

Facilitating Proactive Adaptation to Climate Change at Local and Community Level: Policy Implications

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Overview

- Approaches for Adaptation to Climate Change
- The case for **Proactive Micro-Adaptation**
- Preliminary PMA actions – **A case study from Bangladesh**
- Strategies to facilitate PMA
- Concluding remarks



APPROACHES for ADAPTATION

Adaptation is a fundamental human trait.

- **RESPONSIVE** or **REACTIVE** vs. **PROACTIVE** or **ANTICIPATORY**
- **TOP-DOWN** vs. **BOTTOM-UP**

Focus so far has been on Reactive and Top-down approaches.

Both approaches are complementary and should be used together; future emphasis in my view, however, must be on what I refer to as “**Proactive Micro-Adaptation (PMA)**”.

What is Proactive Micro-Adaptation (PMA)?

- Anticipatory strategies, measures and means by engaging vulnerable communities, local governments and other stakeholders at the local level to minimize negative impacts and maximize positive impacts of climate change leading to sustainable development.




PMA – Rationale 1

- Most adaptation is location-specific and top-down solutions without considering the local communities have largely failed to enhance coping capacity.

“Traditional adaptation measures are likely to be more effective than top-down solutions”

World Bank Report on Cities, Seas and Storms, 2000.

- Autonomous adaptation is inadequate and ineffective (e.g., CC might result in a flood exceeding the design specifications of already-built flood control works). Proactive adaptation is crucial.
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PMA – Rationale 2

- A rich history of community-based coping strategies exists in the Asia-Pacific region, which can be supported and built upon to increase resilience and adaptive capacity of communities, who are both owners and agents of change.
- Climate adaptation strategies are a form of risk management and are best implemented if they are a component of or a modification to an existing programme in a locality.

PMA – Rationale 3

- **Facilitation of PMA is necessary**, however, because communities/local governments respond to CC, but often not in the most efficient manner possible.
- **Wide divergence** between the priorities determined in global negotiations and local-level priorities seem to have led to ineffective, inadequate and inefficient **adaptive responses at local and community level.**



Community-based Adaptation Strategies – Water resources sector

- Planting catkin reed to prevent erosion of chars in floods (Bangladesh)
- Community management of wells and canals
- Community-based in-situ water storage systems (Surangas, Madakas, pebble-mulch fields, grid gardens)
- Warabandi system of water allocation in droughts
- Water temples of Bali – Community-based allocation of water to minimize damage to rice from floods and drought

5 Features of PMA Policies - Part 1

Policies that improve coping capacity of communities and local governments by

- Considering climate change in **long-term decision-making** at local level
- **Introducing incentives** to modify human behavior in response to climate change (e.g., use of market-based mechanisms to promote adaptive responses at local level)



PMA Policies – Part 2

- **Removing disincentives** for changing behavior in response to climate change (e.g., removing subsidies for maladaptive activities **at local level**)
- **Improving and strengthening human capital** through education, outreach, and extension services **at local level**
- **Improving decision-making capacity** at local level and increasing the collective capacity of communities to adapt.

PMA Components

1. Community & NGO initiatives for V&A assessment at local level
2. Incorporating **traditional & local knowledge** in enhancing adaptation in critical sectors
3. Enhancing local coping capacity through education and outreach
4. Community-oriented private sector mechanisms (e.g., **community-based CDM projects** aimed at enhancing adaptation at local level)

