



**National Stakeholder  
Consultations on Water:  
Supporting the Post-2015  
Development Agenda**

**Bangladesh**

**30 March 2013**



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# BANGLADESH

## Report on the National Consultations on Water in the Post-2015 Development Agenda

Dhaka, 30 March 2013

### Chapter 1 Importance of water in the national development of Bangladesh

Bangladesh, located mostly in the flood plains of the Ganges, the Brahmaputra and the Meghna Rivers, is one of the largest deltas in the world with a total area of 147,570 km<sup>2</sup>. The country is crossed by 405 rivers, out of which, 57 rivers are trans-boundary, draining an area of 1,750,000 km<sup>2</sup>, only 7% catchment lies inside of the country.

The seasonal variation of availability of water, along with the competing demands of water for the water supply and sanitation, agriculture, industry, fisheries and wildlife, navigation, hydropower and recreation as well as the environment and the preservation of water bodies has made the water management and planning a very challenging task. In the monsoon, too much water produces floods and in the dry season too little water causes water scarcity as well drought. The increasing reduction of trans-boundary flows is now evident both in the monsoon and dry season due to upstream uses and storage.

During the past couple of decades, the climate change is posing an additional and recurring threat for water resources management. The sea level is rising, inundating coastal lands and erratic rainfall and extreme events are being witnessed increasingly. Specially, a half of the population (49.60%) is extremely vulnerability to the impact of climate change, who survives on less than USD 1.25 per head a day. In the south-west region, climatic migration is already evident.

Bangladesh has developed an extensive flood management and irrigation infrastructure over a period of five decades. The coverage under flood management systems is 41% of the country and that of irrigation is 55% of the total arable land, mostly done by ground water. Water resources development has helped the country in achieving food sufficiency nearly, but nutrition security and absorbing shock is yet to be achieved. Pressures remain on agriculture to intensify production and maintain self-sufficiency in food grains, because of the population increase. The solution is the better and optimum utilization of available water resources.

The country aims to provide to all people a safe and reliable supply of potable water and sanitation services on an equitable basis to safeguard public health and protect the environment. Arsenic contamination of ground water has posed a great threat to achieving water supply target. The achieving these targets are a challenging task, as the population is expected to rise to 181 million by 2025 and to 224 million by 2050. The rapid urbanization is expected with 40% of people living in the towns and major cities by 2025, and 60% by 2050.

Waste water management is extremely inadequate. Aquatic resources and the natural environment are under severe threat from an alarming rise in pollution due mainly to industrial growth and poor sanitation.

## **Chapter 2 Key national priorities for the sustainable development of water**

### **2.1 Key Water Resources Management Priorities**

In the national water policy, the highest priority has been given for allocating water for drinking water supply and sanitation, followed by agriculture, industry, fisheries and wild life, navigation, hydropower and recreation, environmental concerns and finally for preserving the wetland ecosystems sequentially. Following the policy, the enactment of Bangladesh Water Act is under consideration of the Parliament.

The National Consultations identified the following water management issues:

- Increasing reduction of trans-boundary river flows
- Declining ground water table
- Salinity intrusion in the coastal zone due to sea level rise
- River bank erosion and shifting of rivers
- Sedimentation of rivers and water bodies
- Impeded drainage and water logging due to sedimentation of river beds in the coastal areas
- Over dependency on ground water for irrigation during dry season
- Low irrigation water use efficiency
- Arsenic contamination of ground water
- Deforestation of watershed

The National Consultations came up with following recommendations for better management of water resources in Bangladesh:

- Management of surface water using barrages, rubber dam, cross dams
- Conservation and management of haors and wetlands for better management of water and its ecosystems
- Sustainable river management through bank stabilization and dredging for erosion and flood management
- Integrated coastal zone management
- Sustainable coastal rivers through tidal river management
- Comprehensive management of urban drainage
- Integrated watershed management
- Community participation in water management, specially ensuring participation of women
- Conjunctive use surface and ground water
- Artificial recharge of ground water
- Updating National Water Management Plan

- Assessment of ground water and surface water
- Updating minor irrigation policy (using ground water)
- Continuation of the subsidy on irrigation inputs by the government
- Rainwater harvesting

**Water Related Disasters Management:** Bangladesh is a disaster prone country. The water related disasters are flood, erosion, cyclonic surge, salinity intrusion, drought, surface water pollution, arsenic contamination and depletion of ground water as well as tsunami. All these disasters are accentuated by climate change.

