

Land resource management of coastal areas in Indian cities: Comparative assessment with prevailing methods

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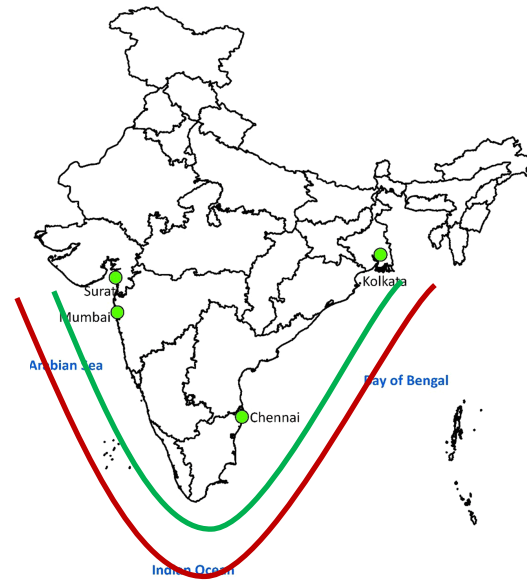
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Introduction

Mangrove system;
Seagrass system;
Sandy beach systems;
Coral reef systems;
Estuary systems;

Urban infrastructure;
Port activities;
Offshore drilling;
Aquaculture;
Tourism;



Livelihood security

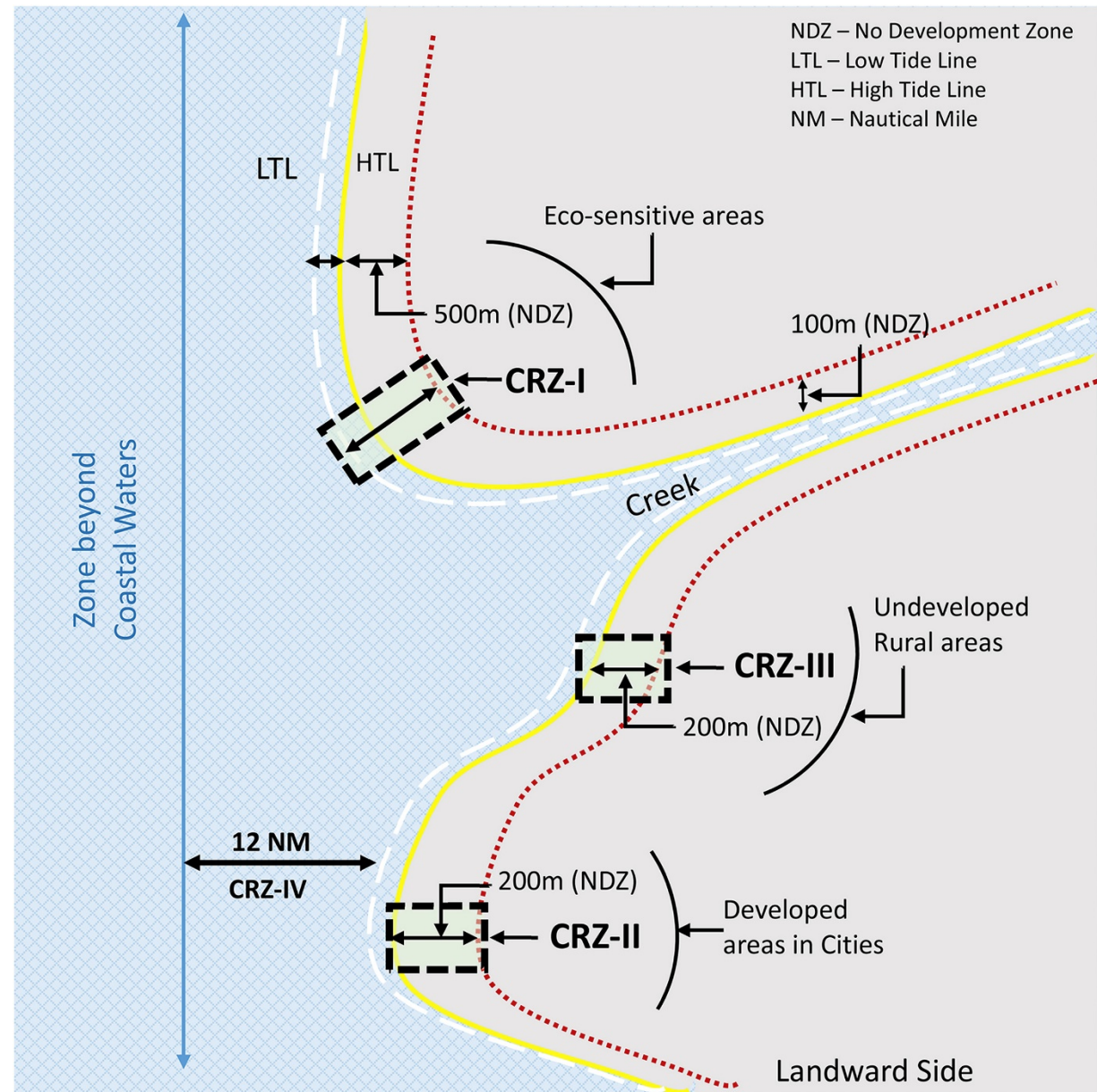
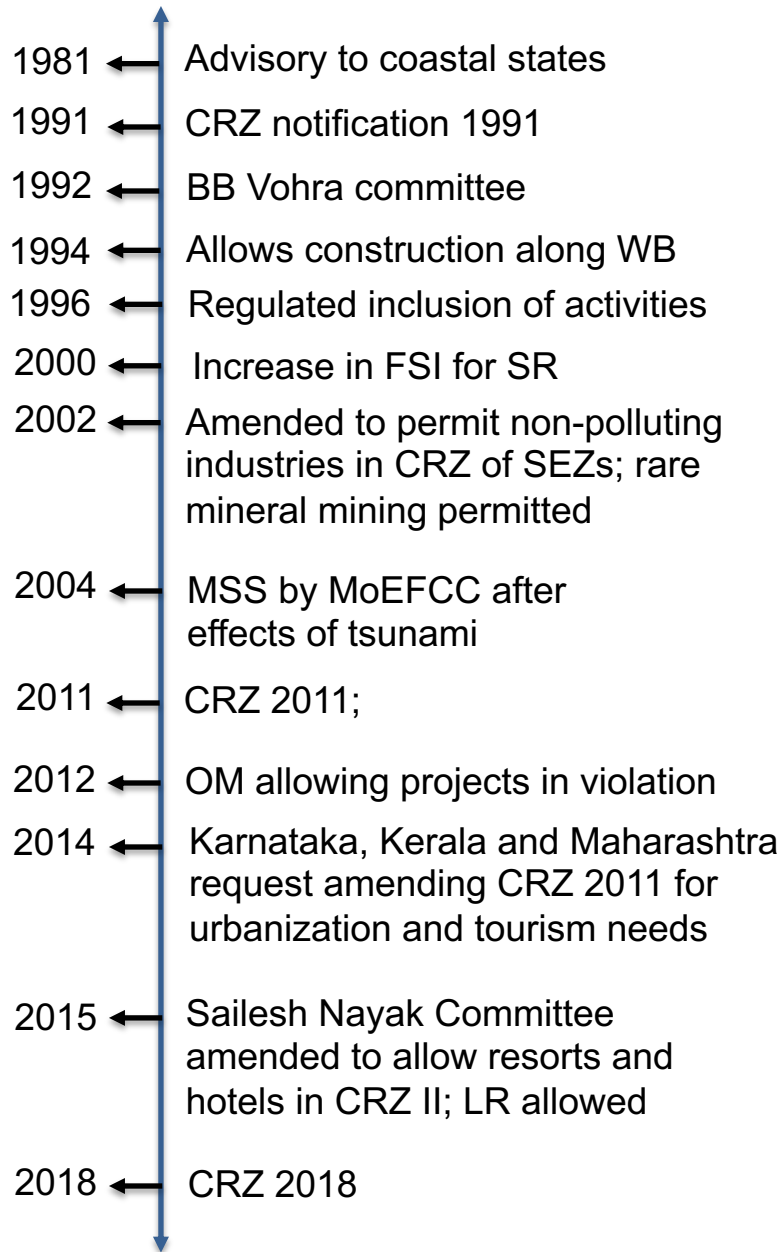
Development

