The Role of Homestead Forests to Community Resilience and Adaptation Capacity to Climate Change: Experiences from Bangladesh

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Paradigm Shift

• The community based adaptation is the bottom-up approach in development planning and climate adaptation in Bangladesh. This approach addresses the local people’s potentiality, explore the potential uses of local resources, demonstrate the capacities and resilience of community people to address the vulnerabilities, arise out of extreme climate variability.
People’s Participation and Contribution

• *people’s participation* - community members are the main actors and propellers; while sustaining the community based adaptation process, they also directly involve in the adaptation process to climate change, mitigation and development, ultimately able to develop their resilience capacity by utilizing their own forest resources.
Challenges of community people due to Surface Water Salinity in Coastal Bangladesh
Erosion and Accretion process due to climate induced disasters in Bangladesh
Sundarban Mangrove Forest ruined due to the devastating Cyclone Sidr – November 16, 2007, Bangladesh
Coastal inundation due to sea levels rise in Bangladesh.

Most land is below 12 meters in elevation

Extreme coastal flooding caused saline intrusion into aquifers.
TROPICAL CYCLONES:


Due to these devastating cyclones as mentioned above up to 500,000 people have been killed so far.

As global temperatures rise, severe cyclone frequency increases.

Cyclones can generate waves and surges up to 7m to 10 m high.

These surges can travel up to 30 miles inland due to the low topography.

Coastal Inhabitants need comprehensive adoption mechanism to address such adverse impacts of climatic variability.
Why is Community Based Adaptation to Climate Change important in Bangladesh?

Possible climate change threats to the local community

- Extreme climate variability has negative impacts on forests and forest products, agriculture, livestock, fisheries which are the prime sources of livelihoods of community people in Rural Bangladesh
- Rising sea levels
- Increase in salinity intrusion
- Soil erosion
- Reduced water quality
- Changing seasonal water distribution
- Stagnation of saline water
- Prolonged drought
- Changes in intensifying, frequency, magnitude and severity of tropical cyclones and storm surge
- Severe flooding
- Coastal inundation
- Inequitable access to resources
- Few options for poor and vulnerable people
- Landlessness, insecure tenure
The Traditional Role Played by Community People to Use and Manage the Homestead and Community Forests and Products

• Apart from the functional usages of homestead land area for housing, cooking space, water sources, latrine, post-harvesting process of crops, animal sheds, homestead spaces are also used for planting and managing of fruit trees, timber tree, herbs, shrubs, vegetables, creepers, bamboo and grazing space.

• On homesteads, people share a number of facilities along with traditional fuel from biomass resources. Moreover, these homestead forests provide food, fodder, medicinal herbs, building materials, as well as income and employment to the rural people.
The Traditional Role Played by Community People to Use and Manage the Homestead and Community Forests and Products

- Sometimes these forests help in meeting rural people’s emergency and contingency needs as the expenses involved in social functions like wedding, funerals, and religious festivals, natural and other human induced disasters, responding extreme impact of climate variability, and physical and economic incapacity.
- The trees of homestead forests also make important contributions to rural households. These include agro-forestry, horticulture, vegetable gardens, fisheries and livestock production to better satisfy the full range of household needs as well as conserving the ecology, environment and bio-diversity in a traditional but sustainable way.
The Traditional Role Played by Community People to Use and Manage the Homestead and Community Forests and Products

• The privately owned homestead forests are distributed much more evenly throughout the country and about 10 million households in over 90000 villages have homestead forests. But the most important aspect of these forest is that about 80 percent of them are covered with trees, herbs, shrubs, creeper, plants and bamboo. The total standing volume of trees on homestead lands is estimated to be about 79 million cubic metres, or more than seven times the volume of growing stock in the Sundarban forests which cover nearly twice the area.

• The homestead forests are managed in a traditional way and it is the males and females of a household (80% males & 20 females) who plant and manage the homestead forests in a traditional but effective way.
The Traditional Role Played by Community People to Use and Manage the Homestead and Community Forests and Products

• In contrast, the over utilization, illegal cutting, felling and smuggling, destruction and degradation of state owned forests constitute perhaps the most serious manifestation of the general crises of forests and forest products in Bangladesh.

