

2012

Conference Proceedings

1<sup>st</sup> National Conference

# Community Based Adaptation to Climate Change in Bangladesh

08-09 April 2012

Dhaka, Bangladesh



Conference Secretariat:  
**Bangladesh Centre for Advanced Studies (BCAS)**  
Dhaka, Bangladesh

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This report is based upon the outcomes of the conference and has been compiled from the notes taken by the session chairs and respective rapporteurs. The report is a summary from the participants point of view, and does not necessarily express the views of the organizer. Presentations made during the plenary sessions of the conference are available at .....

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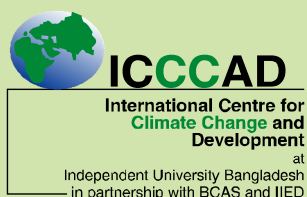
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# Acknowledgement

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# Abbreviations

BMD	Bangladesh Meteorological Department
CBA	Community Based Adaptation
CBNRM	Community Based Natural Resources Management
CSDRM	Climate Smart Disaster Risk Management
CBO	Community Based Organization
DPH	Disaster Resilient Habitat
EBA	Ecosystem-based Adaptation
FGD	Focus Group Discussion
GPS	Global Positioning System
ICT	Integrated Communication Technology
LCC	Leaf Color Chart
LAP	Local Adaptive Capacity
BMDA	Barendra Multipurpose Development Authority
PVA	Participatory Vulnerability Analysis
PARSES	Participatory Action towards Resilient Schools & Education Systems
RS	Remote Sensing
TRM	Tidal River Management
UISC	Union Information and Service Center
WD	Wetting and Drying

# Abstract

The accomplishment of the previous regional conferences and demand of the adaptation community resulted in the 1<sup>st</sup> National Conference on Community Based Adaptation (CBA) which was jointly organized by the Bangladesh Center for Advanced Studies (BCAS) and the International Institute for Environment and Development (IIED). This conference was held from 8<sup>th</sup> to 9<sup>th</sup> April for two days in the Spectra Convention Center in Gulshan-1, Dhaka, Bangladesh. The primary aim of the conference was to bring together stakeholders and practitioners to share and discuss knowledge of community-based adaptation planning and practices from different parts of Bangladesh, to capture updated knowledge and learning from community-based adaptation planning and practices around the developing world, to enhance the capacity building of the most vulnerable groups and people to improve their livelihoods in developing countries into national and international development programmes and to disseminate lessons of the conference at the national and international levels. The 1<sup>st</sup> National Conference on CBA covered topics on CBA Concepts, Water, Sanitation and Health and CBA, Impacts of Climate Change on Agriculture and CBA, Issues around Adaptation, Perspectives on CBA, Adapting Agriculture to Climate Change and CBA, Livelihoods and CBA, Gender, Equity and CBA, Institutional Aspects and CBA, and Disaster Risk Reduction and CBA. A total of 204 participants were registered for the conference. The participants included scientists, researchers from research organizations and university, disaster management practitioners, CBA practitioners from NGOs, representatives from Government agencies, international donors and members of the UN secretariat.

# 1 BACKGROUND

## 1.1 CBA Conference

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Community Based Adaptation (CBA) to climate change identifies long term adaptation knowledge, transformed resilience, and adaptive capacity of vulnerable communities.

The first National Community Based Adaptation to Climate Change Conference (NCBA) took place at the Spectra Convention Centre in Dhaka, Bangladesh, on April 8<sup>th</sup> to 9<sup>th</sup>, 2012. The National Conference served to bring together practitioners of Community Based Adaptation (CBA) to climate change in Bangladesh into one platform with the aim of combining successful practices of CBA in Bangladesh with emerging international CBA concepts and promoting shared learning amongst all stakeholders.

The national conference was organized by Action Research for Community Adaptation in Bangladesh (ARCAB) and the Bangladesh Center for Advanced Studies (BCAS). Prior to the NCBA, ARCAB had organized three divisional level conferences in Khulna, Rajshahi and Sylhet districts. The regional conferences sought to bring together local level adaptation practices and interventions of each division. The NCBA provided the opportunity to collect local level adaptation practices so that traditional and scientific knowledge could be exchanged, integrated and disseminated at the national scale.

NCBA was sponsored by ARCAB, and both international and national NGOs. The sponsors include ARCAB Action Partners, namely, Action Aid Bangladesh, CARE Bangladesh, CARITAS Bangladesh, Christian Aid Bangladesh, Concern Worldwide Bangladesh, Islamic Relief Worldwide Bangladesh, Oxfam Bangladesh, Plan Bangladesh, Practical Action Bangladesh, Water Aid Bangladesh and Concern Worldwide Bangladesh; as well as RDRS and The Asia Foundation.

CBA to climate change is a community-led process, based on communities' priorities, needs, knowledge, and capacities, which should empower people to plan for and cope with the impacts of climate change.<sup>1</sup> In the light of increasing evidence that climate change

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<sup>1</sup> Reid, H., Alam, M., Berger, R., Cannon, T., Huq, S., and Milligan, A. 2010. Community-based adaptation to climate change: An overview. *PLA Notes* 60.

is exerting on the lives and livelihoods of the poorest people in climate-vulnerable regions, and disappointment at the ‘top-down’ nature of much adaptation planning and investment that is failing to reach the most vulnerable, CBA projects and programmes are increasing in number and reach. However, despite this increase in attention to and practice of CBA, there remains a lack of participatory, practical, replicable and relevant methodologies for measuring, monitoring and evaluating the results of adaptation in general, and CBA in particular.<sup>2</sup>

## 1.2 Objectives of the Conference

The purpose of the NCBA was to convey community-based adaptation knowledge from the local level to the national level so that national-level practitioners can use the knowledge in their activities. Evidence-based community adaptation knowledge could also be helpful to replicate similar interventions in other, similar contexts.

In the light of this, the specific objectives of the NCBA were as follows:

- Bring together stakeholders and practitioners to share and discuss knowledge of CBA planning and practices from different parts of Bangladesh,
- Capture updated knowledge and learning from CBA planning and practices around the developing world,
- Enhance the capacity building of the most vulnerable groups and people to improve their livelihoods in developing countries through national and international development programmes,
- Disseminate lessons of the conference at the national and international levels,
- Developing a common methodological understanding among the stakeholders and CBA communities on defining, designing, implementing and monitoring CBA,
- Replicating successful CBA practices in other vulnerable regions,
- Developing communications (inter-organizational, vertical and horizontal) among the CBA stakeholders,
- Evaluating best CBA practices of different regions,
- Promoting successful CBA practices in other areas where applicable,
- Developing a common understanding of CBA among stakeholders,
- Developing increased communication among the stakeholders,
- Developing a strong outreach component for disseminating CBA,
- Developing a strong CBA outreach medium in Bangladesh,
- Developing an effective communication module to strengthen bottom-up connections of stakeholders.

Before carrying out NCBA, ARCAB conducted three regional conferences in Khulna, Rajshahi and Sylhet University with the help of Action Partner NGOs.

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<sup>2</sup> CARE PECCN, 2010. Participatory M&E for CBA: Tracking vulnerability...together. Unpublished TORs, September 2010; Silva Villanueva, P. 2010. Learning to Adapt. Unpublished MA dissertation. IDS.

# 2

## METHODOLOGY

### 2.1 Conference Structure and Programme

The conference programme themes consisted of 9 different thematic parallel sessions with three plenary sessions. The NCAB program consisted of 9 different thematic parallel sessions with three plenary sessions. The conference was inaugurated with a plenary session. Following the conference opening four technical parallel sessions were conducted. The first day closed with a plenary session held at the conclusion of the parallel sessions. The second day of the conference began with a thematic session, followed by four technical parallel sessions, then concluded with the closing plenary session. 47 papers on CBA were presented at the conference. 204 participants attended the first NCBA. Among them were participants from NGOs, universities, research institutes, UN organizations, donor organizations, media, the private sector, and the government.

### 2.2 Inaugural Session

The conference was inaugurated by the chief guest, Dr. Hasan Mahmud, Minister of Environment and Forest. Dr. M. Aslam Alam, Secretary, Disaster Management & Relief Division, Ministry of Food & Disaster Management was the special guest. The inaugural session was chaired and facilitated by Dr. Atiq Rahman, Executive Director of Bangladesh Centre for Advanced Studies and the keynote speech was given by Dr. Saleemul Huq, Senior Fellow, International Institute for Environment and Development (IIED).

The opening plenary session consisted of the history of international CBA conferences and an overview of how the national conference will build capacity on CBA in Bangladesh. The importance of incorporating the needs of communities combining a top down and bottom up approach and the need to improve



Figure 1. NCBA1 Opening Session

the knowledge at the community level and disseminate that knowledge was stressed upon in the opening remarks, particularly in the light of the tremendous research capacity in the country.

