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06 Key Lessons for informing policy decisions

Mainstreaming tribal-specific climate adaptive capacities in vulnerable coastal regions within National Action Plan on Climate Change

Executive Summary

Tribal communities in the Indian Sundarbans face intensifying climate risks — rising salinity, recurrent cyclones, ecosystem degradation, and livelihood instability. Over the last three years, the Sound of Silence initiative implemented by DRCSC and LRRM across eight villages in four blocks has demonstrated a community-led model for strengthening climate resilience among 800 vulnerable households. Through women-led Mutual Cooperation Groups (MCGs), integrated agro-ecological farming, decentralized seed systems, mangrove-based shoreline protection, last-mile climate advisories, and psychosocial support mechanisms, the program has reduced livelihood vulnerability while strengthening local agency and ecosystem sustainability — all on a solid foundation built on reviving indigenous culture, language, and community knowledge systems.

This policy brief distills six evidence-backed recommendations to support India's climate adaptation commitments under the NDC and West Bengal SAPCC, offering a scalable grassroots blueprint for resilient coastal development.

How climate change affects coastal tribal communities in Sundarbans and what this program has done about it?

The Indian Sundarbans — one of the world's largest deltaic ecosystems is increasingly at the frontline of climate change. Rising sea levels, intensifying cyclones, saline water intrusion, and embankment breaches are steadily altering local ecosystems and livelihoods. These impacts are degrading agricultural productivity, damaging homes and assets, and forcing communities to constantly adapt to changing environmental conditions.

Across the Indian Sundarbans, around **4.5 million**¹ people depend on fragile coastal ecosystems for their livelihoods, many living in conditions of high poverty and climate exposure. Studies indicate that over **30%**² of villages fall within high or very high climate vulnerability categories. Women, particularly from tribal households, face disproportionate burdens as they manage household food security, water access, and livelihoods while male migration for work remains common.

Government initiatives under national and state climate frameworks have focused on disaster preparedness, embankment strengthening, and mangrove restoration. However, gaps remain in addressing livelihood resilience, community knowledge systems, and last-mile access to information and entitlements, particularly among tribal coastal communities with distinct climate vulnerabilities.



Since June 2023, the **Sound of Silence** initiative implemented by DRCSC and LRRM has worked with **800 tribal and marginal households across eight villages in four blocks** of Sundarbans to strengthen climate resilience through women-led institutions, locally adaptive agro-ecological practices, diversified livelihoods, and improved access to climate and livelihood information.

This brief synthesizes six lessons which can inform policymakers in designing tailored tribal-specific climate action policies for coastal regions.

Scale of the Problem



An Estimated **230-250,000**³ People from Scheduled Tribes reside in climate vulnerable blocks of the Indian Sundarbans



5 millimetres⁴ Rise in the sea level in Sundarbans on an average per year over between 1948 and 2010 (the highest in India)



