

BLUE ECONOMY

SAI India

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BLUE ECONOMY IS EVERYWHERE



SPATIAL
PLANNING



BIODIVERSITY



FISHERIES



COASTAL
TOURISM



MARINE
RENEWABLES



HEALTH



DEEP SEA
MINING



MARITIME
TRANSPORT

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CHALLENGES



Social Challenges

- Livelihood
- Gender Equity
- Capacity Building

Economic Challenges

- Blue Accounting
- Inter-sectoral conflicts

Ecological Challenges

- Threat to Biodiversity
- Marine Pollution
- Coastal Erosion
- Overexploitation of biotic resources
- Invasive Species



BLUE ECONOMY – INDIAN CONTEXT

- A long coastline of 7516KM
- Among 12 mega biodiversity countries.
- 25% of the Indian population lives within 50KM of the coastline.
- 3rd largest fish producing country.
- 16 Million fishermen depend for livelihood.
- 95% of Trade takes place through Sea.

Overall contribution of Blue Economy – 4.1% of Indian GDP



SUSTAINABLE
MANAGEMENT OF
COASTAL SPACES



CONSERVATION OF
BIODIVERSITY



EMPLOYMENT
GENERATION AND
GENDER EQUITY



OFFSHORE WIND
ENERGY

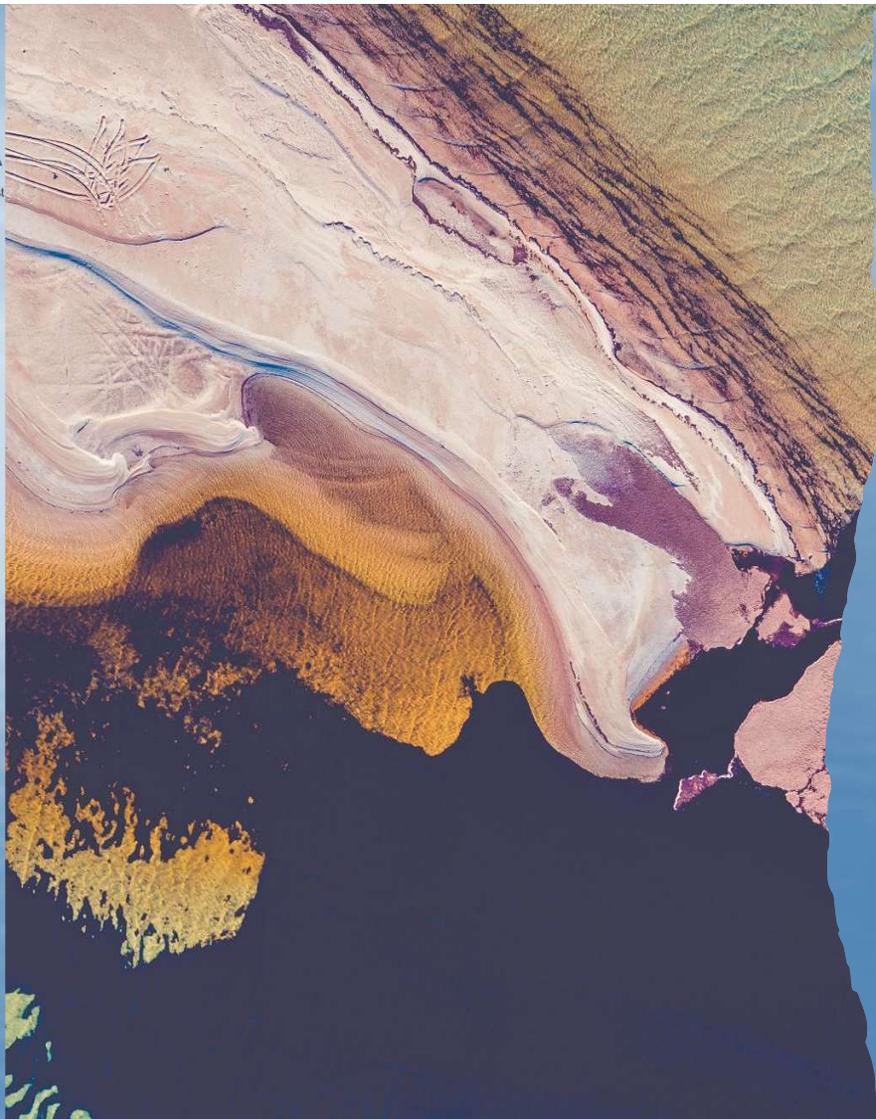


Priority Areas

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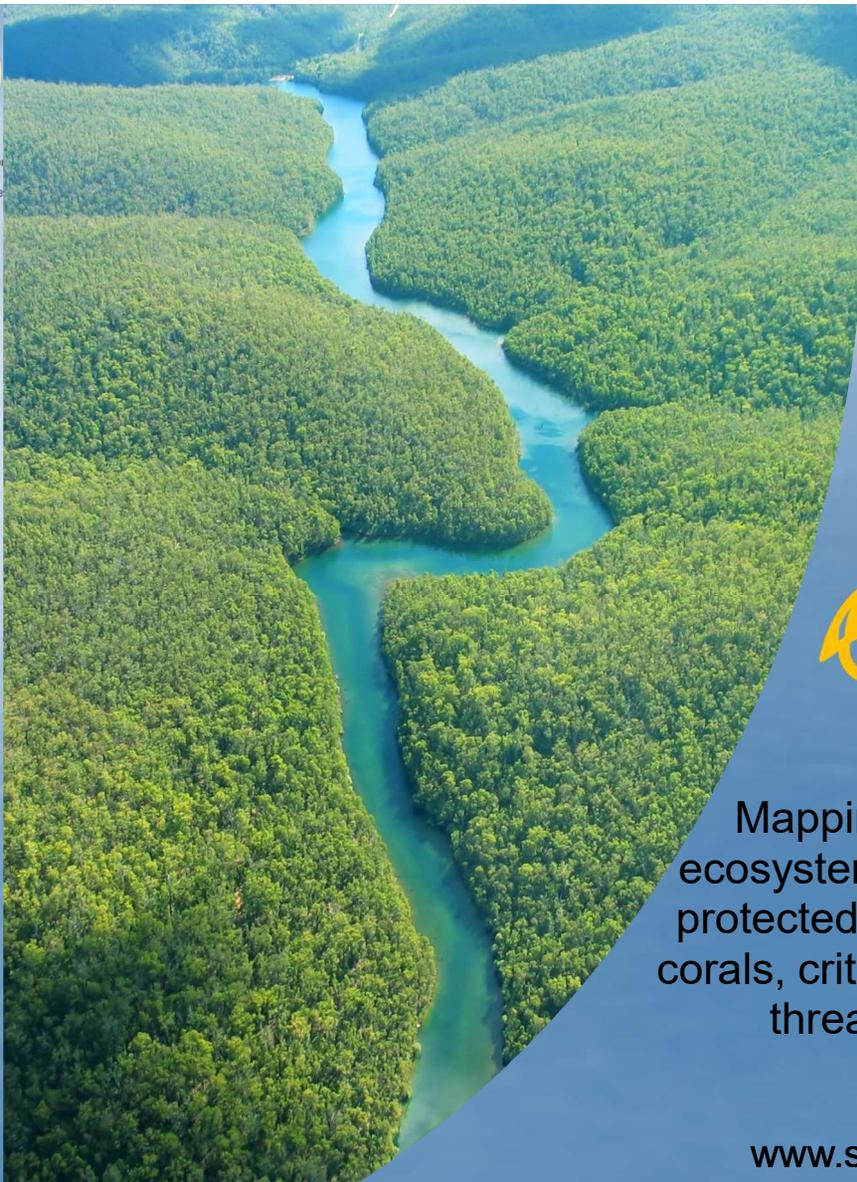
SUSTAINABLE MANAGEMENT OF COASTAL SPACE

- Policy Regime
- Institutional Framework
- Spatial Planning
- Coastal Water Quality
- Project specific Environment Management Plans

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CONSERVATION OF MARINE BIODIVERSITY



