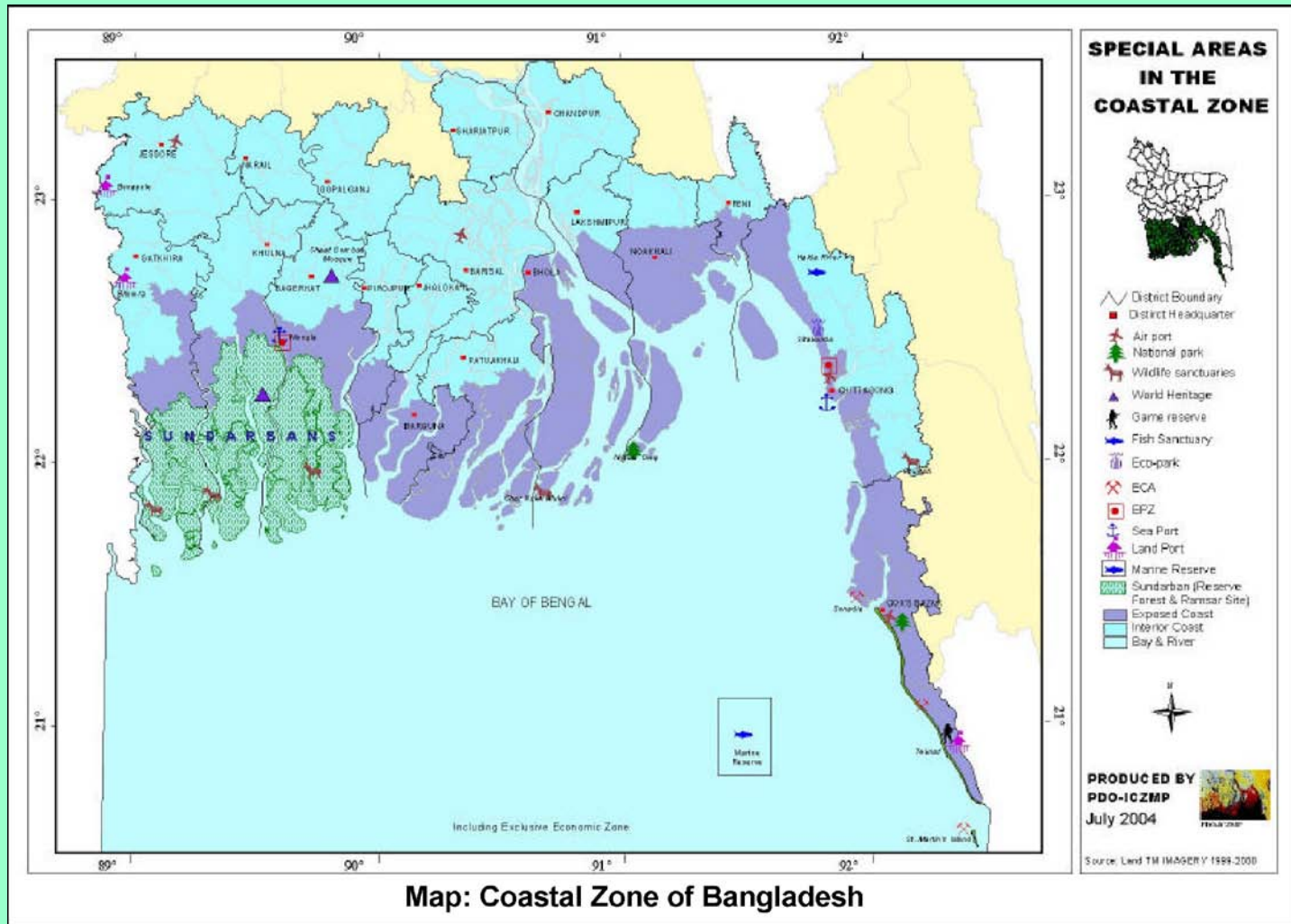


Climate Resilient and Sustainable Coastal Development in Bangladesh

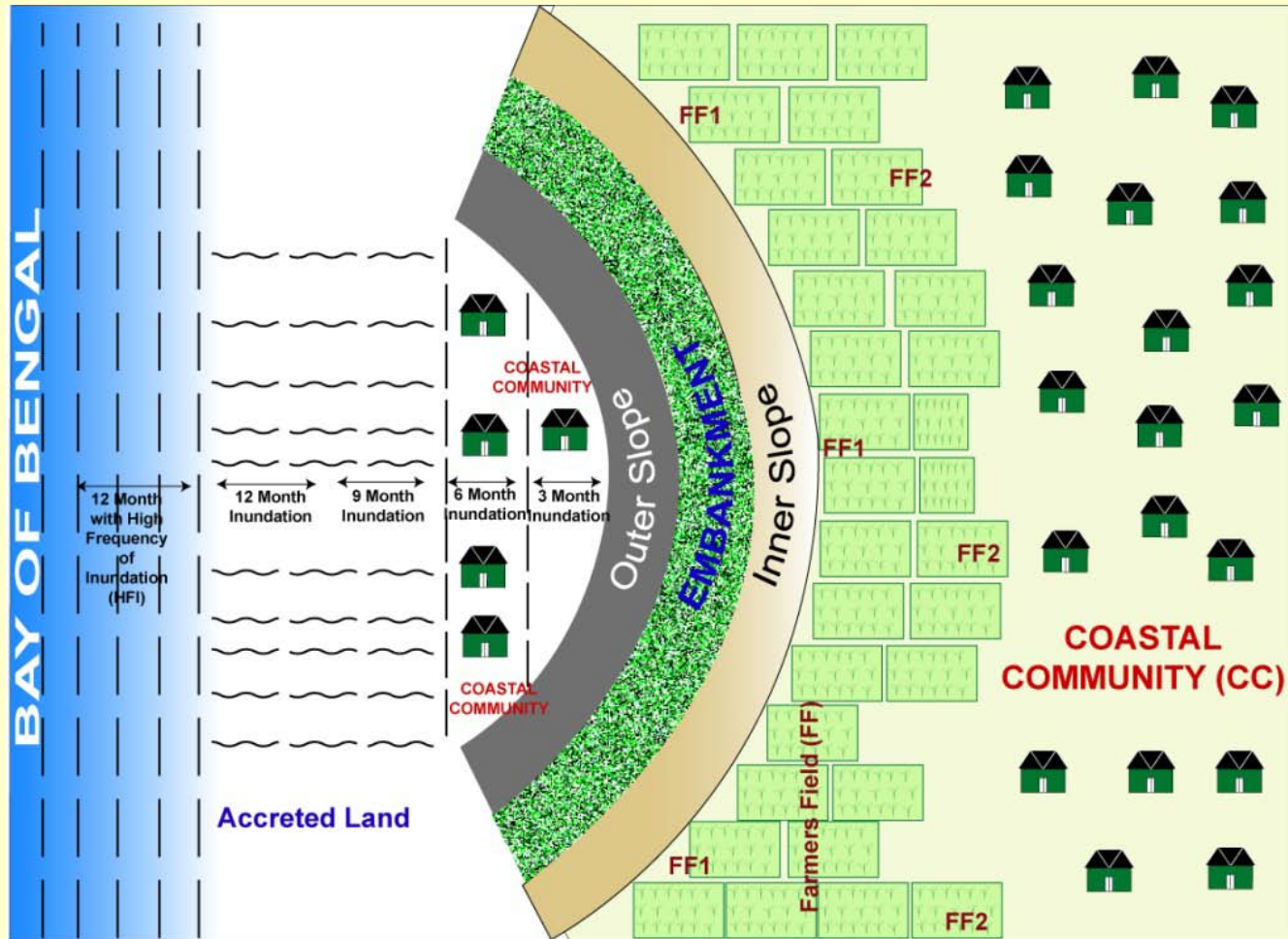
Dr. P. Nandy

Coastal Areas of Bangladesh – at a glance



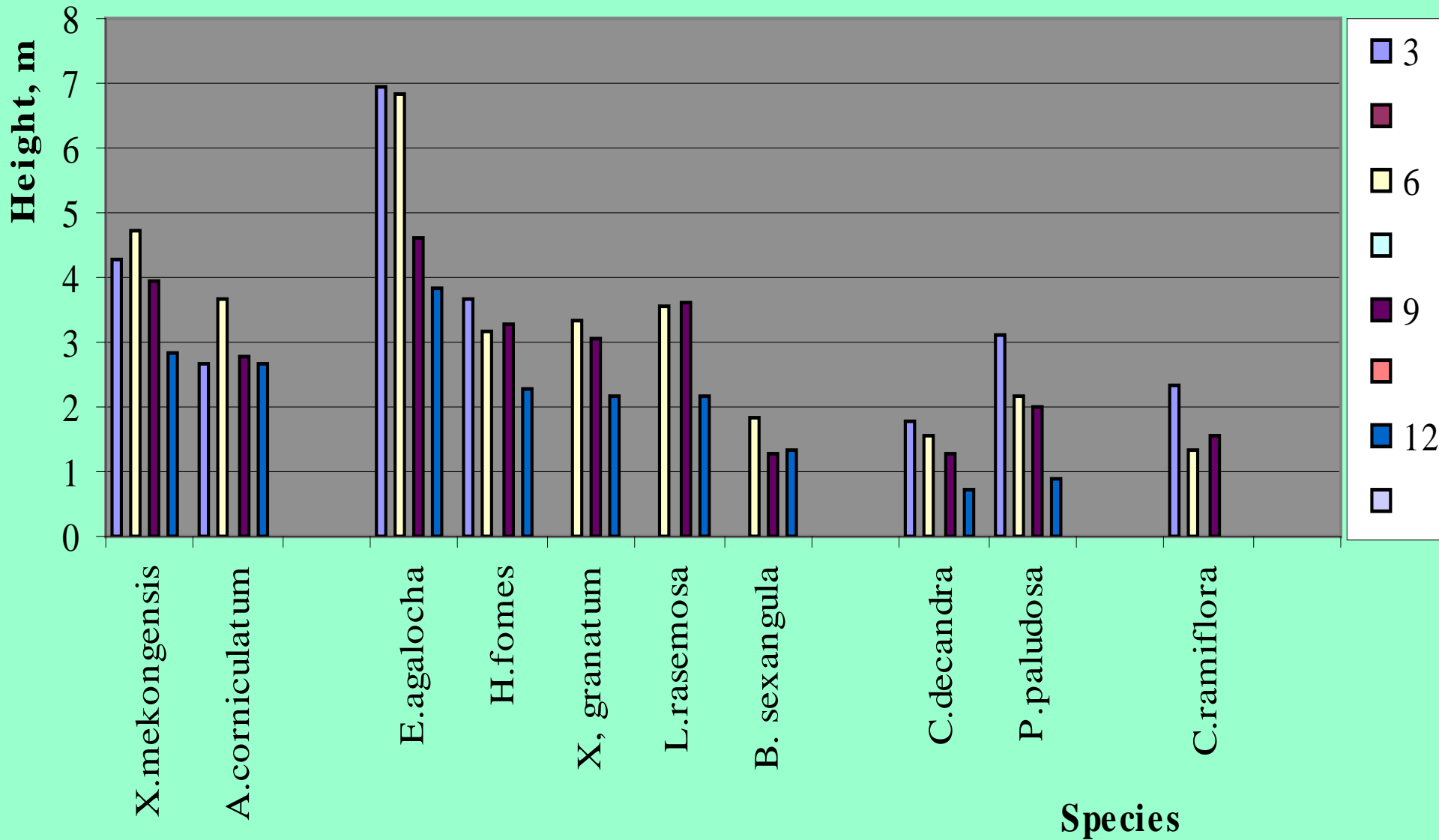
The coastline of BD is about 710 km long and broadly divided into 3 distinct regions *viz.* Eastern, Central & Western Coastal Regions

Major Components of Coastal Areas for Effective Intervention



Highlighted **4 Macro** components with **11 Micro** components; 12mHFI is **submerged throughout the year** while 3-12mINA inundated during **new moon and full moon tides**; Pioneer species are only suitable for 12mHFI but **no where in the world** species have been **selected** for 3-12mINA habitats.

Fig.1. Growth performance of mangrove species in differently inundated coastal habitats





Component-wise species introduction and regeneration

Use of Improved Seed Sources-Safety Assurance Against CCS

➤ Lesson learnt in recent tsunami indicates that damage was significantly lower in areas covered with mangroves. Plantations to be raised with site-suitable improved seed sources would appear enduring, more tolerant to CCS.

