BANGLADESH ENVIRONMENTAL NEWSLETTER
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BANGLADESH CENTRE FOR ADVANCED STUDIES (BCAS)

EDITORIAL

Agricultural productivity, particularly the production of rice has increased significantly in the flood controlled areas in the recent decades, but this has been achieved at the huge loss of open water fisheries in Bangladesh. A study has found that agro-fish friendly sluice gate management can increase fish production without affecting agricultural productivity. The main article of this Bangladesh Environmental Newsletter (BEN) has focused on the process and outcomes of guideline development for agro-fish friendly sluice gate management.

The UN agencies and the governments are formulating global development agenda beyond 2015, which calls for an integrated policy approach to ensure inclusive social development, environmental sustainability, peace and security. It is strongly felt that the renewed global development agenda must have a core focus on poverty alleviation and equity.

This issue has also included an international news on UN climate conference held in Warsaw, which identified the key challenges of the negotiators for limiting global temperature rise below 2°C through deeper cut in carbon emission. Two other articles featured on the livelihood challenges of the extremely poor in the riverine Charlands and empowerment of vulnerable communities through local adaptation planning in climate affected ecosystems.

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Agro-Fish Friendly Sluice Management for Enhancing Fish Production and Wetland Biodiversity Conservation

Flood is a common phenomenon in Bangladesh. Every year a vast area (30-60%) is flooded and remains underwater for 3-5 months. Floods, on one side, make land fertile for agriculture and provide excellent feeding, growing and breeding ground of fish and other aquatic resources that migrate between riverine and floodplain system offering immense opportunity of fish production. Flood sometimes causes heavy loss to agriculture crops, assets and miseries to the people. Considering the negative impacts of flood on agriculture, over 650 Flood Control, Drainage and Irrigation project (FCD/FCDI) covering an area of about 5.5 million hectares floodplains with 13,000 kilometer embankment and 4,190 sluice gates and regulators have been constructed since 1960s. As a result, agricultural production, particularly rice production has

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National workshop on Agro-Fish Friendly Sluice Management held at BARC, Farmgate, Dhaka. Dr. Atiq Rahman, Executive Director of BCAS is seen with Dr. Shelina Afroza, Secretary, MOFL, Dr. Syed Arif Azad, DG of Department of Fisheries and Md Abul Hashem, Project Director, WBRP, Government of Bangladesh. Source: BCAS

Livelihood Challenges in the Riverine *Charland*
Climate Information Sharing to promote Adaptation

Bangladesh is one of the most vulnerable countries to the impacts of global climate change due to its very location (between the great Himalayan Mountains in the North and Bay of Bengal in the South) and deltaic landmass with three large river systems (Brahmaputra-Jamuna, Ganges-Padma and Meghna rivers). The country has large population and wide spread poverty and limited capacity to address the severe impacts of climate change and the associated risks. The key climate factors including temperature rise, heavy and erratic rainfall, drought and climatic extremes like flood and river bank erosion, cyclone and tidal surges etc are affecting all the ecosystems, natural resources base and livelihoods of the common people. The riverine *Charlands* (Sandbar islands) of the Brahmaputra-Jamuna river in the North central Bangladesh are the worst affected areas in Bangladesh. Climate induced frequent and devastating floods has intensified erosion and accession in the major rivers and thousands of poor and marginal people are living on the *Charland* in inhuman conditions. They are facing multiple hazards and the associated risks that affect their physical infrastructures (houses, roads, communication, flood shelters), health, working potentials and their livelihood activities.

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UN Conference on Climate Change held in Warsaw

Most Vulnerable Countries (MVCs) demanded Compensation for L&D

The United Nations Climate Change Conference known as COP and the Meeting of the Parties (MOP) were held in Warsaw, Poland from 11 to 23 November 2013. It was the 19th yearly session of the Conference of the Parties under the UNFCCC, 1992 and the 9th session of the Meeting of the Parties to the 1997 Kyoto Protocol. The conference delegates continued the negotiations towards a global climate agreement. UNFCCC's Executive Secretary Christiana Figueres and Poland's Minister of the Environment Marcin Korolec led the negotiations. The government delegates from over 190 countries and representatives from UN agencies, research and civil society organization, human right groups and media attended the conference.