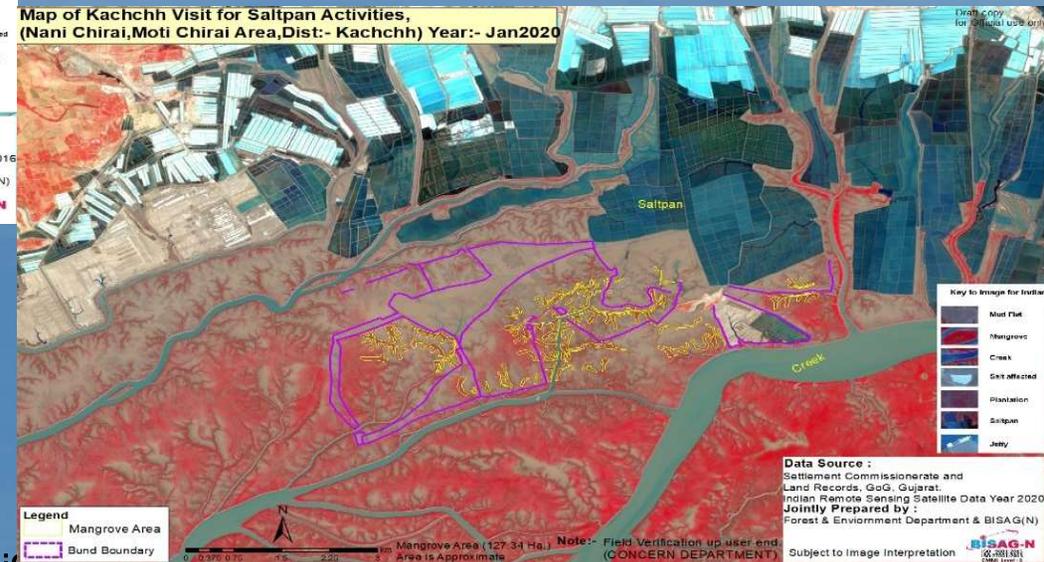
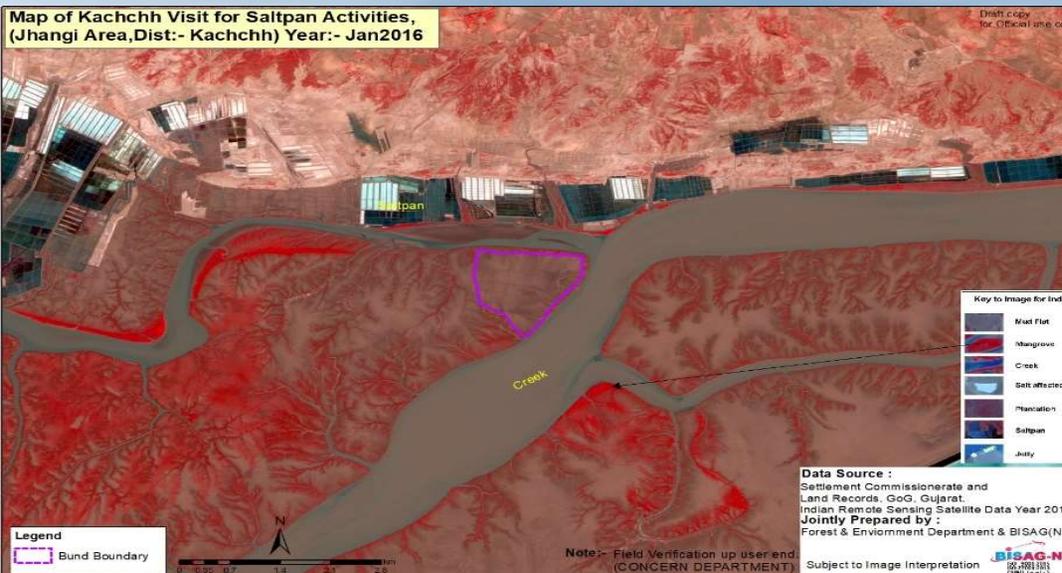
Mapping of the coastal ecosystem, including marine protected areas, mangroves, corals, critically vulnerable and threatened species



Identification and Mitigation Plans for anthropogenic stressors

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DESTRUCTION OF MANGROVES FOR UNDERTAKING SALT MANUFACTURING ACTIVITY



THREATS TO BIODIVERSITY



DEAD CORAL COVERED WITH INVASIVE ALGAE

BEACH BEDS IN TURTLE NESTING SITES



EMPLOYMENT GENERATION AND GENDER EQUITY

Mapping of fish
stocks and
technology for
production and post-
harvest management

Artisanal Fishery

Capacity Building

Coastal Tourism

Gender Equity with
larger role and
finances for
Fisherwomen

World Bank Project
in India with large
pilot investments for
participation of
women

Offshore wind energy

- Wind Energy Atlas
- Shift in overall energy mix towards renewable
- Project specific threats to marine biodiversity
- Clean not at the cost of green



Step 1

- Criteria (Coastal Zone Management Plans-LULC maps)

Step 2

- GIS Tools (QGIS, Google Earth Pro)

