

# Participatory GIS



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GLORIA Activity A8: GLORIA Workshop

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# Introduction



Introduction to participatory GIS and studies of perception of change



I'll give an overview of A8 activities and results related to the participatory mapping exercise

Further discussion and contextualisation in the Wednesday morning parallel session (A7 + A8)



# Activity A8 – overall objectives

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Participatory GIS – make spatial decision support tools available and accessible to participants with a stake in official and local decisions.

Stakeholders (govt, NGO) will work with the team to integrate information about ecosystem services and their importance to low income households

Collect information from other GLORIA components to provide a series of interpretive maps

Delivery of data sets to regional nodes

# Planned Activities

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**Due to rationalisation of workshop time, and the close links between the two components, A7 and A8 were linked & combined for workshop purposes.**

1. Collection of relevant spatial / scientific knowledge, representation at local scale on GIS. Mostly done in advance, but with discussion and interrogation in workshop.
2. A7 - analysis of local perceptions of change, ideally working together and incorporating some participatory mapping to complement A7. Collected from a broad spectrum of local stakeholders, ideally in a field study pre-workshop if the workshop is held in Tana.
3. Local government and NGO level discussion of potential interventions and spatial interpretation thereof.
4. Synthesis and tools developed in A7. Maps with adaptation options shown - A8. Contributing to the 'rapid tool' of BV and WWF



# Participatory mapping at two field sites

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Opportunity arose at very short notice to undertake the field participatory GIS, together with activity A7

1. Desktop data collection exercise took place Lucy Scott, Anne Lemahieu, Val Byfield, John Bemiasa
2. Two field sites were chosen (IH.SM Jose Randrianarimanana and colleagues; WWF Harisoa Rakotondrazafy)
3. Field visits took place:

# Two field sites

**FIELD SITE 2**  
**9 – 13 June Ambotsibotsiky, North of Toliara**

**FIELD SITE 1**  
**5 – 9 June Ambola, South of Toliara**

**South-West Madagascar**



# Participatory activities

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Discussed the context of the project, present and historic governance of marine resources in the area

Mapped local resource classification: distribution of habitats and their local names

- size of habitats
- allocation if any (tenure)
- important areas for any species (spawning, feeding)
- any temporary or permanent areas closed to fishing / gleaning

Areas for fishing (each method)

- Lining, trapping, diving (octopus), gleaning, spearing, netting

Noted any seasonal changes

What changes have been observed since 25 years ago.

