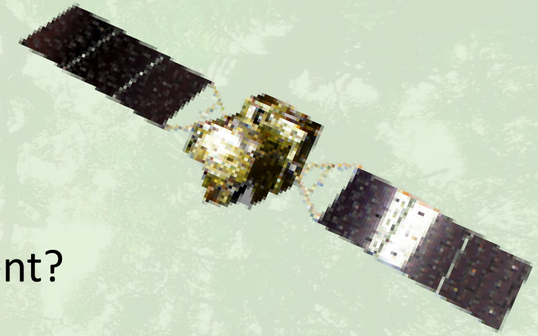
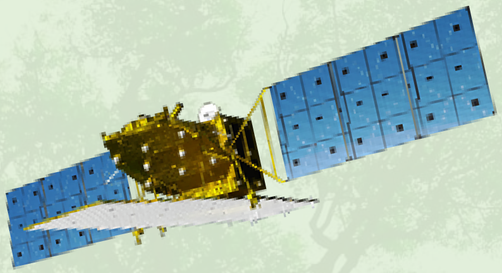


UNFCCC COP 27 Japan Pavilion Seminar
How can satellites improve Forest Monitoring and Management?

Panel Discussion

Mr. Joaquim Macuacua
National Directorate of Forests,
Ministry of Land and Environment,
Government of Mozambique



REPUBLIC OF MOZAMBIQUE
MINISTRY OF LAND AND ENVIRONMENT
National Directorate of Forestry

National Forest Monitoring System in Mozambique

COP27 side event

Joaquim Macuacua

Head of Division on Mapping and Data Management,

Department of Inventory of Forest Resources, National Directorate of Forestry, Ministry of Land and Environment, Mazambique

10th November, 2022

The European Space Agency

Outline

- Overview
- NFMS concept
- Legal instruments
- Activities and output on REDD+ readiness Phase
- Challenges
- Request

Overview

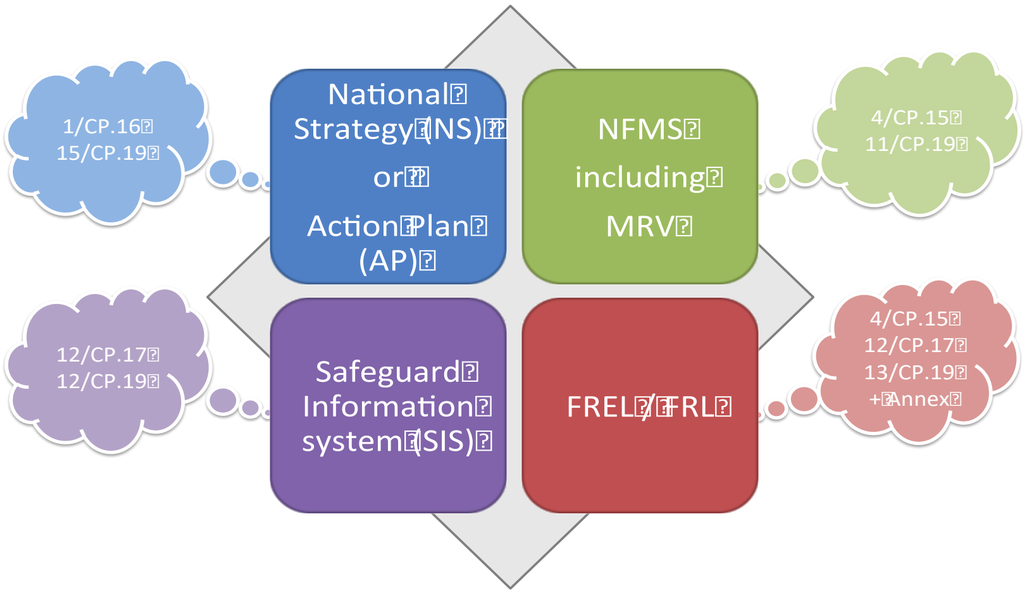
- Mozambique is East Southen Africa country
- **Forest area ~38 Million ha** which represente 48% of land cover
- **Deforestation is 220 000 ha** per year;

What is NFMS?