Step 3

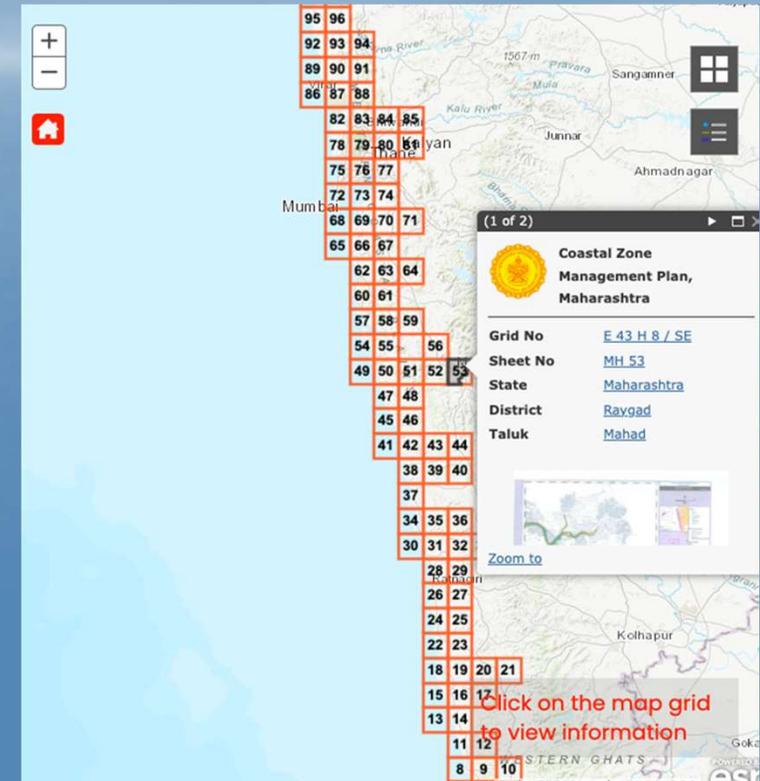
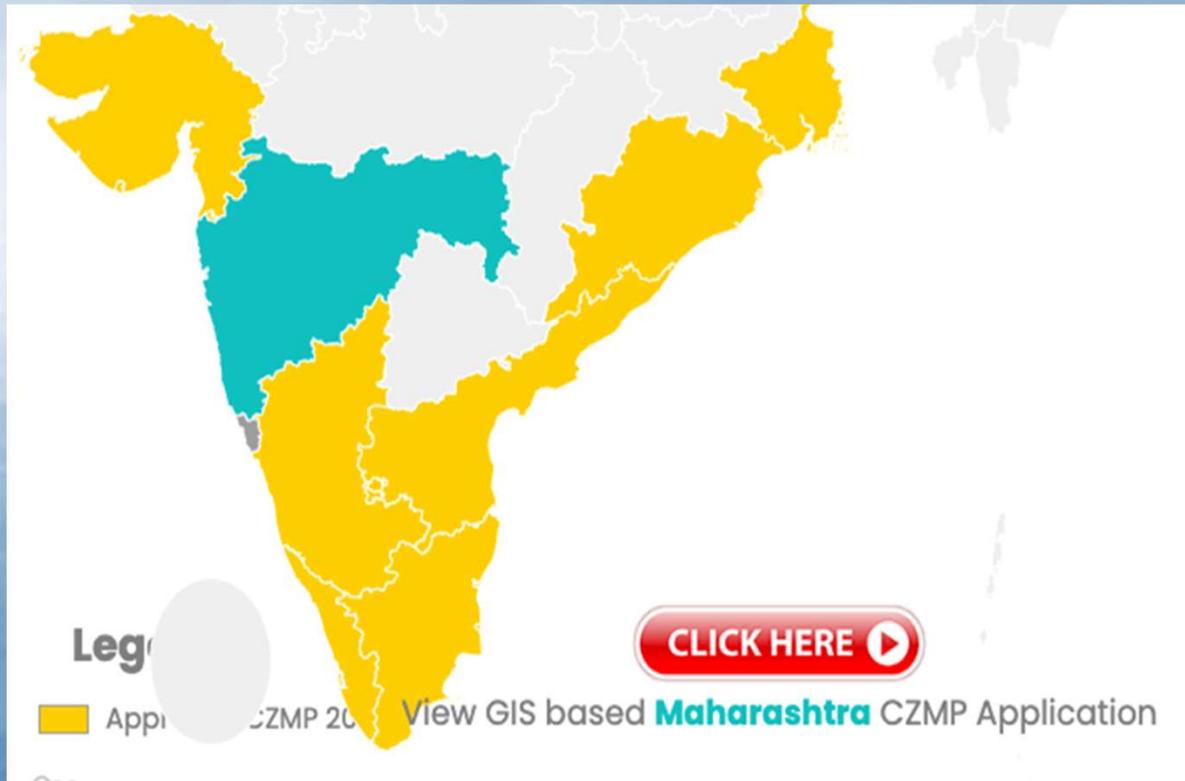
- Processing of GIS and Satellite Data

