

Ministry of Water Resources



Bangladesh Water Development Board

Five Year Strategic Plan of BWDB

Roadmap for realizing Organizational Goals

(2009 – 2014)



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Five Year Strategic Plan of BWDB

(2009-2014)

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“Unlocking the Potentials” and “Moving Ahead” for realizing organizational goals

Bangladesh is a beautiful country with immense potential in water resources – a precious but finite natural resources of the Globe. Population boom, urbanization, utilization of limited and fertile agricultural land in other uses and quest for a better standard of living are putting unbearable pressure on this unique resource. BWDB Act-2000 has mandated Bangladesh Water Development Board, a statutory body under Ministry of Water Resources to act as the major stakeholder in water sector for overall development and management of water resources of the country. The activities of the organization is pro-poor in the form of increase food production, food security, creation of enabling environment for agricultural related rural economic activities for poor people especially for the destitute women, better communication, land accretion, protection against river erosion, defense against cyclone. National Water Policy (1999) and National Water Management Plan (2004) are the guiding documents to implement the mandated activities of the organization. Poverty Reduction Strategy Paper, commonly known as PRSP, in its three versions namely ‘Unlocking the Potential’, “Moving Ahead” and the “revised Moving Ahead (2009)” chalked out lists of priority projects for enhancing the quality of living standard of the poor people. Under this circumstance, BWDB has formulated its long term Strategic Plan based on (1) the principles of NWPo (1999), (2) the strategic goals of revised PRSP (2009) and (3) the programmes of the NWMP (2004). The **Twinning Mission** members (under the Twinning Arrangement between GoB and GoN) acted as peer reviewer in this plan formulation process. The Five Year Strategic Plan is in-built within this long term Strategic Plan. The Strategic Plan would be updated at an interval of five year or even at shorter period if that is the demand of the time.

The Strategic Plan does not contain priority among the programmes or projects – that option is open. The priority may be assigned at the policy level of the Government according to their choice – this flexibility is the unique characteristic of the BWDB Strategic Plan.

(Abul Kalam Mohd. Azad)

Director General
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Abbreviations

ADB	Asian Development Bank
Aila	Name of the disastrous cyclone (hit Bangladesh, 25 th May 2009)
BADC	Bangladesh Agricultural Development Corporation
BIWTA	Bangladesh Inland Water Transport Authority
BMDA	Barind Multipurpose Development Authority
BWDB	Bangladesh Water Development Board
CBO	Community Based Organisation
CCC	Chittagong City Corporation
CDSP	Char Development and Settlement Project
CEGIS	Center for Environmental and Geographic Information Services
CEP	Coastal Embankment Project
CIP	Chandpur Irrigation Project
CWASA	Chittagong Water & Sewerage Authority
DFi	Department of Fishery
DoF	Department of Forestry
DND	Dhaka- Narayanganj- Demra Project
DPP	Development Project Proposal
EIA	Environmental Impact Assessment
FAO	Food and Agricultural Organization
FCD	Flood Control and Drainage
FCDI	Flood Control, Drainage and Irrigation
FFWC	Flood Forecasting and Warning Center
EPWAPDA	East Pakistan Water and Power Development Authority
GBM	Ganges, Brahmaputra and Meghna
GC	Governing Council
GDP	Gross Domestic Product
G-K	Ganges-Kobodak Project
GoB	Government of the People's Republic of Bangladesh
GoN	Government of the Kingdom of The Netherlands
GPWM	Guideline for Participatory Water Management
GW	Ground Water
ICZM	Integrated Coastal Zone Management
ICZMP	Integrated Coastal Zone Management Plan
IEE	Initial Environmental Examination
IPSWAM	Integrated Participatory and Sustainable Water Management
IWFM	Institute of Water and Flood Management
IWM	Institute of Water Modeling
IWRM	Integrated Water Resources Management

JRC	Joint Rivers Commission
KCC	Khulna City Corporation
LCS	Landless Contracting Society
LGED	Local Government Engineering Department
LGI	Local Government Institution
M.Tk	Million Taka
m. ton	Million metric ton
MDGs	Millennium Development Goals
MDIP	Meghna -Dhonagoda Irrigation Project
MIS	Management Information System
MoWR	Ministry of Water Resources
MTBF	Mid-Term Budgetary Framework
NGO	Non-Governmental Organisation
NWMP	National Water Management Plan
NWPo	National Water Policy
NWRD	National Water Resources Database
O&M	Operation and Maintenance
PCU	Project Coordination Unit
PIRDP	Pabna Irrigation and Rural Development Project
PRS	Poverty Reduction Strategy
PRSP	Poverty Reduction Strategy Paper
RBP	River Bank Protection
RCC	Rajshahi City Corporation
RETA	Regional Technical Assistance
RRI	River Research Institute
SIA	Social Impact Assessment
Sidr	Name of the disastrous cyclone (hit Bangladesh, 15 th Nov 2007)
SAIWRPMP	South west Area Integrated Water Resources Planning & Management Project
sq-km	Square kilometer
Tk	Taka
WARPO	Water Resources Planning Organization
WASA	Water Supply and Sewerage Authority
WMF	Water Management Federation
WMG	Water Management Group
WMIP	Water Management Improvement Project
WMO	Water Management Organization
WR	Water Resources

1. Introduction

The Five Year Strategic Plan of BWDB is an internal document of the organization prepared by the in-house experts. The document, at the beginning, describes country setting of Bangladesh, evolution of water sector of the country, the challenges faced by the sector and the actors of the sector. Then a brief portrait of the organization is illustrated stating the origin of it with its mission, vision, goals, objectives and the mandate. The policies and the plan followed by the organization is mentioned in the next sections. In subsequent sections, the success of the organization is mentioned with the impacts of the activities of the agriculture on the socio-economic fields of the country.

With the passage of time, BWDB realized that “change” is needed to meet the demand of the present while ensuring the sustainability for the future. So reform process was initiated within BWDB. The event of the reform process is explained in next few sections. And finally, strategic plan of BWDB (2009-2014) has been chalked out in Annex-C with an action plan and implementation plan in Annex-D & Annex-E respectively.

The Plan (Five Year Strategic Plan of BWDB) will guide the organization in the coming years towards its journey on the road of participatory and integrated water management. In preparing the plan, sub group no.1 was in the lead while all other sub-groups prepared the respective materials. The Twining Mission members from the Netherlands contributed in providing strategic advices.

2. Background

Bangladesh is a land of rivers. Within an area of about 1,47,570 square kilometer (sq-km), the country is criss-crossed by about 310 rivers with a total length of about 16,600 kilometer (km) Indeed, the rivers are the “aspiration” and the “sorrows” of Bangladesh. In other words, the rivers have shaped much of the history, economy, literature and rich culture of the people of this land.

In absence of significant natural resources, water is the single-most important resources for the well-being of the people of Bangladesh. In fact, water is central to the way of life in this deltaic fertile land with an agrarian economy from immemorial. The people, here, have for centuries adjusted their way of life and livelihood to the annual hydrological-cycle.

As such water resources management in Bangladesh is pivotal for her development.

3. Country Setting

Bangladesh lies between 20°34′ to 26°38′ north latitude and 88°01′ to 92°41′ east longitudes. It is surrounded by the west, the north and the east by India, on the southeast by Myanmar and on the south by the Bay of Bengal. Landscape of Bangladesh is characterized by three broad landforms: hilly area, terrace areas and floodplains. Hilly areas are located in the southeast and the northeast regions of the country. The north, northwest & the north-central regions contain high lands. Almost 80% of the country possesses flat, alluvial and low floodplains of the river system.

Bangladesh enjoys a sub-tropical monsoon climate. Out of six seasons in a year, the summer the monsoon and the winter are prominent. In term of hydrological cycle, two seasons are important for the country; dry season (November to May) and wet seasons (June to October). The temperature in winter varies between 7°C to 31°C while the mean summer temperature is about 30°C which may rise up to 40°C. Mean annual rainfall of the country is

about 2360 mm which varies from 1200 mm (in the south-west region) to 5800mm (in the north east region). About 80% of the annual rainfall occurs during June to September period.

The most characteristics physical feature of Bangladesh as mentioned earlier, is its river systems. The three mighty rivers; the Ganges, the Brahmaputra and the Meghna together drain a total area of about 1.72 million sq-km spreading over Bangladesh, Bhutan, China, India and Nepal. Only 8 percent of the area lied in Bangladesh. Being the lower riparian country Bangladesh has no control on the flow of these mighty rivers. Moreover, withdrawals in upstream areas seriously affect the situation in dry season while in wet season abnormal flood often causes immense sufferings to the people and economy of the country. Flood during wet season and scarcity of water during dry season are two extreme scenarios of river flow in the country. These rivers carry sediments from the uplands which cause catastrophe when deposited on fertile land but help land reclamation when deposited to depression either in the Bay of Bengal or inland.

Bay of Bengal, located in the south of the country, shares a coastline of 710 km long and divided into three distinct parts namely the eastern, the central and the western part. The eastern part extends from Feni river to Badar Mokarm and may be classified as “pacific type.” The central part starts from Feni river and ends at the Tetulia river. This is the active delta come and most dynamic in nature .The western part covers the coast line from Tetulia river upto international border at Hariabhanga river. The zone is at “moribund” stage. The “Sundarban” the dense mangrove forests and the World Heritage is situated in the zone. Land reclamation process is continuing in the central part of the coastal zone of Bangladesh.

Population of the country is about 144.50 million (BBS 2008). The population of the country is increasing over the years with significant variation in urban and rural population growth. Most of the people live in the rural areas but growth rate of urban population is higher. Spatial distribution of population is important in the context of climate change. It is estimated that 79% people live somewhat away from the sea and rest 21% in the coastal districts. Civil labour force of the country is 57.5 million with male constituting 33.5 million and female 20 million. Economy of the country is still agrarian and the sector employs 68.5% of the civil labour force. It contributes around 25% of the gross domestic product (GDP).

Bangladesh has fairly performed well in terms of macroeconomic stability in general and economic growth in particular over the last decade. Market oriented economic reforms and deregulations in early 1990s led to a more stable macro-economic environment compared with that 1970s and 1980s.

4. Agrarian Economy & Water Resource Management

The linkage between water resources and agricultural sector is an established fact from the beginning of human civilization. It is continuing throughout the world even in this era of globalization. It is expected that the same trend will continue in future. It is said that about 70% of world’s abstraction of water is used in agriculture.

Because of the agrarian economy, development of Bangladesh is largely dependent on agricultural sector. Although, GDP contribution from agricultural sector is gradually diminishing but the role of the sector is playing in food security and rural employment generation cannot be under stated.

Agricultural practices in Bangladesh are fully controlled by the hydrological-cycle. This external event (hydrological cycle) forces the farmers to follow specific crops in different crop calendar within the year. Farmers need protection against flood in wet season, irrigation in dry season, supplementary irrigation in wet season, protection against salt water intrusion in coastal area, proper drainage both in wet and dry season, protection against river erosion throughout the year, protection against water related hazard (storm surge/cyclone) in coastal

area for safe-harvesting. This can only be ensured by round the year proper integrated water resources management.

5. Evolution of Water Resource Management

5.1 The Past

History of water resources management in Bengal (now under the jurisdiction of Bangladesh) dates back to the ancient period (up to 1100 A.D.) The then rulers of the land introduced “overflow irrigation” system for boosting agriculture. It (over flow irrigation) also improved hygienic condition (especially eradication of malaria). Stakeholders were involved in the operation and maintenance of the system*.

Digging of canals for irrigation and navigation, building of embankment for flood protection, boosting agriculture and better communication, excavating big tanks for storing water during wet season and supplying irrigation during dry season, building flood free home states (human settlements) on the raised high banks of the excavated tanks – were practiced by the “Sultan” and “Mughal” regimes during the medieval period (1100 -1500 A.D). The system continued till the beginning of colonial period (1757 A.D.). The rulers attached priority on water management because of agriculture and navigation. Levies were collected from the riverine crafts plying over the watercourse (as per instruction from the rulers) by the Zaminders (local landlords) and the same would be used for dredging.

The administrative structure, for managing river route navigable and safe, was known as Chowkis.

The hierarchical structure for managing embankment, road, bridges, tank excavation, canal digging and other associated works is show below.

Hierarchical Structure for Managing Water related Structures (during Medieval Period; 1100-1500 AD)

Organization – Jurisdiction

Panchayet – Looked after all structures of mouza (lowest land unit consisting (Organisation of individual plots). The Pachayet engaged Austapahari who guard the the villagers) structures for 24 hours.

Zaminders – responsible for maintaining all structures under the Zamindari (Landlords) (consisting of many mouzas). The Zaminders were allowed remission on land taxes for the services.

Pulbandi Daftar – entrusted for managing all the structures.
(Dept of the ruler)

5.2 Colonial Period (1757 AD – 1947 AD)

Water management practices during the colonial period (1757-1947 A.D.) experienced a major setback. Chowkis, Pachayat and Pulbandi Daftar were abolished. The Zaminders were relived from the responsibility of water management. The English were traders and sailors and they had no idea about agriculture, irrigation or water management.

* History of Irrigation Flood Control and Drainage in Bangladesh, BNCICID, Dhaka 1992.

They engaged collectors to collect revenue from the farmers. As their sole purpose was earning revenue not providing services to the people, the Zaminders were not allowed their remission of rent for repairing the water structure for the interest of common people. Thus the traditional participatory process of water management was destroyed.

5.3 The Modern Period (1947 AD onward)

At the end of colonial rule, East Pakistan Water and Power Development Board (EPWAPDA) was created in 1959 to look after the water management issues of the sovereign country. First national (master) water plan was prepared in 1964 suggesting implementation of 58 large flood control, drainage and irrigation (FCDI) projects which were gradually executed between 1955 to 1980. These projects were successful in agricultural crop production and rural employment generation but overlooked fisheries and navigation.

In 1972, after the birth of an independent Bangladesh, Land and Water Sector Study with the help of the World Bank, was undertaken that recommended implementation of small scale FCDI projects. Within the period of 1973-80, small irrigation and FCD /FCDI projects were implemented by both public and private initiatives.

In early 1980, focus was shifted from mono-sector (agriculture) to multi-sector approach and under the backdrop, Master Plan Organization (MPO) was created to undertake national under plan. MPO prepared the National Water Plan-1 in 1986. The organization also prepared the second National Water Plan (NWP-2) in 1981. These two national plans assembled substantial information and used wide range of planning models and analytical tools for public sectors strategies and programs. Both the plans were criticized as not being comprehensive.

After the severe floods of 1987 and 1988 in Bangladesh, international community helped the country to conduct comprehensive study on water resources. The study is widely known as Flood Action Plan (FAP) and the period extended from 1989 to 1995- some even extended up to 2000 (FAP -21/22)

One of the outcomes of the study in **Bangladesh Water and Flood Management Strategy – 1995**, which was, endorsed by the Government. The strategy recommended preparing a **National Water Policy** and a **National Water Management Plan**. The Policy was adopted in 1999 and the Government endorsed the plan in 2004.

6. Challenges in Water Sector

Water is vital to sustain life in this globe. Water, air and soil – these three form the basic life-supporting environment on the earth. With the advance of technology, people's quest for a better living standard is gradually raising. This development trend along with population boom, especially in the third world (including Bangladesh), has its own toil; the very existence of human being is threatened because of pollution, which is destroying the intricate balance of the life-supporting environment in the nature.

