

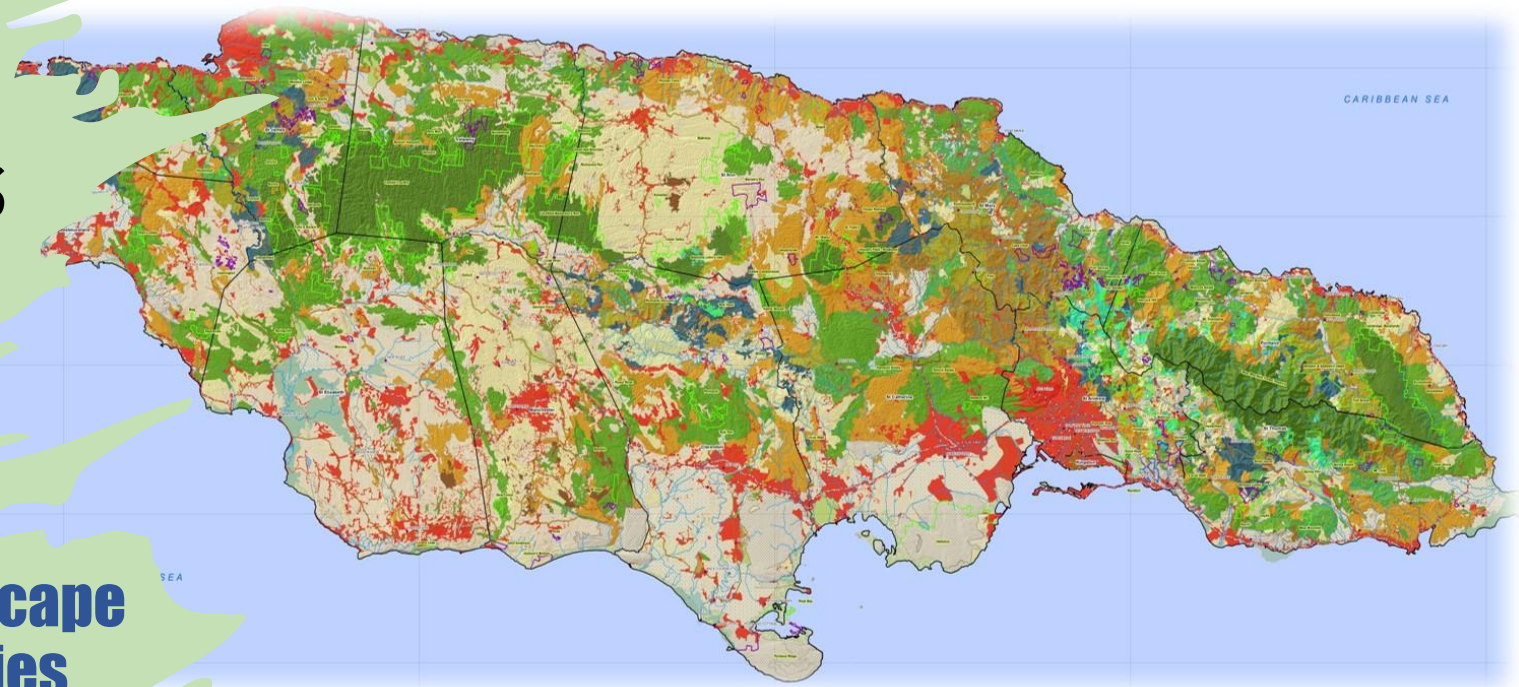
# State of Jamaica's Forest Cover

**Understanding our changing landscape while leveraging our opportunities**



**Forestry Department  
Forest Science and Technology Division :**

**Presenter- Miss Donna Lowe, Principal Director**



# Our purpose and core functions- The Forestry Department of Jamaica



- The Forestry Department of Jamaica is the lead Agency responsible for the sustainable management and conservation of the island's forest resources.
- The Agency manages approximately 120,000 hectares of forests in Jamaica and our core functions are mandated under the Forest Act, 1996.
- Through the Forest Policy and the National Forest Management and Conservation Plan the Agency strives to ensure that Jamaica's forests are sustainably managed to meet the social, economic and ecological needs of current and future generations

# Determining the national picture.



Generally, a Decadal Assessment, The first assessment was conducted in 1984. Subsequent assessments were completed in 1998 and 2013.

- Importance of knowing the figures:**
- For management and accountability purposes
  - International obligations- CC Agenda
  - Monitoring (reference/benchmark)
  - Public Awareness and Education
  - Research and development
  - Economic development

Previous 1984 and 1998 traditional methods relied on the value of each pixel. 2013 study adopted an object-specific analysis most suited for forest classification as vegetation.

The 2013 study used high-resolution images of less than 0.6m resolution and ESRI ArcGIS software to extract and classify 2013 land use/ cover for Jamaica.

# The details on the how?

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Develop Automated Feature Extraction (AFE) models that contain the information required to process datasets automatically

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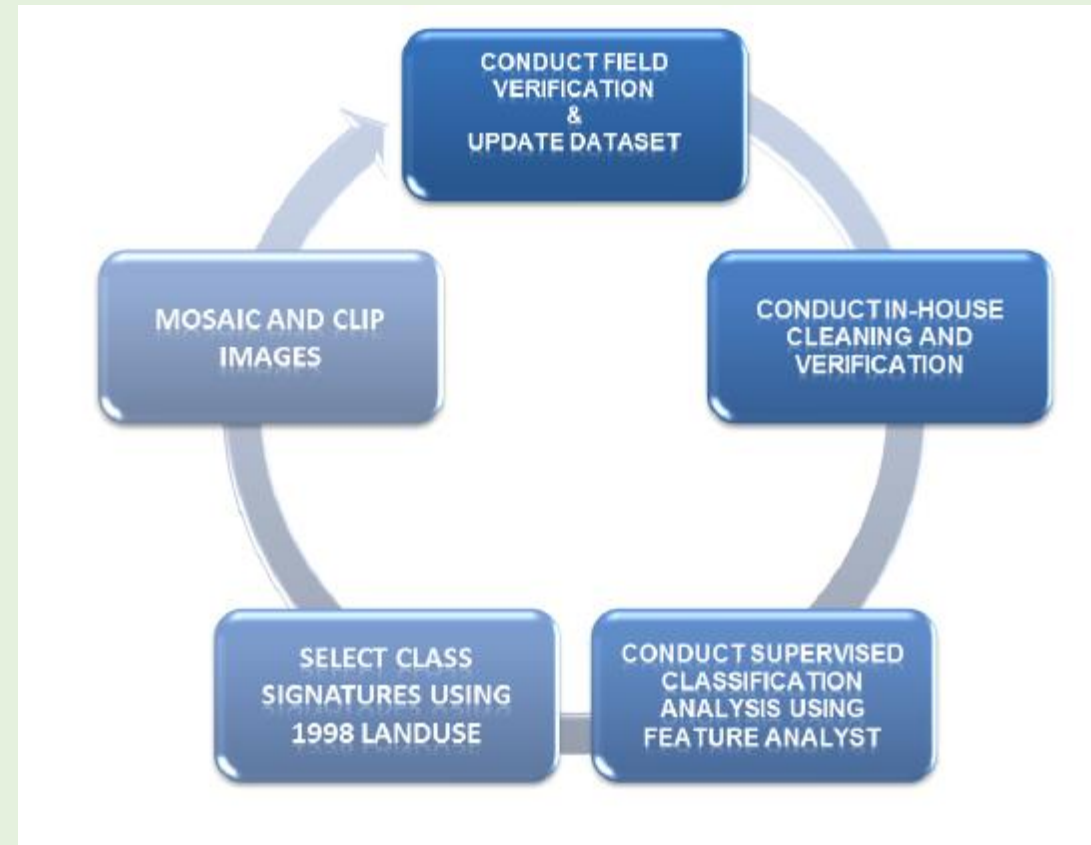
Trained interpreters to determine and analyse the classification, verifies and validates the findings

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Detects misclassifications Reduces the occurrence of unknown classification