Coastal degradation

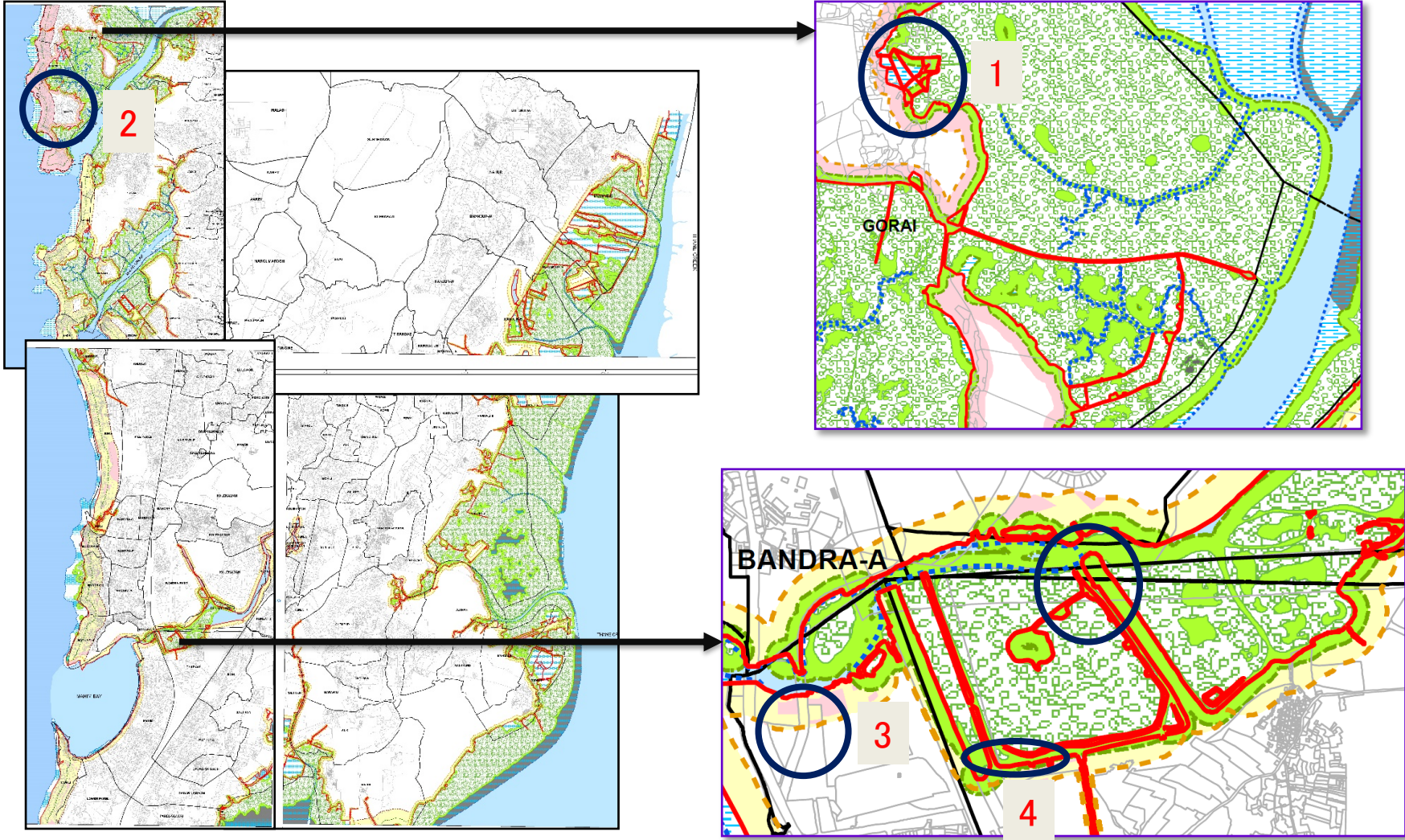
Coastal Regulation Zone (CRZ) Notifications

