

CASE STUDY

BANGLADESH PREPARES ITSELF FOR A CLIMATE RESILIENT FUTURE

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■ This article focuses on a practical example of applying and elaborating water governance and strategic management in Bangladesh. By preparing the Bangladesh Delta Plan 2100 the Government of Bangladesh utilizes state of the art insights and possibilities of what has been called Adaptive Delta Management, which embodies long term visioning and strategy making under different scenarios to deal with developments and uncertainties over time. Back-casting the long term vision and goals makes it possible to develop short and medium term strategies with measures and actions to be taken, as well as elaboration into an Investment Plan and to prepare the Government and governance to act upon it. Both authors work with consulting company TwynstraGudde and are closely involved in the Bangladesh Delta Plan formulation and implementation process.

Introduction and Background

The Bangladesh delta is the largest dynamic delta of the world. It is a land of many opportunities for a population of more than 165 million people. The soil is fertile and productive with the opportunities for multiple cropping. The plentiful rivers and water bodies provide ample scope for fisheries and livestock resources. The inland water transport offers a cheap mode of transportation. The open access to sea is a huge advantage opening up the opportunities for blue economy and trade. Modernization and economic growth have been substantial last decade.

Bangladesh faces however rigorous challenges, like increased flooding, freshwater unavailability, drought, groundwater decline, riverbank erosion and sedimentation, clogged drainage, water logging, salinity intrusion, deteriorated water quality, decreased trans-boundary water flows, sea-level rise, increased frequency of cyclonic storms and associated surges. Other challenges concern population growth and impacts of rapid modernization and economic growth as fast industrialization, unplanned urbanization accompanied by pollution and environmental degradation.

In the face of all adversaries, the country has gained considerable progress in the last decade in development activities which has inspired the Government to aim even higher. In view of the long term challenges presented by climate change and natural hazards, the Government wants to take measures to increase water safety and food security and to safeguard the socio-economic development of the country. This is the background for the government's request to prepare an integrated, techno-economic, water centric Bangladesh Delta Plan 2100 (BDP2100).¹ The background studies and making of the Delta Plan were assisted by the Government of the Netherlands. BDP2100 was approved by the Government of Bangladesh (GoB) in the National Economic Council chaired by the Prime Minister on 4 September 2018. Presently, implementation of BDP2100 has been started end of 2018, again with assistance from the Dutch Government and private sector.

Governance Challenges

Bangladesh is a fast growing delta country with many already existing water related issues at the forefront of

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serious climate change effects. Building on a long history of living in a dynamic delta, Bangladesh reduced poverty, improved human development and increased the growth rate to an average of 6,5% per year. The government of Bangladesh is presently looking ahead to become upper middle income country and to strengthen their progress to adverse effects of climate change by expressing the ambition to become a resilient and prosperous nation. The expected effects of climate change include dry and wet season water shortages and surpluses; vulnerability from being a lower riparian country of the river inflows; sea level rise and salinization. So many already existing and growth related challenges mentioned before coincide with climate change induced issues and problems. Physical climate change effects pose large governance challenges for Bangladesh: how to organise and prepare oneself as country to become resilient to uncertain climate change shocks and trends and to avoid socio-economic setbacks?

In view of the special long term challenges for development outcomes presented by climate change and natural hazards, the Government has decided to formulate a long term Bangladesh Delta Plan 2100 (BDP 2100) and to establish an institutional framework for its implementation. Initially, here was some confusion among the key participants in the process because they thought it would be impossible to make such long term plan. The outcome of discussions was that the short term (2030) of BDP2100 would cover 2 Five Year Plans for short term investments, that the medium term (2050) would be used for further improvements and climate adaptations and for preparing longer term need based measures and that the long term orientation offers more insight in climate change and provides a vision that serves as strategic direction. The government's ambition on this is to take the long term challenges of existing water problems and climate change impact into consideration, to look at the delta from a holistic point of view and to relate the various challenges of sustainable water management, food production, economic growth, ecology and environment and land resources to natural disasters and climate change. In defining the scope of the BDP, the government also insisted that long term developments like population growth and urbanization needed to be addressed and that the Chittagong Hill Tracts would be included. These