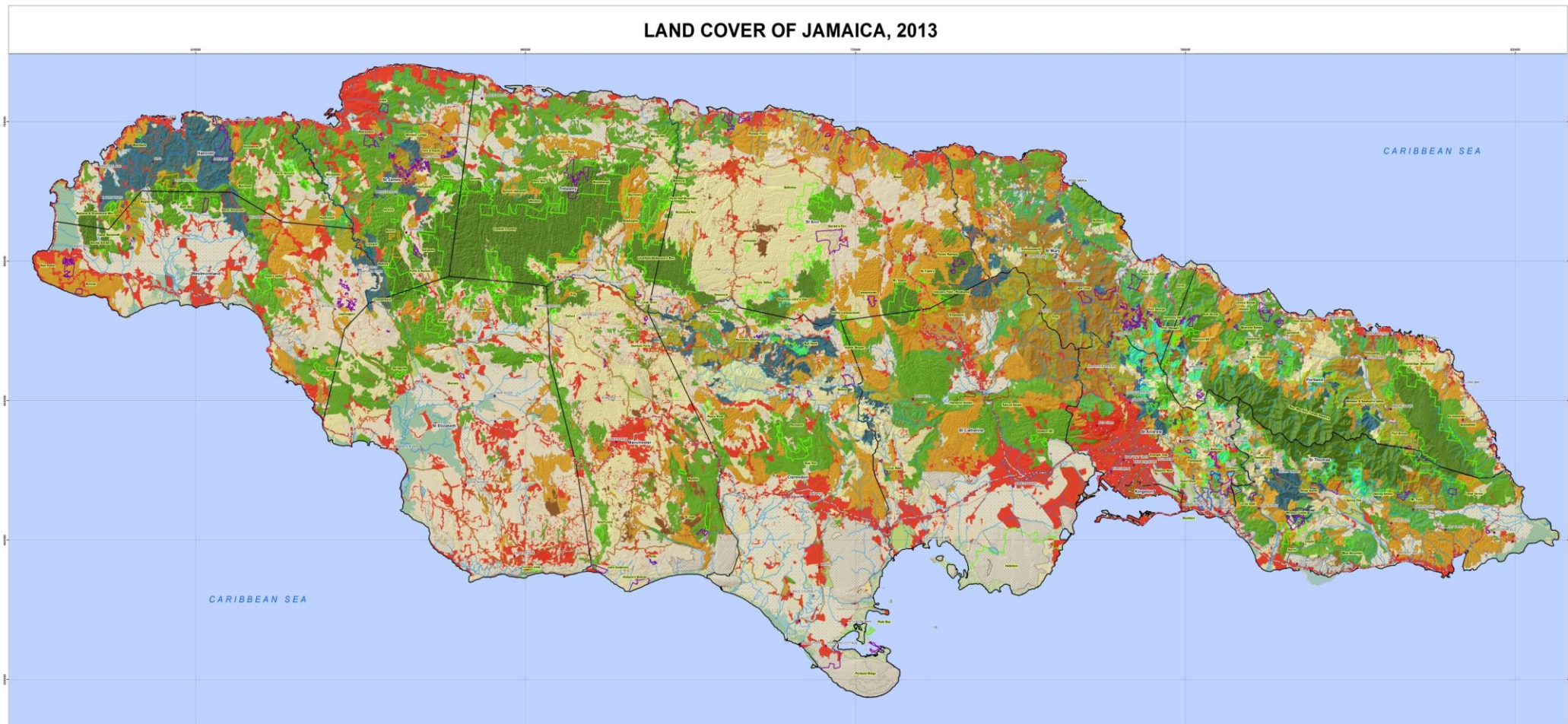
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Other variables, such as time and costs limit this approach to being easily replicable annually



# The results...

## LAND COVER OF JAMAICA, 2013



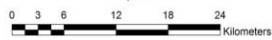
Prepared by the Forest Science & Technology Services Division  
 Forest Resource Information Management Branch  
 GIS Unit  
 GIS Operator: TIG  
 File Location: Z:\GIS\Projects\TampbellMKD file  
 Date: May 29, 2015

Projected Coordinate System: UTM\_2011\_Jamaica\_Grid  
 Projection: Lambert\_Conformal\_Conic  
 False\_Southing: 1000000.00000000  
 Area\_Units: Meter  
 Central\_Meridian: -77.00000000  
 Standard\_Parallel\_1: 18.00000000  
 Scale\_Factor: 1.00000000  
 Latitude\_Of\_Origin: 18.00000000  
 Units: Meter

Geographic Coordinate System: GCS\_JMC\_2011  
 Datum: G\_Jamaica\_2011  
 Prime\_Meridian: Caribbean  
 Angular\_Units: Degree



