

Economics of Forest Restoration as Carbon Mitigation and Nature-based Solution in Bangladesh

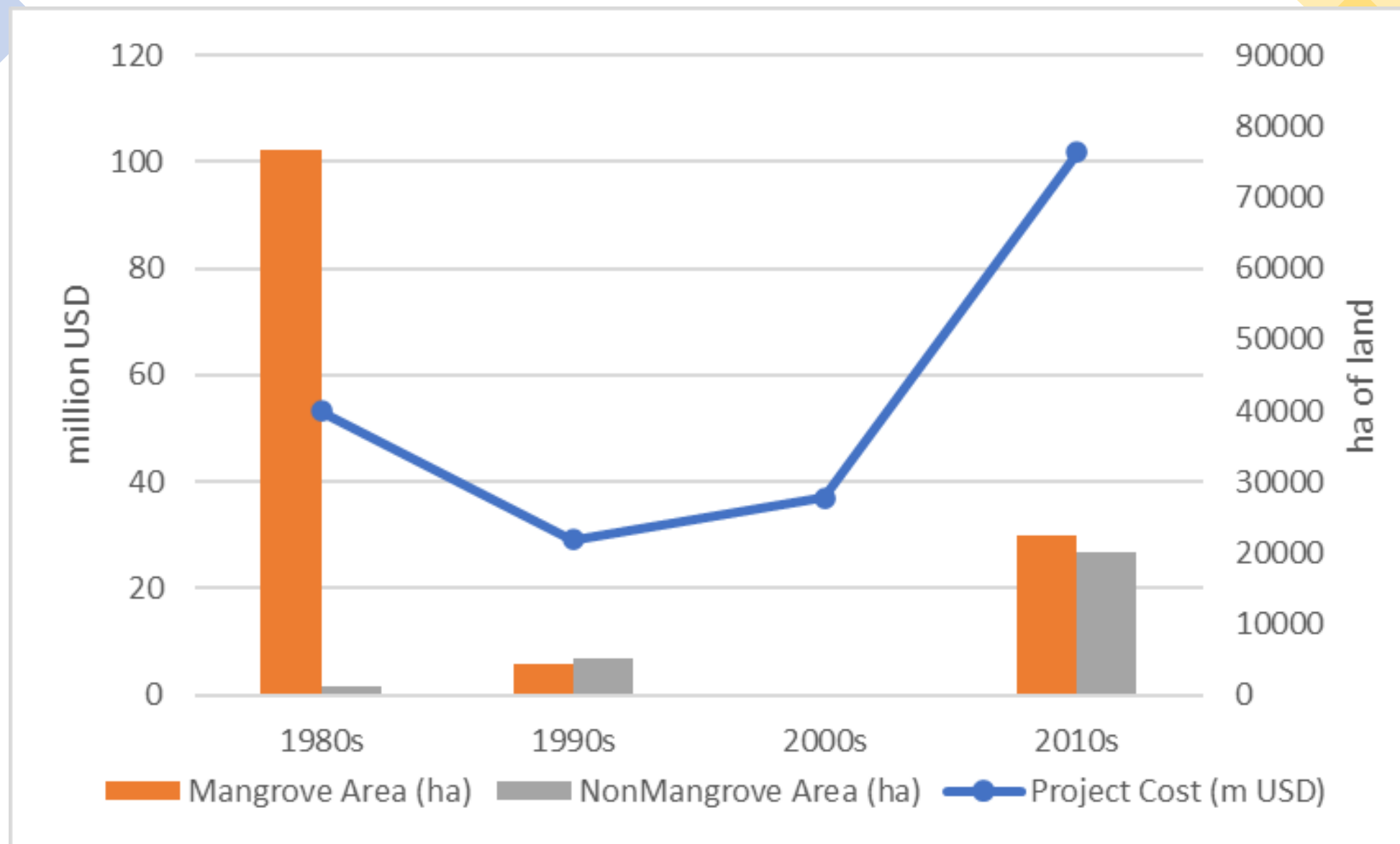
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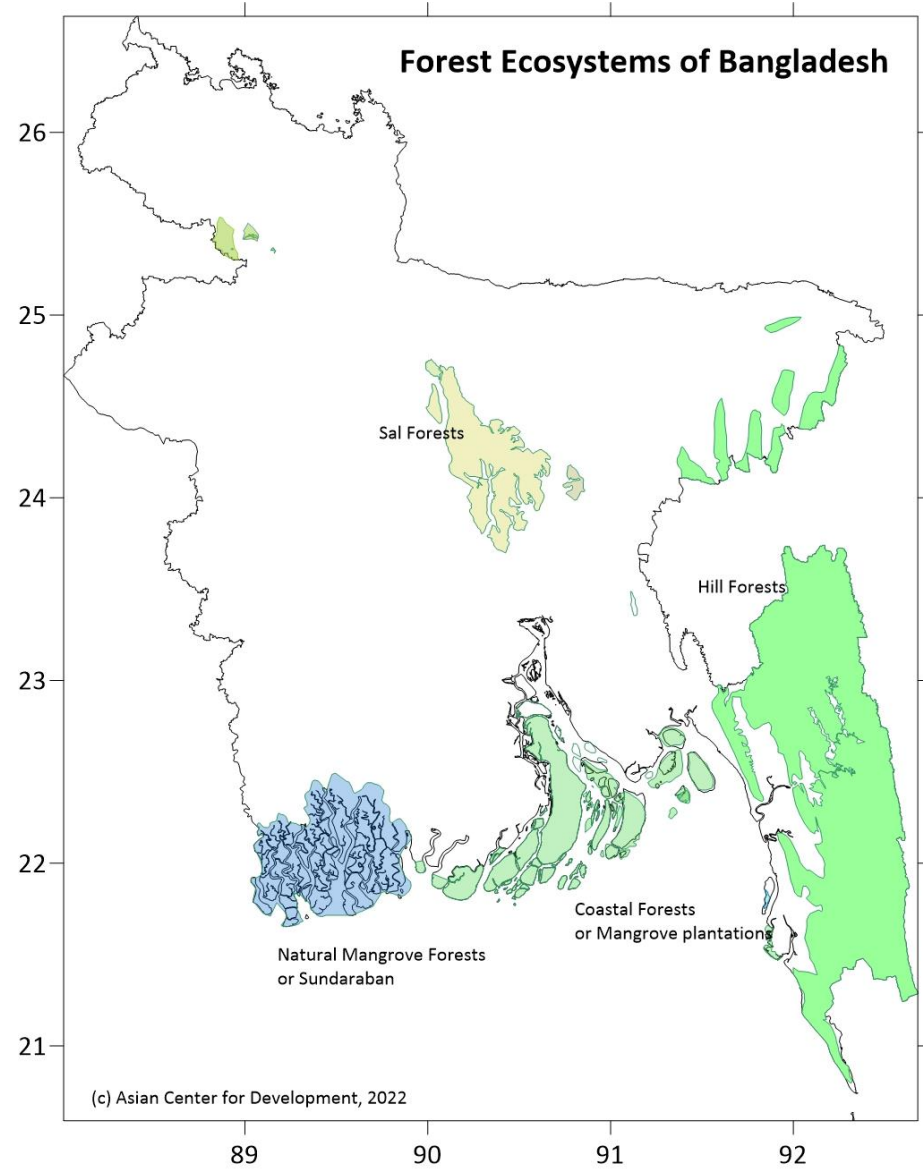
Mr. Estiaque Bari