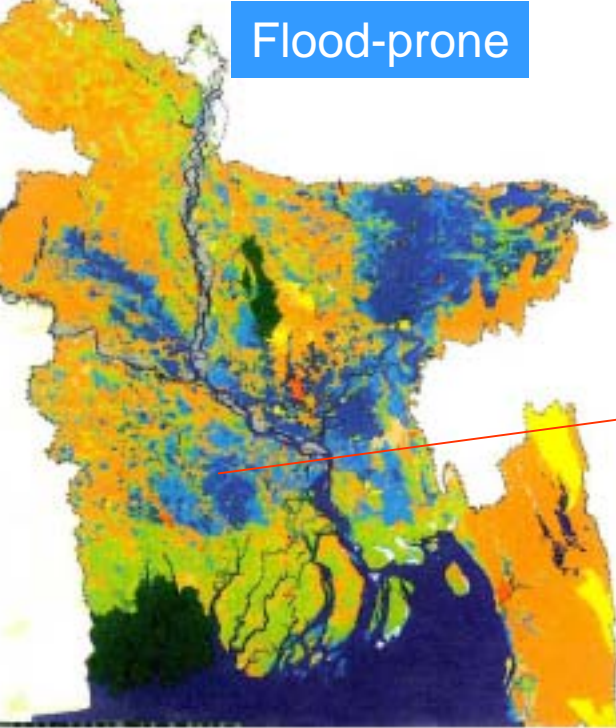


Vulnerability of Bangladesh to CC

- High sensitivity of its biophysical resources, especially water resources
- Highly risk-prone coastal areas
- High population density
- High prevalence of poverty
- Poor institutional capacity



Flood-prone



Flood-prone, drought-prone and cyclone-prone regions in Bangladesh as estimated from the General Circulation Model based on IPCC and UNEP methodology

