



OBSERVATOIRE DU SAHARA ET DU SAHEL  
SAHARA AND SAHEL OBSERVATORY

Pour une gestion durable des ressources naturelles en Afrique  
For a Sustainable Management of Natural Resources in Africa

GEO-CRADLE | COORDINATING AND INTEGRATING STATE-OF-THE-ART EARTH OBSERVATION  
ACTIVITIES IN THE REGION OF NORTH OF AFRICA, MIDDLE EAST, AND BALKANS AND DEVELOPING  
LINKS WITH GEO RELATED INITIATIVES TOWARD THE GEOSS

# EXPLOITATION OF EARTH OBSERVATION DATA FOR MONITORING THE IMPLEMENTATION OF CLIMATE AGREEMENTS AND INITIATIVES : OSS EXPERIENCE

EL MOURADI , TUNIS, DECEMBER 2017



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# OSS MISSION

- **Fostering Partnerships related to Shared Water Resources Management**
- **Implementation of International Agreements on Desertification, Biodiversity & Climate change**

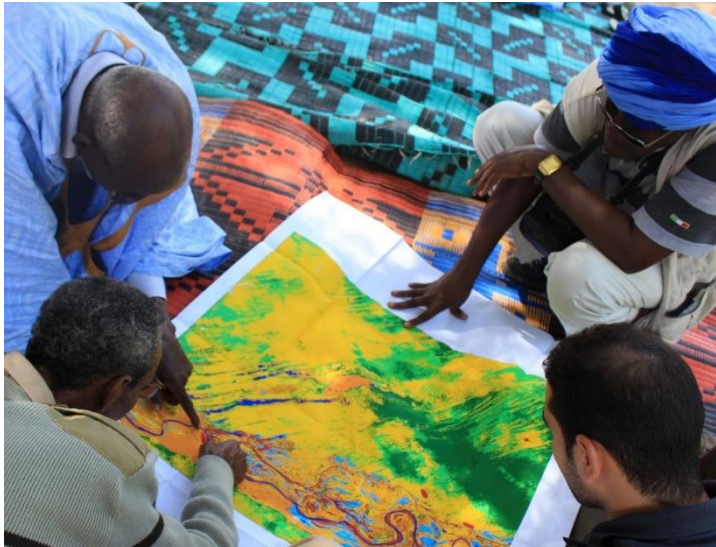
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# OSS ACTION

- Partnering to Access Climate Finance in Africa
- Promoting Integrated Water Resources Management
- Providing Knowledge Tools for a Sustainable Natural Resources Management

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# OSS Operations

In more than 30 African countries in:

- **Climate Change Adaptation & Resilience, Disaster-Risk Reduction & Transition to the Green Economy**
- **Joint & Integrated Water Management**
- **Environmental Monitoring**

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# CLIMATE FINANCE



**ADAPTATION FUND**



**GREEN  
CLIMATE  
FUND**

- **OSS is Accredited by Adaptation Fund**
- **OSS is the 4th African Regional implementing Agency accredited by GCF**