Projects on Afforestation	Duration	Value in mil USD	Mangrove (in ha)	Non Mangrove (in ha)
1 Mangrove Afforestation Project (MAP)	1980–81 to 1984–85	17.20	43807	13
2 Second Forestry Project	1985–86 to 1991–92	36.00	32914	1192
3 Coastal Green Belt Project (CGP)	1995–96 to 2001–02	14.67	0	5247
4 Reserve Forest Management Support Project for Sundarbans	2005–06 to 2009–10	22.90	0	0
5 Char Development and Settlement Project (CDSP-I)	1994-1997	14.40	4365	0
6 Char Development and Settlement Project (CDSP-II)	2000-2005	14.03	0	0
7 Char Development and Settlement Project (CDSP-III)	2010-2011	0.11	0	0
8 Char Development and Settlement Project (CDSP-IV)	2011-2018	83.47	0	0
9 Noakhali coastal charland and Nijhum Dwip national park project	2006-7 to 2009-10	-	145	0
10 Afforestation in the Coastal Areas to Mitigate Adverse Effect of Climate Change Project	Nov. 2010	-	5164	1436
11 Community Based Adaptation to Climate Change Through Coastal Afforestation Project in Bangladesh	Jul 2009- Jun 2014	5.47	10665	1205
12 Climate Resilient Participatory Afforestation and		-	6350	17500
13 Afforestation in five Coastal Districts of Bangladesh	Jul 2015 – Dec 2020	0.02	0	0
14 Afforestation in Coastal Region including the Newly Accreted Chars of Bay of Bengal	Jan 2018 – Dec 2021	12.78	0	0
All projects		221.05	103410	26593