The UNFCCC requests REDD+ countries to build

…a robust and transparent national forest monitoring system for the monitoring and reporting of REDD+ activities…
(Decision 1/CP.16)

How to design NFMS depends on the country's national definition and circumstances



Key REDD+ elements

- There are 4 key REDD+ elements to be developed by REDD+ countries.
- Having these in place is also a requirement for accessing result-based finance

Graphic source: UN-REDD "REDD+ Academy

Legal instruments,

Mozambique prepared legal instruments for Policies and Measures to contribute to REDD+ and sustainable forest management:

- National Climate Change Strategy, 2018
- National Forest Program, 2018;
- National REDD+ Strategy, 2018;
- National Forest Policy and Implementation Strategy, 2020
- National Strategy for Biodiversity Conservation (NBPS),
- **Forest Emissions Reference Level** (FREL), 2018;
- Strategic Environmental and Social Assessment which serves as umbrella of **National safeguards information System**; 2017
- On going of the Project of **Forest Law Review** which will issues **related to Climate Change**; 2022;

Activities and output in REDD+ readiness phase

- **Provision of Grant Aid by GoJ 2010, and Establishment of Platform for sustainable management to monitor REDD+ 2017, JICA;**
- **National Forest Reference base map of 2013** (Landsat 8 data and **ALOS Radar data and Landsat 8 wall-to-wall methodology**), 2017, **JICA**
- Estimation of **Activity Data** based on **deforestation** from 2001-2016, Collect Earth;
- **Prepared Forest Reference Level (FREL),** based on 2001-2016 **data of deforestation** and submitted to the UNFCCC in 2018, **UEM, FNDS**
- **National Forest Inventory**, 2018, **DINAF; (Past F cover mapping NFI 1980, 1994, 2007,)**
- On **update data of annual deforestation and estimation of forest degradation** from 2016 up to date using Sentinel 2 data, 2022;, **FNDS**
- **Historical Map of changes** (2002,2004, 2006, 2008, 2010, 2013 Landsat 8) of two provinces (Gaza and Cabo Delgado) using wall-to-wall method, **DINAF-JICA**;
- **Provincial Forest Zoning** (Niassa, Sentinel 2) for REDD+ and **integrated Forest Management Model for national wide, DINAF-JICA;**
- **Systematic engagement in Wildfire data map and analyse.**

