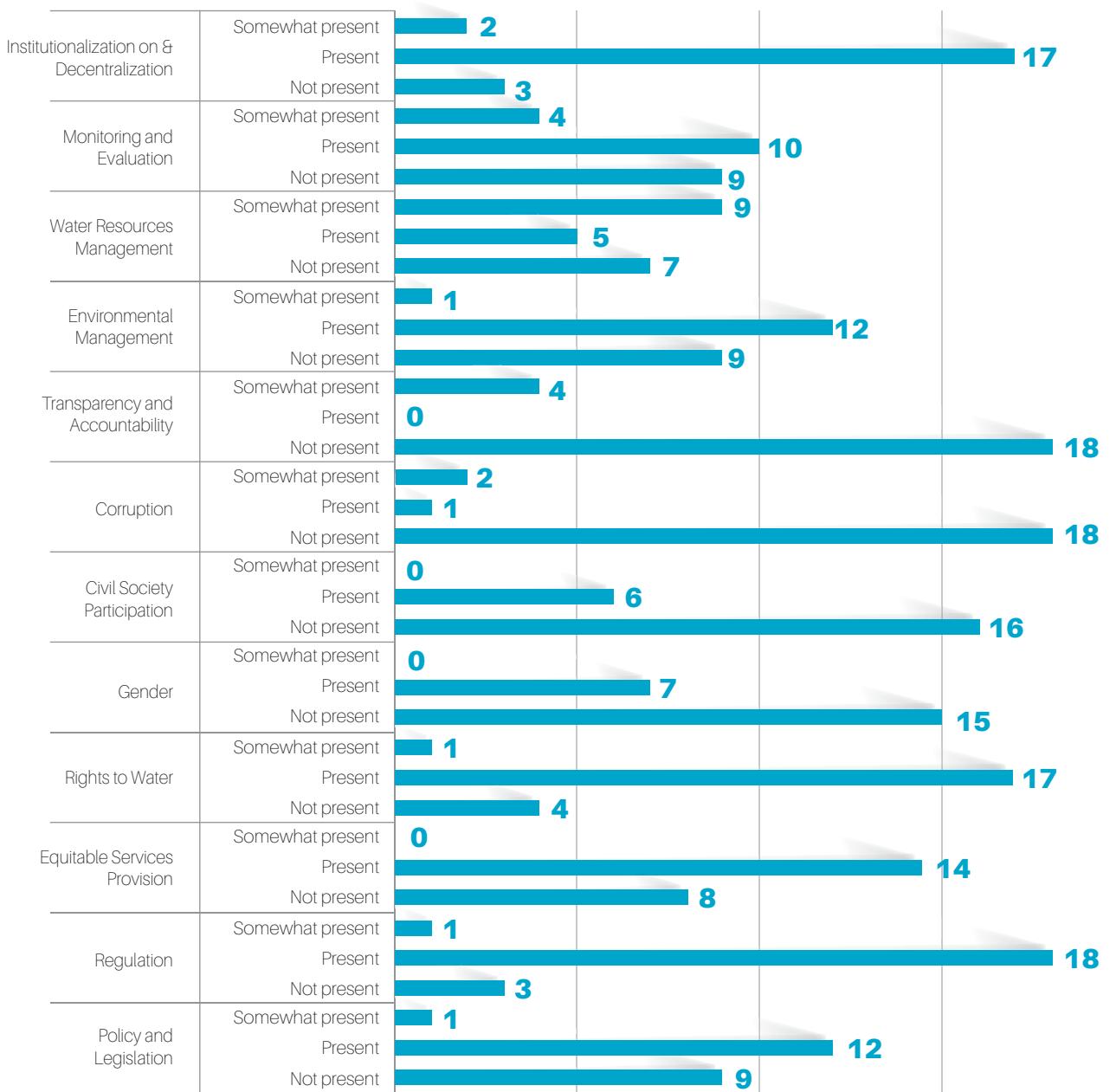
It is also important to note that policies, institutions, programmes are originated in Bangladesh from a colonial outlook, where government control over ownership of resources, sole aim of revenue earning and keep people out of participation in the decision making processes were the basis in formulating, enacting the policies and operating the institutions. The conditions by design deny absorbing elements of integrity in water sector (in terms of accountability, transparency and peoples participation) in order to give it an open and people friendly posture. Figure 5.2 illustrates this argument by presenting aggregate numeric values on some integrity components assessed for 22 water sector policies of Bangladesh. It shows that about 55% cases (when 'not present' and 'somewhat present' are combined) actions needed to integrate/improve water integrity aspects in water sector policies. However, it is important to note that different studies carried out at later times and recommendations made for refinements, making water sector more people and environment friendly, many suggestions were offered from national and international entities, where integrity bundle (offered by BAWIN) stands as important prescriptions to accommodate. This baseline study identifies gaps between the standing situations and where to go conditions, but the challenges remain in defining and designing the transitional activities which may contribute to make the water sector services more accountable, transparent and people oriented. In this regard, the "way forward" section gives indications how transitional actions could be ascertained in terms of specific activities for ensuring high integrity for water sector in Bangladesh.

#### **5.4.2 Strategies adopted to capture baseline results**

Reflecting on the arguments mentioned above, this baseline study adopts a strategy so that certain assertions could be made as baseline results for water sector integrity of Bangladesh and could lead to develop way forward for taking further actions. It is mentioned

earlier that as per the Term of Reference (ToR), the assignment conceptualizes water integrity aspects from a broad contextual framework. The principle accepted for water integrity in Bangladesh is to see how actions of public agencies (national, local government) curtail/limit people's rights and privileges to access to water in equitable and accountable manner. In this regard, there remain certain assessment domains which may provide indications and arguments how that "curtailing or limiting" aspects are happening/sustaining and the assessment results may finally help to shape out the water integrity framework for Bangladesh.

Three major assessment domains were considered in this connection (i) clear understanding how water as a resource is generated and sustained in delta dominated Bangladesh, (field visits and conversation with local people in Tala Upazila, Satkhira Municipality, Khulna City Corporation clearly indicated that people's agony, frustration, sensing corruption of public water agencies has stemmed from the incapacity in reading the physical processes by the public agencies and taking inappropriate actions) (ii) assessing the state of policy and institutions (and programmes) to deliver pro-people, efficient, and accountable water related services; this second element is also dependent on the first element in many respects. For example, financial corruptions of BWDB, given in chapter 4, demonstrates that the processes they adopted to address irregularity cannot be achieved if it is limited only to the improvement of the internal practice of the institution, rather more engagement with people and grassroots agencies and to accommodate people's aspirations in planning and project execution would be more important and required (iii) generation of specific strategic activities in terms of 'way forward' which may help to ensure accountable water service provisions by public sector agencies. The sections in the following suggest actions as 'way forward', which may contribute in attaining integrity aspects in water sector of Bangladesh.



**Figure 5.2: Status of wider integrity components (12 indicators) in 29 water sector policies (see corresponding Table 2.2)**

## 5.5 The Way Forward

The way forward section indicates certain intervention areas where BAWIN could work for ensuring and promoting integrity aspects in water sector of Bangladesh. Table 5.2 also indicates some areas where integrity risks remain and provides indicative suggestions how to improve the conditions. The major areas given in the Table entail institutional capacity enhancement, promoting integrity in water management, actions for national advocacy, knowledge and communications, strategies to support climate change finance and programmes.

**Table 5.2: Integrity risks and intervention areas in water sector of Bangladesh**

	Institutional Capacity Enhancement	Promoting integrity in Water Management	National Advocacy	Research Knowledge, Communications, and Advocacy	Supporting Climate finance programme of TI	Engaging in Delta Project/ Blue Gold of EKN
<b>Integrity risks</b>	Many useful Policies and Acts are in existence, but lacks useful Guidelines that can translate specific message for everyday practice by the employees	In many cases financial corruption issues are reported in government internal audit reports, but actions are rarely taken accountability and transparency not fully maintained public participation is ineffective in many cases	Actions and operational processes of different agencies are different and thus integrity aspects are also different. In these contexts sharing of lessons through meetings and partnerships may help to develop wider awareness and understanding about integrity aspects. But currently meetings, conferences, knowledge sharing on integrity are less frequent	Joint research initiatives are less frequent between agencies, academic institutions and think tank organizations Research based publications are rare from the agency officials Communication and advocacy strategies are non-existent in most of the cases	It is less understood how natural causes and manmade structural interventions collectively destabilize environmental/ecological integrity that in turn undermine the water supply systems in both city areas and regional contexts. Intra and inter scale conflicts over water use are also less investigated and less understood Blue Gold project of EKN is more related to delta characteristics (which are dependent on hydro-meteorological and geomorphological processes of the land) of the regions but development interventions in water sector are less acquainted with these issues.	
<b>Interventions</b>	BAWIN could develop operational Guidelines based on the indications given in the Acts and Policies  In addition, BAWIN could develop integrity tools so that these could be used in training government officials for better understanding (for instance WaterAid developed PWVA tool for WASH sector)  Develop joint programs with municipalities (paurashavas) on water integrity aspects	Capacity of internal audit departments could be enhanced; introduce internal auditing capacity where there is no such provisions  Right to Information Act could be institutionalized more effectively so that people can get access to data information related to budgets and expenditure  Agencies could arrange programmes like "meet the people" or/and "meet the press" once in a month so that people can get better chance to access to agencies	BAWIN could support agencies at different levels national, regional and local in arranging meetings on water integrity  Lobbying and advocacy with law makers, politicians could be useful  May arrange round table meetings involving media on water integrity aspects  Arrange national and local level debate competitions, essay competitions, photo contests on water integrity which may help advocacy campaigns  BAWIN could develop minimum standards/targets of good governance practice so that institutions can follow to achieve some target indicators	BAWIN could sponsor higher level research, where the postgraduate students undertake research under joint supervision. Publications that may emerge from these research activities will help to identify areas of problems and this will help to ensure better communications among the professionals, experts, practitioners. The results will also foster advocacy programmes  BAWIN could develop 'Stop wetland grabbing' campaign through SONAK volunteers  Take initiative to improve DPP format of the government so that water integrity aspects are incorporated at the planning stage of a new project	BAWIN could develop climate lens or could use tools prepared by other agencies (e.g. CDMP II developed this tool). Using this tool in training the professionals may help them to develop projects that are climate-smart.  BAWIN could facilitate a process so that agencies could develop their proposal through public participation. This process may bridge the gap between agency and community/people.  BAWIN could develop a knowledge repository gathering important published and non-published documents and papers so that interested a knowledge based water resources planning could be fostered.	Develop program on "track the progress" on corruption allegations so that process of corruption are properly identified if the case is genuine and penalties are executed

However, as an aide to the list of integrity interventions given in the Table, some other actions under specific thematic areas are suggested as 'way forward' in the following sections.

### ***Thematic Area A: Supervision, regulation and management***

Actions suggested in this section may help to promote anti-corruption actions and may help to ensure activity processes to be more transparent. However, specific likely interventions areas are given in the following:

Actions might be taken to make National Water Resources Council (indicated in Water Act 2013) more functional and can work as watchdog for the sector. The enforcement of existing legal coverage, where possible, is required.

Make provisions so that representative consumer members could join and play active roles in the Board of the agencies. Their roles should be clearly spelled out in a guideline. Lobbying and advocacy with law makers, politicians could be useful.

### ***Thematic Area B: Coordination and appropriate distribution of tasks (assess the rules of business)***

These actions might help to address overlaps of activities and thus promotes efficient use of resources.

There are serious overlaps in the plans and actions between agencies, such as LGED and BWDB (Engineer Inamul Huq, 2014). These need to be seriously investigated to identify the areas of overlaps and impacts of the overlaps in ensuring service quality. It may also help to take actions so that integrity aspects are promoted.

Similarly water supply activities at local level (e.g., by Municipalities) and water supply planning carried out by DPHE are not well coordinated. These gaps in plans and actions put people in many kinds of sufferings, as observed in Satkhira.

### ***Thematic Area C: Information as people's power to demand better water services***

Actions need to be taken so that water sector information is more versatile, easily understandable and people could use it as power to demand efficient services from public agencies. Here roles of CBOs are important. The activities of SONAK of TIB (Informed Citizens' Committee) currently working at grassroots level should be promoted (Sonak, 2014).

People should also be informed about the good deeds/actions of the public agencies. In recent times many good practices are taken into consideration to give better services to the public. Knowing about these facts and process may bring the people to receive better services, make them closer to the agencies and they will be able to give suggestions for further improvements. The introduction of on-line e-billing systems, establishment of call center for receiving complaints (call center number is 16162) by Dhaka WASA are some examples that shows improvements in their services. In the similar fashion, the actions of Task Force of BWDB to assess and monitor irregularities are good activity components (although further improvements are necessary) to maintain integrity aspects high.

BAWIN could develop a knowledge repository gathering important published and non-published documents and papers so that interested a knowledge based water resources planning could be fostered.

### ***Thematic Area D: Promote equity in intra organizational arrangement and among the stakeholders***

The water sector agencies of Bangladesh perform multiple tasks with limited resources (e.g., DWASA working on water supply systems, sewerage management and flood water drainage management; BWDB working for flood control, improve irrigation facilities, maintain navigational channels by dredging, implementing climate change adaptation projects in recent times etc.). Disproportionate manpower ratio for different tasks, skills gap of the staff are major concerns for these public agencies which finally contributes in inefficient and ineffective water service delivery to the people. Helping public agencies to identify these challenges and to fulfill these gaps may help to build strong institutional framework and may lead to improve water integrity aspects in Bangladesh.

Water and sanitation services are not provided equitably across wealthy and low income groups in Bangladesh. Further investigations are required to identify these gaps and recommendations in this regard may help to design new actions programmes for further improvements.

### ***Thematic Area E: Develop organizational strengths operational guidelines***

Develop joint programs with municipalities (pourashavas) on water integrity aspects.

Capacity of internal audit departments could be enhanced; introduce internal auditing capacity where there is no such provisions.

Right to Information Act could be institutionalized more effectively so that people can get access to data information related to budgets and expenditure.

Agencies could arrange programmes like "meet the people" or/and "meet the press" once in a month so that people can get better chance to access to agencies.

BAWIN could support agencies at different levels national, regional and local in arranging meetings on water integrity.

May arrange round table meetings involving media on water integrity aspects.