The water related disaster management challenges, as identified in the National Consultations are:

- i) Preparation of a comprehensive disaster management plan
- ii) Resolution of all trans-boundary water issues
- iii) Combating climate change.

The National Consultations suggested that for management of water related disasters, both structural and non-structural measures need to be undertaken, both at national level and regional level.

**National level:** Suggested structural measures are:

- i) Development of water infrastructures and modifications of existing ones to achieve high safety standards for combating climate change and extreme weather events
- ii) Integrated river management through bank stabilization and dredging.

Non-structural measures are:

- i) Forecasting and warning of floods, droughts, cyclones, river erosions etc
- ii) Implementation of land use and land zoning policy
- iii) Awareness building and capacity building
- iv) Research and knowledge development and sharing
- v) Establishment of “National Disaster Preparedness Center”
- vi) Adequate allocation of fund for disasters management
- vii) Declaring river erosion as disaster.

**Regional level:** The suggested measures are:

- i) Establishment of river basin organization (RBO)
- ii) Data and information sharing
- iii) Networking and conducting collaborative research with other organizations.

## 2.3 Key WASH priorities

**Water supply coverage:** The water supply coverage was 78% in 1990-1 and MDG target as fixed by GOB is 89% by 2015. The proportion of population using an improved drinking water source is at present

81%, out of which, the rural water supply is 80% and the urban water supply is 85% (Source: WHO-UNICEF JMP Report 2012). The above figures include the piped water supply in rural area to be 1% and the urban area 20% and the national average to be 6%.

A disparity exists in rural water supply coverage depending on the depth of ground water table. The coverage in the high water table area is 98% and in the low ground water table area 64%. In arsenic affected area, the water supply coverage is 36% and in the hard to reach area is 24%. The consumption also varies, in the rural and urban slums, it is 20 lpcd and in the high income urban areas is 400 lpcd. There is also a disparity in defining the water supply coverage standard. In the rural area, the basic standard is 100 persons per public water point; the national policy standard is 50 persons per public water point and 5-10 persons per private water point. The distance for water collection is 0 to 90 meters.

**Sanitation coverage:** The proportion of population using an improved sanitation facility is at present 56%, whereas in 1990-1, it was 39% and MDG target as fixed by GOB is 70% by 2015. Out of which, the rural sanitation coverage is 80% and the urban sanitation coverage is 83%. (Source: WHO-UNICEF JMP Report 2012).

In city corporation areas and municipalities, the basic sanitation coverage is average 87% and the improved sanitation coverage is 53-60%. However, only 12% of slum population has hygienic sanitation. The conventional sewerage is absent in all urban areas except in Dhaka. The sanitation coverage by hygienic means is often quoted as 85% (Sewerage 20%, septic tanks 45%, water-sealed pit latrine 20%) and by unhygienic means 15%. The actual sanitation coverage is by hygienic means is 42% (Sewerage 7%, septic tanks 20%, water-sealed pit latrine 15%) and by unhygienic means 58%.

The National Consultations came up with following recommendations for better management of WASH:

- Mainstream the water supply in water supply programs
- Protect and manage fresh water sources for water supply
- Promote eco-friendly water supply system
- Adapt appropriate & climate resilient technology
- Increase accessibility to WASH specially focusing on hard to reach areas
- Introduce to Public-Private Participation in WASH programs
- Mainstream gender issues and equity in WASH
- Integrate water, sanitation and hygiene in WASH program
- Research and develop appropriate technology for water and sanitation
- Enhance WASH sector coordination and capacity
- Promote basic hygiene practices in community schools
- Increase financial support to WASH sector
- Compliance of WASH and waste water rules and regulations
- Address the issue of Arsenic in all WS program

- Enforce and monitor ETPs for protection of water bodies from industrial and domestic pollution
- Effective monitoring
- WASH services for floating people

#### **2.4 Key waste water and water quality priorities**

**Waste Water:** The most of the industrial effluents and domestic sewage is discharged to the environment without treatment. This also includes the indiscriminate disposal of solid and hazardous wastes. The only treatment plant located at Dhaka is again underutilized due to system failures. The most of the pits and septic tanks (30%) are connected to drain/drainage systems linked to open water bodies. No reliable data on waste water is available.