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# MEMBERS & PARTNERS

## Members

- 30 African & non African States
- 13 Organizations

## Financial Partners

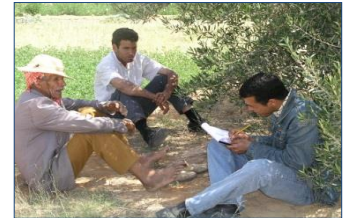
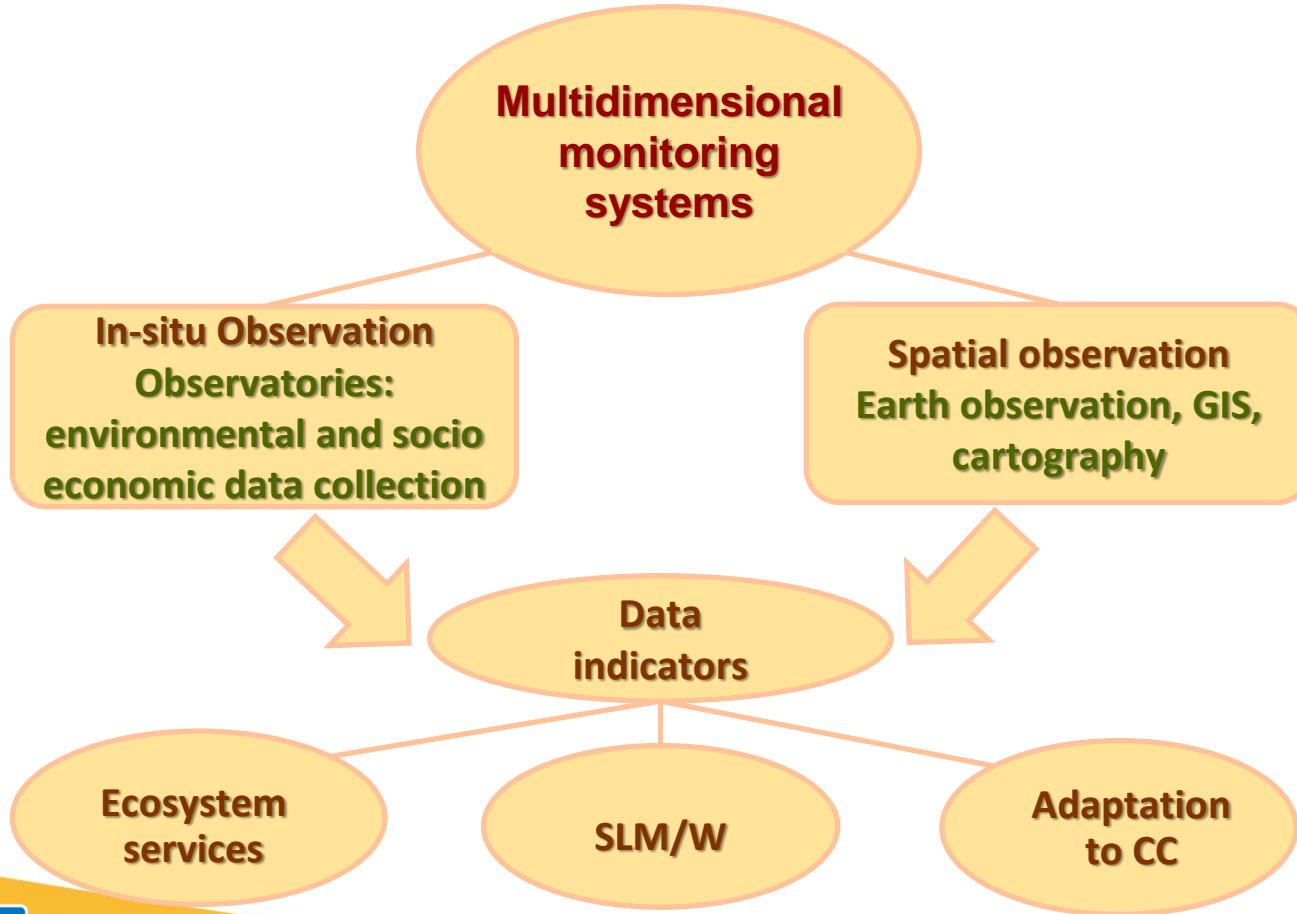


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# Environmental Monitoring at OSS

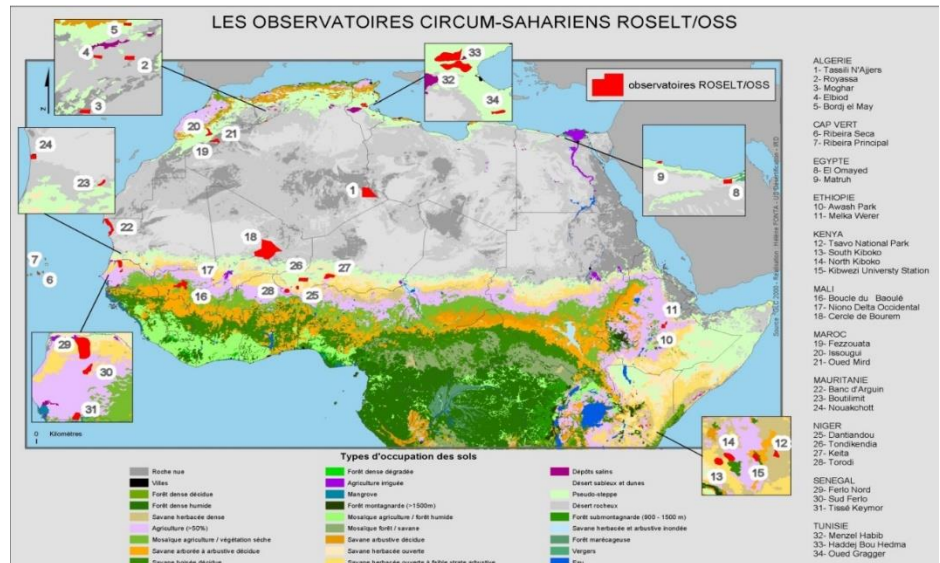
## General approach



# Environmental Information at OSS

## Ecological and socio-economic indicators

- Regional network of observatories set up in 1994 by OSS
- 30 labeled observatories
- 12 operational pilots sites
- Projects: ROSELT, REPSAHEL, ...



