Mangrove Monitoring

National agency collaboration

Hatfield

Andy Dean

LPS25 | June 24 | 2025

INDONESIA – MANGROVE REHABILITATION

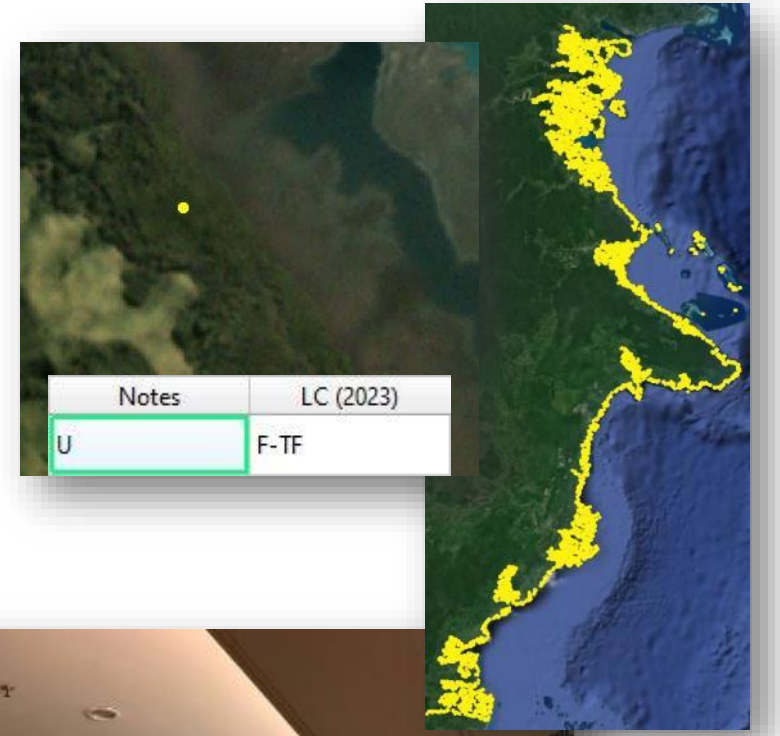
- 2020 National Mangrove Rehabilitation Program – 600,000 ha ambition
- Mangroves for Coastal Resilience (M4CR)
- World Bank
- 4 provinces, 75,000 ha
- 4 key institutions

2020 CHALLENGES

- Identification of candidate rehabilitation areas
- National mangrove extent map
  - Manual digitizing
  - No validation
- Global datasets

M4CR & ESA ACTIVITIES

- Identification of candidate rehabilitation areas for field scoping
- Rehabilitation Guidelines
- Mangrove extent mapping update (2023)
- Training in sampling design, labelling, and ML modeling concepts
- Compare with GMW 4.0 2020 release, national mangrove map