The Environment (Protection) Act, 1986

Genesis of CRZ



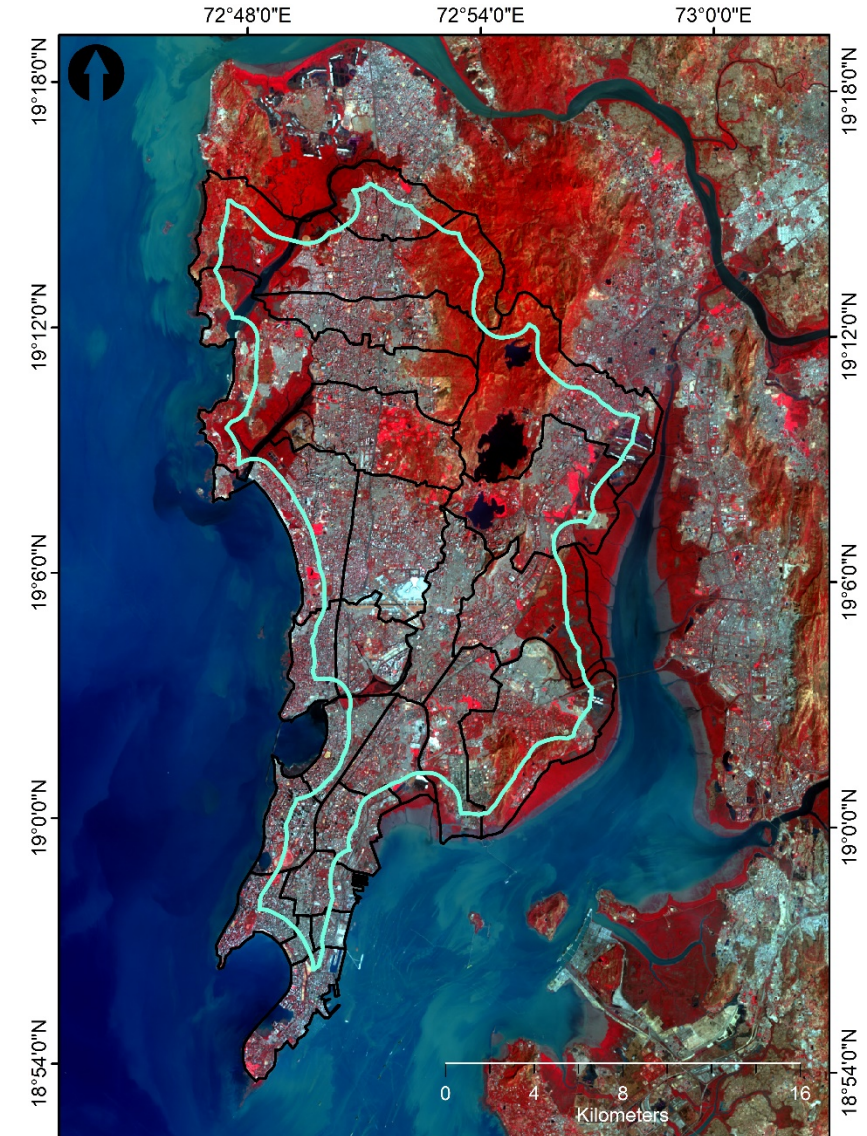
Challenges and Issues with CRZ



Source: Maharashtra Coastal Zone Management Authority (MCZMA)