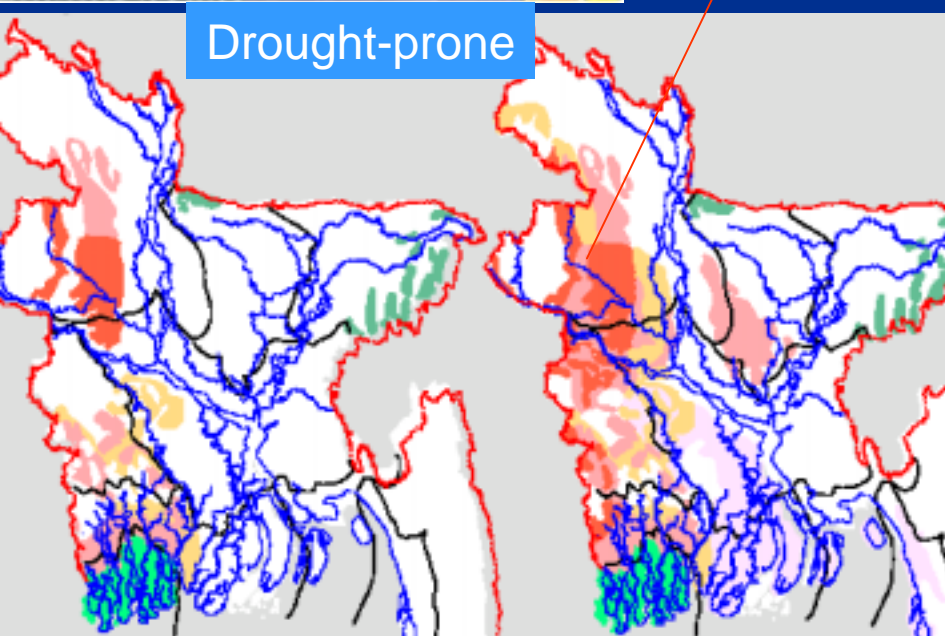
Study sites

→ **Flood-prone:** Manikganj sub-district

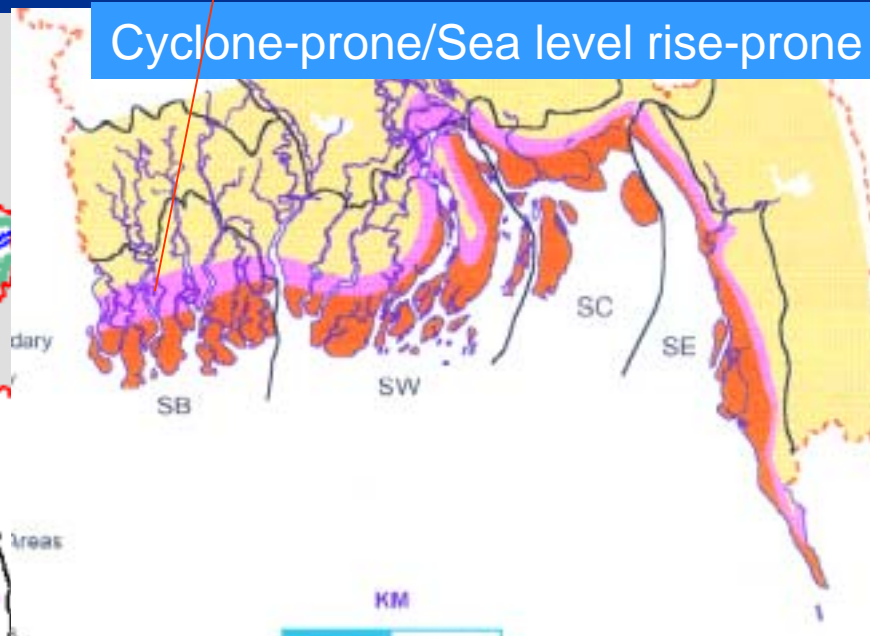
Drought-prone: Thakurgaon Sadar sub-district

Sea-level rise: Shyamnagar Sub-district


Drought-prone



Cyclone-prone/Sea level rise-prone



Community-level V&A Assessment

- **Perceptions** of local people on vulnerability to climate change and key **indicators** in different sectors (food security, health, housing, quality of assets, livelihood, etc.)
 - **Main coping strategies** and frequency of strategy use; Preferred adaptation options and their implications
 - **Potential** for facilitating further adaptation through **policy and technology choices, and institutional arrangements**
 - **Methodologies (Anthropological and Scientific)**
 - Historical matrix (Historical and contemporary coping strategies and frequency of their use)
 - Participants' observations (empirical)
 - Participatory rural appraisals
 - Focus group discussions, dialogues, semi-structured interviews
 - Mapping of local knowledge based on seasonal calendars/charts
 - Inter-generational dialogues
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Focus Group Discussions in various communities affected by floods (Manikgani) and sea level rise (Shyamnagar sub district)

Some findings - Manikganj

- Floods – Part of life and unavoidable disaster; **Good (Borsha or normal floods) and bad (bonna or excess floods) floods**; frequency and intensity of bad floods increased.
- Strategies: **Indigenous survival strategies still remain the most reliable and sustainable forms of disaster response.**
- Options recommended: Structural (de-silting; raising embankments; flood shelters) Non-structural (creating awareness, providing alternate jobs, poverty alleviation, warehouse to store food and fodder; abolition of leasing systems)

Historical matrix of coping strategies in times of flood, Manikganj, Bangladesh

Coping strategy	2002	1998	1988	1981
Promotion of housing techniques				
(a) raising the plinth of homes	OOO	OO	OOOO	OOO
(b) constructing manchans (hanging bamboo platforms inside houses)	OO	O	OOO	O
Taking shelter in elevated grounds	O	O	OO	O
Selling land	O		OOO	O
Fuel storage	OO	O	OO	OO
Storing dry foods	OOO	OOO	OO	OO
Reducing food intake	OOO	OO	OOOO	OOO
Banana plantation and bamboo propagation to be used as floating platforms and rafts for movements;	OO	O	OOO	OO
Catkin growing in sandy lands	OOO	OO	OO	OO

Key for frequency: OOOO very high OOO: High OO: Moderate O: low
Blank: not used

Some findings

- **Droughts** – Seasonal and contingent droughts more recurrent and intense; Indigenous coping strategies (e.g., crop adjustments, sinking tube wells) still remain the most reliable and sustainable forms of disaster response
- **Sea level rise** – Men in Shyamnagar perceived salinity build-up due to current sea level rises as an advantage for improving the income levels due to a shift from paddy to shrimp cultivation. Salinity increase is already **artificially encouraged by both local (sea water inundation for shrimp farming) and distant choices (water diversion upstream in dry season)**. Women, however, reported difficulties mainly in obtaining fresh water for drinking.