### Available data :

- ✓ Ecological and socio economic monitoring indicators (alphanumeric)
- ✓ Land cover maps at 50k for some observatories!



# Environmental Information at OSS

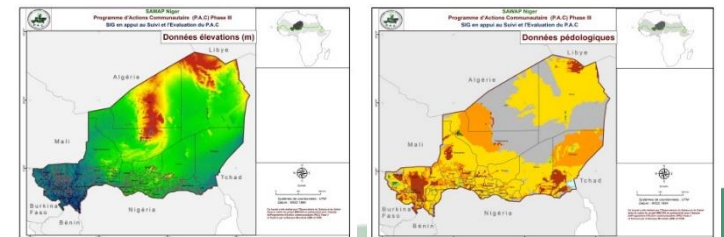
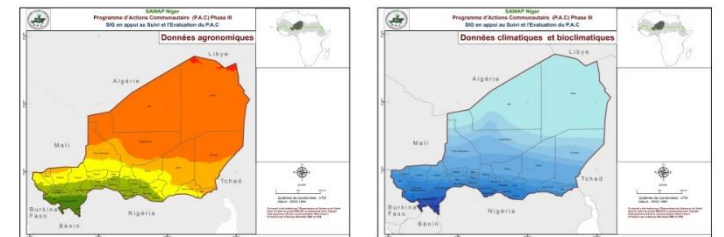
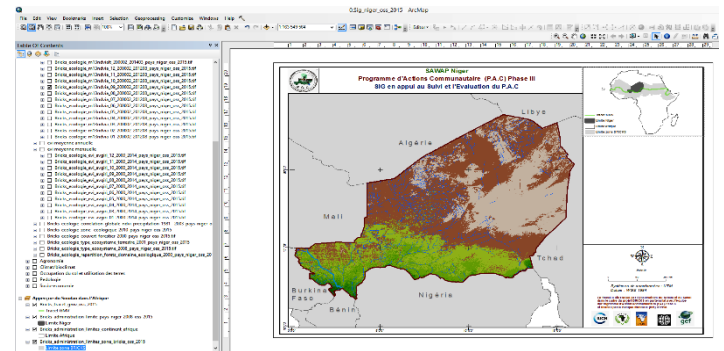
## GIS at national level

- Collection of basic information layers nationwide
- Product developed for **12 countries** of the GMV initiative
- BRICKS project in support of SAWAP program

### Available data :

- ✓ Administrative division
- ✓ Land Cover/Use and vegetation
- ✓ Digital elevation model
- ✓ Hydrographic system
- ✓ Soil data
- ✓ Climatic variables (temp, prec ...)
- ✓ Socioeconomic indicators

### Example: Niger



# Environmental Information at OSS

## Land Cover mapping

### Information on Land Cover

Strategic data for computing and monitoring indicators expected by the MEAs:



- Land Degradation Neutrality (LDN)