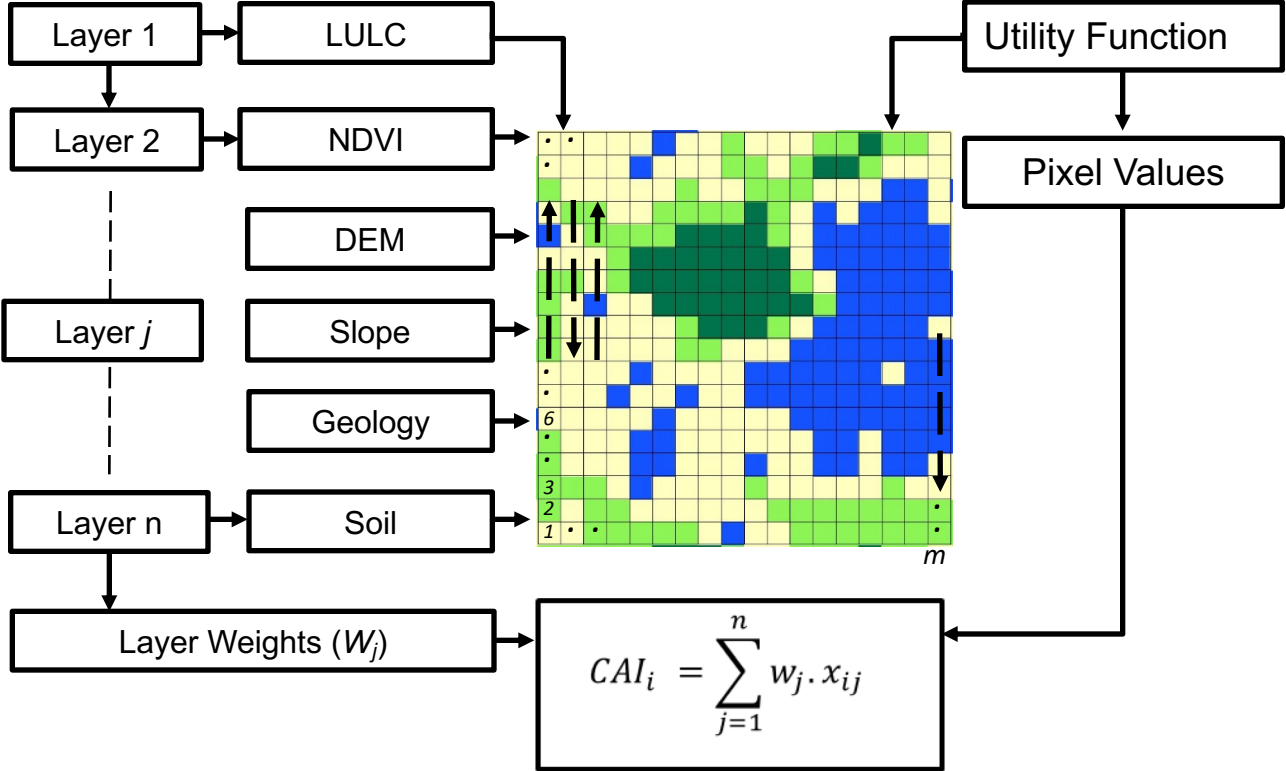
Study area and data processing

Data Type	Source
LULC	Landsat 8
Coastal Slope	SRTM
Coastal Elevation	SRTM
NDVI	Landsat 8
Geology	Survey of India
Soil	Survey of India
CRZ Boundaries	GIS Maps from MCZMA