ambitions resulted in a much broader scope of the BDP and of background studies and strategy making than e.g. with the Delta Program in the Netherlands. Moreover, the Delta Plan had to provide an Investment Plan up to 2030 with an adequate institutional framework related to core governance principles of decision making, budget allocation, stakeholder participation and performance feedback. Based on that, BDP2100 including this Investment Plan are to be mainstreamed in the Five Year Planning cycle of GoB and in the Budget Programming and Allocation procedures to make swift implementation possible. This not only implies preparing the strategic Delta Plan but also initiating institutional reform and investment planning. The expectations in the early stage of the project are because of this much higher and broader than expected by the consultant team, which puts responsible government agency and consultant consortium under high pressure and debate whether it would be possible to deliver. The Inception phase was important to make the necessary adjustments in Workplan and process design. During the whole process very close collaboration and good relationships with the GoB led to efficient procedures with broad public consultation and participation and swift decision making.

Towards an adaptive Delta Plan BDP2100

Strategic Management approach

The extent of delta-related developments and uncertainties and their adverse effects on the natural system, society and economy is uncertain. Yet, the BDP-strategies had to anticipate these uncertainties, analyse the likely adverse effects on development outcomes, and identify possible strategic responses to counter them. This is a complicated issue to deal with during long range strategy making. A strategic management approach concerning main drivers of developments and their impacts and uncertainties provided options for formulating different scenarios. Analysis showed that future water conditions in Bangladesh are based on two main drivers: climate change and transboundary developments (Bangladesh is as downstream country dependent of interventions in India and China). Another major driver is economic development and land use changes. Based on the axes water conditions and economic development, four scenarios have been

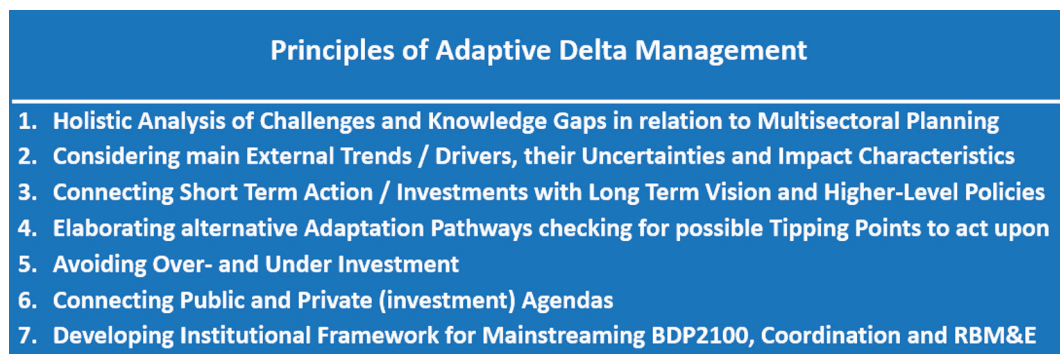


Figure 1.
BDP2100 principles
of Adaptive Delta
Management.

formulated: Resilient, Productive, Moderate and Active. These External Scenarios are elaborated in a participative way as narratives of possible futures which may happen and which one can hardly influence. We faced two problems of acceptance here. One is about the type of scenarios and the way they are used, because GoB normally works with, and chooses from several policy scenarios. External scenarios as narratives of futures which may or may not happen, which one cannot choose from are new and feel uneasy. Secondly, the naming of the scenarios is sensitive. Only positive labelling was acceptable e.g. congestion and stagnation as label was not preferred because government policy was aiming at growth and development. The scenarios were discussed many times, further refined, also with calculations on the main drivers and accepted for checking the BDP-strategies on robustness. Another method used to address uncertainties on the very long time span is accepting that there is no one best way to achieve goals and instead designing various alternative adaptation pathways. Focus is then also on monitoring the drivers and state of the water system, looking for tipping points and acting upon it by adaptation, avoiding strong structural interventions as long as possible also to avoid lock in situations.

The Adaptive Delta Management (ADM) approach underlying BDP2100 involves essentially making strategic choices to facilitate development under these uncertainties. ADM has been introduced to clarify the strategic character and aims of BDP 2100 as a long term, holistic and techno-economic water centric plan. ADM as applied in the BDP 2100 aims to support holistic strategy making, planning and implementation as well as improved water governance in the Bangladesh delta under conditions of uncertainty; relevant principles are mentioned in Fig.1.

