

# EO 4 Ecosystem Accounting 2022



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

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# Introduction

- Coastal zones are changing rapidly due to development and climate change, both of which dramatically increases risk.



- Ecosystems reduce exposure, yet their value is not recognized, they continue to be lost and degraded.



- Coastal protection value of ecosystems not always evident. Stakeholders not equipped to evaluate these ecosystem services.



- Project supported by Ocean Risk and Resilience Action Alliance (ORRAA).



Image Credit: Van der Plank et. al 2021

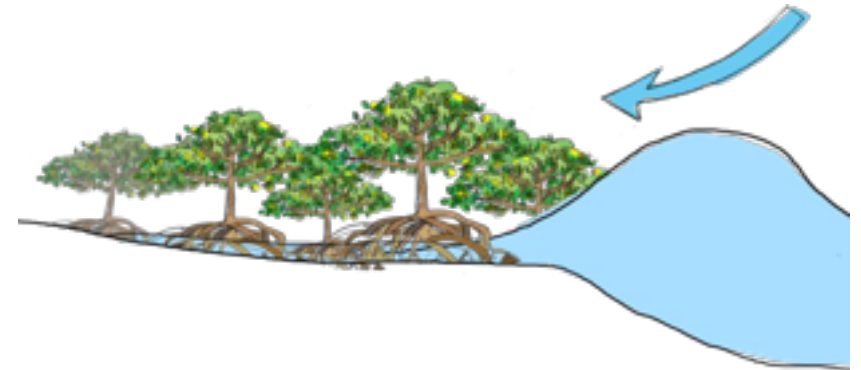


Image: Mangrove ecosystems reduce coastal risks

