Community Based Adaptation: Early Learnings from CBA Conferences

CBA1 (2005) to CBA6 (2012)

- **Approaches**
- **Practices**
- **Challenges**
- **Way Forward**

BCAS

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International Institute For Environment and Development

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

Atiq Rahman
Golam Rabbani
Dwijen Mallick
Natasha Haider

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 organizers' point of view, and does not necessarily express the views of each individual participant. Presentations made during the plenary sessions of the conference are available at
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Authors: **Atiq Rahman**

Co-authors: **Golam Rabbani**
Dwijen Mallick
Natasha Haider

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Bangladesh Centre for Advanced Studies (BCAS)
House 10, Road 16A, Gulshan-1
Dhaka 1212, Bangladesh

Tel: (+880-2) 8818124-27, 9851237, 9852904
Fax: (+880-2) 9851417
Web: http://www.bcas.net/

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Preface

Climate change is now regarded as the greatest environment and development threat of today's world. Human induced rapid climate change problem has been created by unequal development and unwise production and consumption by few rich nations, while the impacts are unevenly distributed across the world where poor nations, and the poorest within the countries and societies are the most vulnerable. The United Nations Framework Convention on Climate Change (UNFCCC) and the climate-development scientists have identified two major responses to address climate change.

These are: (a) mitigation to arrest rapid climate change and (b) adaptation to reduce risks and vulnerability due to climate change through coping and adjustment with the changes.

Communities and vulnerable groups in different climate affected areas of the world are already coping (which is immediate and short-term action for survival) and adapting to climate change impacts in some cases. The communities would need new knowledge, technologies, resources and institutional supports for planned and effective adaptation to climate change. Hence building adaptive capacity of the communities and actors has been a big challenges, particularly in the developing world.

Bangladesh Centre for Advanced Studies (BCAS) as a research, policy and implementing organization and International Institute on Environment and Development (IIED), have been very keen to promote community adaptation as part of sustainable development, poverty alleviation and disaster risk reduction of the vulnerable communities. BCAS and IIED, along with government, development agencies and research partners from home and abroad (including IUCN, DFID, EU, Oxfam, Christian Aid, Care International, Action Aid etc.) are promoting Community Based Adaptation (CBA) in Bangladesh and in the developing world.

Further, considering the growing interests of the actors and stakeholders about the emerging approaches of CBA and how to promote CBA with the communities and mainstreaming CBA in policy and planning, BCAS, IIED and partners had organized the first international CBA conference in Dhaka in 2005. The conference discussed practices, addressed conceptual framework of CBA and its links with development and DRR, scientific basis and partnership building for scaling up CBA in different climate affected ecosystems. Following the CBA1, five other CBA conferences have been successfully organized on different thematic issues in Bangladesh, Tanzania and Vietnam. Detailed field visits were integral part of these conferences. The CBA7 is scheduled to be held in Dhaka again in 2013 which will focus or mainstreaming CBA into national and local planning.

The development practitioners, climate change scientists and DRR communities, government policy makers and development agencies have contributed to the CBA conferences. Further many of them were most interested to know about the approaches, outcomes, learnings and way forward of CBA conferences. Hence, BCAS and IIED have decided to publish this book on the approaches and key learnings of the last six CBA conferences.

This book has eight chapters, which have highlighted CBA approaches, practices and challenges. It has also focused on key linkages of CBA with development, poverty alleviation, livelihood, disaster risk reduction (DRR) and basic human securities. Chapter-7 highlights the key challenges of mainstreaming CBA into policy, programme and planning. Chapter-8 summarises the key learnings from first six international conferences and has tried to identify the way forward.

I hope this book which has been a flagship publication on CBA would address vital knowledge gaps in CBA approaches (from planning to implementation), mainstreaming CBA, up scaling and wider partnership building for advancing CBA at different levels and scales in developing as well as in developed countries. The main objective is to built scientific understanding of CBA and adaptive capacity, risk reduction and resilience of the affected communities.

I would like to acknowledge the contribution of Ms Marium Rashid, Sr. Research Officer, BCAS for her initial work on this book. I would also like to express my thankfulness to Dr. Saleemul Huq, Advisor to Climate Policy Division of IIED and Dr. Hanah Reid, Sr. Fellow of IIED for their analytical inputs and support for this publication. I am also grateful to the development partners who supported us for holding the conferences and bringing out this publication.

The greatest acknowledgement should go the participants of the six conferences whose thinking, experiences and enthusiasm contributed to the many ideas in this book. But above all, we must acknowledge the experiential knowledge, wisdom and resilience of the communities who have been the main driving force behind CBA.

Dr. Atiq Rahman
Executive Director (BCAS) &
Co-Chair, Climate Action Network South Asia (CANSA)

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Abbreviations

'AdMit'	Adaptation and Mitigation Simultaneously
ARCAB	Action, Research on Community Adaptation Bangladesh
BCAS	Bangladesh Centre for Advanced Studies
CBA	Community Based Adaptation
CBAA	Community Based Adaptation in Africa
CBOs	Community Based Organizations
COP-1	Conference of the Parties-1
CRISTAL	Community-based Risk Screening Tool – Adaptation and Livelihoods
DFID	Department for International Development
EBA	Ecosystem Based Adaptation
EIA	Environmental Impact Assessments
EPMS	Environment Protection Management Services
GICBA	Global Initiative on Community Based Adaptation
GEF	Global Environment Facility
GHG	Green House Gas
IIED	International Institute for Environmental and Development
IPCC	Intergovernmental Panel of on Climate Change
IUCN	*International Union for Conservation of Nature*
IDRC	International Development Research Centre
IGOs	Intergovernmental organizations
LDCs	Least Developed Countries
LOCATE	Local Options for Communities to Adapt and Technologies to Enhance Capacity
MDGs	Millennium Development Goal
M & E	Monitoring and Evaluation
NAPA	National Adaptation Programme of Action
NGO	Non-Government Organization
SBSTA	Subsidiary Body on Science, Technology
SSN	SouthSouthNorth
SSNAPP	SouthSouthNorth Adaptation Project Protocol
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change
UN	United Nations
UNDP	United Nations Development Programme
VRA	Vulnerability Reduction Assessment

Summary

The Key Concerns

The threats and impacts of climate change are multifaceted, multi dimensional and multi-sectoral. The terminologies such as “Global Climate Change” “Global Warming” does not represent the seriousness and the severity of impacts and human, economic and ecological risks and costs of long term, anthropogenic intervention in the climate system. These terminologies often understate the severity of reinforcing impacts, the apparent long term destabilization of the climate system as has been known. Further it has been evident in the last decades that the greatest impacts on the human, economic and ecological systems will be demonstrated, not necessarily at the average of the systems parameter such as temperature, precipitation or sea level rise but by the behaviors of extreme events such as floods, cyclones, water surges, erratic rainfall, drought, extremes of heat and cold episodes, wild fires, snow storms, rapid glacial melts and localized higher sea level rise. Thus it is the disasters which will demonstrate the strongest immediate signals with major risks and costs to the society, economy and development.

Major Development and Environment Challenges

Climate change is now considered as a major development issue challenging local, national and global sustainability instead of being only an environmental problem. This is because climate change impacts are considered to impose some of the greatest barriers to achieving sustainable development especially for the poorer nations. Climate change is making it more difficult for poorer countries to implement plans and strategies that will work towards achieving their Millennium Development Goals (MDGs) and poverty alleviation.

The two main strategies in dealing with climate change are mitigation and adaptation. Mitigation involves reduction of greenhouse gas emissions in order to arrest rapid climate change, while adaptation is the process of adjusting with the changes and reducing the risks and vulnerabilities created by climate change so that the systems function for human welfare.

Defining Adaptation

Adaptation can be defined as the ‘adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harms or exploits beneficial opportunities’. In simple terms, adaptation is the process of coping with the adverse impacts of climate change in such a way as to reduce the vulnerability of the people by increasing their adaptive capacity. The types of adaptation discussed in the IPCC report in relation to climate change are: anticipatory adaptation, autonomous adaptation, mal-adaptation and planned adaptation.

Promoting Community Based Adaptation (CBA)

BCAS, IIED, UN agencies, governments, NGOs and local partners are promoting Community-based Adaptation (CBA), which highlights innovative and participatory methods to help communities analyze the causes and effects of climate change at local contexts, identify the level of risks and vulnerability, integrate scientific and

community knowledge in planning appropriate local adaptation strategies and measures. CBA is a relatively new approach and new knowledge and practices are emerging in different parts of the world, particularly in the developing countries. The IPCC authors, climate scientists and development practitioners have shown their great interest in CBA.

Research, Design and Practice of CBA

CBA practice and research is still considered to be in its infancy but already progress has been made with regard to acceptability by communities, increased capacity building, dissemination of knowledge and accessibility of funds for projects. There already have been a considerable number of community based adaptation projects in various ecosystems and regions and more are being designed based on the lessons learned from the previous ones.

Adequate, Predictable and Sustainable Financing

The Copenhagen Accord, agreed upon at COP-15 in Copenhagen, Denmark, in December 2009, stressed the need to establish a comprehensive adaptation programme, and agreed that developed countries should provide "adequate, predictable and sustainable financial resources, technology and capacity building" to support the implementation of adaptation action in vulnerable developing countries, such as in Africa and Asia. The Framework also established an Adaptation Committee to promote implementation of enhanced action through: technical support and guidance; enhancing information sharing on good practices; promoting synergy and strengthening engagement of organizations, centers and networks; providing information on good practices on means to incentivize adaptation implementation and reduce vulnerability; and considering communications by parties on monitoring and review of adaptation actions with an aim to recommend further actions.

A Platform to Support CBA Initiatives

Currently, considerable number of community level adaptations are being implemented by various international, national and local level NGOs, CBOs and particularly by communities themselves. The CBA researchers felt that there is a need for a platform where CBA practitioners, adaptation experts, donors, NGOs etc., can share their experiences and provide technical support to each other, build partnership and support the communities and their initiatives.

Policy Regulatory and Funding Support for CBA

Research into CBA practices and activities in various countries has brought to light the fact that CBA activities are more in the hands of the NGOs, CBOs and communities. Even though many governments are supporting the adaptation activities being carried out at the community level, there is a lack of support at the policy level. CBA activities can be linked up with activities of the central government in the form of policy and regulations. Already there are global actors involved in funding activities and providing technical advice. These are mainly the UN agencies, the World Bank and government funding agencies such as UK's Department for International Development (DFID) and many others.

Key Actors in the CBA Process

Now the key actors in the CBA process include International, multinational and bilateral development partners such as the World Bank, UNDP, Department for International Development (DFID), national and international

NGOs, CBOs, stakeholders and the communities themselves. The large donor organizations provide funding and technical assistance to government departments, international and national NGOs, research and academic institutions to design and implement CBA at the local level. These organizations then coordinate with their local level partners and sister organizations to carry out the entire consultation, development and implementation of the CBA activity in communities.

Exponential Increase in CBA Activities

Since community based adaptation activities have gained a foothold as crucial adaptation and development activities, the number of CBA projects being implemented has increased exponentially all around the world. Many of the spontaneous response activities by communities now qualifies for CBA. Most of the developing countries are implementing some form of CBA activities to reduce vulnerability, be it awareness raising disaster preparedness, or local level infrastructure or resilience building.

Initiating the Series of International Conferences on CBA

Thus BCAS and IIED with their partners have initiated a series of International Conferences on CBA from 2005. These CBA1 to CBA6 conferences have drawn increasing attention and grown in interest and participation from all key players in adaptation.

The Objectives of International CBA Conferences

The Objectives of International CBA Conferences were:

- Stakeholder participation
- Learning and Experiences
- Enhance capacity (Scientific understanding, planning and implementation of CBA)
- Sharing of approaches
- Develop appropriate tools and methods
- Dissemination: Influencing Policies and Practices and
- Building partnership among the actors.

The First CBA Conference (CBA1)

The First International Conference on Community Based Adaptation (CBA) to Climate Change was held in Dhaka, Bangladesh in January 2005. It was jointly organized by the Bangladesh Centre for Advanced Studies (BCAS), the International Institute for Environment and Development (IIED), the Regional and International Networking Group (RING) and the *International Union for Conservation of Nature* (IUCN).

The conference was divided into eight technical sessions dealing with: a) understanding adaptation to climate change; b) partnership in adaptation; c) adaptation in practice; d) community response; e) confronting vulnerabilities; f) mainstreaming adaptation; g) knowledge management and h) responding to climate change. The concluding session of the conference dealt with the key lessons learnt and the way forward. Besides these sessions, there was a field trip preceding the conference so that the participants could observe community level adaptation projects first hand. Consequently, five CBA conferences were held in the following places:

International CBA Conferences (2005-2012) by Year, Places and Themes

Sl. No	Year	Place	Major Themes
CBA Conf.-1	2005	Dhaka, Bangladesh	Conceptualization of CBA and finding Linkages with Development and DRR
CBA Conf.-2	2007	Dhaka, Bangladesh	Climate Change Science, CBA Approaches and Partnership
CBA Conf.-3	2009	Dhaka, Bangladesh	Knowledge and Practices of CBA, Sectoral Approaches and Up-scaling CBA
CBA Conf.-4	2010	Dar es Salaam, Tanzania	CBA Practices across the world, Research and Policy Guidance
CBA Conf.-5	2011	Dhaka, Bangladesh	Scaling Up CBA: Beyond Piloting
CBA Conf.-6	2012	Hanoi, Vietnam	Communicating CBA

Climate Change is Global, but the Impacts are Local

It is to be noted that climate change is a global phenomenon but impacts are often local and context specific. So, some of the impacts and actions will be local while others will be regional in character. The key impacted sectors due to the run away climate change are:

- Agriculture and food security
- Water and health
- Resource base and livelihoods
- Infrastructure, and
- Rural and urban development.

Climate Change Undermines Development Goals and Threatens Basic Securities

Climate change impact tends to undermine many of the development goals and threatens most of the basic securities and enhances disaster risks. These include human securities such as food and nutrition, water, health, sanitation and hygiene energy, livelihoods and social security. Further it undermines poverty alleviation efforts of communities, governments and non-government organizations.

Thus urgent and coordinated actions are needed to incorporate or mainstream climate change issues as well as adaptation into the conventional development process. All actors including central and local governments and their agencies, international and development partners, local and international NGOs, civil society and all development and environmental actors need to work together in a coordinated way. Three broad and interactive areas that need urgent attention are:

- Food, Water, Health and Energy, Security
- Disaster Risk Reduction, Livelihood and Social Protection, and
- Climate resilient development (incorporating present and future risks of climate change).

Harmonizing Traditional Knowledge and Scientific Knowledge

Millions of communities across the world are trying to adapt to these experiences and changes. The communities are adapting to the climate change impacts with their limited resources and traditional knowledge which are being sometime supported by scientific knowledge and practices available to

them. There is a need to harmonize the scientific and experimental knowledge and lay down the scientific basis of community based adaptation (CBA) to make the efforts and outcomes sustainable.

Increasing Science – Practice Interaction

The journey of CBA and the series of international conference are aimed to maximize scientists and practitioners interaction across continents, countries, sectors and disciplines to develop a scientific basis of CBA which could be used to reduce to the risks and vulnerability of the communities to the impacts of climate change.

Additionality of Adaptation to Sustainable Development

CBA projects are like any other development projects with an 'additionality' of climate change adaptation activities to reduce risks and vulnerability of the communities. Activities like identification of specific vulnerability of communities from climate change, building relevant capacity to deal with the vulnerability and creating a database of these activities can go a long way in developing social and disaster reduction programmes. Furthermore, the implementation of CBA activities often results in the creation of community based organizations (CBOs).

CBA: Learning by Doing, Early Lessons Learnt

Community based adaptation activities are still at the stage of 'learning by doing'. Hence the lessons learnt from previously implemented projects are crucial for researchers and practitioners. Some of early lessons learnt from designing or implementing CBA projects are reported below.

- The CBA researchers and practitioners must first gain the trust of the community they want to interact with. This means spending a long time with the community and getting to know them well. But if there are intermediaries like local NGOs or government agencies present, it is best to start a dialogue with them before communicating with the community themselves,
- Assessment of climate knowledge and awareness among the community is essential. Studies have shown that traditional knowledge and natural indicators play a strong role in the communities but due to climate change, these indicators are becoming more unreliable. Assessing the existing knowledge allows the CBA practitioners to design appropriate tools for capacity building and skills development,
- While assessing vulnerability using a questionnaire survey, it is important to realize that different groups within the same community may need more specific or tailored questions to address similar issues,
- It is important to have a proper understanding of the social networks within the community as they are vital to the success of CBA implementation, and
- The CBA project must be linked to local development activities and projects in order to encourage active stakeholder participation. Adopting consultative and participatory approaches significantly increases the success of CBA projects.

Approaches and Way Forward

Early learning's from the six consecutive CBA conferences point towards the following as approaches to future and way forward:

Holistic Approach Needed

Community Based Adaptation must consider a holistic approach involving many sectors such as food, water, energy, infrastructure, poverty reduction, increasing livelihood opportunities, social mobilization and education. For all the CBA projects to develop its design, mobilization, demonstration and implementation in an organized and systematic way will need coordination, mobilization and utilization of funds. Based on the innovation and learning, enterprise and flexibility of the community decision making process, when it comes to multi-household or multi-stakeholder decision making, it needs the involvement and initiative of the local government and regulatory processes.

Scaling Up of CBA

'Scaling-up' of CBA activities is needed to involve larger numbers of communities to build capacity and reduce climate change induced risks. This 'scaling-up' involves restructuring and modify some successful adaptation projects so that they can be implemented in similar ecosystems within the country and other vulnerable communities all over the world. A key aspect of scaling-up is to share information and experience from local level to national level networks and also through regional CBA networks.

Good Governance Practices: Monitoring and Evaluation

The new paradigm of sustainable development of the developing countries, particularly poor countries, will require reduction of poverty, preparing for a climate change world with risk reduction, appropriate adaptation and climate change governance. The economic market will have to create jobs as well as ensure the key human securities including food, water, energy, livelihood, health and social security of every citizen. One of the other key elements is the governance issues. For observing good governance practices, transparency and accountability, proper monitoring and evaluation of the projects are needed. These are necessary elements to ensure that the CBA/local adaptation plan of action (LAPA) adaptation projects meet their requisite standards of good governance.

Supporting Innovation, Initiative and Enterprise

One has to be cautious that the structured LAPA and CBA projects do not undermine the innovation, initiatives and enterprises of the local communities and that is a free atmosphere of encouraging local indigenous knowledge and practices, which very often may need external knowledge and technologies, resources and institutional supports.

Gender Dimension Must be Central

The women are to take major responsibility of adapting at the household and its member for proper activities to minimize risk and maximize resilience. For slow onset climate change events such as drought, sea level rise increase in salinity etc., women tend to take many of the adaptive actions and create adaptive capacity by interacting with the community. Hence it is of utmost importance to make women central to the design and implementation of adaptation actions, adaptive strategies, risk reduction, resilience and adaptive capacity building efforts.

Guidelines for Incorporating CBA into Sustainable Development Strategy

In order to take CBA activities forward and incorporate them into sustainable development strategies, there is need to develop a set of guidelines for CBA practitioners and stakeholders. Even before developing a CBA project, it is crucial to recognize the linkages between climate change, natural resources and the human component. Understanding the linkages would give a clearer picture of potential impacts the CBA project would have on ecosystems and the human population. CBA practitioners should strive to attain a 'win-win' situation when designing projects, support poverty reduction and increase livelihood options.

Greater Scientific Understanding Needed

There needs to be greater scientific understanding of the causes, on the nature and intensity of the variability against which they are trying to respond to reduce the risks and build resilience and adaptive capacity. Hence there is a need to develop and structure the existing knowledge of CBA into a scientific approach. This is going to be a major challenge, as the Science of Adaptation is even at its earliest stages or infancy.

Clear Pathways for CBA; Increased Resilience of Communities

The resilience of the communities needs to be protected and enhanced. These need enormous efforts, integration, multidisciplinary approaches more robust community of actors to address these issues. The financial mechanisms envisaged under UNFCCC will only be forthcoming if we can show the clearer pathways that CBA approach will offer for worth while investment.

Horizontal and Vertical Integration: Increased Role of Local Government

The local government agencies should enter into intensive interactions with the communities and learn from the community adaptation initiatives and integrate and intensify these CBA initiatives as approaches to reduction of climate change risks and enhance resilience. Similarly the local government agencies must integrate this horizontally amongst all their agencies. Further this integration must also be stimulated vertically amongst the different tiers of the government to national decision making and fund allocation systems.

Communicating CBA at all Levels

This report considered early lessons learnt from Community Based Adaptation Conferences – CBA1 to CBA6. The last CBA6 was held in 2012 in Hanoi in Vietnam with support from the Govt. of Vietnam and the NGOs of Vietnam. BCAS and IIED with other partners were co-organizers of CBA6. The main theme there was "Communicating CBA" at all levels from policy to practice.

Mainstreaming CBA into National and Local Planning

CBA7 will be held in Dhaka, Bangladesh in 2013 and the theme will be "Mainstreaming CBA into National and Local Planning". CBA conference will address different elements, aspects, approaches, challenges and experiences of mainstreaming CBA.

March of CBA to be Energized and to Continue

Given the continued interest from policy makers, scientists and practitioners, the CBA conferences are expected to continue for subsequent years. Location is normally decided by the suggestion from participants and finalized by the Conference Management Committee. Similarly these are also selected in each conference for the next CBA conference.

Climate Justice must prevail

Climate change undermines developmental achievements and environmental protection**.** Climate change impacts undermines poverty alleviation efforts and increase sufferings of the poorest most. CBA is an early effort by the communities themselves to express their vulnerability and resilience, build adaptive capacity and minimize risks to their survival. Adaptation has limits. Rapid mitigation actions and reduction of Greenhouse Gas (GHG) led by industrialized countries and followed by newly industrializing countries – is a must. Climate change related efforts must be for a fairer world, were climate justice must prevail.