1:156,586

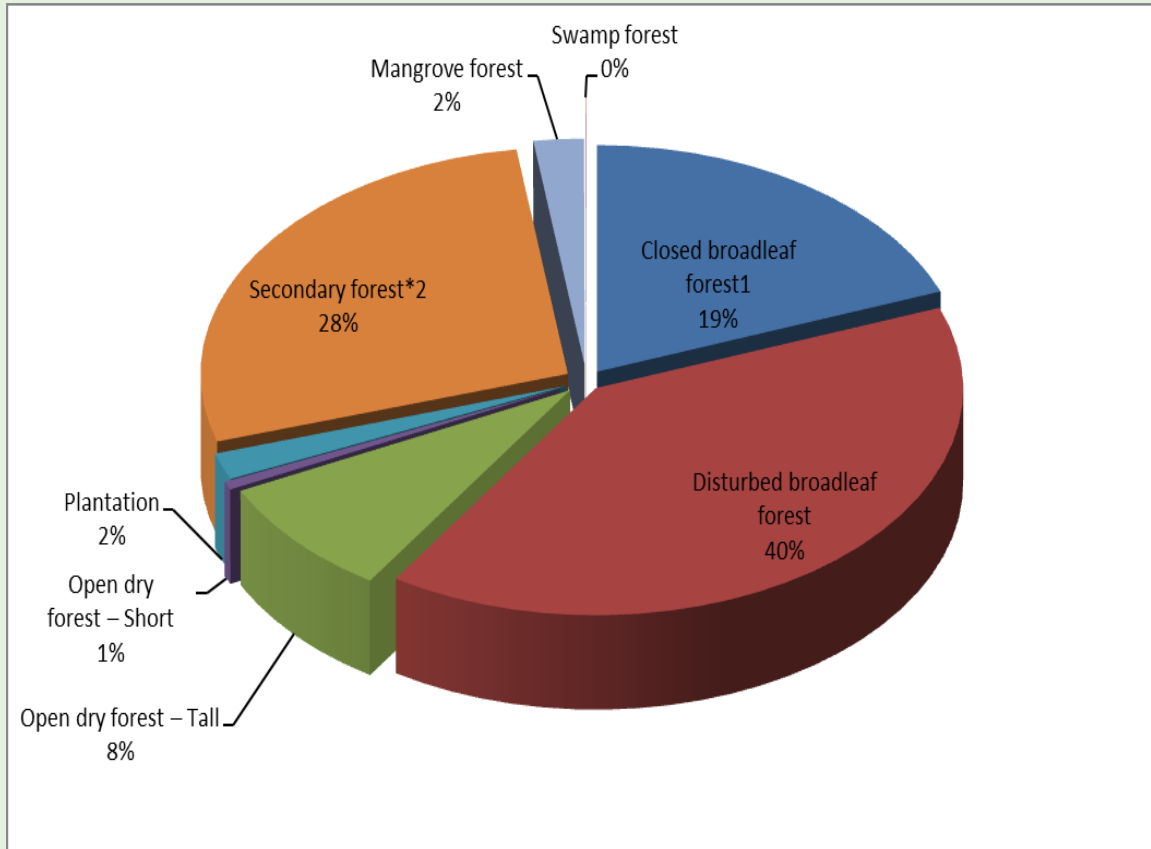


### Legend

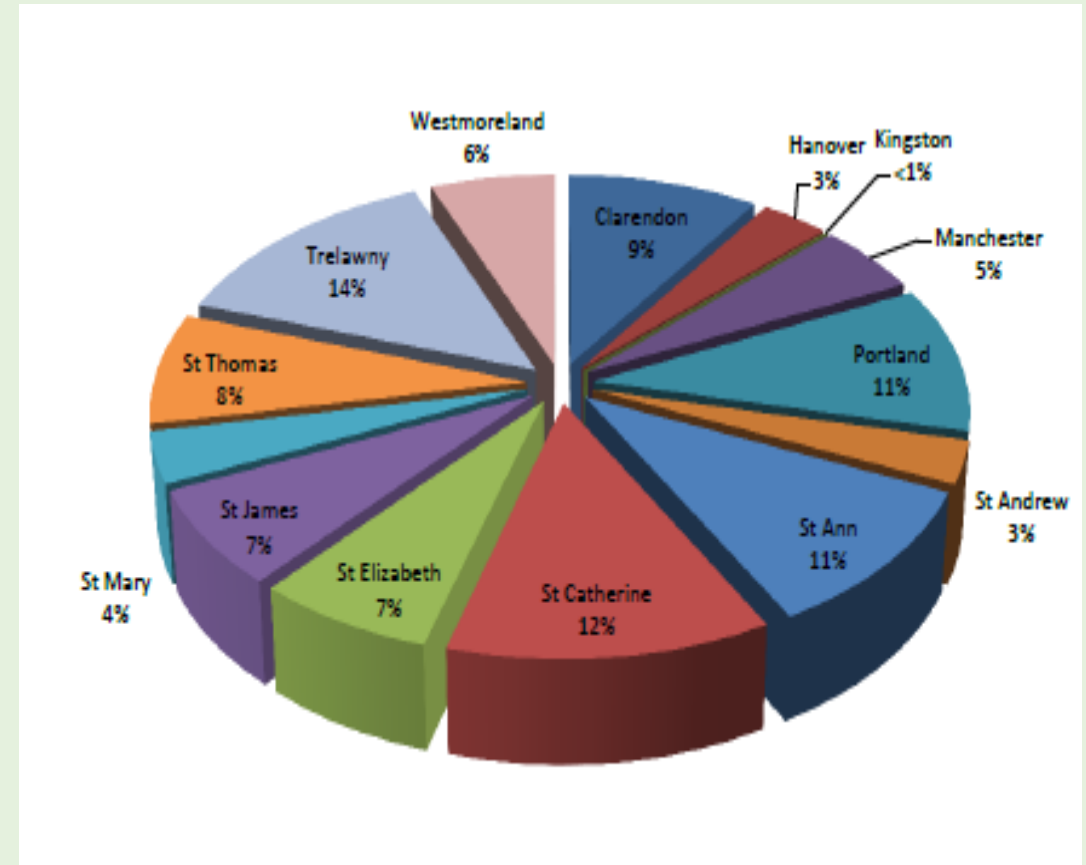
- TOWNS
- RIVERS
- ROADS
- CLASS A
- CLASS B
- Parish Outline
- CROWN LAND
- FOREST MANAGEMENT AREA
- FOREST RESERVE
- NATIONAL WATER COMMISSION
- PRI FOREST MANAGEMENT AREA
- PRI FOREST RESERVE
- Bamboo
- Bamboo and Fields
- Bamboo and Secondary Forest
- Bare Rock
- Bauxite Extraction
- Buildings and other infrastructures
- Closed broadleaf forest
- Cultivation: Herbaceous crops, fallow, cultivated vegetables'
- Disturbed broadleaf forest
- Fields and Bamboo
- Fields and Secondary Forest
- Fields: Bare Land
- Fields: Pasture, Human disturbed, grassland
- Hardwood Plantation: Eucalyptus
- Hardwood Plantation: Mahoe
- Hardwood Plantation: Mahogany
- Hardwood Plantation: Mixed
- Herbaceous Wetland
- Mangrove Forest
- Open dry forest - Short
- Open dry forest - Tall (Woodland/Savanna)
- Pine Plantations
- Plantation: Tree crops, shrub crops, sugar cane, banana
- Quarry
- Secondary Forest
- Secondary Forest and Bamboo
- Swamp Forest
- Water Body

The information included on this map has been compiled by Forestry Department staff from a variety of sources and is subject to change without notice. The Forestry Department makes no representations or warranties, express or implied, as to accuracy, completeness, timeliness, or rights to the use of such information. This document is not intended for use as a survey product. The Forestry Department shall not be liable for any general, special, indirect, incidental, or consequential damages including, but not limited to, lost revenues or lost profits resulting from the use or misuse of the information contained on this map. Any use of this map or information on this map is prohibited except by written permission of The Forestry Department.

# The results...

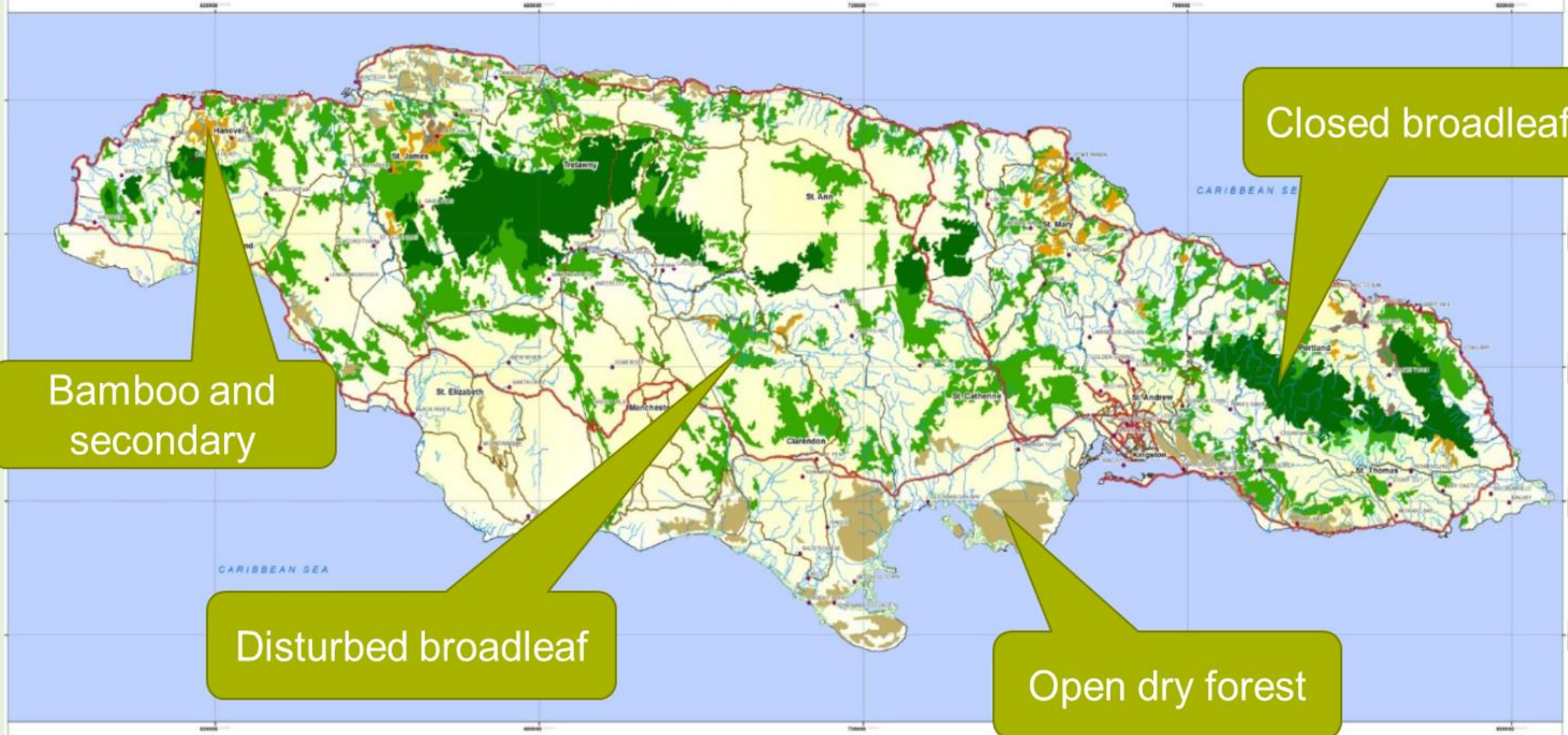


Forest classifications (2013) at the national level.



2013 Distribution of Forest Cover across parishes

### JAMAICA FOREST AREAS



Bamboo and secondary

Closed broadleaf

Disturbed broadleaf

Open dry forest

Prepared by the Forestry Division & Technology Services Division  
 Forest Planning Information Management System  
 2015/2016  
 2015/2016  
 2015/2016  
 2015/2016