**River Water Quality:** In a survey conducted in 2010, it was found that water quality of major rivers was within the limit of Environmental Quality Standards (EQS), while the rivers around the Dhaka Metropolitan City were highly polluted in the months from January to May. High value of chloride (62 mg/l), TDS (2050 mg/l), BOD (44 mg/l) and COD (150 mg/l) at different locations of the Buriganga river. Levels of chloride, TDS, turbidity was found higher in some coastal rivers (Moyuri, Rupsha, Pashur, Kashiali) in the south-western region. DO, BOD and COD of the Mathabhanga river water were beyond the EQS in first four months of 2010. The lack of continuous monitoring is a major problem for river quality data analyses. The fixing a detailed inland surface water standard or water quality index is essential to assess water quality of rivers.

In National Consultations, the following recommendations were made:

- i. Recognize the challenges associated with unprecedented nature of waste water management
- ii. Develop waste water management policy, strategy and action plan for waste water collection, treatment and discharge
- iii. Plan, develop and operate the waste water or used water flows for treating to restore its potential as a resource
- iv. Minimize the generation of waste water through low volume flush toilets and water saving faucets, with water and sanitation, reuse and recycling within same and/or with other sector, good housekeeping
- v. Prioritize the reuse of waste water over disposal by providing incentives
- vi. Conduct an assessment of waste water on the national basis
- vii. Harness rapidly advancing science, technology and insights and integrate it with policy
- viii. Set up monitoring systems to assess water quality at the national and local levels regularly
- ix. Establish a link between monitoring and policy makers.

#### **2.4 Suggested areas for sustainable development targets for water**

**Water Resources Management:** Based on the National Consultations, the areas for sustainable water resources management are identified as below:

- i) Increasing water use efficiency in existing surface and ground water irrigation schemes for increased agricultural production.
- ii) Increasing availability of surface water by building barrages over major and medium rivers to decrease over dependency on ground water.
- iii) Comprehensive river management development for all major and medium rivers for timely evacuation of flood flows, stabilization of river courses, erosion management and year round navigation.
- iv) Rationalizing flood management systems and providing protection to urban and rural areas.
- v) Ensuring effective stakeholders' participations in water resources management.
- vi) Development a reliable knowledge base on morphological changes to understand the delta building process
- vii) Adopting a basin-wide planning approach and updating planning on regular basis.
- viii) Development and management of water sector resources institutions and infrastructure characterized by the use of reliable, well organized data and targeted adaptive research.

**Disaster Risk Reduction:**

- i) Planning and implementation of Bangladesh Delta Plan 2100 for long term (50, 100 years..) disaster risk reduction and adaptation to climate change impact
- ii) Reliable predictions of extreme climatic events (both short and long term)
- iii) Development of a reliable long-term prediction of river bank erosion
- iv) Development of a community-based flood forecasting system

**Environment**

- i) Improvements to water management of the Sundarbans by increasing freshwater flows in sufficiently and timely quantities to preserve the largest mangrove forest of the world.
- ii) Management of the haor basins of the northeast and coastal zone for production as well as preservation of the aquatic and water dependent eco-systems
- iii) Improving connectivity between flood plains with the river systems to revitalize water dependent eco-systems

**WASH**

- i) Developing a dependable water supply systems using surface water to decrease the over dependency on ground water and to provide arsenic free potable water
- ii) Safe and reliable drinking water supplies for all living in urban and rural areas for improving the quality of life.
- iii) Sanitation services for all living in urban and rural areas to safeguard public health and protect the environment.