• One of the important constraints for state forests is that these forests are located only in limited geographical areas, and the resources are not distributed evenly among the population.

• For example, in North and North-west, eight districts with 37% of the population have only 0.6 percent of the total forest area. On the other hand, the Chittagong Hill tract Forests, with only 0.7% of the total population, have 55% of the state forests.
The Traditional Role Played by Community People to Use and Manage the Homestead and Community Forests and Products

• Without additional adaptation activities to address the critical interface between climate dynamics and poor people’s livelihood activities at the communal level, the expected costs associated with climate-induced damage on coastal regions in Bangladesh is likely to increase substantively over time. The NAPA has therefore identified the reduction of climate change hazards through coastal afforestation with community participation as an immediate priority and provided a compelling argument that risk reduction in coastal areas can only be achieved if the maintenance of biodiversity is connected to tangible economic development options in general and development of local community in particular.
Why is Homestead and Community Forests important source of community people’s adaptive strategy?

• To enhance the resilience of coastal communities with the help of protective ecosystems through community-led adaptation interventions, it is the homestead and community forests that play very supportive role to the livelihood diversification options to community people. Though mangrove forests along the coastline have a high potential to reduce future climate change-induced threats, particularly the impacts of cyclones and storm surges; simultaneously, they sometimes unable to provide.

• Homestead forest ecosystem caused of mixed fast fuel wood, shade and other multipage tree species, herbs, shrubs, plants, creepers and bamboos though BD. At least 149 species of natural and productive trees have been identified in the village forest.
Why is Homestead and Community Forests important source of community people’s adaptive strategy?

• One notable aspect is that the livelihoods of the majority of the poor (including women of coastal zone) are highly dependent on climate-sensitive sectors of the economy such as subsistence agriculture, fisheries, pastoral practices, and on homestead and community forests that provide household energy, food security, water supply and traditional medicines (herbs and tree barks) as the frontline sources of primary healthcare products.
Why is Homestead and Community Forests important source of community people’s adaptive strategy?

• The homestead and community forest eco-systems of Bangladesh is quite supportive and adaptive to climate variability. The complex interactions of multiple organisms ranging from trees, animals to micro-organisms protect the climatic sustainability.

• Very often the presence of functional groups and response diversity (i.e., diversity of responses to environmental change among species that contribute to the same ecosystem function) of species within these forests determine the adaptive capacity to the impacts of climate change.
Why is Homestead and Community Forests important source of community people’s adaptive strategy?

• Deforestation of state owned forests, over fishing, over grazing, Salt built up, spread of water borne diseases from irrigation, endangered wild life from loss of habitat, loss of genetic diversity, water pollution, air pollution etc. are related to extreme climate variability and having negative impacts on food security.

• Since the tree canopy of natural forests in Bangladesh becoming less dense, with increased rainfall in the monsoon there is enhanced runoff in the forests floors instead of infiltration into the soil. As a result, there is higher possibilities of enhanced top soil erosion and overall habitat degradation of natural forest ecosystems. The hill forest ecosystems, is also becoming vulnerable due to impart of climate change.
Need to introduce some supportive programmes and other initiatives to maximize homestead and community forest resources for enhancing adaptive and resilience capacity of community people

• By planting and nursing some productive but extreme climate tolerant species and saplings including native vegetations with an elevated mond and ditch structure.

• Integrated approach of planting fruit trees, timber trees, herbs, shrubs, plants, vegetables, pond fisheries, agro-silviculture, animal husbandry, with a goal to establish a ‘Green Zone’ in the some selected climate affected vulnerable communities
Need to face the Challenges

• Change in water quality and quality due to climate change are expected to affect the biodiversity including mangrove forests, agricultural production, fishes, and other biotic communities including reptile, amphibians, mammals and other resources.

• This is expected to lead to decreased food security and increased vulnerability of poor rural farmers.
Role of NGO’s in Managing and Supporting Homestead and Social Forestry Programme

• NGOs have added a new dimension in the forest management, which has ensured participation of the community people and protection of the forest, no matter artificial planting or natural.