Many Acts and Policies exist for water sector in Bangladesh, but in very few cases the articles/sections of these legislative documents are explained in detail (by developing operational guidelines) to ensure successful application/implementation of those articles. For example, BWDB Act 2000 asked the board to develop guidelines for different sectors like capacity development guideline, anti-corruption guideline etc. Helping development of such guidelines for different water sector agencies may explicitly inform those agencies and their staffs what to do and what not to do and related implications. This would also contribute in a way that people with ill motives will not be able to use obscurity in policy as an opportunity to practice irregularities.

### ***Thematic Area F: Improve Implementation, Monitoring & Evaluation mechanisms***

New project development by public agencies from ADP (Annual Development Programme) sources of the government requires producing the project proposal using DPP (Development Project Proforma) application format for receiving

different approvals from Ministry of Planning and Ministry of Finance. This formal project proposal format got specific points/indicators in it to respond to by the project proponents; in this regard BAWIN could work closely with Planning Commission of Bangladesh so that Planning Commission can accommodate integrity aspects (e.g. accountability, transparency and people's participation) into the DPP format. This incorporation will force the water project proponents to declare certain strategies how the integrity issues will be taken care off during project implementation/operation cycles. This declaration will also provide opportunity to assert implied consents by the applicant agency how the integrity aspects will be maintained. This formal declaration will also act as a reference point to assess the deviations if something wrong happens in later times.

IMED (Implementation, Monitoring and Evaluation Division) of Planning Commission of Bangladesh has been playing important roles in assessing the efficiency of project expenditure since 1975. BAWIN could work with IMED to train their staffs on integrity aspects so that they can assess integrity aspects more rigorously and suggest agencies to work for improvements where necessary.

### ***Thematic Area G: Commission studies and work with Universities***

Support research activities on water integrity aspects with university professionals and students so that integrity gaps are identified and recommendations generated. These results could help to undertake advocacy campaigns of various kinds.

Arrange national and local level debate competitions, essay competitions, photo contests on water integrity which may help advocacy campaigns.

## **5.6 Final Remarks**

The purpose of giving an appraisal in this chapter and other chapters presented earlier on the evolution of water integrity in Bangladesh is to present a broad spectrum of water related aspects of Bangladesh so that key areas could be identified where integrity breakdown could happen. The discussions touched upon historical perspectives to show how sediment laden water supply systems helped to establish settlements and contributed in thriving occupations of people in earlier times; then it was presented how ineffective water management options based on partial reading of delta characteristics are proposed and breakdown happened in the water-ecology integrity. It was also discussed that many projects appeared in the scene to fix the problems generated by an ineffective project implemented earlier (see more in Chapter 4). Chapter 4 also briefly presented water crisis aspects of Dhaka city, where it is identified that water crisis issues in Dhaka are mainly subject to incapacity of authorities to execute legal procedures against illegal/immoral actions of people and agencies both government and private (it may stretch from illegal river/canal occupation, dumping of industrial wastes to unplanned urban area development), improper planning and institutional reforms related. Finally the 'way forward' section proposed specific intervention components for ensuring water integrity in Bangladesh.

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# Annexure 1

## Integrity Issues for Policy Evaluation

Water integrity refers to transparent, accountable and inclusive decision-making by water stakeholders on the basis of core values of honesty, equity and sustainability in water management (WIN, 2014). While evaluating each water management related law / legislation/ policy, a number of issues were checked on following thirteen heads:

**1. Policy (a course of action adopted and pursued by a government) and Legislation (a proposed or enacted law or group of laws)**

- Policies are up-to-date
- Legislation supports policies and strategy implementation and avoids duplication, gaps and conflicts in institutional mandates and roles

**2. Regulation (a governmental order having the force of law)**

- Regulatory mechanisms / authorities are independent and independently resourced, or are in the process of transitioning to independence
- Relationships between consumers/users, private service providers and government are regularly adjusted through negotiation within a competitive environment
- Contracts and agreements between parties (private/public) are enforceable, contract law is adhered to
- Regulation achieves equity, efficiency and sustainability in allocation and management of water resources

**3. Equitable (impartial) Services Provision**

- Disparities between urban and rural access to services are minimized
- Low income, marginalized and vulnerable groups gain equitable access to sector services
- Levels of subsidies per household are commensurate with available resources, affordability of services are in line with pro-poor policies
- Adequate planning and preparations have been made for emergencies which incorporate water and sanitation services for displaced persons and refugees

#### **4. Rights to Water (consider access to safe drinking water and sanitation as a human right)**

- Agreed international conventions on citizens' rights to water (e.g. the MDGs) are adhered to
- Priority is given to water and sanitation in policies, plans, budgets and expenditures

#### **5. Voice and Choice**

- Service providers are responsive and consumers/ users can complain with reasonable confidence that they will be heard and that problems will be rectified
- Mechanisms for recourse and appeal exist and are functional and not based on political influence

#### **6. Gender**

- National and sector gender policies exist
- Both men and women are regarded as central to the provision, management and safeguarding of water
- Women are being empowered and contributing significantly in decision-making roles in planning, budgeting, implementation and monitoring
- Challenges to women's participation – such as their workload, time availability, levels of literacy, ability to meet in public, power differentials and intra-family relationships – are acknowledged and respected

#### **7. Civil Society Participation**

- The user community is involved in rural services management to assure quality and sustainability of services provision
- The development approach is used and adequate time and resources are allocated to facilitate community involvement, build local capacities and create ownership for sustainability

#### **8. Corruption (abuse of power for private gain)**

- There is commitment to anticorruption and its advocacy within sector institutions.

- Stiff judicial, economic and social sanctions are being imposed on offenders and publicly announced in the media.
- The quality of services provision, water resources management and environmental protection is being monitored by civil society.
- Decentralization is reinforced by measures against corruption at the local level, such as capacity building, participatory planning and public display of budgets, project expenditures and procurement.

#### **9. Transparency\* and Accountability\*\***

- Planning and budgeting are open and transparent.
- Civil society advocacy organizations monitor budget decisions, allocations and expenditures and use the media in publicly shaming corrupt officials and politicians.
- Transparency tools such as citizens' charters and report cards are being used by civil society and government to measure performance and publicize the efficiency and effectiveness of government expenditures.
- Service providers are accountable to their consumers/ users.

\* Transparency refers to openness and public access to information so that citizens can understand the decision-making processes that affect them, and are knowledgeable about the standards to expect from public officials

\*\*Accountability is the democratic principle that elected officials and those in public service can be held accountable for their actions and answer to those they serve. This includes political, administrative, and financial dimensions.

#### **10. Environmental Management**

- Environmental impact assessments (EIAs), social safeguards and related procedures are adhered to.

- Adequate information for basin and ground water resources management.
- Institutions responsible for environmental conservation and protection have clear and consistent mandates that avoid overlap, duplication and conflict.
- Surface and groundwater pollution is monitored and controlled

## 11. Water Resources Management

- Basin-level plans are regularly updated through participatory involvement of basin stakeholders and incorporate their views and priorities.
- Major or licensing system users are known and managed through a permit.
- Climate change and its potential impacts are being monitored and have been incorporated into the planning, management and use of water resources.

## 12. Monitoring and Evaluation

- Data collection, analysis and reporting are transparent and accessible to the public.

- Civil society is actively participating in data collection and monitoring.
- The sector monitoring system is able to provide for reliable estimations of access and use of services.
- Monitoring captures the equity of distribution of services both geographically and by income group.

## 13. Institutionalization and Decentralization

- There is clarity and separation of functional roles and responsibilities with minimum overlap, gaps, duplication and/or conflict.
- Relationships between stakeholders are clear, legitimized and governed by written procedures, agreements or contracts.
- There is alignment of interests, incentives, mandates and responsibilities amongst all stakeholders.
- Skills, capabilities, assets, resources (human and financial) and mandates are decentralized at regional and local levels.
- Roles and responsibilities should be clearly spelled out in the applicable laws and regulations.

## Annexure 2

### Comprehensive Policy Evaluation

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#### **The Canals Act, 1864**

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The canals act, 1864 is related to the collection of tolls on canals and other lines of navigation and for the construction and improvement of lines of navigation in Bangladesh. This act is not updated because it was last updated in 1873 and 1903. The regulatory mechanism or authorities are independent and contracts and agreements between parties (private/public) are enforceable and contract law is adhered to. The regulatory mechanism or processes are mentioned in the clause-8, 9, 10 and 11. In this act adequate planning and preparations have been made for emergencies and it is mentioned in clause-14 and water rights are mentioned in clause-15 and 16. Service providers are not responsive and consumers/users can not complain with reasonable confidence that they will be heard and that problems will be rectified. Gender perspective and civil society participation are not mentioned in any section in this act. In case of corruption there is no commitment to anticorruption and its advocacy within sector institutions and the quality of services provision, water resources management and environmental protection is not being monitored by civil society. Planning and budgeting are open and transparent but have no accountability because civil society advocacy organizations do not monitor budget decisions, allocations and expenditures (clause-7). Surface and groundwater pollution is monitored and controlled and emphasize have been given to water resources management in clause-11. According to clause-7, public have access in data collection regarding the toll rate. In clause-8 and 10, roles and responsibilities are clearly spelled out in the applicable laws and regulations.

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#### **The Bangladesh Irrigation Water Rate Ordinance, 1983**

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Bangladesh irrigation water rate ordinance, 1983 is an ordinance to consolidate and amend the law relating to the imposition of water rate for supply, regulation or storage of

water for irrigation or drainage. Bangladesh irrigation water rate ordinance is not up-to-date because it was last updated in 1990 but this ordinance supports the policies and strategy implementation. This section is mentioned in clause-3 of this ordinance. The provisions of this ordinance shall have effect notwithstanding anything to the contrary contained in any other law or in any contract for the time being in force. In this ordinance, the relationships between consumers/users, private service providers and government are not regularly adjusted through negotiation within a competitive environment. Because according to this ordinance government may declare any area as a notified area which are seems to be benefited for water management. Here there is no scope for the root level participation in this regards according to this ordinance. But people's participation is an important criterion for water integrity in any country. Equitable service provision is another important criterion of integrity where the disparities between urban and rural access to services are need to be mentioned and adequate planning and preparations have to be made for the emergencies. But in The Bangladesh irrigation water rate ordinance 1983, these are not mentioned. In Bangladesh irrigation water rate ordinance 1983, priority is given to water in policies and plans. Clause-8(1), clause-9(1) and clause-10(1) describe the water right such as free passage of water irrigation or drainage, penalty for diversion of normal flow of water by obstructions, and prevention of unauthorized use or waste of water. According to clause-5, the recognized authority will determine the water rate for a financial year and people are bound to pay be fees as prescribed by the notification. In any section of this ordinance people's choice or perception is not prioritized. Women are not regarded as central to the management and safeguarding of water in this ordinance. Civil society participation is not encouraged to participate in water management in this ordinance and these are mentioned in clause-13 and clause-14. There is no commitment to anticorruption and civil society is not encouraged to participate in service provision and water resource management. Determination of water rate and collection of fees are not open and transparent because these are not announced in public media. The authorities are not accountable to the consumers and they are obliged to pay fees as prescribed by the law. Surface and groundwater pollution is monitored and controlled [clause-10(1)]. In present law basin stakeholder have no participation to incorporate their views for water resource management and climate change issues are not taken into account for planning, management and use of water resource management. This ordinance does not provide any scope or right to data collection and reporting for those reasons civil societies have no scope to participate in monitoring and sector monitoring system is not able to provide for reliable estimations of access and use of services. Relationships between stakeholders are not clear, legitimized and governed by written procedures, agreements or contracts and roles and responsibilities are not clearly spelled out in the applicable laws and regulations.

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## **River Research Institute Act, 1990**

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River research act, 1990 is an act made to establish a river research institute. Policies are up to date and it supports policies and strategy implementation in institutional mandates and roles. Clause 4, 5 and 6 state that, regulatory authorities are independent and independently resourced and regulation achieves equity, efficiency and sustainability in allocation and management of water resources. Adequate planning and preparations have been made for emergencies prevention of embankment breaks, flood control, irrigation and drainage and to examine and evaluate the standard of the constructions is mentioned in clause-7. Priority is given to water policies by means of geographical models, river mechanics and measures to counter the silting up of rivers and researches on estuaries and tidings of rivers. Service providers are not responsive to the stakeholder and functions are based on political influence. Women are not being

empowered and contributing significantly in decision-making roles in planning, budgeting, implementation and monitoring. The development approach is used and adequate time and resources are allocated to facilitate community involvement, build local capacities and create ownership for sustainability. Stiff judicial, economic and social sanctions are not being imposed on offenders and publicly announced in the media and quality of services provision, water resources management and environmental protection is not being monitored by civil society. According to clause-11 and 12, planning and budgeting are open and have mandate to investigate all the records, credentials, money, in cash or deposited with a bank, securities, stocks and other kinds of assets and he may examine any member or any officer or employee of the institute. For environmental conservation and protection this act has clear and consistent mandates and is stated in clause-7. The institution will publish yearly report based on water resource management and basin-level plans are regularly updated through participatory involvement of basin stakeholders. Reports are submitted to the government but not accessible to the public and civil society is not actively participating in data collection and monitoring. Institutionalization and decentralization is enforced in clause 6, 7 and 14 and there is alignment of interests, incentives, mandates and responsibilities amongst all stakeholders.

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## **Water Resource Planning Act, 1992**

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The water resource planning act has been prepared to ensure the development and balanced use of water resources. This act is published in January, 1992 and it supports the strategy implementation but it has some lacking in integrity issues. Regulatory mechanisms / authorities are independent because according to the clause-3 and clause-7 of this act the institution shall be a body corporate having perpetual succession and a common seal with power to acquire hold and dispose of property, both movable and immovable and shall by the said name sue and be sued. Though water resource planning act was made to ensure the development and balanced use of water resources but urban and rural access to service and adequate planning and preparations have not been mentioned in any clause of this act. Clause -7 in this act mentions the functions of this organization and priority is given to water management. Voice and choice, gender perspective and civil society participation is not encouraged because this act have any clause related to these issues but present water management demand these issues to be included. This act do not provide any scope which can decrease corruption in water sector because there is no commitment to anticorruption and water resource management is not being monitored by civil society and media. According to clause-13 and 14, the institution has to submit an annual statement for the following financial year and they have to maintain its accounts in due form and manner and have to prepare an annual report of its accounts. Environmental management are encouraged in this act because the government may, if it thinks necessary so to do, at any time call for a report and statement on any matter from the institution and the institution shall be bound to furnish such report and statement to the government. According to the clause-7, one of the functions of this organization is to co-operate in the investigation of any organization appointed to the development, utilization and preservation of water resources, and to conduct, if necessary, special investigations on any matter relating thereto but climate change and its potential impacts are not being considered in any stage of this act. Though civil society is not actively participating in data collection and monitoring but clause-17 provide the scope of the government to monitor and evaluate the activities of this organization because they have to submit the annual audit report or research report related to water management and water uses. The clause (5-9) of this act states the roles and responsibility of the organization and the relationships between stakeholders are clear which promote institutionalization and decentralization.

