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1. Rationale

Coastal regions, the place where the water of the ocean meet the land are indeed unique places as far as ecosystems are concerned. They are endowed with a very wide range of coastal ecosystems like coral reefs, mangroves, lagoons, sea grass, estuary, salt marsh amongst others. Based on remote sensing a variety of data concerning the coastal zone for instance: Identification of plant community, biomass estimation, shoreline changes, delineation of coastal landforms and tidal boundary, bathymetry of shallow waters just to mention a few, can be collected and such data will help in effective and efficient coastal ecosystem management. Satellite remote sensing has been found to be a useful application tool in forest mapping and management including mangroves, not only in monitoring, but also in change detection.

3. Approach/Project Activities

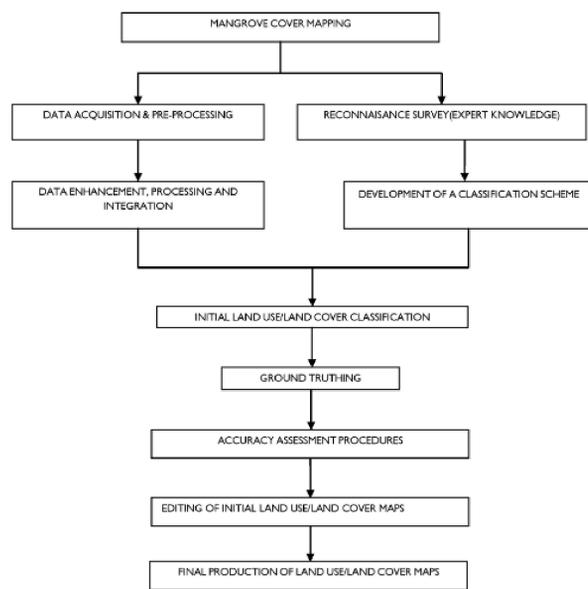


Fig. 2: Mangrove cover mapping conceptual framework.



Fig. 3: Mangrove field work in Madagascar in collaboration with WWF – Madagascar Office.

5. Results

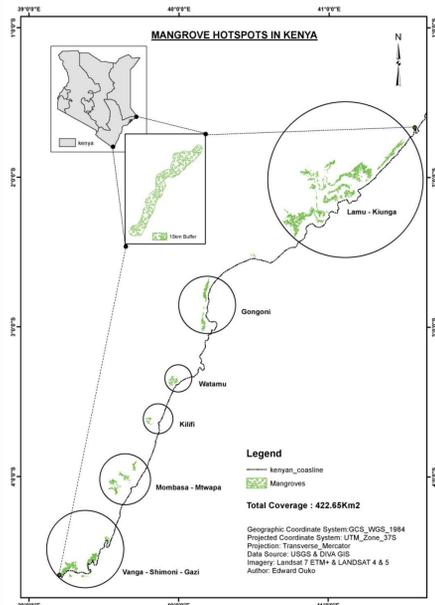


Fig. 4: Mangrove distribution along Kenyan coast & above ground biomass statistics.



Fig. 1: A section of mangrove forest cut down for charcoal burning in Madagascar

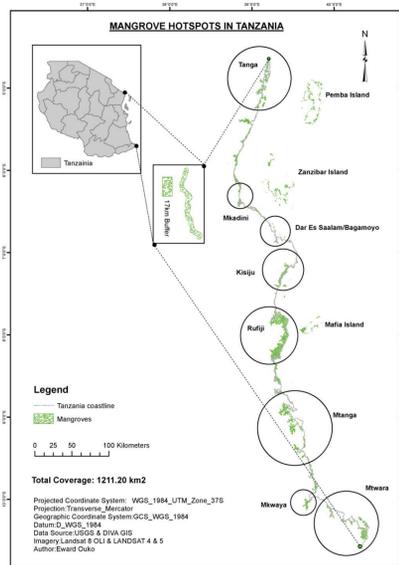


Fig. 5: Mangrove distribution along Tanzanian coast & above ground biomass statistics.