Scale: 1:289,533  
 0 3.5 7 14 21 28 Kilometers



**Legend**

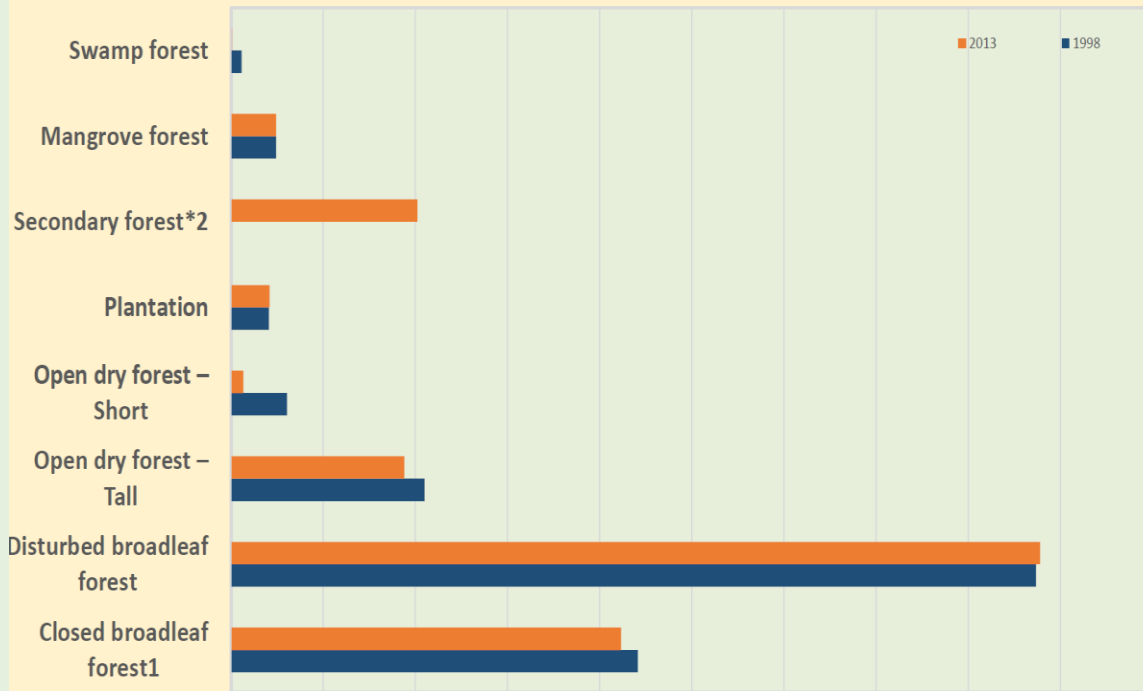
- TOWNS
- ROADS
- CLASS A
- CLASS B
- RIVERS
- Bamboo
- Bamboo and Secondary Forest
- Closed broadleaved forest (Primary Forest)
- Disturbed broadleaved forest (Secondary Forest)
- Fields or Secondary Forest/Pine Plantation
- Mangrove Forest
- Open dry forest - Tall (Woodland/Savanna)
- Swamp Forest
- Parish

# Findings...

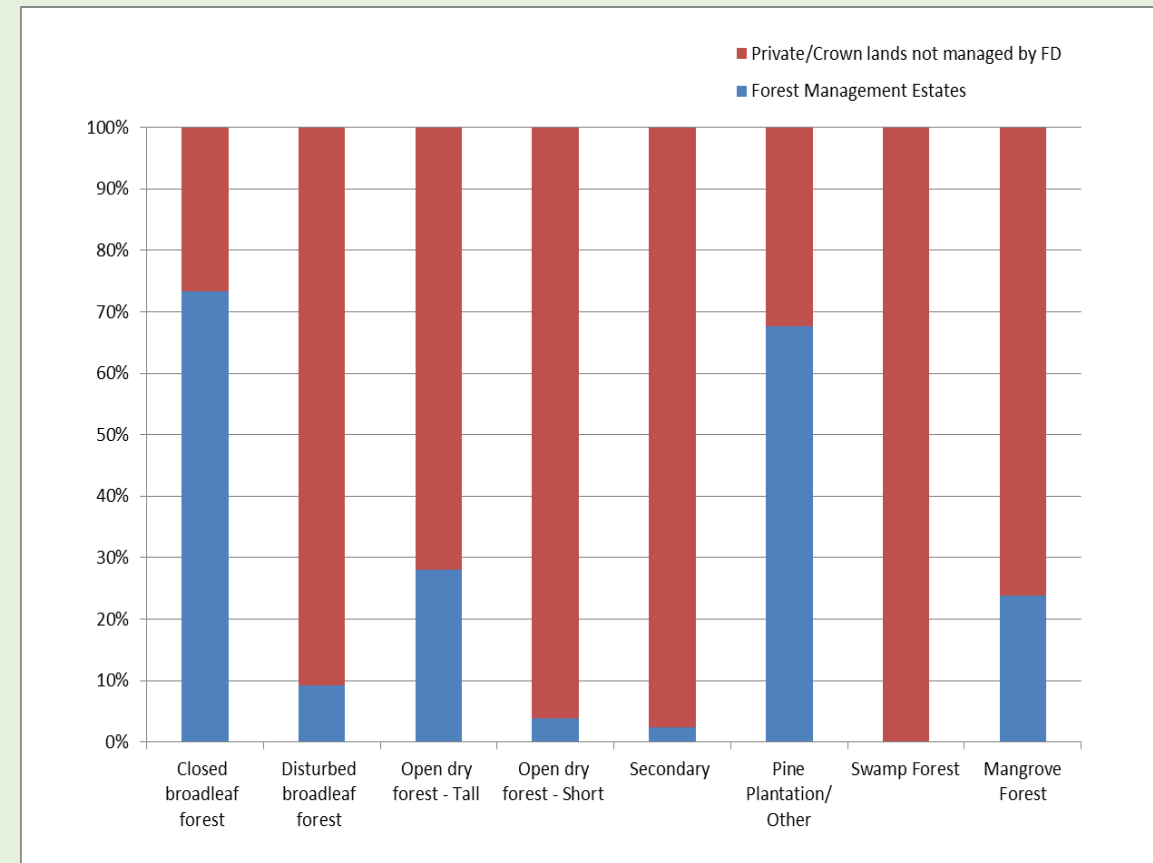
## Changes.



Comparison 1998 vs. 2013



## Private vs public management





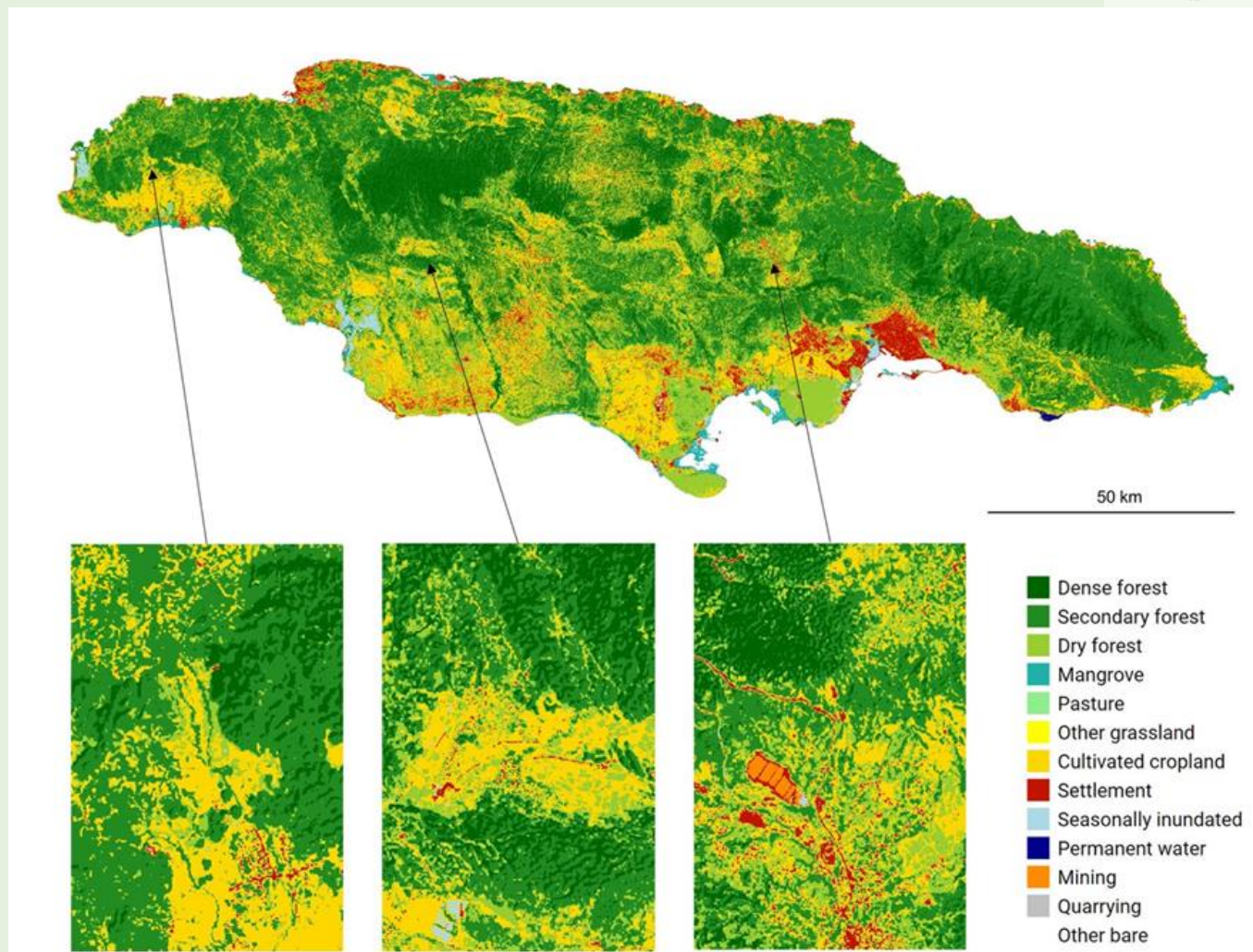
# 2013 to 2020

In 2021 REDD+ readiness (phase 1) has introduced new methods for monitoring Jamaica's forest cover.

