Use of skills acquired from FIS & FMM trainings.

Present status and future Plan

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Ministry of Natural Resources and Tourism

27th February, 2020
Kasane, Botswana

SADC-JICA Forestry Project

- One of the expected output of the project was to enhance capacity of SADC Member States to improve **Forest Information System and Forest Fire Management**
- Being a member of FIS-EWG, we were able to attend several trainings including:

➢ **Basic FIS training**

- Basics of QGIS
- Creating a map layout in QGIS
- Forest management system basics
- Simple analytics
- Forest fire management system basics

- **Advanced FIS training**
- Database **(PostgreSQL)**
- Field data Collection with tablet PC
- QGIS Python
- QGIS plugins
- GEE (Google Earth Engine)
- System designing
- RFIS System Design

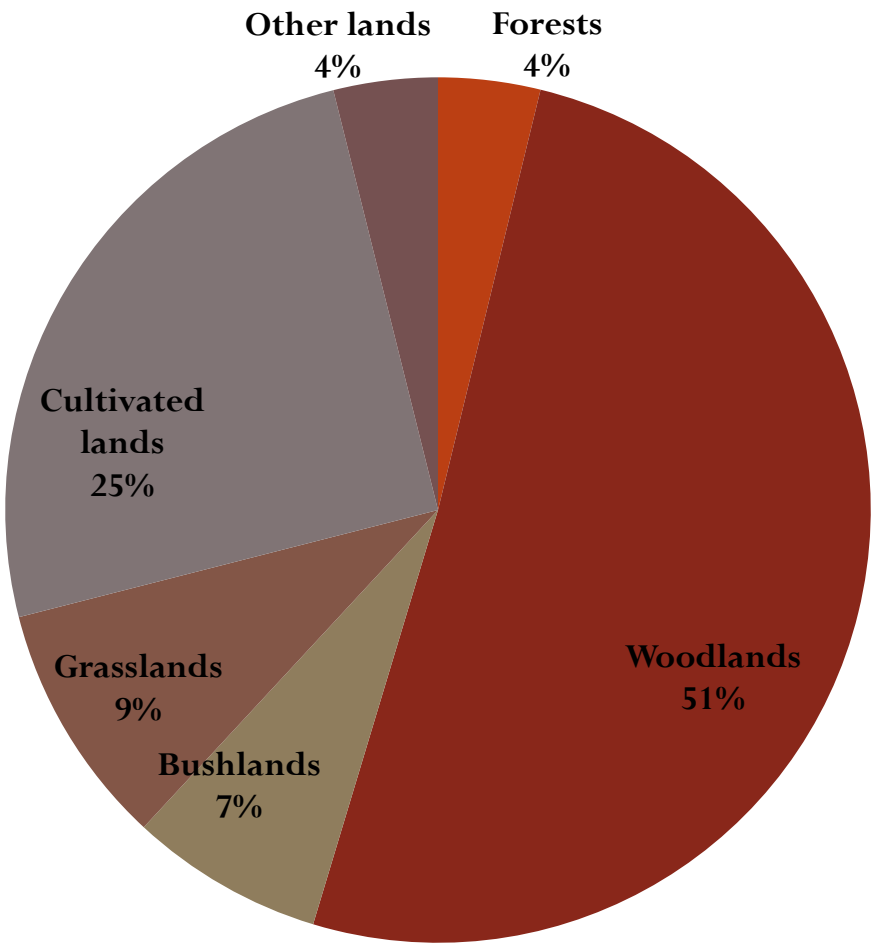
- **RFIS training**
  - Where the main objective was to understand the mechanism of the RFIS, what has been done and what FIS-EWG can do and how to implement the task of Reporting State of Forests at National level as well as customization of NFIS.

How the acquired skills from the project are utilized in the country?

Forest Information System present Status:

- Tanzania mainland conducted its first National Forest Resources Monitoring and Assessment (NAFORMA) over the period of 2009 to 2014.
- The aim was to develop complete and sound baseline information on forest and tree resources
- Two types of results were generated

NAFORMA inventory results



- Tanzania Mainland has a land area of about 88 million ha.
- 48.1m ha. (55%) is covered by forest and woodland.
- Woodlands occupy 44.7 million ha or 93% of the total forest area.
- The remaining 7% is made up of Humid, Coastal, Mangrove and Plantation forests.