Seed type	Wood volume (m ³)			Practical gain/ha	
	Individual tree	Existing tree/ha		Volume (m ³)	%
		Nos.	Volume		
Eastern CB					
A. Before selection Non-selected tree seed	0.06312	803	50.68	-	-
B. After Selection - Selected tree seed	0.07833	803	62.90	12.22	24.1
- Best tree seed	0.10508	803	84.38	33.70	66.5
Central CB					
A. Before Selection Non-selected tree seed	0.01601	673	10.775	-	-
B. After Selection - Selected tree seed	0.02140	673	14.402	3.627	33.7
- Best tree seed	0.03541	673	23.831	13.056	121.2

Site-specific Salinity Tolerant Species

⇒ Climate Change will influence the salinity regime of the coastal areas of Bangladesh. As a result existing tree species may face threats to habitat change.

⇒ Somewhere in the coastal areas may have no vegetation in changed saline and soil conditions.

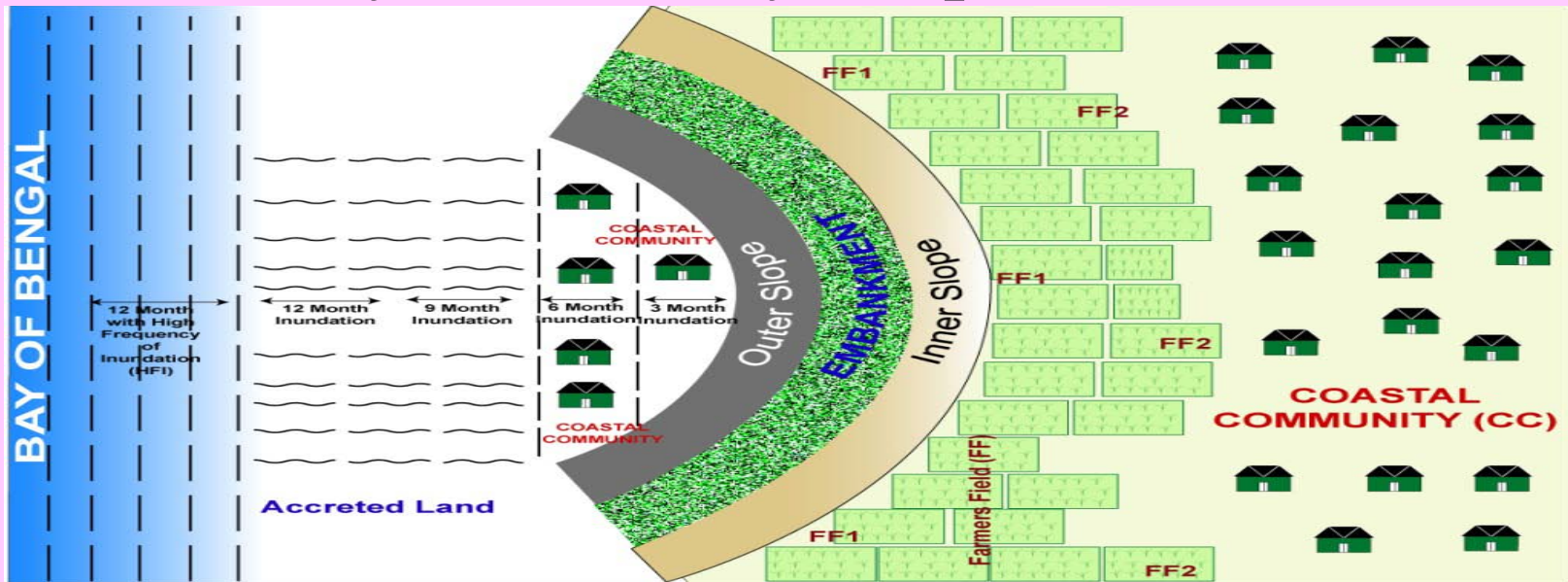


Luxurious growth of *A. officinalis* – an evidence of early accommodation

Physical Protection of Earthen Embankments – A Burning Issue for Climate Change

It would also be prudent to inform that the **physical protection** through close supervision is now a burning issue for the coastal embankments constructed by BWDB, because the embankment is **found to disappear** within year or **two of the start of erosion**. Unfortunately, the mandate of BWDB has been restricted to major repairs only when it is **close to failure or completely** failed. Accordingly, we recommend to **involve coastal farmers** whose crop fields are adjacent to the embankment who could be the **real group of supervisors** for providing quick protection as well as **resource generation on the shoulder of the coastal embankments**.