- Biomass estimate and Carbon Sequestration
- Vulnerability to Climate Change



- Habitats and landscapes
- Ecosystem services

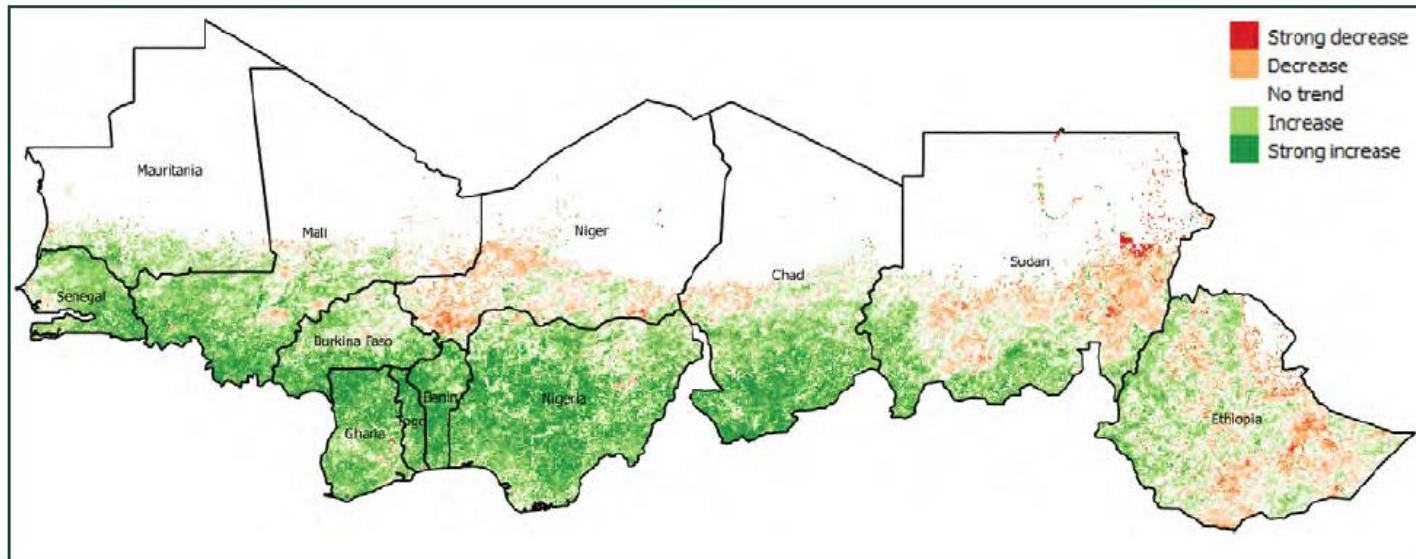


# Environmental Information at OSS

## Large-Scale Exploitation of Satellite Data

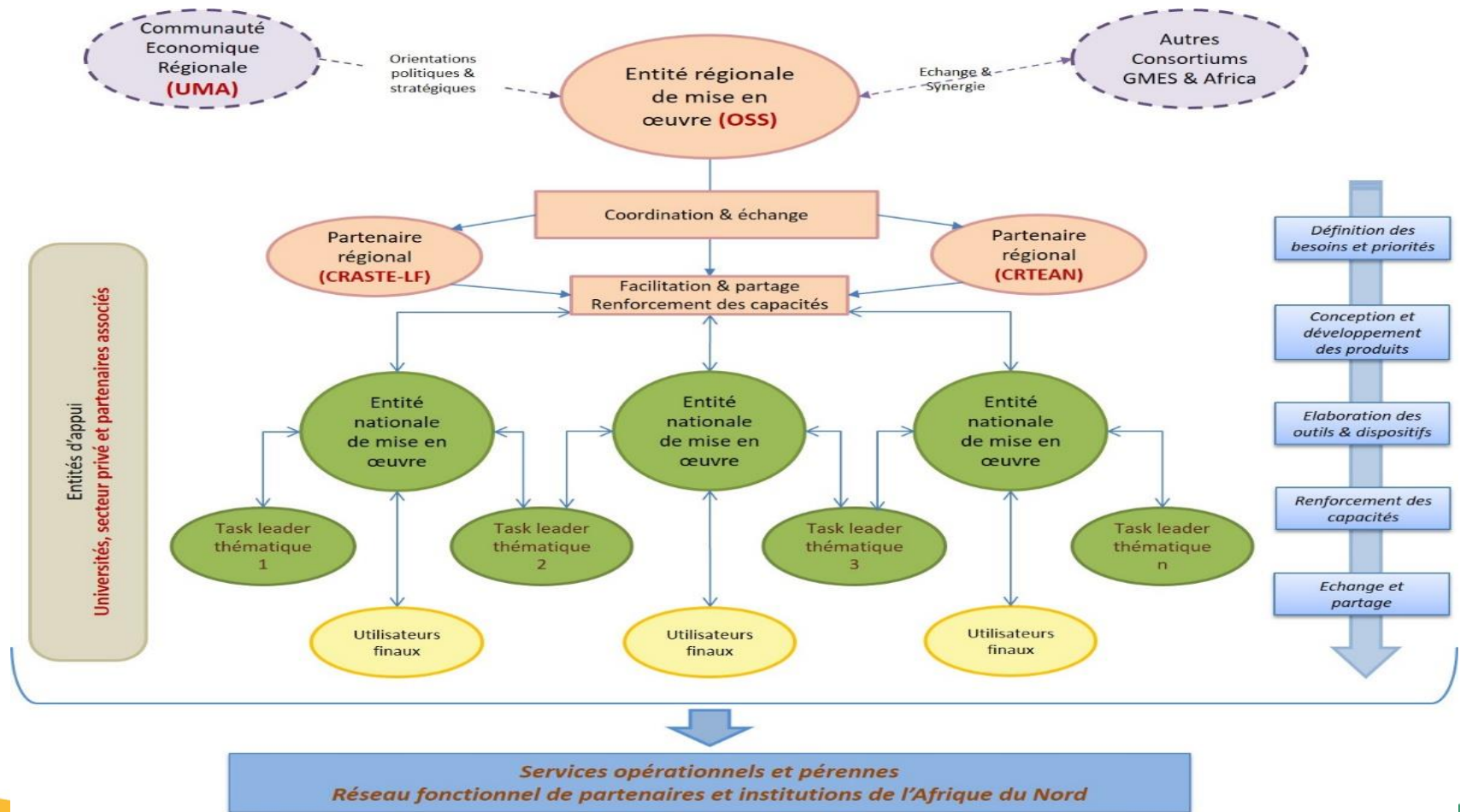


- OSS is involved in ESA Earth Observation for Sustainable Development
- Synergies has been developed with the Sahel and West Africa Program (SAWAP) with a focus on two demonstration sites (Burkina Faso & Ethiopia)
- Multiscale indicators have been set : Land Cover, Land Productivity and Carbon