A Plenary Session of CoP-19, held in Warsaw, Poland

Source: UNFCCC

Negotiations

The overarching goal of the conference was to reduce greenhouse gas emissions (GHGs) to limit the global temperature increase to 2 degrees Celsius above current levels. According to the Executive Secretary of the UNFCCC, Christiana Figueres,

> *"Global greenhouse gas emissions need to peak this decade, and get to zero net emissions by the second half of this century... National governments need to act to minimize impacts to their populations and ensure sustainable development over generations. The private sector needs to act to minimize climate risk and capture opportunity. And the international process must push forward now to build the foundation for an ambitious universal climate change agreement in 2015."*

The issues of clean energy, and specifically the financing and technology transfer of renewables in developing countries, got much importance during the conference. The Bangladesh delegations with government negotiators, climate scientists and representatives from civil society organizations made a good presence in the conference and re-emphasized that global response to climate change must be based on the principle of equity and common but differentiated responsibilities. The delegation demanded a legally binding agreement under the ADP for wider participation in the second commitment period and deeper cut in carbon emission by the annex-1 countries. The delegation further highlighted the needs and priorities of the most vulnerable countries (MVC) and emphasized on the implementation of loss and damage (L&D) so that the poor countries can claim compensation for the affected people and sectors to address climate change impacts.

The Key Focus of the Conference

Several preliminary and actual agreements were put at the forefront of the talks, including: unused credits from phase one of the Kyoto Protocol, improvements to several UNFCCC action mechanisms, and a refinement of the measurement, reporting, and verification of greenhouse gas emissions (GHGs). Delegates focused on the potential conditions of a final global climate change agreement expected to be ratified in 2015 at the Paris Conference. The early findings of the IPCC Fifth Assessment report known as AR-5 was shared in the conference, which drew much of the attention of the negotiators and global audience through media coverage. The report has highlighted that negative impacts of climate change are affecting the agriculture and yields of crops across the world (particularly in Asia and Africa), water resources and health of the common people. The livelihoods of the poor are being severely affected by climate change, which again threatens the human security and enhancing climate refugees from the climate hotspots. Along with the impacts and vulnerability to climate change, the AR5 has identified adaptation strategies and a set of principles for effective adaptation. The report suggested to mobilize adequate fund and technologies for adaptation and mitigation.

The Challenges Ahead

The conference ran beyond the scheduled end date of 22 November by a day before some consensus was reached. Member states agreed to work towards curbing emissions as soon as possible. As follow-up of the Warsaw COP, the key challenges for the climate negotiators in Lima and Paris would be to agree on:

- Global warming must be limited to 1.5 degree Celsius in this century
- Real commitments and action must be taken for deeper cut in carbon emission by 2030
- Developed nations must pledge billions for adaptation and mitigation
- The most vulnerable groups and places must be compensated immediately, and
- Technologies for adaptation, mitigation and green development must be developed and shared. ❁

- Based on UNFCCC Document

Global Development Agenda beyond 2015

The United Nations and all the key development agencies are working towards setting the development agenda beyond 2015 since the MGDs are going to end in the next year, which guided global development agenda in the last 15 years. Without losing focus on further progress on the MDGs, it is now time to accelerate thinking on a global development agenda beyond 2015. The UN Conference on Sustainable Development known as Rio+20 held in Brazil, 2012 gave a strong basis for the Post 2015 Development Agenda.

The UN Secretary-General has established the UN System Task Team on the Post-2015 UN Development Agenda and a High-level Panel of Eminent Persons. He also appointed a Special Advisor on Post-2015 Development Planning. The purpose of these tracks is to guarantee a broadly consultative process to support the design of the post 2015 UN development agenda.

The UN Task Team supported system-wide preparations for the post-2015 development agenda. It brings together over 60 UN entities and agencies and international organizations and is jointly chaired by DESA and UNDP. The Task Team worked on eleven thematic areas (including hunger, food and nutrition, water, energy, environmental sustainability, population dynamics, equity and governance etc.) and provided analytical inputs, expertise and outreach into the discussion on the post-2015 development agenda. It presented its first report, titled *Realizing the Future We Want for All,* in June 2012. The report lays out a set of recommendations for a development agenda beyond 2015. It calls for an integrated policy approach to ensure inclusive economic development, inclusive social development, peace and security and environmental sustainability within a development agenda that responds to the aspirations of all people for a world free of want and fear.