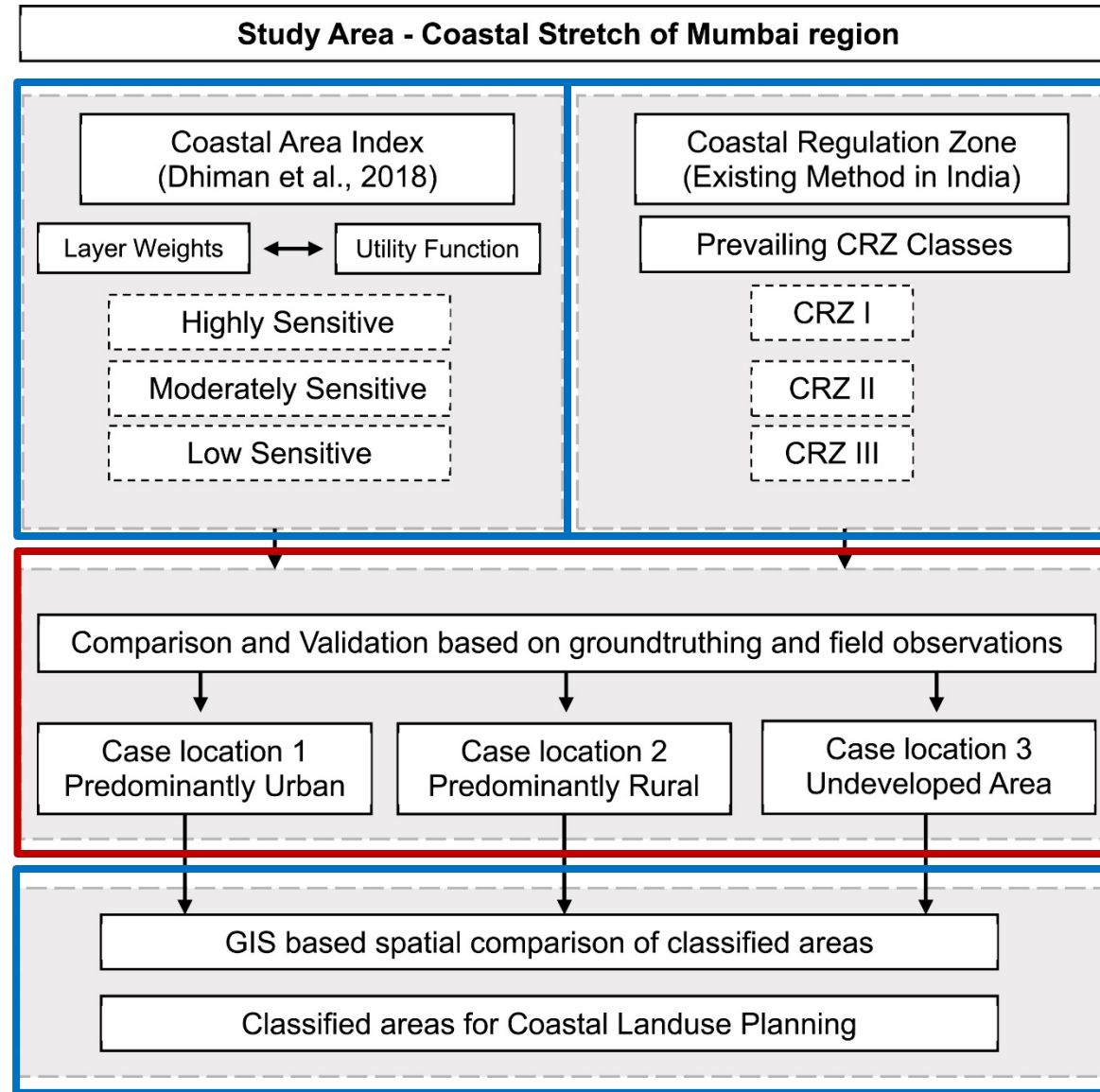


All the classic geomorphological features and urban signatures are available

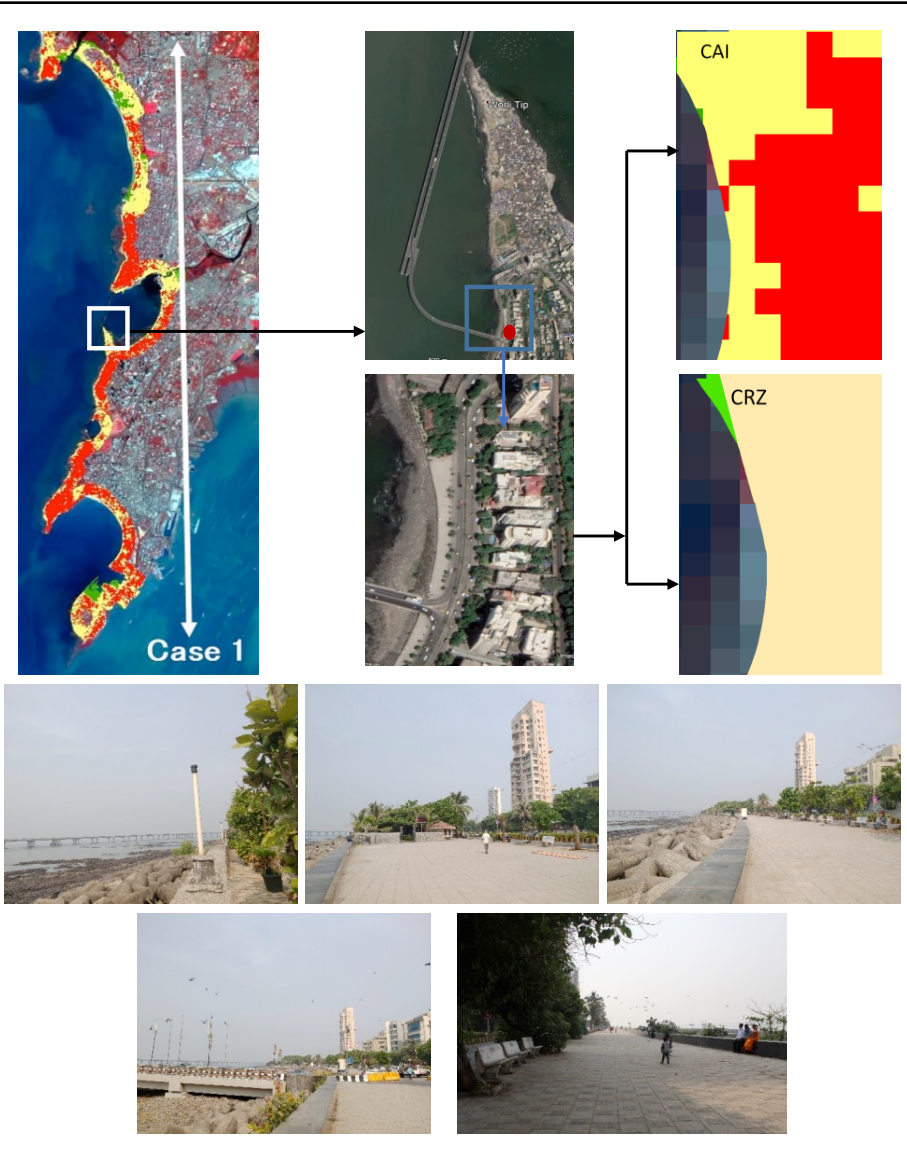
Coastal Area Index (GIS coupled MCDM approach)