# Environmental Information at OSS

## GMES&Africa

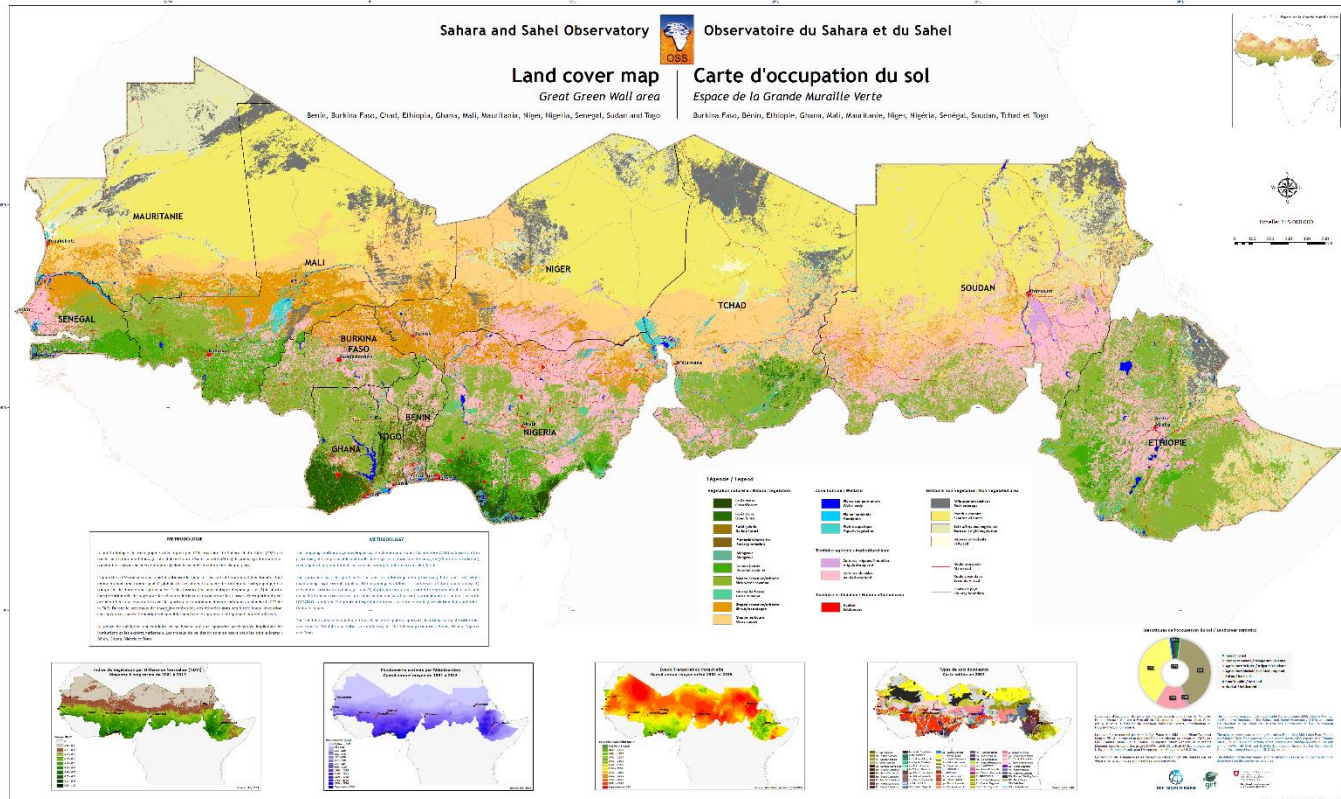




# Environmental Information at OSS

## Land Cover mapping (Great Wall Area)

### Results

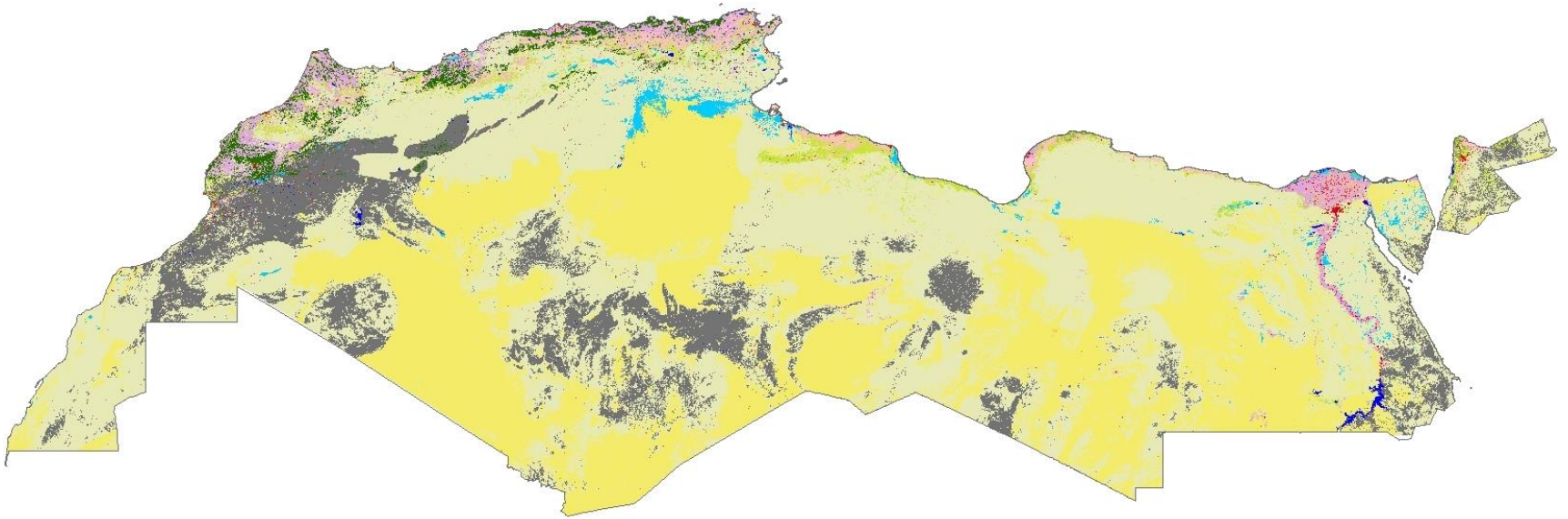




# Environmental Information at OSS

## Land Cover mapping (MENA region)

Results Land Cover mapping for **North African countries**



