

Coastal Green Belt and Potential Land Reclamation Sites along Bangladesh Coast through Land Cover Mapping

Mohammed Abed Hossain, Md. Shahidul Islam and Nasrat Jahan

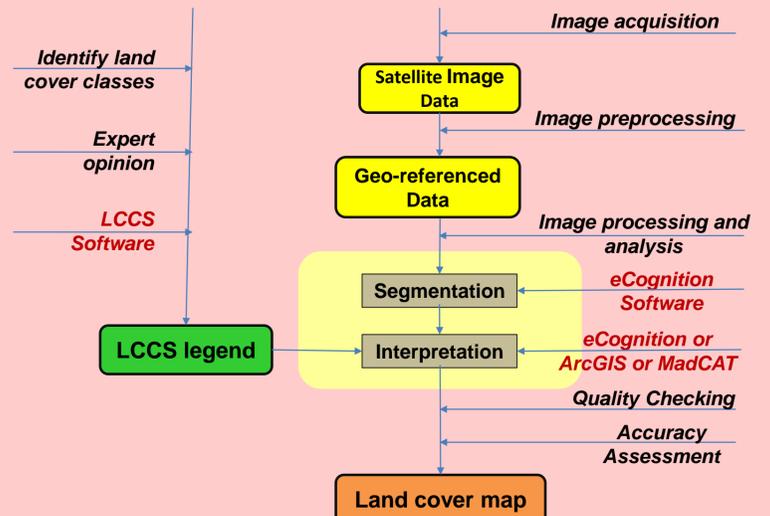
Introduction

The DECCMA project is looking at impacts of climate change and other environmental drivers across contrasting deltas. Land cover map is a key information source that helps to assess the present state of resources and changes with climate change through alteration of different (bio) physical cover. Land cover map of DECCMA study area in Bangladesh Delta provide opportunity for locating potential vulnerable zones (i.e., absence of coastal green belt) for Storm Surge Risk and Potential Land Reclamation Sites (mudflats). The information may aid decision makers to devise region specific mitigation and adaptation strategies considering likely changes in land cover. DECCMA land cover mapping work is carried out in conjunction with FAO-BD land cover mapping for the whole country using FAO LCCS.



Classification Flow Chart

The flow chart of the land cover map is as :



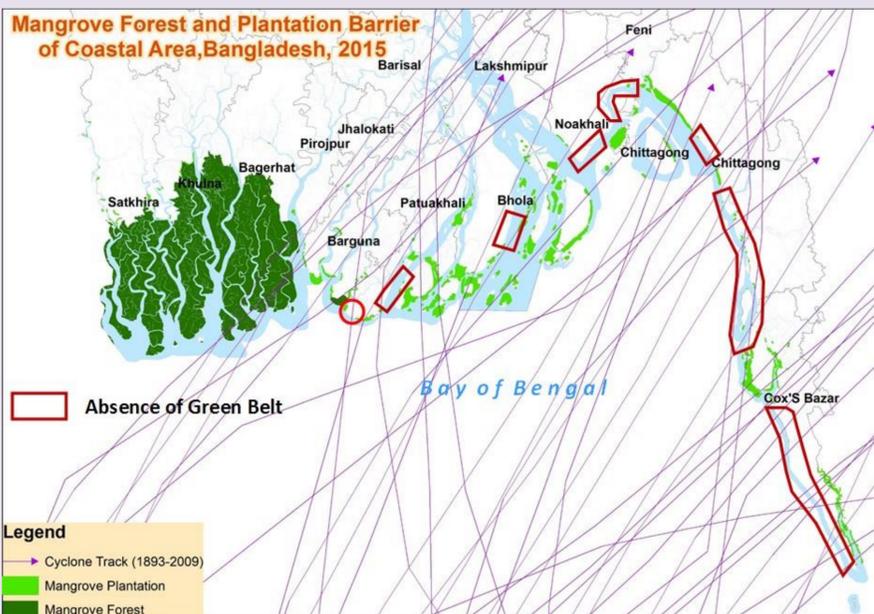
Methodology of Land Cover Map, 2015

- Legend of the Land Cover Map of Bangladesh developed from **LCCS software** by CEGIS and BUET from the outputs of workshops of different national stockholders in Bangladesh.
- A total of 36 different land cover classes were included in the finalized legend for land cover mapping of Bangladesh. DECCMA study area included 27 classes out of total 36 classes.
- Major Land cover features are extracted from SPOT Satellite images (6 meter) of 2015 using segmentation by **eCognition** tools.
- Single crop and Multiple crop classes were identified through help of available LANDSAT Satellite images at different time of year in conjunction with SPOT images.
- Some features such as Brickfields, Orchard and Other Plantation (Trees), Orchards and Other Plantations (Shrubs), Built-up Non-Linear, Dump Sites/ Extraction Sites, Salt Pan, Air Port were validated from Google images and other classes were finalized with the help of ancillary information and ground truthing.
- Quality Checking will be completed by a workshop on early February using FAO established criteria.
- Accuracy Assessment will be computed in February using accuracy metrics of high resolution satellite data or field data.