## **Waste water & water quality**

- i) Planning, developing and operating a comprehensive waste water management system including treatment of used water flows to restore its potential as a resource
- ii) Conducting water quality monitoring regularly and rigorously.

## **Chapter 3 WRM monitoring and reporting issues**

A central database and a Management Information System (MIS) were developed earlier to manage the water resources in an efficient and equitable way by Water Resources Planning Organization. With the change in data storage system, dimension and data needs, an indicator based MIS is now presently being updated. The collection of data timely and regularly from concerned agencies is an issue in monitoring WRM.

### ***WRM Monitoring:***

Based on the input of the National Consultations, the indicators for WRM monitoring for efficient and equitable management of the resources are given below:

- i) Indicators of water availability: assessment of surface and ground water availability at five years interval, depth of ground water depletion, reduction of trans-boundary rivers flows, salinity intrusion into surface and ground water in coastal zone
- ii) Indicators for water resources planning: updating of national policies, updating of water resources and water supply sanitation
- iii) Indicators of water allocation and uses in agricultural, industrial, domestic, livestock, fisheries and environmental sectors in temporal dimension: % of sector-wise water uses
- iv) Indicators of water management for agriculture: Socio-economic baseline survey, food security, nutrition security, returns per unit of water, extent of flooding on arable land, annual unsatisfied demand for irrigated land (ha)
- v) Indicators of water management for environment: status of indicator species, quality and quantity of in-stream flows, duration of inundation, extent and duration of wetlands, water quality, quantity of water, status of indicator species, surveys of knowledge, attitude and practices (KAP)
- vi) Indicators of flood management: socio-economic baseline survey, food security, health security, loss of life (human and livestock), loss of income disruption, damage to infrastructure, loss of production
- vii) Indicators for WASH: socio-economic surveys, % water supply services coverage, % sanitation services coverage
- viii) Indicators for waste water and water quality: quantity of waste water generated, water quality, % reduction in waste water disposal in river systems



**Reporting issues:** The reporting issues are:

- i) Development of an uniform data collection format
- ii) Using common platform for data sharing and exchange
- iii) Development of web based Management Information

## **Annex I List of participants and Basic information about the National Consultations**

A National Consultation on Water in the Post-2015 Development Agenda was held on 30 March 2013 at CIRDAP Auditorium, Dhaka organized by Bangladesh Water Partnership (BWP). The numbers of participants were fifty two representing the government and semi-government agencies, universities, research organizations and NGOs involved in the water resources sectors. This report is prepared to present the outcome of the national consultations.

The day-long National Consultations had four sessions. It started with a welcome address and an introduction to the “National Consultations on Water in the Post-2015 Development Agenda”.

In the first technical session, two papers were presented; these are : i) “Water Resources Management in the post 2015 :Water Challenges and Sustainable Development Priorities” and ii) “Water supply sanitation and Hygiene in the post-2015 Development Agenda”.

In the second technical session, two papers were presented; these are i) “Management strategies for Waste Water and Water Quality in the post – 2015 Development Agenda” and ii) “Strategies for Managing Water Related Disasters in the Post-2015 Development Agenda”. This followed by a presentation on the transboundary water issues faced by Bangladesh. The both technical sessions were followed by lively discussions on the subjects and question-answer.

The third session was about group discussion. The participants broke out into four groups:

- Group – I Water Resources Management
- Group – II Water supply Sanitation and Water Quality.
- Group – III Water and Disaster
- Group – IV Key elements for a Water Resources Management Monitoring and Reporting System

In the concluding session, the four break-out groups presented the result of their discussions accompanied with discussions on the group activities.

