

EO 4 Ecosystem Accounting 2022



Determining the Coastal Protection Value of Mangrove Ecosystems in Sundarbans, India, using SatEO

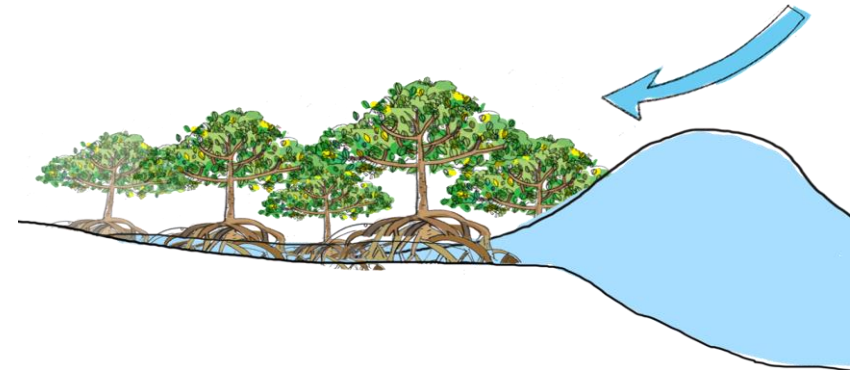
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1st December 2022

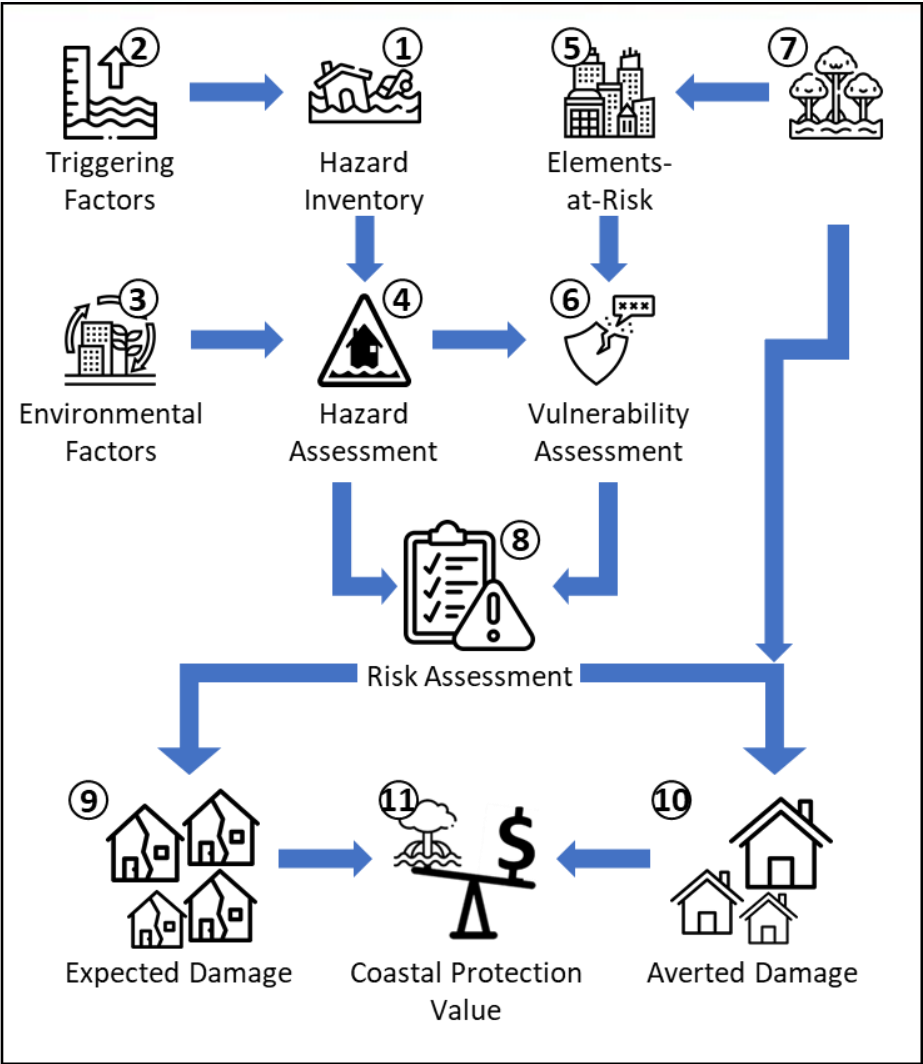