# First field site

**FIELD SITE 1**  
**5 – 9 June Ambola, South of Toliara**

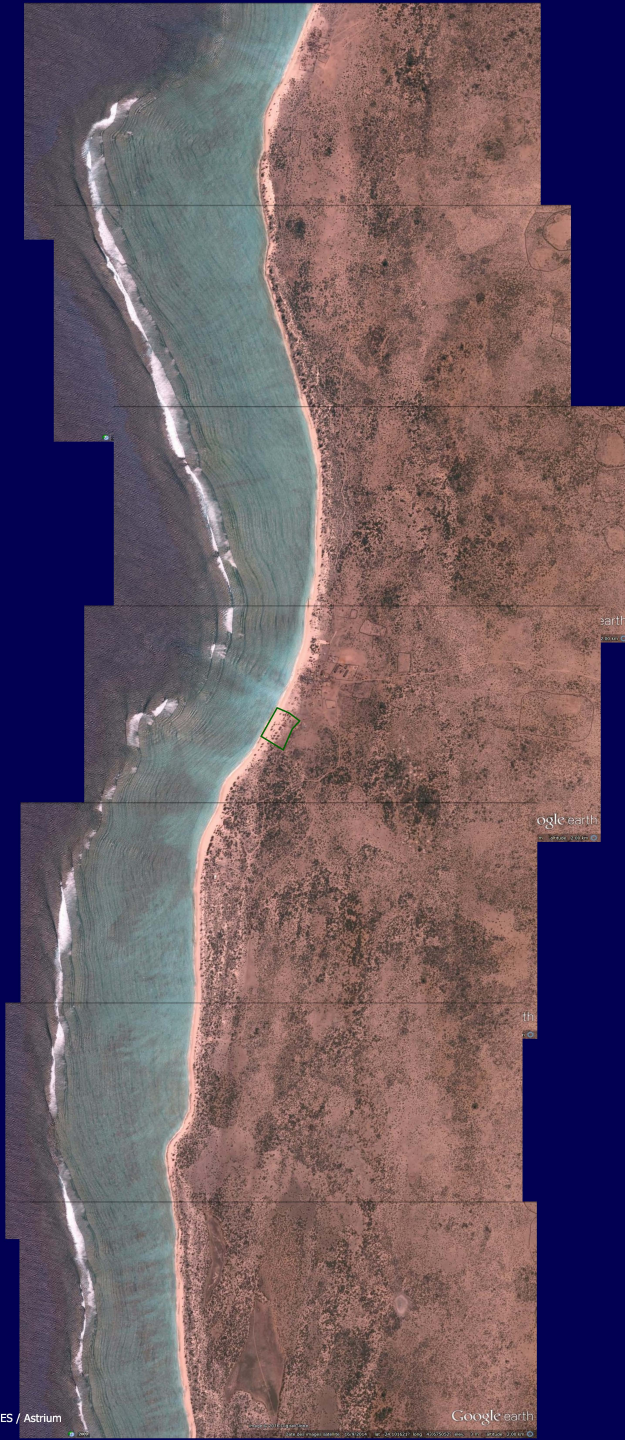
**South-West Madagascar**





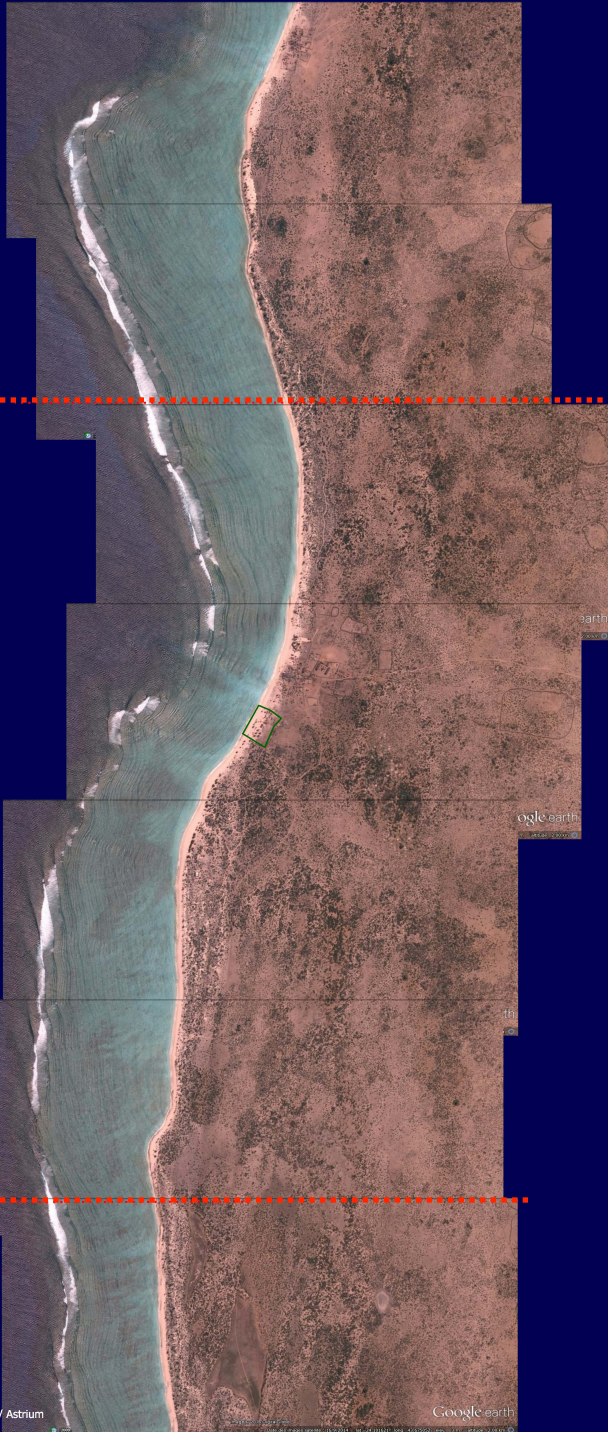
# AMBOLA

Entire chart view



# AMBOLA

North and South extents





# AMBOLA

Zoomed to village view





# AMBOLA

## Environmental categories

- Ambolele (area beyond highlands)
- Efoetsy (farming area of the Tanalana tribe)
- Ankily (culturally significant tamarind tree)
- Antety (beach)
- Vatomasake (shallow stones)
- Offices of MNP
- Anaovany (lagoon)
- Tandeo (sand)
- Lohariaky (reef crest)
- Ambolivatony (reef crest to 100m)
- Amboninkara / Ambonikarany (100m off reef crest to open ocean)
- Hara (mixed seagrass and algae plus corals)

