

# Bringing Together Voices to Address Climate Change Uncertainty in the Indian Sundarbans

The majority of the five million people that live in the deltaic Indian Sundarbans face continuous uncertainties in relation to their shelter, livelihoods, and health. Climate change is one of the key factors aggravating this situation. While scientific evidence exists regarding climatic changes in the Sundarbans, scientists and experts often disagree about how the resulting key challenges should be addressed. The communities in the Sundarbans hold considerable knowledge about these uncertainties and their complex socioeconomic and ecological origins. However, this knowledge is often bypassed in planning and policy. It is vital that the communities' knowledge and that of experts and scientists be brought together to improve livelihood adaptation and disaster response, and promote more socially just and sustainable outcomes in this vulnerable coastal region of India.

## Climate change and uncertainties in Indian Sundarbans

Climate uncertainty refers to the inability to predict the scale, intensity, and impact of climate change on human and natural environments. The project *Climate Change, Uncertainty and Transformation* seeks to bring together existing policy and scientific discourses of climate uncertainty with local knowledge systems and response strategies in order to make climate science more relevant. This should help decision makers draw on a wider range of options to address climate change issues.

Research took place in two vulnerable hotspots: the sinking island of Ghoramara, located in Sagar block (sub-district) and erosion-prone Mousuni island in Namkhana block. It focused on challenges related to livelihoods, shelter, health, and food security in the context of climate change uncertainty.

Islanders in this region have had to contend with shocks such as cyclones and floods, and variations in its deltaic ecology as well as socioeconomic marginalisation since the first settlements were established in the colonial period. In recent years, scientific evidence shows that erratic climatic events (e.g. more intense rainfall, heatwaves, and sea level rise) are becoming more frequent and pronounced. These manifestations of climate change have added to existing problems including

frequent embankment breaching; loss of land, homesteads and other assets; and salinity ingress in agricultural land and sweet water ponds. All of these have led to the depletion of the traditional agro-fishing economy and strained the islanders' coping capacities.

As a result, households are forced to constantly change their livelihood patterns. For instance, agro-fishing, wage labouring, or seasonal migration to other parts of West Bengal or other states in India.

## Uncertainties are amplified for the most vulnerable

Vulnerable sections of the community are inevitably the worst off. For example, in Ghoramara, people are facing food insecurity along with loss of shelter and livelihood options. By contrast, islanders of Mousuni are confronted with inter-religious struggles due to problems around shelter in the face of recurrent embankment breaching and rapidly eroding lands. Conflicts between islanders who live in safe zones (away from embankment breaching and coastal erosion) are also becoming more acute.

Alongside this, adolescent boys are dropping out of school and migrating along with other male family members to find work, whereas young girls have to marry early in the mainland part of the Sundarbans to secure shelter and stable income.

Women across the Sundarbans largely engage in activities such as embroidery, and wage labouring to take part in the livelihood restoration process. They are also increasingly subject to domestic violence; and children experience a lack of care.

### Short-term disaster response vs long-term transformative response

Following the lessons learned after Cyclone Aila (2009), the state and local administrations are confident that large shocks can be managed through emergency responses. Yet, despite the consensus between scientists that concrete embankments are not a permanent solution to coastal erosion/storm-water surges, there is a dominant focus on concrete embankments in policymaking for the Sundarbans. Ground-level implementation of schemes severely lacks community knowledge and participation, such as in land acquisition for embankments, mangrove conservation, and compensation for crop loss due to natural calamities, as well as employment of rural youth under livelihood schemes. For example, after severe flood damage, the islanders of Ghoramara could not claim crop compensation as the affected agricultural land simply disappeared.

Long-term initiatives such as brackishwater aquaculture, sack cultivation, and cultivation

of saline-resistant crops pushed by non-governmental organisations (NGOs) and community-based organisations (CBOs) can make a huge difference to improve lives and livelihoods. Yet these are still to be scaled up to become accessible to the poorest members of the Sundarbans.

### Lack of coordination and strategic response

The uncoordinated and inconsistent responses towards managing the multiple challenges of the Sundarbans reflect a gap between scientists, policymakers, NGOs, and the islanders. NGOs (national and international) find it difficult to build bridges with policymakers due to interference of political bias. NGOs are well connected with CBOs, and jointly implement development programmes in the Sundarbans. However, the implementation is most often concentrated in particular locations which results in a very uneven spread of benefits. The district- and block-level administrations, though well aware of climatic impacts, fail to communicate appropriate responses to authorities at higher levels. The community is, to some extent, connected with each of these actors but their voices are not fully integrated into policymaking and implementation.

## Policy implications

- **Support convergence of knowledge:** Vulnerable environments like the Sundarbans require pro-poor adaptation as well as the strengthening and protection of local ecosystems and biodiversity, especially mangroves. Various knowledge and experiences, including scientific, technical, administrative, and everyday practices need to come together to plan for alternatives.
- **Encourage bottom-up knowledge in policymaking:** The state should facilitate spaces to enable sharing between policymakers and local-level policy implementers, NGOs, and CBOs as well as local communities' own experiences and responses.
- **Understand vulnerabilities and be open to iterative and multiple planning processes:** Vulnerabilities to climatic uncertainties are differentially distributed within the Sundarbans as well as within communities. There is an urgent need to identify specific vulnerabilities, vulnerable groups and locations, and plan the programme accordingly.
- **Go beyond disaster response (capturing opportunities offered by disaster):** Innovative initiatives such as aquaculture need to be supported and promoted in order to provide sustainable livelihoods alternatives.



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## Further reading

Ghosh, U.; Bose, S.; Brahmachari, R. and Mandal, S. (2016) 'Expressing Collective Voices on Children's Health: Photovoice Exploration with Mothers of Young Children from the Indian Sundarbans', *BMC Health Services Research* 16 (Supplement 7): 119–30, doi:10.1186/s12913-016-1866-8

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Sen, B.; Dhimal, M.; Latheef, A.T. and Ghosh, U. (2017) 'Climate Change: Health Effects and Response in South Asia', *BMJ* 359: j5117

Ghosh, U.; Bose, S. and Brahmachari, R. (2016) 'How Do Mothers' Social Ties Affect Childcare: Findings from a Social Network Analysis Study in the Indian Sundarbans', *Future Health Systems Research Brief* 10, Future Health Systems

## Credits

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Readers can find more information about the *Climate Change, Uncertainty and Transformation* project on the website: [www.nmbu.no/en/faculty/landsam/department/noragric/research/our\\_projects/projects/node/21234](http://www.nmbu.no/en/faculty/landsam/department/noragric/research/our_projects/projects/node/21234)

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