Community-based Flood Management & Adaptation Strategy

Goal: To enhance adaptive capacity and improve the quality of life “through establishing linkages of community-based collective self-help initiatives with institutional mechanisms and policy regime under an **integrated, people-centric flood management framework**”

Objectives: To establish local community-led processes with a view to enhance **proactive adaptation to floods** through

- Enhancing individual and collective safety measures
- Responding collectively to flood warnings
- Safeguarding livelihood opportunities
- Streamlining relocation, if necessary
- Strengthening micro-management of shelters
- Fostering rehabilitation

Barriers for PMA

- **Lack of awareness** of future CC impacts at the local level
 - **Inadequate community resources** – human, social and financial and technological
 - **Insufficient recognition of the value of local knowledge** in facilitating adaptation [Even local authorities deny traditional knowledge-base and do not attempt to optimize local resources.]
 - **Bias against local knowledge** on adaptation - Many ideas of local ways to cope with climate extremes, which were once regarded as primitive and misguided, are now seen as appropriate and sophisticated.
 - **Lack of local institutional capacity**; Deteriorating local conditions; poor communication and coordination
 - **Costs and benefits of PMA are still unknown**. Competing issues may create surprising barriers.
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Strategies to Facilitate PMA

- **Multi-stakeholder dialogues** on PMA at various levels – local, national, regional and international
- Foster “**open source**” **polycymaking** by engaging vulnerable communities more proactively
- Provide **institutional support** for creating an inventory and evaluation of community-based adaptation strategies
- **Document and provide options** to integrate local knowledge in adaptation plans


Strategies to Facilitate PMA

- **Community-level assessment** of vulnerability and adaptation in most vulnerable regions
- Develop a portfolio of policies and measures for PMA and **promote policy experiments at local level**
- **Building capacity of local governments for implementing PMA** through a better understanding of the processes, priorities and dynamics of local communities
- **Community level learning** to raise awareness on PMA strategies

Strategies to Facilitate PMA

- **Create an enabling environment** for strong, long-term policy commitments for PMA in various sectors through shaping incentives, abilities and morality to enable change in people's behavior
- **Faster approval by donor agencies for PMA** projects that assist in maintaining social networks, effective information flow, and efficient local control of limited financial assets through micro-finance and micro-insurance
- **Aggressive funding of PMA proposals** – UNDP-GEF's Small Grants programme; World Bank's CDCF, CIDA and GTZ have taken first steps but they are far from adequate.

Concluding Remarks

- Effective adaptation to climate change will require **additional thinking on strategies** that are sustainable and relevant to the needs and priorities of local communities.
 - **Local/indigenous knowledge on adaptation** to climate extremes in various sectors is considerable and **crucial** for local adaptation policymaking.
 - **Linking national adaptation policies to specific local and community development/poverty alleviation initiatives** is the way forward.
 - Designing **ways to harmonize PMA policies with national, regional and international CCA policies** is critical – so that adaptation plans can succeed when traditional coping mechanisms at the local level fail.
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IGES Workshop on
Facilitating Adaptation to Climate Change
in the South Pacific Region:
Bridging Science, Policy & Implementation
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Mechanism in Pacific Island Countries

12-14 October – Apia, Samoa

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How to expand the Dialogue on PMA?