## 2.3 Technical Sessions



Figure 2. NCBA1 Technical Session

The national CBA conference offered 12 parallel and plenary session to present and discuss issues and practices of community based adaptation around Bangladesh. Table 1 shows the 12 different sessions held during the conference period. Some of the key discussions of the 1<sup>st</sup> national CBA Conference were: What constitutes CBA? How does it differ from community-based development activities? How one can plan CBA activities in the future to ensure that they are genuine climate change adaptation

activities and not just usual development activities?

Table 1 **Conference Sessions: Plenary and Parallel**

<b>Plenary session 1:</b>	<b>Conference Opening, Welcome Speeches and Keynote Presentation</b>
<b>Parallel session 2:</b>	CBA Concepts
<b>Parallel session 3:</b>	Water, Sanitation and Health and CBA
<b>Parallel session 4:</b>	Impacts of Climate Change on Agriculture and CBA
<b>Parallel session 5:</b>	Issues around Adaptation
<b>Plenary Session 6:</b>	<b>Perspectives on CBA</b>
<b>Thematic session 7:</b>	Adapting Agriculture to Climate Change and CBA
<b>Parallel session 8:</b>	Livelihoods and CBA
<b>Parallel session 9:</b>	Gender, Equity and CBA
<b>Parallel session 10:</b>	Institutional Aspects and CBA
<b>Parallel session 11:</b>	Disaster Risk Reduction and CBA
<b>Plenary session 12:</b>	<b>Closing</b>

## 2.4 Poster Sessions

A poster session was held at the 1<sup>st</sup> national conference from 8<sup>th</sup> to 9<sup>th</sup> of April, 2012, to create a scope for the presenters to share their research works with others fellow participants. This was an opportunity for the participants to see ongoing relevant research all around the world. The poster session was designed thematically to make it more interactive for the participants and the presenters to create a scope for networking among the organizations.



*Figure 3. NCBA1 Poster Session.*

# 3

## TECHNICAL SESSIONS, OUTPUTS AND DISCUSSIONS: PLENARY AND PARALLEL

### Parallel session 2: CBA Concepts

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CBA Concepts, one of the four parallel sessions, was chaired by Dr. Ahsan Uddin Ahmed, Centre for Global Change. Dr. Jessica Ayers was a panelist at this session at which the following papers were presented. The following papers were presented in the session:

1. “From CBNRM to CBA is not a critical journey” Can CBA finish their Journey afterwards?” by M. Mokhlesur Rahman, CNRS
2. “Community Knowledge for Adaptive Capacity: Tale of Coping with Climate Change in Bangladeshi Coastal Villages” by Iqbal Alam Khan
3. “Adaptation and Development: Perspectives from Bangladesh” by Syeda Sajeda Haider, BCAS
4. “Enhancing Adaptive Capacities through a Climate Smart Disaster Risk Management Approach” by Sajjad Mohammad Sajid, Christian Aid

A discussion session followed the presentation. The focal point amongst the issues highlighted during this section was the difference in people’s knowledge and perception, which although improving, is growing at dissimilar rates within communities and households. The need for people to give them an opportunity to use their knowledge was reiterated in the discussions and the various challenges in finding a way to balance people’s knowledge and scientific knowledge was also mentioned.



During the discussion frustration regarding the government was expressed several times. One of the underlying questions was how to circumvent some of the barriers that government policies and actions present for adaptation. In response to a question about how Isla affected a CBA project in Khulna, the presented answered that many farmers lost the opportunity to cultivate land. There was a lot of rural to urban migration as a result, which changed the fabric of society. Even in the villages many people are excluded from migration. They may have social networks but those networks do not have the ability to help them migrate. He warned that community knowledge is not enough, citing a need for the government to develop better livelihood options.

Several comments in the discussion were related to migration. One participant brought up the issue of migration, stating that for disaster and climate-related reasons people move to the city and live in slums for 10 or 15 years. But then, as in a recent case, the government tells the inhabitants that they are occupying illegal land and evicts them. What adaptation measure do we need to consider addressing them? Should we consider a public regime in relation to migration?

Another person spoke about a government project to promote fishing. When the project was over the structures were abandoned by the government. The land for the landless was expropriated. How should we establish CBA in conditions like this? We need to help CBOs to develop a better system.

The final comment of the discussion was that people's knowledge and perception is improving, but that it differs between communities and even households within those communities. The people need an opportunity to use their knowledge. However, the challenge is how to balance people's knowledge and scientific knowledge. We also need local knowledge to enhance early warning systems. How can we do this?

Panelist Jessica Ayers spoke about respecting and empowering community knowledge and understanding community perspectives as being integral to the CBA concept. She emphasized the need for participatory tools and access to institutions to adapt to climate change. The need to be transformative when thinking about the different scales involved, the need to build capacity in existing institutions, and to move beyond business as usual as well as to use climate change to check the validity of what is being done, were some of the key points of the talk.

The chair concluded by stressing that innovation will come from the marriage of technical inputs and local knowledge. We cannot rely solely on technical knowledge without incorporating the on-ground realities. It is important that adaptation is participatory to be accepted by local communities so that it may ultimately be replicated.

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## Parallel session 3: Water, Sanitation, Health and CBA

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The Water, Sanitation, Health and CBA session was chaired by Dr. Khairul Islam, Country Representative, WaterAid Bangladesh. Four papers were presented at the session:

1. *Grassroots Initiative Ensured Access to Public Resources: A Potential Adaptation Process* by Anwara Begum Shelly
2. *Impact of climate change on Watsan Sector; A conceptual mapping* by Nazmul Huq of ARCAB
3. *Supply of safe water in the salinity affected coastal areas through community based rainwater-harvesting* by Rathindranath Pal of Unnayan Uddog
4. *Effects of climate change on ground water table in Rajshahi District of Bangladesh* by Nepal C. Dey of BRAC
5. *Climate Change and Health Impacts* by Dr. Peter Kim Streatfield

Anwara Begum Shelly presented on a Caritas project that assisted a community group in gaining access to public resources in an area which also served to generate short-term employment. The necessity to undertake a participatory vulnerability and needs assessment as well as the cooperation with upazila level government officials were some of the important aspects that came from the experience of the project's implementation.

Nazmul Huq presented a study that aimed to map the activities and policies of different actors in the water and sanitation sector in order to identify linkages to climate change; a link that is commonly not mentioned in documents and plans.

Rabindranath Pal explored the topic of rainwater harvesting and its potential uses to address water concerns resulting from climate change. During the discussion section questions arose regarding the sustainability of rainwater harvesting due to a lack of nationwide scaling up of this process so far.

Nepal C. Dey discussed a study on trends in climate data, *boro* rice production, and groundwater levels in Rajshahi. The study found some interesting correlations: from 1990 to 2010, while the groundwater table declined, *boro* rice production and area increased. This time period also experienced an annual temperature increase and a rainfall decrease. However, the validity of the causality between the variables as well as the validity of a certain trend needs further investigation before being established.

Dr. Peter Kim Streatfield provided an overview of the potential health impacts of climate change in Bangladesh, focusing on diseases identified by the World Health Organization, such as malaria, dengue fever, *kala azar*, cholera, and heat stress. In the case of malaria, it is not yet certain whether climate change will cause an increase or decrease in the prevalence of the disease. The presenter also discussed interesting information showing strong evidence for a migration away from the coastal region of

Barisal, likely due to salinity increases. In the discussions about potential adaptation options in the health sector, the presenter indicated that the focus would probably be on increased treatments for the diseases, such as insecticide treated nets for malaria. The biggest health impacts were expected to be from malnutrition due to agricultural decline rather than from infectious diseases.

The chair summarized these discussions and also noted that increasing the capacity and functionality of the country's health systems will be critical to addressing health problems, regardless of the impacts of climate change. He noted that better data and more research are needed and that CBA methodologies must be scaled up.

## Parallel session 4: CBA and Impacts of Climate Change on Agriculture

Impacts of Climate Change on Agriculture and CBA was chaired by Dr. Mohammed Zainul Abedin, International Rice Research Institute. Five papers were presented in this session:

1. *Climate Adaptation with Eco-friendly and Alternative Agriculture* by Tarik Sayed Harun of COAST
2. *Salinity extends to interior coast and limits the crop production: A case study of Gosairhat* by Lubna Seal of BCAS
3. *Adaptation options on agriculture in Southern Khulna of Bangladesh* by M. Harunur Rashid of IRRI
4. *Impact of Salinity on Agricultural land use in Shyamnagar, Satkhira: A Geo-spatial Study* by Md. Atiqur Rahman
5. *Study On Yield Loss Of Potato Due To Unusual Climatic Condition In The Northern Region Of Bangladesh* by Ferdousi Begum.

In the Impacts of Climate Change on Agriculture and CBA session, climate change impacts on agriculture, salinity, and land use patterns in the southern zone were discussed.