To be able to prepare the BDP2100, information and understanding are required to learn how the natural system behaves and e.g. how the governance system has been organized and functions. Holistic analysis resulted in identification of main issues, challenges and knowledge gaps. For this purpose 19 Themes were indicated to study to achieve the right background to be able to understand the delta related systems and processes. In the end however, 26 Studies² were conducted on many topics and

to BDP related sectors given the broader scope mentioned earlier and upcoming issues during the strategy process. The information and outcomes of these Studies were used to discuss the problems at the local level in so called Delta Ateliers (interactive diagnostic and design workshops), held in almost all districts. The results led to final Baseline Studies and to indications of possible strategies and measures which were processed in a participative way and with expert judgement into potential ones and finally into preferred strategies and measures. BDP 2100 has developed strategies and measures in light of various possible futures that lie ahead and is designed to be changed over time as new information becomes available or GoB priorities change. Instead of only focusing on short-term ‘trial and error’ actions and projects, BDP 2100 developed the long-term vision while prioritizing short-term ‘no regret’ projects and offering alternative adaptation pathways depending on developments taking place over time with possible tipping points coming up regarding these developments or in relation to political choices, changes in funding or in public acceptance of certain measures by stakeholders or public.

ADM aims to support the development of an adaptive and integrated plan to enable robust and flexible decisions in deltas under uncertain changing conditions. This adaptive planning approach is directed towards the long term vision and goals and is at the same time flexible in how and when to implement strategies and actions. To be sure that designed strategies contribute to the goals for achieving the vision, the strategies were discussed and tested against the different scenarios. Although the approach is inspired by delta planning in the Netherlands, Bangladesh added specific features to the approach. While in the Netherlands the application of ADM focuses on the question: “*How can we protect our country from adverse impacts resulting from uncertain changing conditions*”, in Bangladesh the application of ADM focuses on development goals and thus aims to answer the question “*How can we enable socio-economic development under uncertain changing conditions especially regarding climate change and (transboundary) water resources issues?*” BDP2100 thus focuses on investments for achieving development goals including protection that should be robust or adaptive under uncertain changing conditions.

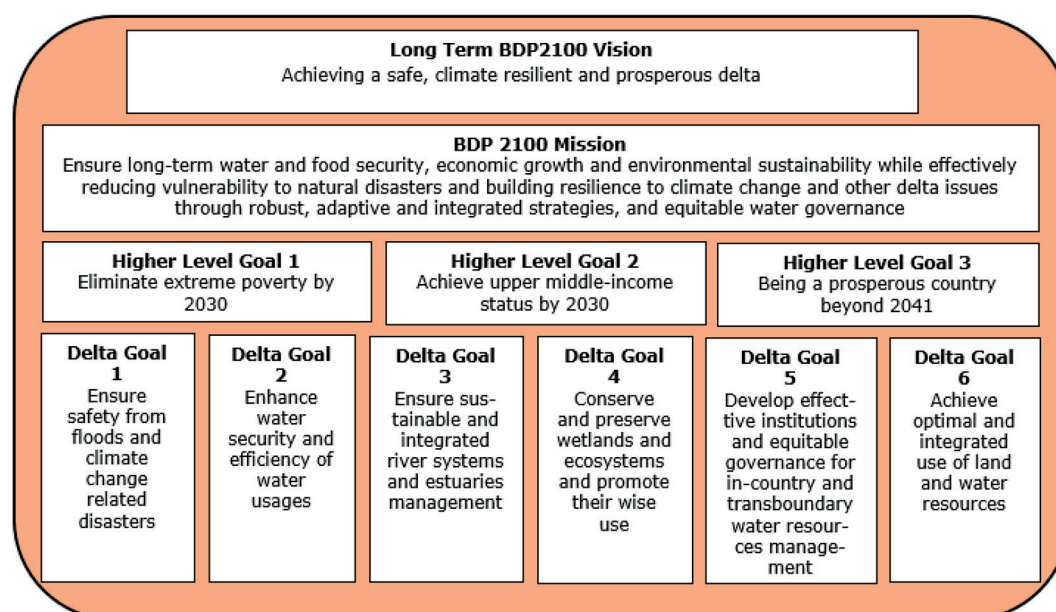


Figure 2.
Strategic ambition of BDP2100 in terms of Vision Mission and Goals.