Community Based Adaptation to Climate Change, Vulnerability and Priority Adaptation Interventions

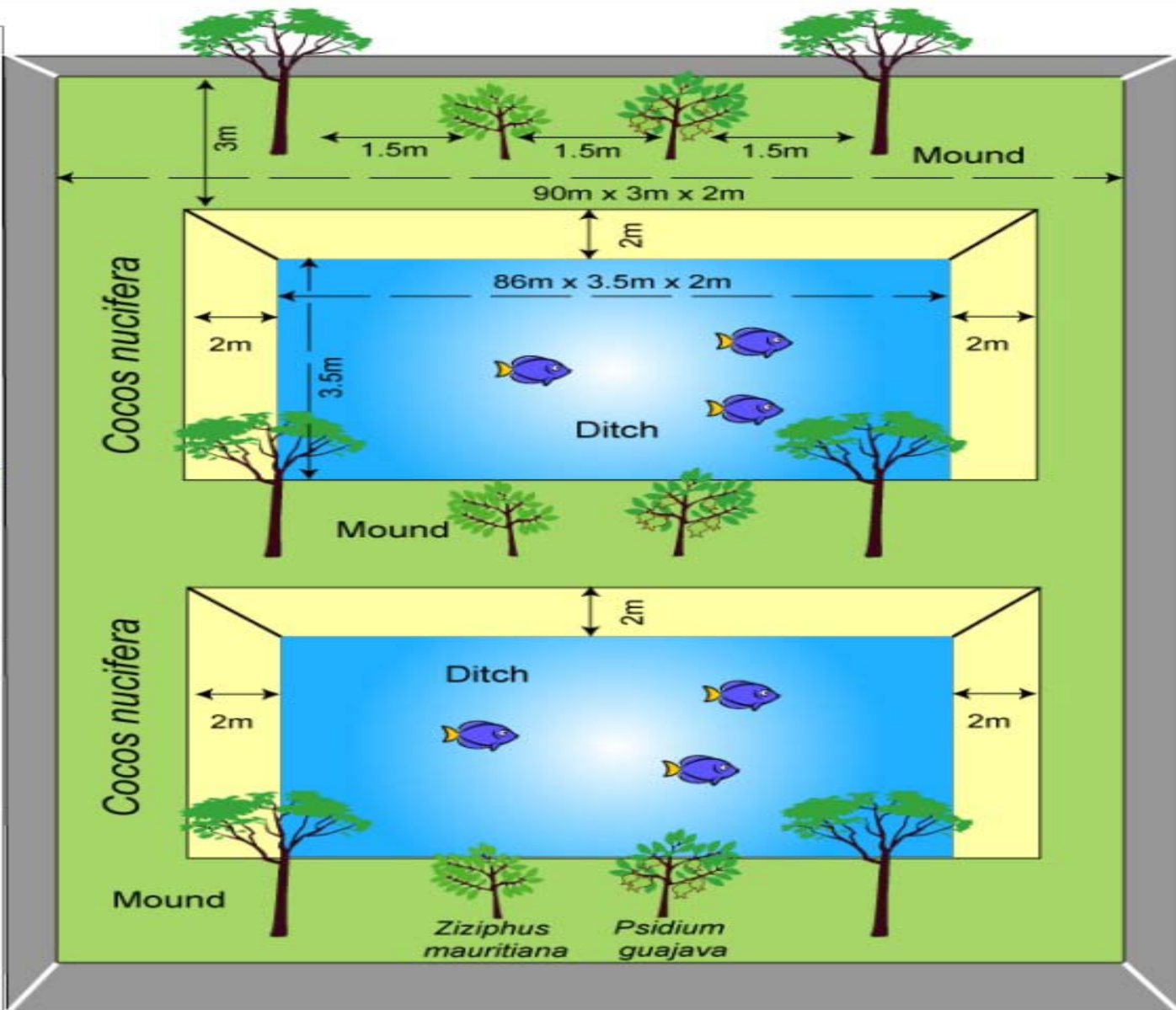
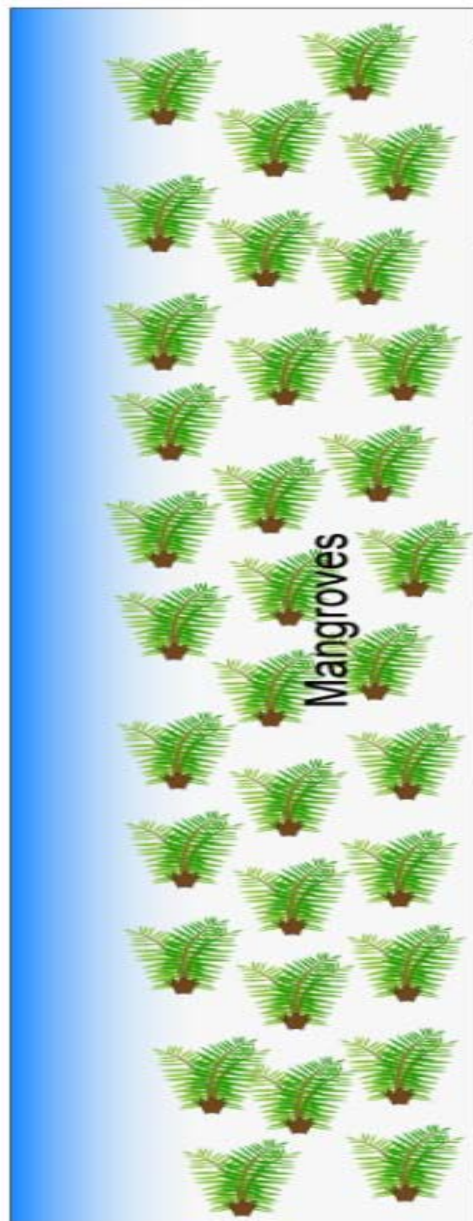