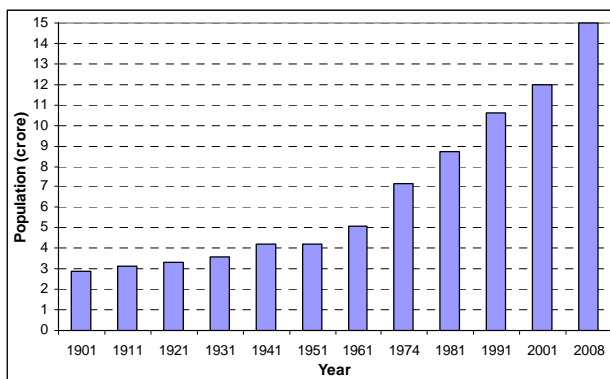
The challenges faced by Bangladesh, in the context, especially in water sector are presented below:

Population

Though the population growth has slowed down in recent years, the absolute number of people in the country is very large. It rises from 29 million in 1901 to 130 in 2001 which is expected to rise 181 million by 2025 and 224 million by 2050.

The additional manpower is exerting pressure on all natural resources especially on water, which may cross the limit of tolerance if special attention is not paid to this field.

Fig : population of Bangladesh



Poverty

Poverty is the country’s most alarming socio-economic issue that needs immediate attention. The number of people living below poverty line is gradually coming down (from 58% in 1991 to 40% in 2000), but the issue needs urgent special attention so as to achieve Millennium Development Goal (MDG) No-1 (halve the people living below poverty line by 2015).

Food Security

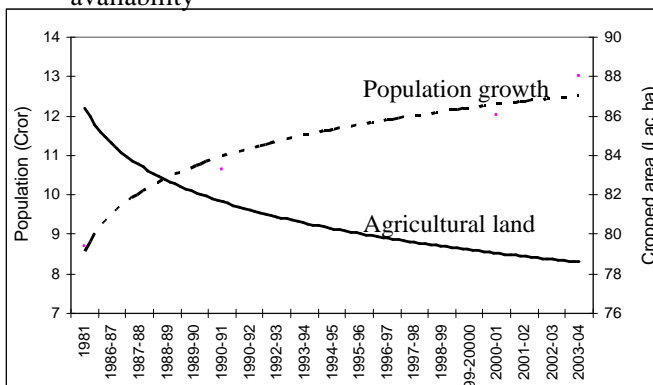
Food security means making food available to all at affordable cost. It implies sufficient food for all and making people rich enough to be able to purchase food from the market. The first one indicates increasing agricultural cop production and the second one point out employment generation.

Agricultural Land Availability

Presently 8.29 million hectares of land, which is 52% of the country’s total land is used for agriculture. Irrigable area of the country is about 7.0 million ha, of which 4.8 million ha has been brought under irrigation. Out of net cropped area of 8.03 million ha, single cropped area is 35.8%, double cropped area is 51.45% and triple cropped area is 12.75%.

Agricultural land is reducing at an alarming rate due to population pressure, urbanization, industrialization, human settlement etc. About 1% of the country’s total land is lost every year from agriculture. Moreover, riverbank erosion is also engulfing productive agricultural land at a rate of about 10,000ha per year. Under this circumstance, use of HYVs, crop intensification, expansion of irrigation with efficient water resources management are the alternatives for compensating the shrinking land resources.

Fig : Trend Line Population growth vs Agricultural land availability



Availability of surface water

The water ecosystem of Bangladesh comprises the tributaries and distributaries of the river system and numerous perennial and seasonal wetlands. The average annual water flow is about 1205 billion cubic-meters, which is drained through Bangladesh. Most of the runoff enters the country from outside the border. There is a high degree of uncertainty about the quantum of the water that will be available from trans-boundary rivers in future due to climate change. In the coastal zone, salinity in the estuarine areas and water pollution in the marine environment are noticed. Other problems in different parts of the country include water logging (particularly in floodplains and urban centres), drainage congestion, poor water management and industrial pollution.

The country faces acute shortage of surface water (from the trans-boundary rivers) in dry season due to upstream withdrawal while, during wet season, experiences catastrophic flood at a regular interval.

Abstraction of Groundwater

Availability of groundwater throughout the country is not uniform; abstraction of this resource is restricted due geological (rock strata), technical (aquifer below economic abstraction depth) and quality (presence of arsenic in the water) issues.

River Maintenance

Though the rivers of the country are the hope and aspiration for the nation, they also cause catastrophic disaster in the form of flood and river erosion.

Biodiversity

The terrestrial and aquatic areas of the country support a large number of diverse biological populations, both plant and animal. Sundarban's mangrove forest in the south west forms a unique environment of floral-faunal assemblages. The Sundarban supports a very rich and diverse fish fauna of 400 species, 270 species of birds and over 300 species of plants. It is an important staging and wintering ground for migratory shore birds, gulls, and terns. The mangrove is the largest remaining tract of habitat for the Royal Bengal Tiger. The Sundarbans has been declared by UNESCO as "World Heritage Site".

The world heritage is surviving in an intricate eco-system, where the salinity level of the water/soil is the controlling factor. Upland fresh water flow is vital to maintain this very existence of this eco-system.

Climate Change

The adverse effects of climate change including variability and the extreme events on the overall development of Bangladesh are significant. Most of the adverse impacts are related to possible changes to be experienced in the water sector. It is also noted that most damaging effects of floods, cyclones, salinity intrusion, and droughts, which affect crop productivity almost every year. Climate change induced challenges are: (a) scarcity of fresh water due to less rain and higher evapo-transpiration in the dry season (b) drainage congestion due to higher water levels in the confluence with the rise of sea level, (c) river bank erosion, (d) frequent floods and prolonged and widespread drought, (e) wider salinity in the surface, ground and soil in the coastal zone (WB, 2000). Impact of climate change will be fatal for Bangladesh, as she possesses land at low elevation. In respect of climate change, the country is not an actor but the worst sufferer.

Impact of climate change will be fatal for Bangladesh, as she possesses land at low elevation. In respect of climate change, the country is not an actor but the worst sufferer.

Cyclonic Storm

Bangladesh is extremely vulnerable to natural disasters because of its geophysical settings. The major natural hazards are flood, cyclones and storm surges, flash flood, drought, tornado, salinity intrusion and riverbank erosion. Bangladesh is a low-lying deltaic country in South Asia formed by the Ganges, the Brahmaputra and the Meghna (GBM) rivers. Flooding is an annual recurring event during monsoon and 80% of annual rainfall occurs in monsoon. Floods affect 80% of the land in Bangladesh. In a normal year, about one fifth of the country is flooded by river spills and drainage congestions. Approximately 37%, 43%, 52% and 60% of the country is inundated with floods of return periods of 10, 20, 50 and 100 respectively (MPO, 1986). Bangladesh is a flood prone country and very often experiences devastating flood during monsoon that causes damage to crops and properties.

The coastal zone of Bangladesh is exposed to water related hazards (cyclone/ storm surge/ tidal bone/ tsunami) and the degree of risk would be more destructive in case of climate change scenario. The country lost 0.3 million people in the coastal belt in the worst cyclone of 1970.

7. Actors of Water Sector

Administration in Bangladesh is run through different Ministries and Departments / Agencies/ Organizations attached to the ministries. In water sector, 15 Ministries and 26 Departments are working. Besides, there are a few apex bodies looking after the sector. Moreover, Local Administration, Local Government Institutions, research organizations, Non-Government Organizations (NGOs), Community Based Organizations (CBOs), formal / informal organizations are also working in the sectors. The list of actors working in water sector of the country is shown in **Annex-A**.

8. BWDB: Major Actors of Water Sector

Based on the recommendations of **Krug Mission**, a Technical Mission set up by United Nations in 1954, **East Pakistan Water and Power Development Authority (EPWAPDA)** was established (ordinance no.1 of 1959). After the independence of Bangladesh in 1971, the **Bangladesh Water Development Board (BWDB)** was created by an ordinance (P.O. No.59 of 1972). BWDB inherits the legacy and liability of water wing of the then EPWAPDA.

It (BWDB) is a statutory body under the Ministry of Water Resources (MoWR), Government of the People's Republic of Bangladesh (GoB). Organizational culture of BWDB is presented below:

8.1 Mission

Sustainable development and management of the water resources of the country for betterment and enrichment of socio-economic condition of all cross-sections of people of Bangladesh.

8.2 Vision

- Development and management of the Water resources of the country in conformity with the prevailing policies, plans, regulations and associated guiding documents of the government to optimize the demand of domestic water supply (including safe drinking water for all), sanitation, agriculture, fisheries, forestry, livestock, wild-life, industry, navigation, salinity intrusion, sustenance of the river regime, hydro-power, recreation and natural environment in a consistent equitable and sustainable manner with the stakeholders participation.

- Management of land resources of the country (a) to combat river erosion, harmful sedimentation & land degradation due to pollution and desertification and (b) to accelerate reclamation of land from the Bay of Bengal.
- Management of water related disasters (flood, drought, cyclone etc.) to minimize the adverse effects on rural / urban settlements, infrastructures, wildlife and environment (including micro-level planning)

8.3 Goals

BWDB has adopted the national goals and goals of the National Water Policy (NWPO-1999) as her goals and these are:

- Economic Development
- Poverty Alleviation
- Food security
- Public Health & Safety
- Decent Standard of Living
- Protection of the Natural Environment

8.4 Objectives

As the principal government-implementing (including micro-level planning) agency in water sector of the country, BWDB recognizes the objectives of the NWPO-1999 as her own objectives, which are as follows:

- a. To address issues related to the harnessing and development of all forms of surface water and ground water and management of these resources in an efficient and equitable manner
- b. 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
- c. To accelerate the development of sustainable public and private water delivery systems with appropriate legal and financial measures and incentives, including delineation of water rights and water pricing
- d. To bring institutional changes that will help decentralize the management of water resources and enhance the role of women in water management
- e. To develop a legal and regulatory environment that will help the process of decentralization, sound environmental management, and improve the investment climate for the private sector in water development and management.
- f. 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 the water management objectives through board public participation.

8.5 Policy

GoB, in 1999, adopted the NWPo to streamline the activities of all water sector Ministries, Agencies, Departments, Local Government Institutions, the actors of private sector and the NGOs. It is an excellent document that gained appreciation from the international community.

Obviously, the policy, also, contain necessary directives for BWDB. As such, BWDB is recognizing the policy as her own one.

In addition to the NWPo-1999 directives of other policies of the GoB relating to water resources management of the country are equally important for BWDB and she is committed to follow these directives contains in the relevant policies are;

- National Policy for Safe Water Supply & Sanitation (1998)
- National Agricultural Policy (1999)
- National Forestry Policy (1994)
- National Fisheries Policy (1998)
- National Environment Policy (1992)
- National Energy Policy (1996)
- Industries Policy (1999)
- National Land Use Policy (2001)
- Coastal Zone Policy (2005)
- Coastal Zone Strategy (2006)

8.6 Plan

GoB has approved in 2004 the **National Water Management Plan (NWMP)**, which was prepared by WARPO with the active participation of all water actors of the country and a consortium of national and international consultants.

The plan is a guiding document for establishing the principles of Integrated Water Resource Management (IWRM) in the country. It consisted of 84 Programmes divided into 8 clusters.

BWDB is committed to implement respective progress (related to BWDB) by formulating projects following GoB project implementing procedures.

8.7 BWDB Act 2000

GoB proclaimed **BWDB Act 2000** to streamline all the activities of the organization under legal footing. The act outlined the organizational structure of BWDB along with the mandate. In brief, the structure and the mandate are presented below:

Mandate of BWDB

- a. Construction of dams, barrages, reservoirs, embankments, regulators or other structures for development of rivers, flood control, drainage, surface irrigation and drought prevention;
- b. Dredging, re-excavation and de-siltation of water channels and removal of obstacles from the mouths of river for improvement of water flows or diversion of water for assisting fisheries, navigation, forestry, wildlife preservation and up gradation of environment;
- c. Works for preservation, land accretion, land reclamation and estuary control;
- d. River training and river bank protection for the protection of towns, bazaar, hats and places of historical and public importance from the hazards of land erosion;
- e. Construction and maintenance of coastal embankment;
- f. Prevention of salinity intrusion and desertification;

- g. Harvesting rain-water for irrigation, environmental protection and supply of drinking water;
- h. Flood and drought forecasting and warning;
- i. Hydrological survey and investigation;
- j. Development of forestry and fisheries on land available around BWDB's infrastructures, in conjunction with relevant government agencies, for the preservation and improvement of the environment as well as for poverty alleviation;
- k. Basic and applied research on water management; and
- l. Development of water user's association and other water users/ stakeholders organizations, their training and participation in project planning, implementation, operation and maintenance and project cost recovery for long-term sustainability of benefits to the beneficiaries of completed project.

8.8 The Bangladesh Water Act

The NWPO recognizes that an appropriate legislative framework is essential for establishing IWRM in the country. The process of drafting an act was initiated long ago. In October 2008, WARPO under the RETA project funded by Asian Development Bank (ADB) circulated the latest draft of the act.

Beside the act, existing legal documents relating to BWDB activities are:

1. The Irrigation ACT 1876
2. Transfer of properties Act 1882
3. Registration Act 1908
4. The state Acquisition & tenancy Act 1950
5. The Embankment & Drainage Act 1952
6. The Acquisition & Requisition of Immovable Property Ordinance 1982
7. The Irrigation Water Rate Ordinance 1983
8. Local Government Ordinance 1983
9. The Ground Water Management Ordinance 1985
10. Water Pollution Control Ordinance 1970
11. Environmental Pollution Control Ordinance 1977
12. Environmental Court Act 2000
13. Environmental Conservation Rules 1997
14. Environmental Conservation Act 1997
15. Protections and Conservation of Fish Act 1950
16. Territorial Waters and Marine Zones Act 1974

8.9 Other Guiding Documents

A. BWDB Documents

- BWDB service Rules 1982
- Delegation of Administrative and Financial Power 2008
- Guidelines for Participatory Water Management (GPWM) 2000
- Gender Equity Strategy & Action Plan 2006-2011
- Function & Job Description of BWDB 2001
- Citizen Charter of BWDB 2009

B. Other Documents

- NWMP 2004
- Bangladesh Climate Change Strategy and Action Plan-2008 (under review)

The **NWPo** and the **National Water Management Plan (NWMP)** guide the management of water resources in the country. The NWPo underscores the broad principles of water resources development and its rational utilization. To this end it puts emphasis on both public and private actions for optimal development and management of water in order to benefit individuals as well as the society at large. In line with the provisions of the **NWPo** and the **NWMP** provides a framework at the national and regional level within which the line agencies, local government and other stakeholders will plan and implement their activities and projects in a coordinated manner to achieve the national and sectoral objectives. It is a 25-years plan rolled over three successive phases, meaning that the implementation of the plan will be monitored regularly and updated every five years. The plan envisages a total of 84 programmes grouped into eight sub-sectoral clusters. The programmes will be implemented in locations across eight planning regions of the country, putting emphasis on distress/vulnerable pockets such as Chittagong hill tracts, char lands, chhitmahal, and those areas affected by monsoon, river erosion, arsenic, salinity and drought.