1 Introduction

Climate change has emerged as the greatest threat and challenge faced by mankind. Millions of people all over the world are victims to the growing adverse impacts brought on by the rapidly changing climate. Both rich and poor nations alike are experiencing the impacts but it is the poorer nations and particularly poor countries across the world that are most vulnerable to this onslaught mainly due to lack of adaptive capacity. Climate change is now considered as a major development issue instead being an only environmental problem. This is because climate change impacts are considered to impose some of the greatest barriers to achieving sustainable development especially for the poorer nations. Climate change is making it more difficult for poorer countries to implement plans and strategies that will work towards achieving their Millennium Development Goals (MDGs). Other issues that are likely to have an impact on sustainable development are loss of biodiversity and desertification. Since these two issues are also closely interlinked to climate change, experts believe that a synergy between these issues is crucial for the future of the planet. Climate change has taken precedence over all other environmental problems and development concerns worldwide. The projections reported by climate scientists in the Fourth Assessment Report (AR4) of Intergovernmental Panel of on Climate Change (IPCC) are even more serious than previously considered. There is evidence that the changing climate is already causing seasonal fluctuations in precipitation and temperature, raising the sea level, increasing sea surface temperature and causing the melting of polar ice caps and glaciers. In an effort to reduce climate change, governments have agreed under the UNFCCC mandate to combat climate change, set greenhouse gas (GHG) reduction targets and reduce the vulnerability of nations and peoples.

The two main strategies in dealing with climate change are mitigation and adaptation. Mitigation involves reduction of greenhouse gas emissions in order to reduce climate change, while adaptation is the process of adjusting with the vulnerabilities created by climate change so that the systems function for human welfare. Unfortunately mitigation alone cannot be used to tackle climate change. It has been recognized that adverse impacts will continue even if rigorous mitigation was implemented due to the considerable lag phase between implementation and results. On the other hand without vigorous mitigation action, the need for adaptation will only keep on increasing, and in many case reach the limits of adaptation options.

What is Adaptation?

Since the beginning of the UN Framework Convention on Climate Change (UNFCCC), the focus of the negotiations have been on mitigation which is the reduction of greenhouse gas (GHG) emissions in order to prevent dangerous changes to climate. In the earlier stages, adaptation to climate change was considered as a 'poor cousin' of mitigation at the negotiating table. Hence mitigation has progressed at least in discourse or technological and methodological development if not commitment to reduce GHG.

According to the IPCC Fourth Assessment Report (AR4), adaptation can be defined as the 'adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects which moderates harm or exploits beneficial opportunities' (IPCC, 2007). In simple terms, adaptation is the process of coping with the adverse impacts of climate change in such a way as to reduce the vulnerability of the people by increasing their adaptive capacity. The types of adaptation discussed in the IPCC report in relation to climate change are:

- Anticipatory adaptation – Adaptation that takes place before impacts of climate change are observed. This is also referred to as proactive adaptation.
- Autonomous adaptation – Adaptation that does not constitute a conscious response to climatic stimuli but is triggered by ecological changes in natural systems and by market or welfare changes in human systems. Also referred to as spontaneous adaptation. For instance, a farmer changing crop sowing and harvesting time to keep up with changing patterns of precipitation.
- Planned adaptation – Adaptation that is the result of a deliberate policy decision, based on an awareness that conditions have changed or are about to change and that action is required to return to, maintain, or achieve a desired state.

Adaptation to climate change can be in the form of activities, strategies or policies that can be implemented to help countries cope with climate change in almost every sector. Adaptation is crucial for developing and least developed countries since climate change takes a toll on social and economic situations of these countries. An effective way of reducing the vulnerability of countries and people to climate change would be to mainstream adaptation into existing development programmes and involvement of the community. One of the keys for success of adaptation strategy is the sense of ownership by the stakeholder whose vulnerability is being addressed by the adaptation activity.

1.2 Adaptation Vs Mitigation

Table 1: Comparing Adaptation and Mitigation

Adaptation	Mitigation
• Refers to adjustments in practices, processes, or structures in response to projected or actual changes in climate and extreme climate events • Aims to cope with the problems of climate impacts which have not or are not going to be prevented either before, during or after they occur • Adaptation tries to reduce the consequences of climate change impacts • The actors in adaptation represent a large variety of sectoral interests, including agriculture, tourism and recreation, human health, water supply, coastal management, urban planning and nature conservation	• Refers to ac-tivities which reduce the greenhouse gases (GHGs) which result in global warming • Attempts to prevent the climate change problem from occurring in the first place • Primarily involves the energy and transportation sectors in industrialized countries and to some extent the energy, forestry and agricultural sectors in developing countries • The number of sectoral actors involved in mitigation is limited

Source: Compiled from SSN Report, 2006

At present even adaptation and mitigation advocates are recognizing that only adaptation and mitigation alone cannot effectively combat climate change. Hence a new approach is emerging—'AdMit', a combination of adaptation and mitigation activities.

1.3 Challenges of Adaptation

Even though adaptation activities are emerging rapidly and have been successful in reducing the vulnerabilities of the less developed countries, adaptation alone cannot go on combating climate change. Like all other processes, adaptation has its own set of limitations and challenges of implementation. These challenges are:

- **Adaptation has limits and cannot go on indefinitely.** Since the adverse impacts of climate change such as floods and droughts are increasing, it is practical that soon these will surpass the adaptive capacity of people. For instance, if flood level keeps on rising year after year, there will be a time that the area will become permanently flooded and in that case, raising the plinth of houses will no longer be a feasible adaptation option.

- **Adaptation is context specific and closely related to ecosystems.** This means that adaptation activities designed for a particular ecosystem is not a viable mean of reducing vulnerability if implemented in a different ecosystem. Adaptation activities designed for floodplains are completely different to adaptation activities carried out in drought prone areas.

- **Lack of adaptive capacity.** Practical experience has shown that the main hurdle in implementing adaptation activities in poorer countries is the lack of adaptive capacity of the people. Adaptive capacity is the ability or potential of a system to respond successfully to climate variability and change, and includes adjustments in both behavior and in resources and technologies. The presence of adaptive capacity has been shown to be a necessary condition for the design and implementation of effective adaptation strategies so as to reduce the likelihood and the magnitude of harmful outcomes resulting from climate change.

1.4 Climate induced extreme Event and Disaster Risk Reduction

It is often not the mean or the slow average changes but the extreme events caused or accentuated by climate change or related stimulus that will have the greatest impacts. Extreme events results in increasing disasters. Thus climate adaptation and Disaster Risk Reduction will need to be integrated

- **Very few can claim to be an expert in adaptation.** Even though adaptation activities have been going on for decades, there are very few practitioners, organizations or consultants who can claim to be experts in adaptation (Flint, 2007). The concept of adaptation is continuously evolving and the activities have to be changed to keep up with the changing risks.

- **Danger of 'maladaptation'** which results in increased vulnerability to climatic stresses. Maladaptive actions and processes often include planned development policies and measures that deliver short-term gains or economic benefits but lead to exacerbated vulnerability in the medium to long-term. Hence current adaptation should not attempt not to undermine future resilience or adaptive needs, and should help build adaptive capacity and resilience in communities and the systems people depend on.

2

What is Community Based Adaptation (CBA)?

Many organizations including Bangladesh Centre for Advanced Studies (BCAS) and International Institute for Environment and Development (IIED)attach highest value to people's knowledge, practices and priorities and is trying to build capacity of the vulnerable communities, actors and stakeholders to advance adaptation to climate change. The newly emerged approach that can help the vulnerable and marginalized communities to deal with climate change impacts and improve resilience is called 'Community Based Adaptation (CBA)' to climate change. It highlights innovative and participatory methods to help communities analyze the causes and effects of climate change at local contexts, identify the level of risks and vulnerability, integrate scientific and community knowledge in planning appropriate local adaptation strategies and measures. CBA is a relatively new approach and new knowledge and practices are emerging in different parts of the world, particularly in the developing countries. The IPCC authors, climate scientists and development practitioners have shown their great interest in CBA.

One approach that can help these marginalized communities to deal with climate change impacts and improve resilience is community based adaptation (CBA) activities. Community based adaptation can be viewed as an additional but fairly new type of community based development activities, practices, research and policies (Huq, 2008).

'CBA is a community based development activity, practice, research and policy which incorporates climate change vulnerability'

Once implemented, CBA tends to be like any other development projects with the addition of climate change factors. According to Huq, CBA to climate change is just another new layer added to other community based development activities.

2.1 Components of CBA

The major characteristics that make CBA so successful in developing countries is that it is based on existing/traditional practices, involves the communities, and is relatively easy to monitor and replicate in similar ecosystems. If implemented properly, CBA can help the most vulnerable communities effectively to cope with the adverse impacts of climate change by adjusting livelihood practices, building capacity and sharing knowledge. The Climate Action Network (2009) position paper reports that CBA is intimately connected with the health and services provided by ecosystems. Although CBA is a new concept, it has become a popular method among the environment and developmental community as a crucial means of addressing vulnerability reduction to climate change.

There are some crucial steps that must be followed before CBA activities can be implemented in various communities. The diagram below shows these essential steps:

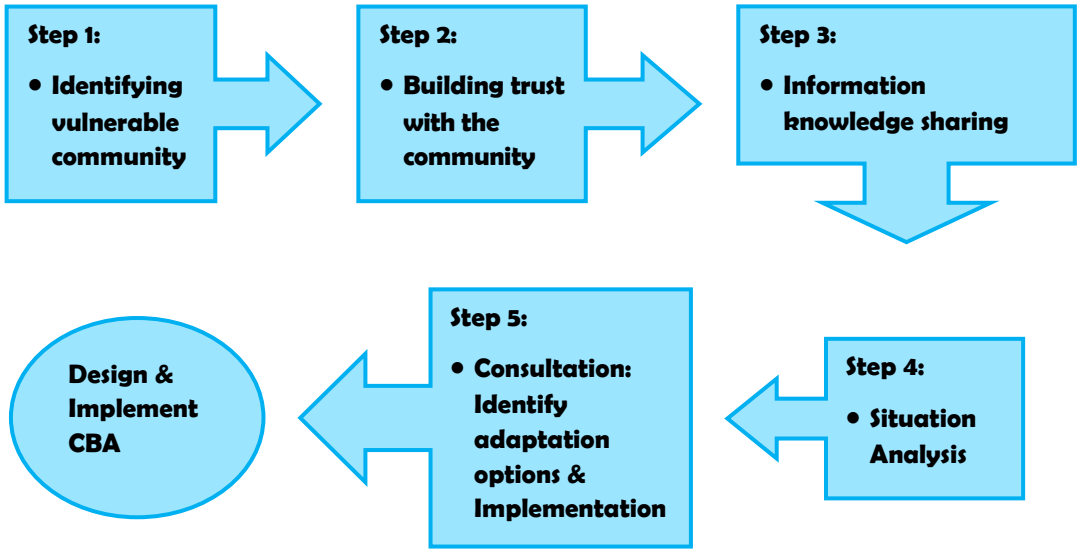

Figure 1: Components of Successful CBA

Once the adaptation project is set up it resembles other standard development projects rather than a stand-alone response to climate change. The difference is in the inputs to the intervention as opposed to what the intervention is. The adaptation element of the project introduces the community to climate risks and factors this into the activities.

Lessons from community based adaptation process have shown that CBA cannot yet be learned through studying theories. CBA has to be practiced. Knowledge on CBA is gained through 'learning-by-doing' and 'action-research'. Networks on community based adaptation in the developing countries have emerged and they work towards knowledge dissemination, sharing of best practices and lessons learnt among communities and among countries.

CBA practice and research is still considered to be in its infancy but already progress has been made with regard to acceptability by communities, increased capacity building, dissemination of knowledge and accessibility of funds for projects. There already have been a considerable number of community based adaptation projects in various ecosystems and regions and more are being designed based on the lessons learned from the previous ones. The need and demand for CBA has increased over the years among climate change practitioners and communities because:

- **It can be customized to fit specific ecosystems and address particular vulnerabilities**
- **Helps to build adaptive capacity of vulnerable communities**
- **Develop and increase livelihood options**
- **Take the longer term view (in decades) in which climate change impacts are likely to manifest further.**

2.2 Why Community Based Adaptation?

Practical experience and projects have clearly shown that community based adaptation activities tend to be more effective in addressing community level vulnerability to climate change. Community based adaptation activities are designed in consultation with the local community themselves after identification

of vulnerabilities and needs. Participation of the community is a crucial part of the entire process. Hence the projects are more acceptable by the communities since they feel that their needs have been addressed foremost and they have a sense of ownership. Furthermore, involvement of the community allows people to respond to shocks and emergencies rapidly, efficiently and fairly, and also ensure that community resources are used economically. Experts have often pointed out that 'top-down approach' where communities are not involved do not address the most vulnerable and may actually enhance their vulnerability.

Adaptation is vital for avoiding unwanted impacts of climate change in sectors like biodiversity and it is also a means of maintaining or restoring ecosystem resilience to single or multiple stresses (Berry et al., 2008). Unfortunately adaptation research has so far been sectoral and local, place-based with little coordination between sectors or between planning and implementation measures. The National Adaptation Programme of Action (NAPA), formulated under the mandate of the UNFCCC, is an example of sector based adaptation strategies which focus more on national goals instead of individual communities.

The importance of CBA activities and practices in terms of national development and capacity building goals has been recognized recently. CBA works to increase awareness and knowledge about climate change and its vulnerabilities among communities even before a project is designed. This helps towards capacity building and education of the most vulnerable communities and goes a long way towards achieving the social development goals of nations.

2.3 The Demand and Success of CBA

The main success of the CBA projects is due to:

- The projects are often small-scale and community participation is a crucial component. It involves local community organizations, youth groups and even local level government agencies. This ensures capacity building and awareness regarding climate change issues and vulnerability assessment not only for the local population but also for the government agencies.
- The emphasis of most of the projects is on livelihood needs such as diversification of agriculture, conservation of water and biodiversity, and awareness building to change practices.
- Helps in capacity building of the community and increases knowledge on climate change and its impacts. Furthermore, since the projects are designed based on community consultation and participation, it is more acceptable to the community and gives them the power to veto any activities that they feel would not be beneficial.
- Funding is often from govt, NGOs and international development organizations. Access to fund can be faster. On the other hand, funds for large-scale adaptation projects come from institutions like GEF and World Bank and are distributed through government agencies. Negotiation and access to these funds are time consuming and tied up with a lot of 'red-tape'. For instance, funding for projects under NAPA from GEF is still uncertain.
- Since CBA projects are more often small-scale and are focused at individual communities, they are relatively easy to design, but often requires multiple implementation and monitoring compared to larger projects. A group of CBA projects can be clustered together to make a larger project without compromising services to and ownership of communities. CBA projects also deals with specific vulnerabilities unique to the communities where as large-scale projects tend to span larger areas so has to deal with a whole range of vulnerabilities and can impact other sectors such as,

water, land, agriculture etc. This adds to the complexity of large-scale adaptation project which makes implementation more difficult.

On the other hand, challenges of large national-scale adaptation projects include:

- Intensive planning and project design, efficient methods of monitoring and implementation.
- Some adaptation projects involve infrastructure development such as embankments. These require environmental impact assessments (EIA) as well.
- Involvement and cooperation of more than one sector needed: for instance adaptation projects for agriculture would require involvement of ministries of agriculture, water resources, science and technology, planning and finance.
- Unless projects target specific capacity building activities and training, they do not address these issues.
- Larger national level adaptation projects required more funding and usually this funding is tied up with the international negotiating processes and funding agencies.
- Adaptation projects listed in the NAPA are aimed towards national development goals of individual countries and sectoral priorities instead of the needs of individual communities. Though designed properly, this could accommodate clusters of larger and small scale CBA.

Infrastructure development (e.g. embankments) as an adaptation option is known as *hard adaptation.* These can have serious consequences on the environment in the long run and may result in maladaptation, if not designed properly.

3

Emergence of Adaptation and CBA in the UNFCCC

3.1 Adaptation

Under the UN Framework Convention on Climate Change (UNFCCC), adaptation appears as a cross cutting theme. While the first Conference of the Parties (COP-1) in 1995 addressed funding for adaptation (decision 11/CP.1), it was not until the adoption of the Marrakesh Accords in 2001 that adaptation began to be more widely seen as a prominent area for action, as set out in decision 5/CP.7 (adverse effects of climate change). Following the release of the IPCC's Third Assessment Report, COP-9 in 2003 requested the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA) to initiate work on the scientific, technical and socioeconomic aspects of, and vulnerability and adaptation to, climate change (decision 10/ CP.9). Parties reached a milestone at COP-10 in 2004 with decision 1/CP.10, known as the Buenos Aires Programme of Work on Adaptation and Response Measures. The COP set up two complementary tracks for adaptation: the development of a structured five-year programme of work on the scientific, technical and socioeconomic aspects of vulnerability and adaptation to climate change under SBSTA, which was adopted at COP-11 in 2005 (decision 2/CP.11); and the improvement of information and methodologies, implementation of concrete adaptation activities, technology transfer and capacity building under the Subsidiary Body for Implementation. At COP-12, parties concluded the initial list of activities to be undertaken under the five-year SBSTA programme of work and renamed it the "Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change." Parties also made progress on the governing principles of the Adaptation Fund, which was established by the Kyoto Protocol to fund adaptation activities through a two percent levy on emission reduction projects under the Clean Development Mechanism.

The IPCC's Fourth Assessment Report and key findings from Working Group II on impacts, adaptation and vulnerability indicates that hundreds of millions of people will be exposed to increased water stress, that many millions more people will be exposed to flooding every year, and that access to food in many African countries will be severely compromised. Furthermore, the report states that adaptation will be necessary, but that many impacts can be avoided, reduced or delayed by mitigation.

At COP-13, held in Bali, Indonesia, in December 2007, a roadmap for a post-2012 climate regime was agreed with adaptation as one of the four building blocks (along with mitigation, finance and technology). Delegates further developed details and modalities of the Adaptation Fund at COP-14, held in Poznań, Poland, in December 2008. The Copenhagen Accord, agreed upon at COP-15 in Copenhagen, Denmark, in December 2009, stressed the need to establish a comprehensive adaptation programme, and agreed that developed countries should provide "adequate, predictable and sustainable financial resources, technology and capacity building" to support the implementation of adaptation action in vulnerable developing countries, such as in Africa and Asia. The collective commitment by developed countries is to provide new and additional resources approaching US$30 billion for the period 2010-2012, with balanced allocation between adaptation and mitigation. A significant portion of such funding should flow through the Copenhagen Green Climate Fund. The Cancun Adaptation Framework, agreed at COP-16 in Cancun, Mexico, in December 2010, as part of a larger package of the Cancun Agreements, invites parties to

enhance adaptation action by: planning and implementation of adaptation actions identified in national adaptation planning processes, and impact, vulnerability and adaptation assessments; strengthening institutional capacities and enabling environments; building resilience of socio-economic and ecological systems; enhancing disaster risk reduction strategies; technology development and transfer; and improving access to climate-related data. The Framework also established an Adaptation Committee to promote implementation of enhanced action through: technical support and guidance; enhancing information sharing on good practices; promoting synergy and strengthening engagement of organizations, centers and networks; providing information on good practices on means to incentivize adaptation implementation and reduce vulnerability; and considering communications by parties on monitoring and review of adaptation actions with an aim to recommend further actions.[1]

Table 2: Climate Adaptation Timeline: 1996- 2011 (Durban and Quito)

Years	Adaptation Planning
1996-2000s	• Creation of Hillside Plan to secure terrain and buildings against landslides and intense rainfall on fragile slopes and hillsides and help residents improve soil protection by reforesting landscapes. • Publication of scientific studies on melting of the Antisana glacier. • Development of Rain Plan by Risk Management Unit to prepare Quito for extreme weather events and put in place disaster response measures. • Studies developed by Quito's water corporation (EMAAP-Q) showing the risk of increased water scarcity in Quito due to climatic changes.
2004	• Participation of Environmental Management Department head (Roberts) in an advanced environmental management program at Brown University that included in-depth engagement with climate science. • Initiation of the Municipal Climate Protection Program by the Environmental Management Department and risk.
2005	• Publication of Plan Equinoccio 21, Quito hacia el 2025, a plan containing strategic objectives for natural resource and waste management.
2006	• Decision to host "Clima Latino," a regional conference on climate change, and realization that Quito needs a climate strategy in place for the event. • Publication of A Climatic Future for Durban, a citywide climate impact assessment with results presented to City Council. • Development of a municipal Headline Climate Change Adaptation Strategy to identify key municipal sectors affected by incremental climate change and to highlight adaptation options.
2007	• Creation of Climate Protection Branch by the Environmental Management Department. • Heightened awareness of climate-related impacts by local politicians and citizens as a result of major storms causing flooding, coastal erosion, and material damage. • Declaration by Councilor Ortiz to the Metropolitan Council about the importance of developing a climate strategy addressing both mitigation and adaptation. • Initial climate strategy drafted by municipal air and water corporations, Metropolitan Office for the Environment, and Strategic Research Unit. • Comments and feedback on draft strategy by technical agencies and municipal corporations October 2007 Clima Latino hosted by Quito for the Andean Community of Nations. • Community participation workshops coordinated by ECOLEX to engage Quito residents and social and community development organizations in climate planning. • Development of an Integrated Assessment Tool.

[1] Earth Negotiations Bulletin (ENB), 2011 of International Institute for Sustainable Development (IISD)

Years	Adaptation Planning
2008	• Quito Climate Strategy (EQCC) completed. • Community projects developed by local NGOs and funded by the Environmental Office to train indigenous farmers. • Destruction of 400 houses in Durban's suburbs by unusual tornadoes, raising awareness of how climate impacts could alter the city's ability to achieve its development priorities. • Implementation of Climate Smart Communities Pilot Project.
2009	• Development of Municipal Adaptation Plans (MAPs) for health and water, and later disaster, departments designed to embed adaptation actions into sector activities address climate vulnerability and promote Durban's development agenda. • EMD renamed as Environmental Planning and Climate Protection Department as a symbol of increased municipal commitment to climate change planning and action in Durban. • EQCC approved as official environmental policy. • Creation of a Quito Panel on Climate Change to commission scientific studies and monitor the impacts of climate change in the city. • Hosting of first public climate submit by Durban, which provided the basis for the development of a permanent Climate Change Partnership for ongoing dialogue with business, academia, and civil society groups.
2010	• Implementation of a comprehensive vulnerability study, systematic risk assessment, and development of concrete initiatives to implement climate strategy. • First monitoring meeting to review progress on the implementation of the three municipal adaptation plans. • Durban's Mayor becomes a member of the World Mayors Council on Climate Change and Mayors Adaptation Forum.
2011	• Establishment of the Durban Climate Change Partnership and initiation of cost–benefit analysis of municipal adaptation plans.

Source: Extracted from Journal of Planning Education and Research 32(1) 18 –32, "Urban Climate Adaptation in the Global South: Planning in an Emerging Policy Domain" by JoAnn Carmin, Isabelle Anguelovski and Debra Roberts, 2012.

3.2 Community Based Adaptation

The concept of Community based adaptation (CBA) to climate change is relatively new in the UNFCCC negotiations. Unfortunately there is no set timeline that tracks the emergence of CBA in the UNFCCC negotiations. But long before CBA was featured in the negotiations, communities have been carrying out small scale climate change adaptation activities for decades. Alongside CBA approach, the UNFCCC has also been advocating the ecosystem adaptation (EbA) since COP 13 in Bali, Indonesia in 2007.