Tarik Sayed Harun presented projects being undertaken by COAST Trust in seven coastal districts to provide potential adaptation options in the agricultural sector. These include activities such as hatcheries and duck rearing. The discussion following the presentation raised the question of whether activities can truly be considered as adaptation, rather than coping mechanisms.

Lubna Seal discussed the problems of salinity that are facing the interior coast, which have not yet received much attention. The study examined information on the impact of salinity on agriculture garnered from household interviews, which matched closely to the predicted impacts from the scientific literature. She proposed the creation of a

community information center to provide farmers with the required resources for managing soil salinity.

M. Harunur Rashid discussed adaptation options in the agricultural sector in Southern Khulna, where the presented study aimed to explore community perceptions of climate change through focus group discussions in two upazilas. The study revealed impacts of climate change as well as adaptation options, such as new crop varieties and practices, being pursued by communities.

Md. Saidul Islam presented on the dynamics of land use change resulting from salinity in the Shyamnagar upazila. The study showed that the availability of agricultural land has decreased significantly as a result of salinity. During the discussion section the ability to attribute correctly the increase in salinity to climate change rather than to other human activities was raised.

Dr. Ferdousi Begum explored the issue of diseases affecting potato crops in northern Bangladesh. She discussed the problem of late blight, a fungal disease causing crop failure. In early 2012, the meteorological organization forecasted that late blight would be a problem due to weather conditions, but this information was not effectively communicated to marginal farmers, resulting in crop losses. In the discussion section it was noted that in this case a community information center could be viewed as an adaptation option.

In the concluding remarks the chair noted the critical need for new, appropriate technologies, more research on forecasting, and the involvement of communities in adaptation, as well as importance of indigenous knowledge especially in the light of indigenous local varieties showing higher resilience to severe rainfall than high-yield rice varieties. The need for improved early warning systems was also reiterated.

## Parallel session 5: Issues around Adaptation

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Issues around Adaptation were chaired by Selim Reza Hasan, CARE. Five papers were presented:

1. *ICT and Community Climate Care Centers for Knowledge Management and Adaptation in Rural Bangladesh* (Shamima Aktar) BFES-AG
2. *The Impact of Climate Change on Groundwater Resources and Seawater-Groundwater Interface of Bengal Delta* by Dr. Anwar Zahid of BWDB, GoB
3. *Adapting School Activities in Climate Vulnerable Areas: Experience of PARSES* by Mustafa Kamal Akanda of COAST Trust
4. *Linking weather information and technologies for adaptive agricultural production* by Farhana Sharmin of Practical Action Bangladesh
5. *Effectiveness of Tidal River Management (TRM) in Climate Change Adaptation: A Geospatial Study on Hari-Teka River Basin, Jessore, Bangladesh* by Md. Rena Abbas of Chittagong University

Dr. Anwar Zahid of BWDB, GoB presented the paper “The Impact of Climate Change on Groundwater Resources and Seawater-Groundwater Interface of Bengal Delta”. Groundwater is a valuable natural resource and has been used extensively as the main source of drinking and irrigation water supply in Bangladesh and thereby playing a vital role towards achieving self-sufficiency in food production. There is abundance of water during the monsoon and little water during the dry season to meet irrigation and other requirements that leads to an increased use of groundwater. But both qualitative and quantitative problems in many areas of the country limit the availability of fresh groundwater resources. In addition to human intervention, global warming might cause changes to groundwater recharge rates and rising sea levels will cause saltwater intrusions. All components of the system (e.g. recharge, discharge, storage and quality) can be affected by changes in both climate and population pressures. An anticipated increase in the global average surface temperature by 1.5-4.5°C over the next 100 years will raise the sea-level and might reduce soil moisture. Sea-level rise may lead to greater saltwater intrusions into coastal groundwater, aquifers, and surface waters in some coastal systems. Thus, a comprehensive understanding of groundwater system is needed for its sustainable use. Monitoring and analysis of future change mainly in the coastal belt of southern Bangladesh is an important issue with model simulations to address these challenges. For a better understanding of surface water and groundwater relationships, sufficient observation wells should be installed near the surface water regime and surface water observation stations as well as nested monitoring wells for layered aquifers.

Shamima Aktar in the paper “ICT and Community Climate Care Centers for Knowledge Management and Adaptation in Rural Bangladesh” focused on the ways Information and Communication Technologies (ICT) can be used by rural people to cope with adverse climate change impacts. Community Climate Care Centers can provide the opportunity to build direct relationships among grass-root level farmers with an agricultural livelihood in other areas to discuss crop-related problems and innovations. Thus ICT can be a strong tool for community-based climate change adaption including indigenous knowledge collection and dissemination, community-assisted GIS-based mapping preparation to identify locally vulnerable areas, and local database preparation to cope with the risks.

Proper and timely disseminated information particularly on weather can directly benefit farmers to decrease climate vulnerability in Bangladesh. The early warning, weather forecast and climate outlook is regularly generated by Bangladesh Meteorological Department (BMD) and publicly available on its website. But these tools are not easily available at the community level, and are neither customized to support agriculture and livelihood at the local level.

Under the A2I (Access to Information) Programme of the government of Bangladesh, a Union Information and Service Centre (UISC) also have been established. Initiatives can be taken to use UISCs in several agro-ecological zones of Bangladesh to

regularly disseminate and interpret early warnings, weather forecast and/or climate outlooks at the union level. This will facilitate local farmers to plan and undertake agricultural practices effectively.

The paper “Adapting School Activities in Climate Vulnerable Areas: Experience of PARSES” by Mustafa Kamal Akanda described climate change as likely causing an increase in intensity and frequency of cyclone, flood and water logging in the coastal areas of Bangladesh. These disasters can also cause damages to educational institutions. Some schools at Charfassion and Monpura upazila of Bhola district had to stop their activities completely due to various natural disasters. It increased school drop-out rate and decreased attendance rate. To adapt to that situation, communities themselves conducted Participatory Vulnerability Assessment (PVA). The main aim was to find out the cause and impact of the disasters and to make a long term plan to ensure the continuity of the function of the schools. They also implemented some of their plans. There were student squads in selected schools and the main objectives of those squads were to enable the students to identify the risks and resources of their communities, identify the problems and potentials, to take initiatives for solutions and also to inform communities on carbon emissions. COAST provided technical support under its participatory actions regarding the Resilient Schools & Education Systems (PARSES) project. This study found that these types of community-based initiatives has increased the attendance rate of four selected schools from 10-20% to 80% and above; the number of students’ enrollment has also been increased.

“Effectiveness of Tidal River Management (TRM) in Climate Change Adaptation: A Geospatial Study on Hari-Teka River Basin, Jessore, Bangladesh” was presented by Md. Rena Abbas. The study area lies in the south-western coastal belt of Bangladesh within the Jessore district. The study area became severe water-logged in the 1980’s due to a gradual siltation of rivers. From their own experiences and observations, people identified the polders as the main cause of water-logging and began to present their reasoned arguments for breaching or cutting away polders to allow tidal flows. Their logic was that if tidal flows can be made free, the navigability of the rivers will be restored, the enclosed lands will be free from water-logging, alluvium will accumulate inside the polders, and as a result the level of land will rise. This concept is known as the Tidal River Management (TRM) system. In addition, Bangladesh is now the top climatic vulnerable country with regard to sea level rise. South-west coastal region is considered to be on the frontline of climate change vulnerability. The study attempts to illustrate the effectiveness of TRM on climate change adaptation by applying social surveys, Global Positioning System (GPS) surveys, and Geographical Information System (GIS) and Remote Sensing (RS) methods. The present research has revealed that TRM is the most effective method to raise land and make it cultivable, mitigate the water-logging crisis, increase the navigability of rivers, reduce salinity and protect coastal regions from sea level rise.

## Plenary Session 6: Perspectives on CBA

At the final session of the first day, technical sessions were summarized in the plenary session “Perspectives on CBA”. Dr. Saleemul Huq, Institute for Environment and Development, chaired the session. The panelists summarized all the technical sessions they attended in the following sequence:

- Sajid Raihan (ActionAid, Bangladesh) [session 2]
- Hasin Jahan (WaterAid) [session 3]
- Ahmedul Hassan (CEGIS) [session 4]
- Anik Asad (Oxfam) [session 5]

The session commenced with the chair’s speech, in which he noted the substantial progress made in Bangladesh in enhancing our knowledge and concepts on CBA and the conference’s objective to successfully bring people together to share this knowledge. From the numerous papers submitted – the good ones will be reviewed and published in an edited book volume or as a series of monographs.