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## **Ganges Waters Sharing Treaty, 1996**

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Ganges waters sharing treaty is determined to promote and strengthen their relations of friendship and good neighbourliness inspired by the common desire of promoting the well-being of their peoples. This treaty came into force in 1996 but it has some lacking in integrity issues and can be said as not up to date in present context of water issues and have no article related to planning and preparation for emergencies. This treaty came into action based on political influence and service providers are not responsive and consumers/users can not complain with reasonable confidence that they will be heard and that problems will be rectified. Any article of this treaty does not contain issue which can promote woman participation and civil society engagement in water management. This is an international treaty and citizens' rights to water are adhered to and hence priority is given to water in policies, plans, budgets and expenditures. Planning and budgeting are not open and transparent and civil society advocacy organizations have limited scope in participating budget decisions, allocations and expenditures and use the media. Environmental Impact Assessments (EIAs), social impact assessment is an important criterion in environmental management but this treaty provides inadequate information for basin management and surface and groundwater pollution monitoring. Though basin-level plans are regularly updated through involvement of basin stakeholders but climate change and its potential impacts have not been incorporated into the planning, management and use of water resources. According to the article-6 of this treaty the Joint committee shall submit to the two governments all data collected by it and shall also submit a yearly report to both the governments but data collection, analysis and reporting are not transparent and accessible to the public and civil society is not actively participating in these issues. There is alignment of interests, incentives, mandates and responsibilities amongst all stakeholders but there is no clarity and separation of functional roles and responsibilities.

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## **National Policy for Safe Water Supply & Sanitation, 1998**

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National policy for safe water supply & sanitation came into force with a view to ensure the development of water supply and sanitation sector equitably and sustainably. This policy was published in 1998 and integrity issues are incorporated except, corruption and transparency issues but legislation supports policies and strategy implementation in clause-9 and 10. According to clause-8, the disparities between urban and rural access to services are minimized and low income, marginalized and vulnerable groups gain equitable access to sector services with adequate planning and preparations for emergencies. Priority is also given to water and sanitation in policies, plans, budgets and expenditures and women is regarded as central to the provision, management and safeguarding of water and they are significantly encouraged in decision making role in water management activities by clause-8 in this policy. According to clause 8.1.1, 8.1.4, communities shall be the focus for all water supply activities and all other stakeholders including the private sector and user communities shall be responsible for operation and maintenance of water supply facilities and shall bear its total costs. But there is no commitment to anticorruption and the quality of services provision, water resources management and environmental protection is not being monitored by civil society with lack of transparency and accountability. According to clause-8.3.12, WASAS, DPHE, BUET and AEC shall conduct research and development activities for the development and adequate information for basin and ground water resources management.

According to clause-8.3.10, monitoring of water quality for the purpose of ensuring an acceptable standard will be the responsibility of DPHE, DOE, BSTI, Atomic Energy Commission (AEC) and CBOS and they will send their report to the water quality control committee in the local government division. The sector monitoring system is able to provide for reliable estimations of access and use of services but data collection, analysis and reporting are not transparent and accessible to the public. The different clause of this policy promotes institutionalization and decentralization because there is alignment of interests, incentives, mandates and responsibilities amongst all stakeholders and there is clarity and separation of functional roles and responsibilities with minimum overlap, gaps, duplication or conflict.

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## **National Water Policy, 1999**

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National Water Policy is the policy of the government of Bangladesh where all necessary means and measures will be taken to manage the water resources of the country in a comprehensive, integrated and equitable manner. The policies are designed to ensure continued progress towards fulfilling the national goals of economic development, poverty alleviation, food security, public health and safety, decent standard of living for the people and protection of the natural environment. In this policy legislation supports policies and strategy implementation and avoids duplication, gaps and conflicts in institutional mandates and roles. Setting the appropriate legislative framework is fundamental to effective implementation of the water policy. According to clause-3, one of the objectives of national water policy is to ensure the availability of water to all elements of the society including the poor and the underprivileged and to take into account the particular needs of women and children which will reduce the disparities between urban and rural access to service. Adequate planning and preparations have been made for emergencies and according to clause-4.3, the government reserves the right to allocate water and can redirect its use during periods of droughts, floods, cyclones, and other natural and man-made disasters, such as contamination of groundwater aquifers that threaten public health and the ecological integrity. According to clause-3, 4.3, 4.5 and 4.16 national water policy give ample opportunity for women to participate in planning, management and safeguarding of water. It is also recognized that women have a particular stake in water management because they are the principal providers and carriers of water, main caretaker of the family's health, and participants in many stages of pre and post-harvest activities. National water policy state the participation of user community in water management because according to clause-4.3, 4.4 and 4.16; water resources management requires involvement of the public and private sectors, communities and individuals that benefit from the delivery of water-related services and the ultimate success and effectiveness of public water resources management projects depends on the people's acceptance and ownership of each project whereas, It is important to delineate the roles and responsibilities of everyone involved in water resources management. But there is no commitment to anticorruption and accountability because planning and budgeting are not transparent and transparency tools such as charters and report cards are not being used by civil society and government to measure performance and publicize the efficiency and effectiveness of government expenditures. Clause-4.12 state that, protection and preservation of the natural environment is essential for sustainable development because most of the country's environmental resources are linked to water resources and it is vital that the continued development and management of the nation's water resources should include the protection, restoration and preservation of the environment and its bio-diversity including wetlands, mangrove and other national forests, endangered species, and the water quality. Accordingly, water resource

management actions will take care to avoid or minimize environmental damages. According to clause-4.15, the sector monitoring system will be able to provide reliable estimations of access and use of services if a central database and Management Information System (MIS) is developed for consolidating information from various data collection and research agencies on the existing hydrological systems, supply and use of national water resources, water quality, and the eco-system. According to this policy, the government will formulate a framework for institutional reforms to guide all water sector related activities and it will periodically review the mandates of all water sector institutions and redefine their respective roles, as necessary, to ensure efficient and effective institutions commensurate with changing needs and priorities. The National Water Resources Council (NWRC) will coordinate all water resources management activities in the country.

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## **National Water Management Plan, 2001**

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National water management plan was published in 2001 and prepared in a comprehensive and integrated manner, with regard for the interests of all water-related sectors and taking full account of other sectoral policies of the government. According to clause-4.2, the fundamental importance to implementation of the NWMP are lies in research and information management, participatory planning and management, promotion of women's participation, media and awareness raising, promoting private sector participation, development finance and regulatory and economic instruments. Levels of subsidies per household are commensurate with available resources, affordability of services are in line with pro-poor policies which are discussed in clause-4.2 and 9.3. The clause-8 state that, some people will always be at risk, the main aims for water-related disaster management are to provide the means by which, through a combination of structural and non-structural measures and to the extent feasible and affordable, people are adequately warned of an approaching disaster, are equipped to survive the disaster with as much as possible of their assets intact, and are adequately supported in rebuilding their lives thereafter. Bangladesh is signatory to various international conventions and protocols which are related to the citizens right to water, including the convention on biodiversity, Ramsar convention, framework convention on climate change, and convention on combating desertification. The government is committed to fulfilling its obligations under these conventions. According to clause-4.2, increased women's participation in the water sector is a requirement of the NWPO and will be explored in the fields of project preparation and planning; employment in water schemes; training in the management and operation of local water supply and sanitation schemes and increased involvement in the financial aspects of local water schemes (e.g. tariff billing and collection, book-keeping etc). Changes in legislation will be introduced as required. But in this plan user community is not involved in rural service management to assure the quality and sustainability of water management and there is no commitment to anticorruption with any environmental protection by civil society. For basin and ground water resources management various activities are mentioned such as development of surface water resources for multi-purpose use, river management for navigation and erosion control and development of hydropower, which are prerequisite for environmental management. The need for urgent action is mentioned in clause-10.3 to clean-up pollution hot spots and to prevent pollution of cleaned-up locations and ecologically sensitive areas, with the relative emphasis depending on local priorities. To update the water resources management plans participatory involvement is encouraged and climate change and its potential impacts are taken into account which is very important for any water management activities. According to clause-3.2,

4.2 and 9.2 the sector monitoring system will be to provide reliable estimations of access and use of services and policy requires environmental audit on a participatory basis. Activities of responsible authority lie in water supply, sanitation, flood protection and storm water drainage and there is clarity and separation of functional roles and responsibilities.

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## **Coastal Zone Policy, 2005**

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Coastal zone policy is adopted in 2005 and different ministries of the government have announced, over the years, their respective policies for carrying out the mandates. The ministries implement various programs directly and indirectly through their concerned agencies and the coastal issues are being adopted directly or indirectly with these policies. According to clause-5.2, a coastal development strategy for poverty reduction, economic growth and social development will be formulated and implemented and this strategy will be a time and resource-bound specification of the priority actions in coastal development. For emergency situation the government has made the coastal zone policy to provide general guidance so that the coastal people can pursue their livelihoods under secured conditions in a sustainable manner without impairing the integrity of the natural environment because disasters like cyclone, drainage congestion, land erosion and drought that take toll on life and property and depletion of natural resource base that supports particularly the poor. Different ministries of the government have announced, over the years, their respective policies for carrying out the mandates. The ministries implement various programs directly and indirectly through their concerned agencies and the coastal issues are being adopted directly or indirectly with these policies. Gender equity and empowerment is prioritized in coastal zone policy and according to clause-4.7, it is recognized that gender inequalities and gaps exist in the coastal zone, in particular in the fields of access to livelihoods assets and access to resources. Poor access to sources of potable water for domestic purposes contributes to heavy workload on poor women. The national strategy of the government clearly states the importance of women's development and reduction of gender gaps as a development objective. The government has ratified major international conventions on the rights of women and children. Transparency and accountability and corruption perspective is neglected in coastal zone policy because coastal zone planning and budgeting are not transparent and civil society or community participation is not encouraged. According to clause-4.8, for pollution control, climate change and conservation of ecosystems necessary measures are recommended to conserve and develop aquatic and terrestrial including all the ecosystems of importance identified by the Bangladesh national conservation strategy. According to clause-5.4, ICZM being a multi-level and multi-sectoral activity, institutionalization of ICZM would require the development of mechanisms for coordination and interaction between and among the many parties involved at national, regional and local levels. One aim of the program is to develop, in course of time, the ICZM principles and practices as the standard mode of operation for all the agencies operating in the coastal zone. To co-ordinate these activities, a lead ministry, MOWR and a lead agency WARPO is designated. Inter-ministerial technical committees and program steering committees, constituted at appropriate levels, will assist the lead agency and the lead ministry, respectively in overall coordination. The enforcement of existing legal coverage is a key issue in sustainable coastal management. This policy will be given effect, if needed, through revision, modification of existing laws, rules and Regulations specifying provisions of the coastal zone policy to facilitate its implementation.

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## **National Sanitation Strategy, 2005**

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National sanitation strategy was adopted in 2005 and the goal of national sanitation strategy is to achieve 100% sanitation coverage by 2010. The primary objectives of this national sanitation strategy are to delineate the ways and means of achieving the national target through providing a uniform guideline for all concerned. To avoid duplication, gaps and conflicts clause-8.3 suggests the effective collaboration amongst LGIS, NGOS/CBOS and privet sector for implementation of sanitation programme as per requirement of local need. According to this strategy the disparities between urban and rural access to services will be minimized and in clause-8.11 adequate planning and preparations have been made for emergencies which incorporate water and sanitation services for displaced persons and refugees. Priority is given to water and sanitation in policies, plans, budgets and expenditures and clause-7 of this strategy specified the 21 specific sanitation issues for achieving the 100% sanitation. Gender sensitive approach is mentioned and development approach is used and adequate time and resources are allocated to facilitate community involvement, build local capacities and create ownership for sustainability. There is no commitment to anticorruption and transparency because sanitation strategy does not specify various funding process such as public funding, donor funding and private funding as well as transparency tools such as citizens' charters and report cards are not being used by civil society and government to measure performance and publicize the efficiency and effectiveness of government expenditures. Clause-8.10, specify the strategies for monitoring and evaluation of sanitation data and the secretariat will take assistance from Bangladesh Bureau of Statistics in this regards.

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## **Bangladesh Water Act, 2013**

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Water Act, 2013 is an act to make provision for integrated development, management, abstraction, distribution, use, protection and conservation of water resources. This act was updated in 2013 where relationships between consumers/ users, private service providers and government are regularly adjusted through negotiation within a competitive environment and according to clause-7, government may exchange information and data in respect of common water resources for international and regional cooperation. For equitable service provision disparities between urban and rural access to services are minimized and adequate planning and preparations have been made for emergencies which incorporate water and sanitation services for displaced persons and refugees. According to clause-3, notwithstanding anything contained contrary in any other law for the time being in force, all right over the surface water, groundwater, sea water, rain water and water in atmosphere within the state territory shall on behalf of the people, vest upon the state. The participation of civil society and print media is encouraged in clause-15 (4, 8) and the development approach is used for sustainability. According to clause-15 and 16 there is commitment to anticorruption and stiff judicial, economic and social sanctions are being imposed on offenders and publicly announced in the media. But there is some lacking in accountability and voice and choice because civil society advocacy organizations do not monitor budget decisions, allocations and expenditures and service providers are not responsive to their responsibilities. Environmental impact assessments (EIAS), social safeguards and related procedures are adhered to in clause- (17-21), (24-27) and adequate information for water resources management are stated in clause- 15 (2). According to clause- 19, 22 and 23, basin

levels plan shall be regularly upgraded through participatory involvement of basin stakeholders by incorporating their views and priorities. There is alignment of interests, incentives, mandates and responsibilities amongst all stakeholders and roles and responsibilities of the authorities are clearly spelled out in clause- 10, 12, 13, and 14.