- Stakeholder participation in earliest phases, beyond their traditional roles in research:
 - problem definition
 - research design
- Use of analytical tools developed by practitioners (private, public) as well as research institutions:
 - Opportunity – test their sensitivity to climate change scenarios
 - Risk – potential to harm confidentiality
- Identification of new vulnerabilities or opportunities should be connected to assessment of implications for regional development



- Proactive adaptation: while impacts uncertain
 - E.g., construction of dams, seawalls, powerplants
 - Costs are local, clear, and concentrated
 - Benefits are local but uncertain and in future
- Responsive adaptation: after impacts happen
 - Compensation, reconstruction, relocation
 - Costs are local, clear, but limited, “necessary”
 - Benefits are local, certain, and current



Main **concerns** with current approaches

- Resolution of global climate models is too small and the timescale too long to include local climate variability.
- **Inadequate effort to involve primary stakeholders, especially in developing countries, in global and regional assessments.**
- Non-market sectors (human health, biodiversity, etc.) are very important at local level but they are not adequately considered in global and regional V&A assessments.
- **Adaptations to global challenges are often site-specific but most assessments developed at regional and global levels do not adequately consider site-specific adaptive capacity developed through local knowledge.**
- Relative complexity and the high degree of uncertainty that surround V&A assessment and inadequate interest among developing country researchers may be some reasons.



Fisheries

Local knowledge on productive fishing practices in times of floods

Fish Habitat :

1. Knowledge on habitats for Hilsha.
2. Identification of the types of fish

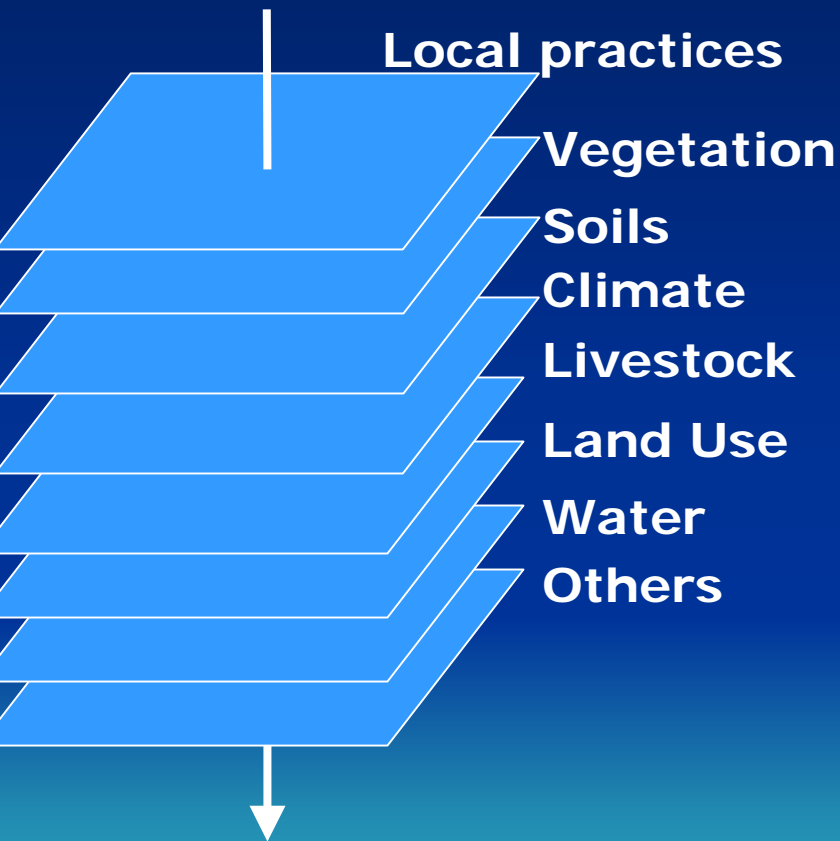
Fishing methods following floods:

1. Jhaki Jal netting
2. Kua fishing



A Spatial Framework for Integration

Data Layers in an LK-CCA GIS



Steps:

1. Compilation using a historical matrix framework
2. Utilization of GPS
3. Classification of LK as per specific geographic regions
4. Classification of information into various levels.
5. Layer-wise representation of data in a GIS
6. Spatial analysis of relationships

Output: Geo-referenced climate change adaptation plans at various levels