The NWMP aims at institutional development, which proposes separation of planning and regulatory function from implementation and operational function at each level. One prominent step will be to progressively withdraw the central government agencies from activities that can be performed by local institutions and the private sector so that decentralization of decision-making takes place with stakeholders' participation. For integrated water resources management, the government will create an enabling environment through legal and regulatory reforms, research, reliable information flow and capacity building. Flood protection is given the topmost priority and it will be implemented for zila and upazila towns in phases using both structural and non-structural measures. On the irrigation front, the government will continue to promote minor irrigation in the private sector, water conservation for multipurpose users, rational use of the existing FCDI projects, and a limited number of new irrigation schemes where there is not a enough response from the private sector. The Government realizes that overdependence on groundwater is not wise because its supply is finite and that conjunctive use of surface and groundwater will be encouraged for irrigation and urban water supply. The main river system will be comprehensively developed and managed for multipurpose use through a variety of structural and non-structural measures. Safe and reliable potable water and sanitation services will be provided to all people in the major cities, towns and villages in a phase manner. Attempts will be made to restore and maintain fish habitats and preserve wetlands for protection of biodiversity.

Unlocking the Potential

Officially GoB adopted this document in October 2005 but “**A National Strategy for Economic Growth, Poverty Reduction and Social Development**” which is also known as **Interim Poverty Reduction Strategy. Paper (I-PRSP)** was completed in March 2003. Through adopting a comprehensive approach and by taking into account the country's past international and regional commitments and national realities, the strategy visualizes that, by the year 2015, Bangladesh would achieve the goals/targets:

- Remove the ‘ugly faces’ of poverty by eradicating hunger, chronic food-insecurity, and extreme destitution;
- Reduce the proportion of people living below the poverty line by 50 percent;
- Attain universal primary education for all girls and boys of primary schools age;
- Eliminate gender disparity in primary and secondary education;
- Reduce infant and under five mortality rates by 65 percent, and eliminate gender disparity in child malnutrition;
- Reduce maternal mortality rate by 75 percent;

- Ensure access of reproductive health services to all;
- Reduce substantially, if not eliminate totally, social violence against the poor and the disadvantaged groups, especially violence against women and children; and
- Ensure comprehensive disaster risk management, environmental sustainability and mainstreaming of these concerns into the national development process.

The strategy follows a five broad-avenues approach to reach the goals or targets as mentioned below:

- pro-poor economic growth for increasing income & employment of the poor.
- Human development of the poor for raising their capability through education health, nutrition, employment oriented skill training and social intervention.
- Women's advancement and closing the gender gaps in development
- Strengthen social protection to the poor against anticipated & un-anticipated income or consumption shocks through targeted and other efforts.
- Participatory governance enhance the voice of the poor and improve non-material dimensions of well-being including security, power and social inclusion by improving the performance of anti-poverty, disaster preparedness and mitigation institutions and removing institutional hurdles to social mobility.

Five Year Plans

This document encapsulates the government policy, strategy and plans of the country's development in the five-year reference periods. The last one, the Fifth Five-Year Plan (1997-2002) was a comprehensive document setting out the total development plans of the government for 1997 to 2002 period.

Three-Year Rolling Plan

From financial year 2003-04, the government is following Three Year Rolling Plan Instead of Five Year Plan.

Medium Term Budgetary Framework

With a view to maintaining macroeconomic stability, accelerating economic growth and poverty reduction, the government has introduced the Medium Term Budgetary Framework (MTBF) in fiscal year 2005-06. MTBF aims at ensuring efficient and effective allocation and utilization for recourses by establishing an effective linkage between annual budgetary process and PRSP. MTBF 2005/06-2007/08 contains budget estimates of the MTBF ministries for the fiscal year 2005-06 and projections of revenue receipts and public expenditure for the fiscal years 2006-07 and 2007-08. Under the system, indicative ceilings for revenue receipts and expenditures have been given for the MTBF ministries for the period 2005/06-2007-08. One prime objective of the system is to prepare a reliable estimate of available resources, both domestic and foreign, in the medium term and establish a balance between the policy priorities of PRSP and overall availability of resources. Thus the line ministries have been given enhanced responsibilities and authorities for allocation and utilization of resources. It also involves propitiation of public expenditure program for achieving the objectives and priorities of PRSP. Two key features that distinguish MTBF from the traditional budgeting system are : (1) the removal of the distinction between development and non-development expenditures and (2) establishment of link between inputs and expected outputs (output targets) so that the performance of the relevant ministries can be measured for improved expenditure monitoring. The new budgetary system is expected to

help allocate resources to different sectors/ ministries/ divisions in line with the PRSP objectives and utilize the resources to achieve those objectives. It is also expected that MTBF would bring greater transparency and predictability to resource allocation and budget management and thus develop the basis for better accountability for resource use and results. MOWR is included in the MTBF from 2005-06.

8.10 Completed Projects

BWDB , so far, has implemented 721 schemes (up to June 2009) spreading all over the country. Out of these 721 schemes, the number of FCD/FCDI schemes is 506. The infrastructures of these 506 schemes are as follows :

Flood Management Embankment	= Coastal-4530 km
	<u>Inland- 5694 km</u>
	Total- 10224 km
Irrigation Canal	=5173 km
Drainage Canal	= 4195 km
Hydraulic structure	= 14126 Nos.
Barrage (main)	= 4 nos.
Pump House	= 19 Nos.

The benefited area of these schemes is 5.900 million ha; of which 1.414 million ha receive irrigation. The net contribution of these schemes along with fertilizer, HYV seed & other agricultural extension services towards national production is enormous; cereal production in the BWDB projects increased to 28.200 million ton (2008-09).

8.11 Impact of Implementation of BWDB Schemes

- **Poverty Reduction**

Contribution of water sector in achieving the national goals (of economic development, poverty reduction, food security, public health, decent living standard of the people and environmental protection) is an established fact.

Among the schemes of water sector, FCD/FCDI schemes of BWDB play a significant role in poverty reduction and food security. Small farmers, landless labors and tenant farmers constitute a major portion of the poor and they are either benefited or adversely affected from the performance of BWDB FCD/FCDI schemes. BWDB FCD/FCDI schemes provide flood control, drainage and irrigation facilities to about 72 % land of the total 8.20 million ha crop land of the country. Flood, drainage congestion or drought may cause crop damage to the protected land (within BWDB FCD/FCDI schemes in absence of proper care of the infrastructures of the schemes) and in that situation the poor face the worst suffering (in the form of joblessness, shortage of food, shortage fodder etc.)

- **Communication**

Flood embankment of FCDI schemes serves as essential road communication for the remote rural area. Among the Asian countries, Bangladesh possesses the highest road network density. Even, the country ranks the highest position in respect of road network density if flood embankment alone is considered as rural road (6.4 km per 100 sq-km).

9. Reform Process of BWDB

9.1 Need for the Change

In the beginning of 21 century, the world is facing water crisis. Bangladesh is also sharing the same. Of course, the root cause of the crisis is quantity and quality of the water but rational and wise-use of this scare resources can minimize the dimension of the crisis to a significant scale. In other way, the crisis can be termed as a governance issue in the form of:

- a. Sector fragmentation
- b. Corruption
- c. Low investment
- d. Absence of efficient institutions
- e. Lack of stakeholders' participation.

The global, regional and the national perspective of the crisis is affecting the performance of BWDB. From its origin in 1959, the organization is reforming itself to cope it with the changing circumstances, The NWPo (1999), the BWDB Act (2000), GPWM (2000), the NWMP (2004) have created an enabling environment for BWDB to follow “good governance” in performing its mandated activities.

BWDB's journey towards “good governance” is accomplished by both the “internal” and “external” drive. The Twinning Arrangement is an effective and powerful mechanism in the reforming (changing) process of BWDB.

9.2 BWDB Task Force

The BWDB Act 2000 has created an environment for reforming BWDB. Under the changed circumstances, the mission, the vision, the goals, the objectives, the targets and the action plan of the organization need to be defined clearly. The aim of the reform is:

- Good governance: Implementation of the directives of BWDB Act-2000, NWPo(1999), GPWM (2000), NWMP(2004), and related rules and regulations.
- Service orientation: To play an important role for the service of people specially in integrated water resources management, transfer of small schemes to people and their participation. People's participation is also important in relation to O&M which directly influences BWDB performance.
- Efficiency: Making better use of budgets; doing more with the same budget.

The objective of this reform process is to help BWDB in fulfilling its commitment towards nation-building activities, the work is being done by “Task Force on BWDB Reform”. The Task Force comprised with following seven sub-groups who worked at seven distinct spheres as mentioned below.

1. BWDB Act. 2000
2. Strategic 5 Year Plan
3. Accounting & Financial Management
4. Human Resource Development
5. Services and Revenues
6. Operation and Maintenance
7. Performance Evaluation BWDB

The Task force is headed by a coordinator and each sub-group is headed by a facilitator with 5-8 sub-group members. In course of time (from 2001 to 2007) the BWDB Task Force has been re-shaped and present status (from 2008) is:

- Sub-group No. 1: Update of 5 Year Strategic Plan of BWDB (Existing)
- Sub-group No. 2: Decision Making Process (New)
- Sub-group No. 3: Human Resources Development (HRD) (Existing)
- Sub-group No. 4: Performance Evaluation (Existing)
- Sub-group No. 5: O & M - MIS (Follow-up of O&M sub-group)
- Sub-group No. 6: River Management (New)
- Sub-group No. 7: Coastal Zone Management (New)
- Sub-group No. 8 : Wetland Management (New)

The activities of the sub-groups are:

Sub-group no. 1: Up date of Strategic 5 Year Plan of BWDB

Facilitator : Dhali Abdul Qaium, Chief Training & Staff development, BWDB, Dhaka.

Mission: To update the Strategic Five Year Plan according to new developments and to the most urgent needs in the water sector.

Sub-group no. 2: Decision Making Process

Facilitator: Md. Hemayetul Islam, Controller, BWDB, Dhaka.

Mission: To review most important decision making processes within BWDB and to come up with proposals to improve decision making process within BWDB and outside (MoWR and other GoB Ministries/Agencies).

Sub-group no. 3 : Human Resource Development (HRD)

Facilitator : Dhali Abdul Qaium, Chief Training & Staff development, BWDB, Dhaka

Mission: To analyse problems in the field of HRD and to come up with proposals for improvement.

Sub-group no. 4: Performance Evaluation

Facilitator : Md. Abdul Wadud Bhuiyan, Chief Monitoring, BWDB, Dhaka.

Mission: To trace and analyse weak spots in the performance of BWDB and to come up with proposals for improvement.

Sub-group no. 5: O&M - MIS

Facilitator: Md. Saidur Rahman, Chief Planning, BWDB, Dhaka.

Mission: To institutionalise the O&M-MIS development by Mr. Md. Makbul Hossain, the then Director O&M, BWDB, Dhaka (Ref-TM Report XI, June 2005). The sub-group would follow the road map already developed (Ref-TM Report XI, June 2005). Possibility of assistance of IWM (who are engaged by WMIP for scheme database preparation) may be explored. This sub-group will also work to institutionalise the O&M-MIS for projects of BWDB not included in WMIP.

Sub-group no. 6: River Management

Facilitator : Md. Saidur Rahman, Chief Planning, BWDB, Dhaka.

Mission: To analyse the related river problems and to develop a step by step approach for modern river management involving other partners (e.g. IWM, CEGIS); data collection of river hydraulics and river morphology; form a platform with partners abroad, i.e. Rijkswaterstaat and other foreign partners for knowledge sharing.

Sub-group no. 7: Coastal Zone Management

Facilitator: A.H.M. Kausher, Chief Engineer, Hydrology, BWDB, Dhaka.

Mission: to analyse this issue and the related problems and to develop a step by step approach for land reclamation involving other partners (e.g. IWM, CEGIS); data collection of coastal hydraulics and coastal morphology; form a platform with partners abroad, i.e. Rijkswaterstaat and other foreign partners for knowledge sharing.

Sub-group no. 8: Wetland Management

Facilitator: Golam Mostafa, Director, O&M, BWDB, Dhaka.

Mission: To address the vulnerability of the wetland people and suggest sustainable livelihood for them.

9.3 Twinning Arrangement

In November 2000, Ministry of Water Resources (MoWR), GoB and Ministry of Transport, Public Works and Water Management, Government of the Kingdom of the Netherlands signed an agreement, known as Twinning Arrangement 2001-2005, for providing technical-managerial assistance from the Dutch side to “Task Force on BWDB Reform” for carrying out their assignment properly.

The agreement of the first Twinning Arrangement was valid from 22 November 2000 to 21 November 2005. The ToR was:

- Provide taking into accounts the policy framework of bilateral development and cooperative relation, on a long term basis, interagency/ institutional collaboration in the water management sector.
- Support the ongoing transformation process in water sector of Bangladesh with a development and implementation and division of task and responsibility between public and private sector.
- Strength capacities in the field of integrated approach for planning, implementation and maintenance of water and coastal resources and related coastal infrastructure.

Based on the framework of the agreement, a Twinning Committee was set up under the Twinning Arrangement. The responsibility of the Twinning Committee is to oversee the overall management of the arrangement. The Twinning Committee is chaired alternatively by the Director General, Bangladesh Water Development Board and the Director General of Rijkswaterstaat, the Netherlands. The Twinning Committee consists of two members from each side.

The Twinning Committee would meet annually. The Netherlands Government, under the arrangement, is also helping BWDB by sending experts (on change process) who are helping the Task Forces on BWDB Reforms. Visit of the Netherlands experts is known as Twinning Mission. During the entire period, the Twinning Mission visited Bangladesh for 24 times (upto June 2009) and helped the BWDB Task Force on their activities.

On expiry of the period of the first arrangement (21 November 2005), the process was extended upto 31 December 2007 (on 14 February 2006). The same was further extended upto December 2009 (in 2 March 2008).

9.4 The Portrait of BWDB in the 21st Century

The growing concern of availability of fresh water in term of quality and quantity aspect on Global basis including Bangladesh, BWDB would have to bear the unique challenge of harnessing, developing and managing the precise resources in the 21st century. In this respect, the participatory and integrated water resources management would be an

effective tool. The manpower of the organization would have to be recruited, structured, trained, and motivated towards that goal.

An in house committee of BWDB has defined the need-based manpower of BWDB. The BWDB (Employees) Service Rule 2009 has also been agreed by the MoWR; this would be submitted for approval to concerned Ministry/Division. The participatory and integrated water resources management principles and approach would be disseminated to each and every staff of BWDB through motivation, training and education (exposing towards modern information communication technology).

The Strategic Five Year Plan (2009-2014) would serve a rolling document to achieve that potential of BWDB.

10. Strategic Plan

BWDB is a service-oriented public organization. As a statutory body, it has to follow the GoB procedures for providing services to the people. The important documents, helping BWDB in formulating its fields of services (for the people), are;

- NWMP 2004
- PRSP (the latest version)
- MTBF (the latest version)
- Annual Development Programme of GoB (current one)
- Suggestions from Task Forces & Members of the Twinning Mission.

Strategic Plan of BWDB is prepared based on the above documents in the backdrop of its (BWDB) mandates. Different development partners working in Bangladesh, who have their own policy, strategy and priority, plays important role in the preparation of the (strategic) plan.

The strategic plan of BWDB, formulated in June 2009, is presented in **Annex-C**.