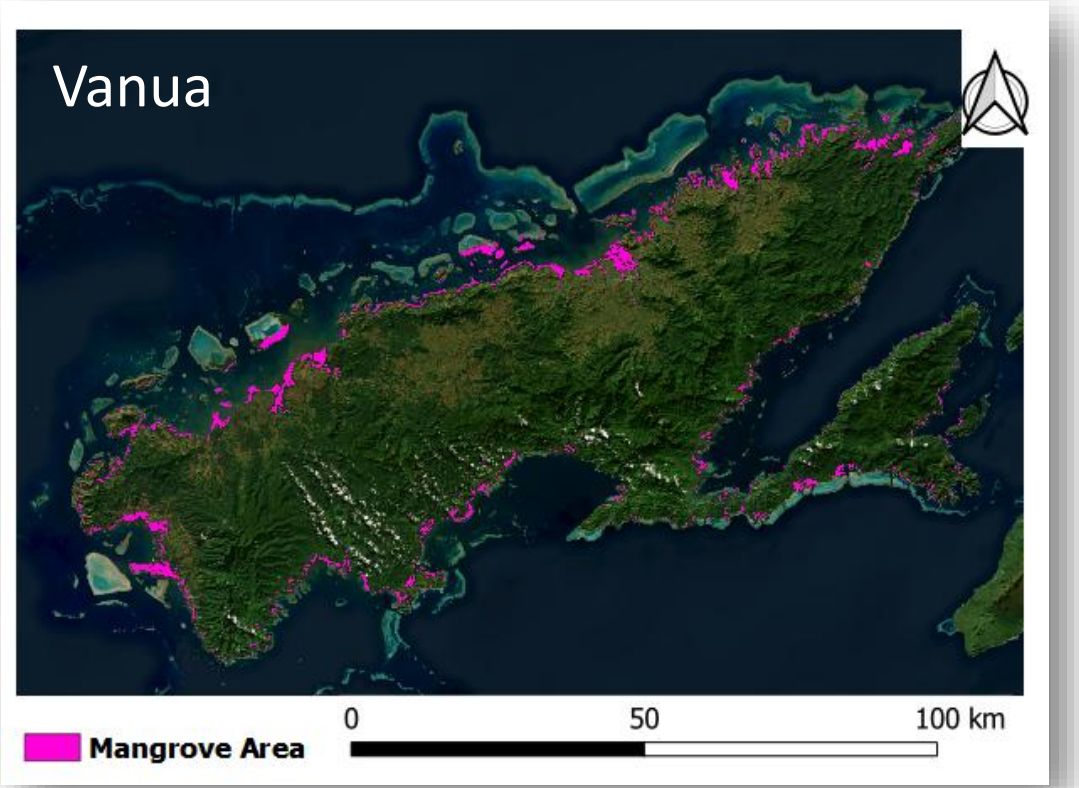


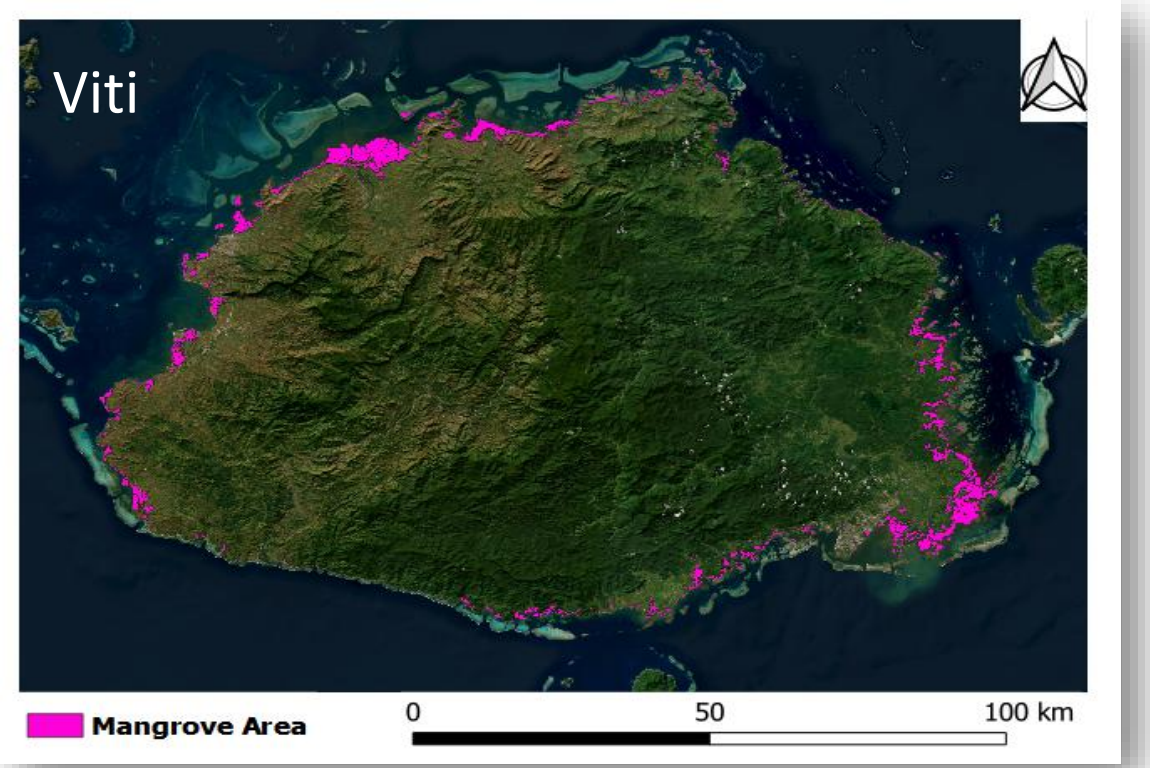
FIJI: VITI LEVU & VANUA LEVU

- Asian Development Bank
- Min. Fisheries & Forestry
- Regional: Building-Coastal Resilience through Nature-Based and Integrated Solutions
- Project preparation
- Fiji: Scoping coastal green-grey infrastructure projects