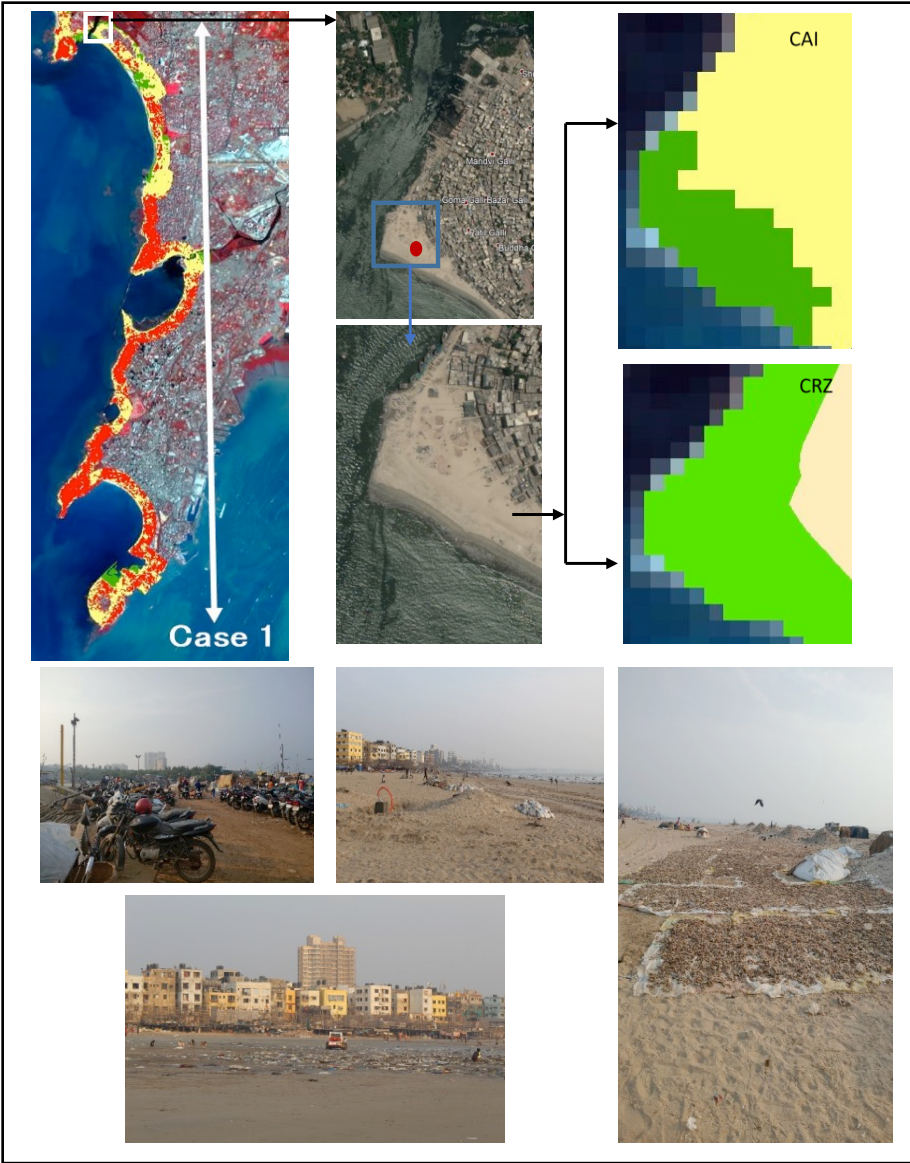
Methodology framework



Validation at Case Location 1

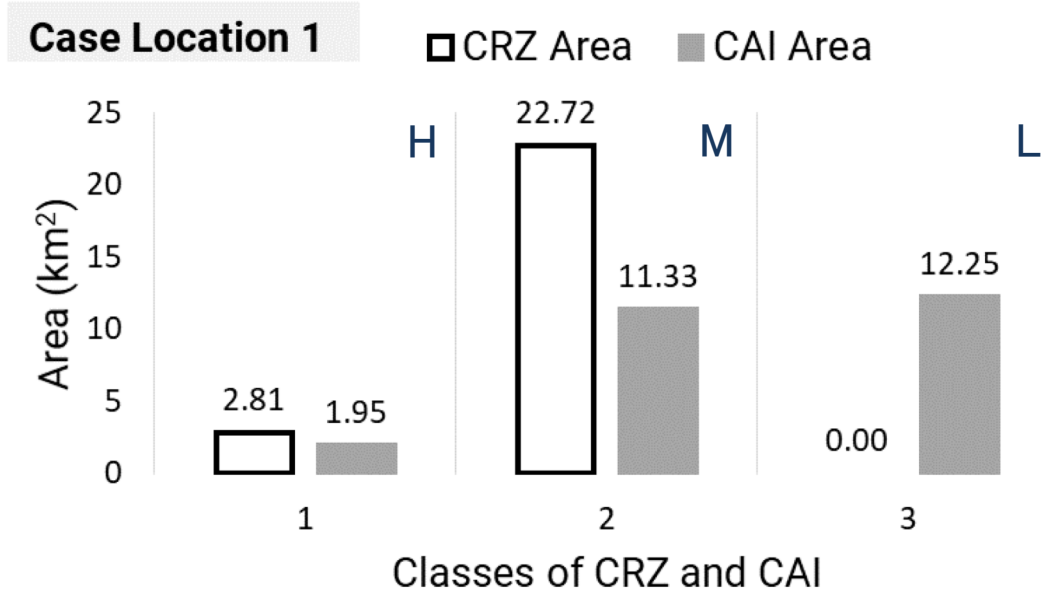