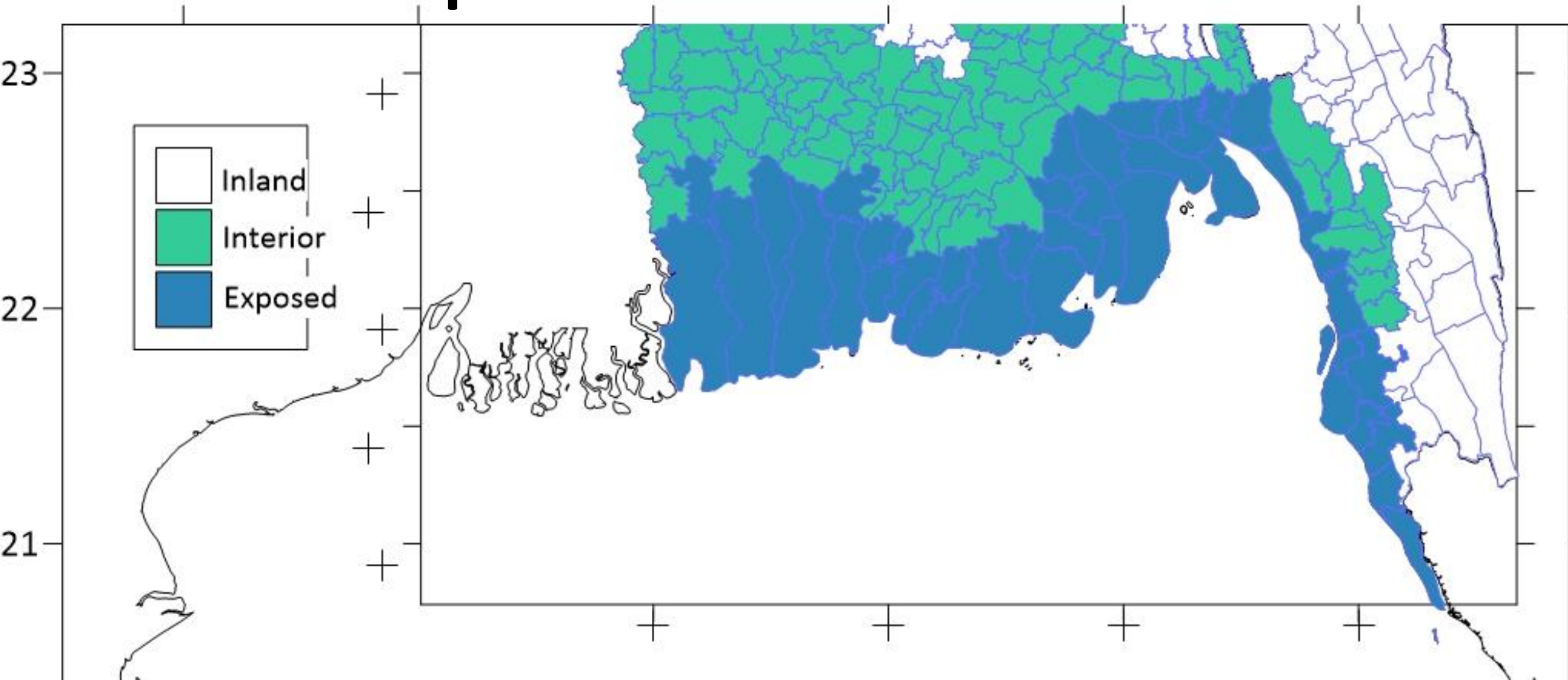


Nature of projects

- Mangrove restoration
- Afforestation to stabilize land (char development)
- Afforestation through social forestry
- Community based participation – for afforestation
- Coastal Greenbelt Project
- Adaptation and Resilient Building



Coastal Map of Bangladesh – Exposed and Interior upazilas.



Key Questions

- Under what conditions and how substantial are its co-benefits in addition to carbon sequestration?
- Since much of the afforestation project was to stabilize soil in newly accreted land, the research would like to know under what conditions do marginalized people received the benefits of such afforestation?
- To what extent mangrove restoration benefits the livelihood of local people? What are its distributional impacts (gender, socioeconomic groups, etc.)?
- Is there any differences in terms of such benefits due to institutional arrangements during implementation?
- What are the implications of the use of payment-based allocation mechanisms versus alternative restoration strategies to attain sustainable and equitable resource use systems in forest management in South Asia? ????

Objectives

- **Elucidate the economics of forest restoration (both plantations and natural regeneration) as a nature-based carbon mitigation option in Bangladesh.**
- **Examine if forest restoration can generate job opportunities for women, youths, and marginalized communities and support rural livelihoods of smallholder farmers as a pathway out of poverty.**
- **Identify and compare different interventions for promoting forest restoration, such as payment-based mechanisms versus alternative mechanisms (e.g., tenure reform, out grower schemes, and technical support), to attain sustainable and green recovery and equitable resource use systems.**
- **Propose appropriate institutional arrangements for scaling up forest restoration.**
- **Build the capacity of younger and emerging researchers to conduct policy-relevant research on the topic.**

Outcome 1

Outcome 1	Informed evidence necessary to design policies and programmes for nature-based solutions for a climate-resilient future
Output 1.1	Research capacity of environmental economists enhanced through research grants and mentoring
Activity 1.1.1	Initiate a collaborative research on economics of forest restoration