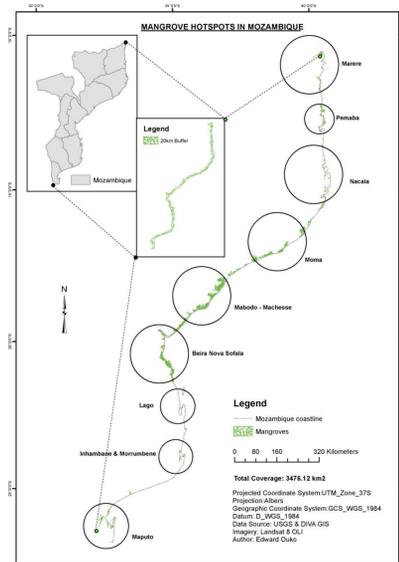


Fig. 6: Mangrove distribution along Mozambique coast & above ground biomass statistics.

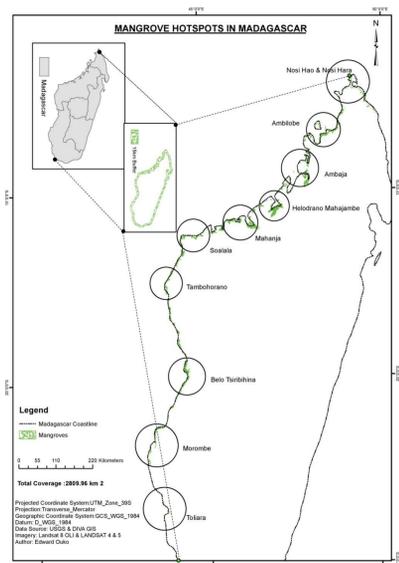


Fig. 7: Mangrove distribution along Madagascan coast & above ground biomass statistics.

2. Objectives

- ▶ The products of this project were meant to contribute to the development of coastal and marine ecosystems geospatial products and database, which would ultimately be transferred to key governmental and community-based organizations involved in the management of coastal and marine resources.
- ▶ To provide remote sensing, image processing and geographic information systems (GIS) skills to researchers and coastal resource managers, to enable them identify coastal vegetation (mangrove and seagrass/submerged vegetation) cover types along Kenya, Tanzania, Mozambique and Madagascar coastlines.

4. Earth Observations and Other Inputs

Satellite Data: Landsat Imagery derived from USGS, GIS Layers: Derived from DIVA – GIS.

6. Outcomes/Anticipated Impacts

- ▶ Increased access to data acquisition by stakeholders through development of visualization tool and Servir Portal.
- ▶ Increased access to training materials on mangrove cover mapping through development of mangrove cover mapping training manual and a technical field report.
- ▶ Improved capacity in usage of remote sensing and GIS tools in mangrove cover mapping of some 16 participants from Kenya, Tanzania, Mozambique and Madagascar.
- ▶ Created and improved awareness of the stakeholders on the key roles of coastal ecosystems in mitigating effects of climate change.



Fig. 8: Participants during Coastal and Marine Resource Mapping Training held at RCMRD.

7. Project Partners

- ▶ World Wide Fund For Nature (WWF)
- ▶ Tanzania Fisheries Institute (TAFIRI)
- ▶ Ardhi University
- ▶ Kenya Marine And Fisheries Institute (KMFRI)
- ▶ Coastal Marine And Resource Development (COMRED)
- ▶ Egerton University
- ▶ UNIVERSITY DAR ES SAALAM (Institute Of Marine Sciences)
- ▶ University Of Eduardo Mondlane
- ▶ CDS - COASTAL ZONES – Center For Sustainable Development Of Coastal Zones
- ▶ Institut Halieutique et des Sciences Marines (IHSM)

8. Project End Users

- ▶ Research Institutions
- ▶ Non-governmental,
- ▶ Learning Institutions
- ▶ Community-based organizations
- ▶ Local communities
- ▶ Private consulting firms