- ▶ There exists three groups of CC: CC adjacent to the inner slopes of embankments; Newly settled CC in 3mINA and Newly settled CC in 6mINA.
- ▶ The socio-economic scenarios of these communities are different.
- ▶ Newly settled CC in 3 & 6mINA are more vulnerable to CCS.
- ▶ The criteria & indicators of these CC are also different which require due attention in implementing priority adaptation interventions.

Group Based Resource Generations – Threshold Point to Unlock Poverty

- In the coastal areas **farming** is the only way of life and **land** for their families represents a fundamental assets and accordingly, **land and farming are the limiting factors for poverty alleviation** in the poverty stricken coastal zones.
- Community led initiatives often thought as an involvement of **large group of homogeneous people** while most of the rural communities are not homogeneous. To overcome this backdrop, it is suggested to involve the coastal communities in GBRG.

A Mound - Ditch FFF (Forest, Fruit & Fish) Model



FFF Model for Community Based Adaptation

Mound – Ditch Arrangement of FFF Model



Active Participation of Coastal Communities



Hanging Vegetables in Scaffolding Arrangements



Conclusions and Recommendations

- Site-suitable DRTS introduced to each micro coastal habitat to enrich and sustain coastal ecosystem and minimize the velocity and intensity of threats from CCS.
- Use of improved seed sources in plantations that are more tolerant could provide 24.1 to 121.2% additional gain per unit area indicating twofold safety assurance against tidal and storm surges as well as cyclonic devastations.
- Plant densities per unit area increased up to 3.3 times to enhance the security of coastal communities from tidal waves of cyclone and other climatic hazards.
- To reduce potential loss of ecosystem from climate change traps, an early accommodation of stress tolerant species to non-stressed sites recommended.
- Land and resource use conflict was found as an important barrier towards sustainable development.
- GBRG has been applied and suggested to prioritize location-wise components, component-wise group formation and participatory governance in all aspects GBRG for the sustainability of community based adaptation measures against CCS.
- FFF Model has been appeared as one of the pioneering rational land use model for the vulnerable coastal communities in Bangladesh. The recurrent income generation from continuous flow of resources will increase the adaptive capacity of the coastal people and such recurrent livelihood support might sustain the model in any anticipated stress conditions, induced by CCS.

THANK YOU