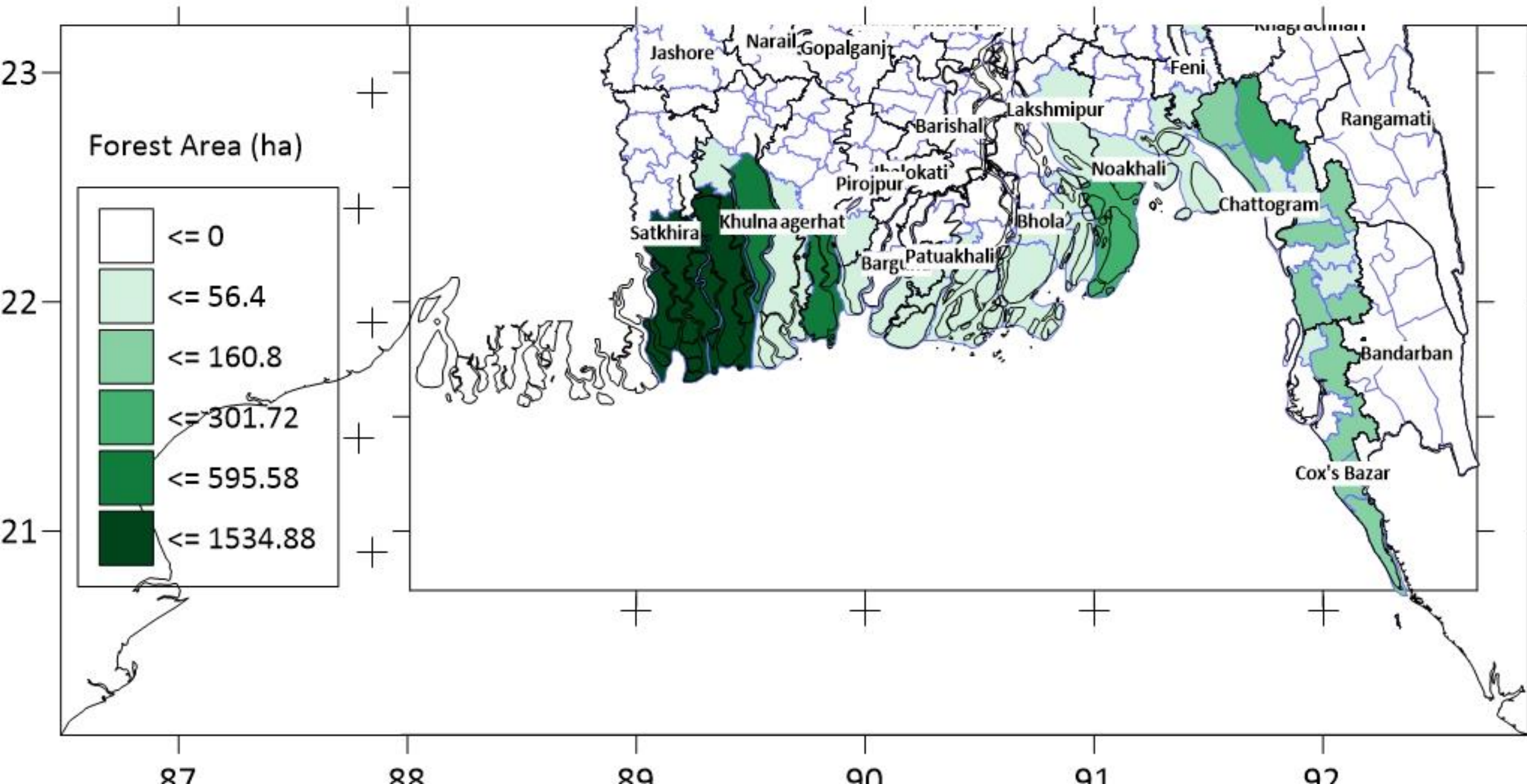
Outcome 2

Outcome 2	Increased number of younger and emerging researchers to conduct policy-relevant research on the topic.
Output 2.1	Knowledge products are strategically communicated to relevant stakeholders for policy influence
Activity 2.1.1.	Stakeholders' consultations/inception meetings,
Activity 2.1.2.	Disseminating the key outcomes/findings widely through social media, with policy community, and presenting results and lessons in conferences and workshops

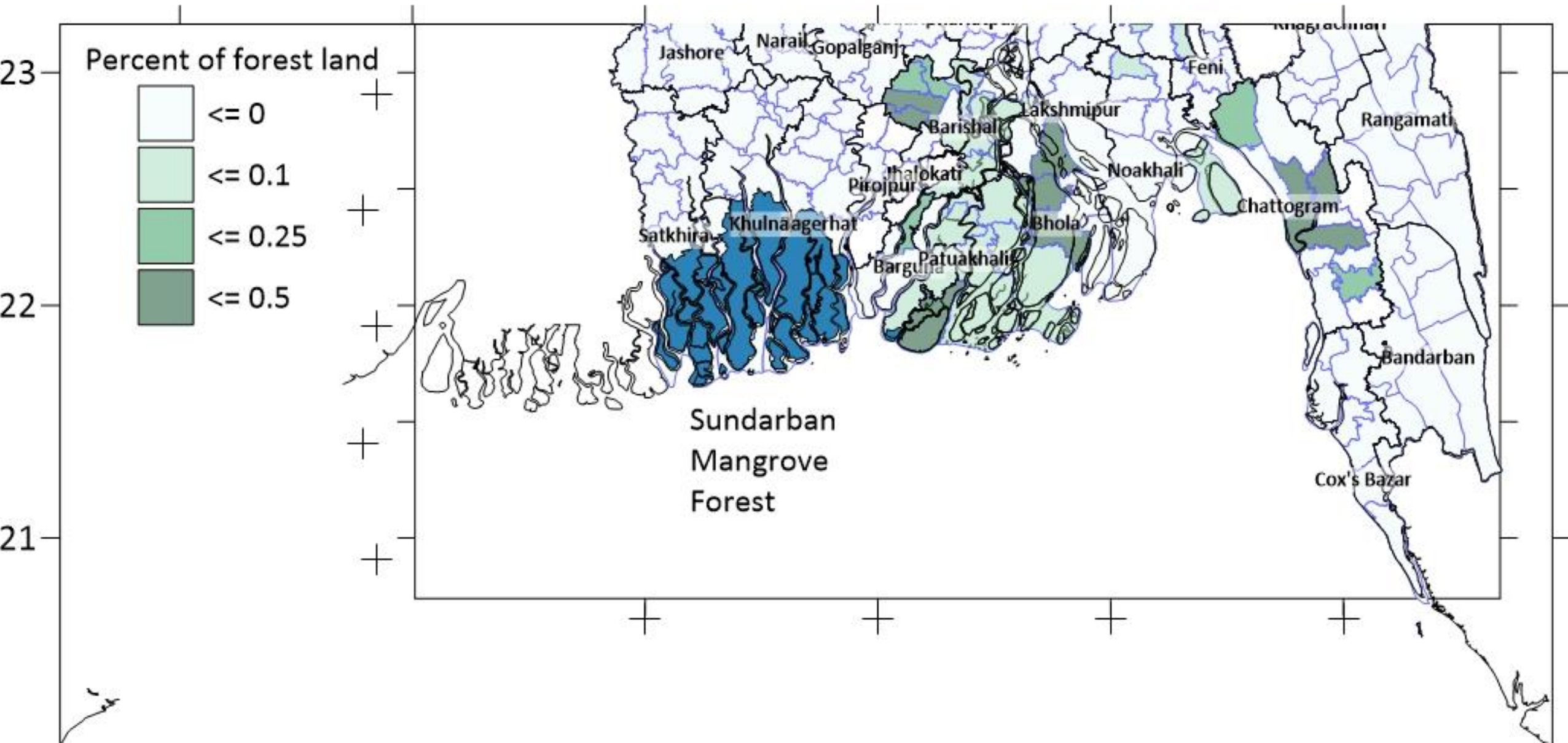
Timeline

Main Activity	Sub Activity		2022				2023				2024				Deliverables
	No.	Description	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Description
Output Group 1:															
Research capacity of environmental economists enhanced through research grants and mentoring	1.1	Initiate <u>a collaborative research</u> on economics of forest restoration													Research Report
Output Group 2:															
Knowledge products are strategically communicated to relevant stakeholders for policy influence	2.1	Stakeholders' consultations/inception meetings,													3-manuscripts 1-policy brief 2-newspaper op-eds in the national daily 1-video explaining key findings and policy implications Meeting minutes Workshop proceedings
	2.2	Disseminating the key outcomes/findings widely through social media, with policy community, and presenting results and lessons in conferences and workshops													
Output Group 3:															