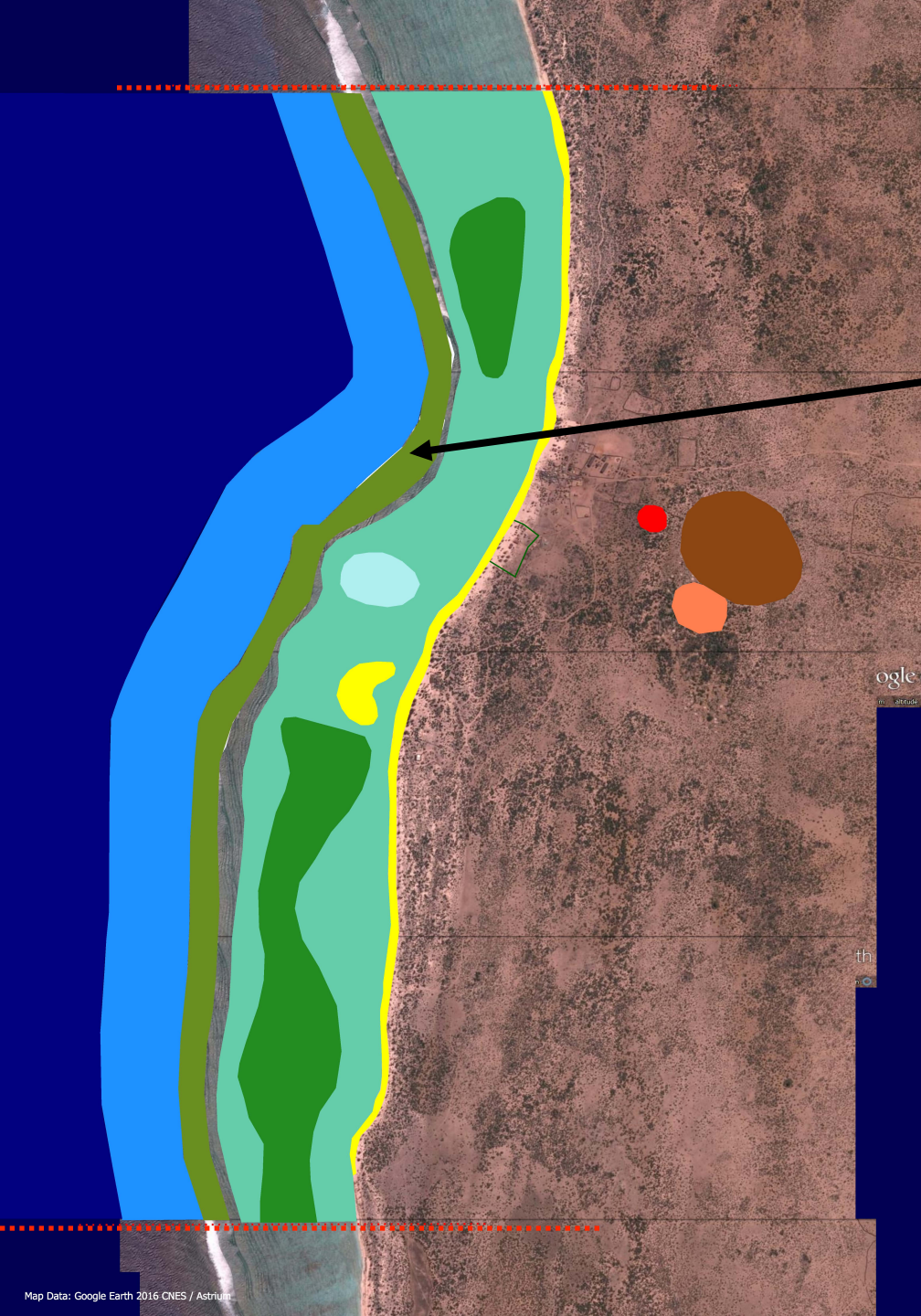
# AMBOLA

## Environmental categories

**Lohariaky (reef crest)**

**Tahezany** – reef crest area between passes

**Vavany** – pass area





# AMBOLA

## Environmental categories

**Lohariaky (reef crest)**

**Tahezany** – reef crest area between passes

**Vavany** – pass areas

## Pass names

Andriake Aja

Besadroa

Ambola

Manangatsa Kely

Manangatsa Be

# AMBOLA

## Use areas

### NETTING

Harato Be (pelagic spp), palongu  
Be maso (big eye) 4digits mesh (8cm)  
Le malinike (the small) 3cm  
Tanatelo (3 digits) 6cm

Voloso (harpoon) diving (Mihirike)

### GLEANNING

### LINE FISHING

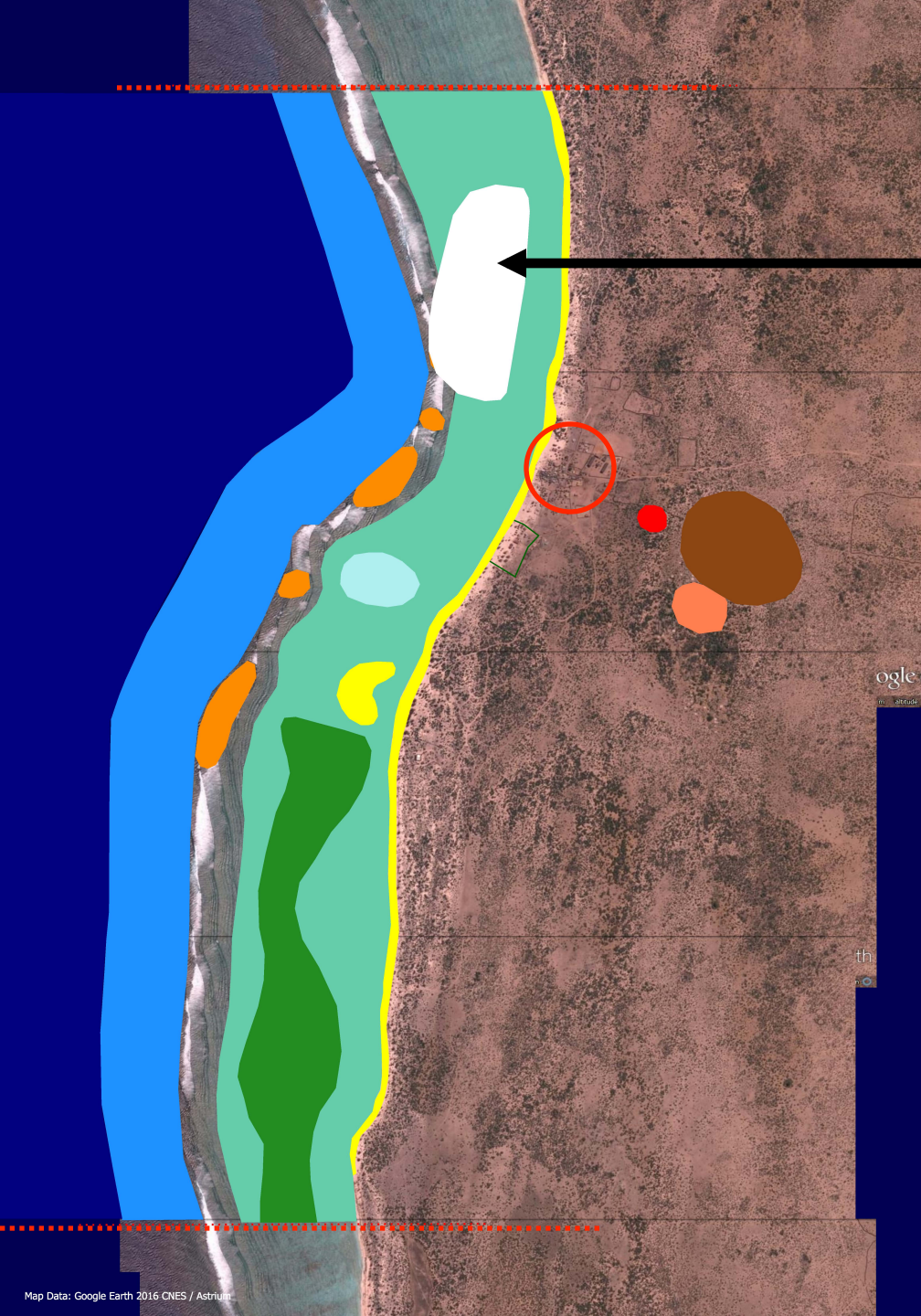
Torake –hand line (casting)  
Tsopoke – bottom fishing  
Vinta Lamatra – (for tuna)