National level non-government organizations (NGOs) and local level community based organizations (CBOs) have been the main proponent of community driven adaptation initiatives in developing countries. These NGOs and CBOs recognized the importance of community participation and consultation in climate change adaptation activities. Preference was given to community knowledge and expertise in coping and adapting to the shifts in climate parameters. The NGOs/CBOs then took these small-scale activities, the local knowledge and added science and community training to the mixture and came up with community level adaptation activities to climate change. By 2004, a considerable number of community level adaptations were being implemented by various international, national and local level NGOs and CBOs.

The CBA researchers felt that there is a need for a platform where CBA practitioners, adaptation experts, donors, NGOs etc can share their experiences and provide technical support to each other.

Keeping this need in mind, in 2005 the first International Conference on community level adaptation to climate change was launched in Dhaka, Bangladesh in order to bring together the practitioners, researchers, academics etc involved in community level adaptation activities. This conference series has been successful and is now regarded as an important platform for sharing and capacity building. The CBA conference takes place once in two years in Dhaka, Bangladesh. The participants of the conference decided to name these adaptation activities as 'community based adaptation'. Since then the current practice is to 'cluster' all community based adaptation activities under the term 'community based adaptation (CBA) to climate change'. It should be mentioned that CBA is still a work-in-progress. The theory behind CBA is still evolving. The concept of CBA is being built up from the lessons learnt from project implementation. It involves integrating CBA to development, disaster management integrated local level placing multi sectoral and multidisciplinary approaches.

4

CBA Theory and Practice

Community based adaptation (CBA), as an effective means of reducing vulnerability to climate change and increasing adaptive capacity, has gained international recognition since the beginning of the 21st century. Even though CBA is practiced by communities extensively in developing countries and most vulnerable parts of the world, no solid theory has been developed yet. CBA activities are based on the components of CBA discussed earlier and by following the steps in setting up activities.

4.1 CBA World Map

At present most of the developing world and a few indigenous communities in developed countries have realized that to survive the effects of climate change, they have to adapt to the change and look for alternative livelihood options. Adverse impacts of climate change are not restricted to the poorer nations only. The native Inuit Indians of Canada are facing food shortages and livelihood threats due to climate change. All over the world, communities are adapting and implementing projects that would help to reduce their vulnerabilities, and work towards some level of sustainability.

Community based adaptation (CBA) to climate change is being carried out in many developing and least developed countries around the world. Mapping the community based activities going on around the world shows that most activities are limited to developing and the least developed countries. Since CBA theory is still being developed, the practitioners use the lessons learnt from previous experiences to design further projects. Lessons from community based adaptation process have shown that CBA cannot be learned through studying theories. CBA has to be practiced to be learnt. Knowledge on CBA is gained through 'learning-by-doing' and 'action-research'. Networks on community based adaptation in the developing countries have emerged and they work towards knowledge dissemination, sharing of best practices and lessons learnt among communities and among countries.

Research into CBA practices and activities in various countries has brought to light the fact that CBA activities are more in the hands of the NGOs and CBOs. Even though many governments are supporting the adaptation activities being carried out at the community level, there is a lack of support at the policy level.

4.2 Key Actors

The numbers of organizations that take part in community based adaptation activities around the world are many and increasing day by day. CBA activities are being funded by international donor agencies, government development agencies and international NGOs. These in turn work with local level organizations to ensure that community based adaptation to climate change are implemented at the community level.

At first the only people involved in CBA activities were the stakeholders/ community people along with the NGOs who helped the communities carry out the adaptation activities. As CBA gained recognition, more and more local govt. organizations international NGOs and development agencies joined in the planning and implementation of CBA. CBA activities can be linked up with activities of the central government in the form of policy and regulations. Already there are global actors involved in funding activities and providing technical advice. These are mainly the UN agencies, the World Bank and government funding agencies such as UK's Department for International Development (DFID) and many others.

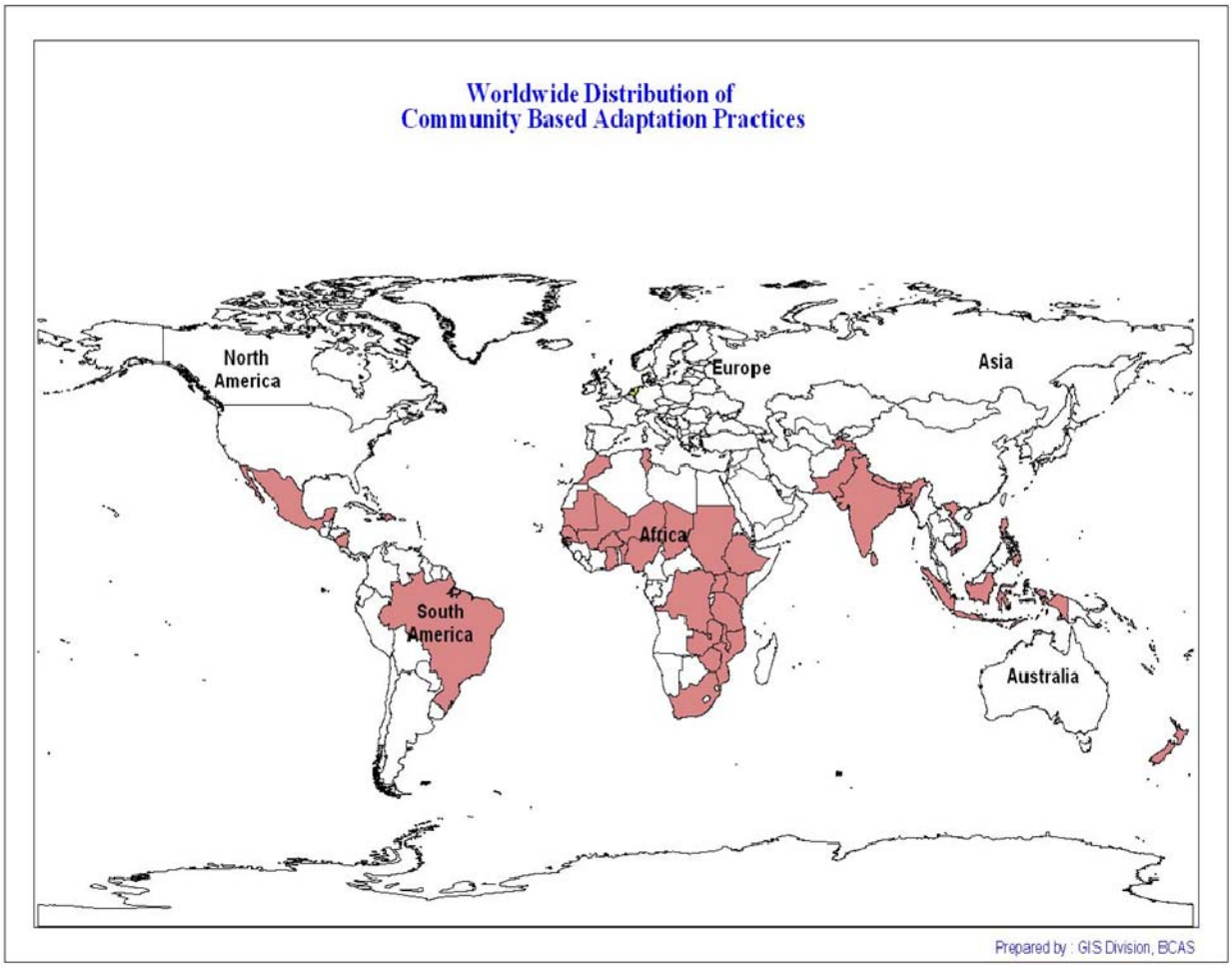

Figure 2: Worldwide Distribution of Community Based Adaptation

Now the key actors in the CBA process include International and Bilateral development partners such as the World Bank, UNDP, Department for International Development (DFID), national and international NGOs, CBOs and the stakeholders. The large donor organizations provide funding and technical assistance to government departments, other international/national NGOs, research and academic institutions to design and implement CBA at the local level. These organizations then coordinate with their local level partners and sister organizations to carry out the entire consultation, development and implementation of the CBA activity in communities.

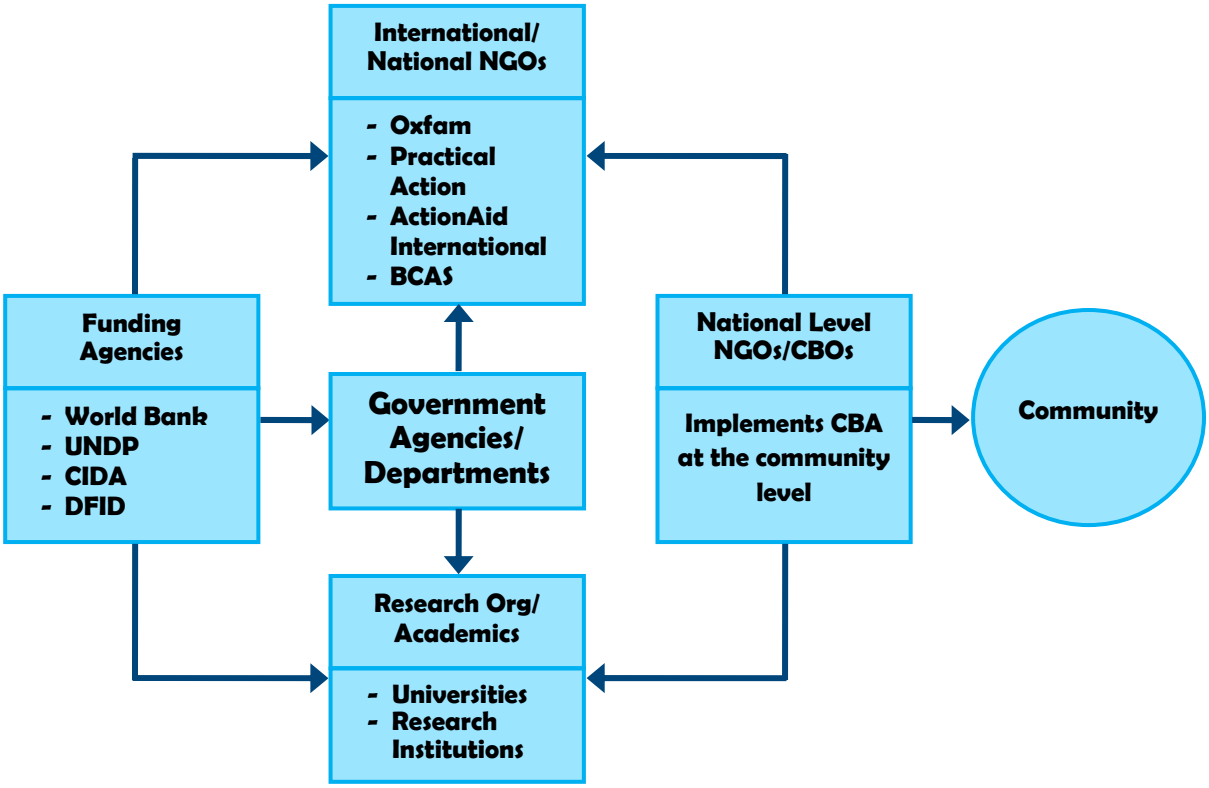

Figure 3: Examples of Key Actors and Funding Mechanisms for CBA

Other actors that have the potential of fulfilling key roles in CBA are the private sector and market operators, financial institutions and the scientific and academic community. But the total financial resources in CBA is minute compared to infrastructure, conventional development projects with climate change linkages and adaptation funding at large. It may be recalled that real substantive adaptation funding has not commenced yet.

5

International Conferences on CBA to Climate Change

Since community based adaptation activities have gained a foothold as crucial adaptation and development activities, the number of CBA projects being implemented has increased exponentially all around the world. Many of the spontaneous response activities by communities now qualifies for CBA. Most of the developing countries are implementing some form of CBA activities to reduce vulnerability, be it awareness raising or disaster preparedness. The International Conferences on Community Based Adaptation to Climate Change were planned in order to learn and share the experiences of community based adaptation from all over the world.

5.1 The Objectives of International CBA Conferences

The main objectives of the international CBA conferences can be summarized as follows:

- **Stakeholder participation**
  Bring different stakeholders and practitioners to share and discuss knowledge of Community Based Adaptation (CBA) planning and practices from different parts of the developing world.

- **Learning and Experiences**
  Capture the latest learning and experiences from CBA planning and practices around the developing world.

- **Enhance capacity**
  Enhance capacity of the practitioners to help the most vulnerable groups and people in improving livelihoods in developing countries.

- **Sharing**
  Share lessons learnt to facilitate integration of climate change into national and international development programmes.

- **Develop appropriate tools and methods**
  Tools and methods for CBA identifiable design, implementation, monitoring and evaluation are being develop to enhance CBA practice, build capacity and lower the risks of climate impacts.

- **Dissemination: Influencing Policies and Practices**
  Disseminate lessons learnt at the conference through proceedings, immediate conference summary and virtual, internet broadcasting.

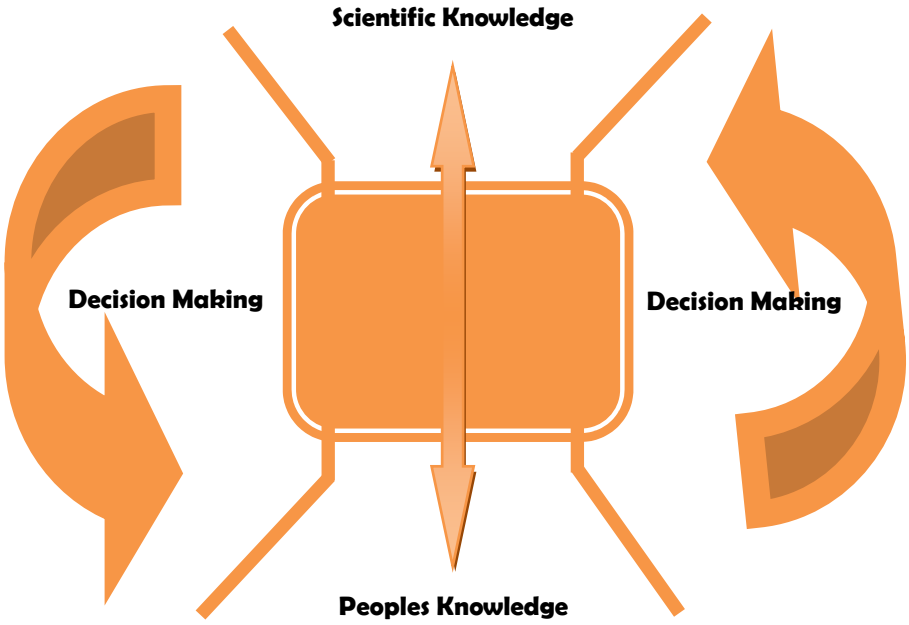

Figure 4: Objective of the CBA Conference *(Source BCAS, 2006, List of Publications)*

5.2 First International Conference on Community Based Adaptation (CBA1) to Climate Change

This five day conference was launched in the year 2005 and takes place once every two years in Dhaka, Bangladesh attended by climate change experts, researchers, donors, policy makers, NGOs and grass-roots practitioners of adaptation activities. Recent conferences have seen the attendance of academicians and the researchers and practitioners. The participants of the first CBA conference discussed and adopted the name 'community based adaptation' to denote all community level adaptation to reduce vulnerability to climate change. A strong component of this conference is the mandatory field visit where the participants can observe CBA activities in different ecosystem settings.

The First International Conference on Community Based Adaptation (CBA) to Climate Change was held in Dhaka, Bangladesh in January 2005. It was jointly organized by the Bangladesh Centre for Advanced Studies (BCAS), the International Institute for Environment and Development (IIED), the Regional and International Networking Group (RING) and the International Union for Conservation of Nature (IUCN).

Around eighty experts, policy makers, and representatives from international development partners, NGOs and grassroots practitioners from home and abroad attended the conference. The objective of the conference was to share experiences and lessons learnt from CBA projects, finding mechanisms for influencing broader development agenda and adaptation funding opportunities under the UNFCCC mandate. The issues under discussion included possible impacts of climate change on communities living in vulnerable regions and enabling them to adapt better to present and future impacts. It was at this conference that the phrase 'community based adaptation' was coined and used to denote all community level adaptation to climate change.

The conference was divided into eight technical sessions dealing with: a) understanding adaptation to climate change; b) partnership in adaptation; c) adaptation in practice; d) community response; e) confronting vulnerabilities; f) mainstreaming adaptation; g) knowledge management and h) responding to climate change. The concluding session of the conference dealt with the key lessons learnt and the way

forward. Besides these sessions, there was a field trip preceding the conference so that the participants could observe community level adaptation projects first hand.

Understanding adaptation and its challenges was an important part of the conference. The issue of using participatory approach in adaptation and its challenges were discussed in order to clear up misconceptions and highlight the challenges. Much of the conference focused on adaptation and various aspects of adaptation such as methods, practices, funding options, institutional support etc. The key messages that have emerged from the conference are:

- There needs to be a better understanding of adaptation issues.
- Planning adaptation with the 'vulnerable community' is a must.
- Mainstreaming climate change into project level activities is important.
- The definition of 'community' needs to consider scale in order to better understand the process and make mainstreaming of activity feasible.
- Adaptation needs more research.
- Any positive effects of climate change should not be forgotten.
- It is crucial for experts, researchers, decision makers etc to share idea and experiences.
- Simplified communication of correct science of climate change to the local and vulnerable communities

5.3 Second International Conference on Community Based Adaptation (CBA2) to Climate Change

Two years later in February 2007, BCAS, IIED along with the RING organized the Second International Conference on Community Based Adaptation (CBA) to Climate Change which was held in Dhaka, Bangladesh. The conference consisted of two days of field trips to visit community-based adaptation initiatives followed by three days of discussions in Dhaka. Aim of the conference was to share the latest developments in community-based adaptation programmes, priorities and solutions with a view of integrating the lessons into national and international development programmes. More than hundred policymakers and representatives from non-governmental organizations (NGOs), research and policy institutes, as well as development practitioners and media attended the conference. Participants from the previous workshop were also present and reported on their progress and new lessons for the projects that were implemented.

Figure 5: Keynote speakers of CBA2

During the first two days, site visits to four different locations in Bangladesh were organized to give participants a closer look at local adaptation initiatives and to enable the communities to share their knowledge of adaptation and climate change. Locations included: drought-prone areas in Parbatipur in the Chapai Nawabgonj District of northwest Bangladesh; flood and river erosion areas in Gidari and Kamarjani in the Gaibandha District, also in northwest Bangladesh; flood and water logging areas in Kotalipara and Rajoir in the Madaripur and Gopalgonj Districts in south-central Bangladesh;

and regions prone to increased salinity and cyclones in Munshigonj in the Satkhira District in the southwest coastal region of Bangladesh[2].

The subsequent three days of discussions in Dhaka were structured around two themes: climate change science and adaptation, and mainstreaming and partnership. Introductory panels were followed by parallel technical sessions consisting of presentations and discussions. Reports from the technical sessions were then presented to plenary, and followed by observations by panelists. Under climate change science and adaptation, technical sessions addressed: agriculture, drought and food security; extreme events; and health and climate change. Under mainstreaming and partnership, technical sessions addressed: tools and methods; extreme events; communication and knowledge; and mainstreaming and partnerships. A final panel discussion revolved around two themes: scaling up, capacity building, partnership and mainstreaming; and supporting community-based adaptation. The participants also reported back on their field visit. The workshop concluded with a plenary discussion on recommendations for how to forward research and work on community-based adaptation. This workshop resulted in the formation of a CBA Network.

The workshop was based on four major themes:

- scaling up, i.e. replicating good practices being undertaken by communities in other villages and countries through developing methodologies, sharing information and working together;
- capacity building to make communities less vulnerable and overcoming bottlenecks in institutional capacity through informing institutions and incorporating climate change into their work so they can help communities;
- partnerships and mainstreaming, including partnerships at all levels, and ensuring funding goes to the most vulnerable, and that different constituencies include the risk factor of climate change in their work; and
- looking at the most effective ways to support community based adaptation and finding out what communities need and assisting them according to their needs.

The participants at this workshop made valuable progress in defining and clearing up the meaning of 'community' as pertains to adaptation to climate change. According to Dr Saleemul Huq from the International Institute of Environment and Development (IIED), community-based adaptation refers to the poorest, most vulnerable communities. He said that most of these communities exist in the south, but that vulnerable communities exist in the north as well, using those impacted by Hurricane Katrina as an example.

The outcomes of this workshop and the recommendations made by the participants include:

- an element of growth in the definition of adaptation so communities are not forever caught up in the poverty cycle;
- incorporating a human rights perspective into the process;
- raising the status of women in projects;
- focusing on low-cost appropriate technology;
- not reinventing the wheel;
- promoting multi-stakeholder dialogues around climate change adaptation by development practitioners;

[2] Earth Negotiations Bulletin (ENB), 2011 of International Institute for Sustainable Development (IISD)

- not losing sight that mitigation must remain a priority;
- producing marketable goods and services rather and lessening dependence on donors for assistance;
- developing easy-to-use guidelines for organizations;
- identifying what to fund and how much it will cost;
- linking NGOs with research institutes and institutions of higher learning;
- lobbying the ministries of education to include adaptation in school curricula and in teacher training programmes;
- improving coordination and partnerships among and between various stakeholders;
- informing and educating local communities about climate change and its impacts;
- addressing issues of equity and redistribution of resources;
- engaging social movements at the local level, and undertaking civil society actions and campaigns;
- more funding for action research and small-scale funding to replicate strategies;
- building negotiating capacity;
- involving communities in the decision-making process;
- developing action plans, with targets and indicators;
- staying focused on community-based adaptation, noting what can be achieved and what timelines would be needed;
- engaging national and regional governments, and ensuring resources in these budgets; and
- sharing information and experience through a portal or database.

Those present also formed the CBA Exchange (www.cba-exchange.org) to promote knowledge sharing on CBA activities. CBA is discussed at the annual Development and Climate Days event held during the Conference of Parties to the United Nations Framework Convention on Climate Change. CBA activities are also taking place in Africa, for example, through the SouthSouthNorth (SSN) project activities and initiatives such as the Community Based Adaptation in Africa (CBAA) project being funded by the United Kingdom Department of International Development (DFID) and Canada's International Development Research Centre (IDRC) as part of their Climate Change Adaptation in Africa Programme (CCAA).