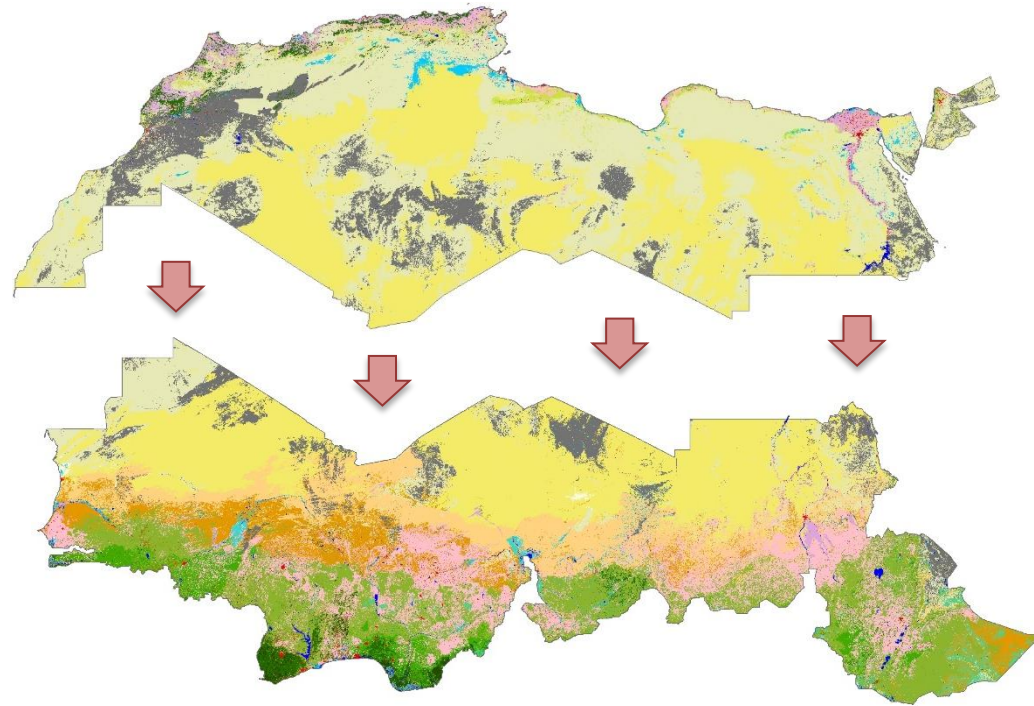
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# Environmental Information at OSS

## Land Cover mapping

### Results

Harmonization and integration of the map products



Full coverage of OSS intervention area



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# Environmental Information at OSS