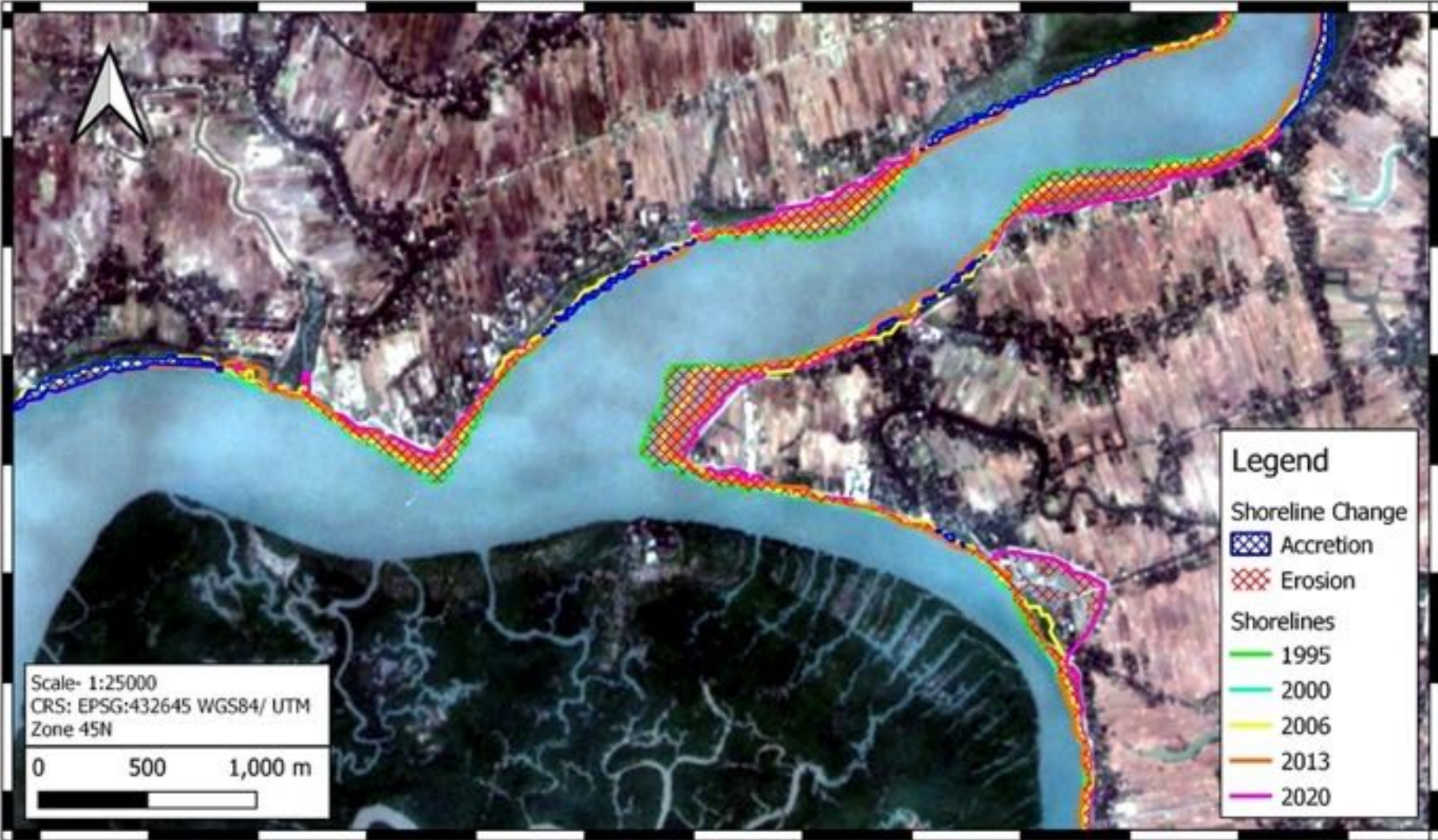






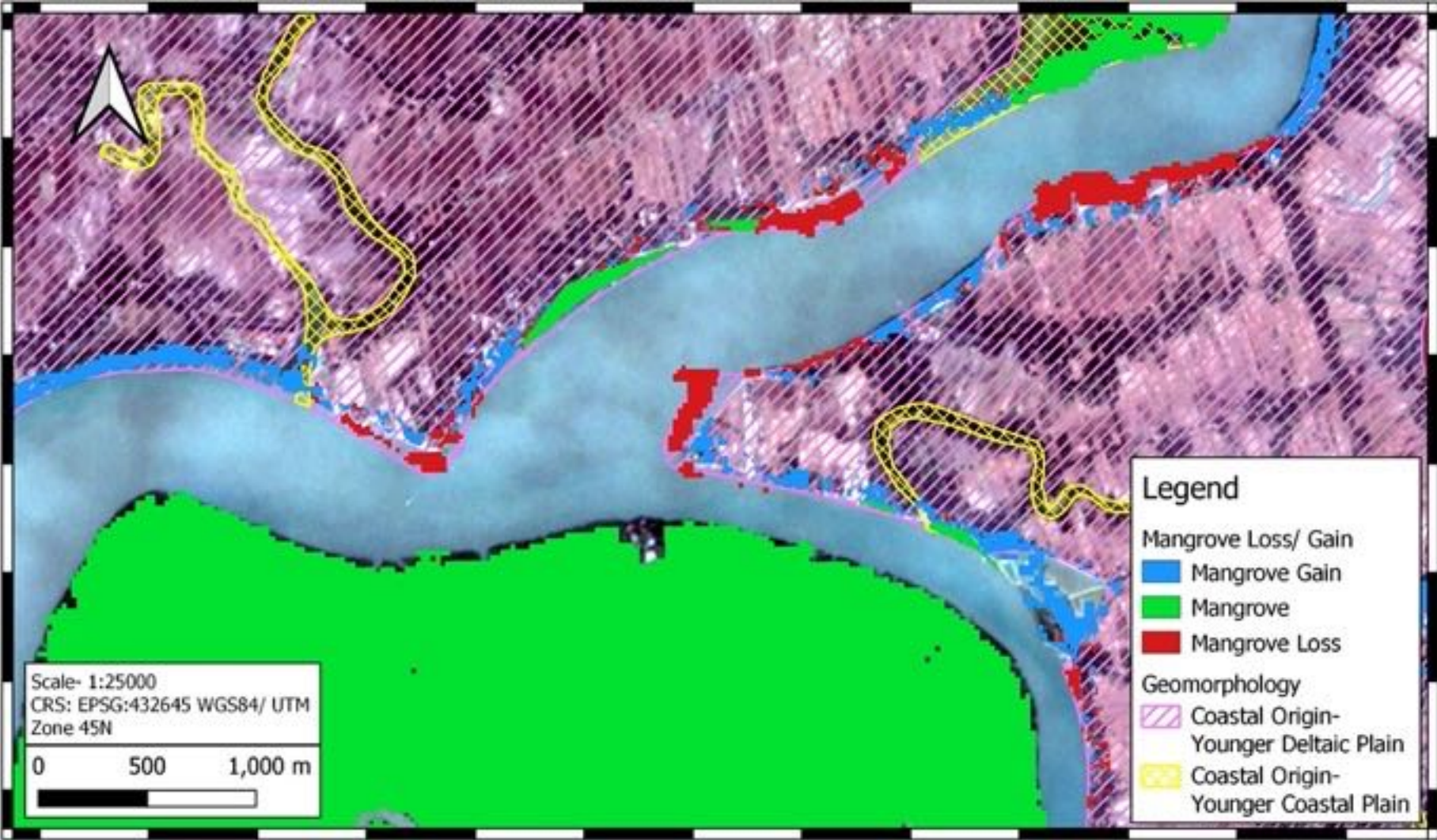


# Hazard Inventory & Assessment



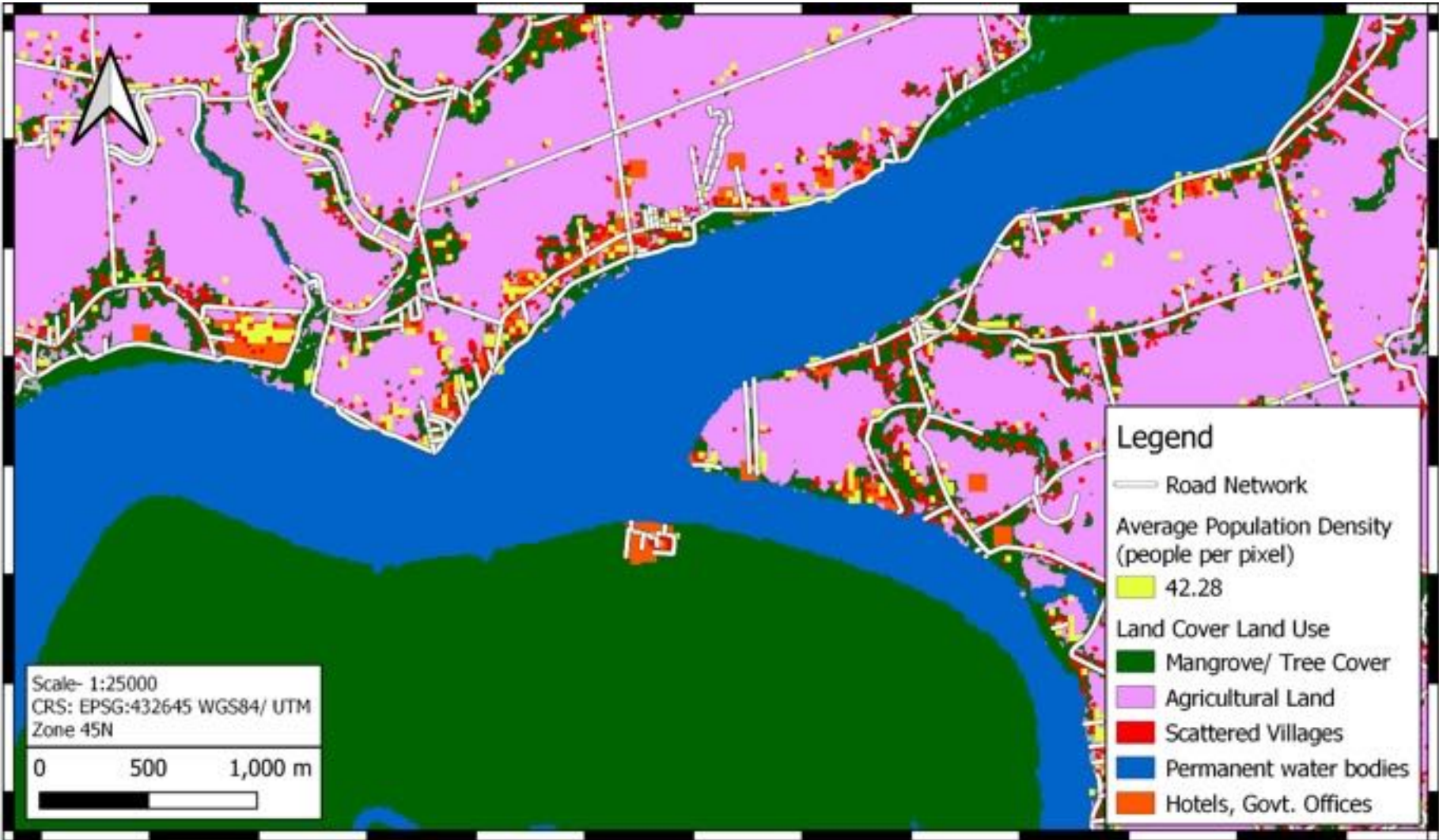


# Environmental Factors & Coastal Ecosystems





# Elements at Risk & Vulnerability Assessment





# Expected Damage



## 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.