5.4 Third International Conference on Community Based Adaptation (CBA3) to Climate Change

The Third International Conference on Community Based Adaptation (CBA) to Climate Change was held in February, 2009 in Dhaka, Bangladesh once again jointly organized by BCAS, IIED, and the RING. The aim of the event was to share the latest developments in adaptation planning and practices, priority sectors and measures at different levels and disseminate knowledge among stakeholders and actors.

The specific objectives are:

- Bring different stakeholders and practitioners to share and discuss knowledge of Community Based Adaptation (CBA) planning and practices from different parts of the developing world;
- Capture the latest experience and learning from CBA planning and practices around the developing world;

[3] See www.cba-exchange.org
[4] See www.dcdays.org

- Enhance capacity of the practitioners to help the most vulnerable groups and people in improving livelihoods in developing countries;
- Share lessons learnt to facilitate integration of climate change into national and international development programmes;
- Disseminate lessons learnt at the conference through conference proceedings and immediate conference summary.

Figure 6: Field visit in CBA3 workshop

There were about one hundred forty participants representing governments, non-governmental organizations (NGOs), community-based organizations, research institutions, UN agencies and development organizations, along with grassroots and development practitioners and the media.

The first three days of the conference were made up of field visits to observe community-based adaptation (CBA) initiatives first hand. Participants traveled to six different locations in Bangladesh to observe CBA activities (see ANNEX 1). This was followed by three days of conference discussions in Dhaka. The discussions were divided into following thematic areas-

- **Evidences of Change:** impacts at local to global level, understanding adaptation planning and practices to climate change
- **CBA in Practice in Sectors and Regions:** water, agriculture, biodiversity, human health, infrastructure, coastal zone, dry land, drought, mountain, floodplain
- **Knowledge, Education and Awareness on Climate: c**hallenges and opportunities of mainstreaming adaptation
- **Partnerships in Adaptation:** Global, Regional, National and Local Level

At this workshop considerable focus was given on the methods and tools of community based adaptation. Mozaharul Alam, of the Bangladesh Centre for Advanced Studies (BCAS), presented the Local Options for Communities to Adapt and Technologies to Enhance Capacity (LOCATE) framework to design and implement CBA projects. The tool LOCATE was developed by BCAS for the SouthSouthNorth (SSN) project. He explained that the framework involves finding vulnerability “hot spots” and identifying “project owners,” as well as designing, implementing, monitoring and evaluating the project. He stressed the importance of identifying what is happening on the ground to facilitate project conceptualization. LOCATE is meant to provide a fresh look at vulnerability, is not intended to replace existing frameworks.

UNDP’s Vulnerability Reduction Assessment (VRA), was also presented at the workshop. This assessment uses four indicators – two based on vulnerabilities, one on barriers to adaptation, and one on adaptive

capacity. VRA is very simple to use and the lessons learned from this include identifying stakeholders in advance and ensuring flexibility in the process, without compromising comparability.

Furthermore the participants formed a working group to discuss terminology and definitions related to CBA. The group had discussed key concepts, including adaptation, community, CBA, mainstreaming and resilience. It was decided that the work done by the group would be posted online to enable elaboration on definitions, and also discussed the possibility of publication as a journal article and as a guiding document for use by other organizations.

Another important milestone for the CBA 3 workshop was the announcement of the establishment of the Global Initiative on Community-Based Adaptation to Climate Change. The Global Initiative will seek to support CBA-related activities by generating and sharing relevant knowledge. The Initiative's objectives are to: reflect ongoing action through promoting CBA nationally and globally; generate and share knowledge and experiences; and support the CBA-exchange website and international conferences.

At the Third International Conference on Community Based Adaptation participants agreed to form a Global Initiative on Community Based Adaptation (GICBA) and to hold an annual conference to share knowledge and experience (details are available in www.bcas.net).

5.5 Fourth International Conference on Community Based Adaptation (CBA4) to Climate Change

The Fourth International Conference on Community Based Adaptation (CBA) to Climate was held in Dar es Salaam, Tanzania from February 21-27, 2010. The conference was organized by IIED, Tanzania's Environment Protection Management Services (EPMS) and the Ring Alliance of Policy Research Organizations. There were about more than hundred eighty participants from thirty five countries, representing governments, non-government organizations (NGOs), intergovernmental organizations (IGOs), community-based organizations and research institutions.

Sharing experience and knowledge from pilot activities amongst practitioners, policymakers, researchers, funders and the communities at risk is essential. With this in mind, the Fourth International Conference on CBA builds on the strengths of the second and third International Conferences on CBA held in Dhaka, Bangladesh, in 2007 and 2009 respectively.

Prior to the start of the meeting, participants took part in two days of field trips to see CBA projects and activities in different parts of Tanzania. They then met for four days of interactive plenary and technical sessions on a wide range of themes relevant to CBA, including: strengthening institutions; water; building adaptive capacity; insurance and microfinance; policy linkages; agriculture; economics; dry lands and pastoralism; urban areas; managing and communicating knowledge; scaling up and replicating best practice; vulnerable groups; role of ecosystems in adaptation; disaster risk reduction; methodologies; and funding. Participants also formed *ad hoc* working groups based on communities of interest to further explore a number of CBA related issues, including gender, economics, civil society, monitoring and evaluation, communications and disaster risk reduction. The groups will continue addressing these issues on an inter-sessional basis by e-mail and through discussion forums. A final plenary session discussed next steps for CBA, with participants agreeing to

further develop the Global Initiative on Community-Based Adaptation (GICBA), a network which seeks to support CBA-related activities by generating and sharing relevant knowledge.

At the end of the fourth CBA conference, all the participants realized the need and continuation of such an initiative. Therefore, most of the sponsors/co-sponsors showed their interest in continuing co-sponsorship for the Fifth CBA conference.

5.6 Fifth International Conference on Community Based Adaptation (CBA5) to Climate Change

The success of the conference and demand of the adaptation community resulted in the Fifth International Conference on Community Based Adaptation (CBA) which was jointly organized by BCAS and IIED. This conference was held during 24-31 March, 2011 in Dhaka, Bangladesh. Theme of CBA5 was "Scaling Up: Beyond Pilots". During the Fifth CBA conference primary focus was on the need to spread CBA knowledge and practical lessons horizontally across communities and vertically across levels of governance and action. A total of three hundred eighty eight registered participants from sixty two different countries attended the conference representing national and international development organizations working on climate change around the world.

The primary aim of the conference was to share the latest developments in adaptation planning and practices, the priority sectors and the measures at different levels and disseminate knowledge among stakeholders and actors. The specific objectives were to:

- Bring together stakeholders and practitioners to share and discuss knowledge of Community-Based Adaptation planning and practices from different parts of the developing world and particularly Bangladesh.
- Capture the latest learning from community-based adaptation planning and practices around the developing world.
- Enhance the capacity building process of the most vulnerable groups and people to improve livelihoods in developing countries and integrate these lessons into national and international development programmes.
- Disseminate lessons learnt at the conference through proceedings and an immediate conference summary.

Figure 7 : Sheikh Hasina, Honorable Prime Minister of Bangladesh, inaugurating CBA5 conference in Dhaka, 2011.

Figure 8 : Dr. Hassan Mahmood (Honorable Minister of Environment and Forests, Bangladesh), Dr, Atiq Rahman (BCAS) and Dr. Saleemul Huq (IIED) giving introduction speeches

The conference was structures into three major parts: Field visit, Technical session, and High level panel session. The field trip was three days long and was designed to visit CBA projects in different ecosystems of Bangladesh, such as flood-prone areas, followed by three days of interactive discussions at the Sheraton Hotel which included daily morning and afternoon plenary sessions, daily technical sessions, a poster session, and British Council-sponsored short film presentations, to be posted on the Climate4Classrooms website: http://uk.climate4classrooms.org/. The plenary and technical sessions covered topics on agriculture, local resilience and climate prediction services; communicating knowledge about CBA; bridging local, sub-national and national levels in adaptation; gender; health; funding and funding architecture; supporting adaptive capacity; the economics of CBA; CBA tools and toolkits; synergies between disaster risk reduction, ecosystems, wider development projects and CBA (ENB report, 2011)[5].

From 25-27 March, 2011, the participants went for a three-day field visit to see the community based adaptation initiatives and activities in eight different vulnerable sites of Bangladesh. Vulnerable sites mostly fall under drought, flood prone, river bank erosion, water logging, coastal salinity, high tide, coastal erosion and cyclone.

From 28-31 March 2011, around 400 international participants including scientists, researchers, development and disaster management practitioners, representatives from government agencies, international donors and UNFCCC Secretariat attended the Technical Sessions. The Fifth CBA conference was inaugurated by Sheikh Hasina, Hon'ble Prime Minister of the People's Republic of Bangladesh followed by introduction speeches by Dr. Atiq Rahman (BCAS), Dr. Saleemul Huq (IIED), Youssef Nassef (UNFCCC), Ian Burton (University of Toronto) and Dr. Hassan Mahmood (Honorable Minister, Ministry of Environment and Forests, Bangladesh) during the opening session.

On 31 March, 2011 there was a high level panel and concluding session. Ministers, High Government and Intergovernmental Officials graced the high level panel and concluding session. Some of the key discussion points in Fifth CBA conference were what constitutes CBA, how it differs from community based development activities and how one can plan CBA activities in future to ensure that they are genuinely climate change adaptation activities and not just usual development activities.

A book will be published on the conference outcomes. The book aims to contribute to the section of community based adaptation of the fifth assessment report of IPCC and other scientific and academic literature on this subject. This publication based on the conference outcomes will provide

[5] Earth Negotiations Bulletin (ENB), 2011 of International Institute for Sustainable Development (IISD)

some good lessons on an evidence-based manner on how to support CBA so that the vulnerable communities are able to deal with the impacts of climate change in future.

A poster session was held at Fifth CBA conference from 28-30 March, 2011 to create a scope for the presenters to share their research works with other fellow participants. The selection for posters was done by a review committee who evaluated the posters in regard of their content, graphical presentation and structure. The main objective for this session was to add a different dimension to the conference to make it more visual and interactive. Thereby, along with the display of posters, the session was facilitated with different CBA related documentaries. This was an opportunity for the participants to see some relevant activities of other organizations working all around the globe. 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. The third day of the poster session was followed by an award ceremony where a panel of judges declared the three best poster s of the session.

The conference was open to anyone interested in CBA including policymakers, non-government organizations, research and policy institutes, those funding CBA initiatives, academics, government officials involved in adaptation and practitioners with grassroots experience of adaptation projects. There were 388 registered participants and among them around 300 were international participants. About 40 participants from different LDC countries were funded by Fifth CBA conference whose abstracts were selected by the conference organizers.

The Sixth CBA conference will be held in Vietnam next year and the theme will be “Communications”. This will focus on learning lessons, sharing them amongst communities and practitioners and to the wider world on what is happening at the community level both in developing and developed countries.

5.7 The Sixth International Conference on CBA, (CBA6), Hanoi, Vietnam.

The CBA6 was organized by the Government of Vietnam, BCAS and IIED. Several NGOs in Vietnam supported and helped with the organization. This was held in the Melia Hotel, Hanoi during 16 to 22 April 2012. Over 250 participants attended. The focus of the CBA6 was on “Communicating Climate Change”.

16-18 April 2012 were dedicated to a 3 day field visits in several sites across Vietnam. The inaugural session on 19 April was addressed by the Margareta Wahlstrom, Chief of UNISRD and special representative to UN Secretary General on DRR, Ministers of the Govt. of Vietnam of (a) Natural Resource and Environment Minister Mr. Nguyen Minh Quang and (b) Agriculture and Rural Development Minister Mr. Cao Duc Phat.

The main plenary session was on “Communicating Climate Change” and six different experiences were shared by experts from different parts of the world.

A number of issues were discussed in the parallel sessions. These included Children as drivers of change, Inland water management and coastal areas, Gender issues, and Ecosystem based approaches, Vulnerable and indigenous people, Economics of CBA, Monitoring and evaluation, Food Security and Nutrition, CBA in urban areas, Health. Experts and practitioners shared their experiences. Interactive discussions clarified and in some cases illustrated many of the issues raised.

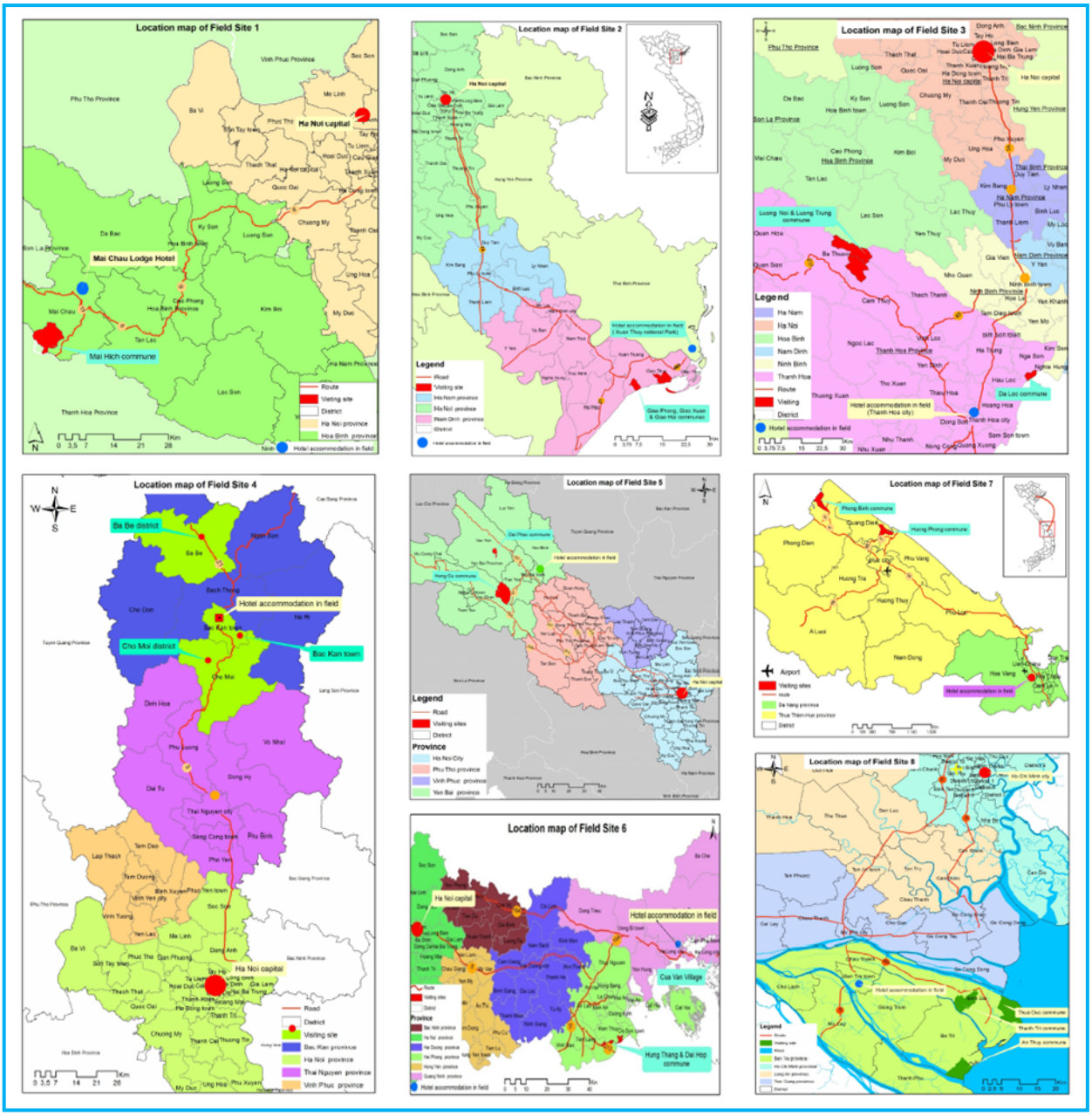

Figure 9: Location maps of 8 field sites visited in Vietnam during CBA6

The plenary sessions discussed issues of Communicating climate change, Increasing community resilience, Mainstreaming CBA into government policies and planning, Participatory approaches for CBA, Emerging challenges of CBA and Identifying CBA Research Gaps. One of the innovations in Hanoi Conference was "Out of Box" sessions. In these sessions groups of participants could raise issues and form subject groups to take the issues further. The challenges of communication were highlighted by many communication experts. This CBA6 was an intense interaction between CBA experts, media communication experts. This is one of the first attempts to bring these two groups together.

In conclusion of BCA6 it was decided that CBA7 will be held in Dhaka, Bangladesh in 2013 and the focus will be Mainstreaming CBA into national and local planning.

5.8 CBA Networks

The most effective way in getting the concept of CBA to a wider public and generate knowledge, is to share the lessons learnt from various CBA projects with other climate change and development experts. Creating a CBA network is also an efficient way to share experiences, project outcomes, successes and failures.

- One such shared online resource is Community Based Adaptation Exchange (CBA-X) set up by the Institute of Development Studies (IDS) of the University of Sussex, UK (details are available in community.eldis.org/cbax). The site provides CBA news, projects being developed worldwide, policy instruments, case studies, useful tools and methodologies, as well as videos of activities carried out.
- At the Third International Conference on Community Based Adaptation held in Bangladesh, the decision was taken to establish a Global Initiative on Community-Based Adaptation (GICBA) to climate change, a network seeking to support CBA-related activities by generating and sharing relevant knowledge (details are available in www.weadapt.org/gicba). At COP14, the "WEADAPT" group launched a prototype 'Adaptation Layer' as an example of the way that relevant climate related information could be displayed. Anyone can browse and search the data geographically or keywords using a web browser, and registered users can download tailor-made sets of relevant data (e.g. on water, health or ecosystem services) and open this using Google Earth.
- The other platform for exchange of ideas is the International Conference on Community Based Adaptation (CBA) to Climate Change that take place once in every two years (details are available in www.bcas.net). The 5th CBA conference took place in March 2011 in Dhaka, Bangladesh. The 5-day conference was attended by CBA practitioners, organizations involved in adaptation, academicians and students from all over the world.

6
Key Linkages of CBA

6.1 Key Concerns

The threats and impacts of climate change is multifaceted, multi dimensional and multi-sectoral. The terminologies such as “Global Climate Change” “global Warming” does not represent the seriousness and the severity of impacts and human, economic and ecological risks and costs of long term, anthropogenic intervention in the climate system. These terminologies often understates the severity of reinforcing impacts, the apparent long term destabilization of the climate system as has been known. Further it has been evident in the last decades that the greatest impacts on the human, economic and ecological systems will be demonstrated, not necessarily at the average of the systems parameter such as temperature, precipitation or sea level rise but by the behaviors extreme events such as floods, cyclones, water surges, drought, extremes of heat and cold episodes, wild fires, localized higher sea level rise. Thus it is the disasters which will demonstrate the strongest immediate signals with major risks and costs to the society.

It is to be noted that climate change is a global phenomenon but impacts are often local and context specific. So, some of the impacts and actions will be local while others will be regional in character.

Key impacted sectors due to the run away climate change are:

- Agriculture and food security.
- Water and health.
- Resource base and livelihoods.
- Infrastructure.
- Rural and urban development.

One of the key and more alarming trend is that climate change will affect the poor most and disproportionately as they are most vulnerable and have least capacity to resist extreme impacts such as cyclones, floods, droughts, sea level rise or salinity intrusion, wild fires, snow storms, ingress of desert front and sandstorms, land slides, erratic rainfall, etc.

6.2 Climate Change and Development Linkages

Climate change impact tends to undermine many of the development goals and threatens most of the basic securities and enhances disaster risks. These includes human securities such as

- Food and Nutrition
- Water
- Health

- Energy
- Livelihoods and
- Social issues

As it is evident that many of the extreme events have experienced over ten fold increase in the last decade and scientists have often linked them to climate change. These include extreme climatic events such floods, cyclones, salt water intrusion, drought, sea level rise, land slides, wild fires, extremes in heat and cold stress, erratic rainfall and localized unprecedented fog formation, snow storms, ice sheet and glacial melt. All these affect the lives of ordinary people and tend to impact the yield of crops and agriculture, ecosystems, infrastructure and housing. Institutional capacities were often undermined. All these threaten to affect the normal course of development and affect the poorest most.

Thus urgent and coordinated actions are needed to incorporate or mainstream climate change concerns into the conventional development process. All actors including central and local governments and their agencies, international and development partners, local and international NGOs, civil society and all development and environmental actors need to work together in a coordinated way. Three broad and interactive areas that need urgent attention are:

- Food, Water, Health and Energy, Security
- Disaster Risk Reduction, Livelihood and Social Protection
- Climate resilient development incorporating present and future risks of climate change.

6.3 Where will Climate Change Impact the Most?

To answer the question “Where will climate change be impacting most”? the following four areas can be the identified:

- Human beings at the community level
- Enterprises and economic activities
- Ecosystems, natural resources and environment and
- Institutions and organizations.

Community Based Adaptation (CBA) has emerged as a dominant mode of adaptation strategy that communities are pioneering and undertaking themselves, sometimes with support from national and local government or NGO-civil society support. The communities depend on their experiences and indigenous knowledge to undertake these. There has been six world conferences on CBA jointly organized by the Bangladesh Centre for Advanced Studies (BCAS) and International Institute for Environment and Development UK during 2007-2012, addressing different aspects and sharing experiences between scientists, practitioners and policy makers. Enterprises and economic activities such as shops, local markets, agricultural, fisheries, forestry and social enterprises are addressed by the people to reduce the risks and impacts of climate related activities and disaster risk reduction strategies including cyclones, floods, drought, erratic rainfall, local fog, heat and cold stresses.

Ecosystems such as forestry, water bodies, habitat, infrastructure – all are being affected and --- people and organization reacting to these risks and impacts of climate induced activities are in the frontline of these consequences.

Institutes such as schools, local govt. bodies, social institutions, formal and informal organizations are being organized to reduce climate risks and impacts.

6.4 Water – The Major Sector of Impact

It is to be noted that many of the climate impacts will be in the realm of water. For example "too much water" will result in floods, water logging increasing the risks of water borne diseases and contamination of drinking water sources.

"Too little water" in times of drought or dry spells will be reflected in terms of shortage of drinking water, poor water supply affecting sanitation and hygiene as well as decrease in agricultural productivity threatening food security and meeting of nutritional needs of the communities.

In most developing countries, though there are serious efforts to meet the water supply needs of the urban population by formal water and sewerage infrastructure, much of the rural communities have little formal support.

"Wrong type of water" happens when saline intrusion from sea associated with cyclones water surges or sea level rise inundating and polluting drinking and agricultural water sources as well as increasing soil salinity.

Further, industrial, feacal and pathological pollution compounded by pollution of agrochemicals are also forced to contaminate the water sources of adjacent communities by impacts of climate change affecting water flow regimes.

