Assessing ‘Success’ of Human Adaptation to Climate Change in Indian Bengal Delta and Mahanadi Delta, in India

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Introduction

The present research under DECCMA in Indian Bengal Delta (IBD) and Mahanadi Delta (MD) could identify three significant sectors viz. Livelihood, Infrastructure and Capacity Building, which are witnessing Human Adaptation, in response to or in anticipation of changing climate risks or stresses.

Study Areas

- The delta comprises of islands, interspersed with tributaries and distributaries of River Ganges.
- The region is dominated by diurnal tidal influxes and the largest Mangroves vegetation.
- It supports a population of 4.5 million and often frequented with intense Cyclones and Storm Surges.

Successful Adaptation

- In the DECCMA defined context, ‘Adaptation’ is referred to the change in human practice and behaviour or both, in response to, or in anticipation of climate change induced stresses or shocks.
- ‘Success’ is often entailed with favourable outcomes or positive results.
- ‘Successful Adaptation’ can perhaps be identified as the human activities or practices undertaken anticipating future climate risk/s, and is often associated with desired or positive returns, ensuring self sustainability.
- ‘Unsuccessful Adaptation’ or ‘Maladaptation’, is referred as the human activities or practices, carried out to overcome immediate threats (without anticipating future climate risk/s), resulting undesired or negative returns, to both the practitioner and the society, further, accentuating vulnerability.

Indian Bengal Delta

- The “Arcuate” shaped delta formed by River Mahanadi and its two tributaries Brahmuni, Battrani.
- It spreads over five districts of Odisha, and it is characterized by sand beaches, mangrove swamps, lagoons and dominated by waves.
- The region has 4 major urban centres of the state and frequently faced major cyclones, storm surges as a result of depressions formed over Bay of Bengal.

Mahanadi Delta

- Integrated Rice and fish cultivation
- Kitchen Gardening
- Soil management and fish inoculated rice cultivation
- Using solar power
- Using solar drying fish units
- Raising the plinth of dwelling houses & tube-well platforms
- Catching present species (newly) by the local women, developing aquatic subscript

Adaptation Policies/Plans

<table>
<thead>
<tr>
<th>Study Areas</th>
<th>Successful Adaptation Practices (indicating pictures on left)</th>
<th>Unsuccessful Adaptation Cases (indicating pictures on right)</th>
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</thead>
<tbody>
<tr>
<td>Indian Bengal Delta (IBD)</td>
<td>1. Integrated Agriculture Aquaculture Practices</td>
<td>Failure of both (1) National Agricultural Insurance Scheme (NAI) 2003-2010, under Agricultural Insurance Company of India Limited (AIC) due to low coverage, poor financial performance &amp; loss effectiveness, and (2) Weather Based Crop Insurance Scheme (WBCCS) 2004 onwards, covering [only]editary crop and anticipate loss from only adverse rainfall incidence, either deficit or excess.</td>
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<td>2. Practicing Salt tolerant (soddy salinity &amp; submergence) fish culture</td>
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<td>3. Raising the plinth of dwelling houses &amp; tube-well platforms</td>
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<td>Mahanadi Delta (MD)</td>
<td>4. Active Participation in Self help Groups (SHG's)</td>
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<td>5. Dwelling house tube-well</td>
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<td>6. Using solar pumps</td>
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<td>7. Using solar drying fish units</td>
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Discussions

- In India, there is no separate document providing the criteria or guidelines or benchmarks for evaluating the success of Adaptation processes/activities undertaken.
- The present comparative review of Successful & Unsuccessful Adaptation cases has considered only the reported outputs/results.
- There is no separate policy (state) dedicated for Climate Change Adaptation.
- There is no Rehabilitation & Resettlement Policy (in West Bengal) for IBD; for MD (in Odisha State R&R Policy) no emphasis on Environmental Stress or Climate Change Induced Displacement.
- In majority of the Climate Change Policies & Plans, there is no separate emphasis on addressing Gender Issues.

Conclusion

In country like India, irrespective of bio-geographical boundaries, with low cost technologies and/or low adaptive capacity, the array of adaptive options perhaps, can become limited due to financial constraints.

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