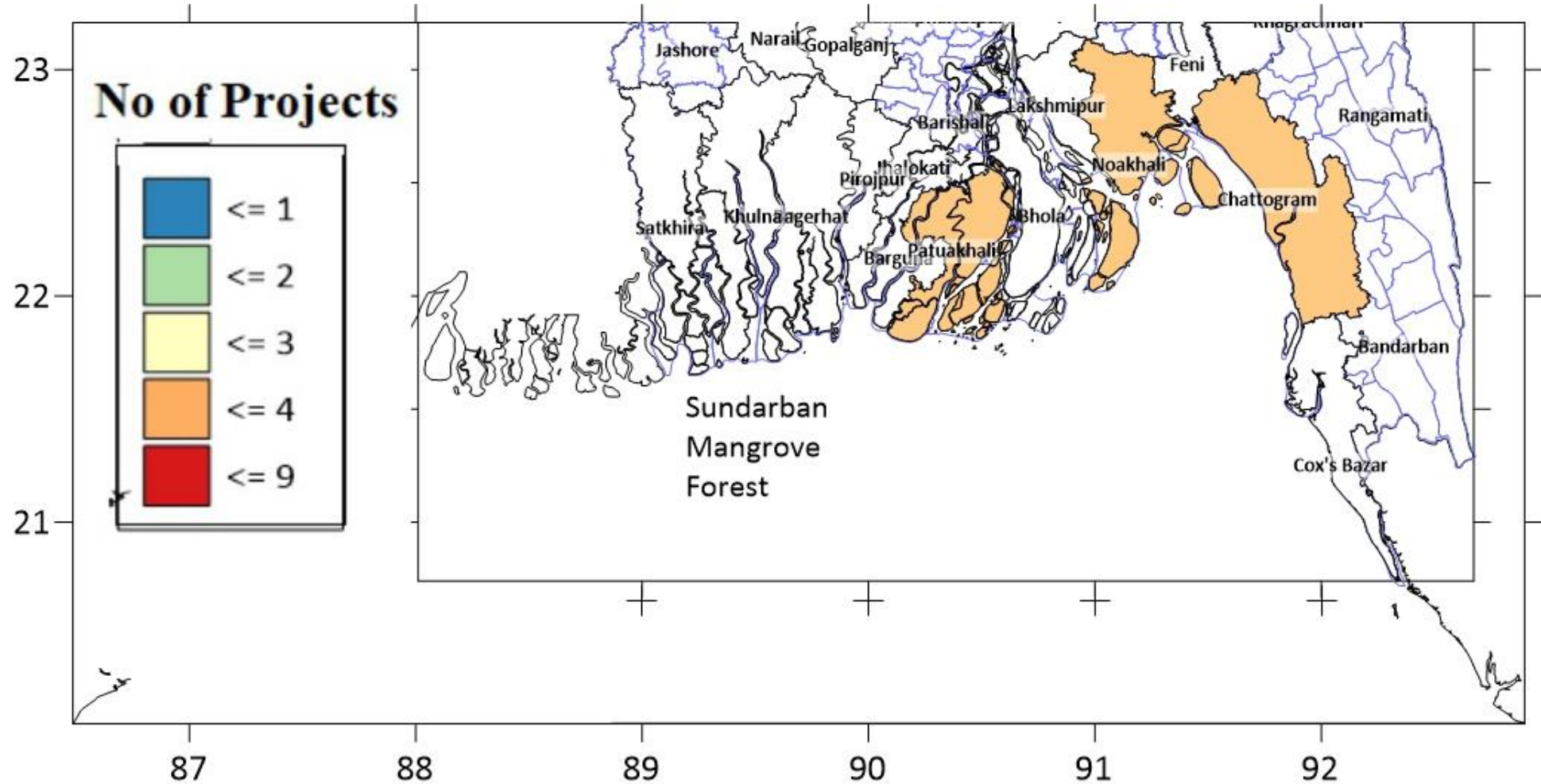
Forest Area in Coastal Districts of Bangladesh