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## **Coastal Development Strategy, 2006**

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Coastal development strategy was approved in 2006 based on the approved coastal zone policy (CZPo) 2005. Implementation of the CZPo will be carried out within the existing legal framework in the country. As the CZPo rightly states that, setting the appropriate legislative framework is fundamental to effective implementation of the CZPo. A number of laws are in operation since long authorizing surveillance and patrolling of the coastal and marine waters for the preservation of the natural environment and sustainable use of coastal resources. All the laws of Bangladesh are applicable to CZ. The CZPo is built on different sector policies of the government of Bangladesh. The policy states that the coastal development process aims to comply on an overall basis, with the national goal for accelerated poverty reduction (PRSP); the millennium development goals (MDGs), the code of conduct for responsible fisheries and with other international conventions and treaties. Clause 3.1.1 states about ensuring fresh and safe water availability and clause 3.1.5 describe about the sustainable and equitable management of natural resources. Natural resources in the CZ will have to be managed in a manner that will not only ensure their sustainability but will also secure access to the poor for meeting their livelihood needs. Adequate planning and preparations have been made for emergencies which are stated in clause-3.1.7, 3.1.9, 3.1.2 in this act. In coastal development strategy women are regarded as central to the management and empowered and contributing significantly in decision-making roles in budgeting, implementation and monitoring which are reflected in clause-1.3 and 2.2.1. Clause-3.1.6 and clause-3.1.8 ensures the user community participation in rural services management to assure quality and sustainability of services provision. Though planning and budgeting are open and transparent but there is lacks in transparency and accountability issues because civil society organization does not monitor budget decision allocations and expenditures and use the media in publicly shaming corrupt officials and politicians. Compare to other stated law, in coastal development strategy environmental management, water resource management and monitoring systems are prioritized. Clause-1.4 and clause-3.1.7 state about surface and groundwater monitoring whereas clause-2.2.2 and clause-3.1.4 describe about environmental management. According to clause-4, there is clarity and separation of functional roles and responsibilities with minimum overlap, gaps, duplication and/or conflict. Here, three aspects of governance, such as institutional development, legal frameworks and assessments, based on an indicator framework are prioritized.

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## **Bangladesh Wildlife (Preservation) (Amendment) Act, 1974**

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Bangladesh wildlife (preservation) (amendment) act is published in 1974 to provide protection, conservation and management of protected areas and wildlife in Bangladesh. According to clause-16, the government after having consultation with the local community, may by notification, declare any government forests or part of such forests or any government land or the territorial waters as a sanctuary, specifying the boundaries or limits as such, if it considers

that such area is of adequate ecological, faunal, floral, geo-morphological, natural or zoological significance, for the purpose of protecting, propagating or developing wildlife or its habitat and environment and clause-17 describe about the prohibited activities in sanctuary. But adequate planning and management activities are not taken into consideration for water resource management. Declaration of national park, landscape zone, safari park, eco-park and botanical garden involves the community participation in present act and the declaration process is stated in different clause of this act. There is no commitment to anticorruption and planning and budgeting are not open and transparent because civil society advocacy organization does not monitor budget decisions, allocations and expenditures. According to clause-24, the government shall issue an annual report on the state of the protected areas, in which the status and conservation trends of each of the protected areas is presented. This report shall be made easily available to the general public. Clause-26, 27, 46, 47, 55, 69 and 80 of this act describes the responsibility of authorities who are engaged in environmental conservation and protection. Though climate change impacts are not mentioned but various licenses are required for business or dealings in wildlife, possession of wild animal, purchasing of captive animal, wild animal, specified plant. Clause-31, 35, 37 of this act encourages the wildlife resource management. The annual report on the state of the protected areas shall be made easily available to the general public according to clause-24 which increases the scope monitoring and evaluation process.

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## **The Bangladesh Environment Conservation Act, 1995**

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The Bangladesh environment conservation act, 1995 is an act to provide for conservation of the environment, improvement of environmental standards and control and mitigation of environmental pollution and lastly amended in 2002. According to clause-3 and 4, for proper performance of the functions of the department, necessary officers and employees shall be appointed in the manner and on the terms and conditions prescribed by rules. Subject to the provisions of this act, the director general may take such measures as he considers necessary and expedient for the conservation of the environment and improvement of environmental standards and for the control and mitigation of environmental pollution and he may issue necessary directions in writing to any person for the discharge of his duties under this act. This act incorporate the emergency plans such as in clause-5 states that, if the government is satisfied that an area is in an environmentally critical situation or is threatened to be in such situation the government may by notification in the official gazette, declare such area as an ecologically critical area. Mechanisms for appeal exist and according to clause-14, any person aggrieved by a notice, order or direction issued under this act or rules may, within 30 days from the date of issuance of the notice, order or direction, appeal to the appellate authority constituted by the government and the decision of such authority on the appeal shall be final and shall not be called in question in any court. This act has lacking in incorporation of transparency and accountability and anticorruption activities because it does not provide any scope for user community participation in environmental management, regular audit report within sector institutions. Climate change and its potential impacts are not taken into account and have not been incorporated into the planning, management and use of water resources which is an important issue for water resource management. This act clarify and separate the functional roles and responsibility and skills, capabilities, assets, resources (human and financial) and mandates are decentralized at regional and local levels.

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## **The Environment Conservation Rules, 1997**

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The environment conservation rules came into force in 1997 and last amendment was done in 2003 which supports policies and strategy implementation in institutional mandates where regulation achieves equity, efficiency and sustainability in allocation and management of water resources. Clause-3 and clause-5 state about the ecologically critical area and application related to pollution or degradation of environment. Priority is given in policies and according to clause-12 water standard are determined in accordance with the standards specified in schedule-3 for inland surface water, drinking water and for industrial waste emission. Mechanism for appeal exist and clause-9, 10 and 11 states about the appeal, procedure for appeal and procedure for hearing of appeal but civil society participation is not encouraged in this rules. For environmental protection the fees for issuance of environmental clearance certificate and its renewal under these rules shall be payable in accordance with schedule-13. Fees payable under these rules shall be deposited with the Bangladesh bank or a government treasury by a treasury chalan in favour of the director general under the head "miscellaneous income-tax-free revenue" and the copy of the treasury chalan shall be attached to the relevant application. For monitoring and controlling the surface and groundwater pollution various water standards were determined and the standards of the discharge or emission of wastes of various industrial units shall be determined in accordance with standards specified in schedule-12. According to clause-15, upon application of any person or organization, the department shall supply analysis report of the samples of water, liquid waste and also the information or data derived from such analysis.

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## **The Environment Court Act, 2000**

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The environment court act, 2000 is an act to provide for the establishment of environment courts and matters incidental thereto and lastly updated in 2002. According to clause-4, for carrying out the purposes of this act the government shall by notification in the official gazette establish one or more environment court in each division but adequate preparations have not been incorporated for emergency situation. Service providers are responsive and according to clause-7, an offence under an environmental law shall ordinarily be investigated by an inspector, but the director general may by a general or special order, authorize any other officer subordinate to him to investigate any particular kind of offences or a specified offence and there is mechanism for appeal. For proper environmental management activity civil society and community participation plays an important role but in environment court act there is no commitment to anticorruption and any transparency and accountability within sector because there is no regular audit and media participation but roles and responsibilities of individuals are clearly spelled out in the applicable laws and regulations. Clause-6 and clause-7 gives authority a clear and consistent mandate such as power of entry, search and investigation procedure for environmental management.

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## **The Protection and Conservation of Fish Act, 1950**

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The protection and conservation of fish act is an act to provide for the protection and conservation of fish in Bangladesh. This policy was lastly amended in 2002 and according to clause-3, the government may make rules and apply such rule for any water management. For equitable service provision the government may by notification, prohibit the catching, carrying, transporting of fish and prohibit the use of current jal but the citizen right to water is not clear in this act. Gender participation and civil society participation are not encouraged in any clause of this act and there is no commitment to anticorruption and lack of transparency and accountability of the authorities because this law do not demand any audit report or review report of their activities. All persons empowered to perform any function under this act shall be deemed to be public servants within the meaning of section 21 of penal code but they have no clear and consistent mandate. Nevertheless the basin level management plans are not regularly updated through participatory involvement of basin stakeholders and there is no mandate to prevent the ground and surface water pollution but authority has power to arrest without warrant for offence under this act.

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## **Marine Fisheries Ordinance, 1983**

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Marine fisheries ordinance came into force in 1983 to make provisions for the management, conservation and development of marine fisheries in the Bangladesh fisheries waters and to deal with certain matters connected therewith. According to clause-5, this ordinance gives power to the director for the management, conservation, supervision and development of marine fisheries and the implementation of the objectives of this ordinance. Clause-20 and clause-21 describes the entry of foreign vehicles as per agreed international conventions on citizens' rights to water and priority is given to water in policies, plans, budgets and expenditures. Clause-20, 21, 22 and 26 are related with licensing of fishing vehicles or foreign vehicles but climate change impacts are not taken into account though climate change have negative impacts on water resource management. Monitoring and evaluation of water resource management is not possible through present act because it does not provide any access for data collection and reporting but functional roles and responsibility are clearly spelled out in this act.

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## **Ports Acts, 1908**

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Ports act, 1908 is an act to consolidate the enactments relating to ports and port charges but this act is not up to date in respect of water integrity issues and no amendment was done after 1908. Chapter-4 (19-32) of this act describes the rules for the safety of shipping and the conservation of ports and here adequate planning and preparations have been incorporated. Priority is also given to water safety in policies and is described in chapter-4 and clause-21. But voice and choice, transparency and accountability and corruption are not prioritized in any section of this act because civil society is not actively participating in this issue. No clause have been mentioned related to environmental management, water resource management and monitoring but there is clarity and separation of functional roles and responsibilities with minimum overlap, gaps, duplication and/or conflict which is described in chapter-3, clause-(7-18).

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## **The Inland Water Transport Authority Ordinance, 1958**

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The inland water transport authority ordinance, 1958 is an ordinance to set up an authority for development, maintenance and control of inland water transport and of certain inland navigable water ways. This ordinance came into force in 1958 and lastly updated in 1997 where the regulatory authority are empowered to be independent according to clause-4,5 and 6. This ordinance has adequate planning and preparation for inland water transport and priority is also given in budgets and expenditure related to the water services. According to clause-18, 23 and 24, the authority has to submit yearly reports, budgets and audit report which leads some sort of transparency and accountability within the institutions. But there are some lacking in water management, environmental management and monitoring system in present ordinance. This ordinance describes the authority's power and functions related to appointment, suspension and transfer of officers in various clauses like 4,6,8,13,14 and there is alignment of interests, incentives, mandates and responsibilities amongst all stakeholders.

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## **Territorial Waters and Maritime Zones Act, 1974**

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This act came into force in 1974 and still no amendment is done but it declares the territorial waters and maritime zones of our country and according to clause-3, the agreements between parties are enforceable. Clause-4 of this ordinance mentions the preparation and planning for any emergency situation which incorporate water services and security of the republic. Priority is given to water in plans and clause-4 and clause-6 describe that, the government may, with a view to the maintenance of the productivity of the living resources of the sea, by notification in the official gazette, establish conservation zones in such areas of the sea adjacent to the territorial waters as may be specified in the notification and may take such conservation measures in any zone so established as it may deem appropriate for the purpose including measures to protect the living resources of the sea from indiscriminate exploitation, depletion or destruction. Voice and choice, gender issue, civil society participation, corruption, transparency and accountability is not encouraged in this act because there is no clause related to gender participation, audit report or annual report within the sector management. But clause-8 mention that the government may with a view to preventing and controlling marine pollution and preserving the quality and ecological balance in the marine environment in the high seas adjacent to the territorial waters, take such measures as it may deem appropriate for the purpose. Clause-7 (4), describe that the government may construct, maintain or operate within the continental shelf installations and other devices necessary for the exploration and exploitation of its resources but climate change issues should be incorporated for better coastal water resource management.

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## **Ground Water Management Ordinance, 1985**

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Ground water management ordinance is an ordinance to manage the ground water resources for agricultural production. This ordinance is not up-to-date because no amendment is done after 1985 and has lacking in water

integrity issues but according to clause-5, license for tube well have equity, efficiency and sustainability which describe the equitable service provision. In this ordinance priority is given to water and sanitation in policies, plans, budgets and expenditures. According to clause-4, there shall have an Upazila irrigation committee and consumer can complain with reasonable confidence that they will be heard and that problems will be rectified and functions of this committee is not based on political influence. But this ordinance has no clause related to gender policy, civil society participation and anticorruption issue with limited accountability and transparency because there is no scope of people's active participation and civil society organizations. For environmental management and social safeguards clause-5 of this ordinance introduces the licensing system for tube well but this has no surface and groundwater monitoring system. For water resource management of community clause-5, 6 and 8 describe the licensing of tube well, licensing for existing tube well and cancelation of license respectively but climate change impacts have not been taken into account. Data collection, auditing and reporting are not accessible to the public and the sector monitoring system is not able to provide for reliable estimations of access and use of services.

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## **Water Supply and Sewerage Authority Act, 1996**

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Water Supply and Sewerage Authority was enacted in 1996. Where regulatory mechanisms/authorities are independent and independently resourced or are in the process of transitioning to independence and relationships between consumers/users, private service providers and government are regularly adjusted through negotiation within a competitive environment. Disparities between urban and rural access to water and sanitation services are mentioned to be minimized and low income; marginalized and vulnerable groups should gain equitable access to sector services in this act. In respect of water right priority will be given to water sanitation in policies, plans, budgets and expenditures. Gender policies exist and lack of user community and civil society participation will encourage the corruption practice in water and sanitation sector. Transparency tools such as citizens' charters and report cards are not being used by civil society and government to measure performance and publicize the efficiency and effectiveness of government expenditures. It will increase the accountability and transparency within the institutions. In water and sanitation management climate change and its potential impacts have not been incorporated in planning and management activities. Data collection, analysis and reporting are not transparent and not accessible to the public whereas civil society is not also actively participating in data collection and monitoring. In this act, there is alignment of interests, incentives, mandates and responsibilities amongst all stakeholders and roles and responsibilities are clearly spelled out in the applicable laws and regulations.