# AMBOLA

## Temporary closed area

- Annually
- Closed for octopus collection
- 1 October to 31 December





# AMBOLA

Change since 1990

1. Tovo in the lagoon (June – September) changed number and distribution
2. Varilava (November to February)





# AMBOLA

Change since 1990

1. Tovo in the lagoon (June – September) changed number and distribution
2. Varalava (November to February)
3. Less rains and shortage of water, since ~2014

# Second field site

**FIELD SITE 2**  
**9 – 13 June Ambotsibotsiky, North of Toliara**



**South-West Madagascar**



# AMBOTSIBOTSIKY

Entire chart extent



Ambotsibotsiky

Ambondrolava

# AMBOTSIBOTSIKY

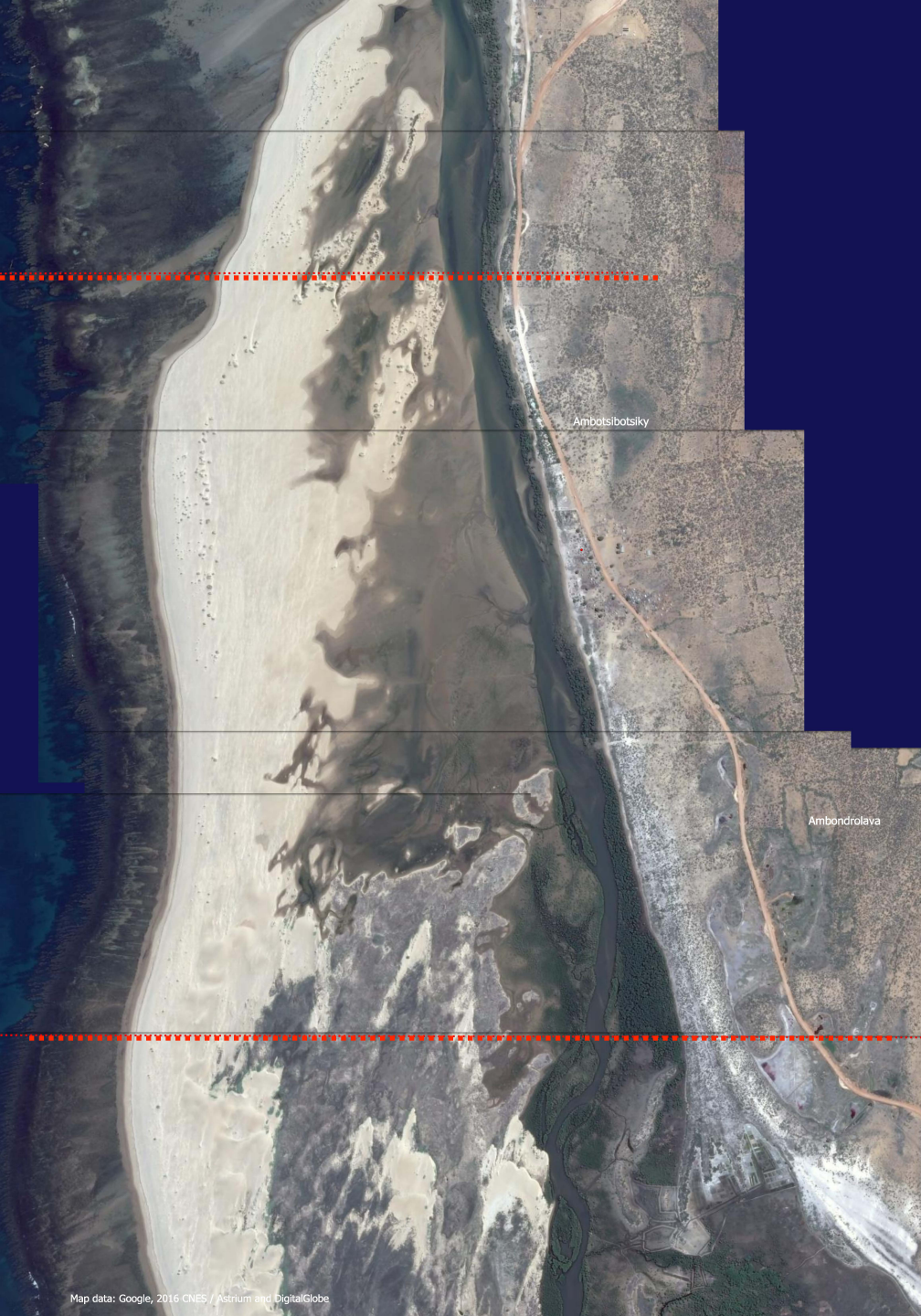
North and South extents





# AMBOTSIBOTSIKY

Zoomed into village extent





# AMBOTSIBOTSIKY

## Environmental categories

Ambohitrosy (sacred place where there is red sand) east limit of the village.