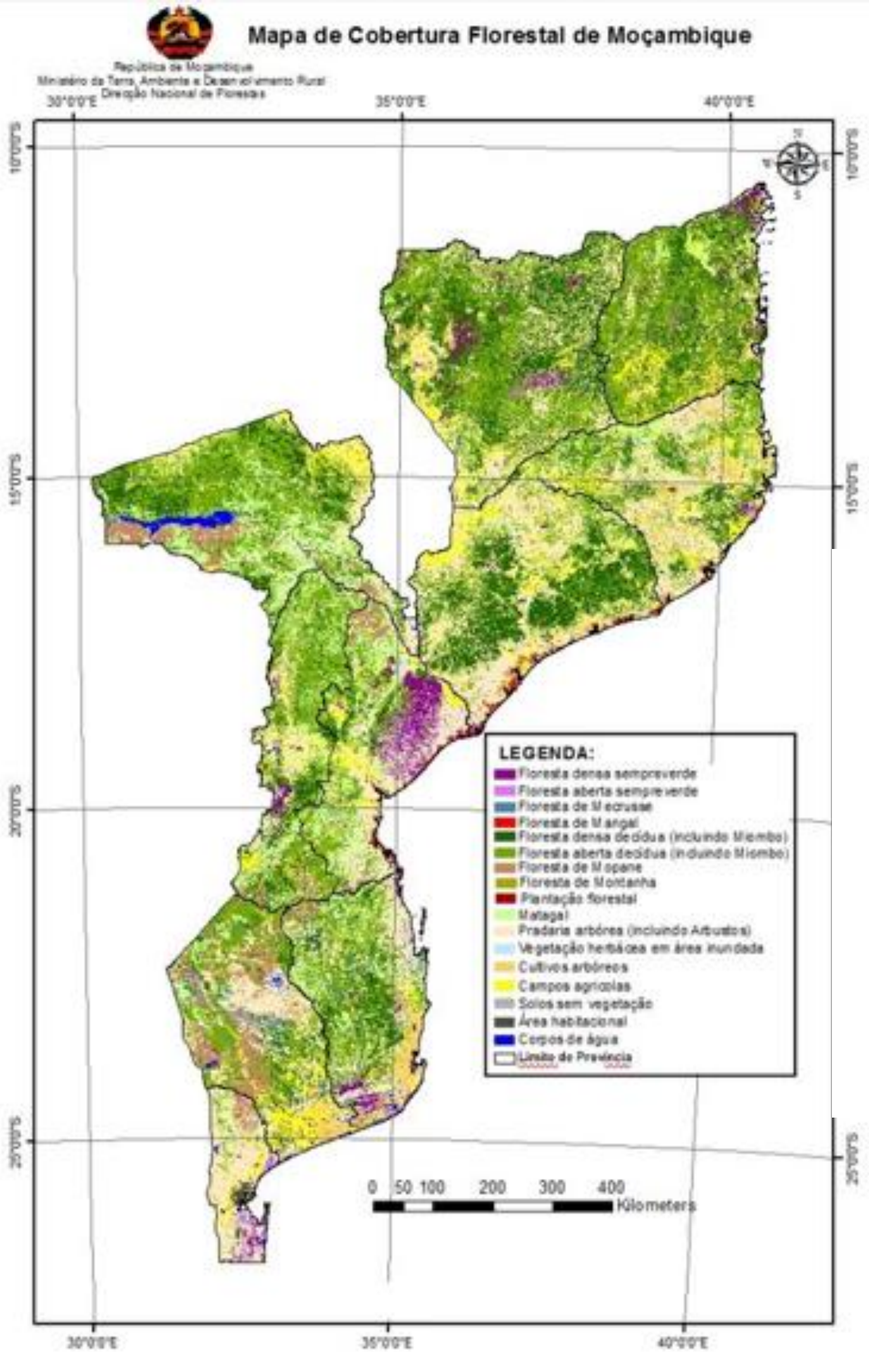
Activities and output in REDD+ readiness phase (cont…)

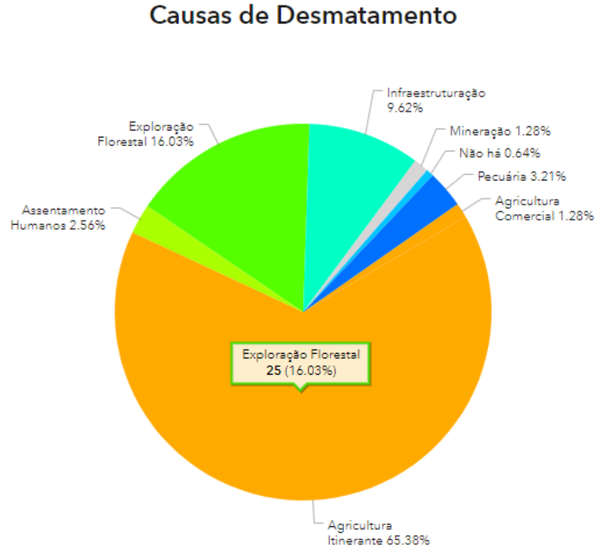
- In 2019, **Emissions Reduction Payment Agreement** (ERPA) for Mozambique (ZILMAP) was signed.
- Established of the operational **NFMS** being update, 2021
- Established Strengthened technological **control of deforestation,** through **satellite-based Deforestation Reference System** (SDRS) to monitor **Deforestation in semi-real-time (JAXA-JICA)**, 2022
- **Participatory Deforestation monitoring**, Forest degradation monitoring, FNDS 2021
- Establishment of **Permanent Sample Plots**, etc, 2019
- Under **conclusion Timber Tracking** supported by **ITTO**, 2022
- **Established National Forest Information System**, linked to spatial information, 2021
- **Payment for environmental** service under emission reduction, FCPF;
- Establishment of **National REDD+ project registry for feasibility studies for REDD+ implementation**.