The government of Bangladesh and the civil society groups, in close association of the UNDP Dhaka office, have prepared a report on the Post-2015 Development agenda for Bangladesh, which emphasizes on five key areas: inclusive economic development with equity; inclusive social development and poverty alleviation; environmental sustainability including combating climate change; energy for all and energy efficiency; and governance.

- D. Mallick

Empowering Local Communities to adapt to Climate Change

Climate Resilient Ecosystems and Livelihoods (CREL) project scales up and adapts successful co-management models to conserve ecosystems, improve governance of natural resources management and increase resilience to climate change through improved local planning and livelihood diversification. CREL is a multi-Institutional project which is being coordinated by Winrock International and supported by the USAID. BCAS is a technical partner of CREL. The Component-3 of CREL engages local communities and actors to upgrade the co-management plans to address climate change risk and vulnerability at the local and regional context. Participatory Climate Vulnerability Assessment (PCVA) approach was applied to assess the risks and vulnerability of the community and ecosystems at selected Protected Areas and wetlands as well as to develop local adaptation and mitigation plans.

PCVA is an emerging and systematic process of assessment that involves community, vulnerable groups and key stakeholders for comprehensive understanding and examination of the local contexts, perspectives of different socio-economic groups, their risks and vulnerability to climate change, current coping as well as the adaptation and mitigation needs and priorities of the people. PCVA is mainly a qualitative and collective way of understanding and analyzing the risks and vulnerability at spatial and geophysical, temporal, social, institutional and development contexts considering multiple impacts of climate change. The objectives of the PCVA and local planning were to identify the key climatic hazards, the associated risks and vulnerability of the poor, women and marginal communities in the villages in relation to natural resources management and livelihoods of the common people. It further identified the current coping and adaptation and mitigation needs and priorities of local community and Village Conservation Forum (VCF).

Community Participation and Ownership

The PCVA teams (involving local people, project staff and climate scientists) have gathered and analyzed people's perceptions and experiences in relation to socio-economic, environmental, and climate change stresses (temperature rise, change in rainfall and seasonal patterns) and natural disasters like flood, cyclones, salinity and drought in Sylhet, Khulna and Chittagong regions in July, August and September, 2013. The process has engaged the resources users, local actors and stakeholders including the farmers, fishers, women and representatives from local government to identify their risks and vulnerability as well as to find doable solutions in relation to improvement of Natural Resources Management (NRM), livelihoods, adaptation and mitigation in forest and its influence zones. The vulnerability of

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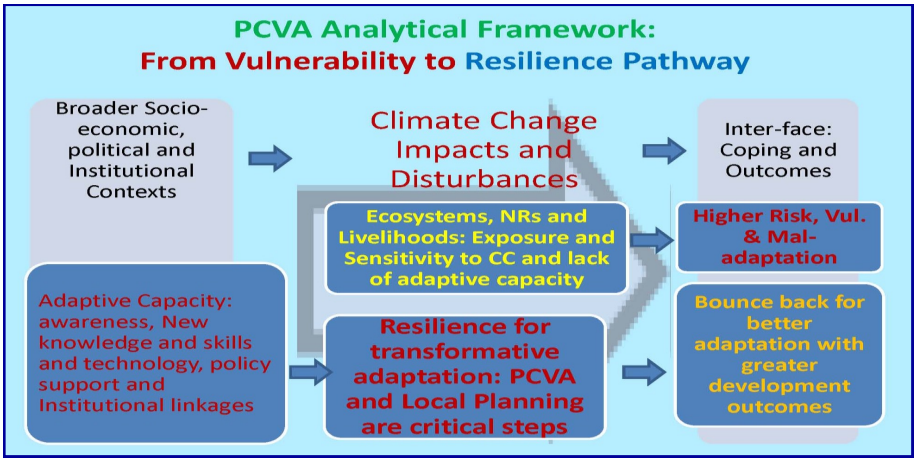