Sajid Raihan then gave a review on the “Concepts on CBA” session, in which the key concerns and issues in the presentations focused on trying to link different issues with CBA. However, the speaker noted that the discussion sections following the presentation focused on practices and impacts of climate change rather than on adaptation. The speaker voiced concerns if there is a lack of clarity in the concept of adaptation despite an increase in its practice. He suggested the need for knowledge management to capture adaptation models to address the failure to fully link local knowledge with programmes, and to take the knowledge learnt into project feedback upon project completion. The need to look deeper into sustainability of the practices and develop institutional spaces in order to develop, nurture and disseminate knowledge was stressed upon. The speaker concluded by reiterating that adaptation is about facilitating transformational change, not just development business as usual and the need to go beyond just coping with climate change rather than adapt to it, particularly because of the uncertainty of potential future climate change impacts.

The next speaker Hasin Jahan spoke on the presentations on WASH and climate change, which focused on agricultural practices, livelihoods and human consumption. Her views were that the ideas presented were not fully elaborated, which would have been useful in order to understand the concepts. CBA was poorly highlighted and sanitation not mentioned in any of the presentations. Nevertheless, the potential of the studies presented open up potentials for new research. From the presentations what stood out was the continued importance of government support in order to facilitate scaling up.

Ahmedul Hassan spoke on the session on climatic impacts on agriculture, food security and environment. He noted the difficulty in trying to isolate what are specific climate change impacts over other development impacts with the data and climate

models currently available. He reiterated the need to learn from communities so we can better understand how climatic impacts are manifesting on the ground in order to look at science and local knowledge together for a better understanding of climate change. Lastly, he spoke about the need to move beyond looking at food availability regarding food security, and to look at markets and other related issues.

Yuka Makino of World Bank reviewed session 5 which focused on the coast and water issues. The two key concepts of innovation and testing new ideas were discussed. The speaker identified areas in the presentation where further work could be done. The presentation on TRM showed how polders were removed in order to avoid water-logging – but it did not address the issue of rights to compensation for communities. Moreover, how school children design disaster management plans were discussed – although contents of the plan, the role of children and how the action plans are formed was not clear. Lastly, creating vulnerability maps with communities, digitizing it and putting it on a soft copy map was suggested, however it was not clear on how to bring this map up to the GIS level. These presentations showcased innovative ideas that need to be worked on. In sum, the key issues resulting from this session are centered around how to make programmes sustainable, how to make interventions relevant to the community, how to scale up, and how to move towards a more long-term framework in order to address potential future climate change impacts.

Following the panelists' discussion, the chair, Saleemul Huq, emphasized the need for dialogue to address climate change between scientists and practitioners in both directions. Institutional spaces that bring scientists and practitioners together are needed. Moreover, the development sector needs to be self-critical in order to evaluate the overall effectiveness of what we do. To do this, collaboration between practitioners and experts is needed. Furthermore, advice is to be given in a friendly manner so learning by doing can be facilitated. The chair expounded that essentially the novel element in adaptation to climate change is knowledge. It is not simply about what people do but *why* they do it. The hypothesis is that a person doing a certain activity with climate change knowledge (compared to someone doing the same activity without climate change knowledge) will have the greater adaptive capacity. However, this is still untested.

Atiqur Rahman, in his concluding remarks, stated that climate change means that we cannot plan for the future based on what has happened in the past. Scientists have not communicated information sufficiently to others because we have taken a soft approach to climate change despite the catastrophic shift it may have on our ecosystems. Effective communication with policy makers requires good science in order to make good policy.



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## Thematic session 7: Adapting Agriculture to Climate Change and CBA

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Adapting Agriculture to Climate Change and CBA was chaired by Dr. M. Asaduzzaman, Bangladesh, Institute of Development Studies. Five Papers were presented in the session:

1. *Rice-based farming systems technology for climate change adaptation* by M. Harunur Rashid of IRRI
2. *Micro climatic variation and its impact on vegetable production in South-West coastal region of Bangladesh* by Md. Reaz Uddin Khan
3. *Watershed Mgt for Dry Season Alternate Cropping in the Drought and Saline Prone SouthWest Coastal Region of Bangladesh* by Tusar Kanti Roy of KUET
4. *Restructuring Agricultural Practices Adaptive to Climate Change: RDRS Initiatives and Experiences in Northwest Bangladesh* by Dr. Syed Samsuzzaman of RDRS
5. *Khas lands, Extreme Poor and Adaptive Farming: A Case Study from Haor basin of Bangladesh* by M. Mokhlesur Rahman of CNRS

The paper by Syed Samsuzzaman “Restructuring Agricultural Practices Adaptive to Climate Change: RDRS Initiatives and Experiences in Northwest Bangladesh” draws the experiences of RDRS Bangladesh (a reputed national NGO) in promoting adaptive agriculture through community-based Farmer Field Schools. It reviews 5 types of adaptive technologies: adjustment of cropping pattern with early maturing rice, flood and drought tolerant rice, relocation of traditional local rice during off-season, and homestead-raising for vegetable gardening and livestock rearing. These technologies were efficient in avoiding damage of crops from flood and drought, compensating flood damage through off-season harvests and reinforcing homestead agriculture during flood. RDRS experiences imply that the flood tolerant rice can save 150,000 hectares rice from flood damage and the off-season local rice can generate additional 1.8 million tons of rice from 0.6 million hectares compensating flood damage in northwest Bangladesh.

In the paper “Khas lands, Extreme Poor and Adaptive Farming: A Case Study from Haor basin of Bangladesh”, M. Mokhlesur Rahman describes accessing *khaslands* by over 1,500 extreme poor households in the climate sensitive *haor* basin of Bangladesh and how their community-based climate resilient farming systems, with support of the DFID challenge and innovation funds, help them to escape the poverty cycle. State land policies provide exclusive rights of the extreme poor to have permanent access to *khaslands* for farming, but are seriously constrained due to complex and lengthy institutional processes which the extreme poor alone are incapable to overcome. The paper also highlights some imperatives towards pro-poor sustainable *haor* resources management in the face of changing climatic conditions. Over thirty million Bangladeshi earn less than one dollar per day, defined as extreme poor remains largely excluded from the mainstream development processes including limited access

to micro finance. Having no lands and other productive assets, they survive on wide range of on-farm and off-farm wage laboring including seasonal out migration to cities.

M. Harunur Rashid in the study of “Rice-based farming systems technology for climate change adaptation” focused on the agricultural production in the south western coastal areas where major constraints faced are soil and water salinity of varying degrees, a lack of fresh water for irrigation, and a slow soil drying pattern, which are being augmented further due to climate change, require suitable farming systems and component technologies. Some farming/cropping systems and component technologies were validated or demonstrated in the Aila and Sidr affected areas in the Dacope upazila within the Khulna district. The package of rice fish-culture with vegetables on the *gher* levee is suitable where soil salinity is above a certain level in March to April. Adoption of modern varieties of rice in Boro or Aus season yields advantages with relatively high soil salinity at seeding. In areas with medium soil salinity level, watermelon, musk melon and okra had sown possibility to grow even after late harvest of traditional local varieties, which might further increase the productivity by adopting high yielding rice varieties. The conclusion of the paper was that community-based approaches are needed for larger scale dissemination of the validated and identified technologies.

Tusar Kanti Roy aims to explore the prospect, process and benefits of watershed management in drought- and salinity-prone southwest coastal areas of Bangladesh for cultivation of crops with low water demand at fallow land in his paper “Watershed Mgt for Dry Season Alternate Cropping in the Drought and Saline Prone Southwest Coastal Region of Bangladesh”. Excessive drought and salinity are the consequences of climate change towards lower agricultural production, food insecurity and poverty. Declining flows from the main rivers into canals and accumulated siltation from runoff have almost disposed most of the smaller canals. Therefore, most land of the area remains fallow. Moreover, dry season rice, a water hungry crop requiring about 800 mm water/ha as irrigation is dewatering the perennial water-bodies in the floodplains resulting in reduced fish production and loss of biodiversity. Community people are re-excavating the dead canals and cultivating the alternative less water demanded crops such as wheat, maize, onion, garlic, sunflower etc. to adapt to the climate change induced drought and salinity.

The chair concluded the session by noting that while the case studies clearly show that people can adapt, support from the scientific community to give them the needed technology and resources is required. The adaptation, although community-based, needs a framework provided by wider institutions. There are many other social dynamics that take place and are related to climate variability which must be taken into consideration. Wherever there have been changes in agricultural practices it has been toward cash crops. However, cash crops must be marketed which is often very difficult.