→ THE EUROPEAN SPACE AGENCY

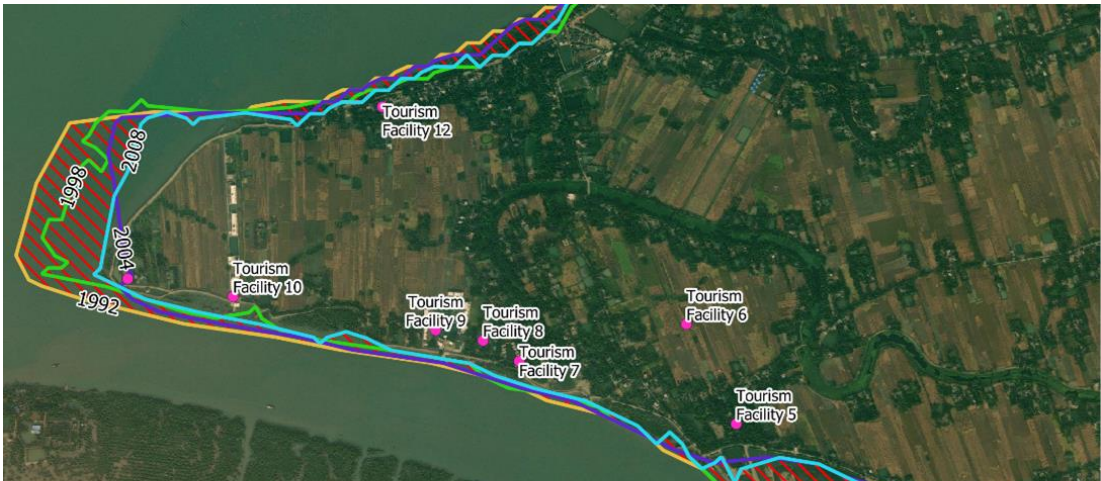
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ORRAA
Ocean Risk and
Resilience Action Alliance



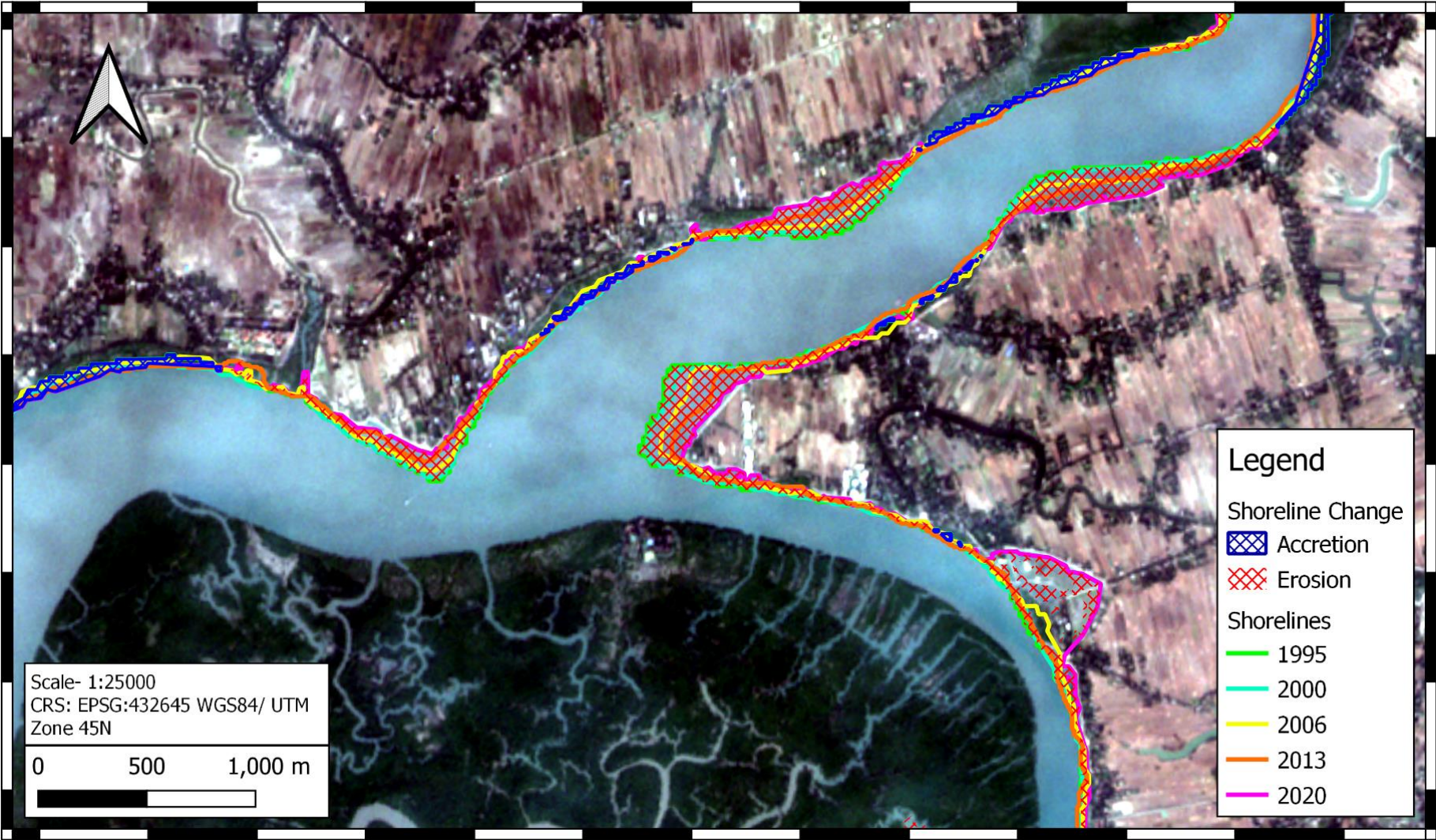
Coastal Protection Value of Ecosystems – Schematic