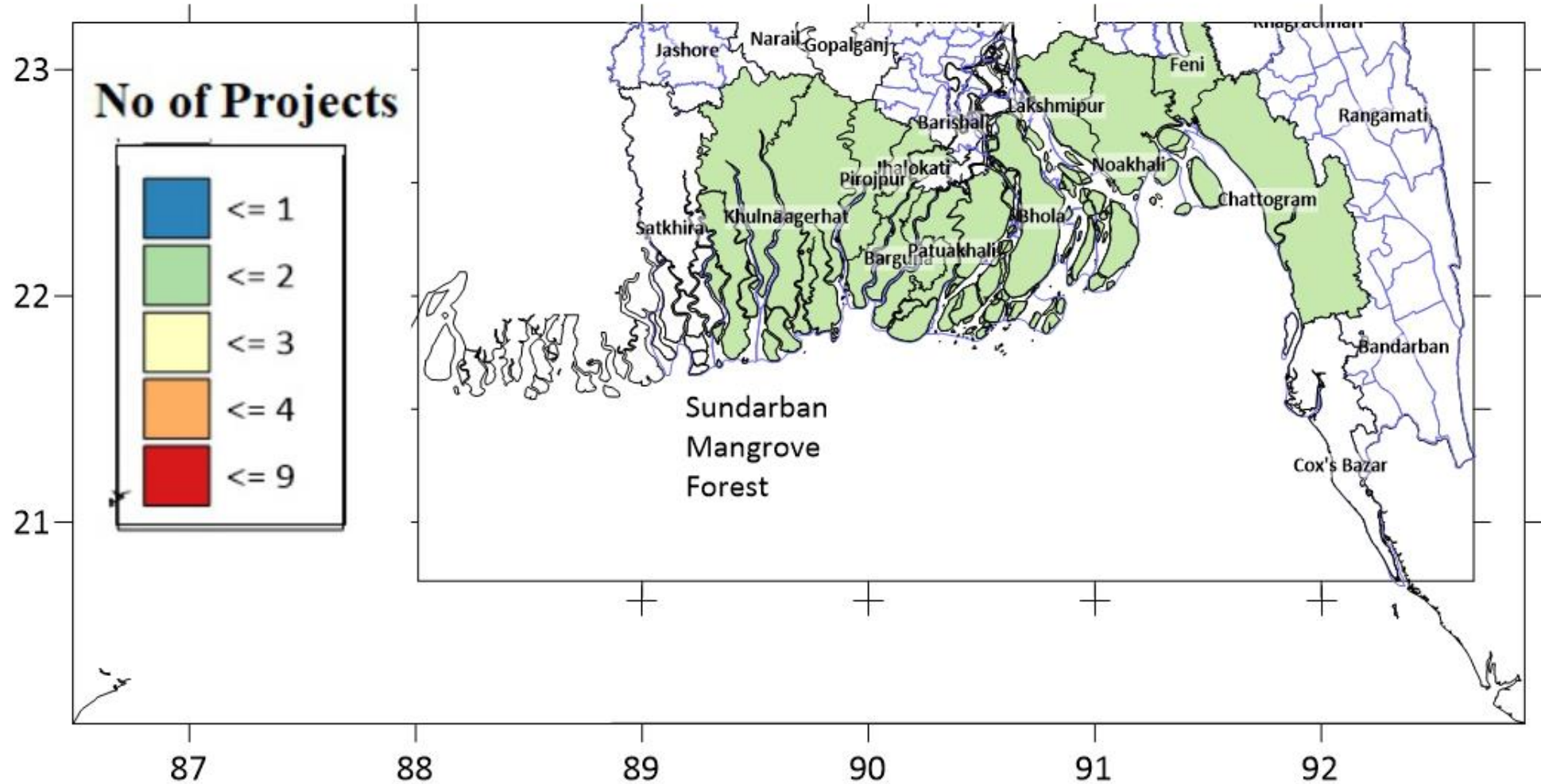
Forest Land in Coastal Upazilas



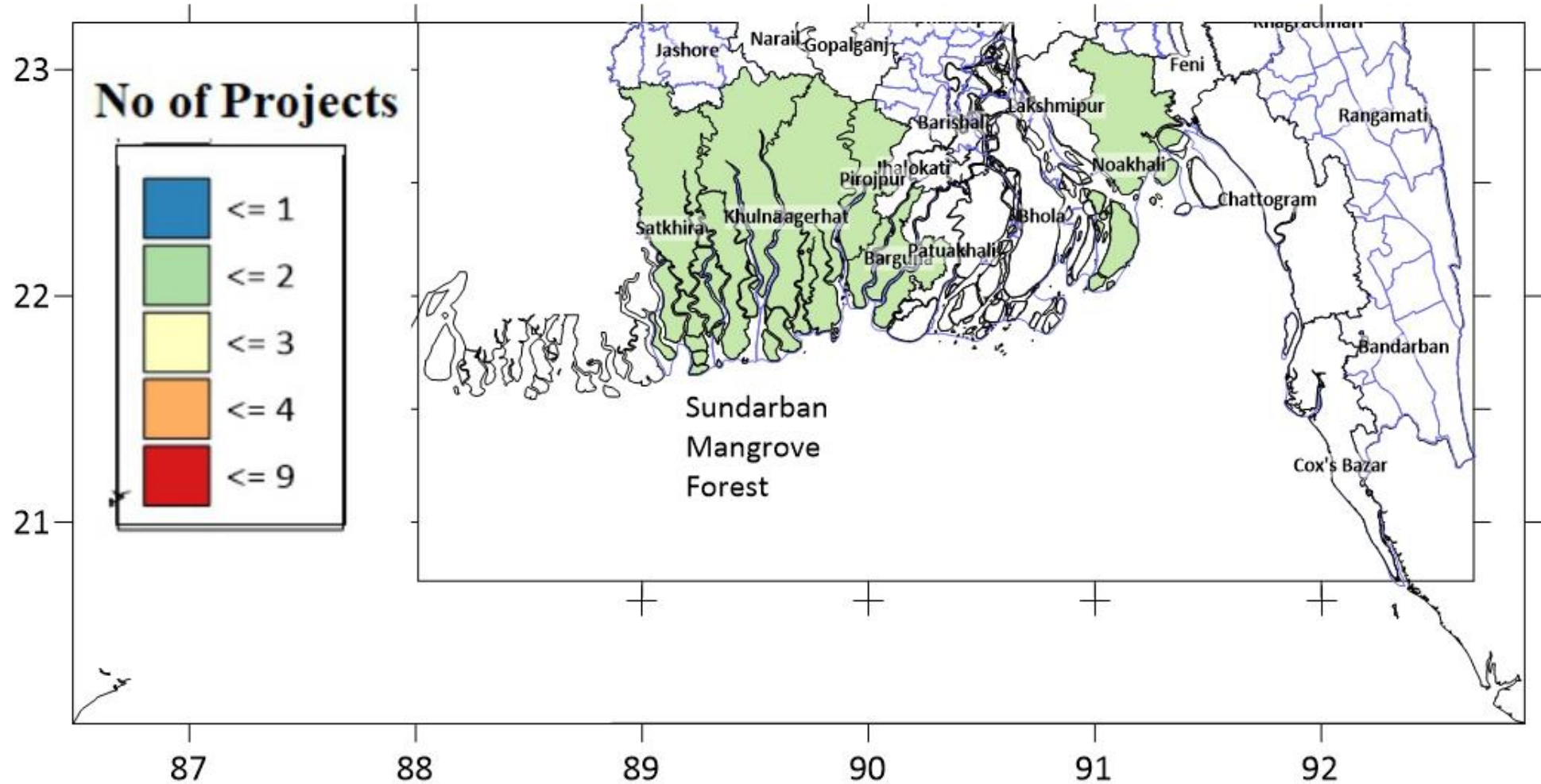
Number of Projects in the 1980s



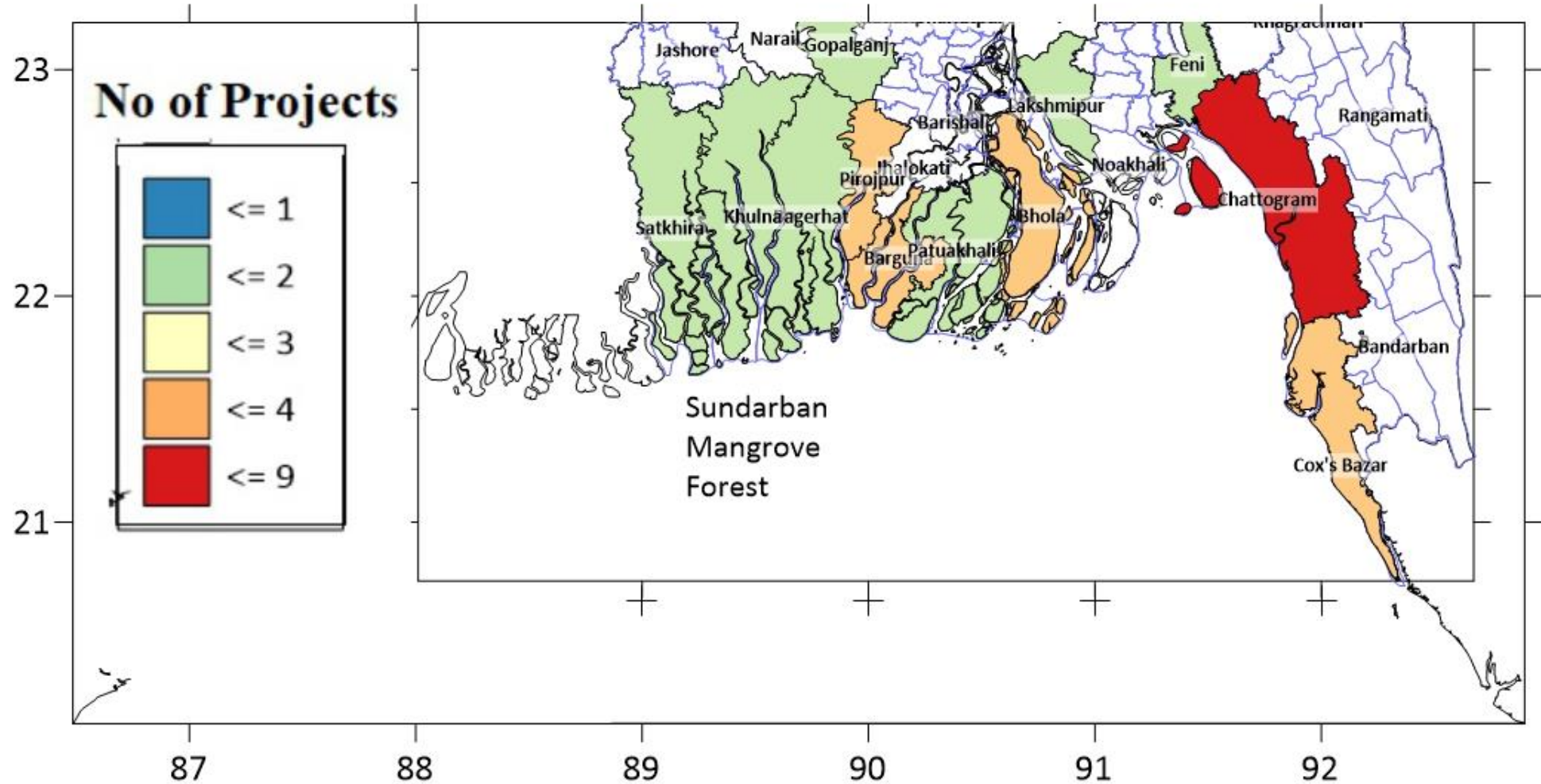
Number of Projects in the 1990s



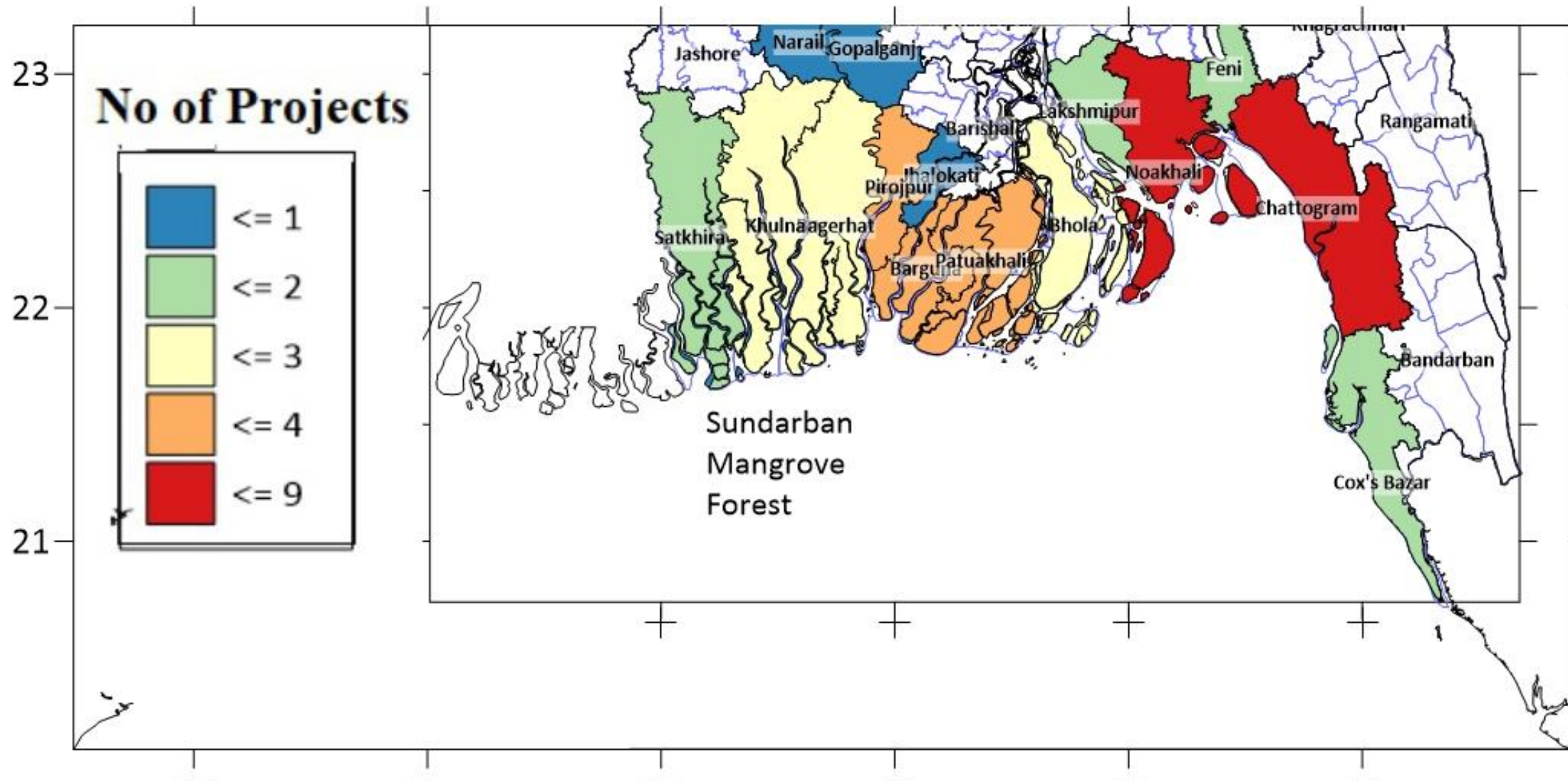
Number of Projects in the 2000s



Number of Projects in the 2010s




Number of Projects since 1980s





Project Locations

- **Chattogram & Noakhali Districts** – mostly cyclone and storm affected area + accretion of land
