

Beyond Embankments: How Sundarbans Communities Cope and What Holds Them Back

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The communities around the Sundarbans mangrove forest live on small islands. Kumirmari Island, located in the Gosaba Block of South 24 Parganas District, West Bengal, is one such island where residents rely heavily on fisheries and agriculture for their daily income and livelihoods. Facing multiple climate-induced hazards, including erosion, flooding, and saline water intrusion, agricultural production and groundwater are gradually reduced due to climate change effects. Large-scale government climate change adaptation projects often struggle to be implemented due to limited resources and community support. The local communities in the Indian Sundarbans draw on their traditional knowledge and years of experience to cope with climate change, which comes with its own risks and limitations.



Fishing in the rivers near the Sundarbans forest, Kumirmari, WB, India. ©Ruyel Miah, 2024

Short-term coping, long-term risks

In addressing the impacts of climate change, increasing fishing effort in the forest and migrating to cities and other states for non-fishing jobs are the dominant strategies local communities pursue. These strategies are mostly seen as short-term coping rather than long-term solutions, often leading to unintended consequences. Forest-based fishing comes with both physical and mental health crises. For example, wild animals, such as tigers, crocodiles, and snakes, often attack fishers who fish deep inside the forest in narrow canals, resulting in severe physical injury

or death. Those who migrate to cities for income are exploited by employers through lower wages and long hours of work. To supplement family income, women intensify shrimp seed collection in saline-water-rich rivers. They spent hours in waist-height waters, leading to negative health repercussions. Despite the harsh realities, local innovations persist; for instance, kitchen gardens and small homestead ponds help communities produce fresh vegetables and fish to meet household nutrition needs.



Homestead pond for fish culture next to the kitchen garden, Kumirmari, WB, India. ©Ruyel Miah, 2024.

The promise and peril of project-based adaptation

After Cyclone *Aila* in 2009, embankment construction became a flagship government adaptation intervention. The government has launched this initiative to improve local infrastructure against natural disasters, protect communities, and prevent riverbank erosion. The government planned to concretize the embankment. Initially, the initiative was welcomed by communities; however, implementation has been inconsistent, with structures ranging from concrete to makeshift barriers. Conflicts between government authorities and displaced communities have increased. Land acquisition for embankment frequently displaces local communities without fair compensation. Local communities argue that the compensation for household relocation is often

limited to none. This has not only slowed embankment construction across the villages but also deepened distrust between the governing agencies and local communities. This reveals that a well-intentioned project can exacerbate dispossession when imposed without community co-design.



Households are about to be displaced for embankment construction, Chhota Molla Khali, WB, India. ©Ruyel Miah, 2024.

Between solidarity and power struggles

A key strength of the community coping strategies is the strong social cohesion. Despite diversity within the community, they strengthen their social relationships and help each other recover from climate change-induced disasters. At the same time, several weaknesses that create barriers to the success of community initiatives and hinder long-term adaptation. For example, local initiatives are often politicized. The formation of local cooperatives and women's self-help groups is intended to increase access to resources, including natural and financial, and to build resilience. People with a strong tie to political parties eventually take control of local cooperatives, excluding the most vulnerable. Communities express a need for building industries that provide year-round employment and ensure an uninterrupted income. In particular, given the huge potential of forests and inland fisheries, the government can help strengthen local people's

capacity and skills to better utilize them. Establishing post-harvest fish processing plants can be an option. In addition, smart agricultural initiatives can be taken to increase the salinity-resistant paddy production.

A way forward: co-constructing solutions

In the Sunderbans, political narratives around conservation and the decision-making process often overlook daily realities. There is a need to address the everyday realities of local communities, including their coping mechanisms and access to resources, which are influenced by local political dynamics. An expert suggests;

“For successful community adaptation, it is important to pay attention to the daily realities of local communities and their needs, regardless of their social and political identity. Adaptation strategies should be co-produced with the community, not prescribed top-down solutions.”

The solution to long-term adaptation should begin by centring local knowledge and their experience. Solutions to climate change adaptation, whether in embankments, livelihood options, or housing, must be developed with communities, not imposed on them. The integration of traditional knowledge with scientific and policy planning can produce viable adaptation strategies for the communities living at the frontlines of the climate crisis.