## Parallel session 8: Livelihoods and CBA

The “Livelihoods and CBA” session was chaired by Dr. Rafiqul Alam, Department of Agriculture. Panelists were Ms. Rokeya Kabir, ED, BNPS and MB Akhter, Acting Country Director, Oxfam. Six papers were presented in the session:

1. *Crab Fattening as an Effective Livelihood Option to Climate Change and Salinity in the Southwest Coastal Region of Bangladesh* by Tusar Kanti Roy of KUET
2. *Effects of Riverbank Erosion on Lives and Livelihoods: A Study on Chandpur, Bangladesh* by Naznin Nahar Sultana of CU
3. *Climate Changing Effect on Fishers Community As Well As Their Alternative Livelihood Adaptation* by Anjan Kumar Das of RFLDC, DANIDA
4. *Economic Development, Climate Change and Livelihood Adaptation* by A.N.K. Noman
5. *Community based adaptation and Fishers Livelihood Development Initiative* by Md. Masud Akhter of RFLDC, DANIDA
6. *Changing Climate and Risk to Livelihood* by Afroz Mahal of Oxfam Bangladesh

Tusar Kanti Roy discussed the potential for crab fattening as an alternative livelihood that could provide a form of climate change adaptation. Exports of crabs are increasing, providing a new income opportunity. Crab fattening is becoming an increasingly popular activity, with a growing amount of land area devoted to it, but it still requires less land than shrimp cultivation.

Naznin Nahar Sultana discussed a study on riverbank erosion in Chandpur. Riverbank erosion is having a severe negative impact on people in the area, causing them to lose everything they have. Riverbank erosion has caused people to switch their livelihoods from agriculture to other options such as day labor.

Anjan Kumar Das presented on the impact of climate change on fishers and the potential for adaptation through alternative livelihoods. Fishers in the area have been forming community-based organizations such as fisher associations. These associations have been engaged in activities such as training fishers in alternative livelihood options.

Md. Masud Akhter also discussed the impact of climate change on fishers. He noted that river erosion is a severe problem for those living on the Meghna River and it has created the need for alternative livelihood options for fishers. He provided the example of making nets, a potential income-generating activity with which fishers have significant experience. However, they currently lack the means to market these products. He also noted that community-based organizations play an important role in the implementation of these alternative livelihoods programmes.

Afroz Mahal presented the work of Oxfam to develop and implement REE-CALL, a community-based approach to development that is focused on working with village-

based organizations and partnering with local governments, the civil society, and other networks. The programme is focused on building community capacity and developing resilient livelihoods strategies. She emphasized the importance of ensuring that communities have access to markets so that these programs are sustainable in the long term, as well as the importance of involving local governments.

Rokeya Kabir began the discussion by noting that while women are among the most vulnerable to climate change, they are also generally more adaptive than men. She also stressed the importance of putting pressure on national level leaders to enact policies to address the livelihood needs of vulnerable people. One audience member raised concerns about the sustainability of livelihood programmes such as REE-CALL, to which the presenter responded that developing CBOs is a good strategy for addressing this issue. The chair also noted that linking activities to markets would eliminate the need for NGOs. Another audience member asked how these livelihoods could actually be linked to climate change adaptation, and another raised concerns that crab fattening may actually be a form of mal-adaptation as it is not analyzed whether such income-generating activities really are viable and sustainable. In response, several participants noted that a key focus now is on daily survival, and that the future with climate change is still uncertain.

## Parallel session 9: Gender, Equity and CBA

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Gender, equity and CBA session was chaired by Farah Kabir, Action Aid. The panelists for the session were Umme Salma, Concern Worldwide and Syeda Rizwana Hasan, Executive Director of the Bangladesh Environmental Lawyers Association (BELA). Four papers were presented in the session:

1. *Women and CBA* by Azmarina Tanzir, ActionAid Bangladesh
2. *Empowering Women for Coping Climate Risks in Selected Areas of Coastal Bangladesh* by Masuda Farouk Ratna
3. *Women leadership in community conservation initiative, case from Odisha India* by Sweta Mishra, Concern Worldwide
4. *Gender, Equality and Climate Change* by Mahamudun Nabi Khan, Concern Worldwide

Azmarina Tanzir's presentation on CBA and women highlighted why women are strong actors for adaptation. Similarly, it highlighted that adaptation can influence female empowerment, facilitating women as active citizens within their community.

Masuda Farouk Ratna's presentation focused on a project in Patuakhali aimed at enhancing women's adaptive capacity through interventions including the establishment of women's resource centers.

Sweta Mishra’s presentation was on the strong social movement in Orissa that began through female participation and leadership in the establishment of committees to conserve local forest and mangrove vegetation. The case study helped to illuminate the reality that ownership does not ultimately lie with women and communities, and unless tenure rights over community forest resources are secured the positive work may lack results.

Mahamudun Nabi Khan’s presentation shared adaptation measures for women living in southwestern Bangladesh through an inequality lens.

The discussion session following the presentation called attention towards the current gap in research on women’s issues that needs to be filled and the lack of funding for climate change adaptation and women issues. The need for hard evidence was voiced, and not just evidence generated from projects or PRA-based information that have been presented in this session.

The importance of unearthing community perceptions from the bottom-up was highlighted in Sweta Mishra’s presentation as beneficiaries realized their dependency on their surrounding environment, which provided the motivation to form the committee.

The session also stressed the need of the development sector to change the way in which women are viewed. A shift from seeing women as one of the most vulnerable groups to climate change with a focus on female income generation activities towards viewing women as active citizens is needed. Moreover, the need for data monitoring of gender inequities was recommended based on the statement that mortality rates of women during disaster scenarios is often much higher compared to those of men as a result of cultural norms that render women more vulnerable. The role of women in the production of the center of society needs to be acknowledged and followed by entitlements. The question of whether extra measures will actually bring equality was voiced.

With regard to adaptation, it was stated that the concerns of women have to be taken into account in the following sectors: (1) agriculture – raising awareness among women about what climatic risks they are exposed to in forthcoming years as a means to generate self-mobilization; (2) health – women need better training in public health; (3) shelter – to ensure tenure security for women, and (4) disaster management – the need to press for a law that recognizes the vulnerability of women and their role. It was stated that special quotas are in place for women to be elected, however women are still not being given any of these roles.



Figure 4. Session on Gender, Equity and CBA

Furthermore, the following points were stated to ensure that women are involved in adaptation: (1) develop village-level adaptation and conservation plans. UP women leaders can organize women to come together to discuss their problems and come up with community-felt conclusions; (2) to explore the possibility of how to keep women undertaking their traditional role in conservation and to ensure market access for them. If this is not possible, then we need to think about alternative income options for them. The need to ask for special protection of people that are more vulnerable to potential climate change impacts was highlighted.

The session ended with the chair asking everyone to approach all CBA activities keeping the following questions in mind: Is CBA gender sensitive? Will it empower and address the concerns of women? And will CBA help women to escape from social disadvantages?

## Parallel session 10: Institutional Aspects and CBA

Institutional Aspects and CBA was chaired by Shamim Siddiqi, The Asia Foundation. Six papers were presented in the session:

1. *People's Organization: Strengthening Demand Side and Accountability at Grass Root on Climate Adaptation* by Md. Mujibul Haque Munir of COAST
2. *Community based Adaptation in Haor basin and the Policy Scope* by Tapas Ranjan Chakraborty of Oxfam Bangladesh
3. *Exploring the links between community-based adaptation and microfinance* by Dr. Henry Scheyvens
4. *Can Good Governance Ensure Environmental Sustainability? A Study on Democratic Practices and Legislative Interventions on the Sundarbans* by Imtiaz Ahmad of NABOLOK- Prodig
5. *Climate Change Governance Anchored with Institutional Governance* by Mr. Mamun-Or-Rashid of CODEC
6. *Local government and CBA* by S. M. Nasir Uddin, ActionAid Bangladesh

Mujibul Haque Munir of COAST presented the paper "People's Organization: Strengthening Demand Side and Accountability at Grass Root on Climate adaptation". People's Organization (PO) is a community-based local institution in the coastal area of Bangladesh. POs are formed and run fully by the participation and leadership of the coastal poor people. This paper aims to present the experiences and potentialities of that community-based institutions' role in strengthening communities' ability to climate adaptation by disseminating knowledge, forming various groups, creating funds by group-based savings and credits, claiming legitimate rights, adapting various alternative livelihood options, monitoring climate financing, promoting indigenous practices etc. COAST Trust is providing technical and intellectual supports. Climate adaptation should be 'demand-driven', not 'supply-driven', and the demand should

come from the community itself; POs are working as an effective structural agent to raise those demands to the policy makers. They are helping communities to coordinate actions and to take joint decisions. Well-organized local institutions like POs are helpful in managing community resources in a sustainable way; if they enable local communities to influence decisions by raising voice, and to hold local-level institutions and policy makers accountable. Through strong local institutions, communities are more successful in seeking support for adaptation in the form of financial flows, information and capacity-building support.