Audit Outcome

Toolkit 1:

Use of GIS technology
in monitoring of
coastal space

COASTAL REGULATION ZONE MAP





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CRITERIA

CRZ CATEGORY

CRZ - I

CRZ - IA **Most Eco Sensitive Zone**

50m Mangrove Buffer Zone - CRZ IA

CRZ - IB

CRZ - II

CRZ II

CRZ - III

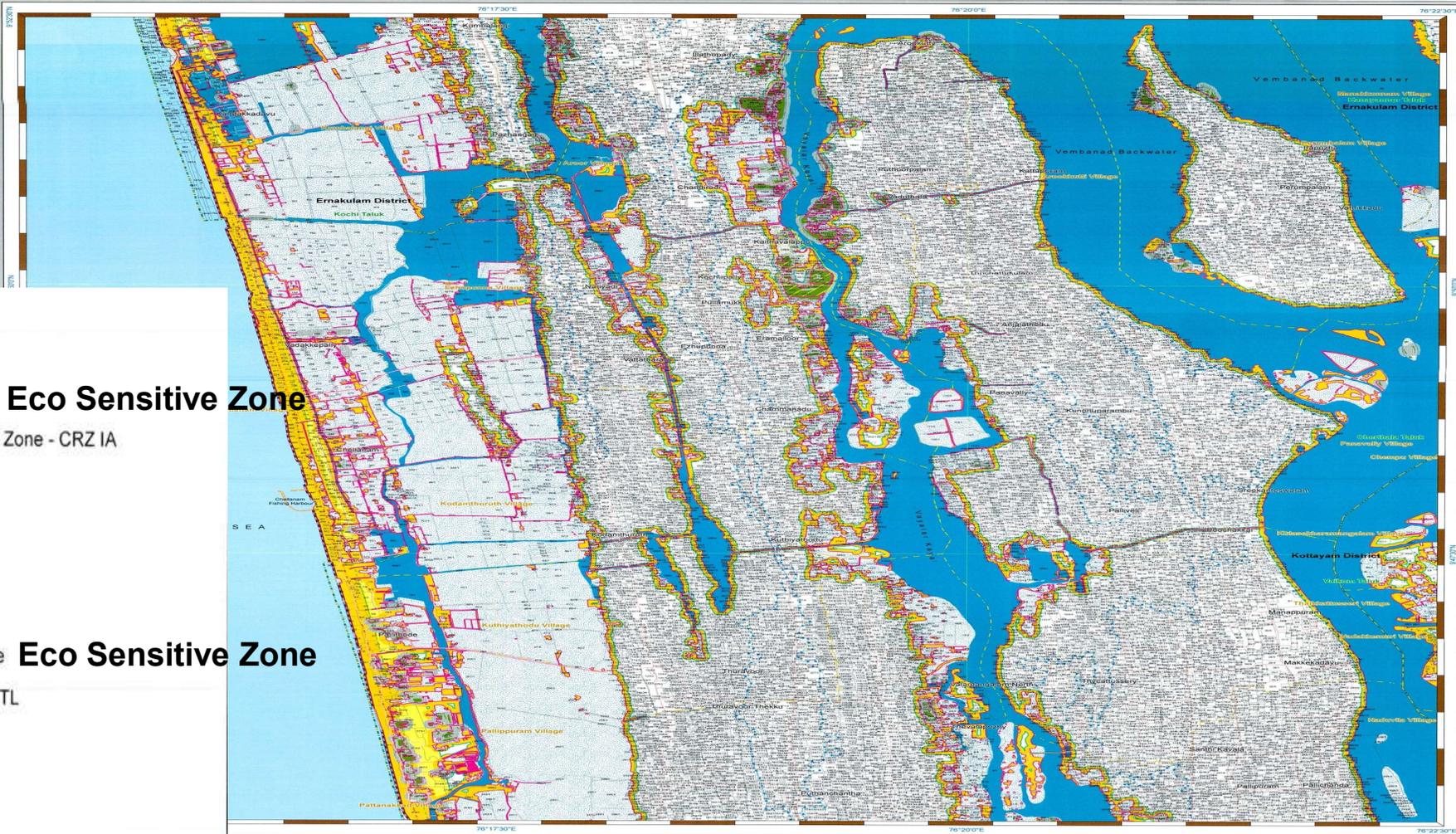
No Development Zone **Eco Sensitive Zone**