Government's ambition with BDP 2100

Setting long term goals in an uncertain environment: BDP2100 is envisioned as an integrated plan that considers how the many aspects and issues of water resources, climate change and environmental challenges affect long term development of Bangladesh. This long-term vision has been translated into specific goals or and targets for its implementation. This was done by combining long term development outcomes in terms of economic growth and poverty reduction (also in relation to UN-SDGs) with goals for reducing long term vulnerability from water and climate change related hazards plus targets for environmental conservation.

The Delta Plan gives a vision of 'achieving a safe, climate resilient and prosperous delta' for a desired future spanning up to 2100. Its mission is to ensure long term water and food security, economic growth and environmental sustainability, while effectively coping with natural disasters, climate change and other delta issues to robust, adaptive and integrated strategies and equitable water governance. The Delta Plan has provided nationwide strategies on flood risk and freshwater management. It has also provided strategies on water supply and sanitation, waste management; transboundary water management, inland water transportation, agriculture, food security, nutrition and livelihood. Other thematic strategies focus on sustainable land use and spatial planning, environment, ecology and bio-diversity, advancing the blue economy; renewable energy and earthquakes. Besides, the plan has provided six hotspots strategies, addressing area specific challenges of water shortage in drought-prone Barind region; river erosion problems of the river and estuary areas; coastal inundation and salinity problems of the coastal area; flash-flooding and wetland management issues of the Haor region; water shortage, sanitation and drainage problems of the urban areas; and the water

shortage problem of the Chattogram Hill Tracts. The Bangladesh Delta Plan strategies include many measures such as water related infrastructure, protection works, river dredging, land reclamation, innovative water management solutions, governance improvements, knowledge management, finance and result based monitoring and evaluation. The characteristics of the Bangladesh Delta as well as the multi sectoral and authentic way the BDP has been developed under the Planning Commission results in a specific and unique Bangladesh Delta Plan.

In all these strategies, BDP 2100 seeks to integrate the short to medium to long term aspirations but is mindful that decisions taken today have implications up to 2050 and beyond. The choice by GoB for a long term (up to 2100) perspective was a deliberate one given expected climate change impacts over the long run and the necessity to act. An ex ante evaluation (carried out independent from the consultant team) with and without a BDP2100 indicated a positive effect of BDP investments on poverty reduction and contribution to the GDP. GoB accepts the uncertainties associated with existing water challenges and climate change by embracing adaptive strategizing and programming to utilize the available time to become resilient. In this line, the Steering Committee and the highest level National Advisory Committee (consisting of 7 ministers) treated the strategy process and formulation of BDP2100 in their frequent meetings in a positive-critical way which contributed significantly to the final decision making in the National Economic Council. The Delta Plan aims to reach the Delta Vision through achieving 3 higher policy goals of eliminating extreme poverty and achieving upper middle-income status by 2030 and being a prosperous country by 2041 and six delta specific goals that contribute to achieving these higher level goals. In this perspective, the preparation of the Investment Plan was a joint effort of the consultant team and a World Bank team.

Implementing BDP2100 concerns factors of policy and plan implementation:

1. **Integration and Mainstreaming** of BDP2100 in Five Year Plans and Sectoral Plans
2. **Institutional Framework** BDP2100 approved Institutions: Delta Wing, Delta Gov. Council, PSC, Fund
3. **Coordination and Execution** by forming and executing Implementation Programs with Agencies and Stakeholders
4. **Selection and Prioritization of Investments** during preparing the Implementation Programs
5. **Funding Arrangement and Financing:** Delta Fund; Annual Block Provision of 2,5% of GDP
6. **Result Based Monitoring and Evaluation**, focused on progress and performance
7. **Knowledge and Research**, BDP2100 is adaptive, always knowledge and science driven

Figure 3.
Relevant factors
of implementation.

After a year of additional consultations and improvements of BDP2100 and Investment Plan, decision making took place in several rounds in a process of approval. During the final decision making on September 4th 2018 of BDP2100 and its Investment Plan, Prime Minister Sheikh Hasina related the Delta Plan development to the inspiration and ambition of father of the Nation Sheikh Mujibur Rahman and indicated that BDP2100 will play a crucial role in 'building Bangladesh'.