“Community based Adaptation in Haor basin and the Policy Scope” was presented by Tapas Ranjan Chakraborty of Oxfam Bangladesh. He presented that Haor areas with their unique hydro-ecological setting offer considerable development potential. Over 19 million people are dependent on the 373 Haors while they are highly vulnerable to climate change. On average 54% of Haor habitants are dependent on agriculture and Haor areas contribute with 18% to the national rice production. The pre-monsoon flash flood is the most devastating engulfing the primary production sector and thus threatening lives and livelihoods. In order to cope with the new climate trends, adaptive practices need to be initiated and promoted and an enabling environment should follow as policy derivatives. To explore existing adaptation practices and policy scopes for adaptation, a study was undertaken. Several national policies including the “Master Plan of Haor Areas” exist to address the development challenges; these policies yet address rather climate change adaptation. The number of projects for agriculture in the Master Plan is 20 and the fund allocation is 6.88%. Also within the distribution of agricultural allocation, more short- and medium-term projects have been proposed indicating future development expenditure on the agricultural sector in general will be less in Haor areas. Moreover, considering the unique ecosystem of Haor areas, the development projects/adaptation policies and practices need to be ecosystem-specific.

“Exploring the links between community-based adaptation and microfinance” was

presented by Dr. Henry Scheyvens showing that the creation of financial institutions that can deliver a range of effective services to rural households is essential to community-based adaptation. Microfinance has an important role to play in enabling rural households to build resilience against and cope with extreme weather events, as well as adaptive capacity to adjust to long-term climatic changes in temperature and rainfall patterns.



Figure 5 Session on Institutional Aspects of CBA

Yet, most of the discussion on the nexus between climate change and microfinance

has focused on mitigation rather than adaptation. The challenges for microfinance providers are twofold. First, they must ensure that their financial services are sufficiently flexible to support community-based adaptation and, second, they must ensure that they protect themselves against default risks, which can be anticipated to rise as the impacts of climate change on micro-investments in agriculture and related sectors are increasingly felt. With these two hypotheses, the Institute for Global Environmental Strategies launched research on the links between community-based adaptation and microfinance in 2009. This paper reflects on the observations of the research in Nepal and Laos, where two periods of fieldwork have been completed, and sets out the set of issues to be explored in Bangladesh, where research will be launched in 2012. The research is particularly relevant to Bangladesh, where over 18 million people are borrowers of microfinance programmes and where the impacts of climate change are projected to be especially severe.

“Can Good Governance Ensure Environmental Sustainability? A Study on Democratic Practices and Legislative Interventions on the Sundarbans” was presented by Imtiaz Ahmad of NABOLOK- Prodip. Sundarbans, the world’s most extensive block of mangrove forest is home to almost 7.5 million people in Bangladesh and numerous plant, mammal, fish, bird, reptile and amphibian species. The flora of the Sundarbans, the mangrove, presents a natural buffer, a bulwark against coastal erosion and seawater ingress. Recent population growth and economic development have brought immense pressure on mangrove wealth and its systems while human-induced climate change impacts threaten the delicate ecological balance. This human aggression is adversely affecting the livelihood, food security, health and productivity of the forest-dependent communities and localities. The protection of Sundarbans, though an environmental issue, has been influenced by numerous socio-political consequences, local governments and development practices. The present study describes the factual findings regarding various governance issues and their impacts related to Sundarbans’ protection. The study has been conducted as part of PRODIP (Promoting Democratic Institutions and Practices), a project supported by The Asia Foundation with funding from USAID. The study unveiled numerous obligations regarding the effectiveness, equitability, transparency, accountability, and rule of law regarding the management of the Sundarbans. The current national forest policy and other relevant legislations do not adequately address all these issues and problems. The study concludes with some recommendations, such as policy options needed for the Sundarbans with special attention to the southwest coastal regions situation, and the holistic approach and involvement of the local people including indigenous communities.

“Climate Change Governance Anchored with Institutional Governance” was presented by Mr. Mamun-Or-Rashid of CODEC. Climate change governance remains a very new field. A number of developed states have introduced systems of greenhouse gas emissions controls, but policy experience in this area is barely fifteen years old. Initiatives around adaptation are even newer. Thus, societies are only beginning to



learn what approaches are more or less promising. With respect to climate change, there is no rulebook or agreed ‘best practice’ manual on governance that can serve to transfer lessons from one country to another. Climate change governance requires governments to take an active role in bringing shifts in interest perceptions so that stable societal majorities in favor of deploying an active mitigation and adaptation policy regime can be maintained. Measures to help affecting such changes include: building coalitions for change, establishing new centers of economic power, creating new institutional actors, adjusting legal rights and responsibilities, and changing ideas, accepted norms and expectations. The existing governance structures and processes are not ideally suited to manage climate change. Modern governance institutions with their well-known constitutional mechanisms, representative institutions, federal structures, functional differentiation of ministries, professional bureaucracies, policy frameworks, and so on, emerged through complex and long-term processes of institutional evolution and cross national simulation.

The full paper and conference presentation will be based on the experience from PRODIP (Promoting Democratic Institutions and Practices), a project supported by The Asia Foundation with funding from USAID.

There were two themes running through this session: the varying ability of institutions to respond to local needs and the lack of capacity at the local level. Local government is closest to the people but there is a need for community participation. Community organizations have power. However, there is also a need for national level policies and legislation to be responsive to the needs of local communities. The studies presented made a strong case for strengthening governance.

In the following discussion section, the suggestion for local governments is to use climate adaptation funds to scale the initiative up in all UPs. It was noted that community demand for adaptation is demonstrated through participation in both planning and implementation.

At his concluding remarks the chair lauded the session as having successfully showcased the way in which research and program implementation work together on different levels and in different contexts.

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## **Parallel session 11: Disaster Risk Reduction and CBA**

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“Disaster Risk Reduction and CBA” was chaired by Khurshid Alam of IWM. Five papers were presented in the session:

1. *Disaster Resilient Habitat: A Comprehensive Approach to Mitigate Climate Change Vulnerability in Bangladesh Coastal Area* by Satchidananda Biswas Satu of Shushilan

2. *Vulnerabilities and Resilience among Extreme Poor People: the South West Coastal Region of Bangladesh* by Prokriti Nokrek, Save the Children
3. *Indigenous Knowledge for Early Warning in Flood and River Erosion Hazards: A Strategy for Climate Change Adaptation* by M. Mizanur Rahman of Islamic Relief Worldwide
4. *Child Centred Disaster Risk Reduction* by the Representative of Plan Bangladesh
5. *Exploring Livelihood Resilience: Disaster Risk Reduction and Community Based Adaptation* presented by Munish Kaushik of CORDAID

This session opened with the chair stating that there may be a 26% increase in areas affected by cyclones due to potential future climate change impacts in Bangladesh. As a result, questions to be reflected upon during this session were: What knowledge do we need to ensure that DRR programmes contribute to CBA? How do we manage increasing disasters? And what actors are needed?

Satchidananda Biswas Satu presented a technical approach to mitigate risks to potential climate change impacts by establishing a village that is built to help protecting its inhabitants from future risks. After the presentation, the chair commented that through infrastructural development it is possible to make housing resilient to climate change impacts. However, it is essential to build the capacity of the community in conjunction with a technical approach like that so they are able to maintain and continue building on project outputs once the project ends.

Prokriti Nokrek from Save the Children presented a project that worked with the extreme poor in the SW coastal region of Bangladesh after Cyclone Aila. Prokriti shared what lessons can be learnt from the climate resilient interventions utilized in this project to enable future and long-term adaptation to climate change for communities in southwestern Bangladesh. The key issue raised in this discussion was the need for local institutions, both formal and informal, to play a role in enhancing beneficiaries' adaptive capacity. The need to link to government institutions was particularly stressed, and that this link needs to be made at the time of when project interventions start.

M. Mizanur Rahman gave an insightful presentation based on rural indigenous knowledge that is used as an early warning system for flood and river erosion impacts in Bangladesh's char areas. As modern early warning systems do not reach all communities in these parts of the country, how indigenous strategies cause people to take action against climatic impacts as an immediate coping strategy, hence contributing to climate change adaptation, was discussed. The chair brought this discussion to a close by highlighting that although this indigenous knowledge exists it may not be enough with regard to future climate change impacts. The future is uncertain and the past is no longer indicative of the future environment.

Munish Kaushik focused his presentation on the importance of building resilient livelihoods for beneficiaries to ensure that they can bounce back from potential

hazards, such as flood and drought. Munish stressed that livelihoods must form a strong component of every DRR intervention. He also highlighted the need for community preparedness.

Plan Bangladesh's presentation focused on the central question of how children can be included in DRR. As one of the most vulnerable groups to potential disasters, Plan has developed its CCRR approach (Child Centered DRR), which recognizes children as integral DRR change agents in communities. A vibrant discussion followed this presentation, with the resounding theme being that from a political standpoint, children should be included in DRR and climate change discussions. The political economy of climate change processes is manipulated as children are not included in policy. The need for institutional spaces where children's voices can be raised is therefore urgent.