Annex - A

Actors of Water Sector

A. Apex Body

1. National Economic Council (NEC) and its Executive Committee
2. National Water Resources Council (NWRC) and its Executive Committee

B. Ministry

1. Ministry of Water Resources
2. Ministry of Agriculture
3. Local Government Division under MoLGRD & Cooperatives
4. Ministry of Housing and Public Works
5. Ministry of Science & ICT
6. Ministry of Environment & Forest
7. Ministry of Communication
8. Ministry of Navigation
9. Ministry of Fisheries & Livestock
10. Ministry of Land
11. Ministry of Food & Disaster Management
12. Ministry of Industries
13. Ministry of Finance
14. Ministry of Planning
15. Ministry of Law, Judiciary & Parliament

C. Organizations

1. Bangladesh Water Development Board (BWDB)
2. Bangladesh Power Development Board (BPDB)
3. Water Resources Planning Organization (WARPO)
4. Joint River Commission (JRC)
5. Bangladesh Hoar & Wetland Development Board (BHWDB)
6. River Research Institute (RRI)
7. Institute of Water Modeling (IWM), trust under MoWR
8. Centre for Environment & Geographic Information Services (CEGIS), Trust under MoWR
9. Bangladesh Agricultural Development Corporation (BADC)
10. Barind Multipurpose Development Authority (BMDA)
11. Department of Agricultural Extension (DAE)

12. Soil Research & Development Institute (SRDI)
13. Bangladesh Agricultural Research Council (BARC)
14. Bangladesh Agricultural Research Institute (BARI)
15. Bangladesh Rice Research Institute (BRRI)
16. Local Government Engineering Department (LGED)
17. Department of Public Health Engineering (DPHE)
18. Dhaka Water Supply & Sanitation Authority (DWASA)
19. Chittagong Supply & Sanitation Authority (CWASA)
20. Rajdhani Unnayan Kartipakha (RAJUK)
21. Space Research and remote sensing organization (SPARSO)
22. Department of Environment (DoE)
23. Department of Forest (DoF)
24. Roads & Highway Department (R&H)
25. Bangladesh Inland Water Transport Authority (BIWTA)
26. Department of Fisheries (DoF)
27. Bangladesh Bureau of Statistics
28. Disaster Management Bureau

D. Local Administration

1. Commissioner (at Division)
2. Deputy Commissioner (at District)
3. Upazila Nirbahi Officer (at Upazila)

E. Local Government Institutions

1. Zila Parishad
2. Mayor / Paurashava Chairman (at urban area)
3. Upazila Chairman (at Upazila)
4. Unio Parisad Chairman (at UP)

F. Research Organizations

1. All universities of the country associated with water

G. Others

1. Community based Organizations
2. Non-government Organizations
3. Private sector.

Annex - B

**BANGLADESH WATER DEVELOPMENT BOARD
ACHIEVEMENT AT A GLANCE**

UPTO JUNE, 2009

1	PROJECTS COMPLETED			721	Nos
	a) Pre-Independence period (1944-71)			144	Nos
	b) Post-Independence period (1972-2009)			577	Nos
2	ACHIEVEMENT OF MAJOR PHYSICAL COMPONENTS				
		Pre-Ind.	Post-Ind.	Total	
a)	Embankment	2977	7247	10224	Km
	i Coastal (115 Polders)	2138	2392	4530	Km
	ii Others	839	4855	5694	Km
b)	Irrigation Canal	355	4818	5173	Km
c)	Drainage Channel	1383	2812	4195	Km
d)	Hydraulic Structures	1137	12989	14126	Nos
e)	Pump House			19	Nos
f)	Pump	36	64	100	Nos
g)	Barrage (Manu,Buri-Teesta, Teesta & Tangon)	1	3	4	Nos
h)	River Closures	684	619	1303	Nos
i)	Bridges & Culverts		5600	5600	Nos
j)	Roads (Including Semi-pacca)		1031	1031	Km
k)	Rubber dam (Pekua, Mahamaya)		2	2	Nos
l)	Weir (Dhapa, Magura)		2	2	Nos
3	C. BENEFITS DERIVED				
a)	AREA BENEFITED BY				
	i FCDI Facilities	10.86	48.05	58.91	Lac ha.
	ii Irrigation Facilities	0.64	13.50	14.14	Lac ha.
b)	AREA RECLAIMED FROM SEA	1		1	Lac ha.
c)	Food Production in WDB Project area in 2008-09				
	i Total			243.76	Lac Ton
	ii Increased yield			93	Lac Ton
	iii Value of Increased Production			20,000	Creore Tk
d)	River erosion and Bank Protection				
	i Bank Revetment			561	Km
	ii Spur			220	Nos.
	iii Expenditure incurred			5000	Creore Tk
	iv Value of property saved			46,000	Creore Tk
	v Town Protection			20	Nos.
4	ONGOING PROJECTS				Nos
	a) Investment Projects			45	Nos
	b) Technical Assistance Projects			1	Nos

Annex – C
The Plan

Five Year Strategic Plan of BWDB

Annex-C

Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
A. 1.	Institutional Development Cluster: ID 003 FCD & FCDI Management Rationalization Implementation Period: 6 years. Indicative cost : = Tk 1300 million	Making BWDB FCD/FCDI schemes sustainable with stakeholders active participation & ownership	Protect Flood, improve drainage and reduce vulnerability to water related disaster including sea erosion & cyclone surge	(1) South West Area Integrated Water Resources Planning & Management Project. (05-06/13-14) (Ongoing Reh.)	28610	5000	5000	5000		
				(2) Water Management Improvement Project (WMIP) (04-05/13-14) (Ongoing Reh.)	98301	10000	10000	10000	10000	10000
2.	ID 004 BWDB Regional & Sub-regional Management Implementation Period: 6 years. Indicative cost = Tk 250 million	BWDB internal organization structured to plan, develop and manage river improvement programmes efficiently with established capacity.	Strengthen human recourses of BWDB and other mandated organizations including water management institutions (WMOs) and specialized Trusts of GoB for ensuring efficient management of water and adaptation to climate related stresses	*Water Management Improvement Project (WMIP) (04-05/13-14) (Ongoing Reh.)						

Five Year Strategic Plan of BWDB

Annex-C

Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
3.	ID 010 BWDB Capacity Building. Implementation Period: 10 years. Indicative cost : = Tk 1316 million	Strengthening BWDB to perform its mandated duties in changed social (both national & international contact) and environmental dimensions of water resources management in the fields of : -Man-power (staff strength & skill mix) -Organogram (Structure) -Logistics -Plan/Programme -Organizational Culture -HRD	Strengthen Human Resources (HR) of BWDB & other mandated organizations including WMOs. Ensure monitoring of hydrological (Surface & Ground water) climate and maritime data.	*Water Management Improvement Project (WMIP) (04-05/13-14) (Ongoing Reh.) (3) ICT Based Institutional Development and Capacity Building of Agencies under MoWR.(08-09/ 15-16) (Proposed) (4) Construction of Pani Bhaban Project at 72, Green Road, Dhaka. (08-09/13-14) (Proposed). (5) Upgradation and Modernization of National Hydrological services in Bangladesh for integrated water resources management in the context of climate changes.(2009-10/14-15) (Proposed) (6) Developing forecasting tools for Flash flood. (2009-10/ 10-11) (Proposed) (7) Preparation of Flood vulnerability map. (2009-10/ 14-15) (Proposed)						
					9021	1000	1000	1000	1000	1000
					13861	5000	5000	3800		
					36400	7000	7000	7000	7000	
					3324	665	499	498		

Five Year Strategic Plan of BWDB

Annex-C

Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
B. 4.	Enabling Environment Cluster EE 002 Field Testing of Participatory Models Implementation Period: 5 years. Indicative cost : = Tk 100 million	Field Testing of the appropriateness of the participatory water management models proposed to far (reference GPWM-2000) and potential options to be identified on the basis of comprehensive stakeholders consultation.	Strengthen HR of BWDB & other mandated organizations including WMOs.	*South West area Integrated Water Resources Planning & Management Project.(05-06/13-14) (Ongoing Reh.) *Water Management Improvement Project (WMIP) (04-05/13-14) (Ongoing Reh.)						
C. 5.	Main River Cluster MR 001 Main Rivers Studies and Research Programmes (BWDB as supporting with lead WARPO) Implementation Period: 10 years. Indicative cost : = Tk 2000 million	To form a sound basis for the decision makers for planning and implementation of the development options for riverine Bangladesh based on the outcome of this study.	Conducting research & development for improved regional water balance through IWRM plans & promote regional cooperation on trans boundary water issues for efficient water resources management.	(8) Feasibility Study and Detailed Design of Ganges Barrage. (05-06/11-12) (Ongoing new)	4564	800				

Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
7.	<p align="center">MR 003</p> <p>Ganges Barrage & Ancillary Works.</p> <p>Implementation Period: 15 years.</p> <p>Indicative cost : = Tk. 50858 million</p>	Increased multipurpose & sustainable use of the major rivers of this country.	Augment utilization of surface water all over the country for efficient water management (conjunctive use of surface and ground water) to ensure water quality with environmental flows in rivers Conducting research & development for improved regional water balance through IWRM plans & promote regional cooperation on trans boundary water issues for efficient water resources management.	(9) Ganges Barrage Project (11-12/ 17-18) Proposed	120000	10000	15000	15000	15000	15000
8.	<p align="center">MR 004</p> <p>Meghna Barrage & Ancillary Works.</p> <p>Implementation Period: 9 years.</p> <p>Indicative cost : = Tk. 15728 million</p>	Increased multipurpose & sustainable use of the major rivers of this country.	Augment utilization of surface water all over the country for efficient water management (conjunctive use of surface and ground water) to ensure water quality with environmental flows in rivers	At preliminary stage: follow-up activity of MR 001						
9.	<p align="center">MR 005</p> <p>Brahmaputra Barrage & Ancillary Works.</p> <p>Implementation Period: 12 years.</p> <p>Indicative cost : = Tk. 82833 million</p>	Increased multipurpose & sustainable use of the major rivers of this country.	Conducting research & development for improved regional water balance through IWRM plans & promote regional cooperation on transboundary water issues for efficient water resources management.	At preliminary stage: follow-up activity of MR 001						

Five Year Strategic Plan of BWDB

Annex-C

Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)						
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)	
1	2	3	4	5	6	7	8	9	10	11	
10.	MR 006 Regional River Management & Improvement. Implementation Period: 25 years. Indicative cost : = Tk. 16200 million	Increased multipurpose & sustainable use of dry season surface water from the major rivers of this country (other than Ganges, the Brahmaputra and the Meghna).	Augment utilization of surface water all over the country for efficient water management (conjunctive use of surface and ground water) to ensure water quality with environmental flows in rivers	(10) River Bank Protection and Dev. & Town Prot. Project (Phase IV). (08-09/11-12) (Ongoing New) (11) Protective work at the left bank of Teesta River from Teesta Barrage to Chandimari and Shoals Removal from upstream of Teesta Barrage.(08-09/15-16) (Ongoing New) (12) Protection of Baherchar from the erosion of Paira river in Upazilla-Dumki, District-Patuakhali (08-09/12-13) Proposed (13) Protection of Kajla Village under Tarail U.P in Kishoreganj District. (08-09/12-13) (Proposed) (14) Protection of Khepupara Bonder under Kalapara Upazilla in Patuakhali District .(08-09/13-14) (Proposed) (15) Protection of the left bank of Atharobaki River near Kazla village at Rupsha U.Z in Khulna District (09-10/13-14) Proposed (16) Protection of Kalna ferry Ghat at Kashiani U.Z of Gopalganj Dist From the Erosion of Modumoti river. and Madaripur Town & adjacent area of Madaripur Dist. (09-10/ 12-13) (Proposed* ADP Sl.no 98) (17) Bank Revetment Work along the Left Bank of Bangali River at Jorgacha in Upazila Sariakandi, Bogra District. (08-09/15-16) (Proposed)	26300	10000					
					18174	2000	2000	3000	5000	4000	
					583	200	300				
					378	200	100				
					1422	500	500	400			
					1607	500	500	500			
					3746	1500	1000				
					431	80	80	80	80	80	

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Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
				(18) Protection of East and West Bank of Shandha River near Banaripara Upazilla Town under Barisal District. (08-09/13-14) (Proposed)	1933	500	500	500		
				(19) Protection of Bir Shreshtha Capt. M. Zahangir Memorial Museum Complex from the Erosion of Shandhya River-at Babuganj Upazilla in Barisal District. (08-09/12-13) (Proposed)	1046	500	500			
				(20) Protection of Charmonai Darbar Sharif Complex from the erosion of Kirtonkhola River. (08-09/12-13) (Proposed)	892	400	400			
				(21) River Bank Protection at Tamaruddin and Banglabazar of Polder 73/1 (A+B) at Hatiya Upazila under Noakhali .(09-10/15-16) (Proposed)	6211	1000	1000	1000	1000	1000
				(22) Jaflong area protection project from the erosion of Dawki river of upazilla Goainghat, Sylhet District. (07-08/12-13) (Proposed)	966	500	400			
				(23) Protection of Left Bank of Dharla River at Nowbash Chowdhurypara, Kadamtala and Baraibari area under Kurigram Sadar Upazilla in Kurigram District. (08-09/14-15) (Proposed)	2498	500	500	500	500	
				(24) Bank Protective work by C.C Blocks along the left Bank of Chikly River and right Bank of the Jamuneswari River at Taragonj & Badargonj upazilla in Rangpur District. (09-10/15-16) (Propose)	3830	500	500	500	500	500

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Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
				(25) Border Rivers Protection and Development Project, Phase-2. 39 Sub-projects) (08-09/15-16) (Proposed)	43237	5000	5000	5000	5000	5000
				(26) Re-excavation and Revival of Hamkura and Bhadra Rivers.(06-07/11-12) (Proposed)	632	500				
				(27) Kalni-Kushiyara River Management Project. (10-11/15-16) (Proposed)	32178	3000	4000	5000	5000	5000
				(28) Buriganga River Restoration Project. (9-10/14-15) (Proposed)	110000	20000	20000	20000	20000	
11.	MR 007 Ganges Dependent Area Regional Surface Water Distribution Networks. (Follow up programme of MR003 along with LGED) Implementation Period: 8 years. Indicative cost: = Tk. 8911 million (Programme with LGED)	Socio-economic development of Ganges dependent region through utilization of available surface water from Ganges.	Augment utilization of surface water all over the country for efficient water management (conjunctive use of surface and ground water) to ensure water quality with environmental flows in rivers. Conducting research & development for improved regional water balance through IWRM plans & promote regional cooperation on transboundary water issues for efficient water resources management. Rationalize utilization of groundwater.	(29) Gorai River Restoration Project (Phase-II) (09-10/14-15).	119242	25000	20000	20000	20000	

Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
12.	<p align="center">MR 008</p> <p align="center">Northeast & Southeast Regional Surface Water Distribution Networks</p> <p>(Follow up programme of MR003 along with LGED) Implementation Period: 5 years. Indicative cost : = Tk. 2576 million (Programme with LGED)</p>	Socio-economic development of the northeast & southeast region through utilization of available surface water from Meghna River.	<p>Augment utilization of surface water all over the country for efficient water management (conjunctive use of surface and ground water) to ensure water quality with environmental flows in rivers.</p> <p>Conducting research & development for improved regional water balance through IWRM plans & promote regional cooperation on transboundary water issues for efficient water resources management.</p> <p>Rationalize utilization of groundwater.</p>	At preliminary stage: follow-up activity of MR 004						
13.	<p align="center">MR 009</p> <p align="center">North Central & Northwest Regional Surface Water Distribution Networks</p> <p>(Follow up programme of MR003 along with LGED) Implementation Period: 12 years. Indicative cost : = Tk. 12862 million (Programme with LGED)</p>	Socio-economic development of the northwest & southwest region through utilization of available surface from Brahmaputra river.	<p>Augment utilization of surface water all over the country for efficient water management (conjunctive use of surface and ground water) to ensure water quality with environmental flows in rivers.</p> <p>Conducting research & development for improved regional water balance through IWRM plans & promote regional cooperation on transboundary water issues for efficient water resources management.</p> <p>Rationalize utilization of groundwater.</p>	At preliminary stage: follow-up activity of MR 005						

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Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)						
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)	
1	2	3	4	5	6	7	8	9	10	11	
14.	MR 010 Main Rivers Erosion Control at selected Locations. (Linked with MR-011) Implementation Period: 25 years. Indicative cost : = Tk. 21500 million	Disastrous effects of river erosion is mitigated and socio economic development of erosion prone people is ensured.	Manage erosion of major rivers and protect large and small towns, locations, habitats and crop lands.	(30) Jamuna-Meghna River Erosion Mitigation Project. (02-03/11-12) (Ongoing New) (31) Prot. of Baguria & Syedpur of Gaibandha Sadar U.Z & Kanchipara, Balashighat area of Fulchari U.Z of Gaibandha Distict from erosion of the Jamuna River. (05-06/11-12) (Ongoing New) (32) Prot.of Brahmaputra Right Bank at Bairagirhat & Chil-mari in Kurigram district -Phase I . (07-08/11-12) Proposed (33) Protection of left bank of Jamuna river from Bahadurabad Ghat to Futani Bazar, Pingna Bazar area of Sharishabari U.Z & Horindhara to Hargila of Islampur U.Z . In Jamalpur Disrtict. (09-10/15-16) (Proposed) (34) Protection of Chandpur Irrigation Project area (Haimchar) & Bancharampur U.Z from the erossion of the Megna River. (09-10/15-16) (Proposed *Sl.no 105/ Un. Appr) (35) Faridpur Town Protection Project (9-10/15-16) (Proposed*Sl. no 108/ Un Approved) (36) Protection of Faridpur FCD Project (Area-1) at Bakshipur & Shenbag area of Rajbari Dist. from the erosion of Padma River, Protect of Mohajhan bazar from the erosion of Nabaganga River in Narail Dist & Bank Protection of Garai river at Khoksha & Kumar-khali U.Z in Kushtia Dist. (9-10/15-16) (Proposed)	42364	2000					
					5000	500					
					9368	1000					
					37619	2000	3000	3000	5000	5000	
					17086	3000	3000	3000	2000	2000	
					19041	3000	3000	3000	2000	2000	
					10452	1000	1000	1500	2000	2500	

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Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
				(37) Protection of Shaghata bazar & adjachant area of Shaghata U.Z. in Gaibandha District from the erosion of Jamuna River & Protection of Shaber Agla (Near BOP Camp)area from left bank erosion of Brahmahputra River at Datvhanga union of Rawmari U.Z in Kurigram District. (9-10/13-14) (Proposed)	19072	5000	6000	4000		
				(38) Protection of Louhajong Upazilla Complex area under Louhajong in Munshigonj District from the erosion of the river Padma.(08-09/15-16) Proposed	2428	4000	4000	4000	5000	5000
				(39) Protection of Baghra Bazar, Bhagyakul Bazar and Kabutorkhola Village area under Sreepur Upazilla in Munshigonj District from the erosion of the river Padma. (08-09/15-16) Proposed	32698	2000	2000	2000	2000	2000
				(40) Rehabilitation of Chandanbaisha Spur No-1 at BRE Km.129.80 under Sariakandi Upazilla,Bogra District. (07-08/12-13) Proposed	1635	500	500			
				(41) Rehabilitation of Shaharabari Spur No-1 at BRE Km 136. & Baniazan Spur No-2 at BRE Km.137.70 under Dhunat Upazilla, Bogra Dist.(07-08/14-15) (Proposed)	2195	500	500	500	500	
				(42) Protection of Chaohali Upazilla of Sirajganj District from the erosion of Jamuna River. (09-10/15-16) (Proposed)	3740	500	500	500	500	500

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Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
				(43) Bank protection work from the erosion of right bank of the Jamuna river at Bhandarbari and adjacent area under Dhunat upazilla in Bogra district. (09-10/14-15) Proposed	14480	3000	3000	3000	3000	
				(44) Prot.of Chandpur Irrigation Project from the erosion of Meghna River at Ibrahimpur-Sakhua adjacent to Puran Bazar of Chandpur Dististrict. (09-10/15-16) (Proposed)	16511	3000	3000	3000	3000	3000
				(45) Rehabilitation of Sirajgonj Hard Point at Sirajgonj District. (10-11/12-13) Proposed*	70000	3000	3000			
15	MR 011 River Dredging for navigation (Along with BIWTA) Implementation Period: 10 years. Indicative cost : = Tk. 1542 million	Bangladesh's main & regional rivers are developed comprehensively for sustainable and multipurpose use(along with cost effective maintenance of navigation route)	Support revival & maintenance of safe navigation routs for achieving economy of transportation	(46) Pilot Capital dredging (Jamuna) (10-11/14-15) Proposed	160000	20000	20000	20000	20000	
				(47) Capital Dredging of Major rivers in Bangladesh. (12-13/23-24) Proposed	3100000		200000	200000	200000	200000
				(48) Purchase of 13 nos New dredger for capital dredging. (GOB). (11-12/12-13) Proposed	120000	20000				
				(49) Re-Excavation of Noroshunda River In Kishoreganj Dist. (08-09/13-14) Proposed	8685	2000	2000	3000		
				(50) Improvement of Navigation and Environment of Karotoa River in Bogra Town. (08-09/15-16) (Proposed)	13680	2500	2500	2500	2000	1680

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					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
D. 16	<p align="center">Towns & Rural Areas Cluster</p> <p align="center">TR 007</p> <p align="center">Large and Small Towns Flood Protection</p> <p>Implementation Period: 25 years. Indicative cost: =Tk. 14460 million</p>	<p>NWPo directive (on protecting other critical areas such as district and upzilla towns) will be achieved by implementing this programme.</p>	<p>Manage erosion of major river and protect large and small towns, locations, habitats & crop lands.</p>	(51) Secondary Towns Integrated Flood Prot. Project Phase-II (ADB aided). (04-05/14-15) (Ongoing New)	65396	10000	10000	6000	4000	
				(52) Charfesson & Monpura Town Protection Project. (08-09/15-16) Proposed	7505	1000	2000	2000	1000	1000
				(53) Nawgaon T. Protection Project (Proposed * Sl.72/Un Appr)	7465	1000	1000	1000	1500	1500
				(54) Rajbari Town Protection Project. (9-10/12-13) (Proposed)	4776	2000	500			
				(55) Bhola District Town Protection Project (Phase-III) (09-10/15-16) Proposed	9286	2000	2000	2000	2000	1000
				(56) Khaserhat Bondar Protection Project (Phase-II (10-11/15-16) (Proposed)	989	150	150	150	150	150
E. 17	<p align="center">Major Cities Cluster</p> <p align="center">MC 010</p> <p align="center">Dhaka Flood Protection</p> <p>Implementation Period: 23 years. Indicative cost: =Tk. 5423 million.</p>	<p>Greater Dhaka is protected from 1:100 year flood.</p>	<p>Protect flood, improve drainage and reduce vulnerability to water related disasters including sea erosion and cyclonic surges. Manage erosion of major rivers and protect large and small towns, localities, habitations & crop lands.</p>	(57) Dhaka Integrated Flood Control Embkt. cum Eastern Bypass Road multi-purpose Project(9-10/15-16) Proposed	20166 9	4000	4000	4000	4000	4000
				(58) Goran-Chatbari additional Pump Station Installation Project. (08-09/13-14) (Proposed)	8398	3000	2200	2098		
				(59) Construction of Embankment and other ancillary works in Tannery Industrial area of Savar upazilla in Dhaka district. (07-08/12-13) (Ongoing New)	4990	1000	1000			

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Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
18	MC 012 Chittagong Flood Protection (Along with CWASA & CCC) Implementation Period: 4 years. Indicative cost : = Tk. 877 million	Greater Chittagong is protected from 1:100 year flood.	Protect flood, improve drainage and reduce vulnerability to water related disasters including sea erosion and cyclonic surges	At preliminary stage: project will be developed in consultation with CWASA & CCC						
19	MC 014 Khulna Flood Protection (Along with KCC) Implementation Period: 10 years. Indicative cost : = Tk. 444 million	Greater Khulna is protected from 1:100 year flood.	Protect flood, improve drainage and reduce vulnerability to water related disasters including sea erosion and cyclonic surges	At preliminary stage: project will be developed in consultation with KCC						
20	MC 015 Khulna Strom water Drainage (Along with KCC) Implementation Period: 22 years. Indicative cost : = Tk. 3724 million	Khulna city is free from Strom water drainage congestion.	Protect flood, improve drainage and reduce vulnerability to water related disasters including sea erosion and cyclonic surges	At preliminary stage: project will be developed in consultation with KCC						
21	MC 016 Rajshahi Flood Protection (Along with RCC) Implementation Period: 9 years. Indicative cost : = Tk. 400 million	Rajshahi metropolitan area is made flood free and protected from erosion of the Padma.	Protect flood, improve drainage and reduce vulnerability to water related disasters including sea erosion and cyclonic surges	At preliminary stage: project will be developed in consultation with RCC						

Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
22	MC 017 Rajshahi Strom water Drainage (Along with RCC) Implementation Period: 22 years. Indicative cost : = Tk. 5224 million	Rajshahi city is free from Strom water drainage congestion.	Protect flood, improve drainage and reduce vulnerability to water related disasters including sea erosion and cyclonic surges	At preliminary stage: project will be developed in consultation with RCC						
F. 23	Agriculture & Water Management Cluster AW 002 Improvement Performance of Existing Public Surface Water (Along with BMDA, CBOs, LGIs, NGOs & Private Sector) Implementation Period: 20 years. Indicative cost : = Tk. 3275 million	Sustainable O&M of existing public sector irrigation projects by self generated service charges.	Augment utilization of surface water all over the country for efficient water management (conjunctive use of surface and ground water) to ensure water quality with environmental flows in rivers	(60) Command Area Development of Barishal Irri. Project. (09-10/13-14) Proposed. (61) Rehabilitation of the Ganges-Kobadak Irrigation Project.(09-10/14-15) Proposed . (62) Enhancing the performance of Major Water Management Systems Project .(Monu River Irri. Project & Muhuri Irri. Project). (2010-11/16-17) (Proposed) (63) Rehabilitation & Slope Protection Work of Teesta Main Canal & related structure of Teesta Barrage Project. (Phase-I) under SFD Assistance. (10-11/16-17) (Proposed)	5490	1400	1000	1000		
					36681	10000	10000	10000	1681	
					27600	3000	3000	3000	3000	3000
					1465	366	366	366	366	

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Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
				(73) Kurigram Irrigation Project (South Unit) (06-07/14-15) (Ongoing New)	20780	4000	5000	5000	2000	
				(74) Construction of rubber dam over Mohananda river in Chapai nawabgonj Dist.(11-12/12-13) Proposed	500	200	300			
				(75) Dhepa-Punorbhava Water Management Project at Biral U.Z in Dinajpur Dist. 06-07/11-12 ngoing New	2157	500				
				(76) Flood Control and Drainage on both bank of Upper Surma-Kushiyara river. (01-02/12-13)(Ongoing New)	13260	3000	3000			
				(77) New Dakatia-Old Dakatia-Little Feni River Basin Development Project (Ongoing New)	11525	2500				
				(78) Construction of Embankment from Zianagar to Hularhat in Pirojpur district.(05-06/11-12) (Ongoing New)	3954	500				
				(79) Removal of Drainage Congestion in Bhabadah & adjacent area of Jessore Dist (Phase-I) (Ongoing New)	7421	1500				
				(80) Flood control Emb. & river bank prot. at the left bank of Jamuna river and right bank of Dhalesharee river at Nagarpur & chawhali. (11-12/12-13) Ongoing New	3740	2740	1000			
				(81) Sureswar FCDI Project.(09-10/15-16) Proposed	15000	2000	2000	2000	2000	2000
				(82) FCDI project at the left bank of Dhepa river Proposed	2413	800	800	413		

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Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
				(83) FCDI Project at the Right Bank of Surma River (9-10/13-14) Proposed	4765	2000	1500	665		
				(84) Flood control Emb. at the Left bank of Jamuna-Padma river at Daulatpur, Shibalai, Ghior & Harirampur U.Z of Manikganj Dist.(9-10/15-16) Proposed	21690	2500	2500	2500	2500	2500
				(85) Tarail-Pachuria FCDI Project (2nd Phase) (09-10/14-15) Proposed.	28858	6000	6000	6000	4858	
				(86) Karotaya Right Bank Integrated FCDI Project.(09-10/14-15) Proposed.	2411	500	500	500	500	
				(87) Comprehensive Irrigation, Drainage and Flood Control project under BWDB. (09-10/14-15) Proposed.	37852	10000	12000	12000	3852	
				(88) Drainage Improvement Project in Bagardona Catchment area12-13/13-14 Proposed	2500		1000	1500		
				(89) Nandakuza River Development Project in Natore District. (06-07/13-14) Proposed *out side ADP	1114		500	614		
				(90) Charigram Haor (Bijoy Badh) Project at Mitamoin and Itna U.Z in Kishoreganj District. (08-09/13-14) Proposed	1641	500	500	500		
				(91) Feasibility study and Survey of New water management projects under BWDB. (09-10/11-12) Proposed	1242	400				

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					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
25	AW 007 Rationalization of Existing FCD infrastructure (Along with LGED) Implementation Period: 20 years. Indicative cost : = Tk. 21472 million	Follow up programme of ID 003, EE 002, EE 006, AW 006.	Protect flood, improve drainage and reduce vulnerability to water related disasters including sea erosion and cyclonic surges	(92) Emergency Disaster Damage Rehabilitation (Sector) project-2007 (Part-E Water Resoures) (07-08/11-12) (Ongoing Reh.)	33074	5000				
				(93) Emergency Rehabilitation works of the projects (damage works) by Cyclone (SIDR) 2007. (07-08/13-14)(Ongoing Reh)	18065	5000	5000	2000		
				(94) Rehabilitation & strengthening of both banks of Gumti river. (9-10/15-16) Proposed	12009	2000	2000	2000	2000	2000
				(95) Re-construction of Brahmaputra Right Embankment (BRE) along the new Alignment in Upazilla Shahjadpur of Sirajganj district (Proposed)	5856	3000	3000	3000	3000	3000
				(96) Excavation of a Pilot Channel at the Downstream of Feni Regulator in Sonagazi Upazilla of Feni District. (Proposed .)	4934	1500	1500	1000		
				(97) Rehabilitation of Bhutiar Beel and Barnal Salimpur Kolabashukhali F.C.D. Project in Khulna District. (09-10/15-16) Proposed.	7509	1000	1000	1000	1000	1000
				(98) Resectioning of Embankments and Excavation of Rivers/Khals. (Bunch Project, 4th Phase.) (08-09/15-16) (Proposed)	54795	5000	5000	5000	5000	5000
				(99) Haor Rehabilitation & dev. Project. (37 sub-projects) (09-10/14-15) (Proposed)	81239	15000	25000	15000	15000	