Diagram –1 : Analytical Framework of PCVA

Agro-Fish Friendly Sluice Management for Enhancing

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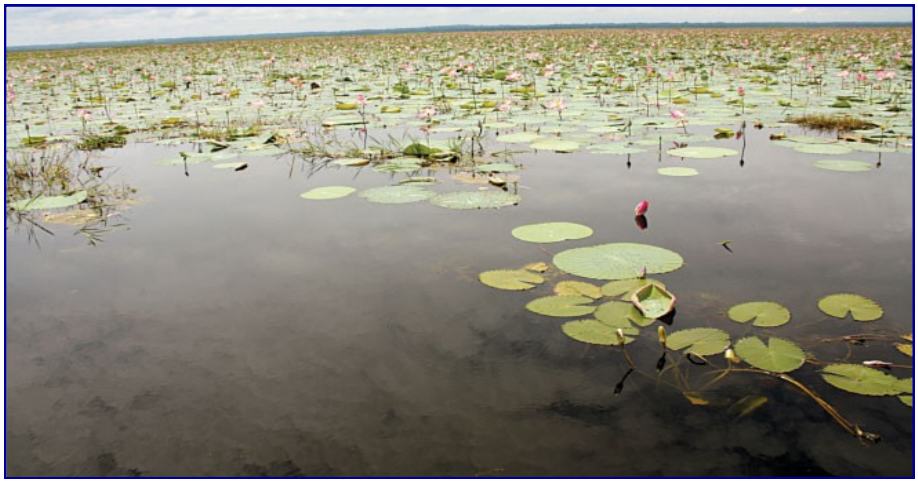
increased significantly, but at the huge loss of open water fisheries in the flood plain.

Impacts of FCDI projects on Fisheries

It is strongly felt that due to construction of embankment under the FCD/FCDI projects, migration of fishes and other aquatic lives between river and floodplain has been obstructed and thereby fish production, biodiversity and livelihood of fishers and other dependent on floodplain resources have been severely affected. Sluice gates of the FCDI Projects are generally kept closed during April-September to control floods and protect crops. This is the prime time for fish migration into floodplain. During late October the gates are opened to drain out water from the floodplain leaving almost no water in the floodplain. Both the situations are against the interest of fish and other aquatic living resource.



Floodplain Wetland Chanda Beel in Gopalganj

Source: BCAS

Study on Sustainable Sluice Gate Management

A DFID supported study, on the use of sluice gate for enhancing fish stock in the floodplain, conducted by IIED-BCAS during 2003-04 have shown that with proper and timely operation of sluice gate, fish could migrate through the sluice gates and enhance fish stock, fish production and biodiversity in the floodplains without affecting agriculture. The findings of using sluice gate for enhancing both agriculture and fisheries in the FCD/FCDI project & embanked area has been demonstrated as a key component of the GIZ supported Wetland Biodiversity Rehabilitation Project (WBRP) of the Department of Fisheries in Bera, Sujanagar and Sathia upazila of Pabna district impacted by the Pabna Irrigation and Rural Development Project (PIRDP).

The tested agro-fish friendly sluice gate management system could be applied in other similar FCD/FCDI project area or any embanked/polder area of the country for enhancing fish production and Conservation of biodiversity. Recently, the Department of Fisheries and GIZ found the necessary to formulate guideline for agro-fish friendly sluice gate management.

Hence, a study on "Promotion of Sustainable Sluice Gate Management Approach through integration into the government's existing structure" has been undertaken with assistance of GIZ under the WBRP of DoF in 2012-13 to formulate a guideline for agro-fish friendly sluice gate management. The study was undertaken by Bangladesh Centre for Advanced Studies (BCAS) with DoF and GIZ. The study undertook review and analysis of national policy, documents, reports, good practices and stakeholder discussion along with FGD, KII, roundtables, seminar & workshop. Based on the study, the guideline for agro-fish friendly sluice gate management was formulated for the government agencies and actors for application in the FCD/ FCDI projects.

Approach and Steps of the Study

i) Policy Review and Analysis

The seven relevant policies including (1) National Water Policy, (2) National Agriculture Policy, (3) New National Agriculture Extension Policy, (4) Integrated Minor Irrigation Policy, (5) National Fisheries Policy, (6) Environment Policy, and (7) Land Use Policy, have been reviewed in consideration of water resources management for agro-fish friendly sluice gate management in order to benefit both crops and fish. From the policy review, it appears that there is no conflict in respect to implementation of agro-fish friendly sluice gate management.

ii) Stakeholder Consultations and Workshop

Stakeholder consultations at grassroots level with the fishers, farmers and local elites, KII with local government officials and local government institutions, local and regional (WBRP area), national workshop and roundtable discussion involving the high government officials of BWDB, DAE and DoF have been conducted to exchange views and seek suggestions regarding agro-fish friendly management of sluice gates. All concerned realized the importance of proper management of sluice gates for fisheries resources and biodiversity conservation. The key features of the proposed guideline were shared at a national workshop at BARC, Farmgate, Dhaka. It was attended by the representatives from DoF, DoE, BWDB, DAE, FRI, World Fish Centre, IUCN, NGOs, academicians and researchers. Secretary, Ministry of Fisheries and Livestock chaired the occasion.