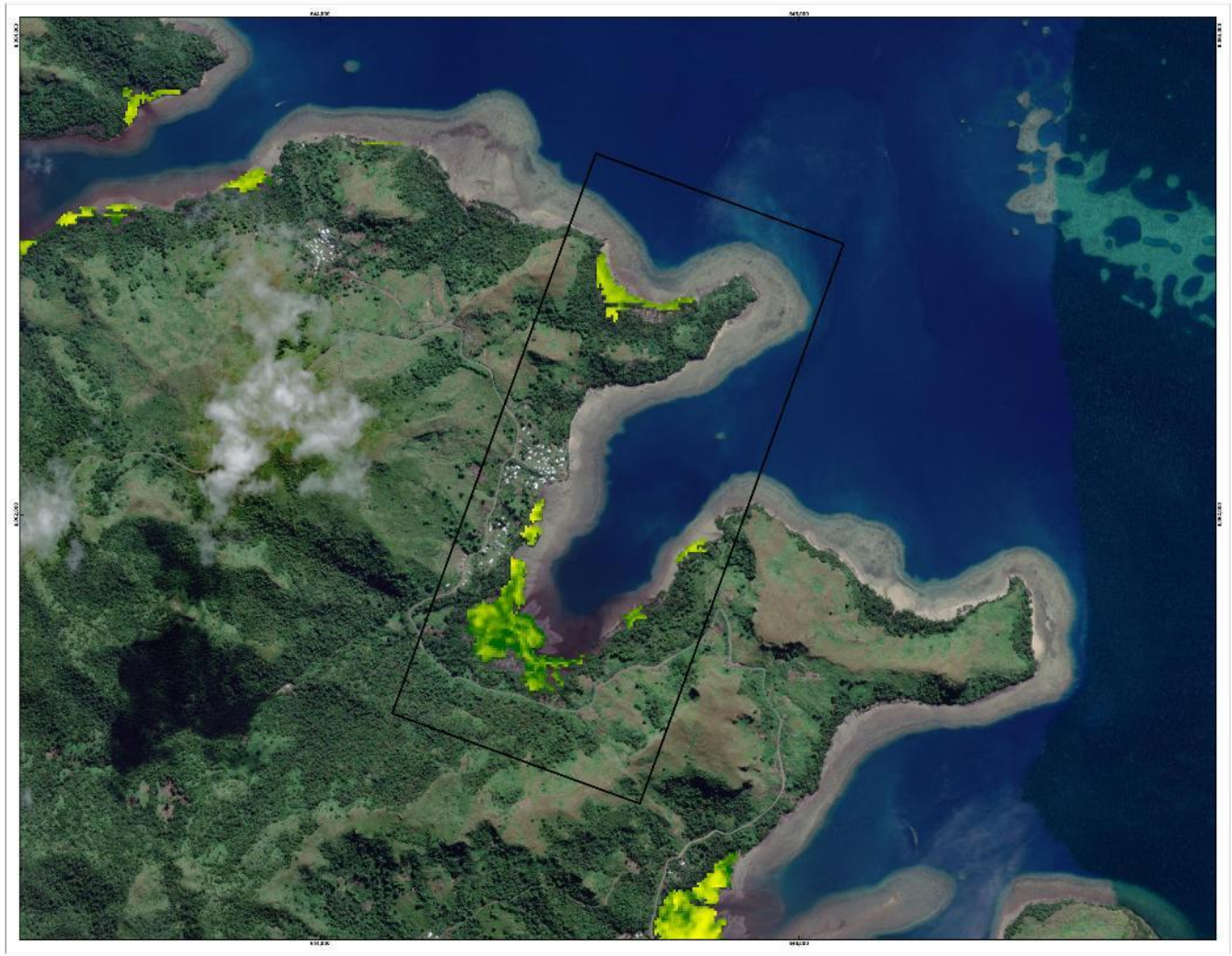
FIJI: VITI LEVU & VANUA LEVU

- Mangrove extent (2017-2022)





NATIONAL SCALE MAPPING



EO4SD-Forest Management:

Earth Observation for Sustainable Development - Forest Management Project

Map Producer: Hatfield Consultants (www.hatfieldgroup.com/)

Interpretation: The map displays the change in Soil Adjusted Vegetation Index (SAVI) around the Namarai village, between the years of 2017 and 2022. SAVI is calculated using the red and near-infrared bands from Sentinel-2 yearly composite produced by Hatfield for both years. An increase in SAVI indicates that mangrove density increased between 2017-2022, whereas a decrease in SAVI indicates mangrove density decreased over this period.

The SAVI change product is calculated only within the mangrove forest extent. Other non-mangrove coastal tree and shrub vegetation is not mapped.

Background Image Data: WorldView-3 (30cm) 7 Jun 2021, ESRI Online Service.

Vector Data: VHR image extent (Hatfield 2023)

Raster Data: SAVI change (2017-2022) Hatfield (2023)

Background Baselayer: © 2023 Esri

Change in SAVI 2017-2022

Extent of VHR image maps

0.2 Increase in SAVI

-0.2 Decrease in SAVI

EO4SD-Forest Management is an ESA project aimed at deriving key geo-information products from Earth Observation data.