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					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
				(100) Integrated Water Resources Management of Chalan Beel Area including Beel Halmi Development Project. (08-09/15-16) Proposed	33632	5000	5000	5000	5000	5000
				(101) Hail Haor Rehabilitation and Development Project. 09-10/11-12) (Proposed Reh.)	424	400				
				(102) Jagannath -Dirai-Shalna Water Management Project (09-10/13-14) Proposed	10810	500	500	500		
				(103) Rehabilitation of most vulnerable damaged Polders in Coastal area. (03-04/11-12) (Proposed)	7127	1000				
				(104) Rehabilitation of 123 nos Polder in Coastal areas. (09-10/15-16) (Proposed)	2170	2000	2000	2000	2000	2000
26	AW 008 Land Reclamation, Coastal Protection & Afforestation (Along with DoF) Implementation Period: 24 years. Indicative cost : = Tk. 5867 million Estimated Indicative cost = Tk. 10000 million.	About 1550 square kilometer land reclaimed from the Bay of Bengal and Coastal land(entire 710 kilometer) is protected from water related hazards. To reclaim about 65,000 ha of land from sea.	Protect Haor/Baor/ Wetland/ Sundarbans/saline water intrusion and promote accretion of land from the sea	(105) Protection of Patarhat Bandar and construction of cross bundh at Ulania in Mehendiganj upazilla of Barisal Dist. (08-09/13-14) (Proposed)	1955	500	800	600		
				(106) Char Development and Settlement Project (CDSP) Ph- III . (5-06/15-16) (Ongoing New)	9099	1000	1000	1000	1000	1000
				(107) Hatiya-Nijhum Dwip Cross Dam Project at Hatiya Upazilla Under Noakhali District. (10-11/15-16) (Proposed)	6928	1000	1000	1000	1000	1000
				(108) Cross dam construction project for land reclamation. (11-12/16-17) Proposed		200	500	500		
				(109) Char Development and Settlement Project (CDSP) Phase-IV (11-12/16-17) Proposed	13700	2000	2000	2000	2000	2000

Five Year Strategic Plan of BWDB

Annex-C

Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
				(110) Noakhali -Urir Char-Sandwip Cross dam Project. (12-13/13-14) Proposed.	3500		1500	2000		
				(111) Char Manikha-Char Islam Cross dam Project. (11-12/12-13) (Proposed)	1000	500	500			
				(112) Char Montaj-Char Banani Cross dam Project. (11-12/12-13) (Proposed)	1500	700	800			
				(113) Char Tapash-Char Montaj Cross dam Project. (13-14/14-15) (Proposed)	3500			1500	2000	
				(114) Eastuary Development Programme. (2002-2003/2010-11) Proposed.	5768	500				
				(115) Char Kukri Mukri FCDI and Saline water intrusion Project. (06-07/13-14) (Proposed)	1506	500	500	500		
				(116) Char Zahiruddin FCD Project at Tozumuddin U.Z in Bhola Zilla.(09-10/13-14) (Proposed).	2522	500	500	500		
G. 27	<p align="center">Environment & Aquatic Resources Cluster EA 005</p> <p>National Fish Pass Programme (Along with DoFi.) Implementation Period: 15 years. Indicative cost: = Tk.3000 million</p>	Structure of the BWDB FCD/FCDI schemes are provided with fish friendly measures so that connectivity between protected area and open water courses is established for sustainable flood plain fish catches.	Enhance access of the poor to water and common property resources	At preliminary stage: project will be developed in consultation with DoFi						

Five Year Strategic Plan of BWDB

Annex-C

Sl. no	NWMP Programme	Objective	PRSP & other Strategic Goals	Project	Project wise Indicative Cost (Lakh Tk. At 2009-10 Prices)					
					Total	(2011-2012)	(2012-2013)	(2013-2014)	(2014-2015)	(2015-2016)
1	2	3	4	5	6	7	8	9	10	11
28	<p align="center">EA 006</p> <p>Unspecified Regional Programme (Climate Change) (Supporting with lead agency WARPO) Implementation Period: 15 years. Indicative cost: = Tk.600 million</p>	<p>The issue/issues that may come up in future (climate change for example) will be addressed.</p> <p>Improve water management and disaster management</p>		<p>(117) Climate Change Pilot Project. (10-11/13-14) (Proposed)</p> <p>(118) Study and Investigation of Climate Change Impact on ground water resources and management of saline water - groundwater interference in the coastal zone of Bangladesh (2009-10/10-11)* Proposed</p>	10000	2500	2500	2500		
29	<p align="center">EA 009</p> <p>Improve Water Management & Salinity Control in the Sundarbans. (Supporting with lead agency DoFo) Implementation Period: years. Indicative cost: = Tk. million</p>	<p>Follow up programme of MR 003 & MR 007. The intricate ecological balance of the Sundarbans will be explored so that this “World Heritage” is preserved in a sustainable form.</p>	<p>Protect Haor/ Baor/ Wetland/ Sundarbans/ saline water intrusion and promote accretion of land from the sea.</p>	<p>At preliminary stage: project will be developed in consultation with DoFo.</p>						

* Projects included twice/thrice due to similarity of goals but cost included once.

Action Plan of the Five Year Strategic Plan of BWDB

Sl No	Issues	Objectives	Actions	Responsibility	Base Condition	Time Frame		Achievement	Expected Outcome	Remarks
						Commencement	Completion			
1	2	3	4	5	6	7	8	9	10	11
1	Sub-Group 1 : Five Year Strategic Plan of BWDB									
	Non-structural Reform: Guiding Documents	To guide future activities of BWDB in all sphere	Updating of the Strategic Five-Year Plan of BWDB (2009-10 to 2013-14)	Sub-group-1, BWDB Top Management, Governing Council, MoWR	The Strategic Five-Year Plan of BWDB (2004-05 to 2008-09) was prepared in 2005. This needs upgrading.	-	Nov-2009 (approval of DG, BWDB)	Nearing completion	BWDB will be able to perform its mandated duties as per demand of the time.	The document will contain inputs from all the sub-groups of the Twinning Arrangement

Action Plan on Five Year Strategic Plan of BWDB

Sl No	Issues	Objectives	Actions	Responsibility	Base Condition	Time Frame		Achievement	Expected Outcome	Remarks
						Commencement	Completion			
1	2	3	4	5	6	7	8	9	10	11
2	Sub-group 2 : Decision Making Process									
2.1	Modernization of File Processing and Introducing Electronic Noting System.	To follow easiest way for preparation/presentation of file for making decision quickly	Introducing of a Special software (e.g. TIM) for electronic noting / filing system. (instead of manual sheet for approving a decision).	Sub-Group2 & Chief T&SD	Process is not yet started.	December 2009.	June 2012	Nil	The presentation in note sheet will be easier and decision within short time will be possible.	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Component 3A of WMIP)
2.2	Land Acquisition (LA) of ADP Projects	Timely and properly implementation of project.	Preparation of a Guideline for LA process.	Sub-Group2 & Chief T&SD	Process is not yet started.	December 2009.	June 2012.	Nil	Land acquisition problem minimized. Land acquisition to be completed before project commencement.	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Component 3A of WMIP)
2.3	(i) Quick preparation & approval of TER/PER as envisaged in PPAP (ii) Approval of PP	Compliance of PPAP.	Preparation of a manual on PPAP as per PPR 2008	Sub-Group 2, TEC/PEC & concern authority.	Continuous Process	November 2009.	March 2010	Nil	It will help implementation of project activities within the schedule time and financial limit.	Sub-Group 2 will prepare the manual
2.4	Audit Manual	Better management of BWDB Audit System	Preparation of a Manual on Audit System	Sub-Group 2 & Chief T&SD	Process is not yet started.	January 2010.	December 2010	Nil		The sub-group agrees that this job will be done by WMIP Consultants (Component 3A of WMIP)

Action Plan of the Five Year Strategic Plan of BWDB

Annex-D

Sl No	Issues	Objectives	Actions	Responsibility	Base Condition	Time Frame		Achievement	Expected Outcome	Remarks
						Commencement	Completion			
1	2	3	4	5	6	7	8	9	10	11
3	Sub-Group 3 : Human Resources Development of BWDB									
A	<u>Non-structural Reform:</u> Guiding Documents	To improve the capacity of employees of BWDB	(i) Developing HRD Policy for BWDB.	Sub-group-3 (HRD)	Nil	January 2010	December 2010	Not yet started	Proper utilization of the skilled man-power potential of BWDB	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Comp 3A of WMIP)
		To enhance job related capacity of each of the staffs of BWDB	(ii) Developing Training Policy for BWDB.	Sub-group-3 (HRD)	Nil	January 2010	December 2010	Not yet started	Proper utilization of the man-power potential of BWDB	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Comp 3A of WMIP)
		To enhance job related capacity of each of the staffs of BWDB	(iii) Developing Training Needs Assessment	Sub-group-3 (HRD)	Nil	January 2010	December 2010	Not yet started	Proper utilization of the man-power potential of BWDB	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Comp 3A of WMIP)
		To enhance job related capacity of each of the staffs of BWDB	(iv) Developing Training Master Plan	Sub-group-3 (HRD)	Nil	January 2010	December 2010	Not yet started	Proper utilization of the man-power potential of BWDB	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Comp 3A of WMIP)

Action Plan of the Five Year Strategic Plan of BWDB

Annex-D

SI No	Issues	Objectives	Actions	Responsibility	Base Condition	Time Frame		Achievement	Expected Outcome	Remarks
						Commencement	Completion			
1	2	3	4	5	6	7	8	9	10	11
		For discharging smoothly the day-to-day functions of each of BWDB Staff.	(v) Function & Job Description of BWDB	Sub-group-3 (HRD)	At present BWDB possesses "Function & Job Description of BWDB-2001".	January 2010	December 2010	Not yet started	Each of the staff of BWDB understands his/her functions.	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Comp 3A of WMIP)
		To decentralize decision making power at different level	(vi) Delegation of Administrative & Financial Power of BWDB.	Sub-group-3 (HRD)	At present BWDB possesses "Delegation of Adm & Financial Power of BWDB-2008".	September 2010	December 2010	Not yet started	Steps of decision making process is shortened (quick decision making process)	Already done in Sept-08. Upgrading is needed. This will be done by a high power team of BWDB.
		For discharging smoothly the day-to-day functions of each of BWDB Staff.	(vii) Internal Work Procedures.	Sub-group-3 (HRD)	At present BWDB possesses "Internal Work Procedures-2003".	January 2010	December 2010	Not yet started	Streamlining the working environment of different offices of BWDB	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Comp 3A of WMIP)
B	<u>Structural Reform:</u> Internal Re-structuring	To enhance job related capacity of each of the staffs of BWDB	(i) Implementation of Training Master Plan	Sub-group-3 (HRD)	Nil	January 2010	June 2014	Not yet started	Proper utilization of the man-power potential of BWDB	The sub-group agrees that implementation of training master plan would be completed under WMIP (Comp 3A of WMIP)

Action Plan of the Five Year Strategic Plan of BWDB

Annex-D

Sl No	Issues	Objectives	Actions	Responsibility	Base Condition	Time Frame		Achievement	Expected Outcome	Remarks
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1	2	3	4	5	6	7	8	9	10	11
		* Proper utilization of the existing man-power * Recruitment of new man-power for proper skill-mix * Filling up vacant posts * Shifting the organization towards service oriented mode	(ii) Defining the need-based set-up for BWDB (iii) Recruitment of AE against vacant post	Sub group-3 (HRD), BWDB/G.C./MoWR/MoE/MoF Sub-group 3 & Chief T&SD	A committee formed by BWDB has defined a set-up (July 2009)	December 2008 November 2009	December 2009 (BWDB) MoWR (MoE) January 2010	Almost completed Advertisement on 9 September 2009	With the need-based set-up, the organization would be able to perform its mandated duties properly and efficiently	Twinning Mission Members (from the Netherlands) expressed reservation on the Report of the earlier Committee (16, Nov. 2008). The set-up prepared by the new committee (July 2009) was presented to G.C. on 6 August and 8 October 2009.
	<u>Others :</u> Training: Within Bangladesh	To increase capacity of the individual so that he / she can discharge his/her duties with full potential.	(iv) Improvement of the training calendar of Kaptai/ Bhagyakul/ Baradi (with especial emphasis on the change process of BWDB)	Sub-group-3 (HRD), Chief T&SD & Kaptai Engg. Academy/ Bhagyakul Train. Inst./ Baradi Train Cent.	It is a continuous annual event	June 2009	July 2009	Annual programme of 2009-10 formulated	Individual enhanced capacity will contribute to the overall efficiency of BWDB.	Continuous process Sub-group-3 will help Chief, T&SD, and Kaptai Engineering. Academy/ Bhagyakul Training Institute/ Baradi Training Center in this respect

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1	2	3	4	5	6	7	8	9	10	11
	Others: Training: Outside Bangladesh	To encourage BWDB personals on acquiring up-to-date knowledge	(v) Helping Chief, T&SD in developing training plan under different projects in the fields of : * Higher Study * Short Courses * Attending Workshop/ Seminar/ Symposium * Special Training (project based)	Sub-group-3 (HRD)/ MoWR / BWDB/ Chief, T& SD	It is a continuous process	As and when required	As and when required	Continuous process	Individual enhanced capacity will contribute to the overall efficiency of BWDB.	The activities will be performed by Chief, T&SD with the help of Sub-group-3.
	Others: Training Logistics	To upgrade/enhance internal training facilities of BWDB	(vi) Upgrading of BWDB Training Institutions (Kaptai/ Bhagyakul/ Baradi) including improving the service conditions of staff working there	Sub-group-3 (HRD)/ MoWR / BWDB/ Chief, T& SD	Existing training centres of BWDB (Kaptai/ Bhagyakul/ Baradi) need upgrading	January 2010	Jun 2014	Not yet started	Better environment for conducting in house training programmes	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Comp 3A of WMIP)
	Others: Documentation Centre	To preserve and maintain all the documents (including papers relating to ownership of BWDB on properties)	(vii) Establishment of "Documentation Centre/Library" in all the Offices of BWDB (i.e. Office of SDE/ EE/ SE/Director/ CE and equivalent)	Sub-group-3(HRD) All the Offices of BWDB, Chief, T & SD (as monitor of the step)	Nearly non-existent	January 2010	December 2010	Not yet initiated	This step will enrich the knowledge base of BWDB staff and they would be able to render better service to the Board.	BWDB will implement the idea.