iii) Identification of Good Practices

Good practices reviewed include activities, practices and experiences of (1) IIED-BCAS study on use of sluice gate management for enhancement of fish stock and diversification of livelihood, (2) MACH project, (3) IPAC, (4) Fourth Fisheries Project, (5) New Fisheries Management Policy (NFMP), (6) CBFM project, (7) Fish pass and (8) Participatory Small Scale Water Resources Sector (PSSWRS) Project of LGED. It was found from the review that sustainable benefits get from sluice gate through properly maintained sluice gate through community involvement and improve management.

Key Features of the Guideline

After the consultation and series of meetings with local and national stakeholders, the following management issues and recommendations for agro-fish friendly sluice gate have been suggested:

- Agro-fish Friendly Sluice Gate Management refers to a coordinated arrangement of opening and closing of sluice gates for inflow and outflow of water in a right time and a way congenial for fish **migration** into the floodplain area through sluice gates.
- For operation and monitoring of sluice gates, there should be strong gate management committee represented by all types of stakeholders from government officials to field level with farmers, UP Chairman, members, local

elites. Good cooperation and coordination among the members is needed.

- Major spawning period of most of the freshwater fishes is the pre-monsoon and early monsoon period during the first rising of water in the rivers usually in May-June. During this period tendency of fish, fish fry and spawn migrate into floodplain areas for breeding, grazing and growing and thus replenishing the stock and increasing production in the floodplain. Fish/fry/spawn and brood fish migrate into the project area through sluice gates, if the gates remain open with right level of water flow.
- Emphasis should be given on early crops variety and cropping patterns which are be adjusted to avoid any damage of agriculture and to facilitate migration of fish through sluice gates. Rivers, canals and *Beels* in the project area should be excavated deeply to increase the water storage capacity.

Recommendations for Agro-fish friendly Sluice Gate Management

(a) When should the Sluice Gates be opened?

In favorable environment, fishes try to migrate into the floodplain throughout the year if sluice gates remain opened, but during rising water period (May-June), which is spawning season of fishes, more fishes migrate into the floodplain than that in ebb tide. For migration of fish/fry/brood fish, sluice gates are to be opened without effecting agricultural crops.

(b) How should the Sluice Gates be opened?

During opening of the sluice gate, high water velocity, turbulence and pressure affect fish migration and cause high mortality of fish when they pass through the sluice gate. So during rising as well as ebb flood, sluice gate should be operated in such a way that fish/fish fry migration friendly hydrological environment exists in the sluice gate and thus mortality should be reduced.

During first rainy season when first increases water more water should be enter into the sluice gate and if necessary again and again sluice gate should be open and close. During sluice gate open and close should take initiative to outside water velocity should be lower level.

(c) Crops Varieties and Cropping Patterns to be adjusted

During early monsoon in May-June if the crops in the low land area are inundated and damage by opening sluice gates then short duration variety of crops should be cultivated in low land. Cropping pattern should be changed. Especially, short duration variety of rice like BRRI Dhan-28 or flood tolerance variety of rice can be introduced instead of BRRI Dhan-29. Early variety of Jute can be also introduced after harvesting of *Boro* rice and *Rabi* crops.

In light of Agro-fish friendly sluice gate management crop calendar should be prepared for the project site.

Awareness building among the beneficiaries, technological empowerment, institutional and financial supports would be needed.

A Sluice Gate in Bera Upazila, Pabna. Timely Operation of Sluice Gates is necessary for Fish Migration into Floodplain *Source: BCAS*

(d) Management and Operation of Sluice Gates

In view of proper management of sluice gate in each sluice gate commanding area, with all kinds of stakeholders, sluice gate management committee should be strong and activated.

The Sluice Gate Management and Monitoring Committee should be headed by local UP Chairman and represented by farmers, fishers and local elites etc for observing the crop and fishes/fish fry situation in the field.

A calendar should be prepared for gate operation considering the spawning abundance and brood fishes in the river. According to fish calendar, the decision for opening and closing the sluice gates should be taken.

Link canals between river and sluice gate to floodplain area should be kept flowing with sufficient water during pre monsoon so that fish and spawn/fish fry can migrate to the floodplain when it is opened.