NAFORMA Land use Land cover map

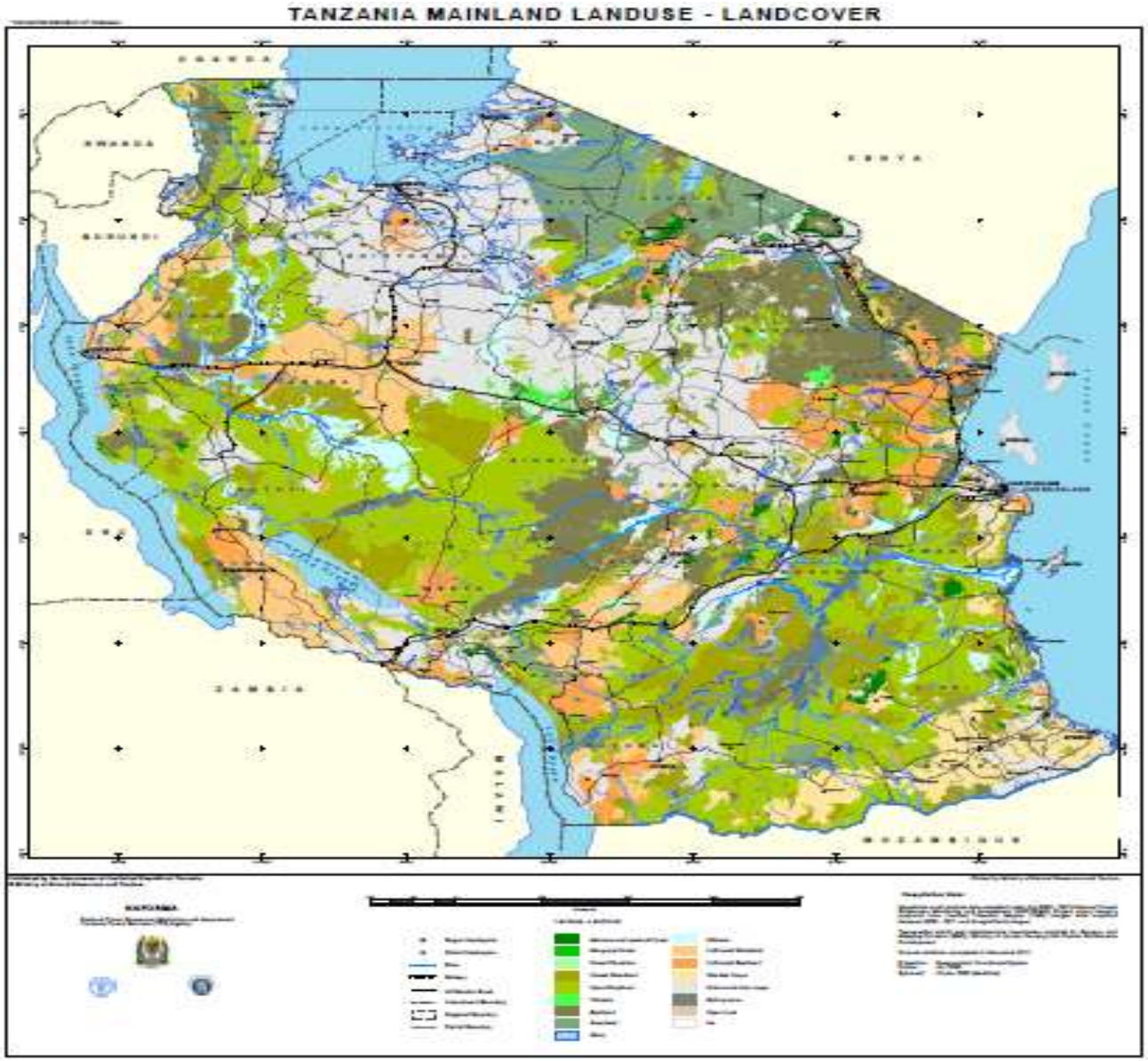


Table 4.14: Coverage of LULC Map classes in Tanzania in 2010.

No.	LULC Class	NAFORMA LULC area (ha)	NAFORMA LULC calibrated area (ha)[17]	% coverage land area
1	**Forests**			
1.1	Natural forest	1,537,459	1,535,902	1.7
1.2	Mangrove forest	122,618	122,494	0.1
1.3	Plantation forest	147,570	147,421	0.2
	Subtotal	**1,807,647**	**1,805,817**	**2.0**
2	**Woodlands**			
2.1	Open woodland	21,344,829	21,323,218	24.1
2.2	Closed woodland	10,681,314	10,670,499	12.1
	Subtotal	**32,026,143**	**31,993,717**	**36.2**
3	**Bushland & Thicket**			
3.1	Bushland	12,335,164	12,322,675	14.0
3.2	Thickets	456,563	456,101	0.5
	Subtotal	**12,791,727**	**12,778,776**	**14.5**
4	**Cultivated land**			
4.1	Cultivated bushland	5,650,091	5,644,370	6.4
4.2	Cultivated woodland	5,986,785	5,980,723	6.8
4.3	Grains and other crops	17,938,105	17,919,943	20.3
4.4	Wooded crops	2,520,518	2,517,966	2.9
	Subtotal	**32,095,499**	**32,063,003**	**36.3**
5	**Grassland**	**6,044,225**	**6,038,105**	**6.8**
6	**Wetland**	**3,165,359**	**3,162,154**	**3.6**
7	**Built up areas**	**224,879**	**224,651**	**0.3**
8	**Open land**	**266,787**	**266,517**	**0.3**
9	**Ice**	**1,562**	**1,560**	**0.0**
Total land area		**88,423,828**	**88,334,300**	**100.0**

- Although Tanzania has been blessed with this valuable resource but it still diminishing each year due to various reasons, including:

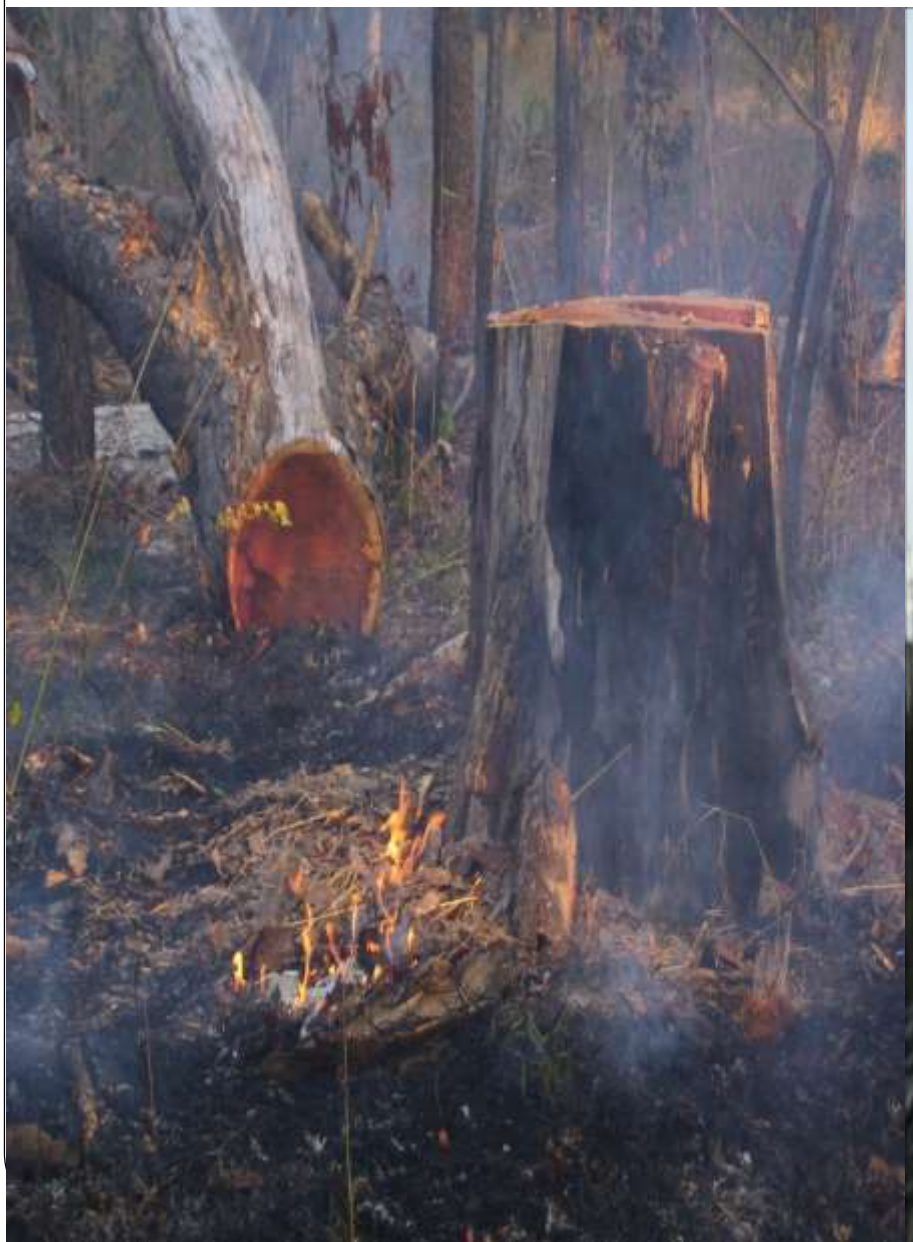
i. Illegal logging
ii. Charcoal making
iii. Un-environmental farming practices
iv. Forest Fires
v. Establishment of new settlements *etc*