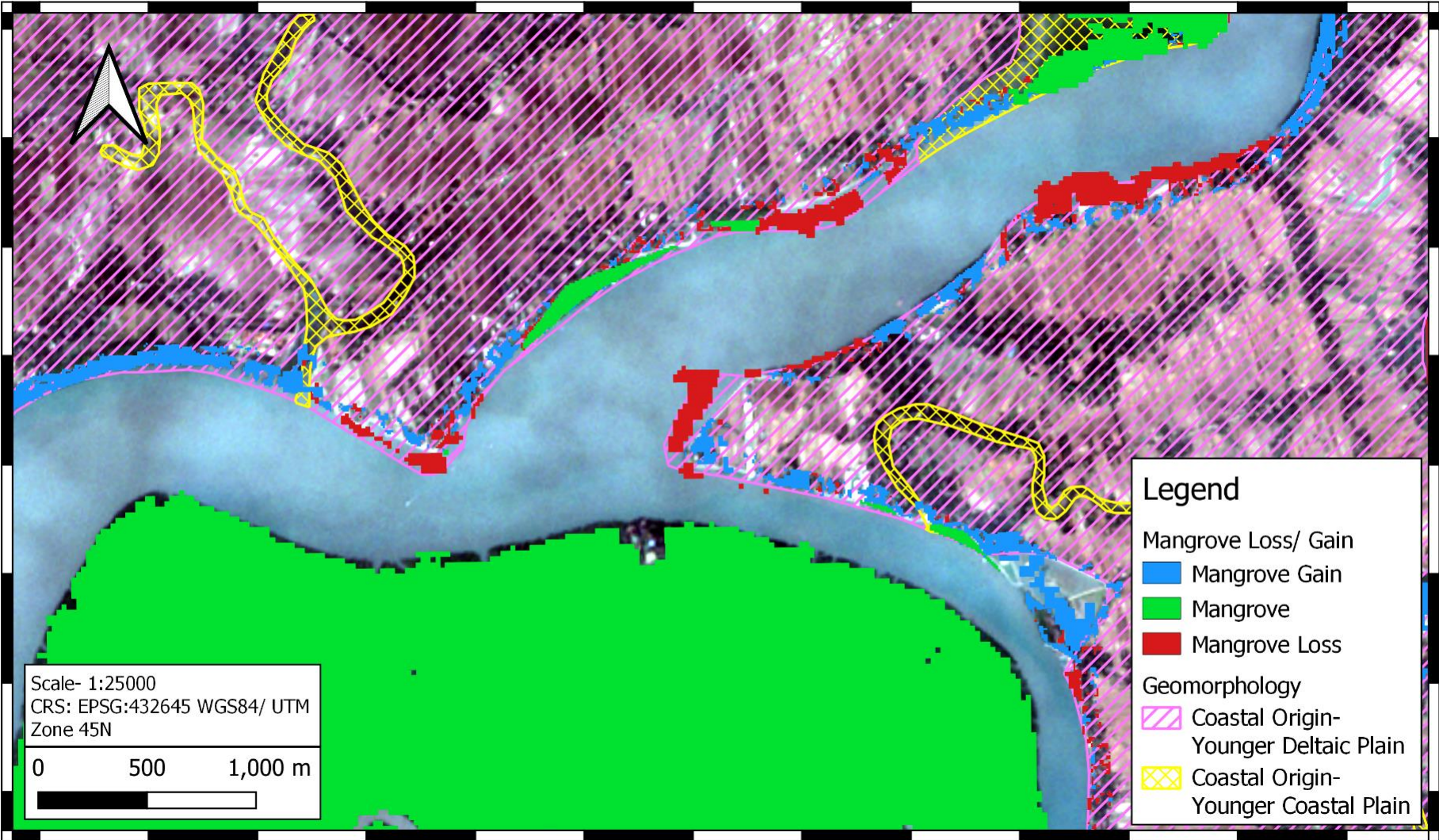


Hazard Inventory - Coastal erosion mapped from 1988 to 2020