(e) Agro-fish friendly Environment be ensured

At the end of the flooding period, maximum water is drained out from floodplain for crop cultivation. Sufficient water level should be maintained in the floodplain, or in the *Beel* for the protection of fishery resources and biodiversity conservation. **Wetland Sanctuary** should be established in the floodplains.

Rivers, canals, and *Beels* within the floodplains should be re-excavated so deeply that if first tidal water enteres due to early opening of sluice gate, it can remain in the canals and beels without inundating the crop fields.

(f) Management of Fisheries Resources

For conservation of fish fry/larvae, brood fish migrating into the floodplain, fisheries laws and regulations should be enforced properly (i.e., bann on illegal fishing in the link canals and floodplain). If necessary all kinds of catching of fish in early monsoon should be banned temporarily.

(g) Coordination and Cooperation

For agro-fish friendly sluice gate management, cooperation and coordination of different relevant organizations and stakeholders such as the DoF, DAE, BWDB administration, local government organizations and beneficiaries like farmers and fishers etc., would needed and strengthened. Upazila Fisheries Office (UFO) should take a pioneering role and great responsibilities. Coordination between the Management Committee and beneficiaries should be ensured.

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Livelihood Challenges in the Riverine *Charland*

Climate Risks and Vulnerability

The community people, mainly farmers, fishers, wage earners, women and children of the *Charland* are coping with the adversity and in few cases, they are adapting in limited scale to the climate change and extreme events like flood and erosion, drought, heat and cold waves. The local people need weather, climate and disaster related information to adapt better with climate variability, changes and climatic disasters. BCAS with local development partners are working with the vulnerable communities in the climate affected *Charland* to understand their risks and vulnerability to climate change as well as to identify appropriate adaptation measures in agriculture, water, health, livelihood and disaster management.

Awareness raising and climate information sharing are the first steps towards community adaptation and resilience building. The research initiatives are exploring the information needs of the local communities and try to determine the potential sources of information and effective ways of communicating the climate information in right contents and language so that the vulnerable communities can use the information for decision making at individual, family and community levels. It has been also felt that inter-country cooperation on climate change information generation (on flood, rainfall, temperature, heat and cold waves, fogs etc.) and sharing of information can help the vulnerable communities and actors to undertake effective disaster preparedness and adaptation activities.

Livelihoods on the Fragile Riverine *Charlands*

The Brahmaputra-Jamuna is known as the large braided river and is highly susceptible to channel migration. The huge amount of sand deposit creates sandbars called *Charlands* in Brahmaputra-Jamuna river systems. Thousands of people become landless and homeless due to erosion of the river banks. The frequency and intensity of floods has increased in the recent years. The livelihood assets and productivity of the assets (like land, water, agriculture, fisheries, poultry, livestock, tree and plans, vegetable, human health and working potential, employment and income) are being affected by almost every year by flood, erosion, heavy rainfall, tornado, drought, heat waves, fogs and cold waves. Many of the problems are water, rainfall and flood related and these are being aggravated by climate change stimuli such as temperature rise, heavy rainfall and glacier melting in the Himalaya. The livelihood problems in Brahmaputra-Jamuna river *Chraland* have connections with up-streams in India, Nepal, Bhutan and China.

Flood Water inundated the Homestead and Cropland in the Jamuna Char

Source: BCAS

Climate Change Information Sharing: Needs and Priorities

Climate risk communication, awareness raising and use of climate change information are key important step towards building resilience and promoting community adaptation to climate change. Community based adaptation (CBA) projects in the *Charlands* supports climate information generation and dissemination activities at community level to help them for using climate information in decision making at different levels (individual, family and community). Climate information (trend of temperature rise of 20-30 years and changes in rainfall patterns in the regional) and nature of climatic extremes are being gathered by project team and shared with local communities and actors. BCAS farther intends to foster collaboration with Union Information Service Centre (UNISC) and thus helping them to integrate climate information into their disaster preparedness plans and activities. Field investigation that community would require information on climate related extremes like floods and rainfall (time and duration of floods, possible intensity in their local contexts). The early warning systems are to be improved so that they can harvest their crops and take disaster preparedness regularly.