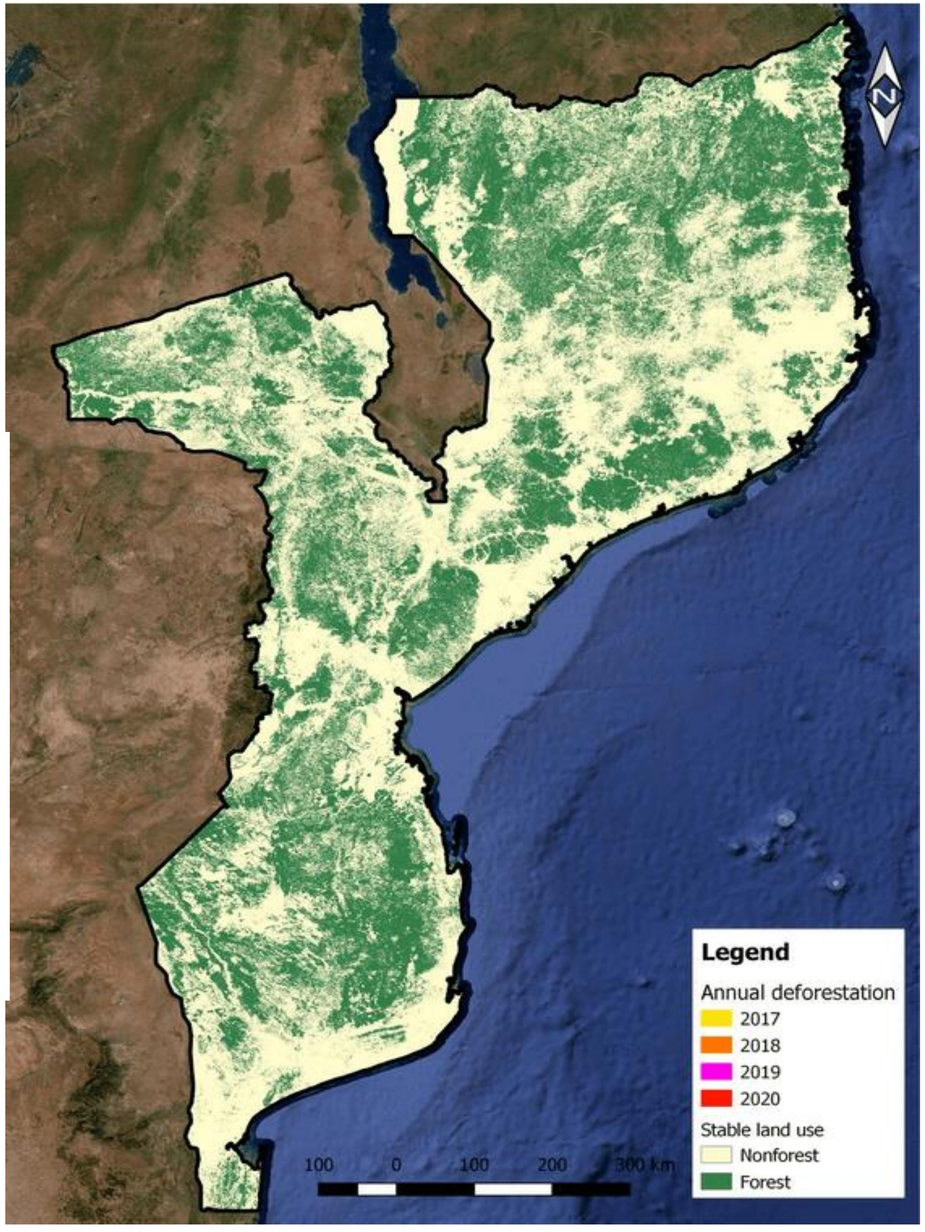
Activities and output in REDD+ readiness phase (cont…)

- **Pilot project in Zambezia province** within nine districts on forest **restoration, forest plantation, agro-silviculture, agriculture of conservation** was caried In the last 5 years, FNDS ;
- **Mangrove data mapping, 2021**
- **Ongoing Soil carbon mapping,**
- Produce **annual land use and land cover (LULC) maps with resolution of 30 meters** for Mozambique based on the classification of satellite image time series from 1990 to 2019. A pilot using technologies developed by the Brazil Data Cube project team, CfRN, 2022;

Forest Reference Base Map Vs Deforestation Map







How to access the FRIP and SDRS

Link from DINAF portal(http://www.dinaf.gov.mz)