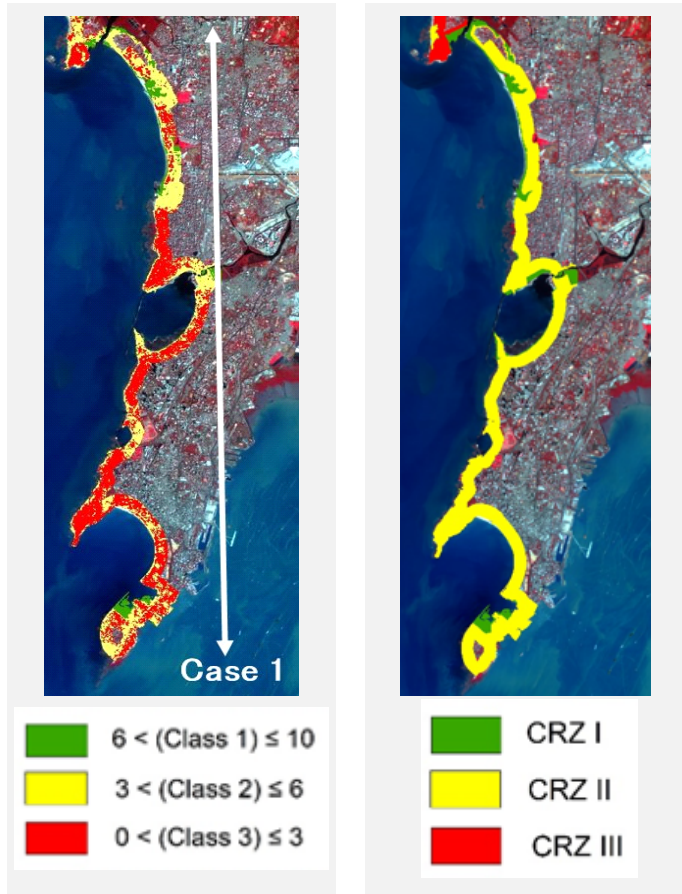


Case location 1 (a) – Worli sea face

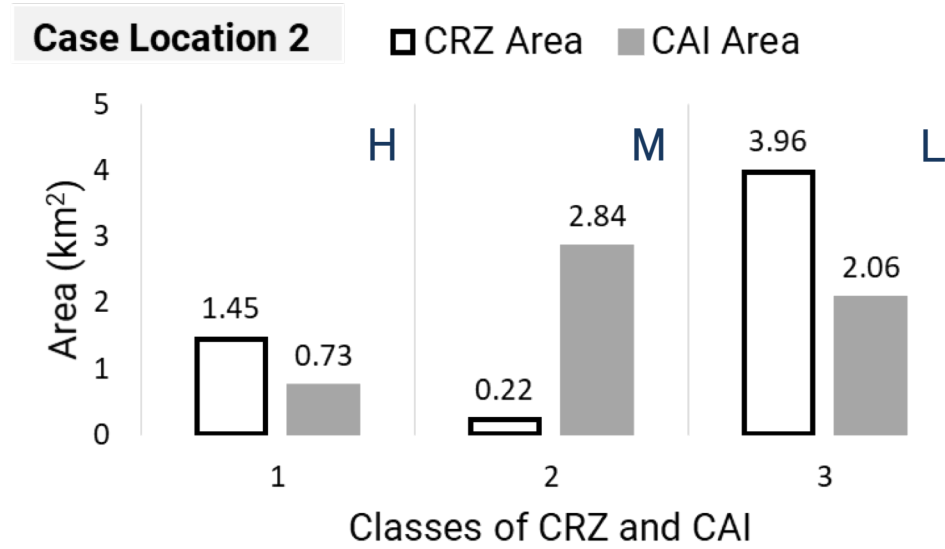
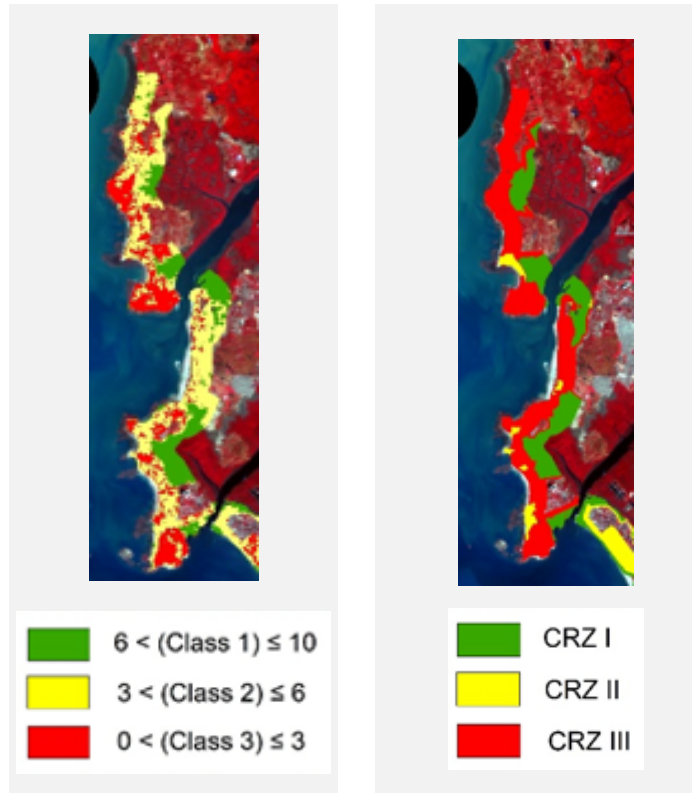