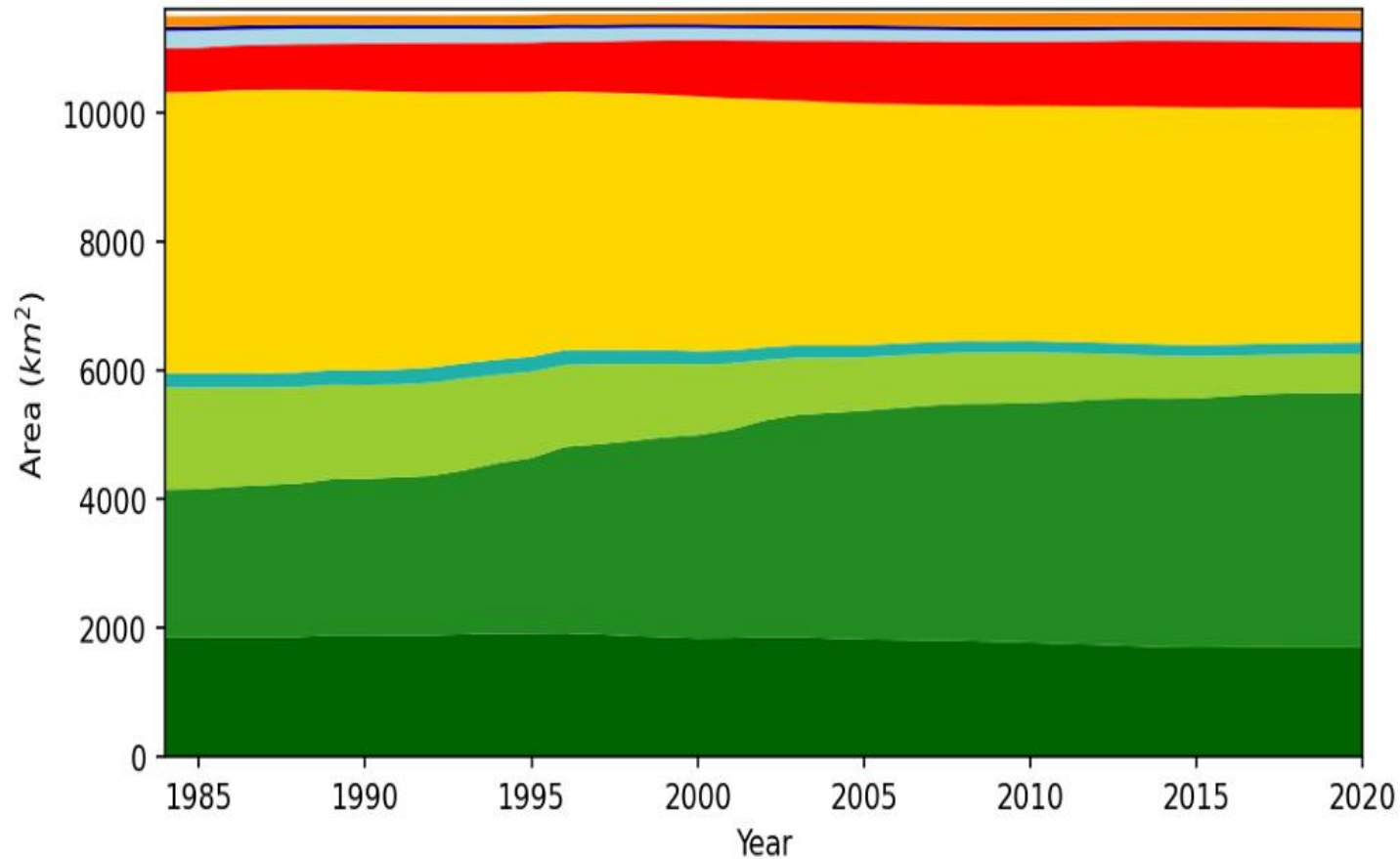
This approach provides a historical baseline on rates of change and their locations to support a REDD+ strategy.

Created annual maps using Landsat data and presented time series maps (1984-2021). Using 30 m pixel resolution of free imagery data in Google Earth engine.

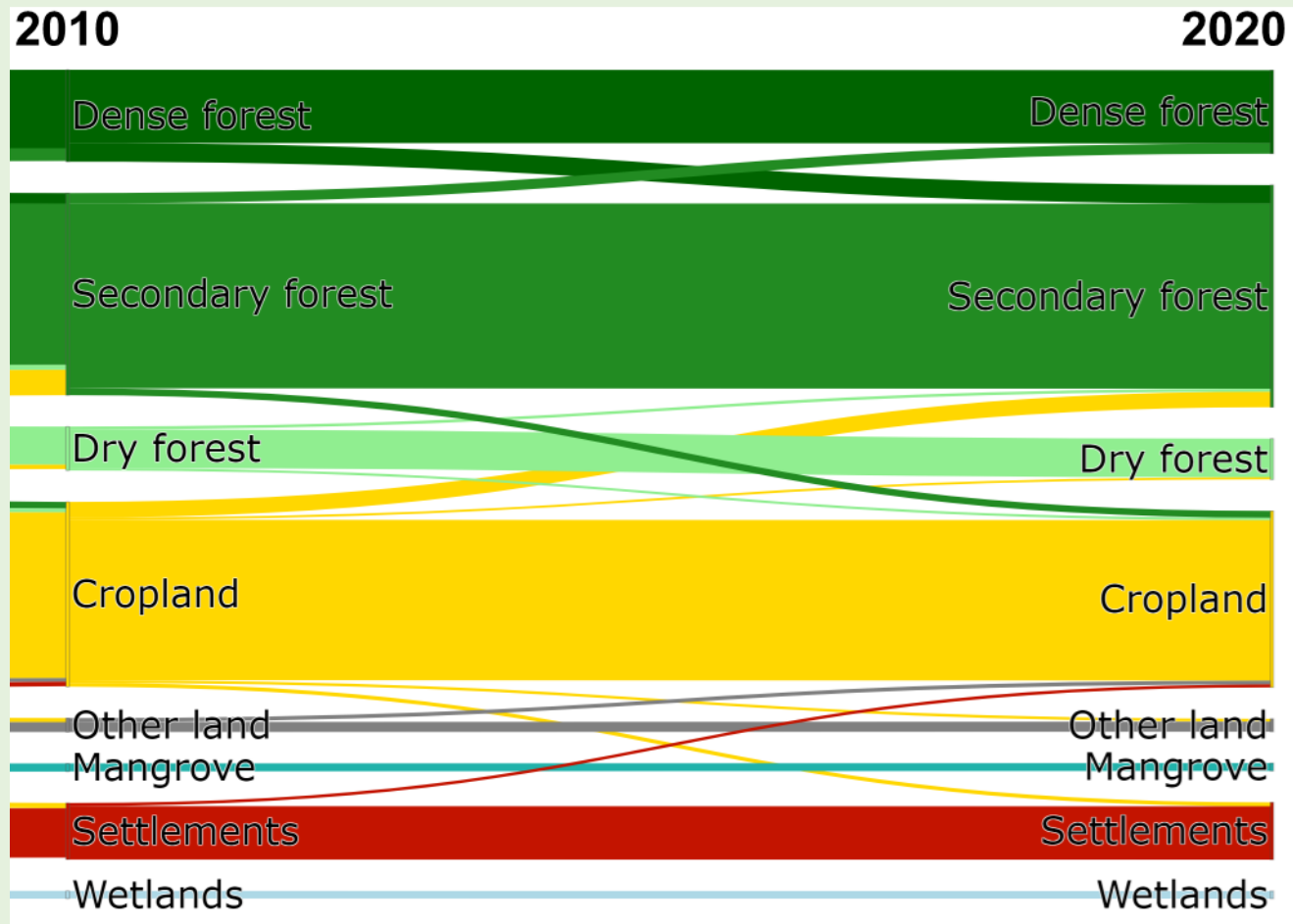
These have improved our understanding of where Jamaica's forests are changing.



# A different approach - Similar findings



- Total forest area has been stable/increasing over the past four decades.
- Large increase in secondary forest area.