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## **Pro-poor strategy for Water and Sanitation Sector in Bangladesh, 2005**

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The pro-poor strategy for water and sanitation services has been developed to direct attack on poverty for a safety-net for hard-core poor. Low income marginalized and vulnerable groups can gain equitable access to water and sanitation and according to clause-4, government provide subsidy to the hard-core poor. Priority is given to water and sanitation and the basic minimum level of service for water and sanitation have to be ensured for the hardcore poor in this strategy. This

strategy also give emphasize on the gender balance at the village level in manner so that the number of women leaders at the village would be 1:3. The participation of user community has been encouraged in rural services management to assure quality and sustainability of services provision (clause-5(21)). For monitoring and evaluation this strategy state that there must be regular monthly meeting of the ward level WATSAN committees and written record of meetings must be submitted to the UP secretary regarding the current water and sanitation situation in general (clause-7 (b)). The mechanism of administering subsidies should be more clear and transparent and the responsible person should be accountable for any kind of mismanagement. The pro-poor strategy provides scope of decentralization of financial and administrative authority to local government institutions (LGIs) in management of water and sanitation services (clause-5). Roles and responsibilities are clearly spelled out in clause-5 (22) of this strategy.

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## **National Cost Sharing Strategy for Water Supply and Sanitation in Bangladesh, 2012**

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The overall goal of national cost sharing strategy for water supply and sanitation is to provide a functional ways and means to increase the access of water supply and sanitation services to all by 2025 at affordable, sustainable and equitable manner. The purpose of this strategy is to recover the cost of services, to gain financial self sufficiency, standardization of water supply and sanitation and to ensure sustainability. The participations of various stakeholders are taken into consideration for the proper functioning of the strategy objectives (clause-1.5) for this strategy various policy/laws/ strategy have been considered such as national policy for safe water supply and sanitation 1998, pro-poor strategy for water supply and sanitation in Bangladesh 2005, national water policy 1999, national sanitation strategy 2005, national policy for arsenic mitigation 2004, local government acts 2009, the WASA acts 1996, sector development plan (2011-25) for water supply and sanitation in Bangladesh. Civil societies have been encouraged to actively participate in monitoring and monitoring system will be able to provide reliable estimations of access and use of services. Clause 4.13 of this strategy given emphasize on adequate staffing, increased billing and collection efficiency for successful implementation of perceived goals. To ensure transparency and accountability the revised SDP recommends a regulatory commission for water supply and sanitation services for both private and public sector in clause 4.15. This strategy state that there is an extent of disparities prevailed regarding the cost sharing between rural and urban people and clause-4.3 describe the pricing and cost sharing of water supply and sanitation services to minimize the disparities between urban and rural access to services for water supply and sanitation. This strategy also adds the ways of effective use of subsidy with available resources, affordability of services in line with pro-poor policies (clause-4.4). This strategy will help to minimize the gaps, duplication or conflicts among the responsible organization as the functional roles and time frame are clearly mentioned.

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## **National Hygiene Promotion Strategy for Water Supply and Sanitation Sector in Bangladesh, 2012**

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National hygiene promotion strategy for water supply and sanitation sector has been adopted in 2012 with a view to promotes sustainable use of improved water Supply and sanitation infrastructures and to ensure comprehensive

hygiene promotion and practices to reduce water and sanitation related diseases. According to strategy 1, this strategy supports policies and strategy implementation and avoids duplication, gaps and conflicts in institutional mandates and roles as it comply with the existing public policies, strategies and legal instruments such as the sector development plan (SDP), 2011; the public health (emergency provision) ordinance, 1944; the pure food ordinance, 1959; the factories act, 1965; the penal code, 1860; the Paurashava act, 2009 & city corporation act, 2009; WASA act, 1996 and pro-poor strategy for sanitation sector, 2005. According to strategy 5. This strategy implies the equitable services provision as there is strategy for specified areas including Chittagong Hill Tract (CHT) areas, coastal and offshore islands, low water table (LWT) and barind areas, wetlands (Haor and Beels), char areas, urban slums and squatters. The public participation has been encouraged in the clause-2 of this strategy as it describe about various participatory and consultation process (Consultation with DPHE, NIPSOM WSP-SA, WB, UNICEF, WHO, WAB, ICDDR'B, BRAC, NGO-Forum) at various level (central level, regional level, Upazila level, union level and community level) with the stakeholders which is one of the aspects of integrity issues. In hygiene promotion gender perspective has been given importance and women are not only considered in terms of their token roles (as gender advisor, women officer) but as an empowered group of advocates and champions for change together with men. The clause-3 of this strategy describe about the gender mainstreaming in the service planning, implementation and monitoring (strategy 10). Clause-4.3 of this strategy states about the monitoring and evaluation of hygienic promotion. For monitoring and evaluation of the hygienic promotion the implementing agencies shall undertake the monitoring studies with specific indicators on regular intervals and over a longer period. Joint monitoring program (JMP) initiated by WHO-UNICEF will be undertaken and will be updated once in every 1 or 2 year. This strategy initiates the institutionalization & decentralization as there is clarity and separation of functional roles and responsibilities with minimum overlap, gaps, duplication and the responsibilities are clearly spelled out in this strategy (clause-5.3). Budgeting are open and transparent as the local government division (LGD) provides block allocation for each Upazila Parishad of which 20 percent is allocated for improvement of sanitation activities including promotion of hygiene (strategy 9). But the no tools to measure performance and effectiveness of government expenditures have been used.

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## **National Strategy for Water and Sanitation Hard to Reach Areas of Bangladesh, 2011**

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National strategy for water and sanitation hard to reach areas of Bangladesh, 2011 give emphasize to improve water and sanitation services in the HtR hill areas, river islands, haor areas, urban slums, coastal areas and barind areas based on the national policy for safe water supply & sanitation (NPSWSS), 1998; national policy for arsenic mitigation & implementation plan, 2004 (NAMIP); national sanitation strategy (NSS), 2005; pro-poor strategy for water and sanitation sector (PPSWSS), 2005 and national sector development programme (SDP) for water supply and sanitation, 2010. Equitable service provisions have been stated in clause-3 of this strategy so that the marginalized and vulnerable groups can gain equitable access to sector services. In addition adequate planning and preparations have been made for emergencies which incorporate water and sanitation services for vulnerable people. Overall WatSan strategy focuses on the participation of local inhabitants in the mainstream decision making process for sustainability of service provision (clause-6.1 and 8). In general, the planning, investment and promotion of sanitation facilities gender issues are addressed in clause-1 and 6.2. Transparency and accountability has been put on their agenda and WatSan strategy

mainly depends on this issue. Area Specific strategies also given emphasize on transparency and accountability issues. Accounting system monitoring by community taskforce for various funds (climate fund, water and sanitation fund, government fund) for initial investments have been encouraged in this strategy (clause-7). Climate change issues have been incorporated in development plan of all hard-to-reach areas of Bangladesh (clause-5.3 and 6.1). The monitoring and evaluation of WatSan strategy is crucial for the HtR areas and the civil societies have been encouraged to participate in this issue.

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## **National Policy for Arsenic Mitigation, 2004**

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National policy for arsenic mitigation, 2004 has been formulated to mitigate the effects of arsenic on people and environment in addition of the national water policy 1998, national policy for safe water supply and sanitation 1998 to fulfil the national goals of poverty alleviation, public health and food security. Clause-1.9 of this policy give emphasize on the coordination of arsenic mitigation programme which will decrease the gaps among the organizations. According to clause-5.2.6, in the rural areas where the supply will be mainly for drinking and cooking, 8 litres of water per capita per day will be ensured and the service level in municipal areas will be determined by the respective municipal council/ city corporations. Adequate planning and preparation have been incorporated in clause-5.2 of this policy which states about the alternative safe water supply for the affected people. Priority is given to diagnose and management of patient affected from arsenic contamination in clause-5.3. Civil society participation has been encouraged in clause-5.1 for collaboration and cooperation to mitigate the arsenic problem among the stakeholders. The policy shall be reviewed and updated depending on the implementation feedback but the monitoring and evaluation procedure have not been incorporated in this policy. It has also lacking in accountability issues as the budgeting and allocation are not clear. According to clause-8.0, Knowledge and information shall be managed centrally to ensure transparency of the implementation process and a reference laboratory shall be designated for analytical validation of arsenic related laboratory activities. In clause-6.0, the policy emphasizes effective coordination of the activities of government ministries and agencies, local government institutions, NGOs and the private sector.

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

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The objective of sector development plan (FY 2011-25) is to provide a framework for planning, implementing, coordinating and monitoring all activities in the WSS sector. It is envisaged that all WSS related national and sectoral policies and strategies, and international commitments will be aligned with the SDP. Chapter-4 of sector development plan discusses about the legislation, policies and strategies of different water supply and sanitation related rules or regulations. Clause-4.1 describes the legal framework for water supply and sanitation and clause-4.2 discuss about the national policies and strategies for water supply and sanitation. Equitable services with sustainability have give importance in clause-7.4 for different water sanitation sectors to keep the GoB's commitment to provide access to safe drinking water and environmental sanitation in a sustainable and equitable manner. Both men and women have been considered as central to the provision, management and safeguarding of water management, planning

and project implementation. Gender sensitive approaches have been discussed in clause-3.8 of this plan. To ensure better coordination, monitoring and evaluation of the WSS sector activities an extensive participatory approach was used during the preparation of the SDP at both the local and central levels. For SDP implementation stakeholder participation has given importance and is discussed in clause-7.2. To improve the capacity building the government has identified the corruption as a problem in clause-5.1 and for long term vision corruption has been identified as priority areas. Sector development plan also provide importance on accountability and transparency of roles and responsibilities of local government division to face the water supply and sanitation sector challenges. SDP explain the linkage between environment, development, disaster, climate change and livelihood and recommends actions points on them (clause-3.10). Coordination, monitoring and evaluation of sector development plan have been discussed in clause-7.3 along with action points for sector coordination and monitoring. The relationships between stakeholders are clear spelled out in sector development plan where the functional roles and responsibilities with minimum overlap, gaps, duplication and/or conflict have been discussed.

# Annexure 3

## Integrity Issues for institutional Assessment

### **1. Equitable Services Provision**

- Water and sanitation services are provided equitably across wealthy and low income groups.
- Price and quality of services provided are equitable across consumer/user groups.
- Subsidies are appropriately targeted and reach their targets in full and in transparent fashion.

### **2. Rights to Water**

- Progress is being made towards meeting national goals in water resources management, and water supply and sanitation services.

### **3. Gender**

- Safe and practical work environments for women and men exist in sector institutions and organizational cultures (e.g. flexible hours of work and protection against sexual harassment).

### **4. Corruption**

- Channels are available and protection is given to the public and officials in reporting corruption.
- There is regular independent audit, including value-for-money or comprehensive audit.

### **5. Transparency and Accountability**

- Procurement of goods and services is open, transparent and equitable.
- Service providers are accountable to their consumers/users.

### **6. Environmental Management**

- Environmental laws and regulations are effectively enforced.
- Monitoring provides reliable and adequate information for basin and ground water resources management.
- Watershed conservation and management are effective and sustained.

### **7. Water Resources Management**

- Progress is being made towards integrated water resources management through pilots or on-going programmes.

### **8. Monitoring and Evaluation**

- Monitoring data and information are accessible, in demand and effectively used in sector planning and management.

## Annexure 4

### Comprehensive Institutional Evaluation

#### **Bangladesh Water Development Board (BWDB)**

The Bangladesh Water Development Board (BWDB) started its operation in 1959 as the water wing of the erstwhile 'East Pakistan Water and Power Development Authority' in 1959. After the independence of Bangladesh, the authority was restructured in 1972 into two different organizations to deal with water and power separately. BWDB was created under the Bangladesh water and power development boards order 1972 as a fully autonomous organization. The reform program and structural adjustment process were undertaken by the GoB for transformation of BWDB is the enactment of the BWDB act, 2000 that requires the BWDB's functions be guided by the national water policy (NWPo)-1999 and national water management plan (NWMP)-2001. Policy making and overseeing the overall management of BWDB is now vested on the governing council (GC) with thirteen members headed by the minister of water resources. The vision of Bangladesh water development board (BWDB) is to develop a state of knowledge and capability that will enable the country to design future water resources management plans by itself with economic efficiency, gender equity, social justice and environmental awareness to facilitate achievement of water management objectives through broad public participation. Functions of different wings of BWDB are given below-

#### **A. Office of the Director General:**

- Top management of BWDB in fulfilment of the mandate set down in Bangladesh water development board act and other applicable laws, regulations and policies of the government.
- Overall charge of BWDB and all its offices for efficient functioning of the Body.
- Carrying out responsibility as the head of BWDB and taking decisions on all essential matters related to its operation.

**B. Administration Wing:**

- Management of matters relating to human resources recruitment, development, assignment and control for conduct of BWDB's business.
- Management of matters relating to the acquisition of movable and immovable property for conduct of BWDB's business.

**C. Planning Wing:**

- Providing inputs and technical reviews for the preparation of national level perspective and the five year development plans.
- Micro planning for water resources development consistent with the national water policy and within context of the National Water Management Plan (NWMP).
- Hydrological studies, data collection, management and research.
- Undertaking activities for formulation and preparation of planning documentation for BWDB projects.
- Maintaining updated management information related to planning of water sector development.
- Supporting WARPO and other water sector agencies in the development of efficient water resources management and utilization of plans and updating various Guidelines on water management.

**D. Finance Wing:**

- Management of matters relating to human resources recruitment, development, assignment and control for conduct of BWDB's business.
- Management of matters relating to the acquisition of movable and immovable property for conduct of BWDB's business

**E. Implementation Wing:**

- Management of all financial matters of BWDB including budgeting and disbursement of funds.
- Administration of financial rules and procedures of BWDB including maintenance of financial discipline and account and audit requirements.

**F. Operation and Management Wing:**

- Preparing and updating of inventory of completed projects containing all basic project information.
- Operation and maintenance of completed projects over 5000ha as outlined in the NWPO.
- Providing management guidelines and necessary assistance to local and community organizations and the local governments for O&M of schemes with command area below 5000 h.
- Rehabilitation of projects under GOB funding and as directed by the Board from time to time.
- Transfer of rehabilitated/operating projects of 1000ha or below to the local governments.
- Water management activities as indicated in the NWPO.
- All activities under the Food for Works (FFW) programme.
- Cost recovery, command area development and matters related to participatory water management.
- Preventive work to forestall damage to water infrastructures due to natural disasters, damage assessment and emergency repairs following natural disaster.