### **List of participants**

1. Mr Ejaz Rasul, Deputy Chief, Chittagong Water and Sanitary Authority
2. Mr. H.M Ariful Haque, Senior Research Officer, Dhaka University of Engineering Technology
3. Mr. Naquib Ahsan, Additional Chief Engineer, Department of Public Health Engineering

4. Dr. L. R. Khan, Professor, Bangladesh Agriculture University
5. Mr. Md. Sarfaraz Wahed, Director, Center for Environmental & Geographic Information Services
6. Mr. Md. Mahfuzur Rahman, Project Coordinating Director, PCU, BWDB
7. Dr. M.A. Rashid, CSO & Head, IWM Division, BRRRI
8. Md. Easin Ali Sarkar, Deputy Chief Engineer, Bangladesh Agriculture Development Corporation
9. Mr. T.A. Khan, Secretary General, Bangladesh Water Partnership
10. Mr. IMtiaz A. Taher, Water Supply System Engineer, Institute of Water Modeling
11. Mr. Shahidul Hasan, President, Bangladesh Water Partnership
12. Mr. K. Azharul Haq, Vice President, Bangladesh Water Partnership
13. Mr. Giasuddin Choudhury, Adviser, Center for Environmental & Geographic Information Services
14. Dr. Md. Aatur Rahman, Professor, WRE, Bangladesh University of Engineering Technology
15. Mr. Malik Fida Abdullah Khan, Director, CEGIS
16. Mr. Md. Waji Ullah, Executive Director, CEGIS
17. Mr. Md. Sarafat Hossain, Project Director, CEIP Study, Bangladesh Water Development Board
18. Dr. Abdul Hamid, Director, Center for Environmental & Geographic Information Services
19. Dr. G. M. Sarwar, Research Fellow, Bangladesh Unnyan Parishad
20. Dr. Sultan Ahmed, Chief Scientific Officer, Bangladesh Agriculture Research Council
21. Mr. H.S.M Faruque, Former Director General, Bangladesh Water Development Board
22. Dr. A.F.M. Afzal, Deputy Executive Director, Institute of Water Modeling
23. Dr. Monwar Hossain, Executive Director, Institute of Water Modeling
24. Dr. Efthekharul Anam, Safeguard Officer, Ministry of Agriculture
25. Mr. Mahmud Hossain Salim, Director, Bangladesh Inland Water Transport Authority
26. Ms. Sarmin Sulatan, Accounts Assistant, Bangladesh Water Partnership
27. Ms. Mukta Akter, Assistant Executive Secretary, Bangladesh Water Partnership
28. Mr. Siddiqur Rahman, Adviser, SHUSHILON
29. Mr. Ranjan Kumar Ghose, NGO Forum
30. Mr. Saidur Rahman, Head, IRV, Khulna
31. Ms. Sufia Khatun, Research Coordinator, RC, EPRC
32. Mr. G.C. Suthradhar, Director, Planning, Bangladesh Water Development Board
33. Mr. Md. Tariqul Islam, ACCF, Forest Department
34. Mr. Md. Bazlur Rahman, Additional Chief Engineer, Dhaka WASA
35. Mr. Zaki Mostafa Chowdhury, Superintending Engineer, WASA
36. Dr. Mohammad Alauddin, Associate Professor, Dhaka University of Engineering and Technology
37. Mr. Motaleb Hossain Sarker, Director, CEGIS
38. Mr. Md. Mehbubur Rahman, Project Engineer, NGO Forum
39. Mr. Sazzad Hossain, Head, SHUSHILON
40. Dr. Samarendra Karmakar, Director (Planning), EPRC
41. Mr. Saad Siddiqui, P.Eng., Principal Specialist, Institute of Water Modeling
42. Mr. Md. Waliullah, Superintending Engineer, Department of Public Health Engineering
43. Dr. Md. Mujibur Rahman, Professor, Civil Engineering Department, BUET
44. Dr. Md. Golam Faruque, Director, Center for Environmental & Geographic Information Services

45. Mr. Liakat Hossain Khan, Executive Director, ASED
46. Mr. Md. Ekram Ullah, Principal Scientific Officer, Water Resources Planning Organization
47. Mr. Ziaur Rahman, Specialist
48. Mr. Md. Azharul Islam Khan, Research Officer, Bangladesh Institute of Development Studies
49. Mr. M. Maniruzzaman, Former Vice Chancellor, Dhaka University
50. Dr. Bilquis Amin Haque, Dean, Uttara University
51. Mr. Md. Mashiur Rahman, Project Director, Local Government Engineering Department
52. Mr. Md. Ehmasul Haque, Ph D Student, Bangladesh University of Engineering Technology