The question and answer session that followed highlighted the point that the presentations of this session related to DRR, but would need to further explore the link between DRR and CBA, as well as climate resilient livelihoods. The discussion also stressed the need to be cautious of how scientific climate knowledge is disseminated and that it needs to be done carefully over time. A closer look at the CBMP approach is needed particularly with regard to projects aimed at reducing vulnerability for coastal and river bank communities, as this model can potentially save a substantial amount of funding for development projects.

The discussions also highlighted a lack of clarity with regard to understanding terminologies such as DRR/mitigation/adaptation which need further work in order to reach a common understanding of these issues. The question of accountability was highlighted particularly in terms of looking at non-environmental hazards that are occurring. The need to hold the individuals and organizations that are responsible for disasters accountable was identified.

The chair closed the session with his comments. These included that there is a general tendency to focus on technical aspects of DRR and CBA. He recommended that rather than focusing on climate resilient housing researchers should investigate why government institutions are not supporting this housing. He spoke about the lack of proper knowledge management in Bangladesh. Researchers are focusing on areas that have already been explored and assessed. He commented that current DRR projects are helping us to understand local vulnerability and capacity in response to the argument that the way DRR is being undertaken is not sufficient in the context of climate change. Lastly, he discussed inequality and extreme poverty. He commented that potential climate change impacts are different to development business as usual as not everyone has access to resources. We need to understand the link between the different impacts of climate change and an increased vulnerability.

## Plenary session 12: Closing

Dr. Saleemul Huq was the chair of the closing session. Dr. Muhammad Abdur Razzaque MP, Ministry of Food and Disaster Management, was the chief guest. Mesbah ul Alam, Secretary, Ministry of Environment and Forests, was the special guest. The panelists were Aminul Islam of UNDP, Mohammad Abdul Qayyum, Additional Secretary and National Project Director, CDMP, and Mr. Monowar Islam, NDC, DoE. The summary of the session was given by Dr. Atiq Rahman.

Several participants provided summaries from the parallel sessions held on the second day. Saroj Dash summarized the session on gender and CBA, where there was a discussion on the need to ensure women's access to resources and the protection of the commons. The presentations highlighted the need to look at climate change not only as a threat to but also as an opportunity for women's leadership and social change. Dr. Syed Samsuzzaman summarized the thematic session on agriculture, where the need to provide the extreme poor with access to khas lands was highlighted, along with activities such as re-excavating canals and rainwater harvesting. Afroz Mahal summarized the session on livelihoods and noted the interesting discussion about crab fattening, the role of market access, and the impact of government policies. Niger Dil Nahar described a very interactive session on DRR and CBA, which covered issues such as building village tidal protection walls, the gap between modern and indigenous early warning systems, children's participation in disaster and climate efforts, and the importance of incorporating livelihoods risk assessments into DRR.

Mr. Monowar Islam noted that CBA has long been a focus of IIED and BCAS and is a very good initiative. He discussed the various threats to ecosystem services in Bangladesh. He highlighted coastal bank erosion as a particularly severe threat, as it causes people to lose everything. He also shared the many success stories of Bangladesh, including the two national level climate funds, and noted that there are many good lessons that can be shared with other countries.



Figure 6 NCBA1 Closing Session

Mohammad Abdul Qayyum discussed the two levels of adaptation efforts: top down and bottom up. He noted that the best practices must be sustainable, replicable, and scalable. He also discussed the problem of increased salinity and the issues around shrimp cultivation, which has led to a weakening of embankments and saline intrusions into agricultural areas. The next steps for adaptation are to prioritize solutions.

Dr. Atiq Rahman provided a history of the CBA movement and some thoughts on the way forward. He noted the irony that this year will mark the sixth annual international conference, but only the first conference at the national level. Yet, he explained that those involved in these efforts wanted to take the time to explore whether CBA really has substance as an approach to climate change, and have since found that it does. Climate change started out as an environmental problem, but it has been quickly evolving now to encompass all facets of development and links across many sectors. He emphasized that all disciplines will have important roles to play on the way forward. Citing Amartya Sen's view that development is about having choices, Dr. Rahman discussed the need to widen and diversify our choices, since we do not know which ones we will need most in the future. He also discussed the challenge of knowledge sharing, pointing out that climate change will likely happen too quickly for knowledge to be passed from generation to generation through normal processes. Instead, he explained that we need a robust knowledge management system where community knowledge and scientific knowledge can be integrated.

Mesbah ul Alam, Secretary of the Ministry of Environment and Forests, gave concluding remarks in which he highlighted the work already been done in Bangladesh to address climate change. The Bangladesh Climate Change Trust Fund was created to implement the BCCSAP, and the government has pledged \$300 million for these efforts, which include 53 projects from NGOs and civil society. But given that an estimated \$5 billion is needed to fully implement the BCCSAP, domestic resources will not be enough. Development partners have come forward with resources such as the Resilience Fund, and Bangladesh will also look forward to additional funding from Fast Start Financing and the Green Climate Fund. He concluded by noting that conferences like this one are very useful in exchanging and spreading knowledge.

Dr. Saleemul Huq ended the conference with brief remarks on next steps, noting that minutes and presentations from all sessions of the conference will be made available soon on the ARCAB website. He also reflected on the question of why Bangladesh is so far ahead on the issue of climate change. In his view, the people of Bangladesh have already realized what others around the world eventually will: that we are fighting a war against climate change and must all come together to face these challenges. He explained that even though climate change is a big problem by working together we can turn it into a big opportunity.

# ANNEXURES

## ANNEX 1

# NCBA1 Conference Programme

Day one - 8 <sup>th</sup> April	9.00am – 10.00am	<b>Registration</b>
	10.00am – 11.00am	<p>Plenary session 1: <b>Conference opening, welcome speeches and keynote presentations</b></p> <p><b>Room:</b> Kings hall</p> <p><b>Facilitator:</b> Dr. Atiq Rahman</p> <p><b>Chief Guest:</b> Dr. Hasan Mahmud, MP, Minister of Environment and Forests</p> <p><b>Keynote presentation:</b> Dr. Saleemul Huq</p> <p><b>Convenor:</b> Syed Iqbal Ali</p>
	11.00am – 11.20am	<b>Tea break</b>
	11.20am – 1.00pm	<p>Parallel session 2: <b>CBA Concepts</b></p> <p><b>Room:</b> Kings hall</p> <p><b>Chair:</b> Dr. Ahsan Uddin Ahmed, Centre for Global Change</p> <ul style="list-style-type: none"> <li>▪ From CBNRM to CBA is not a Critical Journey: Can CBA finish their Journey Afterwards?; M. Mokhlesur Rahman</li> <li>▪ Community Knowledge for Adaptive Capacity: Tale of Coping with Climate Change in Bangladeshi Coastal Villages; Iqbal Alam Khan</li> <li>▪ Adaptation and Development: perspectives from Bangladesh; Syeda Sajeda Haider</li> <li>▪ Panelist: Dr. Jessica Ayers (IIED)</li> </ul> <p>Parallel session 3: <b>Water, Sanitation and Health and CBA</b></p> <p><b>Room:</b> Queens Hall</p> <p><b>Chair:</b> Dr. Khairul Islam, WaterAid Bangladesh</p> <ul style="list-style-type: none"> <li>▪ Grassroots Initiative Ensured Access to Public Resources: A Potential Adaptation Process; Anwara Begum Shelly</li> <li>▪ Impact of climate change on Watsan Sector; A conceptual mapping; Nazmul Huq</li> <li>▪ Supply of safe water in the salinity affected coastal areas through community based rainwater-harvesting; Rathindranath Pal</li> <li>▪ Effects of climate change on ground water table in Rajshahi District of Bangladesh; Nepal C. Dey</li> <li>▪ Climate Change and Health Impacts; Dr. Peter Kim Streatfield</li> </ul>
	1.00pm – 2.00pm	<b>Lunch</b>
	2.00pm – 4.00pm	<p>Parallel session 4: <b>CBA and Impacts of Climate Change on Agriculture</b></p> <p><b>Room:</b> Kings Hall</p>

Day one - 8<sup>th</sup> April 11.20am – 1.00pm

**Chair:** Dr. Ahsan Uddin Ahmed, Centre for Global Change

- From CBNRM to CBA is not a Critical Journey: Can CBA finish their Journey Afterwards?; M. Mokhlesur Rahman
- Community Knowledge for Adaptive Capacity: Tale of Coping with Climate Change in Bangladeshi Coastal Villages; Iqbal Alam Khan
- Adaptation and Development: perspectives from Bangladesh; Syeda Sajeda Haider
- Panelist: Dr. Jessica Ayers (IIED)

Parallel session 3: **Water, Sanitation and Health and CBA**

**Room:** Queens Hall

**Chair:** Dr. Khairul Islam, WaterAid Bangladesh

- Grassroots Initiative Ensured Access to Public Resources: A Potential Adaptation Process; Anwara Begum Shelly
- Impact of climate change on Watsan Sector; A conceptual mapping; Nazmul Huq
- Supply of safe water in the salinity affected coastal areas through community based rainwater -harvesting; Rathindranath Pal
- Effects of climate change on ground water table in Rajshahi District of Bangladesh; Nepal C. Dey
- Climate Change and Health Impacts; Dr. Peter Kim Streatfield