Plantation area (baibo) / hatraky

Ambotsibotsiky village

Saha (channel)

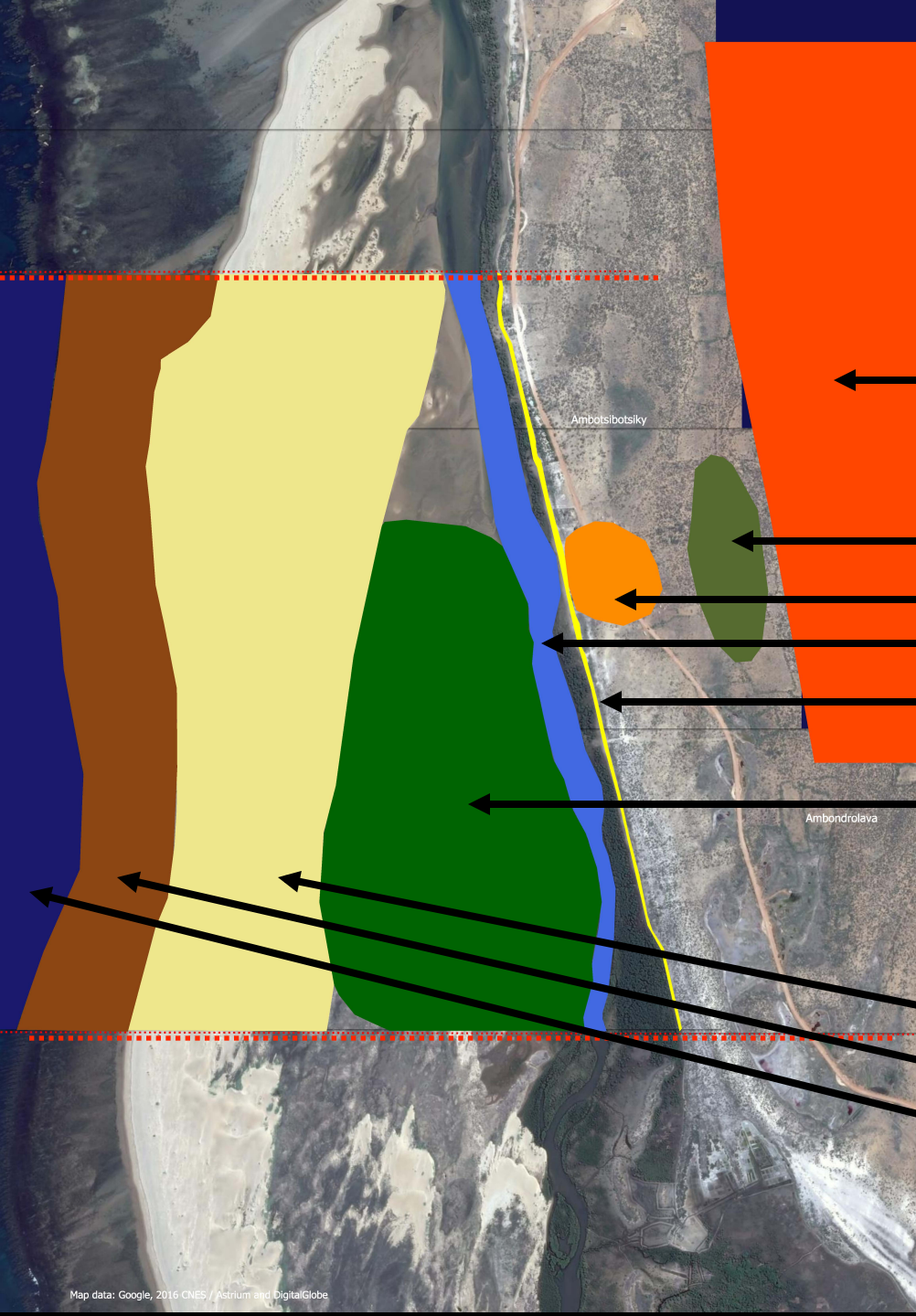
Ampasimara East line of mangrove (white sand)

Ala honko (mangrove forest and back mangrove area), managed jointly by five communities

Sand (fasy)