## Bioclimatic variables

### Time series of indicators

#### ✓ Vegetation Index (NDVI)

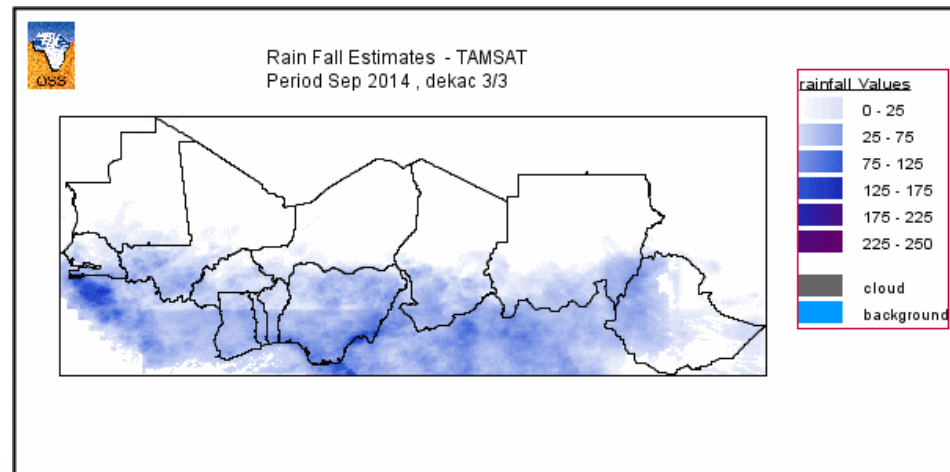
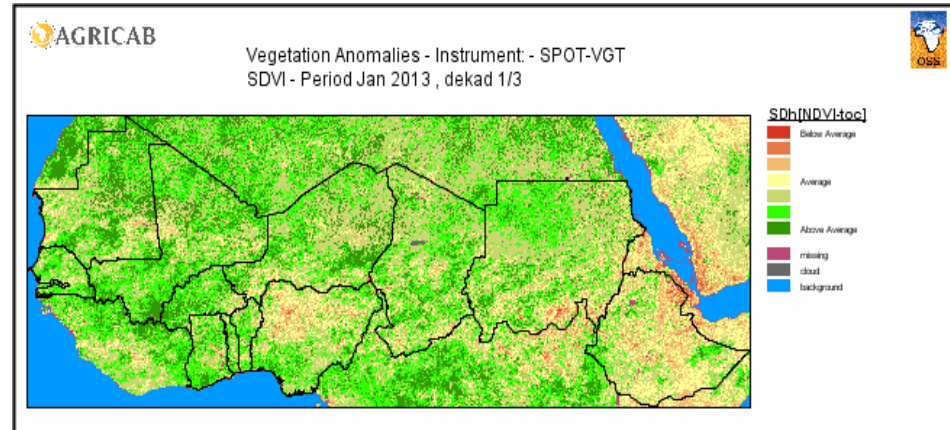
- SPOT-VEG (1 km) & Proba-V
- MODIS (250 m)
- Landsat 5/8 & Sentinel 2

#### ✓ Rainfall

- CHIRPS (5 km)
- TAMSAT (4 km)

#### ✓ Other indicators

- NPP, DMP (250 m)