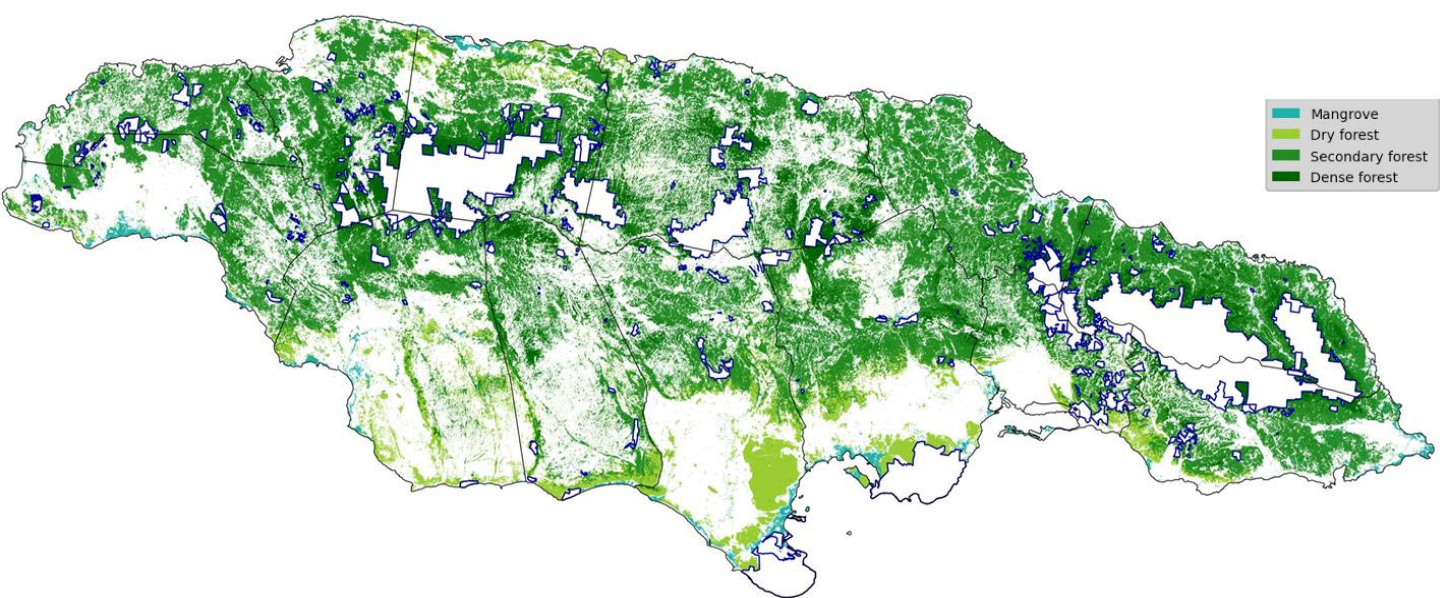
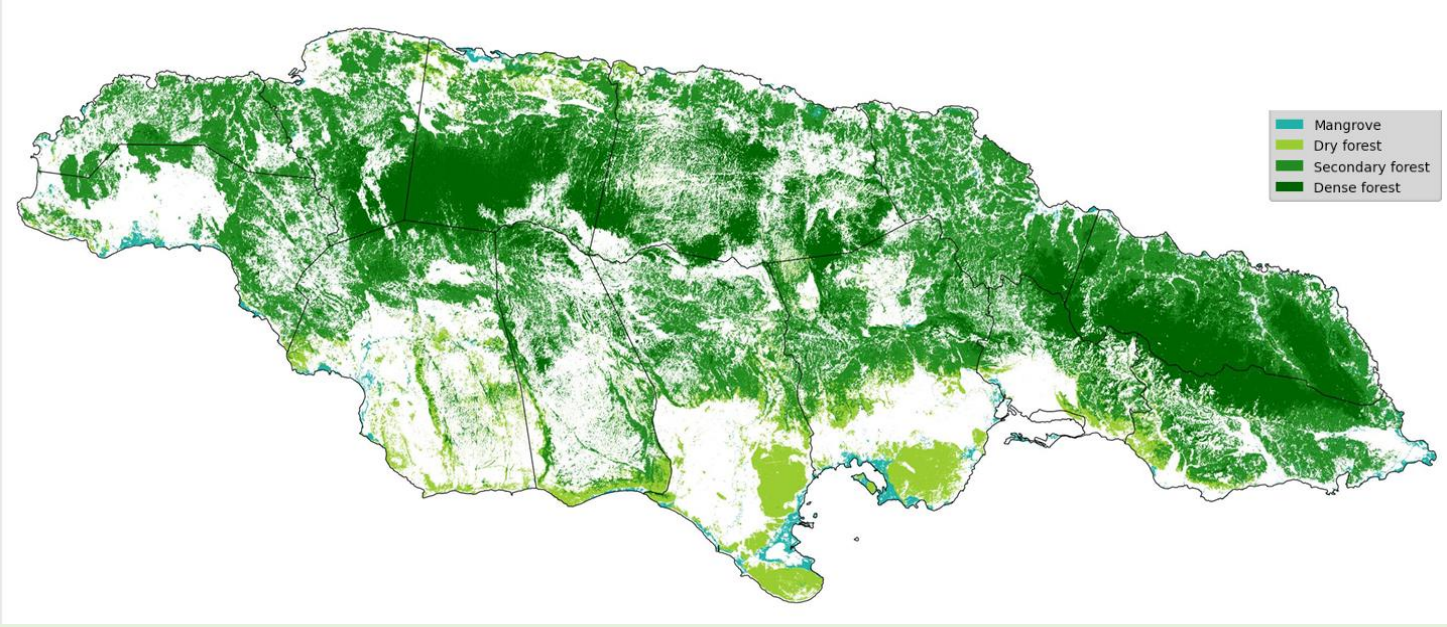
- Dense Forest
- Secondary Forests
- Dry Forests
- Mangrove Forests
- Wetlands
- Croplands
- Settlements
- Other lands

# The fundamental challenge...

FD manages only 24.5 per cent of land under tree cover (11% of the island).

Most tree+/forest cover is outside FD-managed lands, and most are privately owned.

The main changes in tree cover occur outside of FD-managed lands.



# Drivers of forest cover changes

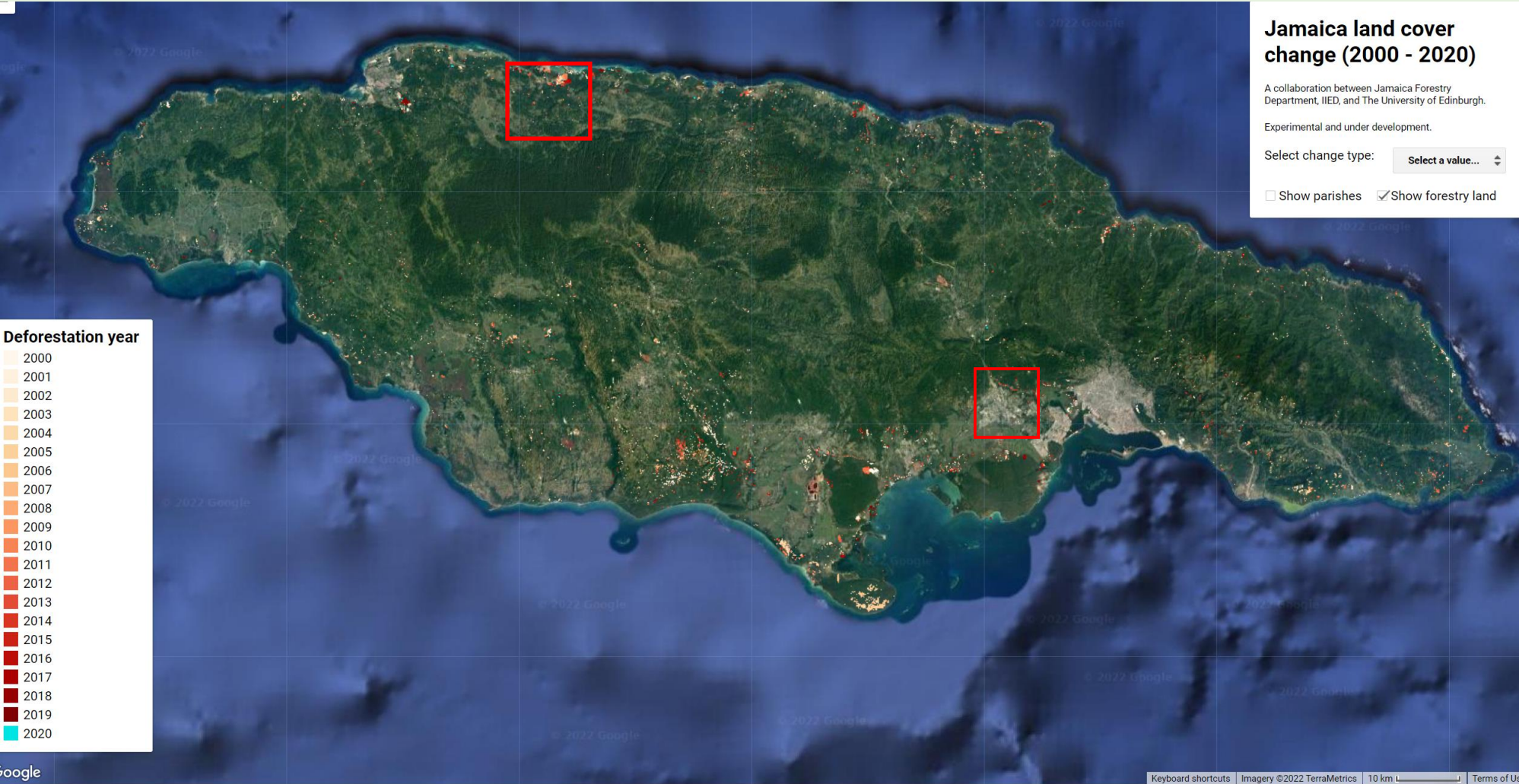
- 2010-2020 - Losses
  - Settlement expansion. Mainly coastal
  - Infrastructure development
  - Bauxite mining and quarrying
  - Natural disturbances: fire and hurricanes

## 2010-2020 - Gains

- ✓ Passive regrowth on unutilized/abandoned agricultural lands
- ✓ Reduction in Bauxite mining
- ✓ Conservation activities.