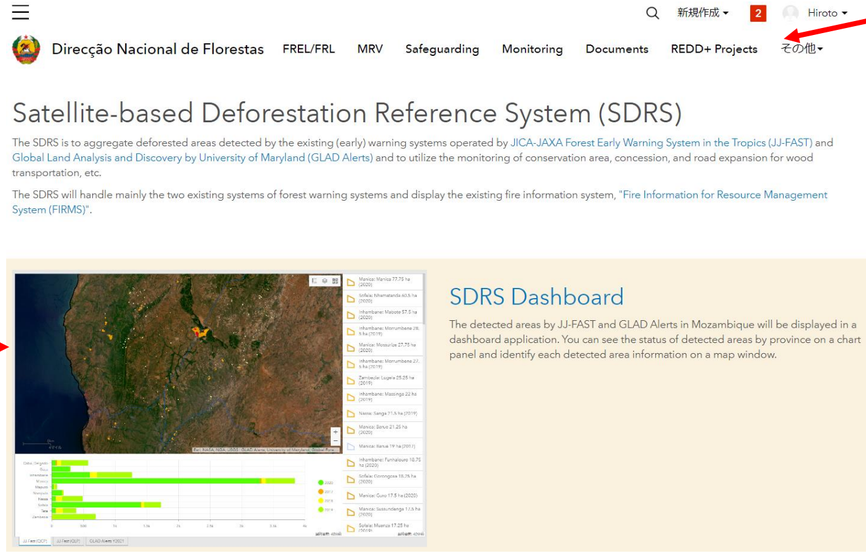
satellite-based Deforestation Reference System

SDRS _Dash board application

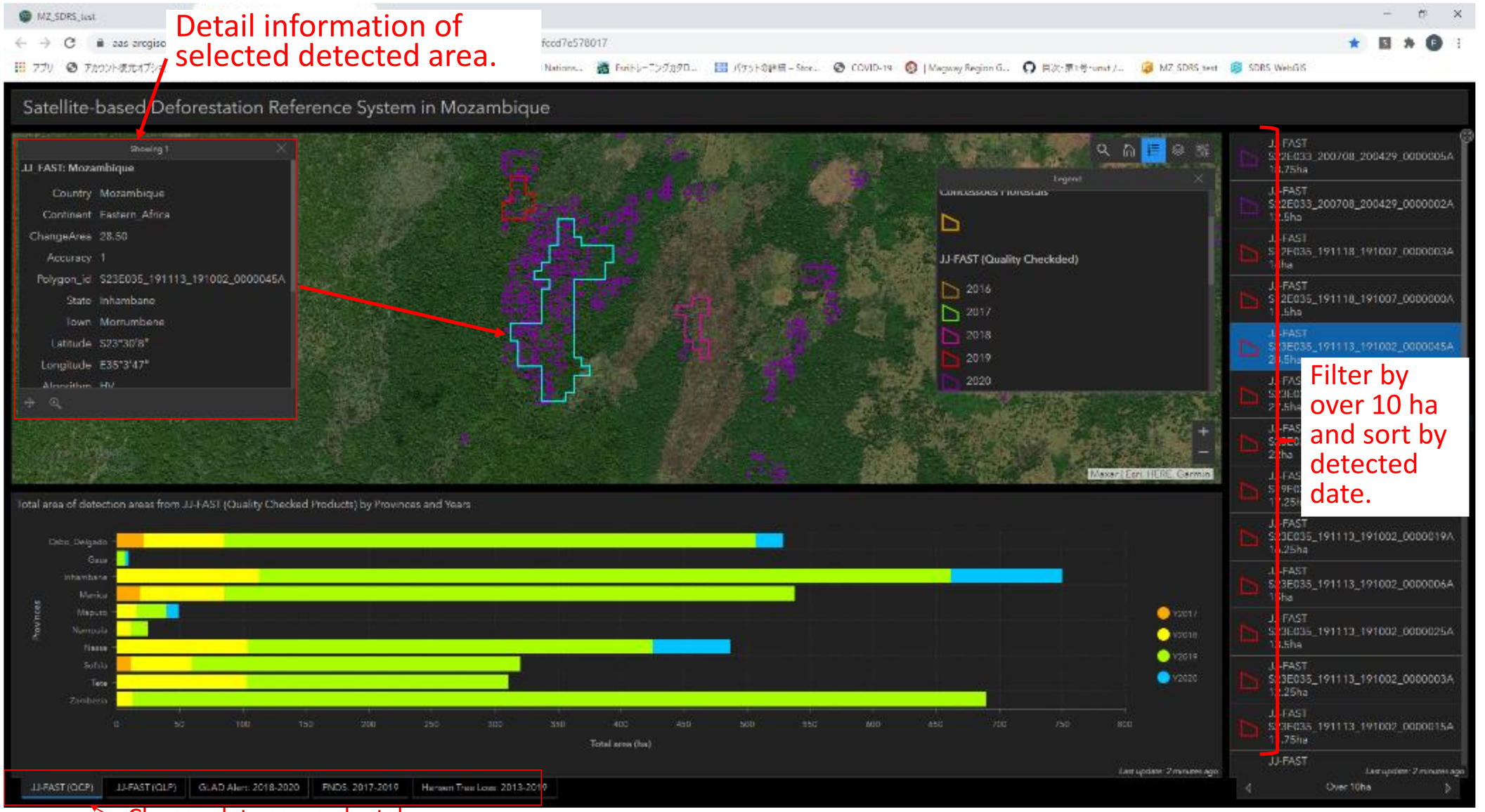
https://www.dinaf.gov.mz/portal/apps/opsdashboard/index.html#/ec8916bbd4384bc7bd18af95c03a9c8b