 - **Cox'sbazar / Satkhira districts** – Plantation Mangrove / Natural Mangrove – tidal surge
 - **Patuakhali / Barguna Districts** – planted mangroves + accretion of newly accreted land.
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Institutions

- **Forest Department**
 - **Water Development Board**
 - **NGOs**
 - **Department of Environment**
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Mangrove & Non-Mangrove Forests





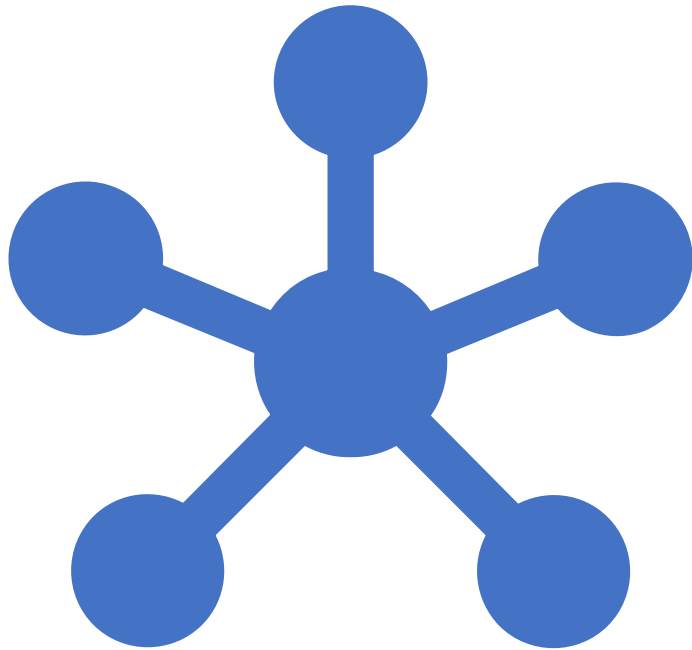
Livelihood Options

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- **Fisheries**
 - **Riverine**
 - **Bay of Bengal**
 - **Agriculture**
 - **Tourism**
 - **NTFP harvests**



Sampling
1980s
1990s
2000s
2010s





- **Ecosystem Services**

Provisioning

Food, Housing, Livelihood choices

Regulating

Carbon sequestration, Storm protection, water cycle regulation, waste assimilation

Cultural

Tourism, religious, cultural

Habitat

Biodiversity protection, spawning functions, wildlife conservation

Sample



HOUSEHOLD SAMPLE



**FOREST SAMPLE / GIS
SIMULATION**