200m to 500m from HTL

CRZ - IV

CRZ IVA

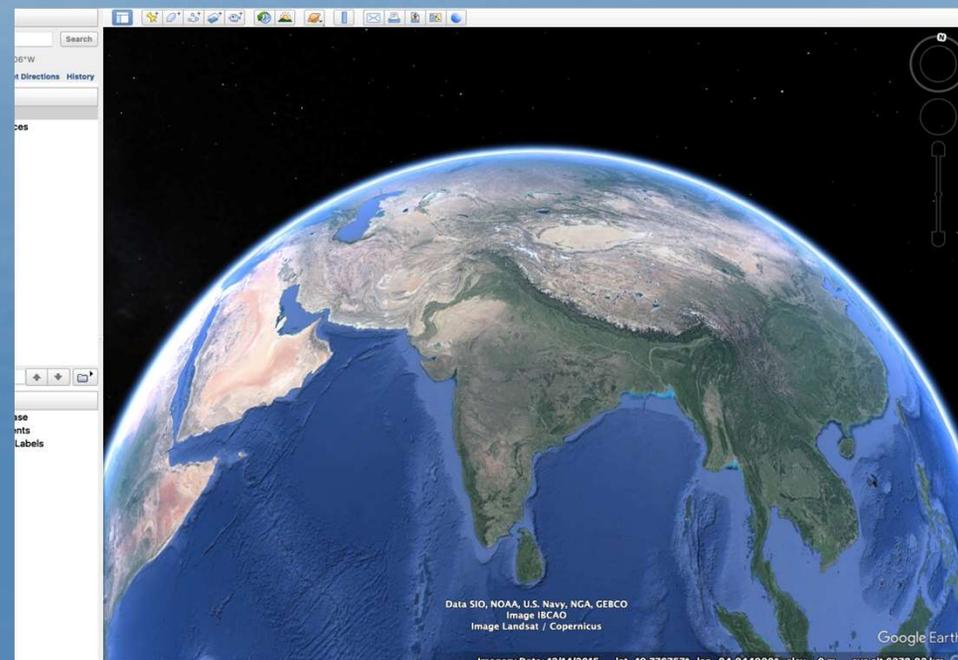
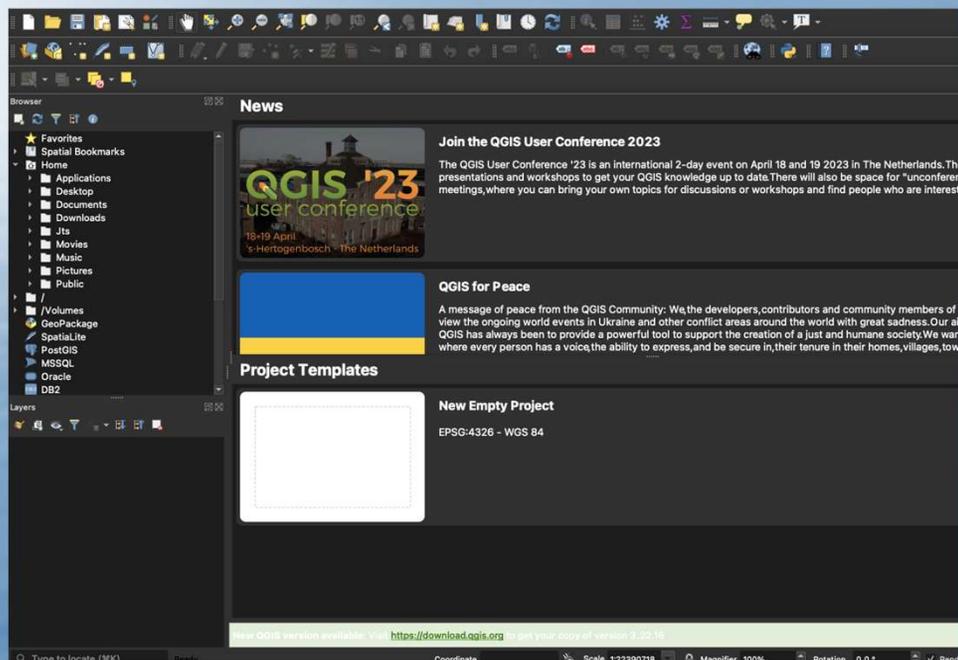
CRZ IVB