Action Plan of the Five Year Strategic Plan of BWDB

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1	2	3	4	5	6	7	8	9	10	11
	Others Accommodation of BWDB at HQ (Dhaka)	To enhance capacity of BWDB by accommodating all the offices of BWDB in a single campus	(viii) Construction of Pani Bhaban	BWDB/ MoWR	Nil			Not yet started	Accommodation of different offices in a single campus would accelerate decision making process	The Proposal of Pani Bhaban is ready. Waiting for financing
4	Sub-Group 4 : Performance Evaluation									
4.1	Board's management performance evaluation	BWDB has been entrusted to ensure food security, poverty alleviation, employment generation, decent standard of living etc.	1. Project Planning: Preparation of DPP, Procurement of Consultant, Action on approval of DPP.	Chief Planning	In progress	Continuous		Progress is satisfactory. A good number of projects are being approved in short spell of time.	12 Nos. of RDPP approved in 2008-09.	20 nos. DPP have been prepared & lying at different levels during 2009-10.
			2. Man power planning: This includes Recruitment, Transfer-Posting, Career Planning & Training.	Chief T&SD, BWDB management	In progress	June 2009	December 2009	Need based set up is prepared. A large number of employees are promoted. Recruitment is under process.	Need based set up approved. Promotion & recruitment of officers & employees at different cadres ensured.	
			3. Financial Management: Budgeting, Procurement, Fund placement, Utilization of Fund & Auditing.	Comptroller of Finance & Accounts	In progress	Continuous			System management unit established.	

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Sl No	Issues	Objectives	Actions	Responsibility	Base Condition	Time Frame		Achievement	Expected Outcome	Remarks
						Commencement	Completion			
1	2	3	4	5	6	7	8	9	10	11
			4. Administration: Establishment of Rules of Law (Service Rule & Codal Rule).	DG, BWDB & ADG's BWDB	1982 Service Rule exists. New Service Rule is proposed.	May'09 (New one)	Dec'09	Proposed New Service Rule is under review in MoWR.	New Service Rule of BWDB approved.	
4.2	Project performance evaluation	1. For ongoing project: To monitor the quality, quantity, progress in order to implement the project in time for obtaining the desired goals.	I. Verify the quality. II. Verify the quantity. III. Verify the progress.	Zonal Office, PD's Office. Task force & PMT constituted by the Board.	Regularly monitored by the concerned officials.	During work in progress	30th June each year.	Appreciable progress	Implementation work as per design & specification.	
		2. For completed project: To ensure that the project objectives are fully met.	2. Physical Achievement of BWDB Projects.	XENs, SEs & CEs in field & Chief Monitoring.	709 projects completed.	1959	June, 2008	12 new projects completed.	721 projects completed in aggregate.	
			3. Review the cost overrun, time over run etc. To check whether the BCR, IRR achieved as contemplated.	Directorate of Monitoring & Evaluation.	-	July, 2009	June, 2010	-	PCRs for good number of projects will be reviewed	14 years (1995-96 to 2008-09) average performance of Physical work is 94% (Annex-II).
4.3	Individual performance evaluation	1. To improve the individual skill and managerial capacity.	1. Launching appropriate training program.	Sub-group 4 and Chief T&SD	1. Annually prepared for both local and foreign training.	July each year.	June, the following year.	Full achievement of programme of 2008-09.	Full achievement of programme of 2008-09.	Sub-Group 4 will develop the Improved Training Performance Evaluation Sheet

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Sl No	Issues	Objectives	Actions	Responsibility	Base Condition	Time Frame		Achievement	Expected Outcome	Remarks
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1	2	3	4	5	6	7	8	9	10	11
		2. To develop career planning of an employee.	2. Performance of the employee during training.	Sub-group 4 and Chief T&SD	2. The yard stick is yet to prepare.	-	-	-	The chief T&SD should immediately introduce the evaluation system in Bhagyakul & Baradi	Sub-Group 4 will develop the Improved Annual Performance Sheet
			3. Prepare framework for appropriate evaluation criterion.	Sub-group 4 and Chief T&SD	3. A specimen sample of framework is prepared.		September 2009		The chief T&SD shall introduce this frame work immediately.	Sub-Group 4 will develop the Improved Performance Sheet on Leadership & Managerial Capability
			4. Evaluate the leadership and managerial capability.	Sub-group 4 and Chief T&SD	4. As above.		September 2009		This item is included in Sl. 3	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Comp 3A of WMIP)
			5. Amend the APR document as per present & future need.	Sub-group 4 and Chief T&SD						Sub Group 4 will develop a framework on it.
			6. Introduction of reward for good performance & punishment for the reverse.	Sub-group 4 and BWDB Management	Agreed on Principle in the Board.	June 2009	October 2009	Proposed SR is under review in MoWR.	Ensure reward & punishment on employees as applicable.	

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1	2	3	4	5	6	7	8	9	10	11
5	Sub-Group 5 : O&M - MIS									
5.1	Developing a Central MIS for BWDB Projects	Efficient management & monitoring of BWDB activities	(i) Establishment of ICT Cell with skill man-power, equipments, accommodation & budget	Sub-Group 5 & BWDB management	Process initiated	Already started	March 2010	ICT Cell is working on limited scale.	Better implementation, monitoring, evaluation and management.	Sub-Group 5 will oversee the progress of the process. TM may suggest possible help under Twinning Arrangement
			(ii) Phase: 1 1. ICT cell will develop an internet for use of MoWR and BWDB.	Proposed BWDB ICT Cell & Chief Monitoring, BWDB management	Existing on limited scale	Already started	December 2014	Internet between MoWR & BWDB established on limited scale		
			(ii) Phase : 1 2. MIS for ongoing projects.		Nil	Process started	2014	Nil		
			(iii) Phase: 2 Appoint MIS consultant for BWDB to develop a web portal like www. Rijkswaterstaat.nl		Nil	Not yet started	2014	Nil		
			(iv) Phase: 3 1. GPS & GIS based database of completed and ongoing projects.		Nil	Not yet started	2014	Nil		
			(iv) Phase: 3 2. Inventory of completed projects		On going	Process started	2014	Nil		

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1	2	3	4	5	6	7	8	9	10	11
			(iv) Phase: 3 3. Upgrade existing internet bandwidth of BWDB network from 256 kbps to 5mbps.	Chief Monitoring and BWDB management	Existing one will be up-graded	July 2009	December 2010	Progressing	Better implementation, monitoring, evaluation and management.	A major breakthrough made in collaboration with Grameen Phone through CPTU
5.2	Modern ICT for communication between HQ and zones.	Capacity building of BWDB.	Use of Internet at all level of BWDB.	Chief Monitoring, Zonal CE's & BWDB Management	Existing on limited scale	December 08	December 2010	Use of internet on limited scale	Better connectivity among offices	Sub-Group 5 will oversee the progress of the process

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Annex-D

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						Commencement	Completion			
1	2	3	4	5	6	7	8	9	10	11
6	Sub-Group 6 : River Management									
6.1	Flow/Perennial flow management of the major rivers.	To make water available to sustain lives and living beings and to make environment habitable.	<ul style="list-style-type: none"> - Due sharing of water of all rivers, where basins are trans-boundary, should be ensured. - Identification of silted up stretches of rivers. - Dry season augmentation of river flow. - Procurement of consultant for detailed study. - Capital dredging /Sustainable dredging (short, medium & long term program.) 	<p>MoWR, JRC, ADG (Planning)</p> <p>C.E., Hydrology,</p> <p>Chief Planning,</p> <p>Chief Planning,</p> <p>Chief Planning</p>	On going	Partly in action	Continual process	<ul style="list-style-type: none"> - Ganges river water sharing treaty has been made. Dialogue on Teesta and other trans-boundary rivers is going on. --- - DPP for Restoration of Buriganga river will be re-submitted to MoWR soon. - DPP for Restoration Gorai river (2nd Phase) has been submitted to Planning Commission. - Feasibility study & detailed design of Ganges Barrage Project has already been going on. - DPP (Pilot / Capital dredging of river system in Bangladesh phase-1) is under preparation. 	<ul style="list-style-type: none"> - Indicative plan addressing flow management & ensure dry season flow by March 2010.- Draught, Salinity control & Environment protection. - Erosion & flood control 	Where river basins are trans-boundary needs water sharing treaty (for that regular and structured consultation, coordination & cooperation among all the countries sharing the river basins is a crying need).

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1	2	3	4	5	6	7	8	9	10	11
6.2	Flood Management	Safety of people, property and environment	Non- structural measures; - Strengthening hydro-meteorological data collection system. - Improve Flood Forecasting & Early warning system. Structural measures (Embank, struc etc)	C.E (Hydrology). Executive Engineer, FFWC BWDB Management	Ongoing	Partly in action	Continual process	- Developed & practiced 24, 48 & 72 hrs. early Flood Forecasting. - Extended lead time up to 7 days also under trial. - A DPP for strengthening data collection system has been finalized for financing form WB. 10,106 km embk completed so far.	- Flood Proofing (in terms of controlled flooding) - Increase accuracy and timelines of input data for forecasting & dissemination of flood warnings	Improve flood forecasts to meet demands of end users. Increase accuracy and timeliness of input data for forecasting by organizational reform.
6.3	Erosion Management	To fix the national priority for future action plan for erosion control by sustainable dredging and river training works	Identification of the erosion prone banks. River bank protection work. Continuous monitoring and O&M of the existing RBP works.	CE (Hyd.) CE , Design, Zonal CE PD, ECRRP ADG, Zonal CE, SE, Xen Zonal CE, SE, EE, CE Design	Ongoing Ongoing Ongoing	Partly in action 2009-2010 Partly in action	Continual process 2011-2012 Continual process	-Identification of erosion prone bank in the river Jamuna has been done in cooperation with CEGIS - Short listing for selection of consultant completed for feasibility study on RBIP under ECRRP. - Piece-meal river course stabilization by protective works has been done in the river Jamuna, Padma, Meghna etc.	- Protection of lives, property & environment. - Ensure the sustainability of the projects	Proforma for Study Proposal will be prepared soon
6.4	Institutional Development	To create an integrated approach for irrigation, flood and erosion control, navigation, environment protection etc.	Establishment of River Management Directorate.	BWDB, MoWR	Implementation stage	June 2009	July 2010	On going	Proper planning, monitoring & evaluation of the river basin management	River Management Directorate has been proposed in the Need Based Setup

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1	2	3	4	5	6	7	8	9	10	11
6.5	Data base inventory and Mapping (river & project-wise details information).	Rehabilitation / New Projects formulation and Project management by using up to date database.	Data collection and archiving.	CE (Hydrology)	Ongoing	Partly in action	2011-2012	Partial data-base for completed FCDI project, Rainfall data, Water level data, Discharge of the major rivers & river bank stabilization has already been established.	Quality and unified data will be available for rehabilitation and inception of new projects.	A PDPP for strengthening (modernization) data collection system has been finalized for financing from the World Bank
7	Sub-Group 7: Coastal Zone Management									
7.1	Potential of the Coast & Estuary of the Bay of Bengal (BoB)	Identification of vulnerability and opportunity of BoB & Coastal Zone	<ul style="list-style-type: none"> • Compilation & collection of hydro-morphological, socio-economic & environmental data. • Data archiving. • Use of Bay of Bengal (BoB) mathematical model. • Linkage with the EDP & ICRD data base. 	BWDB (CZM Cell under sub-group 7)	Data available on ; CZ delineation consisting 19 districts, coast line of 710 km, 125 nos. of existing coastal plodders, 19 nos. identified X-dam. BoB Model,	January 2009	December 2011	Data collection ongoing, a preliminary coastal map prepared based on latest satellite imagery.	An indicative plan will be prepared by March 2010	<p>Data available in BWDB, WARPO, IWM, CEGIS will be utilized.</p> <p>Existing institutions; CZM Cell, PMU-ESPP.</p> <p>Proposed set-up; CZM directorate which will be converted to Coastal Zone Management Institution (CZMI) in the long run.</p>

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7.2	Mathematical Modelling	Identify expected future scenario of coastal zone and BoB	<ul style="list-style-type: none"> Updating & improvement of hydrodynamic model of BoB. Updating & improvement of morphological model. 	CZM Cell under the Sub-Gr7, CEGIS &IWM.	BoB Model, Salinity Model & Wave Model exists. Hydro-morphological data base exists.	January 2009	December 2011	Specialists from IWM & CEGIS are included & working in CZM Cell. Updating of BoB model is ongoing.	Enhance capacity of BWDB professionals & improvement of decision support system (DSS) for CZM.	CZM Cell housed in CDSP
7.3	Platform including partners (home & abroad) and capacity building	Enhance capacity building of BWDB professionals in the field of CZM	Capacity building of BWDB professionals on existing numerical models through training & knowledge sharing.	CZM Cell under the Sub-Gr7, WARPO, CEGIS &IWM.	Already established Cell will work on formation of platform.	CZM Cell formed in November 2009	December 2011	A draft training proposal proposed.	Enhance capacity of BWDB professionals towards establishment of CZMI	Sub Group 7 will oversee the progress on this issue.
7.4	Climate Change	Impact assessment and identification of adoption measures for CZM of BoB	<ul style="list-style-type: none"> Preliminary assessment of Sea Level Rise (SLR) in the Coast & Estuary of the BoB. Assessment of drainage congestion, salinity intrusion in the coastal zone. Adaptation measures. 	Cell under the Sub-group7, with support from WARPO, CEGIS, IWM, Delta Res, & Development Partners.	Strategy and Action Plan on Climate Change already developed under Climate Change Cell of DoE.	July 2009	December 2011 and onward	Literature review ongoing by CZM Cell.	Enhance capacity of BWDB professionals to deal with Climate Change	CZM Cell under Sub-Group 7 will act as CC Cell of BWDB temporarily.

Action Plan of the Five Year Strategic Plan of BWDB

Annex-D

Sl No	Issues	Objectives	Actions	Responsibility	Base Condition	Time Frame		Achievement	Expected Outcome	Remarks
						Commencement	Completion			
1	2	3	4	5	6	7	8	9	10	11
8	Sub-Group 8 : Haor & Wet Land Management									
8.1	Climate Change	Impact assessment due to climate change and to find out the way to meet up situation.	<ol style="list-style-type: none"> 1. Preliminary assessment of the impacts of climate change such as sea level rise, variation in rainfall and flood regimes etc. 2. Assessment of Impact on ecology due to human intervention. 3. Adaptation Plan on the Haors & Wetlands due to Climate Change. 4. Environmental Management Plan. 	<ol style="list-style-type: none"> 1. Sub-Group 8 & BWDB management. 2. Haor and Wetland Development Board. 3. Sharing of Knowledge with Department of Environment and other stakeholders. 	Sub-group-8 is working on this issue. Based on the assessment, Adaptation Plan will be formulated along with EMP.	Already started	June, 2010	In Progress	Sustainable livelihood of the Haor and Wetland people in changed situation due to climate change.	<p align="center">At the end of action-1</p> <p align="center">-do-</p> <p align="center">-do-</p>
8.2	Research and Development on Physical Infrastructures of Haor & Wetland.	To find out eco-friendly hydraulic infrastructures in the Haor & Wetland area, which will meet the sectoral requirement of fishing, navigation, agriculture & other environment friendly activities.	Research to develop a eco-friendly hydraulic structure in the periphery of submersible embankment in Haors & Wetlands	Chief Engineer, Design & Sub-group 8. The end result of this initiative is ensuring sustainability of the BWDB Haor Intervention.	A preliminary concept was proposed in the Feasibility Study of Dekar Haor FCD Project (Final Report; 2000).	November 2009	June 2010	Preliminary Stage.	Eco-friendly hydraulic structure constructed in the Haors & Wetlands.	Sub-group 8 will oversee the progress of this action. The sub-group also consider to include member from Haor & Wetland Development Board (BHWDB).