Illegal logging

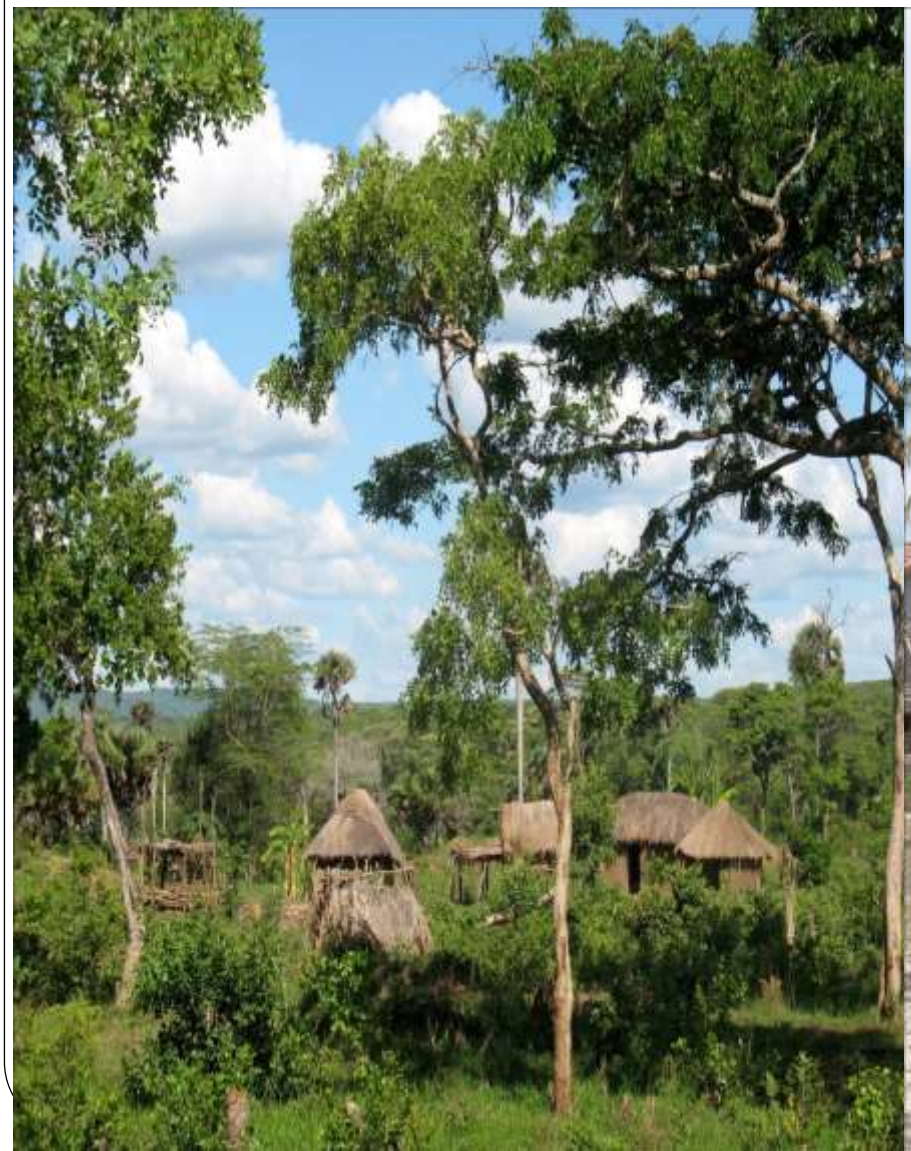
Charcoal making

Un-environmental farming practices

Forest fire



Establishment of new settlement



- All these activities leads to forest cover loss which **needs to be assessed and monitored.**
- NAFORMA LULC results show that the rate of deforestation between 1995 and 2010 was 372,816 ha per year

Gap

- Since NAFORMA results to date, no forest cover loss assessment have been done to monitor the forest change

