

Bangladesh Water Partnership (BWP)

Comments on APAN Technical Report FY 2013 chapter by GWP South Asia: “Emerging and Critical Issues in Climate Change Adaptation in Water in South Asia- Climate Resilience and Water Security in the region”.

Bangladesh Water Partnership held a Stakeholders Consultation Meeting to discuss the aforementioned APAN Technical Report FY 2013 chapter by GWP South Asia on 17th July 2014 at Dhaka where 24 participants from different organizations, agencies and departments of Bangladesh related to water and environment, actively participated. The meeting elaborately discussed the Technical Report 2013 chapter section by section and came up with the following comments,

I. General Comments

- It was observed that the person/persons responsible for preparation of this chapter has not given adequate consideration to the following two documents of Bangladesh Water Partnership (BWP) - Country Status Paper on Climate Resilience and Water Security, and
-Climate Change Adaptation in Water Management for Food Security: Recent Developments in Bangladesh,
which were earlier submitted to GWP SAS for necessary action/consideration. The Technical Report under Consideration amply reflects this fact.
- The persons responsible on GWP SAS are requested to appropriately consider all the partner countries’ inputs while finalizing this Technical Report adequately describing the individual country situations vis a vis CCA and highlighting the country efforts towards adaptation amply flagging the success stories.
- The Report must be well written and properly edited. The different country status descriptions should follow similar patterns and formats.

II. Specific Comments

2.1 Please refer to section 1.1 – Background

Comments:

- a. It has been written in the first paragraph (line 3 & 4) that “*almost one in five people in South Asia lack improved water sources, despite significant progress made in recent years and the availability of many technically feasible and low-cost solutions.*”. But the fact however remains

that most of the people living in this South Asia Region actually lack access to clean, safe and adequate amount of water.

- b. A common hydrological characteristic of the South Asian Region (in most parts) is the wide seasonal variation of water availability from overabundance to severe scarcity of water which critically impacts the life and living of the common people. This aspect needs to be appropriately highlighted as a major hurdle to flood and water management which otherwise can be overcome by a reasonable degree by striking a balance between the seasonal water availabilities and demands through scientific and intelligent interventions. This is a major issue which needs adequate highlighting in the chapter..

2.2. Please refer to 1.2 Adaptation and Resilience to a changing Climate – a regional overview

Comments:

- (a) In the second paragraph of this section, it has been stated that *South Asia is among the most data rich regions of the developing world*. But unfortunately there is no system in place for free flow of water related data and information amongst the regional countries for the common good of the millions of South Asian population. Whereas basin wide data sharing and knowledge management is of prime importance for the region.
- (b) Again it has been mentioned in the third paragraph of the same section that *collective capacity of SAARC could facilitate proper addressing of the gaps*. It however needs to be noted here that there is no Instrument for SAARC that could meaningfully facilitate free flow/exchange of water related data and information and resolving problems of water sharing and management particularly in the trans-boundary domain amongst the relevant countries. All these could have radically improved the flood forecasting as well as drought forecasting to ameliorate the miseries of millions living in different countries/areas of South Asia.
- (c) Moreover SAARC is not mandated to deal with Bilateral issues. The issues relating to trans-boundary river water sharing and management are considered purely as Bilateral issues by one SAARC member country and hence cannot be discussed in SAARC needs to itself. Hence SAARC first review and revise its mandate in this particular regard.

2.3 Please refer to sub-section 1.2.1 Hydrological Data Sharing Among Regional Countries

Comments:

- a. In the second line of this sub-section, it has been stated that *“India and Bangladesh share the Ganges and Brahmaputra”*. The reality is that India and Bangladesh not only share the Ganges and the Brahmaputra rivers but also 52 other transboundary/common rivers.
- b. Again it has been said that *“all member countries have agreed in principal to share the data for early warning and it has to be ratified by the Parliaments of the respective member countries”*. The authenticity of this statement needs to be appropriately verified. In the past, there had been serious endeavors facilitated by international efforts to establish a system of free flow of water related data amongst the regional countries for the cause of humanity. While most of the countries agreed to establish a system of free flow or exchange of data, one particular country did not and so all the endeavors could not come to fruition.

2.4. Please refer to sub-section 1.3.3 Bangladesh

Comments:

This entire sub-section on Bangladesh should be replaced by the following texts.

Bangladesh

Bangladesh has the highest rates of water-related fatalities in Asia and potentially the most vulnerable country in the region that will experience grave consequences with an increase in cyclones, extreme flooding and higher than average sea level rise. According to IPCC, due to the adverse impacts of climate change the level of poverty in the country might increase by another 15% by the year 2030. Due to salinity ingress because of sea level rise, the yield of rice would decrease by 8% and that of wheat by 32%. With the possible sea level rise by 28cm, the entire Sundarbans of Bangladesh, the largest mangrove forest in the world and also a world heritage site, might be engulfed by the sea in the coming future.

