Between Salt and Concrete: The Uneasy Promise of Adaptation in Coastal Bangladesh

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The coastal communities in Bangladesh are the frontline victims of climate change. The Sundarbans mangrove forest in the southwest part of the country acts as a bioshield against disaster and protects people and wildlife. Despite this, the communities living around the forest suffer from floods, riverbank erosion, cyclones and saline water intrusion.

Eroded riverbank in Kallbari, Shyamnagar, Bangladesh. © Ruyel Miah, 2024

The necessity and authority for adaptation

Local communities typically cope with these impacts through diverse strategies, such as repairing damaged houses, storing food and seeds, and making temporary repairs to embankments. In some cases, to reduce heat during summer heat waves, communities add leaves to asbestos roofs. Anticipatory adaptations that require significant upfront investment are less common among communities with insufficient resources. The larger infrastructure projects, like building permanent embankments, are left to government authorities due to resource and authority constraints.

One of the government's key adaptation strategies since cyclone *Aila* struck in 2009 is the embankment construction. *Aila* has caused severe loss of human life and property. While

embankments can have negative impacts, such as waterlogging, communities in the southern coastal belt often prefer them because they protect against saltwater intrusion and help control water levels for activities like shrimp farming. Other adaptation practices that occur at the community level with support from the government and NGOs include the use of salt-tolerant rice varieties, livestock management with safe storage during floods and cyclones, house strengthening, and veterinary support for livestock.

Concrete riverbank adjacent to the Bangladesh Sundarbans. © Ruyel Miah, 2024

The gamble of diversification

The adaptation strategies at the community level have some strengths and limitations for farmers facing climate challenges. Experts identify the main strength as helping farmers survive cyclones and floods. However, experts also highlight that crop diversification, while a common adaptation strategy, comes with significant risks and financial burdens. Even when farmers diversify, they often face unpredictable outcomes, with some varieties thriving in certain plots while others fail nearby, creating uncertainty and financial stress. The experimentation required can lead to debt and mental strain, as farmers must take out loans to try new approaches without a guarantee of success.

Climate-resilient rice farming in Munshiganj, Shyamnagar, Bangladesh. © Ruyel Miah, 2024

Towards deeper management

The lesson from Bangladesh is not that embankments are wrong or that diversification is futile. Local communities have mixed perspectives on embankment construction. Initially, local residents were willing to sacrifice personal belongings, such as house portions and graves, to prevent future cyclone damage. The community had been advocating for embankment construction for a long time and was happy to see it finally happening. However, this led to several challenges in project implementation, including a tendency to design and implement projects too quickly without sufficient community involvement, resulting in superficial solutions. Tahura Farbin, a CiCADD member and researcher at ULAB, Bangladesh, recommended,

> *… that we move away from short-term project-based approaches toward long-term programmatic approaches that better involve communities and allow them to internalize adaptations for sustainable outcomes.*