95%⁵ of coastal districts in India are hotspots for extreme climate events

The Program in Numbers



800 Families Impacted through the Program

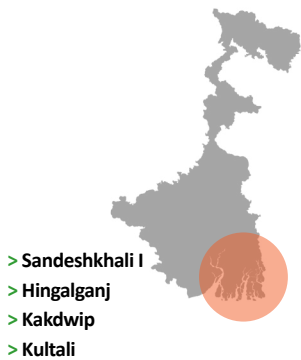


08 Villages Across which the program was executed



70 Women MCGs Developed through the program

04 Program Intervention Blocks of West Bengal

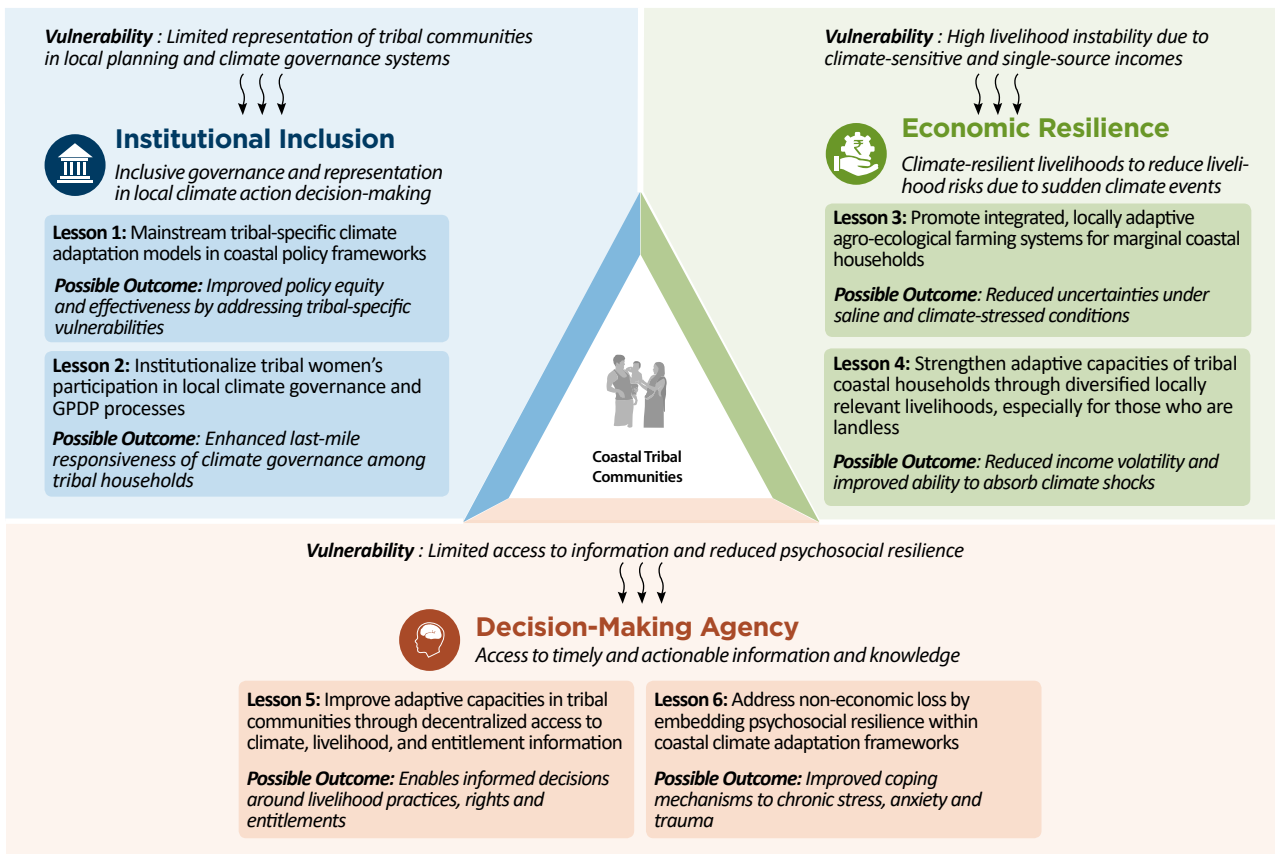


About the Program: Sound of Silence – Strengthening Tribal Women’s Voices and Leadership for Climate Risk Reduction among Tribal Communities in the Sundarbans, India

The program targeted 800 predominantly tribal households in cyclone-prone coastal villages of the Sundarbans. Most families hold marginal land (0.2–0.4 hectares) for cultivation and up to 0.01 hectares for homestead gardens or livestock, while some are landless. Livelihoods depend on small-scale agriculture, indigenous livestock, and seasonal fishing using small nets in coastal waters, canals, and monsoon-flooded fields.

The program is grounded in the revival of indigenous culture, language, and community knowledge systems, recognizing their role in shaping locally relevant climate adaptation practices. The initiative strengthened women-led Mutual Cooperation Groups (MCGs), promoted climate-resilient agro-ecological farming, decentralized seed systems, and diversified livelihoods and improved adaptive capacities through psychosocial support and access to decentralized information around climate, livelihoods and entitlements. DRCS implemented the program in six villages with 600 households; while LRRM in two villages with 200 households – across 4 coastal blocks of West Bengal.

Exhibit 01: Strengthening climate resilience in coastal tribal communities requires building institutional, economic, informational, and ecological systems that enable households to anticipate, absorb, and adapt to climate shocks



One-size-fits-all coastal adaptation policies often overlook the distinct livelihood systems, landholding patterns, institutional access barriers, and climate vulnerabilities faced by tribal communities

Lesson 1: Mainstream tribal-specific climate adaptation models in coastal policy frameworks

Rationale (Why?): Tribal households in coastal Sundarbans face layered vulnerabilities — marginal landholdings, salinity exposure, weak institutional voice, and dependence on climate-sensitive livelihoods. Generic coastal adaptation strategies often overlook these differentiated risks and governance realities.

Policy Action (What?): Integrate tribal-specific adaptation design within coastal

policy frameworks by embedding indigenous culture, language, and knowledge systems, community-led institutions, non-extractive agro-ecological systems, decentralized seed sovereignty, nature-based shoreline protection, last-mile climate information access, and psychosocial resilience into district climate plans and adaptation financing mechanisms.

In migration-prone coastal regions, including tribal women's lived knowledge in local climate governance can improve community-wide adaptive capacities



66 percentage points

Increase in target households who grow more than one crop per season



6 months

Additional duration in a year when target households consume food from their own farm / nutrition garden



2.25 X

Increase in net annual profit per Bigha from agriculture among target households



03 Additional Livelihoods

Generated by the program on an average for target tribal households



34%

Increase in average Annual Income among target households through livestock Rearing

Possible Outcomes (So What?): This would improve equity and effectiveness of adaptation investments, ensuring that national and state climate commitments translate into measurable livelihood

resilience, ecosystem restoration, and improved institutional access for historically marginalized coastal tribal communities.