According to the vision of BWDB, progress is being made towards meeting national goals in water resources management with the economic efficiency, gender equity and environmental awareness through broad public participation. The organization culture regarding the gender participation is not actively maintained within the sector institutions. Procurement of goods and services is open and e-tender is introduced which will be helpful against corruption. Annual reports are published in their website and accessible to public. Annual report contains various projects description and the major achievements of this institution. The annual report (2012-13) states that, about 60 projects have been completed and another 54 are running which are related to water resource management. But no independent audit report is available for general people. The aim of citizen charter is to improve the accountability and transparency within the institutions. According to citizen charter, development projects will be taken on the basis of people's perception regarding the arise problems but in real it works slightly and peoples have no right to give their opinion regarding any issues. Budget information and audit report are only available in the head office of BWDB. They are also working on disaster management such as flood, drought, erosion, cyclone and river training in Sirajganj and Chadpur. Environmental laws and regulations are effectively enforced and monitoring provides reliable and adequate information for basin and ground water resources management. Hydrological data such as river training data, surface water data, ground water data, sedimentation data and flood forecasting and warning data are available in BWDB but these data are not accessible in website. But Progress has been towards integrated water resources management through pilots or ongoing programmes. Except accountability and corruption other issues like equitable service provision; right to water; environmental management water resources management and monitoring and evaluation are prioritized in agenda of bangladesh water development board (BWDB).

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## **Water Resources Planning Organization (WARPO)**

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The Water Resources Planning Organization (WARPO) is an apex organization under the ministry of water resources, dealing with nationwide water resources planning. WARPO is a multi-disciplinary organization with a team of 44 professionals from a wide range of disciplines. According to national water policy, 1999 WARPO is mandated to act as the executive secretariat to the executive committee of the national water resources council (ECNWRC). WARPO is a multi-disciplinary agency manned by 87 Staff, 42 of whom are skilled professionals, 5 of the staff and professionals are women. The mission of WARPO is to achieve sustainable water resources development in Bangladesh by pursuing integrated water resources management (IWRM).

Mandate of WARPO emerged from water resources planning act are to formulate water resources master plans in an environmentally sustainable manner and to develop national water resources; to draw up national work plans and policy relating to scientific utilization and conservation of water resources; to advise other concerned organizations regarding the development, utilization and conservation of water resources; to co-operate with any institution in conducting surveys involved in the development of water resources, utilization and conservation and if necessary, conduct special surveys regarding any such matter; to develop standards of education, training and professionalism relating to the utilization of water resources; to collect and analyze information regarding the utilization of water resources and to disseminate the same; to organize and conduct national seminars, and having obtained the prior approval of the government, international seminars, conferences and workshops regarding water resources.

Mandate of WARPO emerged from national water policy, 1999 are to provide administrative, technical and legal support to the executive committee of the national water resources council (ECNWRC); to advise the ECNWRC on policy, planning, and regulatory matters of water resources and related land and environmental management; to prepare and periodically update the national water management plan; to setup and update the national water resources database (NWRD) and information management system; to act as a "clearing house" for all water sector projects identified by different agencies and reporting to the ECNWRC on their conformity to the NWMP; to undertake any special study, as may be required by the ECNWRC, for fulfilling the objectives and programmes envisaged in the national water policy and the Bangladesh water and flood management strategy. Mandate of WARPO emerged from coastal zone policy (CZPo 2005) are to co-ordinate the development initiatives taken by different agencies in the coastal zone; to establish of program co-ordination unit (PCU). Other mandates as conceived/emerged from NWMP, NWRC and others are to centrally coordinate and monitor the implementation of the national water management plan; to prepare and update national water law revising and consolidating the laws governing ownership, development, appropriation, utilization, conservation and protection of water resources.

WARPO is working to improve the national water resources and progress have been made towards meeting national goals in water resources management because they have a good number of technical report and papers. The major contribution in this regards includes national water policy (NWPO), national water management plan (NWMP), draft state of water resources report, coastal zone policy, national water plan, options for ganges dependent area (OGDA) etc. Their website provides relevant information such as background, major achievements and mandates of WARPO, its ongoing & core activities, contact address and key person's name, national water management plan (NWMP) volume 1, national water resources database (NWRD), national water policy (NWPO), EIA guidelines; coastal zone policy (CZPo) and coastal development strategy (CDS) etc. They have commitment to anticorruption and they publish annual report and it contains the achievement of following year with financial statement. At present annual report is available up to (2008-09) and it also having newsletter which is published annually and available up to 2012. The national water policy has mandated WARPO to act as a "clearing house" "for all water sector projects identified by different agencies". According to agreed scope of work, WARPO would provide technical assistance to planning commission in assessing compliance of agency projects with the policies, plans, strategies and guidelines/manuals in the process developing and processing of project proposals for Annual Development Plan (ADP). Tender information is available but e-tender need to be introduced which will increase transparency within the institutions. Project information is also available but independent audit report should be prepared with transparent procurement systems. Environmental laws and regulations are effectively enforced and monitoring provides reliable and adequate information for water resources management. WARPO has well developed library which contains national and international information related to water resource management. According to their citizen charter, monitoring data and information are accessible in demand and can be effectively used in sector planning and management. The water resource data are available and they have a system to deliver this data. One has to apply for data access to the WARPO director general and have to pay fees through chalan form. After that data water data will be available within 3 working days. In respect of water integrity except corruption other issues like equitable service provision, right to water, gender, environmental management, water resources management and monitoring and evaluation are functional in water resources planning organization (WARPO).

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## River Research Institute (RRI)

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River Research Institute (RRI) is a national organization working as a statutory public authority under the ministry of water resources, government of the people's republic of Bangladesh. RRI has a Board of Governors (BoG) comprising nine numbers chaired by the Hon'ble Minister, which reviews and evaluates the activities of RRI and approves important proposals in order that the institute can run with all its activities properly. The director general is the chief executive of this institute and responsible for implementation of the decision approved by the BoG. It consists of three directorates namely, hydraulic research, geotechnical research and administration & finance. RRI has been established in view of devising plans and actions to develop water resources in a sustainable manner to meet the development needs of Bangladesh. The activities of RRI are directed towards the achievements of the following objectives; to carry out studies for design supports in river training, riverbank protection, flood control, irrigation & drainage works and to conduct research in river engineering, sediment control, estuary and tidal effects by means of physical model, to conduct mathematical model studies on river flow & regional flow network, hydrology, surface & ground water utilization and environmental issues with special attention to salinity intrusion & water quality with a view to develop the water resources, to perform tests on construction materials required for river training, river bank protection, flood control, irrigation & drainage structures and to inspect and evaluate the quality of the construction works thereof and to conduct training program on the above mentioned subjects and to publish reports and periodicals related to technical aspects.

According to citizen charter, river research institute provides the services like studies for design supports, mathematical model, perform tests on construction materials in river training, riverbank protection, flood control, irrigation & drainage works and conduct training program on the above mentioned subjects and to publish reports and periodicals related to technical aspects. The government, semi-semi government, autonomous, other authorities and person can get this service. The samples/specimens of soil, water, sediment and construction material samples from different projects of BWDB and other government and non-government organizations for conducting tests as specified by the clients but no financial report is available in their home page. Environmental laws and regulations are effectively enforced and progress is being made towards integrated water resources management through pilots or on-going programmes. There is no commitment to anticorruption because there is no regular independent audit and procurement of goods and services is not open and electronic tender system is yet to introduce. RRI publishes newsletter three times a year since 1998 which includes description of activities of different projects and its progress, research activities, cultural activities and different types of news of RRI. Consumer can complaint against its services in online but citizen charter does not provide any timeline to solve the problem and monitoring data and information are not accessible. Except corruption, transparency and accountability and monitoring other integrity issue like equitable service provision, right to water, environmental management and water resources management are mentioned according to citizen right of River Research Institute (RRI).

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## **Joint Rivers Commission (JRC)**

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The Indo-Bangladesh Joint Rivers Commission (JRC) was established on a permanent basis pursuant to the joint declaration of the prime ministers of Bangladesh and India in Dhaka in March 19, 1972. The statute of JRC was accordingly signed on 24 November, 1972 to maintain liaison between the participating countries in order to ensure the most effective joint efforts in maximizing the benefits from common river systems to both the countries. Subsequently, the government of Bangladesh established the joint rivers commission (JRC), to address the issues relating to the sharing and management of water of Trans Boundary Rivers with the co-riparian countries. The office of the JRC, Bangladesh has an approved set up of 48 posts. Activities of joint rivers commission are to negotiate with the co-riparian countries on development, management and sharing of water resources of common rivers, to holds meetings with India at different levels to discuss issues on sharing of waters of common rivers and transmission of flood related data from India to Bangladesh, river bank protection works along common/border rivers and other pertinent issues, monitoring and sharing of the Ganges waters at Farakka as per provision of the Ganges water sharing treaty, work jointly with Nepal for harnessing common water resources and mitigating floods and flood damages and conduct research and technical studies; co-operation with china in the field of water resources, enhancing the flood forecasting capability through exchange of flood related data and information of the Yaluzangbu/Brahmaputra river to utilize and protect the water resources of transnational rivers in the region keeping in mind the principles of equality and fairness, conduct training in the relevant technical field etc; work jointly with the co-riparian countries on hydro-power development and water resources management under the sub-regional co-operation and work as secretariat of Bangladesh national committee of international commission irrigation and drainage (ICID).

The prime concern of JRC is to negotiate with the co-riparian countries on development, management and sharing of water resources of common rivers and monitoring and sharing of the Ganges waters at Farakka. Joint rivers commission (JRC) was formed to maintain liaison between countries that share the Ganges-Brahmaputra-Meghna basin, to ensure common river management, which is lagging far behind from its mandate. The issue of sharing common river water between Bangladesh and India has remained unresolved for long as the ministerial level meeting of JRC has not been held for the last four years. There are 54 common rivers between Bangladesh and India. Of the 54 rivers, India has signed only one treaty in 1996 for the Ganges water. The strategy to share the waters of the Teesta, Dharala, Dudhkumar, Monu, Khowai, Gomti and Muhuri rivers are still pending. Progress is not being made towards meeting national goals in water resources management and only press release on sharing of the Ganges water are available in JRC website. JRC also work jointly with the co-riparian countries on hydro-power development and press release on Tipaimukh hydro-electric (multipurpose) project is available but details information or progress report is not included in this report. There is no commitment to anticorruption because no regular independent audit report or annual reports are published and procurement of goods and services is not open. Monitoring data and information are not accessible to public and citizen right to information is neglected in this regards which would decrease the transparency of this institute. Except corruption, transparency and monitoring other issue like equitable service provision, right to water and water resources management are prioritized in the activities of Joint Rivers Commission (JRC).

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## **Institute of Water Modeling (IWM)**

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IWM owes its genesis to the Surface Water Simulation Modelling Programme (SWSMP) launched in 1986 by the Ministry of Water Resources under the master planning organization to develop a high level of analytical capabilities by use of state-of-the-art mathematical water modelling. By the end of 1996, SWMC was transformed into an independent organization under the trust act. From the 1st of August, 2002 Surface Water Modelling Centre (SWMC) has been renamed as Institute of Water Modelling (IWM) in matching with its research and learning status created in its user community. Institute of Water Modelling (IWM) provides world class services in the field of water modelling, computational hydraulics & allied sciences for improved integrated water resources management. The applications of IWM modelling tools cover a wide range of water related areas such as flood control, flood forecasting, irrigation and drainage, river morphology, salinity and sediment transport, coastal hydraulics, port, coast and estuary management, environmental impact assessment, bridge hydraulics and related infrastructure. IWM is functioning as a centre of excellence and research in the field of water modeling, computational hydraulics and allied sciences and provides services in this field on a cost recovery basis in enhancing the quality of planning and implementation.

IWM mainly aimed to formulate solutions to the problems through river modelling, enabling intelligent implementation of dredging, realignment of navigation routes, protection of vulnerable erosion/flood prone areas and mitigation measures to keep off-takes open, etc. According to citizen charter, IWM provide service such as comprehensive water resource management with sustainability, flood management, provide technical knowledge to control river bank erosion, provide information for water quality of Dhaka and its adjoining area, surface and groundwater management for increasing agricultural production, improvement of big hydropower, measurement of water in various river and their quality, tidal river management etc. Progress is being made towards meeting national goals in water resources management and water supply services. Progress is also being made towards integrated water resources management through pilots or on-going programmes but projects information are not available to public and not displayed in their website. No commitment to anticorruption is found because there is no regular independent audit, procurement of goods and services is not open, e-tender is not used and service providers are not accountable to their consumers/users. Environmental laws and regulations are effectively maintained and watershed conservation and management are sustained and based on mathematical modelling. A newsletter is published which includes projects description and news of regional and international workshop. Monitoring provides reliable and adequate information for basin and ground water. Transparency and accountability and corruption and gender issues are neglected but other issues like equitable service provision; right to water; environmental management; water resources management and monitoring and evaluation are functional in Institute of Water Modelling (IWM).

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## **Local Government Engineering Department (LGED)**

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Local Government Engineering Department (LGED) is one of the largest public sector organizations in Bangladesh and is entrusted for planning and implementation of local level rural urban and small scale water resources infrastructure

development programs. LGED works closely with the local stakeholders to ensure people's participation and bottom-up planning in all stages of project implementation cycle. The vision of LGED is to remain professionally competent, efficient and effective public sector agency for performing the interrelated and complementary functions of developing, maintaining and managing transport, trading and small scale water resources infrastructure at the local level by ensuring LGI and community participation and taking care of environmental and social issues and to provide technical and institutional support to strengthen the local government institutions and serving local communities and other stakeholders. The major functions of LGED can be broadly categorized as rural infrastructure development, urban infrastructure development and small scale water resources development.