Andriake

Ambohoriake



# AMBOTSIBOTSIKY

## Environmental categories

### Andriake

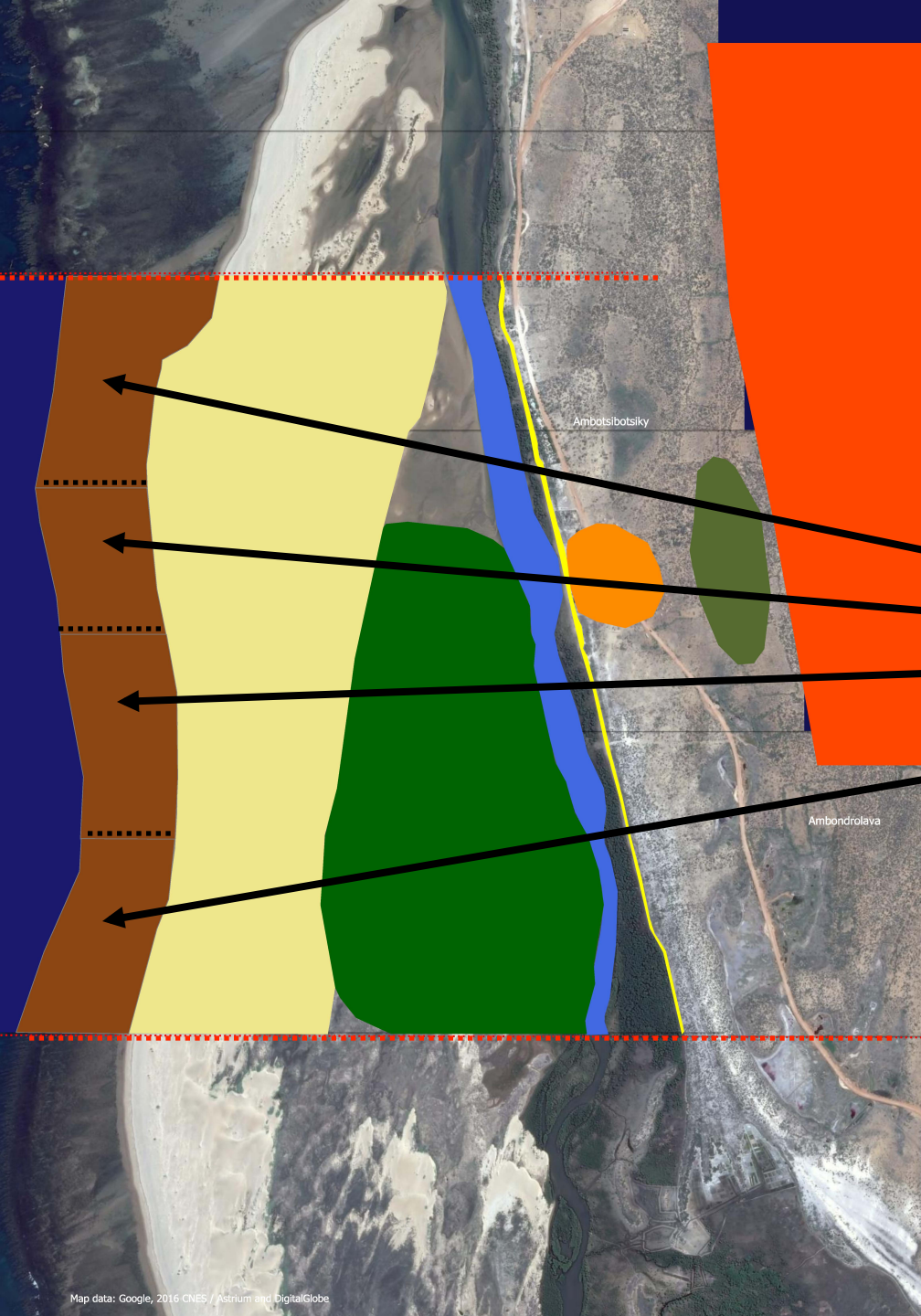
At low tide, area used for gleaning – octopus, sea cucumber and urchin.