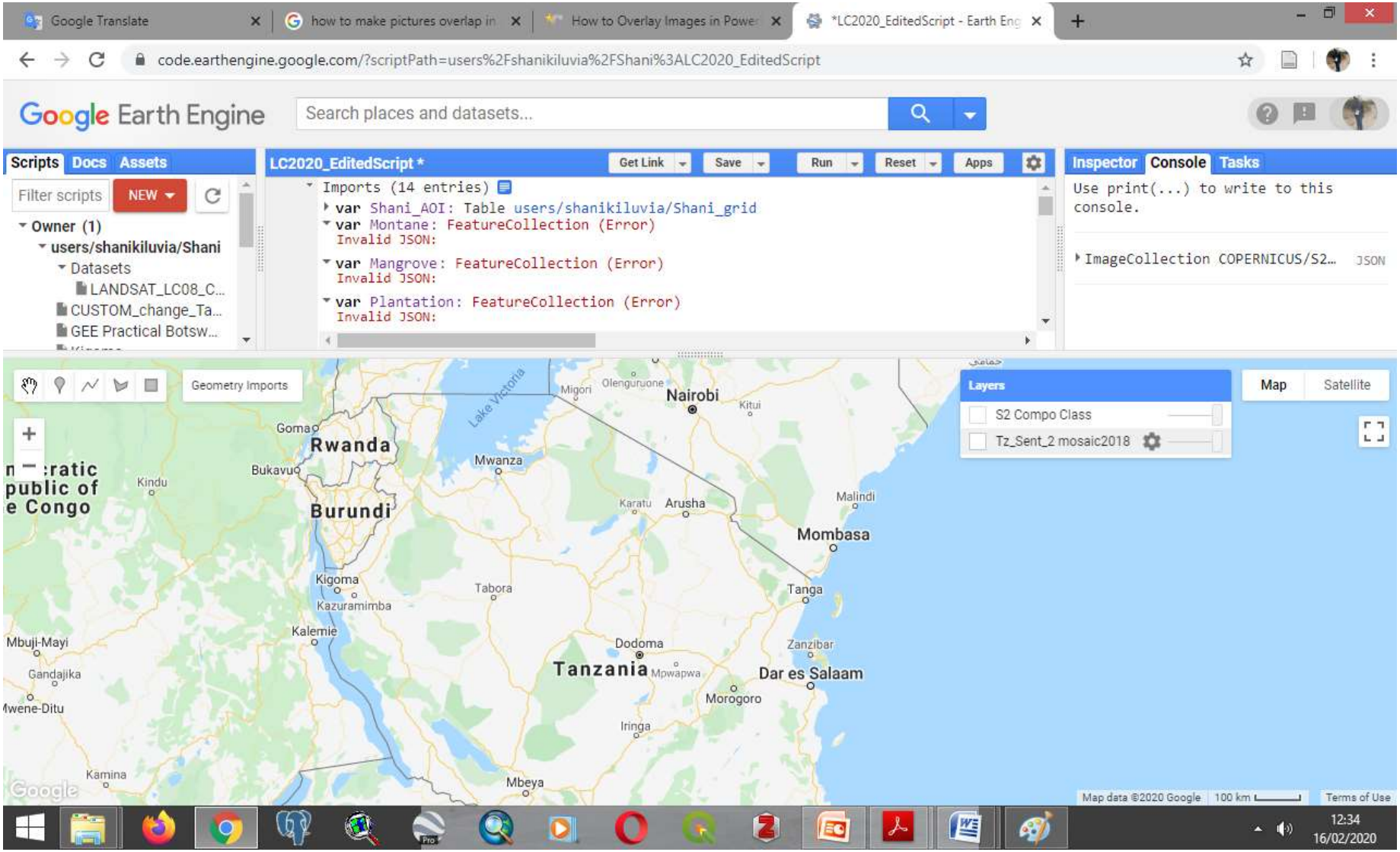
How can monitoring be achieved?

- Either by conducting field inventory *i.e.* re-measurement of permanent sample plots
- Or using remote sensing

Through the skills gained from this project;

- Resource assessment Unit were able to capitalize on what have been gained through the project to perform different GIS works using Open source software
- Through Advanced training, the exposure to GEE has made us to go further and tried to create the script for LULC mapping and now we are in progress of producing Tanzania LULC map of 2019 by using GEE
- The output will be used to update the forest information as well as monitor changes of forest cover.
- This will be a good start to develop our own NFIS