One of the major functions of LGED is small scale water resources development and progress is being made towards meeting national goals in water resources management, and water supply and sanitation services. Various projects have been initiated to develop the capacity and management of water resources in local institutions. The projects information is available but detail information is not available. For gender participation in development, planning and decision making gender and development forum was formed in LGED and this forum is working for safe and practical work environments for women in sector institutions and organizational cultures (e.g. flexible hours of work and protection against sexual harassment). LGED yearly publish Panibarta which contains various activities and achievement of LGED related to water management. It also publishes annual report but no audit report or financial statements are available in their website. There is lacking in commitment to anticorruption because e-tender is not introduced and procurement of goods and services is not open and transparent. There is no accountability within the sector institutions because channels are not available and protection is given to the public and officials in reporting corruption and service providers are not accountable to their consumers/users. LGED have the system to complaint against these services but sometimes they do not give any response to the consumers. Beginning of this new millennium ICT (Information and Communication Technology) recognized as efficient instrument to promote good governance. LGED recognized that issue and became the good practitioner of ICT among the governmental organizations of Bangladesh and they are trying to improve the practice ICT options for good governance. Water integrity principles for effective water governance such as corruption, transparency, accountability and inclusiveness have not been put on their agenda but other issues like equitable service provision, right to water, gender issues, environmental management and water resources management are prioritized in local government engineering department (LGED).

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## **Department of Public Health Engineering (DPHE)**

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The Department of Public Health Engineering (DPHE) was established in 1936 and is the national lead agency for provision of drinking water supply and waste management in the country excepting Dhaka, Narayanganj and Chittagong cities where WASAs operate. Mandates of DPHE are to improve water supply and sanitation facilities throughout the country excluding Dhaka & Chittagong cities and Narayanganj and Kadamrasul Pourashavas where WASAs operate; to provide advisory service to GoB in framing policy and action plans for WSS and to provide support to the local government institutions (LGIs) in the development and O&M of the water & sanitation facilities.

Functions of DPHE are (a) Except Dhaka and Chittagong city areas and Narayanganj town, DPHE is responsible for the water supply and sanitation (Human excreta & sludge disposal, drainage and solid waste management) of the

whole country, both in rural and urban (City Corporation, Pourashava, Upazila HQs and growth centres) areas; (b) In Urban areas the DPHE solely or jointly with the Pourashava be responsible for water supply & sanitation services. DPHE is also responsible for assisting the Pourashavas and city corporations through infrastructure development and technical assistance; (c) Assist local government institutions (City Corporations, Pourashavas, Union Parishads etc) in the operation & maintenance of the water supply & sanitation infrastructure & services including technical assistance; (d) Ensure supply of adequate number of trained & skilled manpower in the water supply & sanitation sector through HRD of the sector personnel & institutions for proper and sustainable management of infrastructure and services; (e) Strengthen water testing facilities through establishment of laboratories at different levels in order to institutionalize water quality monitoring and surveillance program throughout the country both in rural and urban areas to ensure safe water for the people (f) Carry out hydro-geological investigations in search of safe source (both surface & ground) of water supply; (g) Develop safe water supply technologies in the arsenic affected and other hydro-geologically difficult areas (Saline belt, stone problem areas, hilly regions and areas likely to be affected by other micro-pollutants); (h) Research and development activities in search of appropriate and affordable options including the indigenous ones of water supply and sanitation in the country and ensure water supply and sanitation services/ facilities during and after the natural disasters/ calamities; (i) Establishment of national water supply & sanitation information centre as a centre of excellence for sectoral information management and capacity building of the community, LGIs, private entrepreneurs and NGOs with technical know-how, information, training etc. in terms of water supply and sanitation (j) Monitoring and coordination of activities of the stakeholders including NGOs & private operators working in the water supply and sanitation sector and overall management of the water supply & sanitation sector development programme.

DPHE is responsible for the water supply and sanitation of the whole country both in rural and urban (City Corporation, Pourashava, Upazila HQs and growth centres) areas and progress is being made towards meeting national goals in water resources management, and water supply and sanitation services. With the challenges generate by the discovery of arsenic in incremental areas since its first detection in 1993, DPHE with its development partners is trying to ameliorate the sufferings caused by the lack of safe water. Alternative options for safe water supply are being catered in worse affected areas. Similarly for excreta and other waste management DPHE is implementing different projects to achieve an improvement environment. Three foreign aided and nine GoB related projects related to water supply and sanitation have been taken to increase the capacity of DPHE service. For water quality improvement DPHE have 11 zonal testing laboratories where, 22 parameters are measured. In recent past, 97% of the people had access to safe water within 150 meters. With the discovery of arsenic in groundwater, the coverage has come down to about 75%. However, alternative options are being implemented for supply of arsenic safe water. The sanitation coverage shows a dismal figure. Only about 20% people use sanitary latrines in the rural areas. And an additional 35% rural people use homemade pit latrines. The coverage of WSS in urban areas though balanced, are not satisfactory and are a little above 50%. The technological options in rural water supply are shallow tube wells, deep tube wells, tara tube wells, pond sand filters, rainwater harvesters, ring wells, infiltration galleries depending on natural water quality and hydro-geological conditions. The urban water supply adopts piped water supply with deep tube wells in core areas and hand pumps tube wells in the fringes. There are several surface water treatment plants also. For sanitation simple pit latrines, water seal latrines (single, double), offset pit latrines, septic tanks etc. are being used. About 30% of Dhaka City only enjoys conventional water borne sewerage system in the country. According to citizen charter, in rural and urban area they have to work for safer water sources and infrastructure development but the people have to pay fees for this service and they can complaint if they do not get expected service. Citizen charter state that, for water quality testing field test kit have to be supplied

form Upazila office and within 10 working days the complaint must be solved but in real this service is not available. Citizen charter also states that, in emergency situation within 3 days safe water, water purifier tablet, tube wells, small apparatus for tube well and ring slab should be supplied to the victims but the responsible authority are not aware of their task. Channels are not available and protection is not given to the public and officials in reporting corruption and procurement of goods and services is not open and transparent. There website only provides the tender information but e-tender is not introduced yet which is a major area of concern regarding corruption. Also service providers are not accountable to their consumers/users. DPHE annually publish report include audit report, financial statement, major achievements, on-going and completed project information, right to information form, appeal form etc. But it is a matter of regrets that in 2012-13 no application for information was submitted from civil society. Monitoring may provide reliable and adequate information for basin and ground water resources management but monitoring data or information is not accessible to public. In a word we can say that, water integrity principles for effective water governance such as corruption, transparency, accountability, legitimacy and legality and inclusiveness have not been put on Department of Public Health Engineering (DPHE) agenda.

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## **Dhaka Water Supply and Sewerage Authority (DWASA)**

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Dhaka WASA (Water Supply & Sewerage Authority) was established in the year 1963 as an independent organization and the drainage system of Dhaka city also handed over to DWASA from DPHE. Again in the year 1990, water, drainage & sanitation service of Narayanganj city handed over to DWASA. At present the service area of DWASA is extended to Mirpur and Uttara in the North and to Narayanganj in the South. For better operation, maintenance and customer care, the total service area of DWASA is divided into 11 geographic zones, which includes 10 in Dhaka City and 1 in Narayanganj. DWASA is under the authority of the ministry of local government, rural development and cooperatives. DWASA's board consists of 13 members and is chaired by a customer representative. The ministry is represented by a joint secretary from the local government division. Two board members are appointed by the municipal authority and one by the minister of finance. The executive head of DWASA is also an ex officio member of the board. Other board members are appointed by professional associations and the chamber of commerce and industry. The organizational structure of Dhaka WASA is divided into four wings along with the office of the chief executive (Managing Director) and they are administration, finance, operation & maintenance, research and planning and development.

The vision of DWASA is to be the best water utility in the public sector of Asia-with commitment towards people and environment. And the mission of DWASA are; to constantly seek ways to better serve our customers, to implement the projects effectively and speedily for increasing water production to meet the demand of the city dwellers, to reduce the dependency from ground water to surface water, to practice a corporate culture in its management and operation, to ensure a high level of transparency and accountability in all its services and activities and to improve efficiency in all DWASA activities and reduce the operation cost. The main responsibilities of Dhaka WASA are: (a) construction, operation, improvement and maintenance of the necessary infrastructures for collecting, treating, preserving and supplying potable water to the public, industries and commercial concerns; (b) construction, operation, improvement and maintenance of the necessary infrastructures for collecting, treating and disposing domestic sewerage and other sewerage; and (c) construction, operation, improvement and maintenance of the necessary infrastructures for storm water drainage facilities of the city.

Involvement of Dhaka City Corporation in water management is notable. Dhaka City Corporation is entrusted with the responsibilities for ensuring civic services of the city dwellers including water management. Water management in Dhaka, the capital of Bangladesh and a city with 15 million inhabitants, faces numerous challenges such as flooding, poor service quality, groundwater depletion, inadequate sanitation, polluted river water, unplanned urban development and the existence of large slums where more than one third of its population lives (Islam et al, 2005, Angeles et al, 2009). Residents of Dhaka enjoy one of the lowest water tariffs in the world, which limits the utility's capacity to invest.

Water and sanitation services are not provided equitably across wealthy and low income groups but progress have made towards meeting national goals in water resources management and water supply and sanitation services because Dhaka WASA has significant increase in water production and productivity, improved service quality, increased revenue, reduction of nonrevenue water and provision of water supply at low cost. According to annual report, Dhaka Water Supply and Sewerage Authority (WASA) covers more than 360 sq. km service area with 15.5 million people with a production of almost 2420 million liters per day (MLD) by using 644 deep tube wells and 4 water treatment plants. Production of water was increased by construction of 60 deep tube wells during the year. To meet increasing demand of water Dhaka WASA supplies water by pumping water from deep tube well. For that reason groundwater table is declining by 2-3 meters per year due to abstraction of water. The total length of the water line across the Dhaka city is 3040 km including 3,25,717 household connections and 1643 roadside tap. With respect to seasonal variation the total water demand of Dhaka city varies from 2100 to 2300 MLD. Whereas the total production capacity of DWASA is 2420 MLD and it seems that DWASA is able to fulfil the current water demand (DWASA annual report 2012-13).

Generally, the quality of ground water being pumped into the water supply network of Dhaka is good. The quality deteriorates, however, as it moves through the piped network. The problems stem from a number of sources. Leaks affect the hygienic conditions of the pipes and connections. To a greater degree, the system's low and sometimes negative pressure caused by consumers using suction pumps or service connections installed at the bottom of underground tanks, causes contamination of the water within the network. Considering the rapid expansion of the city with high rate of population growth and other infrastructure developments, there would be huge demand for piped water in near future.

DWASA has well established computerized billing system including the ability of customers to pay bills via SMS. Through this system and other measures revenues was increased by 25% in a year and a half from 2009 on, while tariffs were adjusted only about 5% in July 2010. The annual report, audit report and MIS report are available in the WASA website and they are accessible. To increase the transparency e-tender is introduced and water connection system is also well developed but the complaint system against any disruption of services are not effective and in some cases the responsible person do not give any response. Corruption is a factor, which has been aggravating the water problems and considerably disrupted the water governance in general. Water distribution in the slums area in Dhaka City is informally governed by various groups such as political leaders, middle-men and middleman with the help of DWASA officials. Middle-men of the slums control the whole water distribution process and are backed up by severe corruption of DWASA officials. Water charges set by those middle-men are not controlled and thus become too high for the slums dwellers. Public participation in decision-making is not encouraging and there is no accountability from DWASA officials. Environmental laws and regulations are effectively enforced and monitoring provides reliable and adequate information for basin and ground water resources management but monitoring data are not accessible and procurement of goods

and services is not open. Dhaka WASA faces a number of challenges. These include unplanned city development and informal settlements, transitioning to using surface water instead of groundwater and large investment funding. Improvement of current water governance problems in the study areas is a very difficult and challenging task. Water integrity principles for effective water governance such as corruption, transparency, accountability, legitimacy and legality, equity and inclusiveness have not been put on their agenda.

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## **Bangladesh Agricultural Development Corporation (BADC)**

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Bangladesh agricultural development corporation (BADC) was established under the agricultural development corporation ordinance, 1961. In 1975, BADC was renamed as the Bangladesh agricultural inputs supply and services corporation (BAISSC) to distinguish the functions of the corporation from other development agencies of the government in the agricultural sector. But again in 1976 BAISSC was renamed as BADC. Based in Dhaka city, BADC, an autonomous corporate body under the ministry of agriculture, serves to the whole of Bangladesh and has a nationwide network of outlying field offices down to the Upazila level and at some places even below that level. Professionals from different disciplines such as agriculture, engineering, economics, management, computer science etc. are working together in BADC. The total number of sanctioned posts was 25,451. But during the early 90s due to withdrawal of fertilizer management activities from BADC and privatization of irrigation activities and also due to normal and voluntary retirement and other reasons the number of working people and capacity of the organization was reduced. The mandatory or primary functions of BADC are to make suitable arrangements throughout Bangladesh for the production, procurement, transport, storage and distribution of essential agricultural inputs such as seed and fertilizers and providing irrigation facilities through utilization of surface and underground water to the farmers. In 2009, the corporation is made more vibrant and is given some more responsibilities such as providing irrigation facilities to the farmer through surface water utilization, import of non-urea fertilizer through G2G (Government to Government) arrangement and strengthening of seed production activities with the task of multiplication of high yielding and different stress tolerant varieties of seeds allocating financial support through new projects and programmes.

This institution has equitable services provision because price and quality of services are provided equitably across consumer/user groups and subsidies are appropriately targeted and reach their targets in full and in transparent fashion. Progress is being made towards meeting national goals in water resources management and water supply services because the minor irrigation wing is working in this regards. According to citizen charter, they are working to improve the surface and groundwater condition and their proper utilization for production and they have taken various projects regarding the water management. According to citizen charter, they are also working with salt water intrusion related problems and giving valuable suggestions to the peoples but in real no function is found. They publish annual report and citizen right to information regarding their activity is available in their website but there is no regular independent audit and procurement of goods and services is not open and transparent with lack of improve tender system. Monitoring data and information are accessible in demand and can be effectively used in sector planning and management. Except corruption, environmental management and transparency and accountability other integrity issues like equitable service provision, right to water, water resources management and monitoring are reflected in the agenda of Bangladesh Agricultural Development Corporation (BADC).