### Ankamboa

### Ankarapona

Ampasilava / Antaninampela – mainly gleaning by women

### Ambatobe





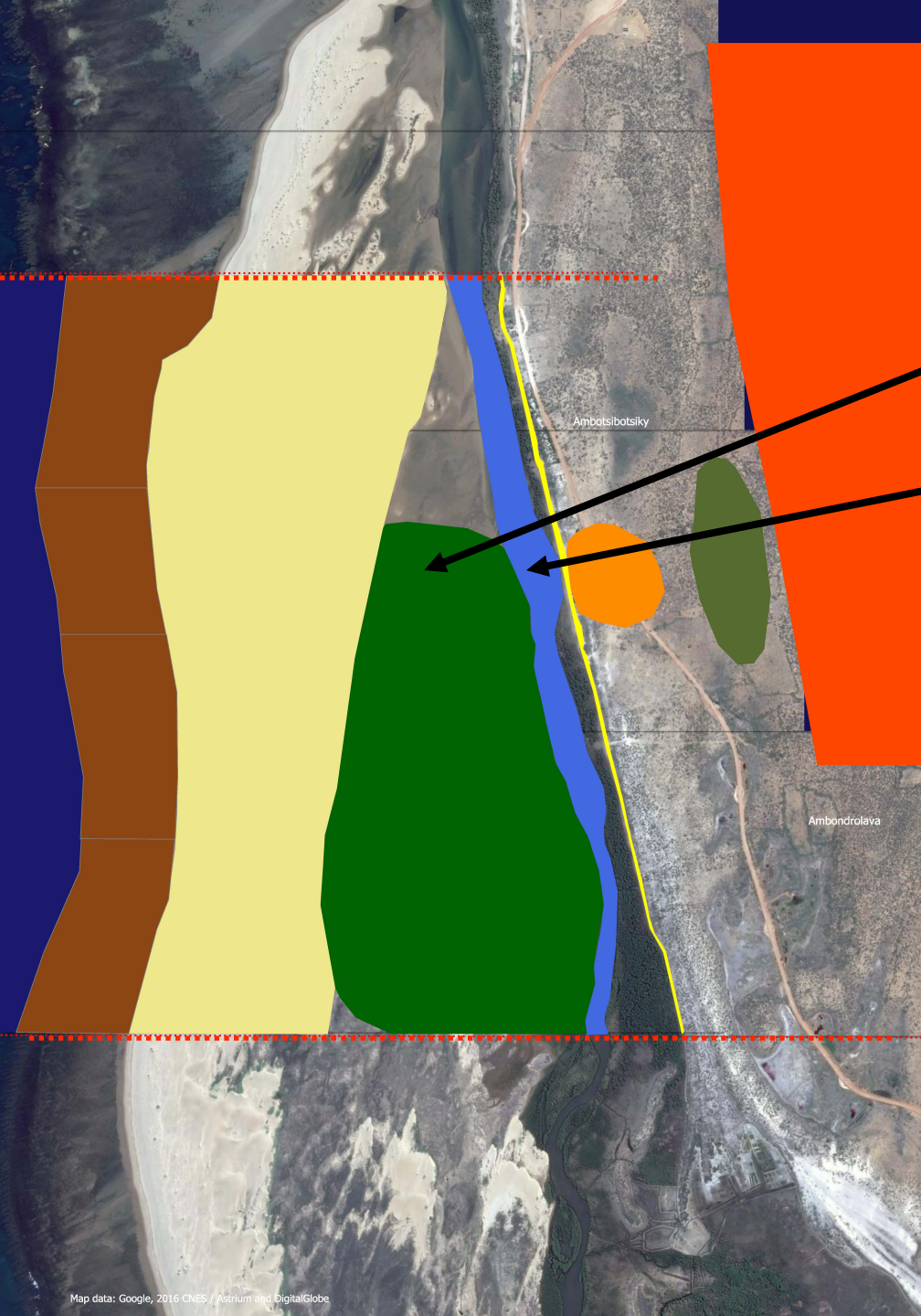
# AMBOTSIBOTSIKY

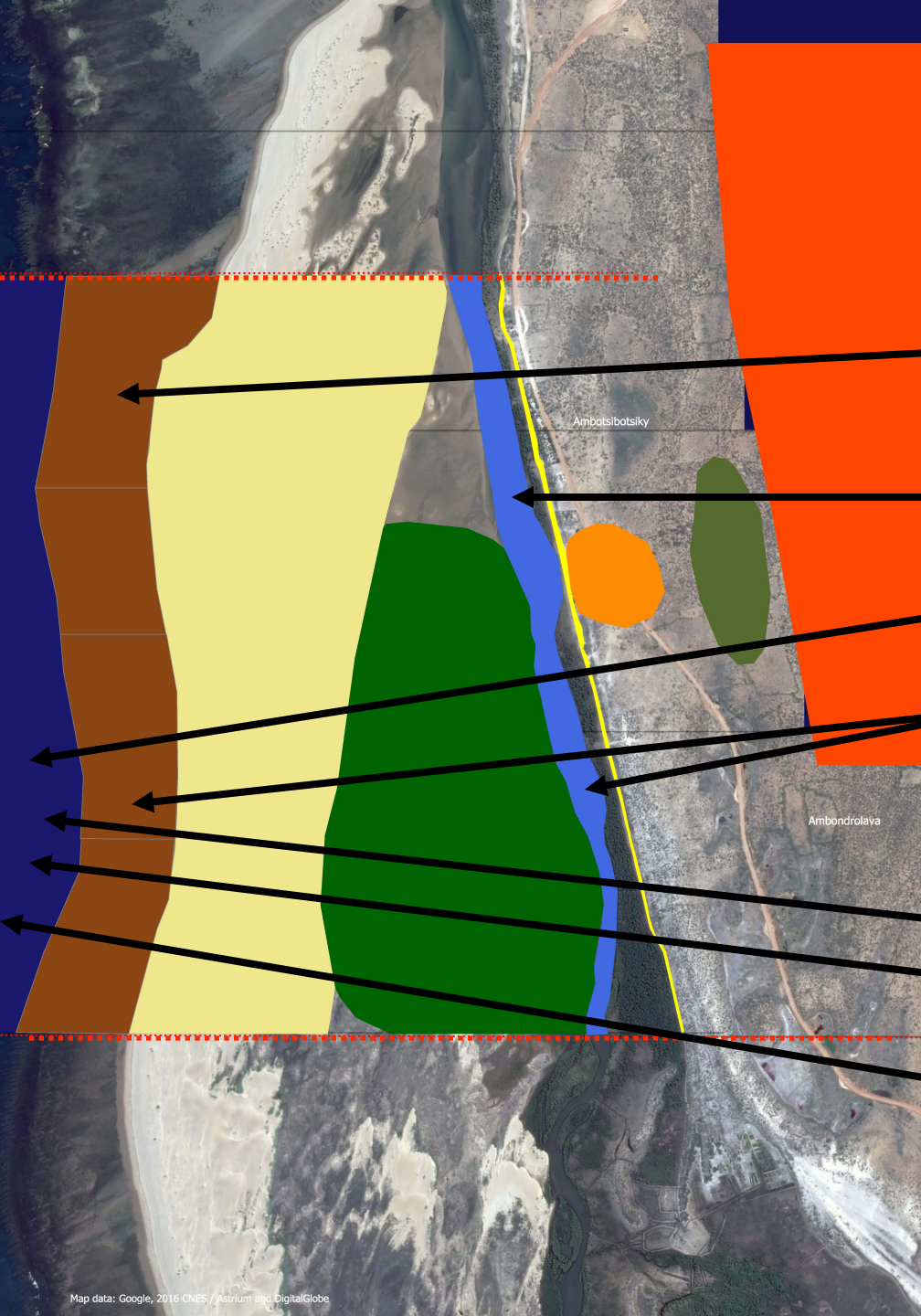
## Important areas for species

Mangrove area (fish and crabs, eggs and juveniles)

Channel for prawns, also eggs of fishes

Channel for provision of nutrients to the mangrove ecosystem





# AMBOTSIBOTSIKY

Use areas

Gleaning areas (mihake)

## NETTING

Netting for mullet (atendro) in the channel

Fishing for valala (sea grasshopper) using net #20 (20-25mm)

Fishing for sardines etc using net #15 (15mm)

## LINE FISHING

Mitarike –hand line, March till July

Tsopoke – bottom fishing, March till July.