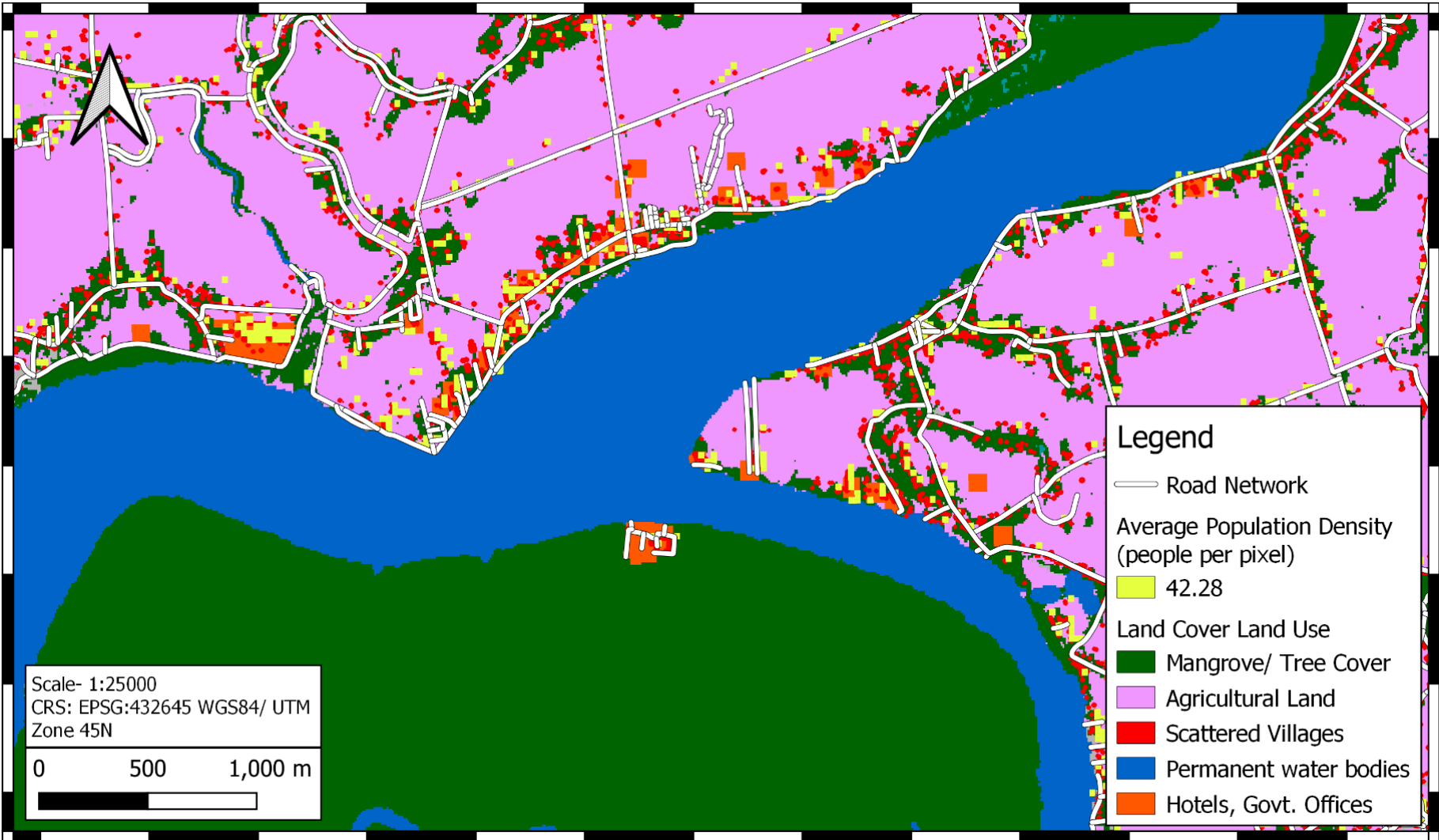


Environmental Factors, Credit: A. Melet et. al 2020.