Community Responses and Adaptation

The flood, erosion, heavy rainfall, drought and fog affect homestead, houses, communication, field and home based agriculture, fisheries and livestock. The community people are taking limited adaptation measures in the impacted areas. They do raise their homesteads and build comparatively strong houses on raised lands, which are resilient to normal to medium floods. They are also improving their home based and farm based agriculture with flood and drought tolerant crops and early crop varieties. The communities are also improving their drinking water supply and sanitation systems considering flood level and drought conditions in the locality. Climate information sharing at regional (inter-country) level and ecosystem as well as river basin levels can certainly help improve the current coping to planned adaptation at community and sectoral levels. In a recent initiative, BCAS with the HI-AWARE (Himalayan Adaptation in Water) project partners are trying to promote climate information sharing in the *Teesta* basin of Bangladesh and India.

The existing information services by radio, TV, NGOs and sectoral agencies like AIS (Agricultural Information Services), Meteorological Department, WARPO etc., are to be improved considering the frequency and intensity of climate change. Wider collaboration and partnership would be needed for capturing new knowledge and information about climate change and livelihoods and filling the knowledge gaps with local perception and evidence. Participatory research can help reduce knowledge gaps. The knowledge and information products could be improved to make those pro-people and visual, which are easy to communicate. The focus of information generation and dissemination would be: to provide timely information to the remote villages and *Charland*; tailoring contents, scale and formats of information and knowledge products considering the needs of the vulnerable community and actors; ensuring that farmers, fishers, poor, women, children and socially marginalized groups get information in time.

The community people must get climate information immediately for DRR and livelihood protection as well as long term adaptation to climate change. The UNISC and local NGOs can play an effective role in this regard. A guideline on climate information collection and dissemination for local actors and stakeholders could be developed. ❁

- D Mallick

Workshops & Seminars

Strengthening Transparency and Access to Information on Transboundary Water Governance in South Asia

Bangladesh Centre for Advanced Studies (BCAS), the Legal Initiative for Forest and Environment (India), and the Institute for Social and Environmental Transition (Nepal) with support from the Asia Foundation and The Skoll Global Threats Fund (SGTF) implemented a one year project to promote and strengthen transparency and access to information on transboundary water governance in South Asia. Over a 9-month period, TAF and its partners assessed the availability of data and information relating to transboundar rivers in Bangladesh, India and Nepal, while built the capacities of civil society and the media to utilize transparency tools and mechanisms including Right to Information (RTI) to push for greater access to data and information on water and climate issues, and disseminated this information at national level. The objectives of the project were as follows:

Participants of the day long training workshop on Access to Water and Climate Information , held in Dhaka. *Source: BCAS*

- to map the availability and accessibility of data and information related to selected transboundary rivers in Bangladesh (The River Padma);
- to test the efficacy of the RTI a tool to gather data and information on transboundary rivers in Bangladesh;
- to build the capacity of civil society actors and the media in the region to use RTI to access data and information on transboundary rivers; and
- To disseminate the results and findings from the project and use the lessons learned as a model for future programs in other river basins in the region.

In the early 2014, BCAS organized two capacity building workshops in Bangladesh (with approximately 25 participants per workshop). The workshops focused on the selected transboundary river under the project i.e. the Padma River in Bangladesh. Over two days, participants received training and information on critical aspects of transboundary water governance in the region, including an introduction to different treaties, joint commissions, and agreements, as well as the current state of use and management of the rivers. In addition, participants received training on process of using RTI to access data and information on water issues. The training also offered interactive sessions to identify and examine the kinds of data and information that are required and the institutions and agencies involved in transboundary water governance in each country. Through this activity a critical mass of civil society organizations and media personnel in Bangladesh were trained to utilize the right to information procedure to access data and information on transboundary water issues. ❁

Empowering Local Communities to adapt to Climate Change

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the community and ecosystems were assessed in the light of current and possible future climate variability and climatic extreme events such as flash floods, cyclones, salinity, drought etc., their impacts on forest, wetlands, wildlife and livelihoods of common people. Agriculture and food systems, forest and wild lives, water, irrigation systems, human health, domestic animals, economic activities and infrastructures (roads and communication, houses and shelters) were found most at the risk and vulnerable to multiple climate hazards in the three ecosystems.