Vinta lamatra – (for tuna). Oct to March



# AMBOTSIBOTSIKY

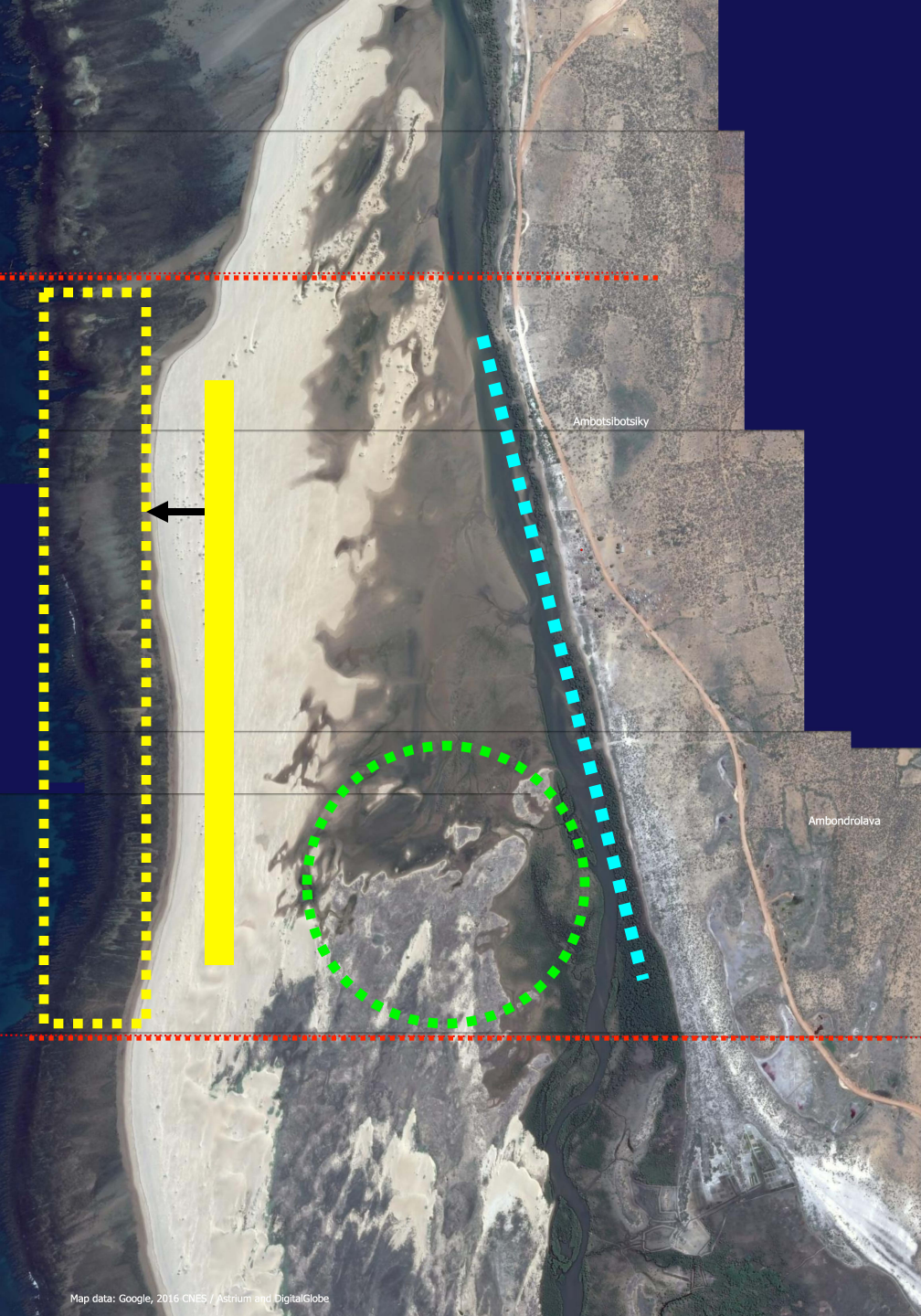
## Change since 1990

The dune has been covering the outer reef with sand, killing the reef, starting in 2000.

Some conflict with farming communities who haven't had rain, and now rely more on the sea.

Biomass of prawns in the channel has been drastically reduced (120kg harvests to 10-12kg)

In 2003, local inhabitants started to cut mangroves for charcoal and to build houses. There was a convict rehabilitation programme making charcoal. Mangroves decreased drastically and are considered to be the cause of prawn decline (nursery area). Mangroves are protected now and are being re planted.



# In summary

Quick exercise, completed yesterday

Results are presented for discussion with the meeting as a whole and follow up with GLORIA team and partners

Provides context for the Perceptions of Change exercise

May provide additional useful information to groups working with these changes / challenges on an ongoing basis in Madagascar

Would like to incorporate additional information from the GLORIA team and partners







**Thank you  
Merci  
Misaotra**