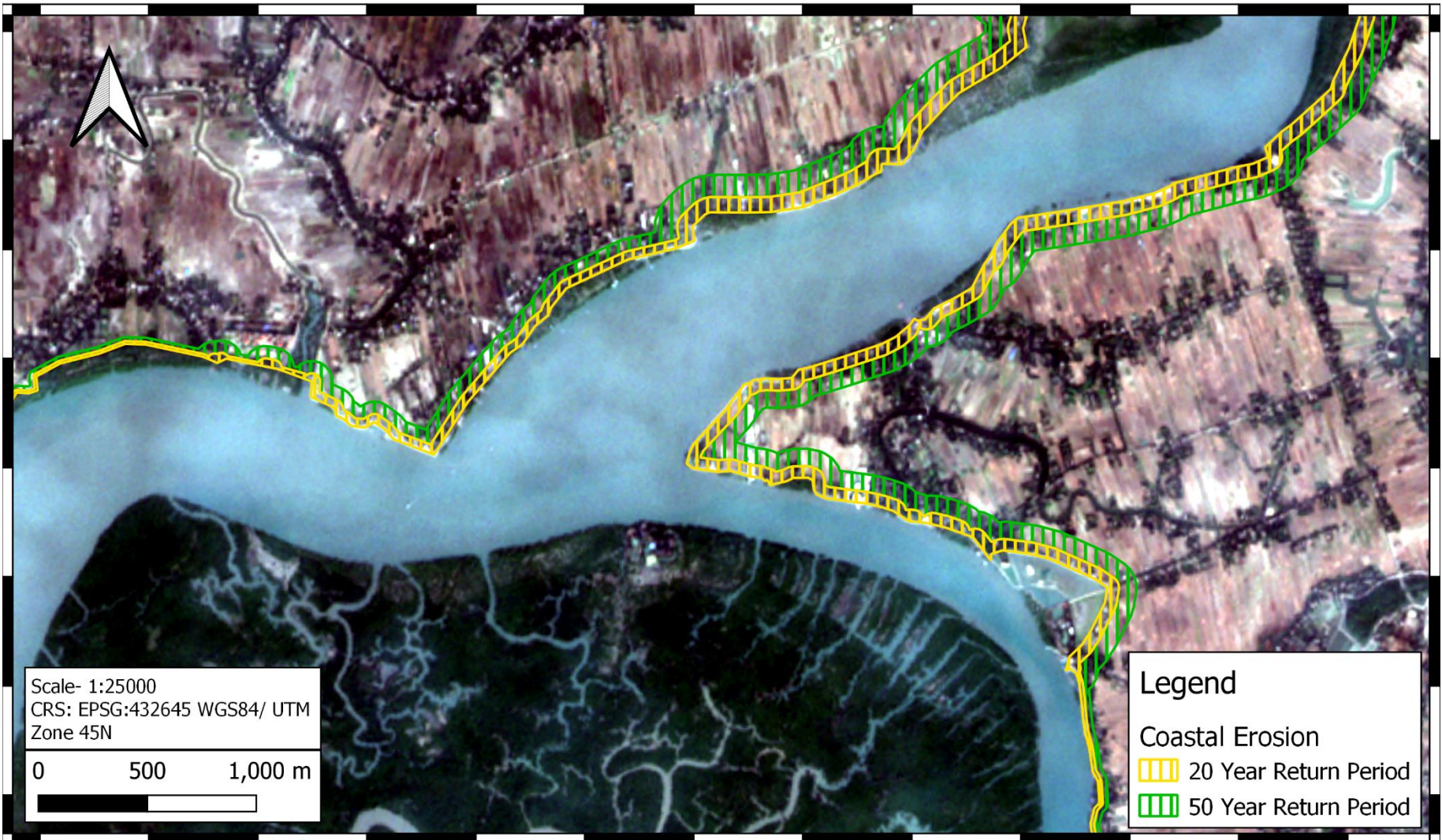




Elements at Risk & Vulnerability Assessment



Expected Damage



EO Opportunities, Challenges & Recommendations

Opportunities



- Significantly improves accuracy, while providing a practical, area-specific, customisable approach.
- Incorporates climate change factors into risk assessment and damage valuation.
- Allows accurate accounting of coastal assets.
- Facilitates use of the recommended valuation methodologies.
- Simple empirical modelling approach vs. complex numeric modelling approach
- Fully considers and incorporates damages from coastal erosion.

Challenges



- Data may not be available due to insufficient analysable hazard events.
- Difficulty in establishing cause and effect within complex coastal processes. Did mangrove deforestation cause coastal erosion or did coastal erosion cause mangrove deforestation?

Recommendations

- SatEO Ecosystem Valuation methods be piloted for Nature-based Finance and Nature-based Insurance applications.