"Wrong timing of water" is associated with erratic rainfall, i.e. precipitation occurring at times when it is not expected and heavy rainfall when it is least expected. This has serious implication for the crop calendar of farmers, fishing behaviour of fishers and even migration of traditional herding communities.

The precipitation sources could also be associated with excessive glacial or snow melt from colder regions. The telecommunicating impacts can also happen when a community has not received the direct rainfall but it has rained heavily in an adjacent area of the same river basin system.

Further, paucity of water in the season where crop needs rainfall or sunny periods can cause havoc to agricultural productivity. Most of the farmers in developing countries do not have much savings to overcome one of these water related disasters. Hence climate change induced water events undermine the livelihood and potential for achieving their projected development. These issues of water related disasters often combine with drinking water, sanitation and hygiene. Consequently both the adaptation strategies and resilience of the community, overall lowering the adaptive capacity of the communities. These are schematically represented in Figure-10 and Figure-11.

6.5 Water-Food-Health-Sanitation and Climate Risks

The links between water, food, health and climate risks are multifaceted, complex and often reinforcing.

Most of the climate induced impacts will play out in the water sector. Too much water results in floods while too little water will result in drought, as discussed earlier. Wrong type of water or water quality will affect water for agriculture, and productivity. It will also threaten safe drinking water. Intrusion of salt water not only reduces crops and other vegetation and fresh water fisheries but also poses serious problem of access to safe drinking water. Floods also cause water pollution resulting in

water borne diseases. Thus water, challenges will result in disruption in agriculture resulting in food shortages and inducing food insecurity.

Water borne diseases, such as diarrheal diseases, increases with floods as well as sharper summers and heat stress while vector borne disease such as malaria and dengue are also on the increase.

Salt water intrusion has forced many communities to be more dependent of higher salt and sodium content in their intake. This is likely to increase blood pressure in local communities, particularly women and excepting mothers. In a coastal area of Dakope in Bangladesh, the higher concentration of salt and associated higher blood pressure induced ecclemptia and pre-ecclemptia in local women has been reported.

6.6 Food Security, Livelihoods, Risks and Impacts

As has been discussed earlier, a number of issues related to rainfall, drought, salinity, heat stress, cyclones, droughts and floods result in a potential decrease of agricultural productivity. This threatens food security.

There are external issues that also affect food security. For examples local effects of climate induced droughts in North America decreased the productivity of corn in 2010-12. This in the global market resulted in the poor increasing the global price of corn. This has a bearing on the price of other cereals, thus making, the Bangladesh and other farmers of poor countries lose their comparative purchasing powers.

These multifaceted risk and impacts play on each other and intensify the risks and magnify impacts. Food, water, energy, health, livelihood and social securities are all impacted by the different climate induced events. Thus extreme events get more intensified and thus affects the different securities. This particularly affects the societal capacity for adaptation and enhancing resilience to confront the impacts of climate change. The capacity of the country to adapt is underlined.

6.7 Poverty-Disaster-Human Security Links to Climate Change

One of the most important pre-requisite for sustainable development is reduction of poverty. Most developing countries, particularly LDCs have made poverty alleviation as a central plank in their respective planning processes and objectives. It has been highlighted in the “Declaration of Poverty and Environment” by the Global Forum on Poverty and Environment at the Earth Summit in Rio in 1992 stating that “There can be no sustainable development without alleviation of poverty”. Subsequently in the Millennium Development Goal (MDGs) poverty reduction has been made a central and principal focus.

For poverty reduction most countries have taken different approaches, safety nets and poverty reduction strategies. Many of the achievements undertaken in the last four or five decades in poverty alleviation are threatened to be undermined by the impacts of extreme events induced by climate change.

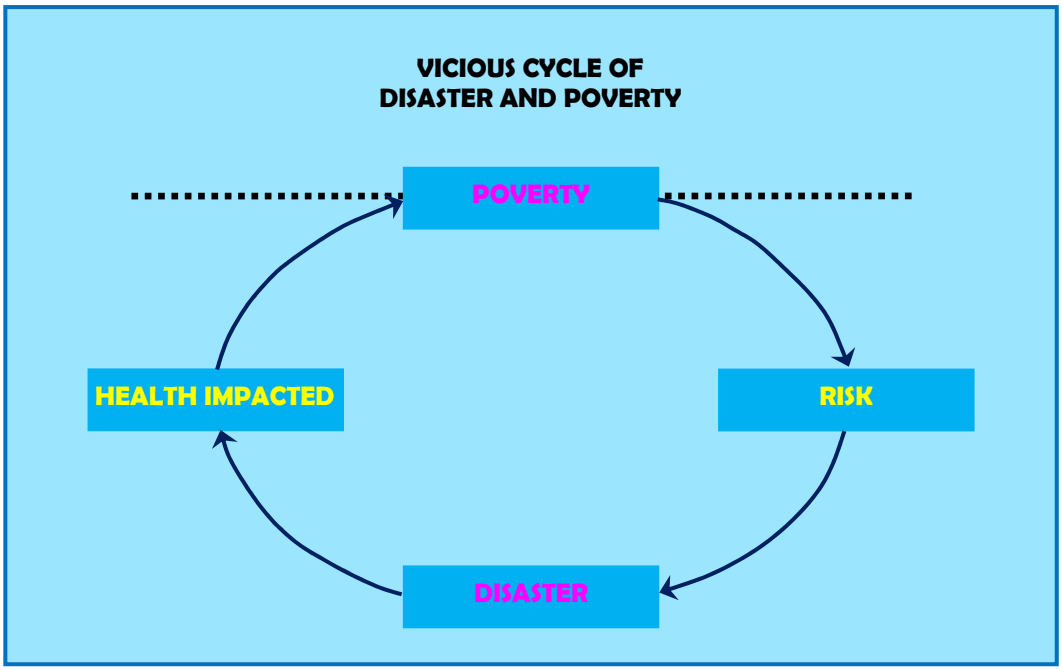

Figure 10: Climate change induced disasters undermine poverty alleviation efforts, increase risks and lower health conditions. All these forces countries below the poverty line despite early adaptation efforts.

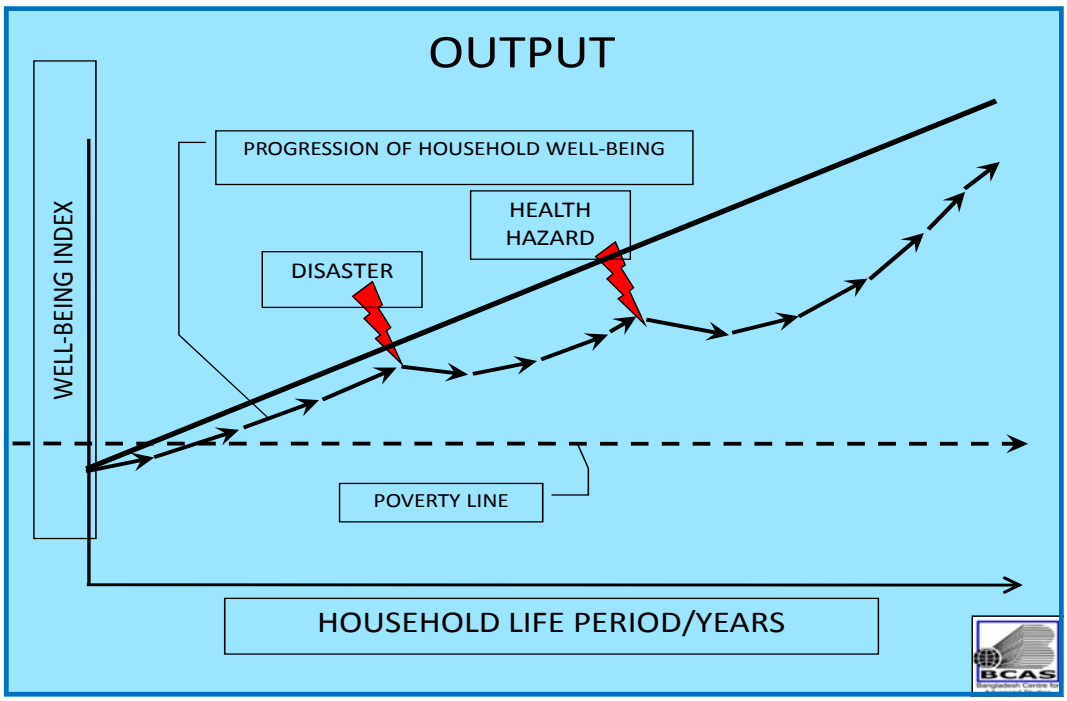

Figure 11: Communities work hard to overcome poverty but disaster and health hazards compete to undermine development and adaptation efforts of communities.

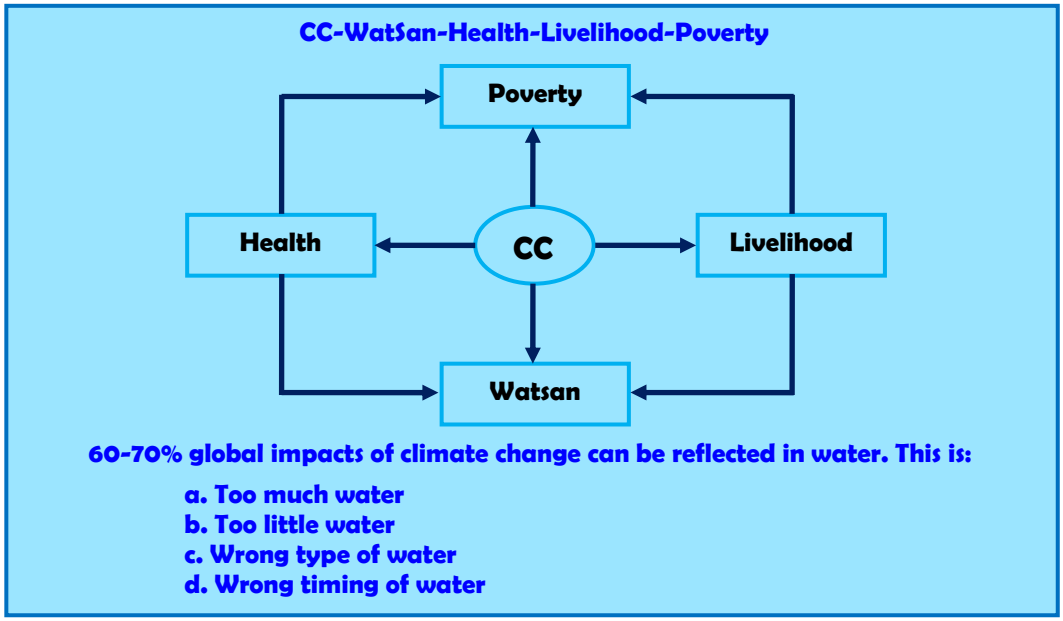

Figure 12: Water is the dominant medium of climate change varieties and impacts. Poverty alleviation efforts and livelihood options are undermined through water sanitation, hygiene and health interactions.

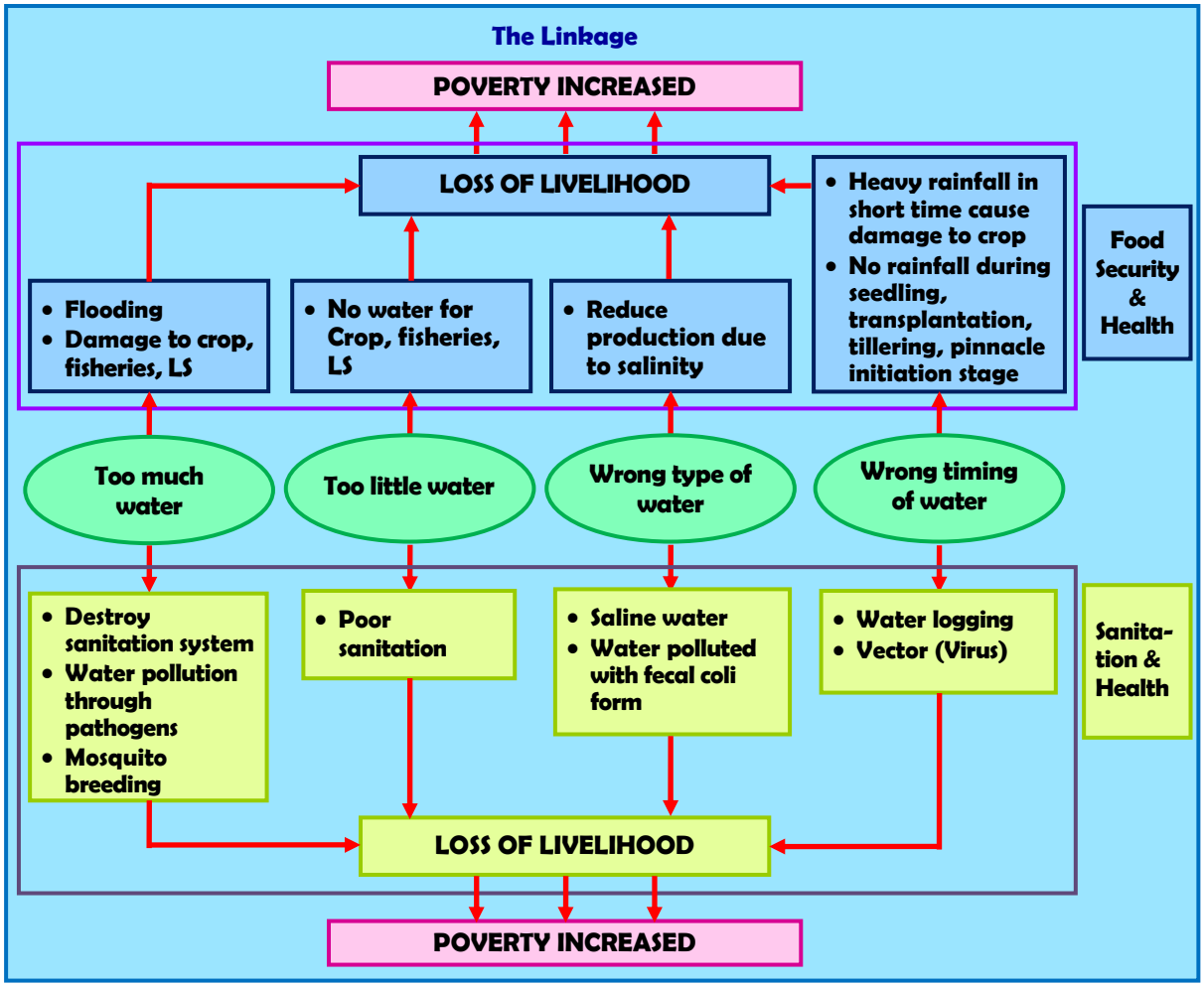

Figure 13: The key linkages are demonstrated in the water sector impacted by climate change for the welfare and adaptive capacity of the communities. .

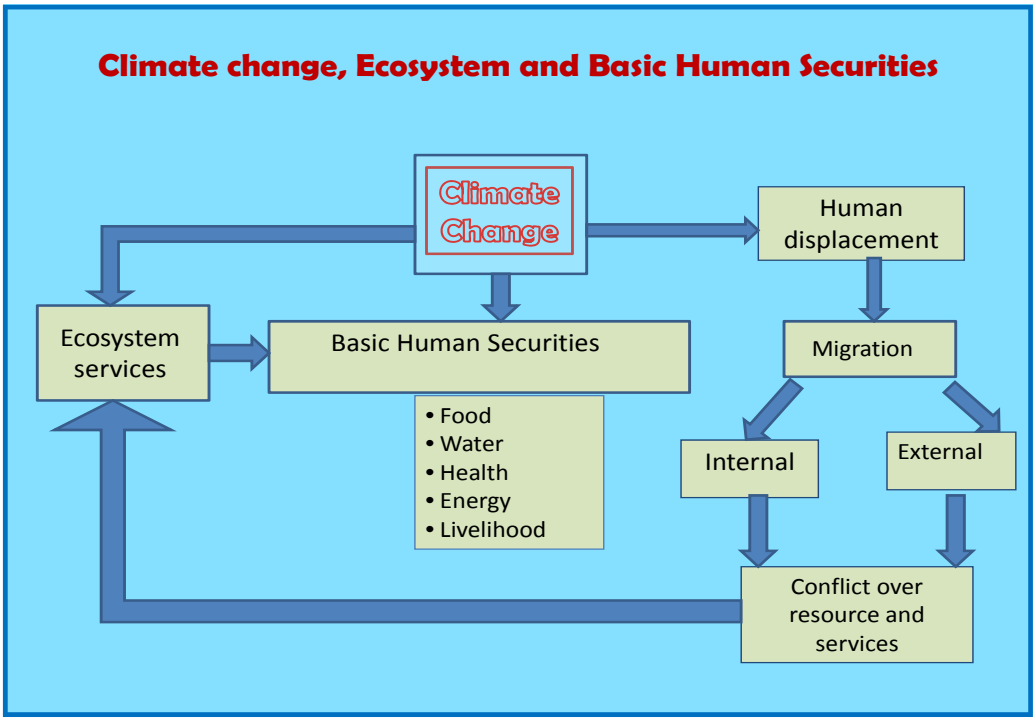

Figure 14: Climate change undermines basic human securities and ecosystem services, encouraging human displacement and migration. These, in turn increases the probability of social conflicts.

6.8 Multiplicity of Climate Change Impacts and Extreme Events

Climate Change related extreme events may often be associated with multiple impacts. For example, a cyclone in the coastal area may be associated with water surge, breaking of protection barriers and salinity intrusion. Floods may be associated with water pollution and health impacts. Wild fires may destroy habitat, forestry and also close down roads. In terms of adaptation strategy several impacts will need to be addressed simultaneously. Human beings, individually and collectively, have been adjusting, adapting to and coping with climate variability for many thousands of years. In fact, it is this knowledge, understanding and practices to react to climate variability that has given rise to agriculture and formation of habitat. Much of the human culture has evolved around seasonality, lunar and solar cycles. So adjustment to climate variability is age old. But emergence of climate - diurnal change which is induced by emission and accumulation of greenhouse gases giving rise to a gradual shift in the baseline of temperature, precipitation, sea level on surface as well as ground water and soil salinity, is a phenomenon of impacting post - industrial civilization. These trends are showing more rapid changes in recent times, more likely in decades and no more than two centuries. It has been largely attributed to the anthropogenic activities leading to the present status of climate change.

6.9 Increasing Impacts

The greenhouse gas emission has increased dramatically in recent decades and continue to do so, despite all the discussions in the negotiations of climate change.

Over the last few decades the different communities are facing different experiences of changes in their temperature, precipitation, seasonal behaviors, sea level rise, salinity intrusion hot and cold

spells, ice melt, snow cover, shifting sands and desert front, increasing intensity and/or frequency of extreme events such as floods cyclones, droughts, snow storms, water logging, wildfires, river bank erosion, land slides and soil erosion and many others.

The communities across the world are trying to adapt or cope with these changes, often within very limited resources at their disposal. Millions of communities across the world, particularly the poor communities are experiencing, experimenting, confronting and adapting to these changes often induced by climate changes.

For example, the farmers in most developing countries who are facing these changing climate behavior around them when asked, how are their situation, report that "something is not right" around their lives. They can not explain their new experiences by the ranges of climate variabilities experienced by their parents or grand parents generations.

6.10 Mitigation, Adaptation and Science Needed

Most scientists agree that climate change is here and now. The impacts are beginning to be felt and sometimes visible and experientially observable.

There is an urgent need to increase mitigation efforts. Even if mitigation efforts are increased, the impacts of climate change is likely to be felt more in the near future, before the consequences of mitigation are perceptible.

Millions of communities across the world are trying to adapt to these experiences and changes. They are adapting with the traditional knowledge of the communities supported by scientific knowledge and practices available to the communities. There is a need to harmonize the scientific and experimental knowledge and lay down the scientific basis of community based adaptation (CBA).

The journey of CBA and the series of international conference are aimed to maximize scientists and practitioners interaction across continents, countries, sectors and disciplines to develop a scientific basis of CBA which could be used to reduce to the risks and vulnerability of the communities to the impacts of climate change.

7 Mainstreaming CBA

7.1 What do we mean by mainstreaming CBA & how do we do this?

As the adverse impacts of human induced climate change become apparent and irrefutable, more and more countries are developing national adaptation plans. Most of these planning exercises start by treating climate change impacts as risks to be adapted to and base the analysis on which parts or sectors of the country are most vulnerable and then develop plans to reduce their vulnerability. The Bangladesh Climate Change Strategy and Action Plan (BCCSAP) is a good example of this type of plan in Bangladesh and developing world. However, as the magnitude and long-term nature of the climate change threat is realized it is becoming clear that simply implementing a set of adaptation projects, although useful, is not going to be sufficient. If long-term resilience is to be built then climate change adaptation (as well as mitigation) needs to be embedded (or mainstreamed) into regular national planning at all levels. The Planning Ministry in Bangladesh has started such an initiative to embed climate change into regular planning and also to have a climate change element built into the national budget (Huq, 2012).

The need for mainstreaming CBA into policy and practices is urgently felt in the developing world. The mainstreaming process would need in depth understanding about the development process, climate change impacts, policy environment and institutional arrangement of a country as well as capacity building of the actors and stakeholders including government policy makers, programme managers and NGOs who are involved in planning and implementation of climate change adaptation in community, local, regional and sectoral levels. This would need new knowledge, skills and technical expertise along with resources and appropriate policy and institutional structures. In this contexts, BCAS and International Centre for Climate Change and Development (ICCCAD) at the Independent University, Bangladesh has also taken an initiative to train officials from ministries of planning in Asia and Africa through a series of short training courses on mainstreaming climate change into national planning.

7.2 Some Early Lessons

Some of the lessons that have already emerged on this issue are described below:

- **Planning versus projects:** The first lesson is that while adaptation projects are a useful place to start, the long-term nature of climate impacts will require an altogether greater effort to develop a climate resilient economy. Thus, instead of developing separate, stand-alone, National Adaptation Plans (NAP) as many countries are doing, it is better to mainstream climate change into regular national plans. Therefore, the NAP process should be seen as a process of mainstreaming rather than producing a stand-alone plan.

- **Planning is needed at all levels:** The second lesson is that mainstreaming climate change into planning needs to be done at every level, not just national plans. Thus sectoral ministries such as water management, agriculture, health and others also need to mainstream climate change into their respective sectoral plans. Also very important is the need to mainstream into local level planning where possible. Some countries, such as Nepal, are developing Local Adaptation Programmes of Action (LAPA).