Most of the landmass of Bangladesh is flat and not much high above the sea level. The country is the lowest riparian of the three major river systems of the Himalayan range-the Ganges, the Brahmaputra and the Meghna which drain a huge volume of water generated in the catchment areas of these rivers. About 92% of the run –off Bangladesh has to deal with, enters the country from outside the country. Unfortunately, Bangladesh does not have any control over the flows of these transboundary rivers coming from across its borders. Bangladesh is one of the most densely populated countries of the world having a population of 160 million with a density of more than 1000 per sq.km. More than 700 km. of

coast line in the south has a population of over 40 million who are most vulnerable to cyclones, tidal surges and salinity ingress. Between 22 to 30% of the country gets flooded almost annually while about 2/3rds of the country gets inundated during severe floods which are increasing in depth, duration and frequency. On the other hand, the country faces water scarcities during dry seasons (November – May). The progressive reduction of dry season flows through the trans-boundary rivers due to increasing cross-border upstream diversions is exacerbating the situation further. As a result, the life and living of the people as well as natural balance in large areas of the country are being adversely affected. The groundwater available in most parts of the country is now contaminated with arsenic whose continuous use in the drinking and domestic sector has already given rise to several serious health problems occasionally leading to deaths of people due to prolonged continued ingestion of arsenic contaminated water. In the absence of adequate amount of surface water in the dry season, there is over exploitation of groundwater which is resulting in permanent lowering of the groundwater table and salinity ingress in the groundwater itself. Agriculture, the mainstay of national economy is however at the cross roads as dry season water scarcity, land degradation, salinity ingress and the climate change impacts are threatening its sustainability. A formidable challenge before the country relates to housing, food security, access to clean water and energy and other services for its huge population. Unplanned land use in setting up development projects, Industries etc, grabbing of wetlands and other common resources by unscrupulous persons and unplanned rapid urbanization is a major problem. Bangladesh is losing its agricultural lands rapidly and more would be lost in future due to increased salinity ingress and there is a serious concern relating to food security in future as the total population is expected to hit 300 million by the year 2050.

Soil degradation is posing another serious problem in Bangladesh. Estimates by Bangladesh Agricultural Research Council (BARC) indicate that soil related problems may become a major constraint to agricultural growth. Unless compensated through balanced application of nutrients every year the fertility of land is going to decline and so will be its productivity. As per one estimate, about one percent of crop GDP will be lost every year. Sustainable land management is therefore, a major challenge for now and also in the future.

Climate change is going to create major problems in Bangladesh's agriculture and food security. This calls for large scale investments in technological innovation or adaptation in water management, infrastructure development, cropping system and varietal improvement and development, modeling of climate change and its impact. Bangladesh remains highly proactive in facing the adversities of Climate Change. It is one of the first countries to develop a Nationally Appropriate Plan of Action (NAPA) in 2005 for addressing climate change through a Consultative process among GOs, NGOs, Civil society, academia, professional bodies, private sector, research organizations, think tanks and development partners. The NAPA was updated in 2009. And, as the first country in the world, Bangladesh has adopted a Bangladesh Climate Change Strategy and Action Plan (BCC SAP) in July 2009. It is built around six broad thematic areas or pillars: (i) food security, social protection and health, (ii) comprehensive disaster management, (iii) infrastructures, (iv) research and knowledge management, (v) mitigation and low carbon development, and (vi) capacity building and institutional strengthening. The BCCSAP includes many listed programs of action.

The government has already invested US\$10 billion over the last 3 decades to make the country climate resilient and less vulnerable to disasters. Recently the government has created a Taka 29 billion Bangladesh Climate Change Trust Fund (BCCTF) with its own resources and is going ahead with adaptation activities by GOs and NGOs,. Another Fund, namely Bangladesh Climate Change Resilience Fund (BCCRF) has been established by the government with contribution from development partners. A

good number of projects are being implemented by different Ministries with funding from Climate Change Trust Fund (BCCTF). These projects which would have a total cost of TK.200 billion include amongst others, Innovation and Extension of rice based technology to reduce the adverse impact of climate change; Water supply and social security for the affected women and children; Risk reduction in the context of climate change impact on health sector in Bangladesh; Up gradation of early warning and agro-meteorological forecasting system; Reconstruction of coastal embankment; Land reclamation in coastal and estuarine areas by construction of cross dams. Recxavation/dredging of rivers and khals to improve flood drainage; Innovation of sustainable crop system for drought prone and coastal/saline areas to face climate change impact; Capacity building in Mathematical modeling and Remote Sensing activities; Community Based Adaptation in the Ecologically Critical Areas through Bio diversity Conservation and Social Protection etc.