From Planning to Implementation

Governance Issues

The government plans to spend 2.5% of the GDP annually (about \$ 6 bln a year) for delta-related interventions, through new projects and maintenance of new and old projects. A total of 80 projects: (65 physical projects, 15 institutional and knowledge development projects) will be implemented in the first phase up to 2030, with a total capital investment cost of \$ 37,5 billion. Early 2019, GoB already approved two projects (dredging of small rivers and canals and construction of a cross dam related to land reclamation) of \$ 60 mln each, funded with GoB-budget. Given the large and far reaching investment decisions to be taken, being cross-sectoral in nature with involvement of multiple line agencies, GoB faces various governance

issues as coordination and collaboration of the involved ministries and agencies, alignment of sectoral plans to the BDP2100, funding of investments and timely budget allocation to projects. GoB decided with the approval of BDP2100 to form a dedicated institutional framework by establishing a Delta Governance Council chaired by the Prime Minister, a Project/Program Selection Committee and a Delta Wing within the Planning Commission as well as setting up a Delta Fund (with a block provision of 2,5% of GDP per year) for smooth implementation of the Delta Plan. Whether or not the integrated Water Act 2013 needs to be modified is still in consideration.

Capacity Building and Training

Implementation of such a large plan as BDP2100 generates different dynamics than the Plan formulation. Figure 3. shows important factors related with preparing implementation.

Elaboration of these factors requires involvement of many agencies and stakeholders. Capacity building about what's the BDP2100 all about and organisational readiness for implementation are therefore of crucial importance for managing the indicated factors. To assist implementation, 5 implementation capacities will be strengthened, as indicated in Figure 4.

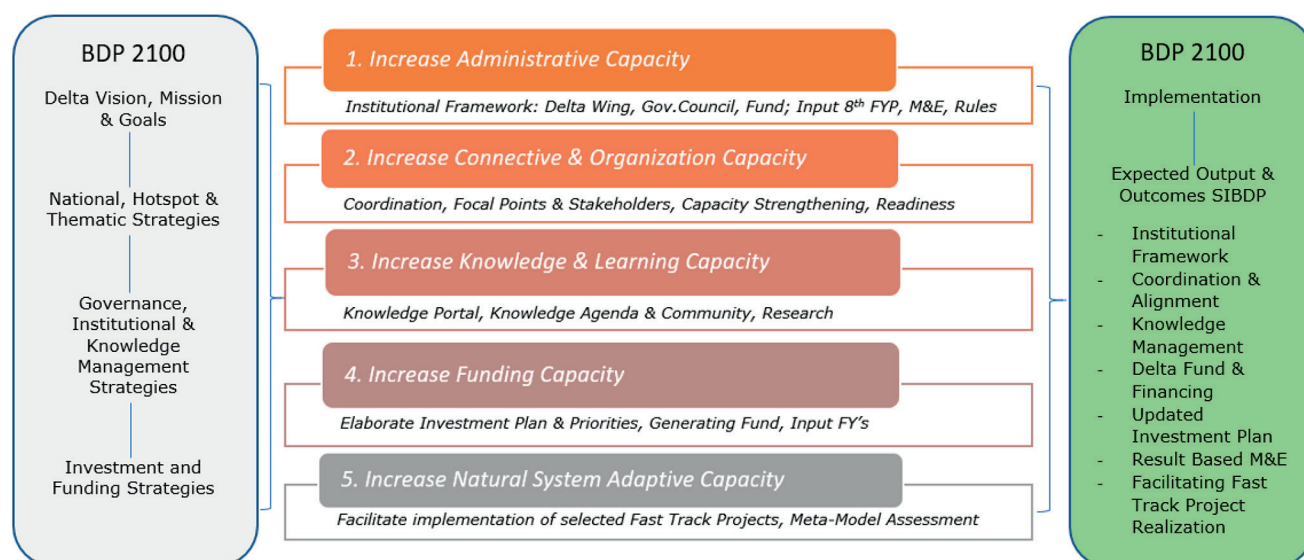


Figure 4. Increasing 5 implementation capacities.

Since the Delta Plan is an adaptive and long term plan, it will be periodically reviewed, updated and integrated into future Five-Year Plans. Moreover, new knowledge and technologies will be integrated to enhance the present status of the plan.