Case location 1 (b) – Varsova Jetty (Malad Creek)

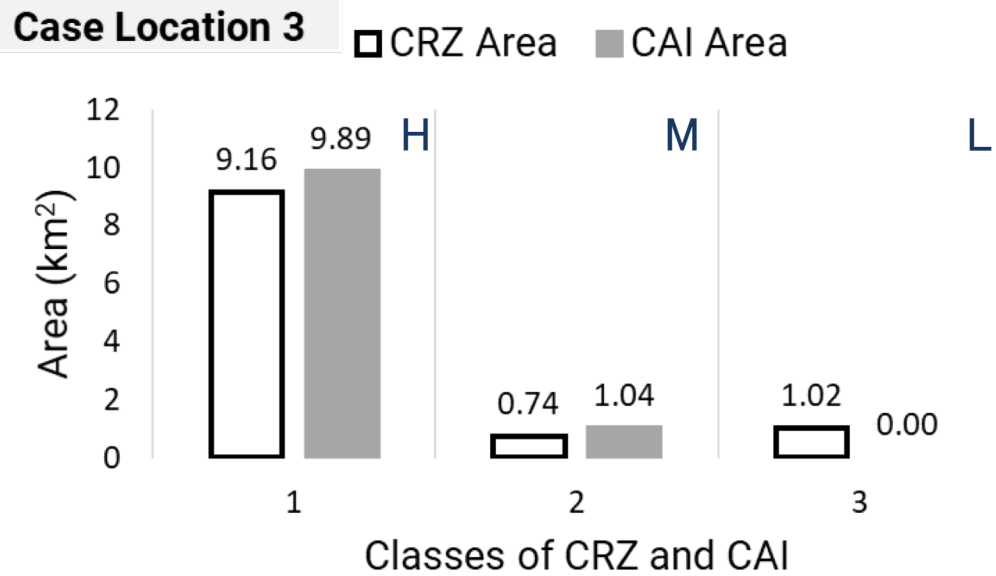
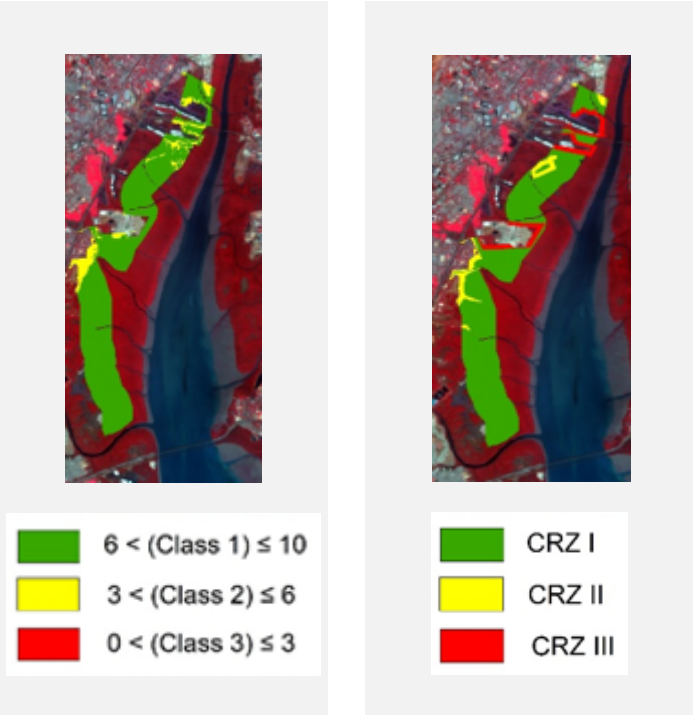
Results (Case Location 1 – Predominantly Urban)



Results (Case Location 2 – Predominantly Rural)



Results (Case Location 3 – Undeveloped area)



Conclusion

- ➔ Current CRZ guidelines are unable to deliver the expected outcomes.
- ➔ The comparative assessment of CRZ approach and CAI approach highlighted the advantages of CAI.
- ➔ CAI approach is developed and demonstrated using freely available remote sensing dataset which makes it economical as well for implementation.
- ➔ Most effective coastal management options can be proposed for different classes of coastal areas based on CAI.
- ➔ CAI based decisions will enhance the quality of decision making for coastal planners, managers and researchers.