As part of low carbon development, both the private sector and the government are investing substantially providing solar home systems, biogas stoves and are now undertaking solar mini-grids and wind energy as pilot projects. However, financing of these expensive technologies still remain a major challenge.

Beginning in 1998, Bangladesh developed a National Comprehensive Disaster Management Program (CDMP) for disaster planning, coordination preparedness and response, The program has brought in a paradigm shift in Bangladesh's disaster management culture by moving away from the earlier response mechanism of primarily relief and rehabilitation to disaster planning, preparedness, early warning dissemination, emergency response and rehabilitation by building capacities at all levels-national, sub-national and grassroots.

A large number of cyclone shelters were built and a large contingent of volunteers was trained to help the people in harm's way evacuate as a cyclone approaches and also help them find access to immediate relief. As a result Bangladesh became a world leader in cyclone response preparedness and action. Hence while 348,000 and 138,000 people died as consequence of the devastating cyclones of 1970 and 1991 respectively, only 3,800 died as a consequence of the mega cyclones Sidr (2007) and Aila (2009).

Bangladesh has an elaborate Standing Order on Disaster (SOD), which outlines committee formation at all levels from central to village and codifies what to do in the event of natural disaster. Over the past decade, integration of disaster risk reduction with disaster risk management has been institutionalized.

The Government has so far improved 456 cyclone shelters, built 230 new ones and is going to build another 2700 new multipurpose cyclone shelters in 10 years in the coastal belt. The newly built cyclone shelters are also used as government/non-government primary schools as well as community centers for training and recreation. These shelters are being provided with solar lighting, rainwater harvesting, separate rooms for pregnant women, bathrooms, doors and windows, first aid boxes and 2 to 4 tube wells, which were absent in the earlier cyclone shelters. All cyclone shelters are 3 storied with one floor for keeping animals when a cyclone strikes and have provisions for vertical extension in their foundation. More new cyclone shelters are now in the offing.

Bangladesh is making all out efforts to improve its Flood Forecasting and Warning system. In terms of giving advance warning on floods, Bangladesh Water Development Board (BWDB) with the application of more modern techniques is frantically trying to increase the lead time of flood warning to 72 hours from 24 hours for the major river floods, and at least 6 hours for the flash flood prone areas. This endeavor would come to fruition if only the upper riparian country/countries extend meaningful

assistance by providing real time rainfall and river water level data of the upstream hydrometric stations on the Trans Boundary Rivers, 54 of which flow through this densely populated country. Bangladesh has no mechanism of drought forecasting in place. Relevant research organizations are trying to evolve appropriate drought forecasting systems in the country but in this case too, the active assistance of the upper riparian countries will be an essential prerequisite.

In the field of infrastructures, all the communication, housing and settlement and water sector infrastructures are now being designed and implemented under the flood proofing concept so that they are not inundated by increased flood heights. The plinth levels of dwelling houses are being raised gradually. The roads, rail-way tracks are being gradually raised to put them above the inundation depths. The heights of old flood protection embankments as well as sea dykes and appurtenant structures are being gradually but slowly raised. Paucity of funds is however a major constraint in this respect.

All dwelling houses are going to be progressively equipped with rain water harvesting systems. More small scale water conservation undertakings are also in the offing. The relevant departments like Bangladesh Water Development Board (BWDB), Roads and Railway Departments as well as the Housing sector are making sure that the designs of all their future projects cater to the changed circumstances to be forced by climate change. Some of these projects are being funded by the climate change trust fund as well as climate change resilience fund. River erosion control projects of BWDB are being designed to be more robust and effective.

In order to effectively deal with the climate change impacts. The Estuary Development Project would not only offset the negative impacts of sea level rise but shall also help accrete more new land along the coast in the south. 18 scientifically designed cross-dams would be undertaken at the initial stage under this project. Water Resources Planning Organization (WARPO) is going to update and revise the National Water Management Plan to face the impacts of Climate Change. BWDB has also embarked upon an ambitious program of Capital Dredging in the main rivers as well as some other important medium rivers to improve the drainage system of the country.

As for irrigation management, people and the relevant departments are encouraging more and more innovative techniques to facilitate round the year irrigation. Traditional practices such as pond excavation, retention of rainwater in mini pond or in 12'x12'x3' size pit at any corner of the land is providing supplemental irrigation in many places. Private and government supported shallow and deep tubewells are also facilitating irrigation with subsidy in fuel and electricity. Rubber dams are being implemented in increasing numbers in some small rivers for supplying irrigation water. Farmers are practicing moisture conservation through 'mulching' by straw, water hyacinth, rice husk, polythene etc. Some are following AWD (Alternate Wetting and Drying) method for rice cultivation. Alternative adaptation practices such as multiple cropping systems and homestead gardening etc. are also been encouraged.