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## Barind Multipurpose Development Authority (BMDA)

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Barind multipurpose development authority (BMDA) is assigned to develop agriculture and mainly engaged in deep tube well irrigation in northwest area of Bangladesh. The development priorities of the barind area are particularly concerned about the development of agriculture includes augmentation of surface water resources and its use, increasing irrigation facilities by using underground water through deep tube wells, formulate and implement command area development project for creating water supply system for irrigation and development of irrigation, insure electrification of irrigation equipment and agro-based industries in the area, re-excavation of ponds/khal for psci-culture development and for irrigation, afforestation to achieve environmental and ecological balance, improving road communication by construction/re-construction of feeder roads, crop diversification by using deep tubewells, shallow tubewells and other pumps.

The part of greater Rajshahi, Dinajpur, Rangpur and Bogra district of Bangladesh and the Indian territorial Maldah District of West Bengal 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 total cultivable area being 1.44 million acres, out of which 34% is loamy, 10% Sandy, 49% is clayed and 7% others. Out of the total cultivable land, 84% are single cropped, 13% are double cropped and the rest are triple cropped. The cropping intensity was 117%. According to citizen charter, they provide service to Barind region through deep tube well and distribution by underground pipe line and connecting electricity for water supply. In rural area they provide arsenic free water through pipe line and progress is being made in water supply services in this region and they use prepaid meter system in water supply. The pre-paid system on irrigation charge is first introduced in BMDA throughout Bangladesh. There are different types of organization over the Bangladesh which is related to irrigation, like Bangladesh Water Development Board (BWDB), Bangladesh Agriculture Development Corporation (BADC) and so on. But BMDA is the only one organization that starts the prepaid metering system on irrigation charges. It is a computerized automatic irrigation charge collection system. The authority is taking measures for implementing budget and submits revenue report. Yearly audit reports have to submit to responsible ministry after taking proper measures against allegation. The customers can complain against the officials and according to citizen charter it must have to be solved within 30 days after investigation. This would increase accountability within sector. Almost 30 projects have already been completed and various projects are ongoing for the improvement and management of water services in this area. But tendering system need to be transparent and procurement of goods and services is not open for that reason e-tender could be introduced to reduce the scope of corruption. BMDA have monitoring office and monitoring officer is assigned to solve the problem and complain against any service. Monitoring provides reliable and adequate information for basin and ground water resources management and environmental laws and regulations are effectively enforced. Except corruption and transparency other water integrity issues like equitable service provision, right to water, gender issues, environmental management and water resources management are reflected in the objectives, functions and citizen charter of Barind Multipurpose Development Authority.

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## **Ministry of Land**

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Since 1950, ministry of land in different names during different regimes is entrusted with the land management of this country. The mission of ministry of land is to efficient management of public land to provide all services and to ensure land use and economic development and poverty alleviation. The important aims and objectives of ministry of land are management and settlement of the government owned lands (khas lands), sairat mahals (jalmahal, shrimp mahal etc.), vested properties and abandoned properties, collection of land development tax is another important task of this ministry as well as land survey, record keeping, updating, acquisition and requisition of land are also important responsibilities of this ministry. Thus this ministry is in charge of land administration, management and development for the benefit of the people of Bangladesh.

According to the objectives, this ministry is working to manage the jalmahal, shrimp mahal to meet national goals in water resources management. They have done a survey to identify the jalmahal in the country and this report is available in their website. Corruption and transparency is common phenomenon because there is no regular independent audit, manual tender and procurement of goods and services is not open and transparent. Though they publish success report and they have the system to complain through the website. Besides this the citizen charter also provides complain form with important suggestions regarding this issue. Environmental management and water resource management is neglected because environmental laws and regulations are not effectively enforced and progress is not being made towards integrated water resources management through pilots or on-going programmes. Besides they have policy regarding chingri mohal policy, jalmohol policy and salt mohal policy but any policy regarding the water and environmental management are not found. Monitoring and evaluation information or data related to water resources management are not available.

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## **Ministry of Fisheries and Livestock**

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The role of fisheries and livestock sectors in the development of agro-based economy of Bangladesh is very important and promising. They contribute around 8% to national income, which also is 32% of the total agricultural income. About 90% of animal protein in our diet comes from fish and livestock. The main functions of the ministry of fisheries and livestock are to preserve fisheries resources, to fulfil the requirement of animal protein through proper management and planned development, to increase socio-economic conditions of fishermen, to create employment opportunities for rural unemployed and landless people, to expand foreign exchange earnings by exporting fish and fishery products and to innovate new technologies through research for fisheries development and preservation.

According to institutional mandate and objectives progress is being made towards meeting national goals in water resources management through various programmes. The ministry publishes annual report and audit report which would increase accountability but electronic tender is not introduced. In addition there is some lacking in transparency and accountability in sector institutions because procurement of goods and service is not open and service providers are not accountable to their customers. In case of environmental management issues environmental laws and regulations are not effectively enforced because citizen charter does not contain any section which will increase the sustainability

of environment. In describing integrity issue, except transparency and accountability and environmental management other issues like equitable service provision; right to water; water resources management is considered in the agenda of ministry of fisheries and livestock.

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## **Ministry of Health & Family Welfare**

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The vision of ministry of health & family welfare is to create conditions whereby the people of Bangladesh have the opportunity to reach and maintain the highest attainable level of people health. It is a vision that recognizes health as a fundamental human right and therefore the need to promote health and reduce suffering in the spirit of social justice. The objectives of ministry of health and family welfare are co-ordination and evaluation of all executive functions related to projects and programmers; matters relating to standardization and quality control of food, water and other health related commodities and liaison with international organizations and matters relating to treaties and agreements with other countries and world bodies relating to subjects allotted to this ministry.

According to the citizen charter, health services are provided across wealthy and low income groups and subsidies are appropriately reach their targets in full and in transparent fashion. One of the objectives of ministry of health and family welfare is to standardize and quality control of water and other health related commodities and progress is being made towards this objective. Environmental management and water resource management related specific mandate and objectives are not mentioned in citizen charter and progress is not being made towards integrated water resources management through pilots or on-going programmes. Monitoring data and information are accessible and annual budget is also available in their website which increases some sort of transparency within the sector. Annual report contains information like planning, organgram, manpower, financial management and audit report etc. Except environmental management and water resource management, other integrity issues like equitable service provision, right to water, gender issues, transparency and accountability and monitoring and evaluation are stated in the policy and objectives in ministry of health & family welfare.

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## **Department of Environment (DoE)**

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The first environmental activities in Bangladesh were taken soon after the Stockholm Conference on Human Environment in 1972. In 1977, environment pollution control board with 16 members headed by a member of the planning commission and environment pollution control cell headed by a director with staff complement of 26 was established. This was followed in 1977 by the establishment of the environment pollution control project, in 1985 by the establishment of the department pollution control and finally, in 1989 by the restructured and renamed the Department of Environment (the Department) the activities of which are overseen by a director general. The department discharges its responsibilities through a head office and six divisional offices located in Dhaka, Chittagong, Khulna, Bogra, Barisal and Sylhet. Of late, the Government has been set up 21 new offices at district level with the creation of 468 new positions. As a result, the DoE staffs have been increased to 735. DoE's vision is to ensure sustainable environmental governance for achieving high quality of life for the benefit of present and future generation. And DoE's mission is to help secure a clean and healthy environment for the benefit of present and future generations; through the fair and consistent application of

environmental rules and regulations; through guiding, training and promoting awareness of environmental issues and through sustainable action on critical environmental problems that demonstrate practical solutions, and that galvanize public support and involvement.

Policy, vision and objectives of DoE mention the integrity issue like right to water; environmental management; monitoring and evaluation and water resources management. Progress is being made by DoE towards meeting national goals in water resources management and water supply and sanitation services because initiatives have been taken for maintain the water quality in various ponds, canals, tube well and drinking water. For that reason they take samples for analysis and reporting the status of water quality and it is the regular work of responsible authority according to the citizen charter-7 of DoE. There is no regular independent audit and service providers are not accountable to their consumers/users which give encouragement to be corrupt and reduce transparency and accountability within the organizations. Various projects have already been completed by them and some of the projects are running but detail information regarding these projects is not available in their website. Any of the projects that are completed are not related to water resource management. Procurement of goods and services is not open and transparent and e-tender is not introduced in DoE. But DoE strictly maintain the environmental laws and regulations and according to citizen charter they are working to implement the various international and national treaties and protocol such as UNFCCC, CBD, CCD, Basel Convention, Stockholm Convention, Kyoto Protocol, Montreal Protocol, Cartagena Protocol etc. For that reason they are arranging various seminars or meeting to take decision on critical issues and various national and international experts are invited to give their opinion in this regards. Civil society participation or community participation is encouraged in citizen charted of DoE. Citizen charter does not give any opportunity to access the information which is very important for good governance.

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## **WaterAid**

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WaterAid supports projects with NGO partners and works in the field of capacity building and training, technical support and advice, research and development, advocacy and networking. The WaterAid programme has grown considerably over the past few years with varied strategies. Between 2009 and 2015 its ambition is that, a further 25 million people will have access to safe water, improved hygiene and sanitation as a direct result of their work and by influencing the policies and practices of governments and service providers they will have reached a further 100 million people. Global aims of WaterAid are to promote and secure poor people's rights and access to safe water, improved hygiene and sanitation, to support governments and service providers in developing their capacity to deliver safe water, improved hygiene and sanitation, to advocate for the essential role of safe water, improved hygiene and sanitation in human development, to further develop as an effective global organization recognized as a leader in our field and for living our values.

They work with local partners and communities to improve access to water and sanitation and to promote good hygiene. They campaign and engage decision-makers to bring about a world where everyone, everywhere has these essentials by 2030. Water and sanitation services are provided to low income groups or peoples who are deprived of proper water and sanitation services and progress have been made towards water supply and sanitation services to the unprivileged people because in Bangladesh last year they provide safe water to 284,000 people and improved sanitation to 670,000 people. In addition to this in low-lying areas of the country which are prone to monsoon flooding, WaterAid is helping

communities to construct water and sanitation facilities that are more resilient to disasters and the impacts of climate change. WaterAid is currently working with Bangladesh government to build the national sanitation strategy, which would help them to reach universal access to sanitation by 2015. Safe and practical work environments for women and men exist in sector institutions and organizational cultures. WaterAid publish annual report, annual newsletter and independent audit regularly but procurement of goods and services is not open and transparent. They follow April to March as financial year and conduct annual audit by external auditors and submit copy of the report to NGOAB every year but this report are not accessible. Global annual report contains information like what they achieve or the progress towards their mission but no financial statement is found. Monitoring provides reliable and adequate information for basin and ground water resources management but data or information is not accessible. Progress is being made towards integrated water resources management and sanitation coverage through pilots or on-going programmes. Except, corruption and transparency other issues like equitable service provision, right to water, gender, environmental management, water resources management and monitoring and evaluation are prioritized in the agenda of WaterAid Bangladesh.

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## NGO Forum

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Being launched as the UN-brainchild in 1982, NGO Forum has been involved as the apex networking and service delivery body of NGOs, CBOs and private sector operators in the WatSan sector of Bangladesh. Over the years it has been contributing to the improvement of public health situation by reducing mortality and morbidity and conserving sound environment. In order to implement its programmes as a process of holistic transformation of the society towards development, the forum has emphasizing stepped forward maintaining a perfect balance among WatSan, health and environment. Combining hardware & software supports and networking efforts, NGO forum materializes its integrated programmes directly and in association with its partners countrywide.

NGO Forum is a national networking and service delivery organization in the area of water, sanitation and environment dedicated to contribute to the improvement of public health situation, especially for the poor, marginalized and excluded segment of the society of Bangladesh. Being an adaptive learning and rights-based organization, NGO Forum is committed to contribute to the promotion of public health through providing facilities and services in safe WatSan, hygiene, health care and environmental issues. Keeping this focus, NGO Forum utilizes its vast experiences and works as development partner with all concerned government bodies, LGIs, NGOs, CBOs, private sector, civil society, media, national and international agencies, development partners and other stakeholders. With a committed and competent work-force and strong network, NGO Forum strives to bring an enabling environment by complementing the implementation of all relevant national policies.

The main goal of NGO Forum is to alleviate poverty focusing on morbidity and mortality, to ensure safe water, environmental sanitation and health care services and facilities and to promote sustainable environment in adaptation to climate change. Water and sanitation services are provided to low income groups and progress is being made towards meeting national goals in water resources management and water supply and sanitation services. Various projects have been completed related to water supply service such as human resource development programme for sustainable water supply, environmental sanitation and hygiene promotion, enhancing environmental health by

community organizations (EEHCO) urban project, developing southern civil society advocacy in water and sanitation in Sub-Saharan Africa, South Asia and Central America (DFID Governance and Transparency Fund Project)- GTF integrated water and sanitation programme for disadvantaged off-shore island people in the coastal belt (IWSPOIP-C) etc. Gender equity is one of the core values of NGO forum and safe and practical working environments for women exist in sector institutions and organizational cultures. The National Resource Centre (NRC) of NGO Forum is a knowledge management and dissemination centre serving as a national memory bank in the public health sector but the data or information are not accessible to public. Advocacy and information is a functional structure of NGO forum but relevant data are not available in their website. It has internal audit report section, finance and account section, monitoring and evaluation section but reports of these sections are not published yearly and inaccessible to public. Because of lacking in transparency and accountability corrupt practices may be increased within the institutions. Except corruption, transparency and accountability other issues like equitable service provision, right to water, gender, environmental management, water resources management and monitoring are functional to NGO Forum.

## Annexure 5

### List of Key Informants:

Sl. No.	Name of Participants	Address
1.	Md. Mozibur Rahman	Executive Engineer, Bangladesh Water Development Board, Khulna
2.	Mr. Selim Sarwar	Engineer, Satkhira Municipality, Satkhira
3.	Mr. Kamal Uddin	DMD, Khulna WASA
4.	Mr. Uttam Kumar	DWASA Official
5.	Mr. Shahidul Islam	Executive Director, Uttaran, Satkhira
6.	Mr. Faruk	President, Khulna Press Club
7.	Mr. Sumon	Satkhira Correspondent, Desh TV
8.	Engineer Enamul Hoq	Rtd. Director General, Water Resources Planning Organization
9.	Randomly selected general People's perception in relevant literature	Dhaka City Corporation area
10.	Randomly selected general People	South-west coastal region (Tala, Khulna and Satkhira)

### Group Meeting Participants:

1.	SONAK members	Satkhira town (Organised by TIB)
2.	SONAK members	Khulna town (Organised by TIB)
3.	NGO leaders	Khulna town (Organised by TIB)