# The drivers of changes...



**Settlement expansion. Mainly coastal**

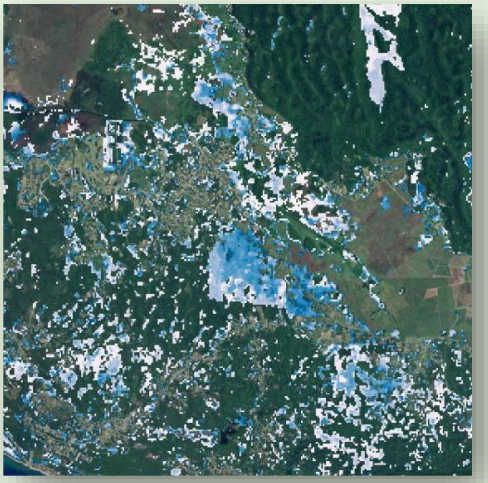
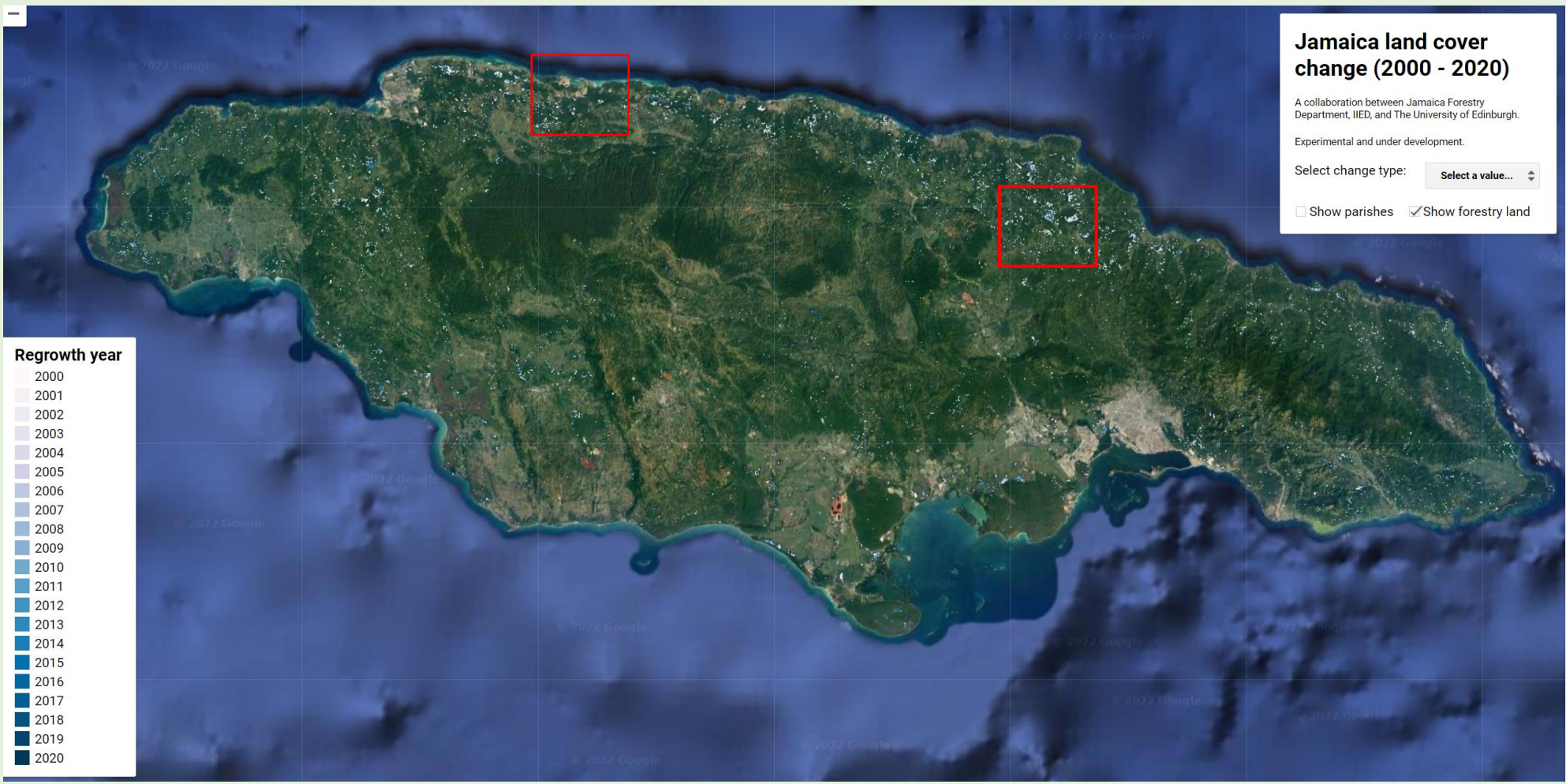


**Infrastructure development**

# The challenge - expanding infrastructure.



# All is not *loss* - the Gains...



Multiple drivers of change- GAINS can be attributed to agricultural shifts in rural areas due to abandoned farmlands.





# Jamaican Forests - up for grabs to the highest bidder.



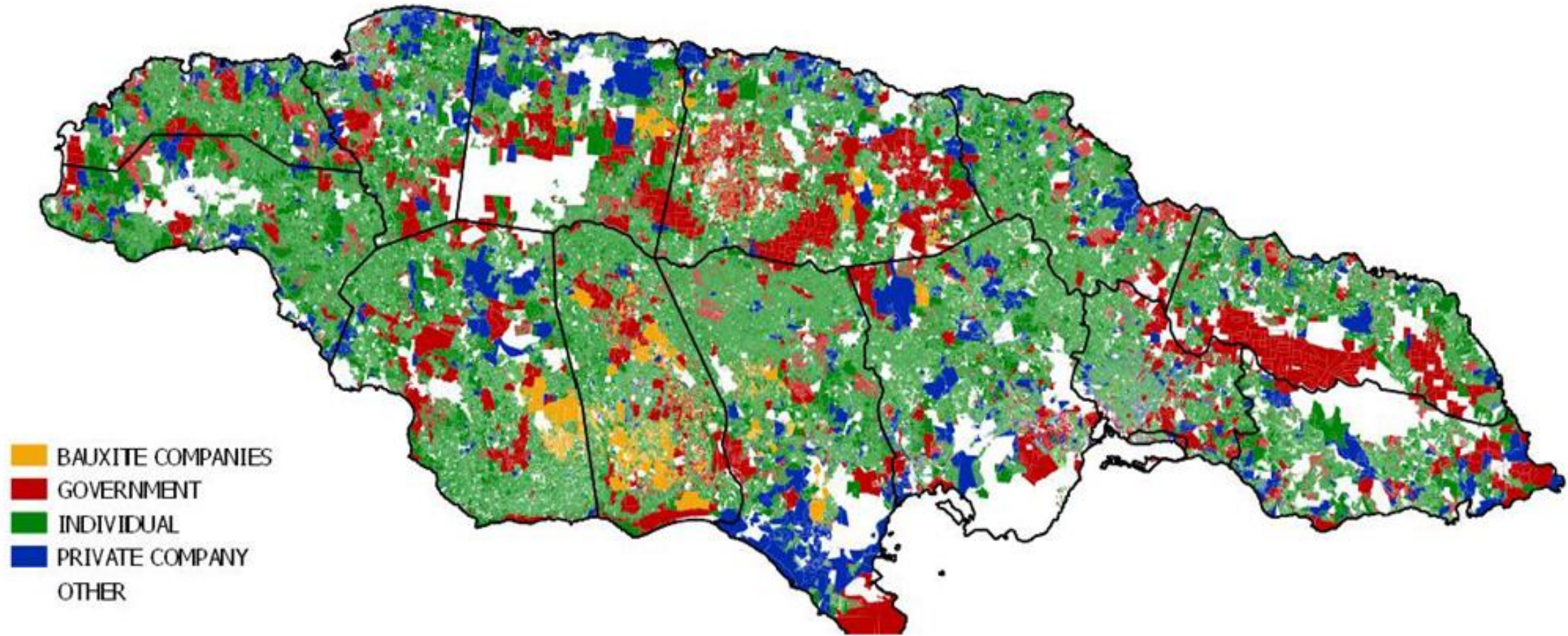
350 Acres of Beachfront Land for Sale, Orange Bay, Hanover, Jamaica- **USD- 14 Million**