In the field of appropriate crop and variety selection, cultivation of existing crops may not be possible following current cropping patterns due to the environmental changes induced by climate change. So the relevant research organizations of the Ministry of Agricultural are innovating and evolving different rice varieties like the following,

- Drought Tolerant: For rice crops Bangladesh Rice Research Institute (BRRI) dhan 42, BRRI dhan 43 and early maturity BRRI dhan 33, BRRI dhan 39. For acute drought prone areas the variety is BINA

dhan-7. The newly innovated hybrid Boro paddy (dhan) BRRRI Hybrid Dhan-3 with shorter life time and lower production cost is going to be released soon. Farmers are adopting some innovative practices (viz. zero tillage, priming of seeds during sowing, mulching, relay cropping, dry seeding etc.) in the drought prone areas.

- **Saline Tolerant:** Bangladesh Institute of Nuclear Agriculture Research (BINA) has released two salt tolerant 'Aman' rice varieties (BINA-8, BINA-9). Besides, BINA Tomato-6 will also be a salt tolerant tomato seed variety. BRRRI has already released salt tolerant rice variety (Bridhan 47) for the coastal region. Farmers are adopting some innovative practices like 'Floating bed agriculture in many flood prone and salinity / tidal surge areas. Salt tolerant spices like chilli, groundnut, methi, water melon, cucumber are being encouraged to be cultivated in saline zones.
- **Flood Tolerant:** BRRRI has released two flood tolerant varieties (BRRRI dhan-51, BRRRI dhan-46) can be cultivated just after the flood water recedes till mid-October. Submergence tolerant rice BR-11-sub-1 has been released. The newly innovated hybrid 'Boro' paddy-BRRRI Hybrid dhan-3 with shorter lifetime and lower production cost is expected to be released very soon.

Floating vegetable cultivation on water hyacinth mass (heap) may be practiced in low lying areas which for major part of the year remain submerged.

The relevant departments in charge of urban water supply, are planning to increase the usage of surface water and to reduce the dependency on ground water. They plan massive investment to replace dwindling groundwater resources with treated surface water from less polluted rivers (Padma and Meghna) located far away from the city of Dhaka and also plans to undertake water purifying program on larger scale to ensure safe drinking water for all.

The Government of Bangladesh (GoB) is well aware of the impending situation due to climate change. The GoB has already formulated its policies, strategies and action plans to cope with the climate change impacts. Bangladesh however needs meaningful cooperation from the global or more specifically from the adjoining South-Asian countries in the field of exchange of real time data on water situations like floods, drought, cyclones etc. Regional collaboration among co-basin countries of the Ganges and the Brahmaputra like China, India, Nepal, Bhutan and Bangladesh for basin-wide Integrated Water Resources Management (IWRM) of the International rivers for mutual benefit of all is the pressing demand at this time for the welfare of millions of people.

2.5 Please refer to sub-section 1.4.1 Knowledge, skills and practices –

Comments

Here it could be beneficial if the special knowledge, skills and practices both indigenous and modern practiced or innovated in the SAS region could be highlighted and briefly described to encourage spreading of the knowledge and skills among the relevant people living in different countries. Here the different country inputs can be of good help.

2.6 Please refer to sub-section 1.4.2 Examples of Good Practices of Climate Resiliency (Adaptation Technologies and Adaptation Capacities)

Comments:

This section needs to be amply enriched with the help from individual country inputs.

2.7 Please refer to sub-section 1.6 Gaps and Challenges – Recommendations

Comments:

This is a very important section which needs a lot of strengthening and polishing. Major efforts need to be put here. Recommendations must be well thought and well documented. Recommendations must highlight the fact that water should be used and managed through mutual collaboration and cooperation with joint efforts and water must be used to unite people and not to divide them. No country should take any step in the name of water development or management to the detriment of interests of the downtrodden millions living in an adjoining or lower riparian country. It further needs to be recommended that no water from any particular river basin should be transferred to another river basin without first fulfilling all the present and future water needs of that particular basin. It must be appropriately flagged that while availability of water has given rise to civilizations, scarcity of water has brought doom to many important civilizations.

2.8 Please refer to sub-section 1.7 Conclusions

Comments:

This section should be very carefully written adequately highlighting the different burning issues. Above all this should emphasize the need for cooperation by all and not conflict with water. A message must be inscribed in this section that for climate change adaptation collaboration amongst the countries of this region.

Photo Gallery