Implementation Programme on Action Plan of the Five Year Strategic Plan of BWDB

Annex-E

Sl No	Action	Responsibility	Time Frame		Implementation Modality	Cost (Lac Taka)	Source of Fund	Remarks
			Commencement	Completion				
1	2	3	4	5	6	7	8	9
1	Sub-Group 1: Five Year Strategic Plan of BWDB							
	Upgrading of the Five Year Strategic Plan of BWDB (2009-10 to 2013-14)	Sub-Group 1		November 2009 (approval of DG, BWDB)	BWDB's in-house professionals	--	--	Process is nearing completion
2	Sub-Group 2 : Decision Making Process							
2.1	Modernization of File Processing and Introducing Electronic Noting System.	Sub-Group2 & Chief T&SD	December 2009.	June 2012.	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Component 3A of WMIP)	Not applicable	WMIP	
2.2	Management Training in the Netherlands in March 2010	WMIP	March 2010	March 2010	Foreign training	Tk. 150.00	WMIP	The process needs World Bank concurrence
2.3	Land Acquisition (LA) of ADP Projects	Sub-Group2 & Chief T&SD	December 2009.	June 2012.	The sub-group agrees that this job will be done by WMIP Consultants on Institutional Improvement of BWDB (Component 3A of WMIP)	Not applicable	WMIP	
2.4	(i) Quick preparation & approval of TER/PER as envisaged in PPAP (ii) Approval of PP	Sub-Group 2, TEC/PEC & concern authority.	November 2009.	March 2010	Sub-Group 2 will prepare the manual	Tk. 0.50	GoB	Sub-Group 2 is working on it.
2.5	Audit Manual	Sub-Group 2 & Chief T&SD	January 2010.	December 2010	The sub-group agrees that this job will be done by WMIP Consultants (Component 3A of WMIP)	Not applicable	WMIP	
3	Sub-Group 3 : Human Resources Development of BWDB							
	Establishment of "Documentation Centre/ Library" in all the Offices of BWDB	Sub-group-3 (HRD) All Offices of BWDB & Chief T&SD (as monitor of the step)	January 2010	Dec 2010	All Offices of BWDB will take initiative to establish a documentation center/ library in the respective office.	Tk. 0.50 for each office.	Establishment budget of the concern office.	Each office will take initiative to make provision of Tk. 0.50 lac from the establishment budget to establish the library/center.

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Annex-E

Sl No	Action	Responsibility	Time Frame		Implementation Modality	Cost (Lac Taka)	Source of Fund	Remarks
			Commencement	Completion				
1	2	3	4	5	6	7	8	9
4	Sub-Group 4: Performance Evaluation (Boards performance)							
4.1	Boards performance Evaluation							
	Project Planning: This includes preparation of DPP, Procurement of Consultant, Action on approval of DPP.	Chief Planning	Continuous		Pro-active action, persuasion.		GoB	
	Man power planning: This includes Recruitment, Transfer-Posting, Career Planning & Training.	Chief T&SD, BWDB Management	July 2008	Policy is embedded in the proposed service rule.			Need based setup is prepared and submitted to the Governing Council. A committee headed by Additional Secretary, MoWR is constituted to examine and review.	
	Financial Management: This includes Budgeting, Procurement, Fund placement, Utilization of Fund & Auditing.	Controller (F&A)	Continuous		Delegation of Financial Power ' 2008		GoB	The Delegation of Financial Power needs to be amended.
	Administration: This includes Establishment of Rules of Law (Service Rule & Codal Rule).	BWDB Management	May 2009 (New one)	Delegation of Administrative Power ' 2008			The Delegation of Administrative Power needs to be amended.	
4.2	Project Performance Evaluation							
	I. Verify the quality. II. Verify the quantity. III. Verify the progress.	Zonal Office, PD's Office. Task force & PMT constituted.	During work in progress	30th June each year.	* Through appropriate monitoring. * Time bound action ensured. * Committees report assessed, evaluated & examined.		GoB	Incentives to good PMT works & line officials.
	Physical Achievement of BWDB Projects.	XENs, SEs & CEs in field & Chief Monitoring.	1959	June, 2009	Review of ADP progress reports		GoB	14 years (1995-96 to 2008-09) average performance of Physical work is 94% (Annex-II).

Implementation Programme on Action Plan of the Five Year Strategic Plan of BWDB

Annex-E

Sl No	Action	Responsibility	Time Frame		Implementation Modality	Cost (Lac Taka)	Source of Fund	Remarks
			Commencement	Completion				
1	2	3	4	5	6	7	8	9
	Physical Achievement of BWDB Projects.	XENs, SEs & CEs in field & Chief Monitoring.	1959	June, 2009	Review of ADP progress reports		GoB	14 years (1995-96 to 2008-09) average performance of Physical work is 94% (Annex-II).
	Review the cost overrun, time over run etc. To check whether the BCR, IRR achieved as contemplated.	Directorate of Monitoring & Evaluation/ Director, (Processing).	July, 2009	2010	Verify the Project completion report (PCR)		GoB	Under peer review.
4.3	Individual Performance Evaluation							
	Launching appropriate training program.	Sub-group 4 & Chief T&SD	July each year.	June, the following year.	Based on need assessment for different cadre.		GoB	Sub-gr 4 will prepare training programme in consultation with Chef T&SD
	Performance of the employee during training.		Continuous			By oral & written tests.		GoB
	Prepare framework for appropriate evaluation criterion.		15 Oct' 09	31 Dec' 09	Based on the enclosed specimen sample of framework[Annex-I].		GoB	The chief TSD may try with this framework.
	Evaluate the leadership and managerial capability.		Continuous			As above.		
	Amend the APR document as per present & future need.						GoB	
	Introduction of reward for good performance and punishment for the reverse .	Sub-group 4, Chief T&SD & BWDB Management	Continuous			Based on the criterion mentioned in sl. no 3 to 5.		

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Annex-E

Sl No	Action	Responsibility	Time Frame		Implementation Modality	Cost (Lac Taka)	Source of Fund	Remarks
			Commencement	Completion				
1	2	3	4	5	6	7	8	9
5	Sub-Group 5 : O&M - MIS							
	(i) Establishment of ICT Cell with skill man-power, equipments, accommodation & budget	Sub-Group 5 & BWDB management	Already started	March 2010		Tk. 20.00	GoB	Already allocated
	(ii) Phase: 1 1. ICT cell will develop an internet for use of MoWR and BWDB.		Already started	December 2014		--	--	BWDB ICT Cell will start the work after the Cell is filled up with requisite man-power.
	(ii) Phase : 1 2. MIS for ongoing projects.		Process started	2014		--	--	
	(iii) Phase: 2 Appoint MIS consultant for BWDB to develop a web portal like www. Rijkswaterstaat.nl	Proposed BWDB ICT Cell & Chief Monitoring, BWDB management	Not yet started	2014	Sub-Group 5 will oversee the progress of the process. TM may suggest possible help under Twinning Arrangement	--	--	Sub-Group 4 will be working on it and will oversee the progress of the process.
	(iv) Phase: 3 1. GPS & GIS based database of completed and ongoing projects.		Not yet started	2014		--	--	Future work
	(iv) Phase: 3 2. Inventory of completed projects		Process started	2014		--	--	Some work on the issue is already started under WMIP. Sub-Group 4 will be working on it and will oversee the progress of the process.
	(iv) Phase: 3 3. Upgrade existing internet bandwidth of BWDB network from 256 kbps to 5mbps.	Chief Monitoring and BWDB management	July 2009	December 2010	A major breakthrough made in collaboration with Grameen Phone through CPTU	--	--	Upgrading will be done with the help of CPTU
	Use of Internet at all level of BWDB.	Chief Monitoring, Zonal CE's & BWDB	December 08	December 2010	Sub-Group 5 will oversee the progress of the process	--	--	E-mail communication with the field offices already exists.

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Annex-E

SI No	Action	Responsibility	Time Frame		Implementation Modality	Cost (Lac Taka)	Source of Fund	Remarks
			Commencement	Completion				
1	2	3	4	5	6	7	8	9
		Management						
6	Sub-Group 6 : River Management							
6.1	<u>Flow/Perennial flow management of the major rivers.</u> (i) Sharing of water of trans-boundary rivers. (ii) Identification of silted up stretches of rivers.	MoWR, JRC, ADG (Planning) C.E., Hydrology,	Ongoing Ongoing	Continual process Continual process	Water sharing treaty among the Co-riparian countries Engineering survey and satellite imagery	NA Yearly O&M budget	-- GoB	Ganges river water sharing treaty has been made. Dialogue on Teesta and other trans-boundary rivers is going on. --
	Dry season augmentation of the river flow. (i) Restoration of Buriganga River. (ii) Restoration of the Gorai river (2nd Phase). (iii) Detailed study of the Gangage Barrage. (iv) Pilot / Capital dredging including study of sustainable river management	BWDB, DoE, BIWTA, DoF, DoLR&S, MoWR BWDB (CE, Planning, PD, Gorai), MoWR. BWDB (CE, Planning, PD, Ganges Barrage circle) BWDB, MoWR, CEGIS, IWM	2009-2010 2009-10 2008-09 2009-10	2014-2015 2014-15 2011-12 2013-2014	Dredging of the link channel of Jamuna (Dhaleswary-Pungly-Banshi-Turag-Buriganga) Capital dredging and maintenance dredging. Under study Study and pilot dredging	15000.00 11952.20 344.00 14618.77	GoB & Development partner (Proposed) GoB, Development partner (proposed) GoB GoB, Development partner (proposed)	DPP of the project will be re-submitted to MoWR soon. DPP for Gorai river restoration project has been submitted to planning commission. Feasibility study & detailed design of Ganges Barrage Project by the consultant is going on. - DPP for "Pilot / Capital Dredging of river system in Bangladesh, phase-1)" has been submitted to MoWR. (Dredging proposed for Jamuna river from Sirajgonj hard pt. to near Dhaleswari off-take and from Nalinbazar near Bhuapur-Tarakandi embkt.

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Annex-E

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			Commencement	Completion				
1	2	3	4	5	6	7	8	9
								approx.22.00 km)
6.2	<u>Flood Management</u> <u>Non-structural measures</u> (i) Strengthening hydro-meteorological data collection system. (ii) Improve Flood Forecasting & Early warning system.	C.E (Hydrology).	2010-2011	2013-2014	3, 7 and 10 days advance flood forecasting through Newspapers, Radio, Television media.	1860.00	Development partner (proposed)	A DPP for strengthening (modernization) data collection system has been submitted to MoWR.
	<u>Structural measures</u> Flood embankment, structures etc.	ADG, Zonal CE, SE, Xen	On going	Continual process	Under development programme		GoB & Development partners	10,106 km. flood embkt has been completed so far.
6.3	<u>Erosion Management</u> (i) Identification of the erosion prone banks of major rivers for early erosion prediction.	CE (Hydrology) CE, Design, Zonal CE	2009-2010	2011-1012	By Satellite imagery, Mathematical modeling along with physical verification	Yearly O&M budget	Development partner (proposed)	PSP (Proforma for Study/ Survey Proposal) for this study project will be prepared soon.
	(ii) River bank protection work.	ADG, Zonal CE, SE, XEN	Ongoing	Continual process	Engineering contractors	ADP	GoB & Development partner (proposed)	522 km RBP work, 220 nos. Grone /Spurs etc in different rivers have been implemented in a piece-meal basis so far.
		PD, ECRRP	2009-2010	2011-1012	Study	140.00	Development partner (proposed)	Short listing for selection of Consultant has been completed (for feasibility study on river bank improvement project (RBIP) under ECRRP).
	Continuous monitoring and O&M of the existing RBP works.	Zonal CE, SE, Xen , CE ,Design	Already in action	Continual process	Bathymetric survey and repair & maintenance by engaging Contractors	Yearly O&M budget	GoB	

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Annex-E

Sl No	Action	Responsibility	Time Frame		Implementation Modality	Cost (Lac Taka)	Source of Fund	Remarks
			Commencement	Completion				
1	2	3	4	5	6	7	8	9
6.4	<u>Institutional Development</u> Establishment of River Management Directorate.	BWDB, MoWR	Process is going on	2009-2010	Office Order of the Board with the consent of MoWR.	Yearly O&M Budget	GoB	River Management Directorate has been proposed in the Need based setup.
65	<u>Data base inventory and Mapping (River wise detail Information)</u> Data collection and archiving.	CE (Hydrology), Director, River Management	Already in action	Continual process	Expedite upgrading Hydrological & Morphological network system.	--	GoB & Development partner (proposed)	A PDPP for strengthening (modernization) data collection system has been finalized for finance from WB.
7	Sub-Group 7 : Coastal Zone Management							
7.1	Compilation & collection of hydro-morphological, socio-economic & environmental data, data archiving, Use of Bay of Bengal (BoB) mathematical model, linkage with the EDP & ICRD data base.	BWDB (CZM Cell under sub-group 7)	January 2009	December 2011	Through a DPP which would be prepared by the sub Group 7.	--	GoB	Project to be formulated by February 2010
7.2	Updating & improvement of hydrodynamic model of BoB. Updating & improvement of morphological model.	CZM Cell under the Sub-Group7, CEGIS &IWM.	January 2009	December 2011	Specialists from IWM & CEGIS are working in CZM Cell on BoB model upgrading.	Tk. 150.00	GoB and Development Partners	The work is going on
7.3	Capacity building of BWDB professionals on existing numerical models through training & knowledge sharing.	CZM Cell, WARPO, CEGIS, IWM, & Development Partners.	CZM Cell formed in November 2009	December 2011	Exchange of knowledge, Communication with institutions home & abroad, training, participation in seminar workshop.	Tk. 200.00	Development Partners & GoB	Suggestion is sought on probable source of financing.
7.4	Preliminary assessment of Sea Level Rise (SLR) in the Coast & Estuary of the BoB. Assessment of drainage congestion, salinity intrusion in the coastal zone. Adaptation measures.	CZM Cell, WARPO, CEGIS, IWM, Delta Res, & Development Partners.	July 2009	December 2011 and onward	CZM Cell under Sub-Group 7 will act as CC Cell of BWDB temporarily.	Tk 20000.00	Development Partners and GoB	Suggestion is sought on Technical Assistance with probable source of financing.

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Annex-E

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			Commencement	Completion				
1	2	3	4	5	6	7	8	9
8	Sub-Group 8 : Haor & Wet Land Management							
8.1	Preliminary assessment of the impacts of climate change such as sea level rise, variation in rainfall and flood regimes etc.	Sub-Group 8 & BWDB management.	Already started	June 2010	Collection of all documents related with Haors & Wetlands already available in different office.	Tk. 5.00	GoB	The work will be done by the sub group 8
8.2	Assessment of Impact on ecology due to human intervention.	Haor and Wetland Development Board						
8.3	Adaptation Plan on the Haors & Wetlands due to Climate Change.	Sharing of Knowledge with Department of Environment and other stakeholders.						
8.4	Environmental Management Plan.							
	Research to Develop a model hydraulic structure in the periphery of submersible embankment in Haors & Wetlands	Chief Engineer, Design & Sub-group 8. The end result of this initiative is ensuring sustainability of the BWDB Haor Intervention.	November 2009	June 2010	Chief Engineer, Design & Sub-group 8 together will find out a method.	Tk. 10.00	GOB	Chief Engineer, Design & Sub-group 8 will take initiative of the study