• By following a framework of common partnership between public and private management systems, the issue ‘property right conflicts’ has been resolved and enhanced rural life as well as created scope of utilizing the marginal lands. As an outcome of this common partnership 33,472 km roadside plantation, 53,430 ha reforestation activities and so on have been carried out in last two decades.

• The achievement of NGOs’ partnership in managing forest resource seems to be effective towards poverty irradiation and better livelihood.
NGO Supported People Oriented Village Forest Management and Regeneration System

• The main feature of the people-oriented management is the involvement of the local people or community to maintain and protect the forest resources. There are different types of people-oriented forest management in Bangladesh though this sort of management is join management to some what extent and being supported by some leading NGOs.

• For the first time, participatory forestry management was started in the hilly area with the support of both government and NGOs. The approach further extended to sal forest and unused marginal lands. At present, the involvement of people in the management is quite versatile. The sharing arrangement between the government and the participants are now more reasonable than that of before.
Strategies of Community based climate adaptation and support programmes through maximize the forest resources

- *existing coping mechanisms and capacities are recognized* – Community based climate adaptation builds upon and strengthens existing coping strategies and capacities; most common social and organizational values and mechanism are cooperation, community people’s organizations, local knowledge and resources
Strategies of Community based climate adaptation and support programmes through maximize the forest resources

- the aim is to reduce vulnerabilities by strengthening capacities; the goal is building disaster resilient communities with the help of homestead and community forest
- links climate risk reduction with development - addresses vulnerable conditions and causes of vulnerabilities
- outsiders have supporting and facilitating role - NGOs have supporting, facilitating and catalytic role, but while NGOs should plan for phase-out, government’s role is integral to enable and institutionalize the community based climate adaptation process; partnerships with less vulnerable groups and other communities
Strategies of Community based climate adaptation and support programmes through maximize the forest resources

• *participatory process and content*: involvement of community members, particularly the most vulnerable sectors and groups in the whole process of risk assessment, identification of mitigation & preparedness measures, decision making, implementation; the community directly benefits from the risk reduction and development process with the help of forest resources

• *responsive*: based on the community’s felt and urgent needs; considers the community’s perception and prioritization of climatic risks and risk reduction measures so that the community can develop their own adaptation strategy with the homestead and community forest resources.
Strategies of Community based Climate Adaptation through enhancement of forest resource

• *integrated*: pre-, during and post-disaster measures are planned and implemented as necessary by the community; there is a need to linkage the affected community with other communities, organizations and government units/agencies at various levels especially for vulnerabilities which the local community can not address by itself

• *proactive*: stress on pre-disaster measures of prevention, mitigation and preparedness with the forest resources
Strategies of Community based Climate Adaptation through enhancement of forest resources

- **comprehensive**: structural (hard, physical) and non-structural (soft, health, literacy, public awareness, education and training, livelihood, community organizing, advocacy, reforestation and environmental protection, etc) preparedness and mitigation measures to be undertaken; short-term, medium-term and long-term measures to address vulnerabilities

- **multi-sectoral and multi-disciplinary**: considers roles and participation of all stakeholders in the community; combines indigenous/local knowledge and forest resources with science and technology and support from outsiders; addresses concerns of various stakeholders while upholding the basic interest of the most vulnerable sectors and groups
Strategies of Community based Climate Adaptation through enhancement of forest resource

- **empowering**: people’s options and capacities are increased; more access to and control of resources and basic social services through concerted action; more meaningful participation in decision making which affects their lives; more control over the forest resources including natural and physical environment; participation in community based climate adaptation; develops the confidence of community members to participate in other development endeavors.

- **developmental**: contributes to addressing and reducing the complex relation of conditions, factors and processes of vulnerabilities present in society, including poverty, social inequity and environmental resources depletion and degradation
Strategies of Community based Climate Adaptation through enhancement of forest resource

• Some of the natural forests belonging to Ministry of Land are managed by a co-management regime. Ministry of Land also has a big amount of marginal lands like the embankment, roadsides. These lands are used for fast growing tree plantation under some social forestry models involving the people living adjacent to the land with the management of either local government or NGOs.