More information available under: https://www.eo4sd-forest.info/

Map produced by: Hatfield

Map produced for:

Project implemented by a Consortium lead by: GAFAG

Project funded by: esa

Coordinate System: WGS 1984 UTM Zone 60S
Projection: Transverse Mercator
Datum: WGS 1984
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 177.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter

Printed on: 2023.09.03
Version: 1.0

Soil Adjusted Vegetation Index Change 2017-2022

Namarai Village

N

0 0.4 0.8 km

forest management eo4sd

SITE LEVEL MAPPING

Target VHR images for cost-effective detailed scoping

Impact of Tropical Storm in 2017

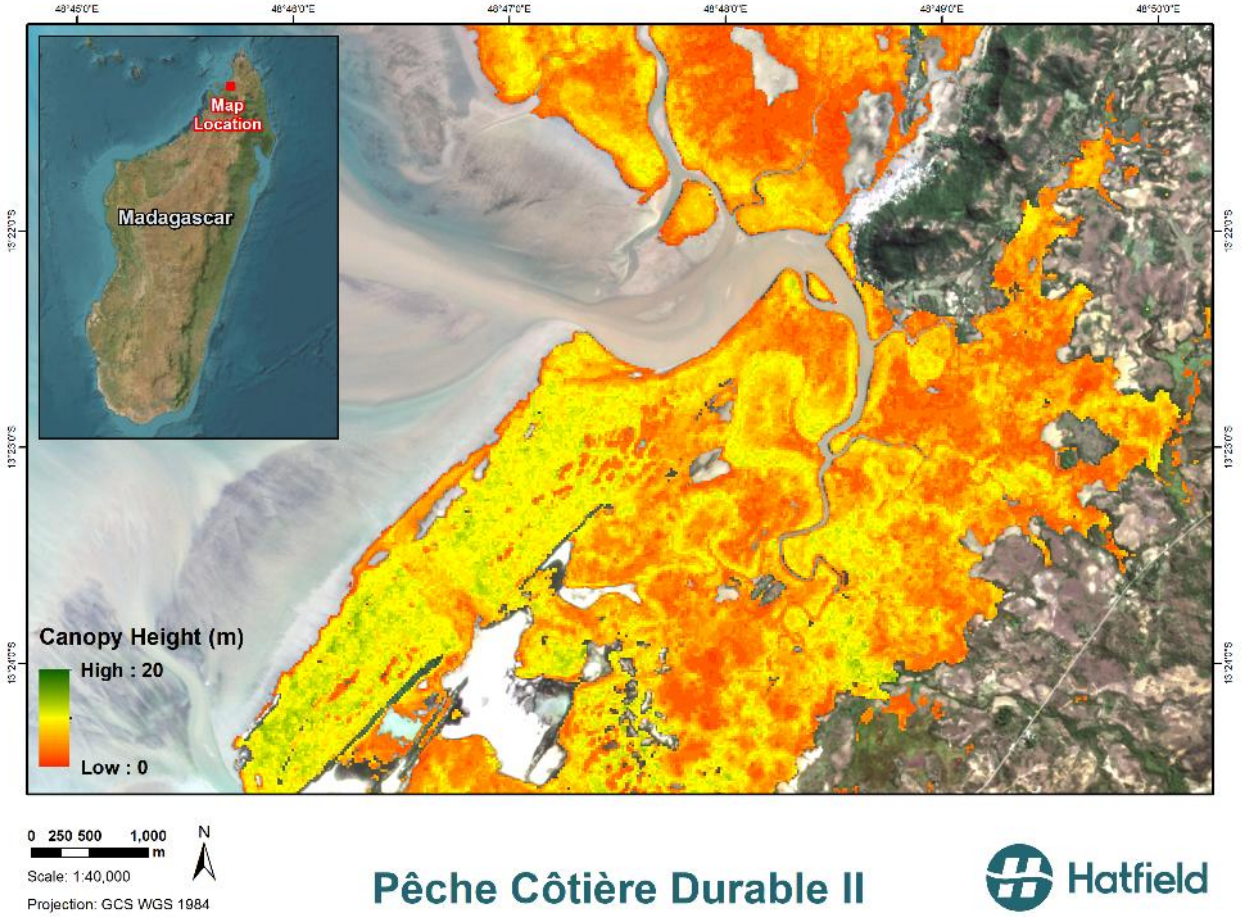
Mangrove recovery

MADAGASCAR

- National Mangrove Mapping (2019 to 2023)
- Pêche Côtière Durable Phase II
- KfW | AHT | Madagascar National Parks

https://www.hayhonko.org/

CANOPY HEIGHT



CANOPY CLOSURE