Area Statistics of Land Cover Data :

Land Cover Classes	Area (km ²)	Land Cover Classes	Area (km ²)
Brickfields	57.01	River Banks	3.99
Baor	30.57	Rural Settlements	11318.82
Perennial Beels/Haor	110.49	Mangrove Plantation	483.65
Built-Up Non-Linear	354.97	Forest Plantations	661.31
Beaches/Sand bar	66.28	Rubber Plantations	49.27
Mud Flats	552.40	Lake	13.90
Fresh Water Aquaculture	1148.03	Shrub Dominated Area	1206.93
Herbs Dominated Area	178.69	Air Port	9.19
Intertidal Area	24.17	Orchards and Other Plantations (Shrubs)	49.89
Orchards and Other Plantation (Trees)	132.14	Salt Pan	403.80
Multiple Crop	3315.47	Brackish Water Aquaculture	1868.21
Single Crop	12288.66	Dump Sites/ Extraction Sites	0.67
Ponds	22.78	Mangrove Forest	4025.10
Rivers and Khals	7745.38		

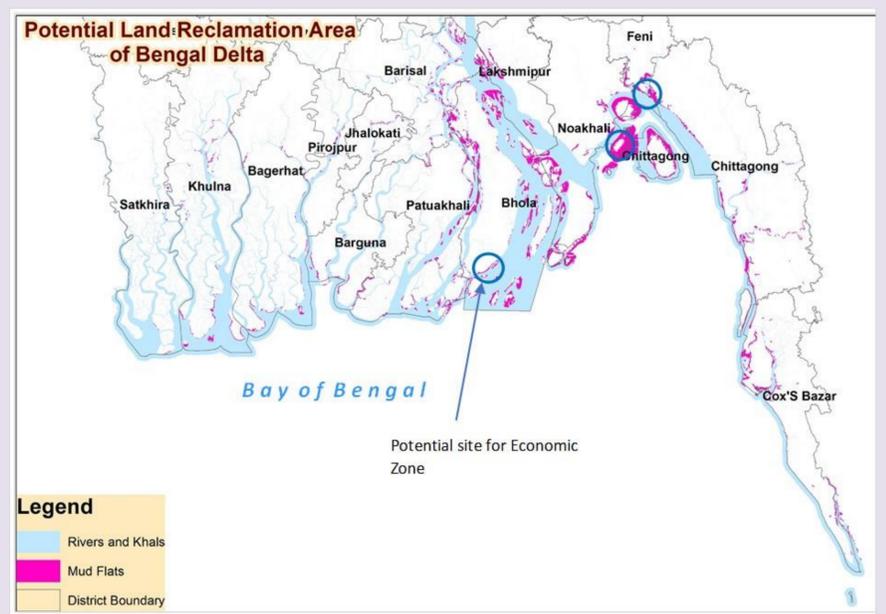
Coastal Green Belt and Land Reclamation Area



Mangrove Forest and Plantation barrier for Storm surge Protection

According to the Mangrove Forest and Plantation Barrier of Coastal Area and Cyclone track -

- A large part of coast in **Barguna, Patuakhali, Bhola, Lakshimpur, Noakhali, Chittagong and Cox's Bazar** is unprotected from storm surge.
- **Coastal Afforestation (Mangrove Plantation)** by GoB needs to speed up.



Mud Flats as Potential Land Reclamation Area

With regard to mud flats distribution of Coastal Area-

- **Patuakhali, Bhola, Lakshimpur, Noakhali and Chittagong** are more potential for land reclamation.
- Mud flats are potential sites for **plantation program** but recently GoB is targeting Mudflats and new accreted lands for **Special Economic Zones** to achieve rapid economic growth, employment and reduce poverty.

Conclusion

Bangladesh being a land scarce country there exists conflicting needs and targets with regard to land use in Bangladesh. As evidenced from land cover map the present condition of coastal green belt is inadequate from DRM point view and may need speeding up plantation in new lands. But new lands are increasingly viewed as potential industrial zones to achieve social vulnerability reduction through economic capacity expansion. Policy makers may need to strike a balance between use of new lands for SEZs or coastal afforestation to protect the storm surge prone vulnerable districts of coastal area in Bangladesh.