• The technologies followed in these models are alley cropping, boundary plantation, dike plantation; roadside plantation, single species plantation and so forth with specific sharing arrangements between the government and beneficiaries.
Role of NGOs in Village Forest Management

• NGO supported forest management is important and significant in transferring technology and providing some facilities like training and monitoring. They are now actively involved in the public forest management because of having working capacity at grass-root level people.

• The NGOs are playing an increasingly effective role in extending social forestry activities in the country. There exists more than 100 NGOs that are very active in social forestry activities in Bangladesh (ADAB, 1992). The group approach is followed by most of the NGOs to provide their financial assistance and recovery for private forest management. Most of the NGOs are promoting afforestation as one of their many people oriented programs. This has resulted in substantial increase of private nurseries in the country.
Process to Transform the Risk Communities to Disaster Resilient Communities with the support of village forests

- Initiating the process - linkage and building rapport with community; community or outsiders may initiate for enhancing forest resources
- Community Profiling - initial understanding of climate induced disaster situation and orientation on the role of forest resources
- Community Risk Assessment – participatory assessment of hazards, vulnerabilities, capacities and people’s perception of risks
- Formulation of Initial Climate Adaptation Plan - community counter disaster, disaster management, development plan or action plan; identification of appropriate adaptive, mitigation and preparedness measures including public awareness, training and education; action plan in the context of utilization community forests
Process to Transform the Risk Communities to Disaster Resilient Communities with the support of village forests

- Formation of Community based Disaster adaptation and resilience Organizations with the help of homestead and community forests. Moreover, rural community are capable to mobilize forest resources. They are also able to prepare themselves against climatic adverse impacts by utilizing forest resources. Even the rural people are quite concern about the organizational development
  Implementation of short-, medium-, and long-term risk reduction measures can be done with the prior utilization of local forest resources.

- Monitoring and Evaluation - continuous improvement of disaster risk reduction plan/community counter disaster plan, identification of success factors and improvement of weak areas; documentation and dissemination of good practices for replication can also be carried out with local forest resources.
Essential components/requisites of Community based adaptation strategy

• Capacity building in climate adaptation, sustained education and training activities; sustained public awareness etc. be linked with available forest resources.

• Community based climate Response Organization - climate management teams, climate response committee, climate management committee, climate management network etc. can be engaged in mobilising the village forest resources.

• Counter climate Plan i.e., emergency and contingency plan; counter preparedness and mitigation plan; community development plan etc. can also be linked with local forests resources
Essential components/requisites of Community based adaptation

• Climate Risk Reduction
• Development Continuum
• linking vulnerability reduction and capacity building to achieve sustainable people centered resilience capacity by utilizing the village forests
• Partnerships in Climate Risk Reduction
• partnerships of the vulnerable sectors with less vulnerable groups
• partnerships of the community with local government, NGOs and other communities can also be developed for sustainable regeneration and utilization of forest resources
Role of Community Participation in addressing adverse impact of Climatic variability and developing adaptive capacity with the help of village forest resources

• Community disaster preparedness and mitigation strategies can provide opportunities for the integration of disaster management with the support of homestead forest management and development planning processes and systems.

• Community based adaptive strategy builds confidence among individuals, households, communities in undertaking disaster adaptation, preparedness and mitigation as well other development-related endeavors with the help of homestead and community forests. This leads to self independent, self reliance and community empowerment.
Mechanism of Joint sustainable development, climate change adaptation and mitigation and biodiversity conservation

- By implementing the capacity building-Preparation of REDD readiness road map
- Establishment of monitoring, reporting and verification (MRV) under national REDD plus process
- Development of village forestry training center
- Introduction of effective village forest management mechanism along with wetland fisheries management.
- Introduction of co-management (community people and NGO/GO) in developing homestead forests and community forests to address the adverse effect of climate change
- Formation of co-management committee for sustaining village forest resources
- Generate alternative income generating activities with the support of village forest resources
- Ecosystem restoration and restoration monitoring mechanism needs to be developed for sustainable development of forest resources & biodiversity conservation
Some Importance means of Community based adaptation to Climate Change