Lesson 2: Institutionalize tribal women's participation in local climate governance and GPDP processes

Rationale (Why?): In coastal tribal communities, men frequently migrate for work while women remain responsible for households, agriculture, and disaster preparedness. Yet, women's lived knowledge rarely informs GPDP planning or disaster preparedness decisions.

relief prioritization, embankment monitoring, and local adaptation planning.

Policy Action (What?): Strengthen participation of tribal women in Gram Sabha and GPDP planning processes by enabling their representation in village-level climate and disaster preparedness discussions, vulnerability mapping,

Possible Outcomes (So What?): Greater participation of tribal women in local planning systems can improve last-mile responsiveness, strengthen community accountability, and ensure climate adaptation and disaster preparedness strategies reflect real household-level vulnerabilities and needs.

Lesson 3: Promote integrated, locally adaptive agro-ecological farming systems for marginal coastal households

Rationale (Why?): Coastal farming systems face declining productivity due to salinity, waterlogging, and cyclone-related disruptions. Conventional input-intensive agriculture often performs poorly in these fragile ecosystems, increasing cultivation costs and livelihood risks for marginal households.

adaptation financing to support low-input, climate-resilient livelihood diversification in coastal tribal geographies.

Policy Action (What?) : Scale integrated, non-extractive agro-ecological systems tailored to marginal and fragmented landholdings, including fisheries, nutrition gardens, indigenous livestock, decentralized seed systems, rainwater harvesting, and optimized land-use planning. Align agricultural missions and

Possible Outcomes (So What?): Integrated agro-ecological systems can reduce input costs, improve soil fertility, stabilize production under saline and waterlogged conditions, and strengthen livelihood resilience for marginal coastal farmers facing recurrent climate shocks.

Lesson 4: Strengthen adaptive capacities of tribal coastal households through diversified locally relevant livelihoods, especially for those who are landless

Rationale (Why?): Marginal and landless coastal households face frequent income disruptions due to cyclones, salinity, and seasonal agricultural uncertainty. Dependence on a single livelihood source increases vulnerability to climate shocks and limits households' ability to recover from losses.

Align rural livelihood and agricultural programs to support complementary income streams that reduce climate risks for marginal households.

Policy Action (What?): Promote diversified and locally relevant livelihood options suited to coastal ecosystems, including small indigenous livestock rearing, fisheries, nutrition gardens, and climate-resilient cropping systems.

Possible Outcomes (So What?): Diversified livelihood portfolios can reduce income volatility, strengthen food and nutrition security, and improve households' capacity to absorb and recover from climate shocks, thereby enhancing long-term adaptive resilience in vulnerable coastal communities.

Lesson 5: Improve adaptive capacities in tribal communities through decentralized access to climate, livelihood, and entitlement information



From earlier 47% to now 100%

Target households have access to weather information



From earlier 69% to now 90%

Target Households have access to State Government Health Insurance Coverage

Rationale (Why?): Marginal coastal households often lack timely access to information on weather risks, crop advisories, government schemes, and livelihood opportunities. Information gaps limit households' ability to anticipate climate shocks, access entitlements, and make informed livelihood decisions.

Policy Action (What?): Strengthen decentralized information dissemination systems that provide communities with timely access to weather forecasts, crop advisories, government entitlements, and livelihood opportunities. Enable

local platforms and community institutions to translate technical information into actionable guidance for vulnerable households.

Possible Outcomes (So What?): Improved last-mile access to relevant information can enhance households' ability to anticipate climate risks, access public programs, and make better livelihood decisions—thereby strengthening the social, economic, and ecological adaptive capacity of coastal communities.

Lesson 6: Address non-economic loss by embedding psychosocial resilience within coastal climate adaptation frameworks



14

Community-based trained women para-counsellors supported outreach across 600 Households



168 Women

Accessed active psychosocial support through the trained para-counsellors

Rationale (Why?): Recurrent cyclones, asset losses, and livelihood instability generate chronic stress, anxiety, and trauma in vulnerable coastal communities. Climate policies largely address infrastructure and livelihoods, physical health, while psychosocial recovery remains under-recognized in adaptation planning.

Policy Action (What?): Integrate community-based psychosocial support mechanisms within disaster preparedness and recovery systems, including trained para-counsellors, peer-support platforms, and women-led group facilitation. Align

these efforts with health and disaster management departments to institutionalize mental well-being as a component of climate resilience.

Possible Outcomes (So What?): Strengthening psychosocial resilience improves recovery outcomes, enhances decision-making capacity, sustains collective action, and reduces long-term vulnerability — ensuring that climate adaptation strategies address both physical and human dimensions of resilience.

List of Abbreviations

DRCSC	Development Research Communication and Services Centre
GPDP	Gram Panchayat Development Plan
LRRM	Lokamata Rani Rashmoni Mission
MCG	Mutual Cooperation Group
NDC	Nationally Determined Contributions
SAPCC	State Action Plan on Climate Change
ST	Scheduled Tribes

References

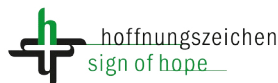
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Note: The program data and impact numbers are sourced from DRCSC's internal monitoring and evaluation team.