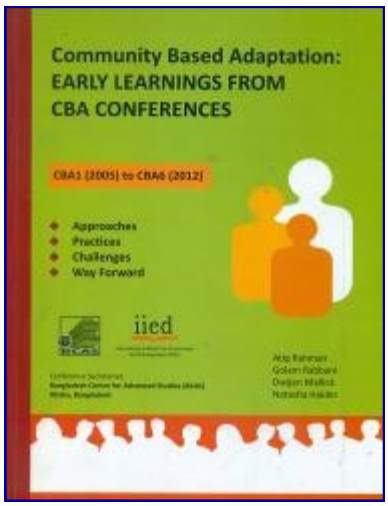
Local Adaptation Plan

They community people formulated local adaptation and mitigation plans for immediate action and long term implementation by community and governments. Adaptation, DRR and mitigation options were identified for the key vulnerable sectors such as agriculture, water and health, forest and livelihoods. The adaptation options for agriculture include: change in cropping patterns, introduction of new (drought and slat tolerant rice and vegetables); early crops, water and irrigation management, flood controls and infrastructure development etc. For forest and social forestry, adaptation measures such as plantation of drought, floods and salt tolerant species of trees and plants, plantation of fruit bearing and local varieties of trees which conserve water in the forest, water conservation in the forest and biophysical improvement with participation of community, alternative livelihoods of the forest dependent communities etc., were identified.

The participatory process has also pulled local resources and local knowledge in implementation of adaptation and mitigation options in forest, wetlands, agriculture, water, health, infrastructure development and ultimately contributed to building resilience in community and ecosystems. The effective participation of and ownership of the vulnerable community in vulnerability assessment and local planning has empowered the communities to influence decisions at community and local govt. levels. The process has also build confidence among the community and actors—because now they know a number of the local solutions of global climate change problem. ❁

- SK Roy

Publications



Community Based Adaptation: EARLY LEARNINGS FROM CBA CONFERENCE CBA-1 (2005) to CBA-6 (2012)

Jointly prepared by: Bangladesh Centre for Advanced Studies (BCAS) and International Institute for Environment and Development (IIED), 2012

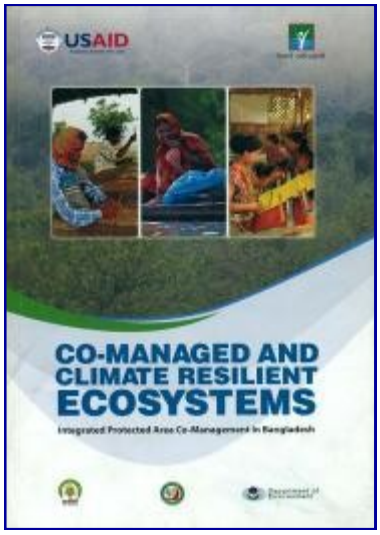
Authors: Atiq Rahman, Golam Rabbani, Dwijen Mallick, Natasha Haider

This report is prepared based on the outcomes of the conference and has been compiled from the notes taken by the session chairs and respective repporteurs. This report is a summary from the organizers point of view and does not necessarily express the views of each participant. This has eight chapters, which have highlighted CBA approaches, practices and challenges. It has also focused on the key linkages of CBA with development, poverty alleviation, livelihood, disaster risk reduction (DRR) and basic human securities. This report also highlights the key challenges of mainstreaming CBA into policy, programme and planning and summarizes the key learning from first six international conferences and has tried to identify the way forward.

CO-MANAGEMENT AND CLIMATE RESILIENT ECOSYSTEMS: Integrated Protected Area Co-management in Bangladesh
Editors: MG. Mustafa, Niaz Ahmed Khan, AFM Akhtaruzzaman, A.K. Yousuf Haroon, Ruhul Mohaiman Chowdhury

This book is jointly prepared and published by the Department of Forest, Department of Fisheries and the Department of Environment under the technical leadership of WorldFish Bangladesh. This book is a product of USAID funded Integrated Protected Area Co-management Project implemented under the management of IRG. Co-Management is an approach recently used by the Government of Bangladesh to collaborate with local communities and other stakeholders in the conservation management of wetland and other natural resources. To implement this approach, co-managers engage local stakeholders through a participatory process that empowers them with a voice and well designed rules in decision-making and provides sufficient economic incentives to engage their interests in successful natural resource management.

This book has compiled 30 chapters on co-management of different resources under IPAC in its five cluster sites. These chapters also included REDD+programme for conservation of Kaptai national park, Impacts of climate change on livelihood, resource planning and management in Sundarbans. Ecosystem services and climate change and community action of the Madhupur national park etc. and many other issues on environment, development, climate change and livelihood. Researcher and readers will get interest in reading the book for further knowledge development..



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