Trelawny – 1.25 acres  
**\$J43 Million**



# The opportunities - Tenure.





**Forest Policy for Jamaica (2017)** – promoting “No net loss” of forest cover

**National Forest Management and Conservation Plan (2016-2026)** to address SFM in the face of climate change

**Public Private Partnership Programmes** (Declaration of private forests, Adopt-a Hillside, PFP)

Economic restoration - of underutilized or post-mined lands

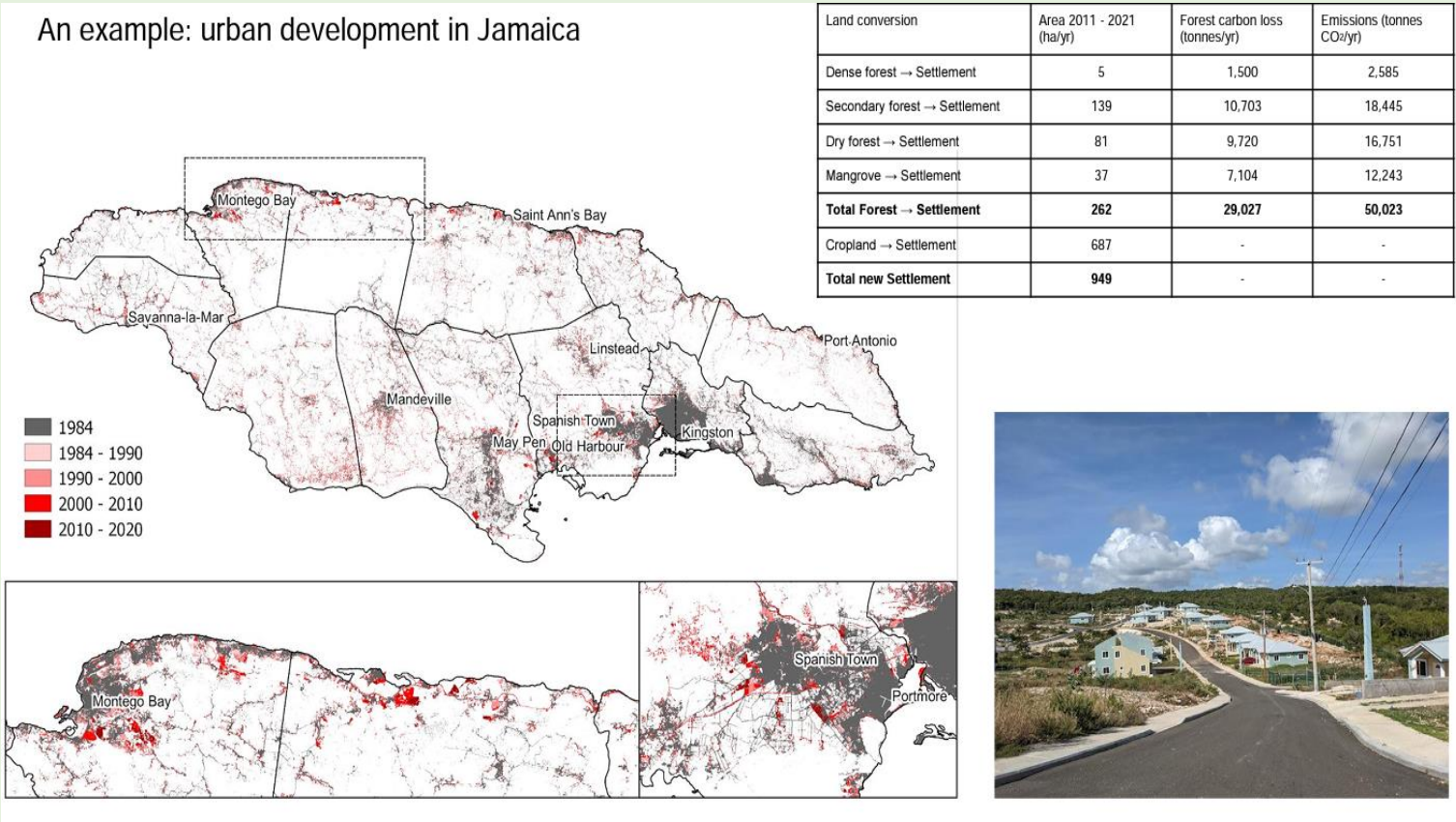
Income generation - enhanced agroforestry businesses

Increased Food security –global supply chains threatened.

Climate resilience and increased Biodiversity – ecological functionality

# Our changing landscape and leveraging our opportunities

An example: urban development in Jamaica



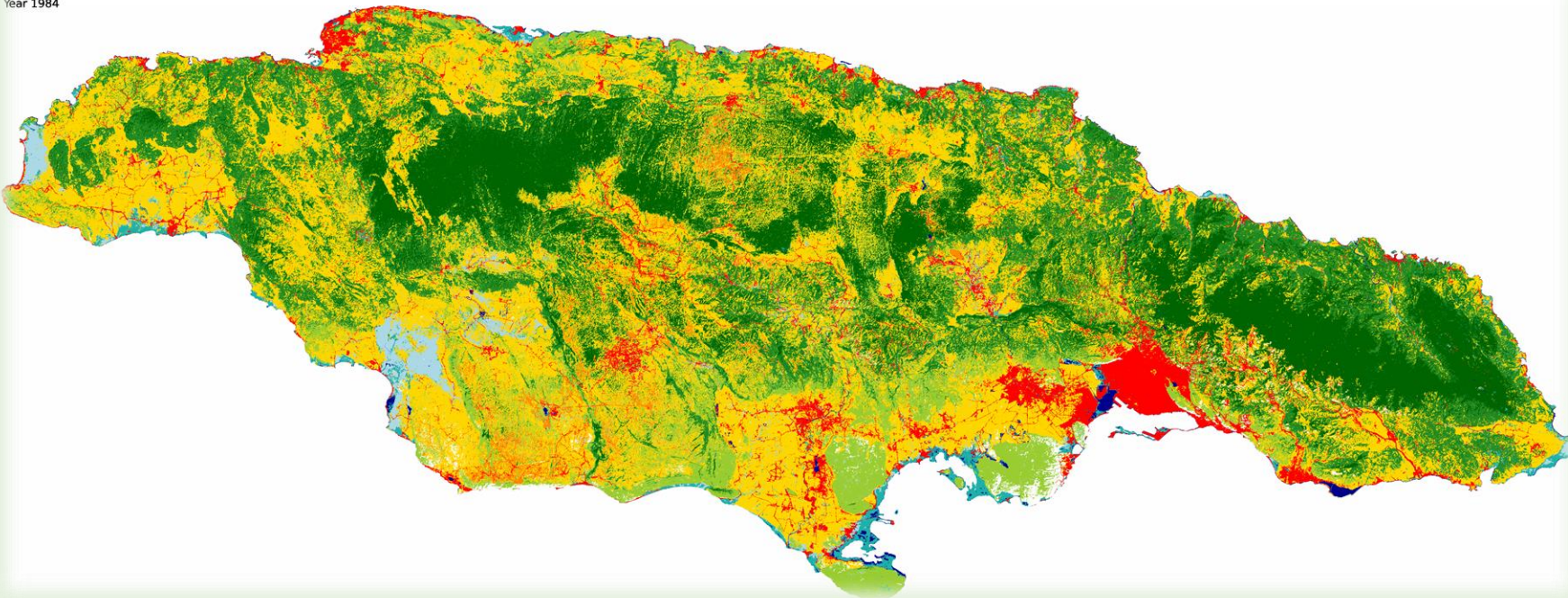
- Determine annual land cover changed through a standard NFMS under an improved national REDD+ strategy that allows for several opportunities.
- REDD +NFMS allows the generation of carbon credits to be traded on the Voluntary Carbon Market and facilitates jurisdictional payments through **benefit-sharing arrangements**.





# Thank you

Year 1984



Write to:

The CEO & Conservator of Forests  
Forestry Department  
173 Constant Spring Road  
Kingston 8  
Call: 618-3205  
Forest Offences Hotline: 1-888-FORESTS  
(367-3787)

Email: [fdinfo@forestry.gov.jm](mailto:fdinfo@forestry.gov.jm)

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*Thank You*