- **Focus on climate vulnerable poor:** The third emerging lesson is the need to focus on and prioritise the most vulnerable communities, who also tend to be among the poorest (sometimes called the Climate Vulnerable Poor) as they are the ones who will suffer the adverse impacts the most. This will be a critical requirement for international funds to support national adaptation plans and actions. It will therefore be necessary to put in place robust monitoring and evaluation procedures for adaptation funding.

- **International funding for adaptation:** As international funding for adaptation begins to arrive in developing countries an interesting, potentially contradictory, issue may emerge. This the fact that while international funds for adaptation will require activities they fund to be clearly identified and reported on, thus favouring a project approach, while the argument that such international funds will be most effective if they are in fact mainstreamed into national plans and budgets. This seeming contradiction can be dealt with by making clear identification of climate change funds within national budgets (ibid).

- **Mainstreaming CBA into Development Projects: Implementing projects in poor and vulnerable communities is always a challenge. There is a further challenge in trying to incorporate future climate change risks into development projects. Fortunately, CBA projects are a useful approach in addressing the development needs of the country since they are** integrated **into development issues at the community level. CBA projects are like any other development project with an 'additionality' of climate change adaptation activities. Activities like identification of specific vulnerability of communities from climate change, building relevant capacity to deal with the vulnerability and creating a database of these activities can go a long way in developing social and disaster reduction programmes. Furthermore, the implementation of CBA activities often results in the creation of community based organizations (CBOs). Once formally registered, the CBOs liaison with local level government organizations and partners with other NGOs on matters of training, knowledge sharing and community development activities.**

- **Mainstreaming CBA in NRM and Biodiversity Conservation**: Some of the obvious linkages between community based adaptation and biodiversity conservation are:

  - ❒ Livelihood benefits of biodiversity conservation and CBA could serve as incentives for change in practices in order to avoid mal-adaptation, such as monoculture of forest tree species.
  - ❒ Large adaptation projects use a 'top-down approach' and usually involve infrastructure construction projects (e.g. embankments) which may results in mal-adaptation in the long-run. It would be more effective to use non-structural alternatives and 'bottom-up approaches' which are rooted in existing community based strategies for managing resources and reducing vulnerabilities to climate shocks (Huq and Reid, 2005). Infrastructural project must be undertaken with consert and involvement of the communities.
  - ❒ Integrating biodiversity conservation strategies into CBA activities will permit the communities directly involved to appraise the performance of climate change adaptation strategies in terms of both livelihood and biodiversity outcomes.

- ❒ The poorest and most vulnerable communities depend on ecosystem services the most and they have generations of knowledge on adaptation since they have had to adapt to changes the longest. Community based adaptation (including traditional knowledge and practice based on free, prior and informed consent) is intimately connected with the health of and functions provided by ecosystems.
- ❒ Conserved ecosystems have services that are vital to climate change adaptation and the community depending on them. For example, mangroves act as coastal buffers from storm surges/ cyclones and wetlands are important reservoirs for floodwater. They also provide local community with food, fibre and livelihood options.
- ❒ Some CBA projects are using natural resources, biodiversity and genetic diversity to cope with climate change e.g. introduction of indigenous salt and drought tolerant crop varieties in corresponding ecosystems.

7.3 Some tools used to help in the implementation of CBA projects

Community based adaptation is still a fairly new concept even though experiences are being gained daily through practical, hands-on research. In order to implement community based activities effectively, some tools and approaches have already been designed. These are:

- **Local Options for Communities to Adapt and Technologies to Enhance Capacity (LOCATE):** This methodology was developed by BCAS under the SouthSouthNorth (SSN) Project to assist organizations working at local level to design and implement Community Based Adaptation (CBA) project to climate change. This methodology has been applied in six countries initially know as SouthSouthNorth Adaptation Project Protocol (SSNAPP) to test applicability of this approach (Alam and Mqadi, 2006). It has four phases i.e. identification phase, design phase, implementation phase, and monitoring and evaluation phase. The entry point of LOCATE is context specificity of adaptation and designing community based adaptation to climate change.

- **Community-based Risk Screening Tool – Adaptation and Livelihoods (CRISTAL):** CRISTAL was designed by IUCN in partnership with the International Institute for Sustainable Development (IISD), the Stockholm Environment Institute in Boston (SEI-US) and Inter-cooperation, the Forest Conservation Programme. The objective of the tool is to help project planners and managers integrate climate change adaptation into community-level development projects. This tool is used by development practitioners as a way of 'climate proofing' development activities. This involves integrating risk reduction and adaptation strategies into development projects. CRISTAL promotes the development of adaptation strategies based on local conditions, strengths and needs. The tool was field-tested during 2004-2006 in Mali, Bangladesh, Tanzania, Nicaragua and Sri Lanka, before being applied for the first time in March-April 2007 in Zambia (IUCN, 2008).

7.4 Some Early Lessons Learnt

The various lessons learnt from CBA practices are spread across this report. The following are some of the early specific lessons learnt are included here. Other lessons are integrated in Chapter 7 and 8.

Community based adaptation activities are still at the stage of 'learning by doing. Hence the lessons learnt

from previously implemented projects are crucial for researchers and practitioners. Some of early lessons learnt from designing or implementing CBA projects are reported below.

- The CBA researchers/practitioners must first gain the trust of the community they want to interact with. This means spending a long time with the community and getting to know them well. But if there are intermediaries like local NGOs or government agencies present, it is best to start a dialogue with them before communicating with the community themselves.
- Assessment of climate knowledge and awareness among the community is essential. Studies have shown that traditional knowledge and natural indicators play a strong role in the communities but due to climate change, these indicators are becoming more unreliable. Assessing the existing knowledge allows the CBA practitioners to design appropriate tools for capacity building and skills development.
- While assessing vulnerability using a questionnaire survey, it is important to realize that different groups within the same community may need more specific or tailored questions to address similar issues.
- It is important to have a proper understanding of the social networks within the community as they are vital to the success of CBA implementation.
- The CBA project must be linked to local development activities and projects in order to encourage active stakeholder participation. Adopting consultative and participatory approaches significantly increases the success of the project.

7.5 Scaling Up and Challenges for CBA

'Scaling-up' of CBA activities is needed to involve larger numbers of communities to build capacity and reduce climate change induced risks. This 'scaling-up' involves restructuring and modify some successful adaptation projects so that they can be implemented in similar ecosystems within the country and other vulnerable communities all over the world. A key aspect of scaling-up is to share information and experience from local level to national level networks and also through regional CBA networks. According to Berger and Ali (2008), Practical Action has developed a bottom-up approach to scaling up that will be tested in Bangladesh. The scaling-up of CBA activities need to be supported by local-level government and effective policy efforts.

One of the major drawbacks of community based adaptation is its present initial success among climate change experts, researchers and organizations. CBA implementation is also receiving attention and some funding from international NGOs and donor agencies. Unfortunately this has led to a competition among organizations to implement various development activities among communities and pass them off as CBA activities. Most of these activities are implemented in a space of a short period of weeks on months without well researched and rigorous concept on climate change related vulnerabilities or adaptation needs in that area. Furthermore, analysis of these have shown that there is a lack of coordination and understanding between the organizations, CBA project implementers and the community where it is being implemented. These so called 'adaptation or CBA activities' can result in mal-adaptation and in some cases result in misunderstanding among the communities and adaptation practitioners.

These activities may undermine the effectiveness of CBA at the local level. Unless the negative practices involving CBA are curbed, it will not be able to deliver the many benefits to the communities that it is

intended to serve. Furthermore, it may also hamper the long-term, national level benefits such as capacity building and proper understanding of adaptation that can be garnered from effective CBA practices.

7.6 NAPA to LAPA: Need for Local Action

The least developed countries (LDCs) have completed the National Adaptation Programme of Action (NAPA) as the first major initiative on adaptation under the UNFCCC. This has initiated a large number of project identified by respective countries. These have been medium to large projects, each needing several millions of US dollars.

The limitation of this process was that it was meant to identify and develop projects which were "urgent and immediate" for funding. It is unfortunate that negligible number of these projects have seen the day of light due to lack of funding by the global system.

Based on these UNFCCC negotiators recognized the need to develop NAP (National Adaptation Plan), a comprehensive country based plan each developing country to identify the adaptation needs and strategies for implementation.

As far as CBA is concerned, it is required to develop LAPA (Local Adaptation Plan of Action). Each community, ecosystem and region can and need to identify a set of local level adaptation activities so that a local level adaptation plan (LAPA) is developed integrating the need for reducing the climate change risks, build adaptive capacity incorporating and integrating the development consideration, disaster risk reduction, (DRR), responses to potential climate change induced extreme events protection, incorporating poverty reduction strategies and protection and enhancement of biodiversity amongst others. This needs a proper baseline analysis of the human, ecosystem, agricultural, resources and governance potential of all sectors. Using both indigenous and scientific knowledge is essential. Application of all potential and appropriate technologies to address the adaptation challenges and potential need to be ensured. It needs to ensure participation of all actors including the local level government institutions, professional or resource use groups such as farmers, fishers, forest user communities, wetland users, animal herders, pastoralists, technology agents, market intermediaries etc. Links with central Govt. policies, NGOs and CBOs, local elite women groups, credit agencies and funding agencies both national and international will also be necessary. LAPA has to be developed with highest participation and a set of priority projects similar to CBA projects to be maximally undertaken by the local communities themselves.

The perspectives and potential for future climate change threats and their likely impacts would need to be considered to make the implementation of LAPA more sustainable. The LAPA also need to consider the linkages with adjacent areas and potential changes in the nearby areas. For example, if a locality or local community uses a river, wetland, forest, glaciers, land use plans, or desert those are likely to be modified by either future climate change or development intervention, the community needs to be aware in the dynamics of resource use by other communities. There may be a need to negotiate for optimal use of such common property resources to avoid future conflicts.

7.7 Good Governance: The Opportunity

One of the other key elements is the governance issues. For observing good governance practices, transparency and accountability, proper monitoring and evaluation of the projects are needed. These are

necessary elements to ensure that the CBA/LAPA adaptation projects meet their requisite standards of good governance.

One has to be cautious that the structured LAPA or CBA projects do not undermine the innovation, initiatives and enterprises of the local communities and that is a free atmosphere of encouraging local indigenous knowledge and practices.

Mutual learning between the established scientific and technological knowledge and application on one side, and a free flow of innovation of indigenous knowledge and technology on the other, need to be assured. What may look like an obsolete technology at a point in time or at a specific geo-spatial setting of an ecosystem, it may of value elsewhere. Climate change may shift the baseline of the system, hence it may be necessary to use some of the previous technology or species in the changed circumstances.

Hence efforts should be made to maintain information, formal and/or informal of traditional practices and specialized technology and knowledge of earlier CBAs. This archives of indigenous practices may offer new application as well as, new approaches governance practices.

7.8 Integrating Gender Dimension

Across almost all communities in the world women are mainly responsible for child bearing, caring and providing basic services to the household members. The women are also responsible le for many sectors involving production, consumption and maintenance services in the communities. These include agriculture, food, water, fisheries, poultry, livestock, energy and fuel wood, lighting, cooking, management of sanitation, water supply family hygiene and many others.

Women also protect and maintain homesteads, trees, domestic water sources and in many cases financial credits and social interaction with other members of communities. In case of any rapid onset climate induced events such as floods, cyclones, water surges, wild fires, extremes of heat and cold, heavy precipitation of fog formation, the women are to take major responsibility of adapting the household and its member for proper activities to minimize risk and maximize resilience. For slow onset climate change events such as drought, sea level rise increase in salinity etc. women tend to take many of the adaptive actions and create adaptive capacity by interacting with the community. Hence it is of utmost importance to make women central to the design and implementation of adaptation actions, adaptive strategies, risk reduction, resilience and adaptive capacity building efforts.

7.9 Ensuring Greater Involvement of Local Government Agencies

It has been demonstrated that Community Based Adaptation must consider a holistic approach involving many sectors such as food, water energy, infrastructure, social mobilization and education. For all the CBA projects to develop its design, mobilization, demonstration and implementation in an organized and systematic way will need coordination, mobilization and utilization of funds. Based on the innovation and learning, enterprise and flexibility of the community decision making process, when it comes to multi-household or multi-stakeholder decision making, it needs the involvement and initiative of the local government and regulatory processes. The adaptation actions are context specific. The local govt. agencies are probably in the most advantageous and legitimate position to receive adaptation funds from government and international sources. The delivery and decision making cannot be done by local

government agencies and personnel alone and will have to involve greatly and depend on local NGOs, civil society, educational and social institutions and all other existing social systems. But decision making in the formal sense can be coordinated and convened by the local govt. agencies.

Again, when a successful or interesting CBA practice need to be communicated to other administrative or ecosystemic areas, the local govt. can use their existing mechanism to assist in this process. The local govt. is not a replacement for local community initiative, learning and implementation. The local govt. agencies must be willing and ready to support the CBA practices of the communities with financial resource, administrative support and regulatory instruments. Hence the local govt. agencies have a key role to play as a supporting convening and resource providing system. The combination of local community initiatives and local govt. decision making process can delivers CBA practices to reduce risks, enhance resilience and build adaptive capacity of communities.

7.10 Integrating Disaster Risk Reduction in CBA

As disasters such as flood, cyclone, drought, wild fire, heat or cold stress due to extreme exposure affects the health of individuals in a community and can also reduce the availability of adequate nutrition or safe drinking water. This is turn impacts on the health and undermines the capacity of the community to fight back and exert their means of resilience. Hence the potential baseline of development progress is undermined over time due to climate induced disaster and extreme events.

Climate induced disaster undermine the adaptive capacity by increasing the risks and lowering resilience. This may be reflected in their houses, animal sheds, toilets and protection system breaking down. A decrease in availability of food and water or increased risks due to injuries or epidemics such as water borne diseases or collapse of water and sanitation services reduce the development potential of the individual or household and overall community as a whole. These in turn give rise to health hazards which undermines the capacity to fight the impact of disasters and exercise tested resilience strategies. Thus it is vital to integrate disaster risk reduction practices including developing preparedness, enhancing social mobilization, developing scenarios and implementation plans, developing contingency plans, allocation of responsibilities and ensuring resource availability.

8
The Way Forward

8.1 CBA and Sustainable Development

Climate change is likely to affect developing countries most significantly because developing country economies are more reliant on agriculture, natural resources and ecosystem which, are closely linked to climatic conditions. Developing countries are also more sensitive to changes in natural resources, such as, water resources and land degradation, and they have limited funds or expertise to cope with damaging impacts. Hence it is vital for vulnerable countries to adopt adaptation strategies and make them a central part of their development planning.

Community based adaptation (CBA) activities take into account local knowledge on natural resource management and also the cultural and traditional relationship the community has with its ecosystem. These are the key foundation for developing CBA activities that are acceptable to the community.

In order to take CBA activities forward and incorporate them into sustainable development strategies, there is need to develop a set of guidelines for CBA practitioners and stakeholders. Even before developing a CBA project, it is crucial to recognize the linkages between climate change, natural resources and the human component. Understanding the linkages would give a clearer picture of potential impacts the CBA project would have on ecosystems and the human population. CBA practitioners should strive to attain a 'win-win' situation when designing projects.

Even though climate change is causing numerous problems in terms of development, loss of biodiversity, loss of lives etc, it is also providing opportunities to shift towards a more resilient way of using resources and benefiting the poor and vulnerable people by increasing their adaptive capacity. Community based adaptation strategy, with its 'bottom-up approach', is a cost-effective and appropriate technical alternative to orthodoxy of engineering solutions. Furthermore, local knowledge for managing scarce resources is a major strength in designing and implementing adaptation activities.

Without the support of good governance at the local, national and international levels it will be difficult to ensure that the projected benefits of actions actually materialize. Adaptation to climate change at the local level will ultimately have national impacts as well, but support from the government is required to scale-up the projects. For vulnerable countries, there is little time to lobby the government and get CBA activities recognized at the policy level. Actions have to be taken immediately to reduce vulnerability, provide livelihoods and protect ecosystems from being undermined in providing their optimal ecosystem services.

The new paradigm of sustainable development of the developing countries, particularly poor countries, will require reduction of poverty, preparing for a climate change world with risk reduction, appropriate

adaptation and climate change governance. The economic market will have to create jobs as well as ensure the key human securities including food, water, energy, livelihood, health and social security of every citizen.

Finally all efforts must be made by the global governance system to undertake rapid mitigation options, so that the need for adaptation is diminished. It is to be noted that lower the mitigation efforts, higher will be the need for adaptation which will soon reach the limits of adaptation. This will result in social dislocation, migration and conflicts for which our global governance system is vast prepared. The ideal for trying to achieve sustainable development will then be pushed further into distant future.

8.2 Developing the Science of CBA

CBA is being practiced across the world, particularly poor communities. There is no estimate of the numbers of initiatives but this is in the order of millions of experiments, practices and initiatives across the world. Nor has there been a typology or taxonomy developed yet. It is also not certain, the communities and households practicing what can be called as CBA are aware of the climate change issues. There needs to be greater scientific understanding of the causes, on the nature and intensity of the variability against which they are trying to respond to reduce the risks and build resilience and adaptive capacity. Hence there is a need to develop and structure the existing knowledge of CBA into a scientific approach. This is going to be a major challenge, as the science of Adaptation is even at its earliest stages on infancy. The fifth Assessment Report of IPCC, Working Group 2 is moving towards the assessment of early knowledge of adaptation. CBA will at most get a cursory review in IPCC5. It is anticipated that the Sixth Assessment Report of IPCC, when and if it is undertaken, CBA may get a greater coverage. But it is up to the scientists, policy makers and practitioners of CBA to contribute towards the emergence of a "Science of CBA". These international conferences on CBA can provide an early get of experiences and practices to initiate the discourse on the science of CBA.

8.3 Up scaling CBA

CBA is often a spontaneous response to an emerging risk, crisis or impact linked to some climate change inducing stimulus. But there is need to take many isolated and disparate initiatives so that others can learn from and utilize such experiences and adaptation responses. This learning can be transferred from one village to the next across ecosystem, country on between countries and communities in a different country or setting. An adaptation technology, initiative or practice will have to be modified and made appropriate to the needs of the relevant community, ecosystem and climate change stimulus.

To undertake such learning, sharing and transfer it is necessary to package and communicate the experiences properly adequately and appropriately.

BCAS and IIED has taken an innovative approach with the participation of the key international NGOs including CARE, Oxfam, Action Aid, Christian Aid, Plan International, Muslim Aid are working with a team of experts of "Action, Research on Community Adaptation Bangladesh (ARCAB)" to identify and develop good CBA practices, monitoring and evaluation methodologies, financial issues involving local govt. etc. Through this co-learning process, the international NGO will integrate CBA in their programmes and transfer to their continents, respective partners in other countries and continents. This is an example of attempting up-scaling CBAs. Many such initiatives are required in the near future.

8.4 Planned Adaptation

Though CBA practices have often been spontaneous, it is important to develop planning processes involving disaster risk reduction, ecosystem services, protection of biodiversity, integrating gender, health alleviating poverty, generating employment and livelihoods and other development perspectives. It is also important to integrate all key actors including local government agencies, local NGO, civil society organizations and social leaders, women groups, private sectors in the planning process. The learning from this planned adaptation approaches. Then the CBA activities can be extended to their regions or countries and used for up scaling.

8.5 Planned Migration

As a consequence of experiencing some climate induced extreme events such as cyclones, floods, drought, wildfires etc. one of the strategies is some human displacement. This could be (a) temporary or permanent, (b) in-country or across countries, (c) displacement of some people or huge of the population. This can have major impact on families, households and communities. Sometime of the male members often are forced to leave an affected community to seek employment or organize shelter and livelihood elsewhere. Women are sometimes left behind. It is very import that this complex types of migrations for different time periods, to different destinations are planned and organized to minimize the dislocations and develop appropriate adaptation and development practices.

There are issues to be learnt from earlier experiences of disaster risk reduction and incorporated into adaptation and migration activities induced by climate change related extreme events.

8.6 Integrating Gender Dimension

In most communities particularly the poor, women play a key role in household resource management such as food, water, energy. Simultaneously women are most in-charge of children, elderly and the disabled. In many societies women are also caretakers of livestock, poultry, horticulture and many elements of agriculture. Hence it is vitally important to integrate the women in all aspects of planning process and also in the receiving end of any benefits and support that is provided. An overall gender perspective would have to be integrated in CBA practices and planning.

8.7 Monitoring and Evaluation: Methods and Practices

As CBA is a new approach to development incorporating the rapidly increasing impacts of climate change, it is going to be a long term phenomenon. Hence it is important to develop appropriate, scientifically valid and methodologically sound monitoring and evaluation (M & E) procedures, of CBA.

As it is anticipated that there will be funding opportunities in adaptation and particularly CBA, to justify good governance and appropriate system an evaluation and monitoring and evaluation, methodology and accepted appropriate protocol will have be developed. This implies a early baseline and comparing future changes with respect to this baseline. But the M & E practice will need to be responsive to climate change shift, changes in demography and socioeconomic status and natural resource endowments. So it has to be appropriate, flexible, participatory and robust M & E system. We are in the early days of such practice. ARCAB is initiating an approach to develop a M & E tool and strategy for CBA.

8.8 Long Term Process with Greater Impacts

The progress in reducing the emission globally seems to be far below the required level suggested by scientists. It is anticipated that keeping global temperature increase below 2°C by 2100 from pre-industrial period is least likely. World Bank and many others have suggested an increase to 3°C and even 4°C.

All these imply more and drastic climatic extremes, resulting in greater number of disasters and more intense impacts. With increasing populations particularly in poor communities greater number people are likely to be affected by the impacts of climate change. Hence more CBA activities are anticipated. It is imperative that the CBA practitioners and planners work with all other groups of professional actors to take the task forward, so that the impact is reduced and adaptive capacity is built. The resilience of the communities needs to be protected and enhanced. These need enormous efforts, integration, multidisciplinary approaches more robust community of actors to address these issues. The financial mechanisms envisaged under UNFCCC will only be forthcoming if we can show the clearer pathways that CBA approach will offer for worth while investment.

8.9 Communicating CBA

It is important that the learnings, messages and outcome of CBA is first developed in a scientific way, have clear messages and these messages are communicated well. CBA6 in Hanoi, Vietnam is expected to raise and respond to some of those issues. However, communicating CBA is a continuous challenges, particularly in a world where impacts of climate change is going to be context specific. Hence messages need to be developed, designed and communicated well efforts must be made to ensure which component is specific to which context and identify issues those are generic in nature and amenable to be communicated across the board. The language, terminologies, concept and mode of communication will have to be developed meeting a set of very diverse needs. This remains a major challenge for scientists, policy makers, practitioners and communication professionals.