***The classes used in this activity are based on the classes used in the previous NAFORMA LULC map*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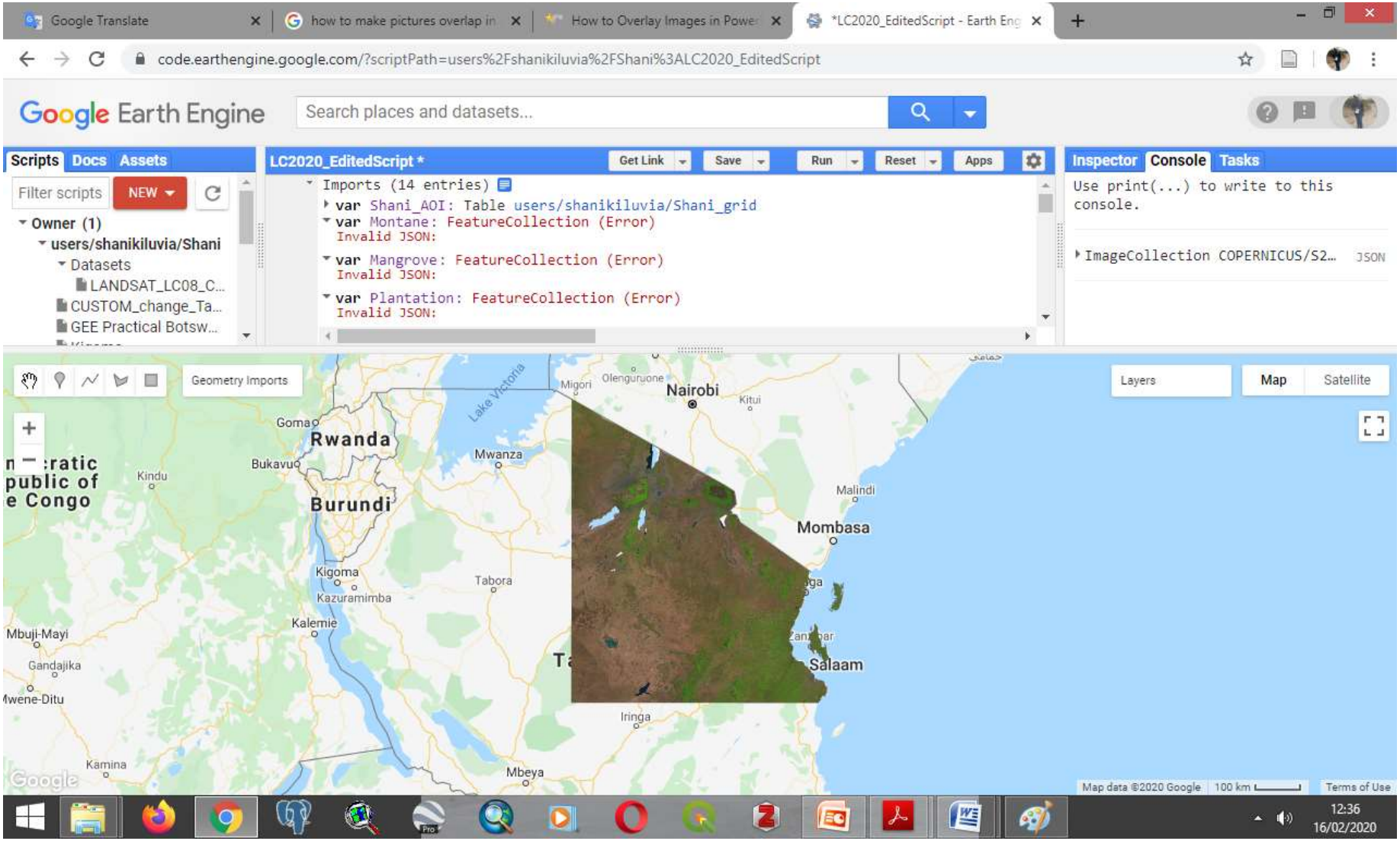
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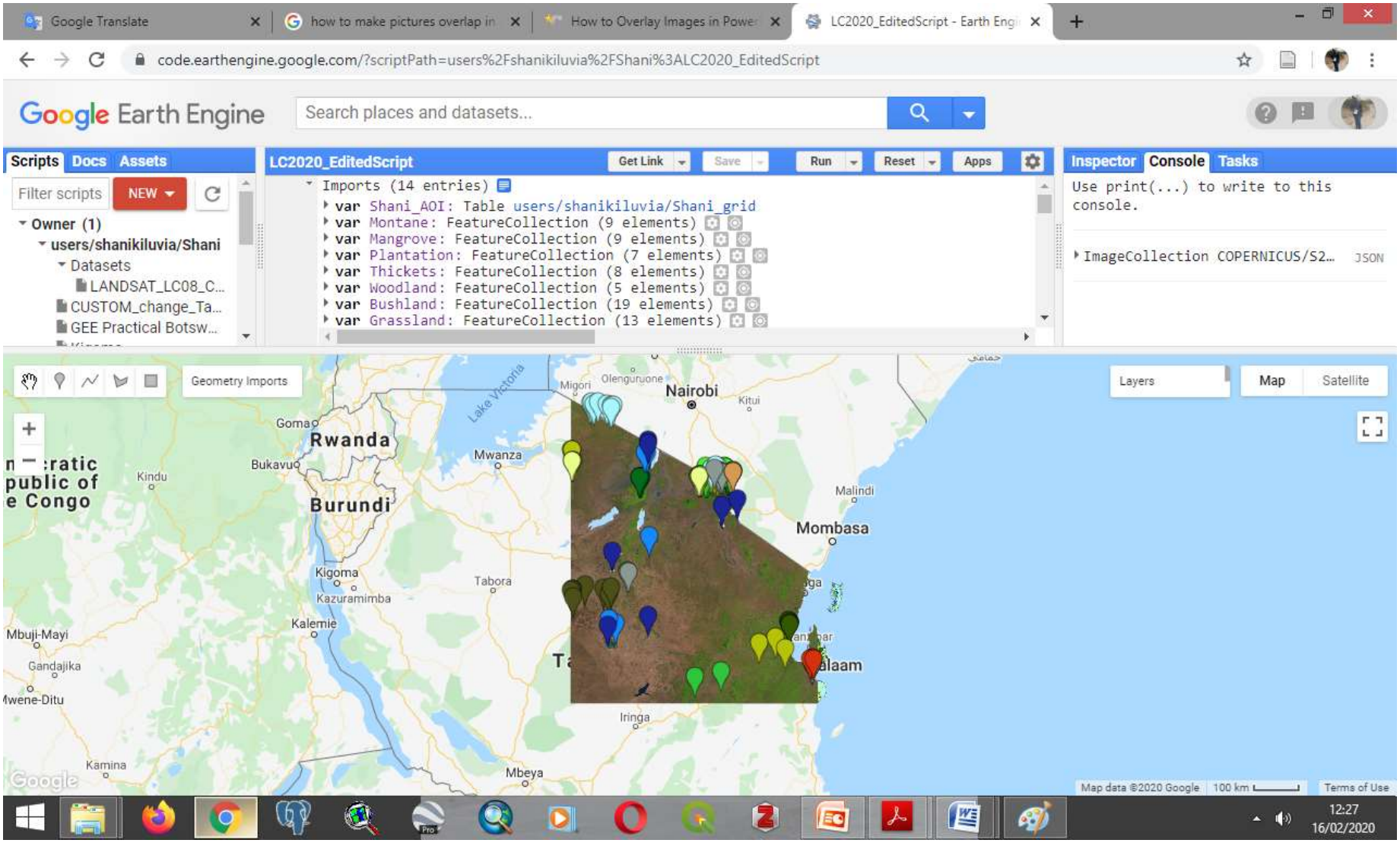