- Capacity development through utilizing village based biomass and other resources
- Application of indigenous wisdom
- Enhancement of resilience capacity
- Specific and appropriate development intervention
- Community participation in risk response and risk reduction
- Scientific initiative to protect ecosystem
- Ensure distributive justice in sharing resources
- Enhancement of institutional capacity
- Gather scientific knowledge to address climate related vulnerability
- New options for income generation
- Innovative ideas to cope with extreme variability of climate change
- Inclusion of women in mainstreaming disaster risk reduction
- Community people’s power to identify the risks and adaptation
- Identification of risk elements, analysis and evaluation of risks.
- Mainstreaming gender in climate adaptation in the context of involvement them to conserve village forest
- Specific Climate Adaptation options and action plan in the context of village forest
Integrative Framework to Climate Adaptation Strategy of Bangladesh Government

**Line Ministries**
- Policy and Strategy
  - BCCSAP
  - NAPA
  - Disaster Act in the light of UN ISDR and HFA

**High Level Committee**

**DoE**

**CCT**

**CTF**
- Climate Finance

**Trusty Board**
- Managing fund and selection of adaptation projects
- 15 members

**Technical Committee**
- Review and recommendation of adaptation projects

**Evaluation Team**

**Implementing Organizations**
- Adaptation Actions/Projects: Forestry, Agriculture Fisheries

**BCRRF**

**NAPA**

**NGO & CBOs**

**Communities**

**Ministry of Environment and Forest and Ministry of Disaster Management**
Proposed Community Based Forest Management, Adaptation-Resilience-Sustainable Framework

- Support from NGOs
- Supporting Political Institution
- Support from Govt/Local Govt

Inclusion of Community People’s Indigenous Experiences and Wisdom in managing and sustaining village forests

- Building resilience Livelihoods for Community people

Community Based Adaptation (CBA) with Forest Resources

- Introduction of sustainable projects: On Forestry, Agriculture Fisheries

Inclusion of Women as part of forest management & Mainstreaming Adaptation Capacity of community

Support from Directorate of Forest

Developing Local Capacity

Support from development Partners/Implementing Organizations

Support from Line Departments /Institutes
Some examples of adaptation strategy in sustaining rural people’s livelihood with the help of Homestead Forests during disasters in Bangladesh:

Traditional Adaptation Technology

- Homestead Garden on raised plinth
- Plant herb, shrub, and creepers in and around the homestead
- Practice vegetable gardening on raised plinth of homestead
Way Forward

• Massive village afforestation schemes with the combination of local wisdom and scientific management needs to introduce in rural Bangladesh with the support of community people’s involvement.

• While communities have built on local coping strategies and adaptive capacities to reduce some extreme climatic vulnerabilities, it is necessary to introduce some forest based structural adaptation measures and outlays.

• As rural people’s vulnerability is a complex web of conditions, factors, and processes, this can be reduced through utilization of village forest resources by introducing effective and concerted actions among multiple-stakeholders from various disciplines and levels and development planning system.
Way Forward

- One of the most important factors shaping the adaptive capacity of individuals, households and communities with local forests is their access to and control over natural, human, social, physical and financial resources. Resource affecting adaptive capacity include:
- Human: Local people’s knowledge of climate risks, conservation forest skills, enable labour
- Social: women’s savings and loans groups, farmer-based organisations, involving traditional welfare and social support institutions
- Physical: appropriate infrastructure, seeds and saplings and plantation facilities with skills and training
- Natural: Reliable and appropriate forest species including saplings, productive land, vegetation and trees
- Financial: Micro-insurance, diversified institutional access to loan, and technical supports including income sources
Way Forward

- The above initiatives would help improving the understanding of the dynamic nature of livelihoods and introducing appropriate action plans in sustaining and utilizing village forests.
- The village forests can help to build local people’s strengths and opportunities to support existing livelihood strategies in the context of extreme climatic vulnerability.
- The village forest would also be part of appropriate action programmes and livelihood implication options for rural poor.
- The village forest resources can be part of public-private partnerships initiatives that aims for sustainability of rural people’s livelihood.
- From realistic perspective, all these factors are important elements and pre-conditions and effective means of adaptation to climate change in the context of homestead and community forests in rural Bangladesh.