8.10 Formalize CBA, But must maintain Flexibility, Innovation and Enterprise

For the purposes of mainstreaming CBA and adaptation into development as well as transfer of technology, knowledge and practices across ecosystemic and national barriers, it is important and necessary to formalize CBA. A clear and robust scientific basis need to be developed, analyzed, baseline established and the nature, cause and magnitude of impacts understood. Further it is important to note that in the near future how the climate impacts will shift or magnify. For all these purposes and the need for replication, albeit with appropriate adjustment and modification, based on the specificity of the context, it is necessary to formalize the different CBA practices.

But the essence of CBA is the enterprise and the innovation by the communities themselves. The identification of opportunities and potential for change by the communities is a strength of CBA. The process has enabled increases in the social, ecological, governance and knowledge systems of their context. It is the detailed and longstanding indigenous knowledge that often gives rise to the innovation observed and implemented by the communities. This essential trail of capacity to innovate is central to resilience and adaptive capacity building. Hence in the rush to formalize knowledge or technology, the flexibility of the knowledge system and response strategy of the community must not be compromised.

Diversity in response and capacity to observe finer details is a strength of the community with longstanding experience of their composite system. It is necessary to ensure spatial, temporal and even intergenerational transfer of knowledge, experiences and perception to meet the ever increasing challenges of climate change induced impacts and particularly the challenges of extreme events and disasters. But, as climate change is for the long term, and the lack of drastic mitigation efforts will only increase the need for greater adaptation, all planners, practitioners and strategists must do everything to protect flexibility, innovation and enterprise of the communities. If this can be done, it is anticipated that CBA will yield options and offer greater resilience over the long time period in which climate change impact is envisaged to continue, given the present limited capacities of our governments and the global decision making process.

8.11 Mainstreaming CBA into Development

The main objectives of the communities is to achieve greater development for themselves at the levels of individuals, households or communities. That essentially means increasing access or ownership to more goods, services, freedoms and rights, access to decision making and participation. Goods include food and nutrition, health, safe water, fuel, shelter, clothing. Services such as sanitation, electricity, access to roads, infrastructure, navigation, healthcare, education, social services, fresh air etc. Rights include such as decision making at the local level, access to governance and decision making, forming association, demanding for their legitimate social security, protection and freedoms and safety etc. Freedoms includes freedom of association, self expression practices of social, religious and community livelihood etc. Climate change is likely to undermine many of these.

The communities tend to organize themselves to build their adaptive capacity and enhance resilience to counter the risks of climate change. Communities, on their own volation can organize often small and early initiatives. Large adaptive approaches such as cyclone shelters, flood embankments and dams, river dredging, large scale afforestation, formal large scale piped drinking water, roads or hospitals etc. can only be undertaken by local or central government initiatives.

The local government agencies should enter into intensive interactions with the communities and learn from the community adaptation initiatives and integrate and intensify these CBA initiatives as approaches to reduction of climate change risks and enhance resilience. Similarly the local govt. agencies must integrate this horizontally amongst all their agencies. Further this integration must also be stimulated vertically amongst the different tiers of the govt. to national decision making and fund allocation systems.

Similarly, CBA learnings and initiatives must also be integrated in different tiers of govt. and must not be confined to one administrative agency or ministry. The issue of CBA involved many institutional agencies involved both policy and implementation. Further there are considerations for resource allocation and sometimes for long term investment. The nature of coverage can be large over spatial, temporal and sectoral dimensions.

The involvement of CBAs involve many agencies including ministries of agriculture, land, water, forestry, fisheries, livestock, energy, finance, infrastructure, disaster management, food and planning, amongst others. Hence mainstreaming involves integrating CBAs into the national decision making processes.

Taking the logic of maximizing development inputs as the central social objective of CBA, it may include not only traditional adaptation but also mitigation measures. Mitigation measures those support the enhancement of development objectives as well be an adaptation practice and at the same time enhances GHG reductions, i.e. which combined adaptation and mitigation (recently coined term at "AdMit") activities should be included as CBAs. Examples include Solar Photovoltaic electricity that reduces carbon but gives most needed lighting to rural areas which would otherwise not be electrified. Improved cooking stoves that save fuel as well as save rural women from respiratory diseases, or biogas plant that produces methane which can be burnt and reduce GHG at the same time produce most valuable fertilizer can all quality as CBA "AdMit" activities. Other examples include technologies such as solar thermal providing domestic hot water and improving hygiene and reducing energy costs, briquette by compacting organic debris into efficient fuel wood, using solar PV for irrigation, using sun drying of fuel wood, par boiled rice or compacted bricks all may quality in this category depending on the context where mitigation is supplementary to traditional adaptation practices. Communities are in best position to use these technologies.

Thus mainstreaming CBA can be considered quite widely and be best analyzed in the context of sustainable development, risk reduction, enhancing resilience alleviating poverty and advancing adaptive capacity building.

8.12 Future CBA Conferences

This report considered early lessons learnt from Community Based Adaptation Conferences – CBA1 to CBA5. It has been planned that CBA6 will be held in 2012 Hanoi in Vietnam with support from the Govt. of Vietnam and the NGOs of Vietnam. BCAS and IIED with other partners will co-organize CBA6. The main theme will be "Communicating CBA".

CBA7 will be held in Dhaka, Bangladesh in 2013 and the theme will be "Mainstreaming CBA into National and Local Planning".

Given the continued interest from policy makers, scientists and practitioners, the CBA conferences are expected to continue for subsequent years. Location is normally decided by the suggestion from participants and finalized by the Conference Management Committee. Similarly these are also selected in each conference for the next CBA conference.

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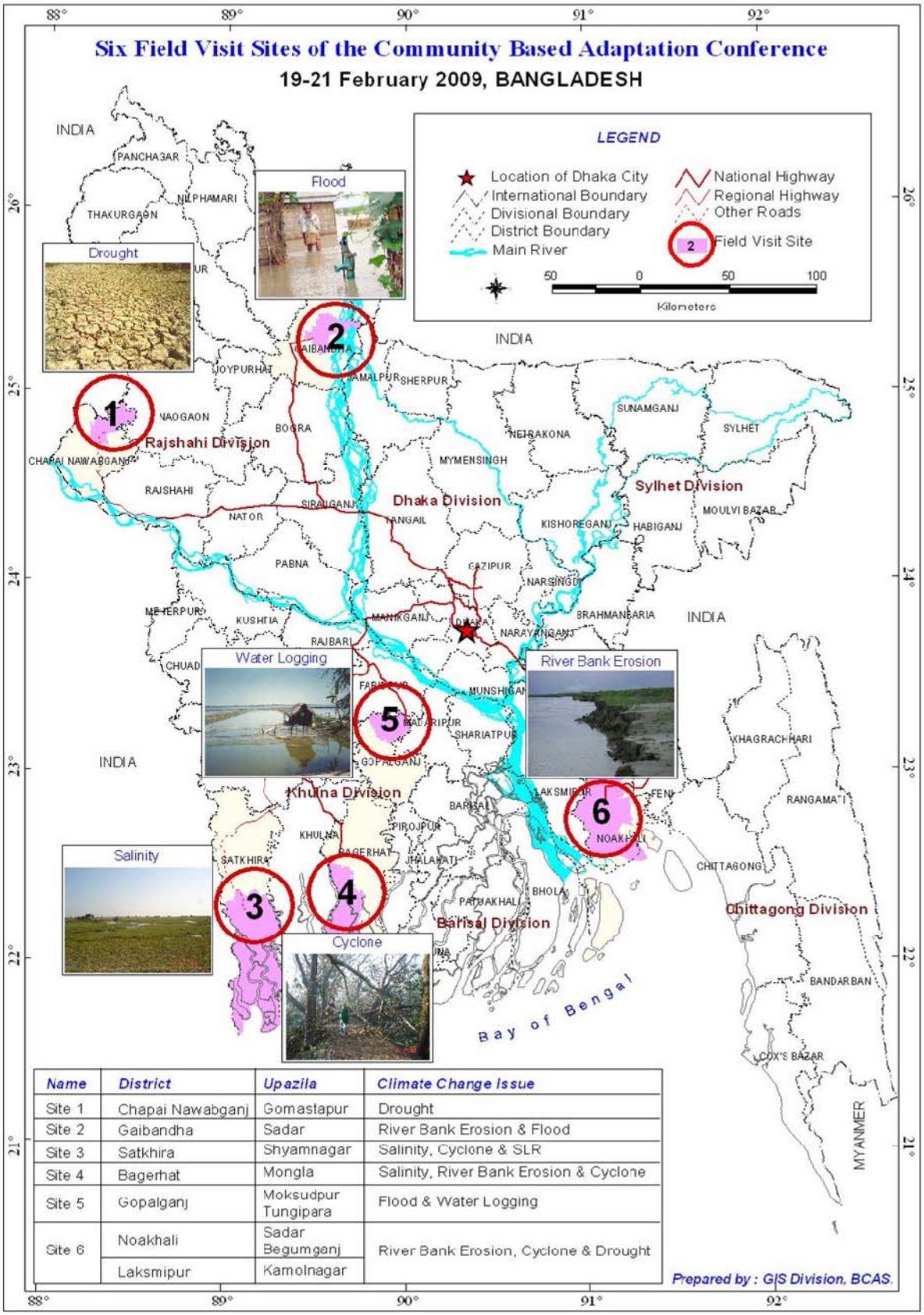
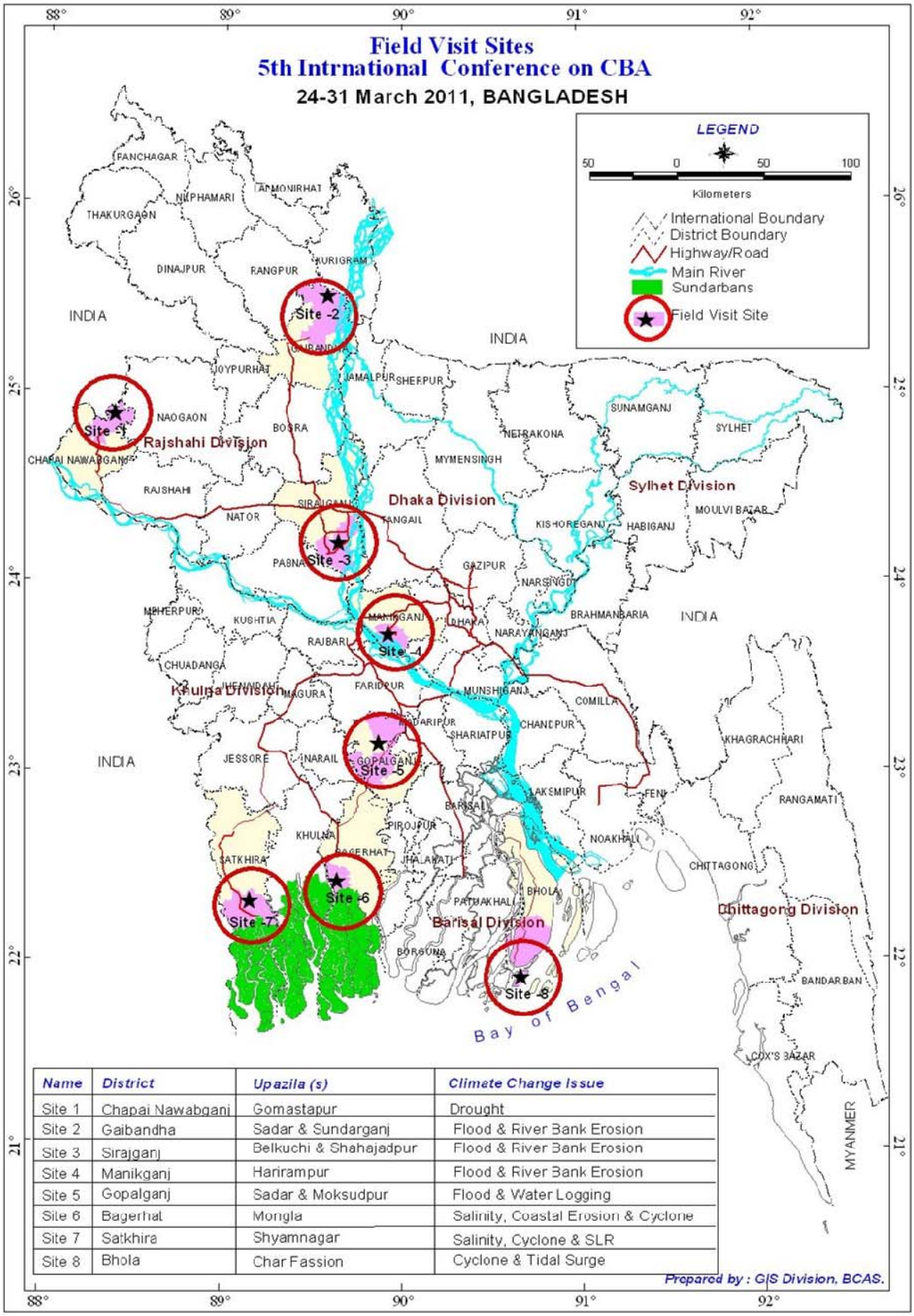
ANNEXTURE

ANNEX 1: Field visit sites for CBA3 conference, 2009



Name	District	Upazila	Climate Change Issue
Site 1	Chapai Nawabganj	Gomastapur	Drought
Site 2	Gaibandha	Sadar	River Bank Erosion & Flood
Site 3	Satkhira	Shyamnagar	Salinity, Cyclone & SLR
Site 4	Bagerhat	Mongla	Salinity, River Bank Erosion & Cyclone
Site 5	Gopalganj	Moksudpur Tungipara	Flood & Water Logging
Site 6	Noakhali	Sadar Begumganj	River Bank Erosion, Cyclone & Drought
	Laksmipur	Kamolnagar	

ANNEX 2: Field visit sites for CBA5 conference, 2011



Name	District	Upazila (s)	Climate Change Issue
Site 1	Chapai Nawabganj	Gomastapur	Drought
Site 2	Gaibandha	Sadar & Sundarganj	Flood & River Bank Erosion
Site 3	Sirajganj	Belkuchi & Shahajadpur	Flood & River Bank Erosion
Site 4	Manikganj	Harirampur	Flood & River Bank Erosion
Site 5	Gopalganj	Sadar & Moksudpur	Flood & Water Logging
Site 6	Bagerhat	Morrigla	Salinity, Coastal Erosion & Cyclone
Site 7	Satkhira	Shyamnagar	Salinity, Cyclone & SLR
Site 8	Bhola	Char Fassion	Cyclone & Tidal Surge

ANNEX 3: Title of Abstracts and Poster presented in CBA5

5th International Conference on Community Based Adaptation to Climate Change (CBA5)

Abstracts :

- CBA principles and practices - By Charles Ehrhart
- Managing Sloping and Shifting Cultivation Lands for Climate Change Adaptation and Sustainable Livelihoods - By Krishna Lamsal, Gyan Bandhu Sharma, and Keshav Thapa
- Adaptation Capacity of Fishing Communities to Climate Vulnerabilities and Changes for improving their Livelihoods- A Case Study Conducted in Cox's Bazar district of Bangladesh - By Srijita Dasgupta
- The importance of Adaptive Capacity in designing Ethiopian adaptation programmes - By Kirsty Wilson
- Participatory Approaches for Adaptation Project Identification - By George Kasali
- Climate Change Adaptation: Experiences of Small Holder Farmers in Northern Nigeria - By John Ajigo
- Community Based Adaptation (CBA): The Initiatives of Caritas Bangladesh - By Anwara Begum and Mijanur Rahman
- Integrating climate change adaptation into water governance institutions in Tanzania, Uganda and Kenya: Transforming policy into practice - By Katharine Cross, Onesmo Zakaria, Jasper Okello, John Owino, Robert Bagyenda, Barbara Nakangu, Emmanuel Mwendera, Daniel Gathima and Hamza Sadiki
- Dealing with domestic water supply in climate vulnerable areas: pilot and beyond pilot - By Kazi Rashed Hayder, Aftab Opel, Hasin Jahan and Arif Abdullah Khan
- Stop land degradation in Guidimakha - By Madyoury Tandia
- Adapting an indigenous water resource management system to new climatic realities - By Bhathiya Kekulandala, Asoka Ajantha and Buddika Hapuarachchi
- Local Knowledge and Community-Based Adaptation to Flood Management in an Giang Province, Mekong Delta of Vietnam in the Context of Climate Change - By Bach Tan Sinh
- Using environmental flows as an adaptation approach to Climate Change - By Katharine Cross, Stefano Barchiesi, Mark Smith, James Dalton, Onesmo Zakaria, Sylvand Kamugisha, Hamza Sadiki, Emmanuel Mwendera
- How to mainstream gender into CBA - By Lucy Wanjiru
- Energy technology transfer to combat deforestation and reducing climate change vulnerability in Zagnanado (Benin, West Africa) - By Krystel Dossou
- Weathering the Storm – Girls in a Changing Climate - By Assalama Sidi
- Scaling Up community level work in North Kenya - By Basra Ali
- Climate Change is an opportunity for gender mainstreaming in Nepal - By Achala Chandani and Jony Mainali
- Healthy Women, Healthy Planet: Women's Empowerment, Family Planning, and Resilience - By Kathleen Mogelgaard
- Developing national, regional and local adaptation programmes in Ethiopia - By Legesse Gebremeskel
- Enabling Child-Centred Agency in Climate Change Adaptation - By Nick Hall
- Community based adaptation – a new opportunity for social justice - By Harjeet Singh

- The Philippines Climate Change Act: Integrating climate change adaptation with disaster risk reduction - By Yeb Sano
- Climate change and migration in Mexico: The role of national safety net programs - By Agustine Latipi
- Enhancing local adaptive capacity to climate risks: an experiment on weather based farming model in the Semi-arid region of India - By Arivudai Nambi Appadurai
- Meeting Information and Advocacy needs for Climate Change Adaptation in Zimbabwe - By Jeremiah Mushosho
- Climate change impacts on tropical agriculture and the potential of organic agriculture to overcome these impacts - By Mokbul Morshed Ahmad
- Scaling Up Appropriate Scientific Technologies in Indigenous Adaptation Strategies; Best Options for Enhancing Small Scale Farmers' livelihoods in LDCs. - By Ben Twinomugisha
- Ethno meteorology in the context of climate change in Nepal - By Dinanath Bhandari
- Enhancing the Adaptive Capacity of Communities in Semi-Arid Areas by Harmonizing Indigenous Knowledge Weather Forecasting with Conventional Forecasting - By Damian Casmiri and Linda Kiluma
- Results of Christian Aid's Climate Change Innovation Fund projects in Africa - By Richard Ewbank
- Community Early Warning Systems for Disaster Risk Reduction in Sri Lanka - By Mohamed Azmey
- Economics of Adaptation to Climate Change of Sea Cucumber Fishers in the Philippines - By Maria Rebecca Campos, Ph.D.
- Social technologies for climate change adaptation - By Martin Obermaier
- Community-based climate change adaptation and the provincial-level development policy: the roll-out of Papua New Guinea's Vision 2050 National Development Strategy - By Nahau Rooney
- Microfinance and climate change adaptation: supporting communities in a changing climate - By Mareike Hussels, Katharine Cross, Amita Vaux and Yanina Ivanova Taneva
- Pre-project Assessment for community based adaptation: the need to go beyond Cost Benefit Analysis - By Rachel Berger
- Urban areas - By David Dodman, Anna Brown and Katarina Soltesova
- Practical tools and resources for CBA: CARE's toolkit and CBA standards - By Julie Webb
- Planning for Community-Based Adaptation to Climate Change - By Anna Ricoy
- Community Led Carbon-Footprint Tracking for Climate Change Sensitization and Catalyzing Action - By Mayukh Hajra
- Community based adaptation for local empowerment and global influence: methods and practice from the Adaptation Learning Programme for Africa. - By Fiona Percy and Cynthia Awour
- Climate change adaptation vulnerability assessments using adaptation tools (CRiSTAL and CVCA) in East Africa and Central America: next steps - By Onesmo Zakaria, Katharine, Robert Bagyenda, Diana Royas, Rocio Cordoba
- Participatory monitoring and evaluation for CBA: tracking changes in vulnerability… together Frameworks for measuring adaptation: alternatives to quantitative approaches - By Charles Ehrhart and Jess Ayers
- Participatory Video for Monitoring and Evaluation of CBA - By Charles Tonui
- Towards a framework for the assessment of adaptive capacity at the local level: lessons from the LACF - By Lindsey Jones
- Frameworks for measuring the progress in institutional mainstreaming of adaptation - By Rajan Kotru

- Evaluation of Adaptation: Strengthening the science-policy interface* - By Suruchi Bhadwal and Sreeja Nair
- A proposed framework for the planning, monitoring and evaluation of integration processes of Disaster Risk Management, Climate Change Adaptation and Development - By Paula Silva Villanueva
- The Importance and Role of Community-Based Organisations in Building Urban Resilience - By Nidhi Mittal
- Harmonizing Local Governance Systems and Community Based Adaptation - By Ranga Nadeera Pallawala
- What Ingredients for Climate change Adaptation beyond pilots Capacity Building and poverty alleviation in CBAA projects in Africa - By Sherpard Zvigadza and Charles Tonui
- Governing to Support Vulnerable Communities and Ecosystems Adapt to Climate Change - By Anna Taylor, Tahia Devisscher, Helen Jeans and Nadia Bood
- Governance of community based adaptation following the Cancun agreement - By Rachel Berger and Raju Chettri
- Strengthening Climate Resilience: Developing a Climate Smart Disaster Risk Management (CSDRM) approach in Asia and Africa - By Terry Cannon
- Disaster Risk Reduction and Climate Change Adaptation in Timor-Leste: Grassroots Realities - By Jessica Mercer
- Experience in building synergies and harmonization of DRR and CBA in the urban context - By Pramita Harjati
- Disaster Risk Reduction in El Salvador - By Karina Copen
- Community-managed approaches to climate change adaptation - By Stephane Bonduelle and Peter Raab
- Climate change and vulnerability of coastal communities in Bangladesh: Preliminary observations on villager perceptions of climate and non-climate stressors - By Mokhlesur Rahman and Bob Pokrant
- The Role of Community Radio in Climate Change Adaptation - By Charles Chikapa
- Strengthening Collaborations to Enhance Adaptive Capacity - By Susan Nanduddu
- Small scale farmers taking action – towards a robust methodology for CBA - By Bettina Koelle and Shannon Parring
- Local institutions, social differentiation and adaptation outcomes: assessing cross-regional evidence - By Arun Agrawal
- Social Learning and Community Adaptation: Local level study of environmental impacts and adaptation to climate change - By Antonio Oviedo
- The role of local government in building adaptive capacity in communities - By Margaret Barihaihi
- Partnership building to scale up pilot CBA projects - By Adeline Aubry
- Institutions and Climate Change Adaptation: Challenges in Scaling up Bottom-Up Adaptation Planning - By Jess Ayers
- Is community based adaptation enough? - By Yvan Biot
- Do livelihoods, DRR and Social Protection programmes contribute to communities' adaptive capacity in Africa? Preliminary findings from the Africa Climate Change Resilience Alliance - By Jo Lofthouse
- Community based adaptation in Mykahayya, western Sudan - By Sumaya Ahmed Zakieldeen
- Integrated Approaches to Adaptation - By Sarah Wiggins
- Role of Policies and Institutions in Community-Based Adaptation: Learning from field experiences – By Partha J Das
- Exemplars of resilience in Pacific mangroves, people and livelihoods - By Metui Tokece and Monifa Fiu