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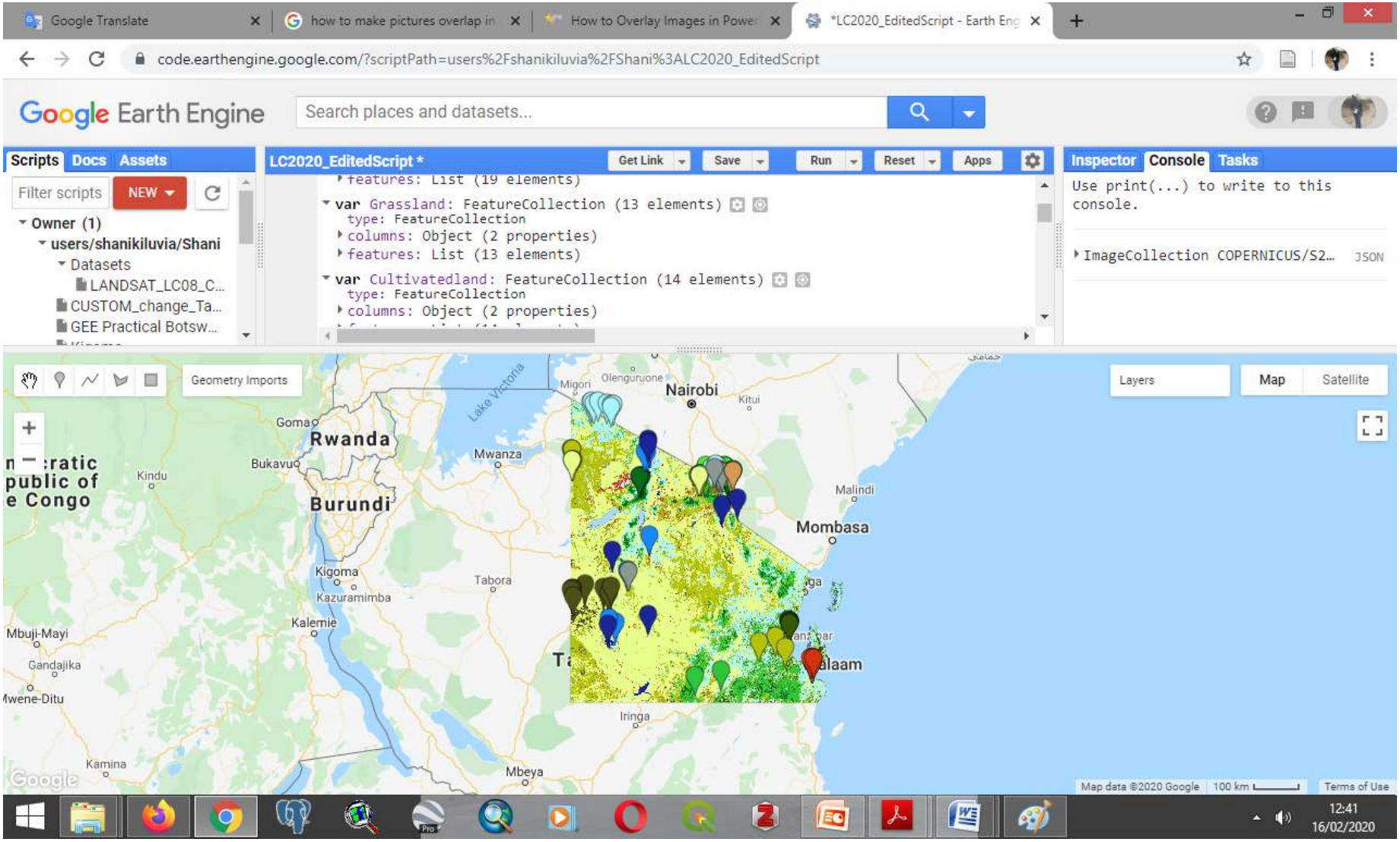
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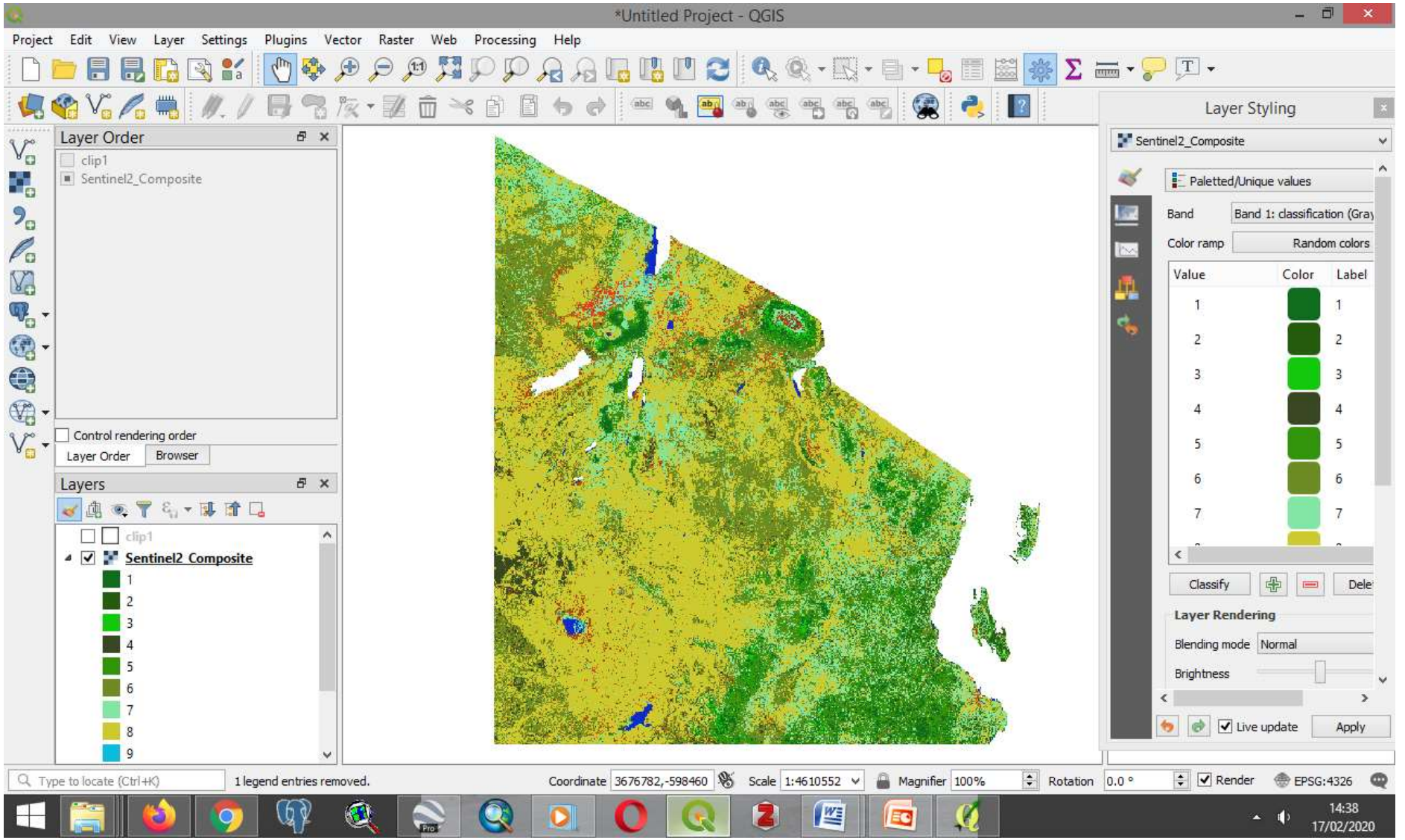
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Future Plans:

- To establish NFIS based on the classes used in SADC RFIS

➢ *This will be achieved by the help of the provided NFIS operating manual , seeking for technical help from Mr. Than / Mr Mai while keeping on practicing the customization of RFIS*

- To develop FIS of National forest reserves.
- *I suggested this activity to be included in the next financial year as the and we are still waiting for the final decision.*

Challenges

- As FIS-EWG were assigned to prepare training schedule for our fellow staff back home. For some of us this activity was difficult to achieve as it was not budgeted in institutional normal activities and it really needed resource allocation so as to reach other staff.

Forest Fire Monitoring present Status

Through the skills gained from this project

- Resource assessment Unit is now able to detect and report any fire occurrence as early as possible
- Resource assessment Unit in collaboration with Publicity and Extension Unit were able to reach about 600 people and train them on the following:

➢ Fire Prevention

➢ Fire Protection

➢ Fire suppression;

➢ Fire fighting;

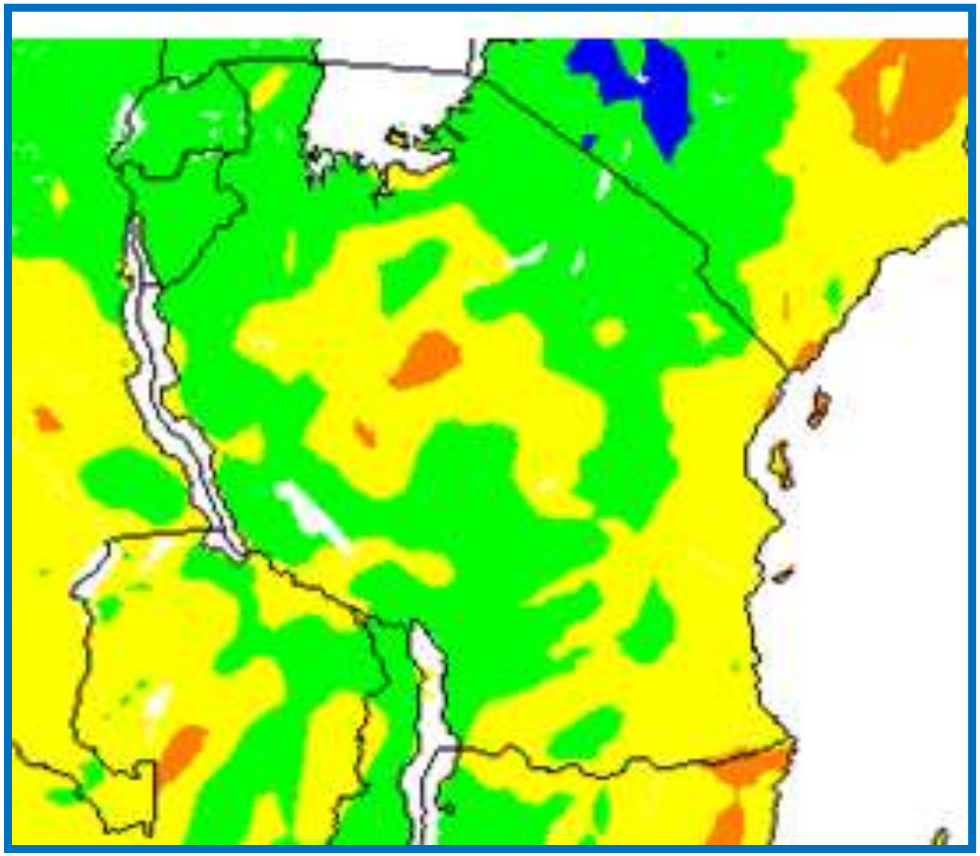
- Use of SADC Collect software on fire monitoring and survey;
- GIS and Remote sensing on fire management; and
- Online fire Detection.

FIRE SUPPRESSION PRACTICE

HOW TO CHECK WIND DIRECTION

PREPARATION OF AREA AND EQUIPMENT BEFORE STARTING FIRE

FIRE DANGER INDEX(FDI)



Legend:

- Low
- Moderate
- Dangerous
- Very dangerous
- Extremely dangerous

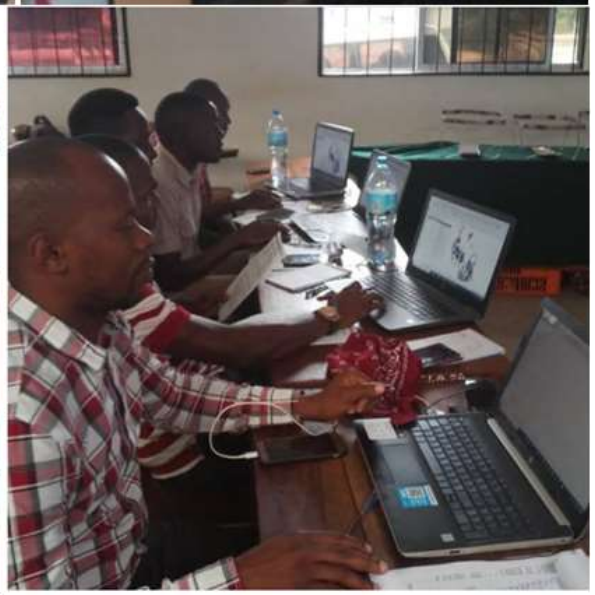
FIRE FIGHTING DESCRIPTIVE VIDEO

VID-20190911-WA0025.mp4

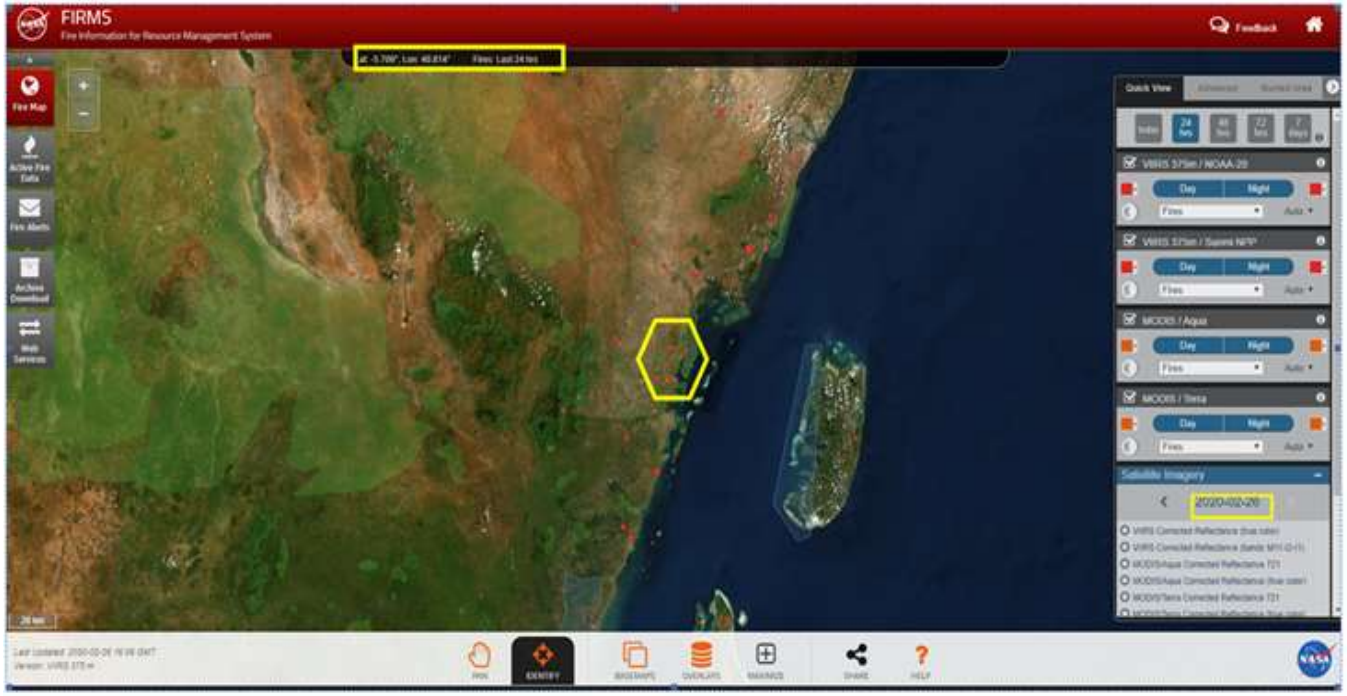
FOREST FIRE AWARENESS DURING EXHIBITION

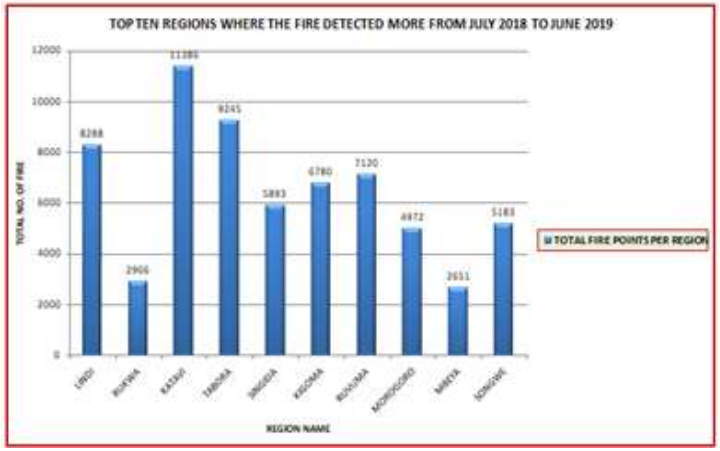
AWARENESS TRAINING WORKSHOP ON FOREST FIRE MANAGEMENT

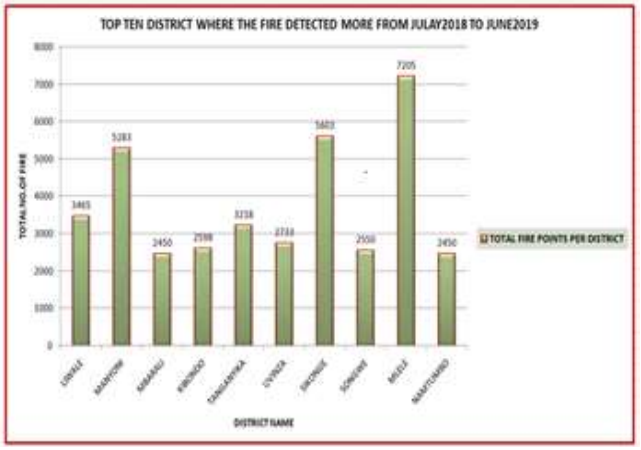
GIS AND REMOTE SENSING TRAINING FOR FIELD STAFF



Training on firms data download of latest fire hotspots and Historical Fire data for the preparation of fire management plans and reports







TRAINING ON USE SADC COLLECT ON FIRE MONITORING AND SURVEY

- Through the efforts made by these two units on Forest Fire Management Awareness programs, TFS Management purchased one fire track for one of the Government's biggest plantation in order to support fire fighting

FIRE TRUCK

TUMEDHAMILIA KUDHIBITI MADHARA YATOKANAYO NA MOTO KATIKA MISITU

Hili ni gari la zimamoto lililowasili February 2020

Future Plans:

The following activities will continue to be implemented by in the field by involving the field staff and communities surrounding the protected areas:

- Awareness on Forest Fire Suppression and fire fighting,
- Fire prevention
- Fire protection
- Fire suppression;
- Use of SADC Collection software on fire monitoring and survey;
- GIS & Remote sensing on fire management and Online fire Detection; and
- Use of Fire Danger Index for early warning.

ASANTE

THANK
YOU

KARIBU TANZANIA