Adaptive Programming

The main goal of the implementation phase is organising ways to bring coherence in all efforts and projects in the Delta and to execute selected projects coming forward from the strategies and Investment Plan. River Basins and the Coastal Zone are chosen as logical units of consistent regional planning with stakeholder involvement and integrated implementation because hydrological, morphological, agro-ecological characteristics differ widely throughout the delta. Implementation of the BDP 2100 in the regional context faces many challenges:

- Fragmentation of efforts on local and regional level due to national institutions working in silos. Coordination is needed to bring coherence into the firm division of mandates and responsibilities;
- Lack of insight in overlaps between ministries and agencies in a coherent and holistic way; effective communication is needed to improve integration and collaboration;
- Current efforts are only aimed at realizing project results. A long-term planning view in which multiple alternatives are considered with a focus on goal-achievement is to be developed.

The river basin and coastal zone wise program management approach offers a systematic approach to conveying the holistic and adaptive BDP2100 philosophy into goal-focused regional implementation of projects. The first Implementation Program is under construction, including the 2 projects already approved by GoB: 1) Dredging small rivers/canals all over the country, 2) Urirchar cross dam. The institutional framework including the Delta Fund and Financing Strategy are in preparation and will enter procedures for establishment and reform soon. Currently, interaction with Development Partners, International Financial Institutions and e.g. UN on Sustainable Development Goals and the Green Climate Fund are taking place.

Conclusion

This case shows that the Government of Bangladesh is well aware of developments which could threaten the progress already made and could reduce options for becoming a resilient and prosperous nation. Many already existing and growth related challenges coincide with climate change issues. This posed an urgent question to the Government: “how to organise ourselves as country

to become resilient to uncertain climate change shocks and trends”? GoB choose to enable socio-economic development under uncertain changing conditions especially regarding climate change and (transboundary) water resources issues by preparing the comprehensive Delta Plan, BDP2100 which builds on recent insights of water governance and strategic management. The utilization of adaptive delta management concepts and principles developed in delta planning and programming in the Netherlands relates to a long term vision and development ambitions as well as to delta specific goals and scenarios and focuses on strategies and investments for achieving development goals including protection that will be robust and adaptive under uncertain changing conditions. GoB’s choice to prepare the BDP2100 in a multi-sectoral way, close to its core governance agencies, resulted in a typical Bangladesh Delta Plan 2100 and contributed to the successful approval process and final decision making. Within this process, there was specific attention to mechanisms and design of an institutional framework as well as an Investment Plan fitting in this governance setting. Continuity of the process from strategizing towards implementation, with staff and assistance from plan formulation into implementation is an important aspect in terms of progress, knowledge management and interactions. It is recommended to elaborate the implementation programs in a goals and results focused manner by application of adaptive programming in the making of basin wise and coastal zone participative programs.

SAMENVATTING

Dit artikel beschrijft een praktisch voorbeeld van strategisch management en water governance, toegepast in Bangladesh. Met het opstellen van het Bangladesh Delta Plan 2100 heeft de overheid van Bangladesh laten zien hoe Adaptive Delta Management in de praktijk kan worden toegepast. Op basis van de missie, visie en doelen is met behulp van scenario’s een strategie opgesteld voor de korte- en middellange termijn. De realisatie van de strategieën is financieel gedekt door het opstellen van een investeringsplan. Op 4 september 2018 heeft de minister president van Bangladesh, Sheikh Hasina, het plan vastgesteld en toegezegd dat het Delta Plan een belangrijk onderdeel is van het ‘Bouwen aan Bangladesh’. Sindsdien is de implementatie begonnen, onder andere door het opstellen van regionale implementatieprogramma’s. Beide auteurs werken bij adviesbureau TwynstraGudde en zijn nauw betrokken bij het opstellen en implementeren van het Bangladesh Delta Plan 2100.

- 1 See for BDP2100 and Investment Plan documents: <http://www.plancomm.gov.bd/site/files/fd6c54f6-dfab-4c71-b44a-e983fd2bdee/->
- 2 Baseline Studies are clustered into 6 Volumes, see: <http://www.plancomm.gov.bd/site/files/0adcee77-2db8-41bf-b36b-657b5ee1efb9/->