1.00pm – 2.00pm

Lunch

2.00pm – 4.00pm

Parallel session 4: **CBA and Impacts of Climate Change on Agriculture**

**Room:** Kings Hall

**Chair:** Dr. Mohammed Zainul Abedin, IRRI

- Climate Adaptation with Eco-friendly and Alternative Agriculture; Tarik Sayed Harun
- Salinity extends to interior coast and limits the crop production: A case study of Gosairhat; Lubna Seal
- Adaptation options on agriculture in Southern Khulna of Bangladesh; M. Harunur Rashid
- Impact of Salinity on Agricultural land use in Shyamnagar, Satkhira: A Geo-spatial Study; Md. Atiqur Rahman
- Study On Yield Loss Of Potato Due To Unusual Climatic Condition In The Northern Region Of Bangladesh; Ferdousi Begum

Parallel session 5: **Issues around adaptation**

**Room:** Queens Hall

**Chair:** Selim Reza Hasan, CARE

- ICT and Community Climate Care Centers for Knowledge Management and Adaptation in Rural Bangladesh; Shamima Aktar



Day one - 8 <sup>th</sup> April	<ul style="list-style-type: none"> <li>■ The Impact of Climate Change on Groundwater Resources and Sea Water-Groundwater Interface of Bengal Delta; Dr. Anwar Zahid</li> <li>■ Adapting school activities in climate vulnerable areas: Experience of PARSES; Mustafa Kamal Akanda</li> <li>■ Linking weather information and technologies for adaptive agriculture production; Farhana Sharmin</li> <li>■ Effectiveness of Tidal River Management (TRM) in Climate Change Adaptation: A Geospatial Study on Hari-Teka River Basin, Jessore, Bangladesh; Md. Rana Abbas</li> </ul>
4pm – 4.15pm	<b>Tea break</b>
4.15pm – 5.30pm	<p>Plenary Session 6: <b>Perspectives on CBA</b></p> <p><b>Room:</b> Kings Hall</p> <p><b>Chair:</b> Dr. Saleemul Huq, International Institute for Environment and Development</p> <p><b>Panellists (TBC):</b></p> <ul style="list-style-type: none"> <li>■ Sajid Raihan (ActionAid, Bangladesh) [session 2]</li> <li>■ Hasin Jahan (WaterAid) [session 3]</li> <li>■ Ahmedul Hassan (CEGIS) [session 4]</li> <li>■ Anik Asad (Oxfam) [session 5]</li> </ul>
6.00pm – 7.00pm	<b>Cultural Programme</b>
7.00pm - 7.30pm	<b>Drinks and snacks</b>
Day two - 9 <sup>th</sup> April	<p>9am – 10.30am</p> <p>Thematic session 7: <b>Adapting Agriculture to Climate Change and CBA</b></p> <p><b>Room:</b> Kings Hall</p> <p><b>Chair:</b> Dr. M. Asaduzzaman, Bangladesh Institute of Development Studies</p> <ul style="list-style-type: none"> <li>■ Rice-based farming systems technology for climate change adaptation; M. Harunur Rashid</li> <li>■ Micro climatic variation and its impact on vegetable production in South-West coastal region of Bangladesh; Md. Reaz Uddin Khan</li> <li>■ Watershed Mgt for Dry Season Alternate Cropping in the Drought and Saline Prone SouthWest Coastal Region of Bangladesh; Tusar Kanti Roy</li> <li>■ Restructuring Agricultural Practices Adaptive to Climate Change: RDRS Initiatives and Experiences in Northwest Bangladesh; Dr. Syed Samsuzzaman</li> <li>■ Khas lands, Extreme Poor and Adaptive Farming: A Case Study from Haor basin of Bangladesh; M. Mokhlesur Rahman</li> </ul>
10.30am – 11am	<b>Tea break</b>
11am – 1.00pm	<p>Parallel session 8: <b>Livelihoods and CBA</b></p> <p><b>Room:</b> Queens Hall</p> <p><b>Chair:</b> Dr. Rafiqul Islam, Chairman, Department of Agriculture</p>

**Day two - 9<sup>th</sup> April 11am – 1.00pm**

**Panellists:** Ms. Rokeya Kabir, ED, BNPS and MB Akhter, Acting Country Director, Oxfam

- Crab Fattening as an Effective Livelihood Option to Climate Change and Salinity in the Southwest Coastal Region of Bangladesh; Tusar Kanti Roy
- Effects of Riverbank Erosion on Lives and Livelihoods: A Study on Chandpur, Bangladesh; Naznin Nahar Sultana
- Climate Changing Effect on Fishers Community As Well As Their Alternative Livelihood Adaptation; Anjan Kumar Das
- Economic Development, Climate Change and Livelihood Adaptation; A.N.K.Noman
- Community based adaptation and Fishers Livelihood Development Initiative; Md. Masud Akhter
- Livelihood; OXFAM experience

Parallel session 9: **Gender, equity and CBA**

**Room:** Kings Hall

**Chair:** Farah Kabir, ActionAid, Bangladesh

**Panellists:** Umme Salma, Concern WW and Syeda Rizwana Hasan, Executive Director of the Bangladesh Environmental Lawyers Association (BELA)

- Empowering Women for Coping Climate Risks in Selected Areas of Coastal Bangladesh; Masuda Farouk Ratna
- Concern presentation (Inequality and Climate Change)
- Women and CBA; Azmarina Tanzir
- Presentation; Sweta Misra
- Perspective from community person

**1.00pm – 2.00pm**

**2.00pm – 4.00pm**

**Lunch**

Parallel session 10: **Institutional aspects and CBA**

**Room:** Queens Hall

**Chair:** Shameem Siddiqi, The Asia Foundation

**Co-Chair:** Saima Anwer, The Asia Foundation

- People's Organization: Strengthening Demand Side and Accountability at Grass Root on Climate adaptation; Md. Mujibul Haque Munir
- Community based Adaptation in Haor basin and the Policy Scope; Tapas Ranjan Chakraborty
- Exploring the links between community-based adaptation and microfinance; Dr. Henry Scheyvens
- Can Good Governance Ensure Environmental Sustainability? A Study on Democratic Practices and Legislative Interventions on the Sundarbans; Imtiaz Ahmad
- Climate Change Governance Anchored with Institutional Governance; Mr. Mamun-Or-Rashid
- Local government and CBA; S. M. Nasir Uddin

Day two - 9 <sup>th</sup> April	2.00pm – 4.00pm	<b>Parallel session 11: Disaster Risk Reduction and CBA</b>
		<b>Room:</b> Kings Hall
		<b>Chair:</b> Khurshid Alam
		<ul style="list-style-type: none"> <li>▪ Disaster Resilient Habitat: A Comprehensive Approach to Mitigate Climate Change Vulnerability in Bangladesh Coastal Area; Satchidananda Biswas Satu</li> <li>▪ Vulnerabilities and Resilience among Extreme Poor People: the South West Coastal Region of Bangladesh; Prokriti Nokrek</li> <li>▪ Indigenous Knowledge for Early Warning in Flood and River Erosion Hazards: A Strategy for Climate Change Adaptation; M. Mizanur Rahman</li> <li>▪ Children in DRR; Plan Bangladesh</li> <li>▪ Exploring Livelihood Resilience: Disaster Risk Reduction and Community Based Adaptation; Munish Kaushik</li> </ul>
	4pm – 4.15pm	<b>Tea break</b>
	4.15pm – 5.30pm	<b>Plenary session 12: Closing</b>
		<b>Room:</b> Kings Hall
		<b>Chair:</b> Dr. Saleemul Huq
		<b>Chief Guest:</b> Dr. Muhammad Abdur Razzaque MP, Ministry of Food and Disaster Management
		<b>Special Guest:</b> Mesbah ul Alam, Secretary, Ministry of Environment and Forests
		<b>Panellists:</b> Aminul Islam, UNDP Mohammad Abdul Qayyum, Additional Secretary and National Project Director, CDMP Mr. Monowar Islam, (ndc), DoE
		<b>Summary:</b> Dr. Atiq Rahman
		<ul style="list-style-type: none"> <li>▪ Reflections on the Parallel Sessions of Day 2</li> <li>▪ Saroj Dash (Concern) [session 9]</li> <li>▪ Dr. Syed Samsuzzaman (RDRS) [ session 7]</li> <li>▪ Anwara Begum (Caritas) [session 9]</li> <li>▪ Afroz Mahal, Oxfam [session 8]</li> <li>▪ Syed Shahnawaz Ali, Islamic Relief WW [session 11]</li> </ul>

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