GIS TOOLS

QGIS for referencing the CZMPs

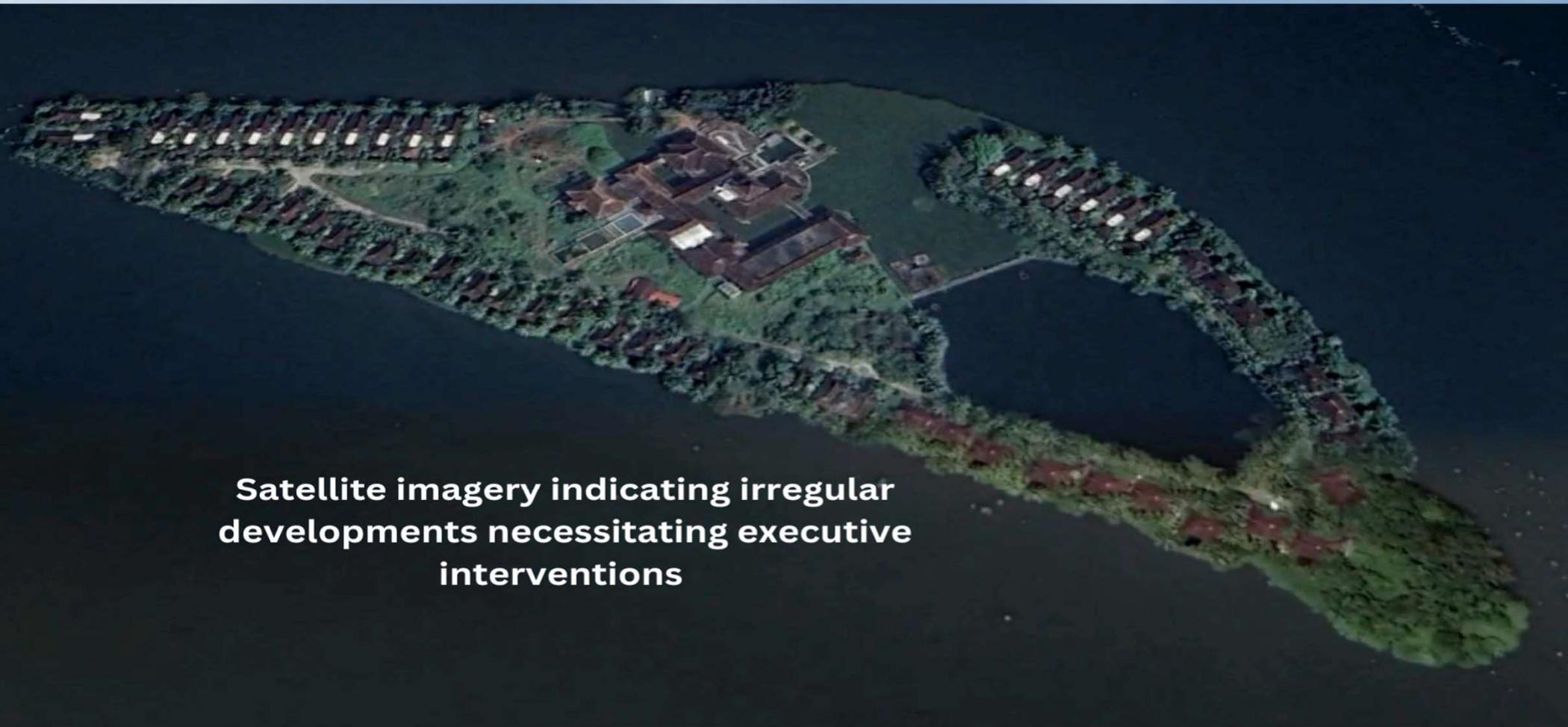
Google Earth Pro for Satellite Imagery





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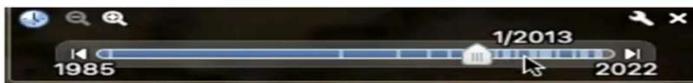
AUDIT OUTCOME



Satellite imagery indicating irregular developments necessitating executive interventions



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Toolkit 2: Assessment of country specific coastal water quality index

Each country has a unique coastline with specific distress factors

Nationally developed methodology with primary data points obtained from National Centre for Coastal Research and approved by Niti Aayog

Methodology is replicable and may serve as a starting point for auditing community to track marine pollution.