SDRS_Web map application

https://www.dinaf.gov.mz/portal/apps/webappviewer/index.html?id=a79142a2a13946d1a5595cd55f4d45a1

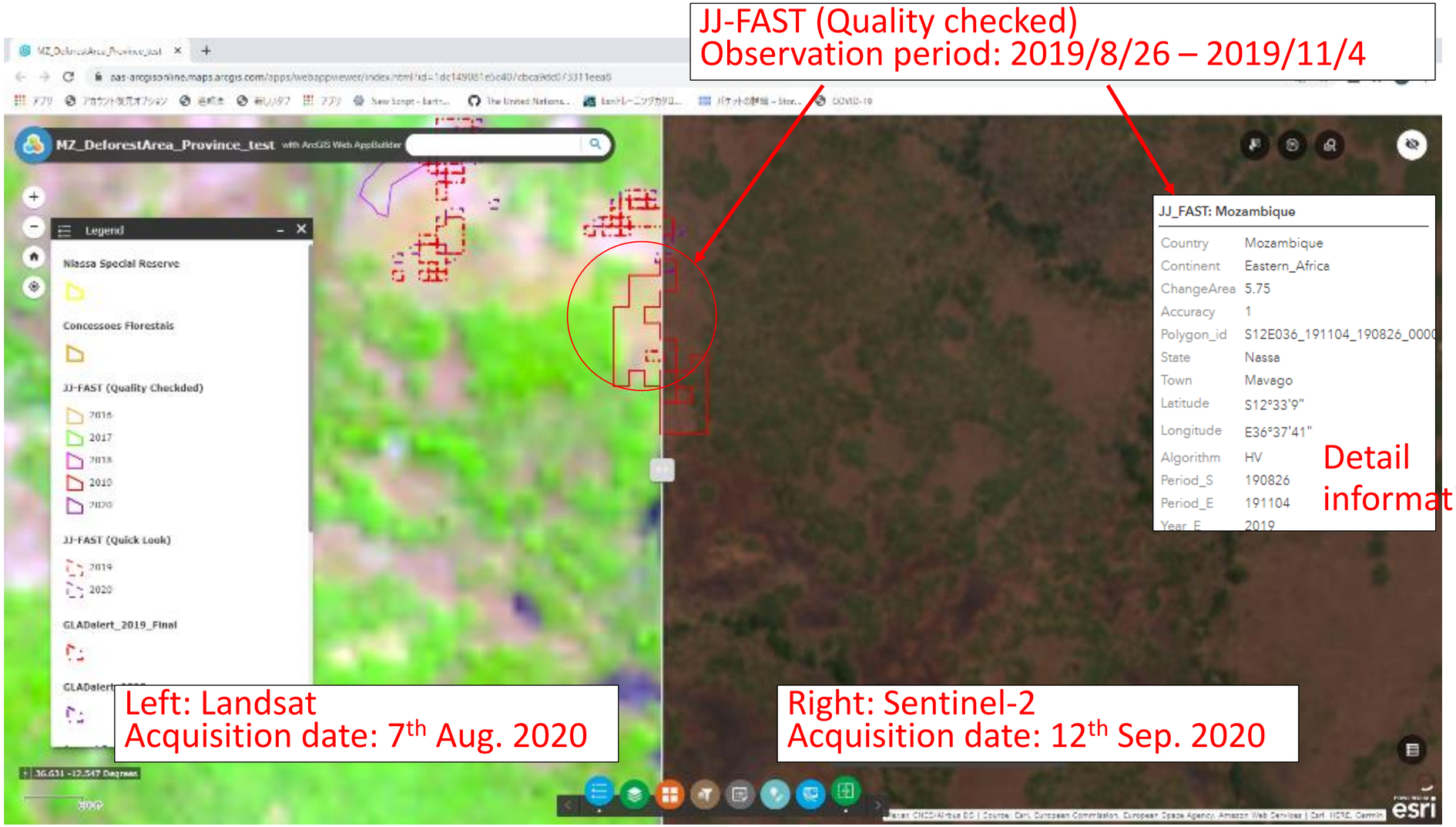


Sample image of Dashboard



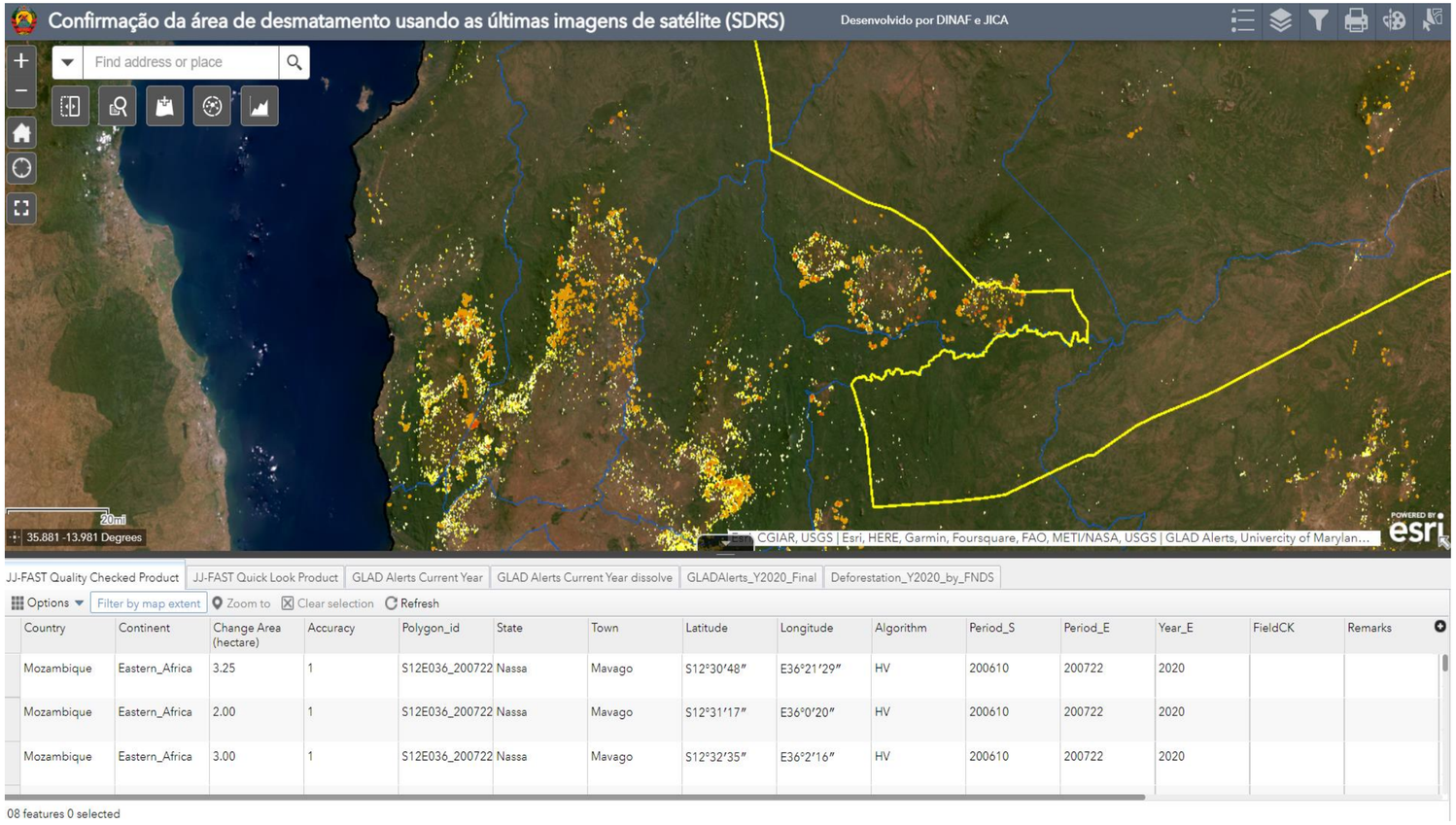
Example of utilization of the SDRS (1)