- Ecosystems and community-based climate change adaptation across Lauru Island, Choiseul Province, Solomon Islands - By Jimmy Kereseka
- Restoration of degraded lands of Djimbala: Case of palm groves of M'betou - By Mouhamadou Farka MAIGA
- Sound ecosystem management in support of human-based adaptation. The case of SCAPES in San Ignacio Province, Cajamarca, Peru - By Nella Canales Trujillo
- Integrating sound ecosystem management into CBA projects: Preliminary findings from a projects' review - By Gretel Gambarelli and Pauline Buffle, IUCN (Ecosystems and Livelihoods Adaptation Network)
- Mainstreaming climate adaptation in planning in northern Kenya - By Victor Orindi
- Pastoralism, climate change and vulnerability in Ethiopia By Gitte Motzfeldt
- Approaches for Community Based Adaptation in Pastoral Areas - By Lucy Waruingi, David Western and John Kamanga
- Conceptual Framework Approaches Applicable to Gender and Climate Change: Case Study of Pastoral Communities in Northern Kenya. - By Nancy Omolo
- Development of sustainable agricultural techniques for adapting to climate change in three villages in the municipality of Roumbou, Department of Dakoro - By Katiella A. Mai Moussa
- Mainstreaming disaster risk reduction in the programs/projects of department of Agriculture - By Marilyn V. Sta Catalina
- Evaluating the vulnerability of small-scale cotton producers in Mali - By Boubacar Fall
- Designing Local Adaptation Plan of Action for the Agriculture Sector - By S. K. Maharjan, P. Sapkota, R.B. Mijar, D. Rijal, B. R. Regmi, and K. Gauli
- Enhancing rural institutions' and stakeholders' capacities for CBA and disaster risk reduction through Communication for Development - By Mario Acunzo and Cleofe Torres*
- Climate Change Adaptation in Agriculture and Rural Development of Vietnam - By Dang Quang Minh
- Protecting health from Climate Change in Himalayan Communities - By Sonam Chophel
- Health Adaptation in Samoa - By Laulu Tamati, Anne Rasmussen and Kristie Ebi
- Managing increasing uncertainty: An operational research project on community-based dengue fever prevention in Vietnam - By Thuan Thi Nguyen
- Water Scarcity and Health protection from Climate Change in Jordan - By Usamah Kettaneh and Mazan Malkawi
- Community Risk Reduction of Climate Change Impacts on Health in Bangladesh - By Iqbal Kabor
- Drinking water salinity and maternal health in coastal Bangladesh: potential implications of climate change - By Aneire Khan
- Scaling up local knowledge using innovative online knowledge management tools - By Sukaina Bharwani
- Learning and sharing knowledge through Communication for Development: integrating local, regional and global efforts - By Cleofe Torres and Mario Acunzo
- Harnessing Community-based Adaptation Knowledge in Asia - By Roopa Rakshit
- Positioning community-based adaptation in the context of National Planning for Fast-Start Climate Finance in the Republic of Marshall Islands - By Albon Ishoda
- Accelerating Adaptation Financing in Africa and the Roles of existing and new organizations - By Andrew Adwera

- Incentivizing strategic investments – barriers and opportunities for private sector engagement - By Leena Wobeck
- A thematic approach to community based adaptation: experiences of the UNDP-CBA pilots in developing countries - By Charles Nyandiga and Fumiko Fukuoka
- Financing CBA under the UNFCCC financial architecture - By Achala Chandani
- Resourcing community-based adaptation at scale: initial lessons from a conservation trust fund in Melanesia. - By James Hardcastle
- Lessons from the Local Disaster Risk Reduction Fund (LDRRF) in Bangladesh for up-scaling CBA - By M. Aminul Islam and Sarwat Chowdhury
- Mobilizing and Promoting Communities' Contribution to Adaptation to Scale Up Pilot CBA Projects - By Anne-France Wittmann
- Community Based Natural Resource Management as a Vehicle for Community Adaptation to Climate Change - By Vincent Ziba

Poster Abstracts (CBA 5)

- How Can Community-Based Adaptation Respond to Vulnerabilities Related to Rapid Population Growth? Investigating Links between Population, Health and Environment (PHE) Approaches and Community-Based Adaptation (CBA) - By Kathleen Mogelgaard
- Sustainability in energy production and consumption: A case of Adaptation to climate change in Muktsar district, Punjab - By Arivudai Nambi and Santosh Kumar Patnaik
- Application of Geospatial Analytical Tools for Developing Community Based Adaptation Options to Climate Change in the Forest and Wetland Ecosystems in Bangladesh - By Md. Abu Syed
- Forest, Fish and Fruit: A new model of CCA in Bangladesh - By Dr. Paramesh Nandy
- Adaptability of Traditional Rice Farming in Sri Lanka to Climate Change - By P.B. Dharmasena
- Posters - By Dang Thu Phuong
- From Vulnerability Assessment to Adaptation: A Case Study from the Central Ganga Basin - By Sangeeta Agarwal and Divya Mohan
- Disaster Resilience and Adaptation to Climate Change through Livelihood-Centered approach - By Farhana Sharmin
- Community-Driven Disaster Risk Reduction: Practice and theory of Lefebvre's "Production of Space" - By Soo Jin Kim
- Adaptation to climate variability for sustainable livelihoods by the poor and vulnerable farming communities of Zimbabwe: Experiences from the Protracted Relief Programme - By B. M. Mvumi
- Low carbon pathways by Farmers in Bundelkhand - By Arobindo Mahato
- The Role of Community Radio in Climate Change Adaptation - By Charles Chikapa
- Diversifying Livelihood Options: – Scaling Up Adaptation Activities Amid Climate Uncertainty - By Raju Pandit Chhetri
- Scaling up the capacity of communities on remote low lying islands in the Pacific - By David Ngatae
- Advancing CBA in Floodplain and Coastal Ecosystems in Bangladesh - By Dr. Dwijen L Mallick.

ANNEX 4: Examples of some of the CBA practices worldwide selected from the Third (CBA3) and Fifth (CBA5) conferences *

Name of Project	Geographical scope	Country	Donors	Executing agency
Community-based Adaptation (CBA) Programme	Global	Bangladesh, Bolivia, Niger, Samoa, Guatemala, Jamaica, Kazakhstan, Morocco, Namibia, Vietnam	UNDP	None
Piloting Climate Change Adaptation to Protect Human Health	Global	Barbados, Fiji, Uzbekistan, Jordan, Bhutan, Kenya, China	UNDP	WHO
Climate-resilience Development and Adaptation	National	India	UNDP	Not known
Coastal Resilience to Climate Change: Developing a Generalizable Method for Assessing Vulnerability and Adaptation of Mangroves and Associated Ecosystems	Global	Camaroon, Tanzania, Philipines, Fiji	UNEP	WWF
Adaptation to Climate Change in the Tourism sector in Fiji Islands	Global	Fiji, Maldives, Sechelles		
Participatory Coastal Zone Restoration and Sustainable Management in the Eastern Province of Post-Tsunami Sri Lanka	National	Sri Lanka	IFAD	
Adaptation Learning Mechanism: Learning by Doing	Global	Global	UNDP	
Glacial Lake Flood Outburst	National	Bhutan		
Climate Change and the Poor: Linking Adaptation Needs to Policy and Institutional Structures	National	Bangladesh	Department for International Development, UK, Institute of Development Studies (IDS), University of Sussex , UK	Department for International Development, UK
Building Adaptation Strategy to Climate Change for Selected Drought and Flood Prone Areas of Bangladesh	National	Bangladesh	Bangladesh Centre for Advanced Studies (BCAS)	NOVIB (Oxfam)
Adaptation in mountain communities in Tajikistan	National	Tajikistan	CARE Canada	CARE Tajikistan, CIDA
Pilot adaptation project on development of information sharing system (ISS) to enhance coping capacities of communities in dealing with climate variability and change	Regional	India, Pakistan	TERI, Global Change Impact Studies Centre (GCISC, Pakistan)	UNEP, British High Commission, Swiss Agency for Development and Cooperation, Government of India

Name of Project	Geographical scope	Country	Donors	Executing agency
Community Adaptation to Salinity and Cyclone in Southwest Coastal Region of Bangladesh (Satkhira)	National	Bangladesh	IIED, DFID, BCAS	Bangladesh Centre for Advanced Studies (BCAS) and Caritas
Indonesia IAHRI (CILIWANG): WATERSHED MANAGEMENT – SSN 2: Indonesia - Adaptation Project	National	Indonesia		SouthSouth North (SSN)
Bangladesh CARITAS (CHAPAI): DROUGHT – SSN 2: Bangladesh - Adaptation Project	National	Bangladesh		SSN
Bangladesh SOER (GOPALGONJ): FLOOD – SSN 2: Bangladesh - Adaptation Project	National	Bangladesh		SSN
Enhancing the adaptive capacity of a community vulnerable to drought in the northwest region of Bangladesh	National	Bangladesh		SSN
Enhancing the adaptive capacity of a floodplain community in south central Bangladesh to reduce their vulnerability to prolonged floods and water logging	National	Bangladesh		SSN
Community adaptation to saline water intrusion and cyclones in a southwest coastal region of Bangladesh	National	Bangladesh		SSN
Adaptation to coral bleaching events resulting from climate change by increasing coral reef resilience in west Waigeo district	National	Indonesia		SSN
Coastal community adaptation to the impacts of sea level rise by conserving mangroves in Ayau district	National	Indonesia		SSN
Climate Change Adaptation Project u.a. Consulting	National	Philippines		
Climate Change in Southeast Asia and Assessment on Impacts, Vulnerability and Adaptation on Rice Production and Water Resources	Regional	Thailand, Lao PDR, Viet Nam, Cambodia	Asia-Pacific Network for Global Change Research	
Removing Barriers to Capacity Building in Least Developed Countries: Transferring Tools and Methodologies for Managing Vulnerability and Adaptation to Climate Change	Regional	Sri Lanka, Bangladesh, Lao PDR, Cambodia, Nepal	Asia-Pacific Network for Global Change Research	
Building Capacity of Mekong River Countries to Assess Impacts of Climate Change - Case Study Approach on the Assessment of Community Vulnerability and Adaptation to Climate Change Impacts on Water Resources and Food Production			Asia-Pacific Network for Global Change Research	

Name of Project	Geographical scope	Country	Donors	Executing agency
Linking Climate Change Adaptation to Sustainable Development in Southeast Asia	Regional	Philippines, Indonesia, Vietnam, Lao PDR	Asia-Pacific Network for Global Change Research	
Integrating Carbon Management into Development Strategies of Cities—Establishing a Network of Case Studies of Urbanization in the Asia-Pacific	Regional	Australia, India, Indonesia, Japan, Malaysia, Philippines, P.R. China, Republic of Korea, Thailand, USA, Viet Nam	Asia-Pacific Network for Global Change Research	
The Mega-Deltas of Asia: A Conceptual Model and its Application to Future Delta Vulnerability	Regional	Australia, Bangladesh, Cambodia, India, Japan, Pakistan, P.R. China, Thailand , USA, Viet Nam	Asia-Pacific Network for Global Change Research	
Regional, Multi-scaled, Multi-temporal Land Use and Land Cover Data to Support Global Change Research, Land Use Management and Policy Making: A SEARRIN LUCC Project	Regional	Cambodia, Indonesia, Lao P.D.R., Malaysia, Philippines, P.R. China, Sri Lanka, USA, Viet Nam	Asia-Pacific Network for Global Change Research	
Inventory of Glaciers and Glacial Lakes and the Identification of Potential Glacial Lake Outburst Floods (GLOFs) Affected by Global Warming in the Mountains of India, Pakistan and China/Tibet Autonomous Region/Tibet Autonomous Region	Regional	Japan, Mongolia, China, Republic of Korea	Asia-Pacific Network for Global Change Research	
Integrated Model Development for Water and Food Security Assessments and Analysis of the Potential of Mitigation Options and Sustainable Development Opportunities in Temperate Northeast Asia	Regional	China, Mongolia, Russia	Asia-Pacific Network for Global Change Research	
Improving Policy Responses to Interactions between Global Environmental Change and Food Security across the Indo-Gangetic Plain	Regional	Nepal, Bangladesh, India, Pakistan	Asia-Pacific Network for Global Change Research	
Applying Climate Information to Enhance the Resilience of Farming Systems Exposed to Climatic Risk in South and Southeast Asia	Regional	Australia, India, Indonesia, Nepal, Pakistan, USA	Asia-Pacific Network for Global Change Research	
Water Resources in South Asia: An Assessment of Climate Change-associated Vulnerabilities and Coping Mechanisms	Regional	Bangladesh, India, Nepal, Pakistan		
Global Change Impact Assessment for Himalayan Mountain Regions for Environmental Management and Sustainable Development	Regional	India, Pakistan, Nepal	Asia-Pacific Network for Global Change Research	

Name of Project	Geographical scope	Country	Donors	Executing agency
Climate Change Impacts on the Ecology of the Rice Pest Complex and the Resulting Threat to Food Security and Farming Economy in South Asia	Regional	Bangladesh, India, Pakistan, Sri Lanka	Asia-Pacific Network for Global Change Research	
Building Adaptive Capacity to Environmental Change in Southeast Asia: Integrating Contributions from Theory, Models and Case Studies for Better Development Strategies		Cambodia, China, India, Indonesia, Japan, Laos, Malaysia, Philippines, Thailand, Vietnam	Asia-Pacific Network for Global Change Research	
Yemen, Adapting to Climate Change Adapting to water scarcity for Yemen's vulnerable communities	National	Yemen	Stockholm Environment Institute	Netherlands Climate Assistance Program
(Identifying and developing adaptation and coping strategies)	National	Nepal		Practical Action Nepal, Allachy Trust UK
(Fighting salinity through traditional practices Adapting agriculture to climate change in Sri Lanka)	National	Sri Lanka		Practical Action
(Resisting the rising waters Adapting to climate change in Bangladesh)	National	Bangladesh		Practical Action
(Floating gardens Adapting to climate change in Bangladesh)	National	Bangladesh		Practical Action
(Increasing the resilience of poor communities to cope with the impact of climate change)	Regional	Bangladesh, Nepal, Pakistan, Sri Lanka		Practical Action
Integrated community based risk reduction	National	Indonesia - Jakarta		Red Cross/Red Crescent Centre of Climate Change and Disaster Preparedness
Community-based climate adaptation	National	Vietnam		Vietnam Red Cross, Netherlands Red Cross, the Netherlands Government
Adaptation to climate change and managing disaster risk in the Caribbean and South-East Asia	Global		Caribbean Disaster Emergency Response Agency (CDERA), Barbados	
Towards Development of Training Modules on Vulnerability and Adaptation issues for Arid Areas	National	India	M. S. Swaminathan Research Foundation	Winrock International India

Name of Project	Geographical scope	Country	Donors	Executing agency
Building and Strengthening Institutional Capacity on Climate Change (BASIC)	Global	Brazil, South Africa, India & China		European Union Directorate-General Environment
A Review of Vulnerability to Climate Change and Adaptation Strategies in India: Droughts and Floods	National	India		World Bank
Adapting to Climate Change by Managing Climate Variability in Southeast Asia	Regional			
Climate change impact and adaptation assessment project in the plantation section in Sri Lanka	National	Sri Lanka		The International Research Institute for Climate and Society
Integrated river basin management: climate variability and adaptation strategies for Sri Lanka	National	Sri Lanka		The International Research Institute for Climate and Society
The Reducing Vulnerability to Climate Change (RVCC) Project	National	Bangladesh	CARE Bangladesh	CARE Canada
Reduce climate change- Induced Risks and vulnerabilities from Glacial Lake Outbursts in the Punakha-Wangdue and Chamkhar Valleys	National	Bhutan	UNDP-GEF	
Climate Change Adaptation Project, Phase II	National	India	DEFRA	
Climate Outreach to Youth in India	National	India	(UK), TERI	
SURVAS (Synthesis and Upscaling of sea-level Rise Vulnerability Assessment Studies) Project	Global		EU	Asia-Pacific Network for Global Change Research
DINAS-COAST (Dynamic and Interactive Assessment of National Regional and Global Vulnerability of Coastal Zones to Climate Change and Sea-Level Rise)	Global			
Climate Change Enabling Activities in the Maldives	National	Maldives	GEF, I.G.C.I.	
An Assessment of the Socio-economic Impacts of Floods under Climate Change Conditions in Large Coastal Cities in South and Southeast Asia	Regional	Bangladesh, India, Pakistan, Sri Lanka, Thailand, Vietnam		
Potential Impacts of Climate Change and Vulnerability and Adaptation Assessment for Grassland Ecosystem and Livestock Sector in Mongolia	National	Mongolia	AIACC	
Southeast Asia Regional Vulnerability to Changing Water Resource and Extreme Hydrological Events due to Climate Change	Regional	Cambodia, Lao PDR, Thailand, Viet Nam	AIACC	

Name of Project	Geographical scope	Country	Donors	Executing agency
Assessment of the Impacts of and Adaptations to Climate Change in the Plantation Sector, with Particular Reference to Coconut and Tea, in Sri Lanka	National/ Regional	Sri Lanka in particular	AIACC	
An Integrated Assessment of Climate Change Impacts, Adaptation, and Vulnerability in Watershed Areas and Communities in Southeast Asia	Regional	Philippines, Indonesia, Laos, Vietnam, Cambodia	AIACC	
Integrated Assessments of Vulnerabilities and Adaptation to Climate Variability and Change in the Western Region of China	National	China	AIACC	
Conservation and Sustainable Use of Dryland Agro-biodiversity in the Fertile Crescent	Regional	Iraq, Syria, Lebanon, Israel, Jordan		
Conservation of Traditional Varieties of Deepwater Rice and Associated Biodiversity in Kampong Thom Province	National	Cambodia		
Conservation and Sustainable Utilisation of Wild Relatives of Crops	Regional	Cambodia, China	UNDP	
Drylands Management Project	National	Kazakhstan	Ministry of Environmental Protection	
Nature Conservation and Flood Control in the Yangtze River Basin	National	China		
Impacts of Climate Change on Terrestrial and Aquatic Ecosystems and their Management in Permafrost Regions of Russia (ICAR)	National	Russia		

ANNEX 5: Examples of CBA Practices

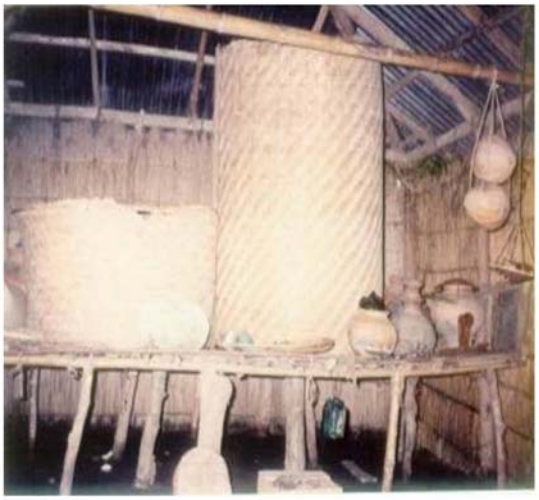
Homestead Garden on Raised Plinth

Raised Plinth of Toilet

Livestock During Flood

Raising Plinth

Preservation of Household Assets Over False Ceiling



Storage of Food during Flood

Storage of Safe Drinking Water & Dry Food

Community based rain water harvesting

Household based rain water harvesting

Locally Known as
Baira Cultivation

Floating Garden
During Flood

Raised Tube Well

Store Extra Furnace

Protecting Income Generating Activity

Protecting from Erosion

Water Collection in Hilly Region

Community People Using the Water of Re-excavated Pond

Pond Sand Filter

Household Based Rain Water Harvesting in Drought Prone Area

Drip Irrigation

Household Based Irrigation Farming

Crab Farming in Saline Water

Saline Tolerant Rice

Chickpeas in Drought Area

Local Adaptation Practices in Nepal

Local Adaptation Practices in Nepal

Seed storage system/seed bank

Local Adaptation Practices in Nepal

Local Adaptation Practices in Nepal

Making Soil heap

A Greenhouse in Pakistan

Examples in Agriculture :
Nigeria

Examples in Agriculture:
Morocco

Examples in Agriculture :
Senegal

Examples in Agriculture:
India

Example in Agriculture:
Australia

Examples in Agriculture

Farming in Brazil

Examples in Agriculture

Intensive Potato Farming in Canada

Examples in Agriculture

Farming in New Zealand

Examples in Agriculture

Farming in Philippines

Floating bed use for vegetable cultivation, in WRTC campus in Gopalganj district

Floating bed use for vegetable cultivation, in WRTC campus in Gopalganj district

Floating bed use for rice seed bed cultivation, in WRTC campus in Gopalganj district

Floating house on for poor family to reduce their flood vulnerability

Drought affect crop cultivation

Community people are preparing participatory planning exercises

Community people are preparing participatory planning exercises

Community based initiative in re-building coastal embankment

Cyclone Aila affected family is trying to cope in Shyamnagar, Satkhira district

Homestead plinth raised in floor and water logging affected site, Muksudpur, Gopalganj district

Fuel conservation to use in rainy season, Porsha in Naogaon district

Floating school in Nikli, Kishorganj district

Village erosion protection wall in Nikly, Kishorganj district

Cyclone & tidal surge shelter cum school in Pirojpur district

Crab Fattening as an alternate livelihood activity in salinity affected area , Mongla, Bagerhat district

Ornamenting Saries as an alternate livelihood activity of poor women in flood affected area, Nikli, Kishorjang district

Sheep raring is an alternate livelihood activity in Fulchary, Gaibandha district

CBA6 conference held in Hanoy, Vietnam in 2006

Floating fishing families are on the Halong Bay, Vietnam

Field visit by a group of participants during CBA4 in Tanzania

Co-Sponsors: CBA 5