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METHODOLOGY



Coastal water Quality Index

Sample collection from 170 representative locations across the Indian coastline (pristine to polluted)

Analysis of eight parameters critical to Coastal water Quality

Creating data points and feeding the algorithm to create water quality index benchmarks

Assessment of water quality of any location on coastline based on the algorithm

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Correlation of Parameters with Coastal water Quality

Suspended
Particulate
Matter (SPM)

Biological
Oxygen
Demand (BOD)

Total Nitrogen
(TN)

Total
Phosphorus
(TP)

Chlorophyll-a
(Chl)

PH

Faecal
Coliform (FC)

Oxygen
Saturation
(OS)

Percentile	Score	Condition	SPM (mg/l)	BOD (mg/l)	TN (μ M)	TP (μ M)	Chl (mg/m ³)
5th Percentile	5	Very Good	8.34	0.36	6.31	0.54	0.05
25th percentile	4	Good	13.1	0.77	11.75	0.64	0.38
50th Percentile	3	Moderate	17.5	1.22	16.67	0.94	1.27
75th Percentile	2	Poor	25.6	1.96	23.50	1.61	2.69
95th Percentile	1	Very Poor	40	3.51	49.74	4.89	5.73

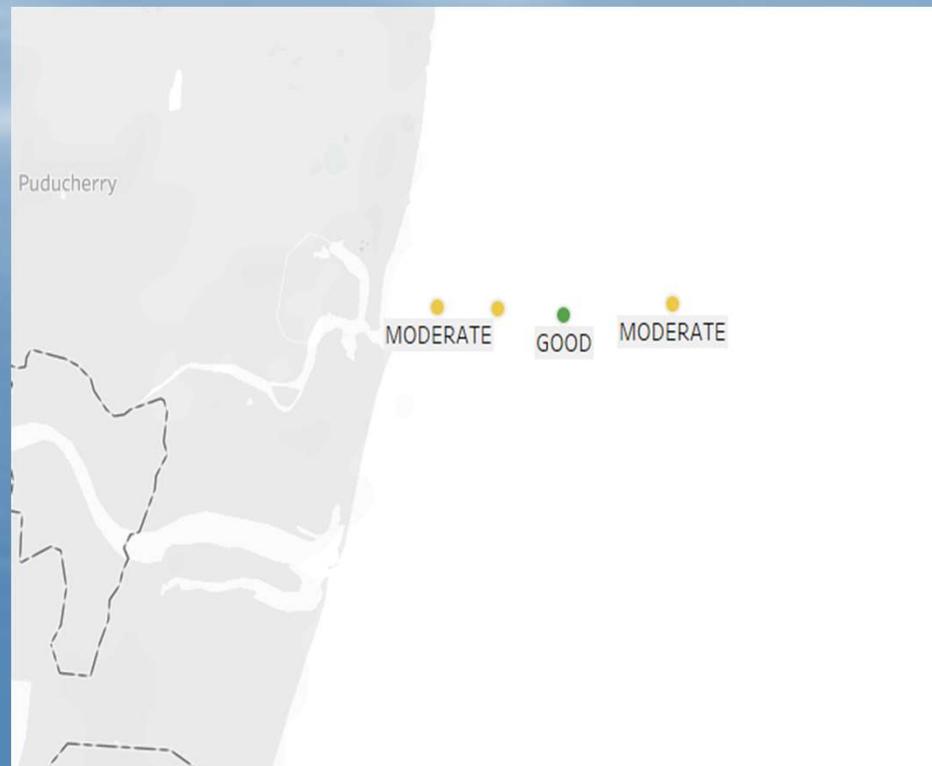
Condition	OS (%)	Score
Very Poor	47.24	1
Poor	74.52	2
Moderate	93.58	3
Good	103.05	4
Very Good	115.44	5

Condition	pH	FC/100ml
Pass	>8	<126
Fail	<8	>126

THRESHOLD PARAMETER FROM 2021 SAMPLE DATA ON INDIAN COAST

AUDIT OUTCOME

Based on the threshold parameter benchmarks for 2021, coastal water quality at four sites was assessed with these results



CWQI grades based on 0- 100 % scale

CWQI value (%)

Final Grades

80 - 100

Very Good

60 - 80

Good

40 - 60

Moderate

20 - 40

Poor

01 - 20

Very Poor

Way ahead



Collaboration amongst member countries on sectors of Blue Economy



Knowledge and resource sharing for executive policy regimes, institutional capacities and audit products of the sectors



Preparation of Auditing toolkits related to Blue Economy



Novel Auditing practices on the sector



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Thank You

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