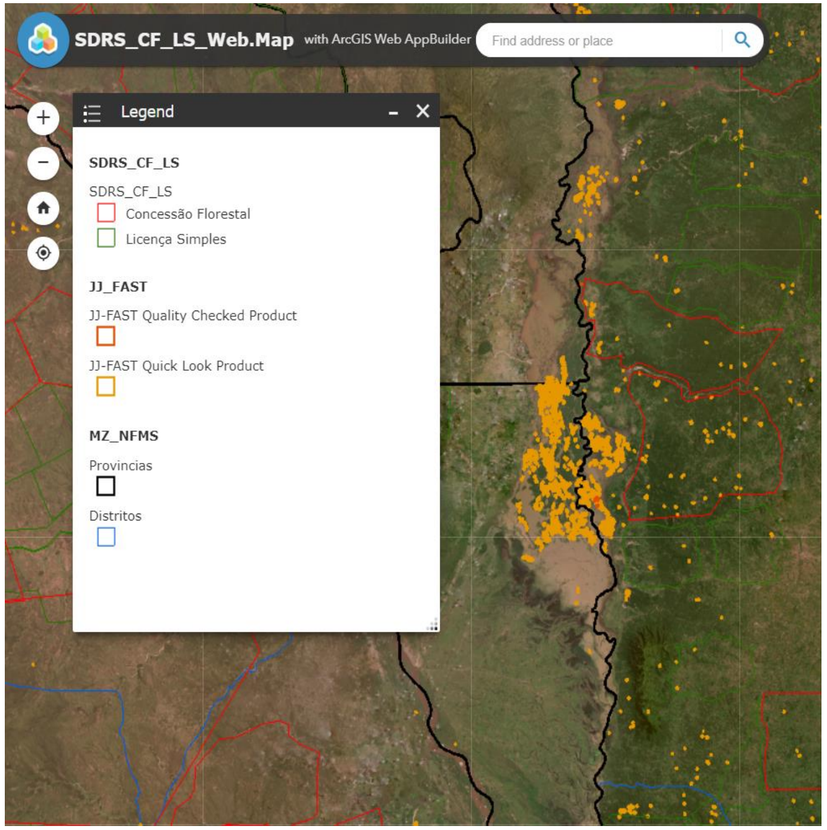
Confirmation of the deforestation area on the latest Landsat and Sentinel-2 images



Information sharing with related institution of SDRS

- Share the information, especially early warning(GLAD & JJ-fast), to the related institution(Agriculture, Aqua and ANAC).





Challenges

- High resolution Satelitte data aquisition;
- Difficults to Compare historical satelitte data with different resolution;
- Low internet speed, makes Hard work to full fill the time line of submissions;
- Needs of Capacity building and technology in place;
- Hardware and Sortware acquisition and it´s extetions updates;
- Lack of Human resource in RS/GIS field and Financial support;
- Provision of sistematic data to support yearly GHG inventory report and BUR/BRT annex;

Request

- Needs of Support in all aspects on the challenges items presented in the previeous slide to guarinty Systematic GHG reporting

Thank you

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