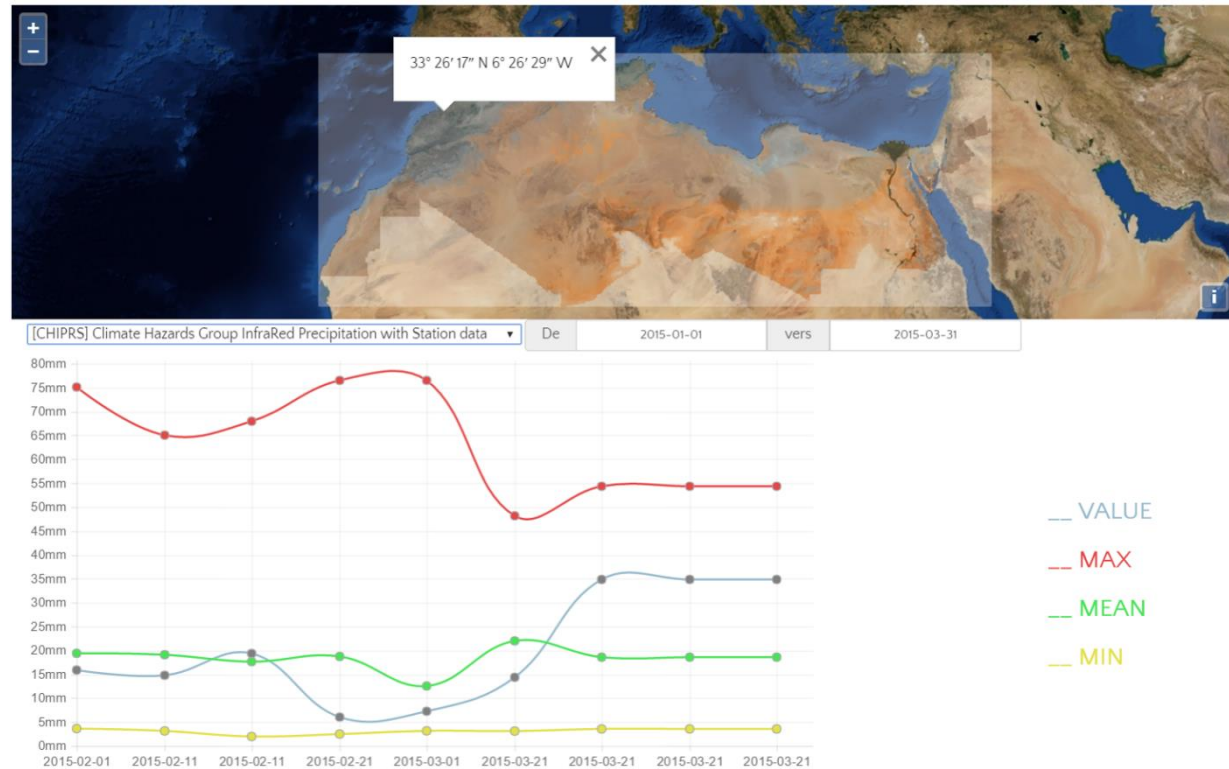
# Environmental Information at OSS

## Bioclimatic variables

### Time series of indicators

### Time Series Analysis Tool

Evolution of spatial indicators and data: NDVI, rainfall,...



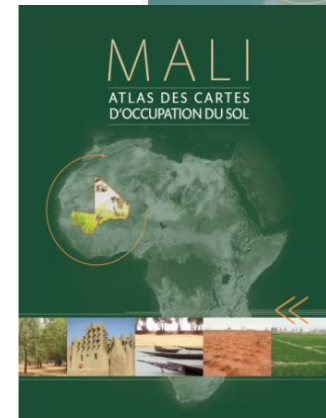
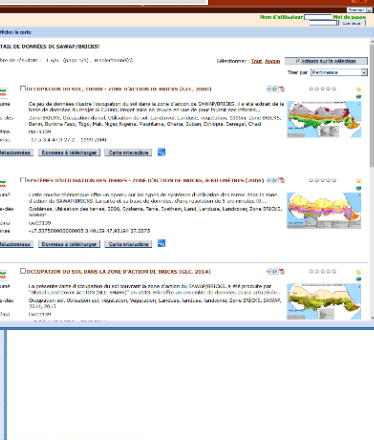
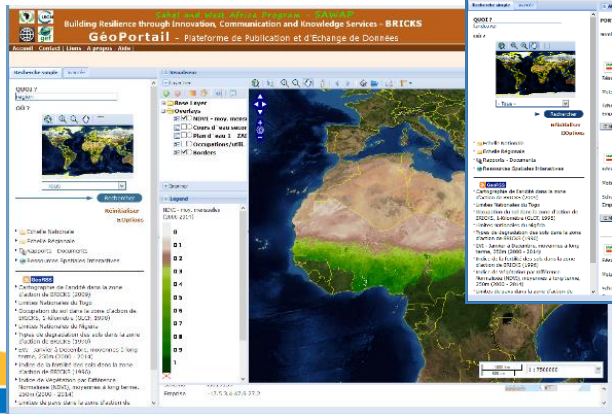
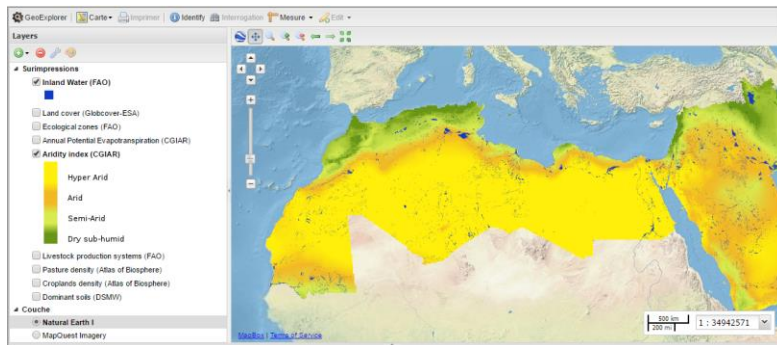


# Environmental Information at OSS

## Information management and dissemination

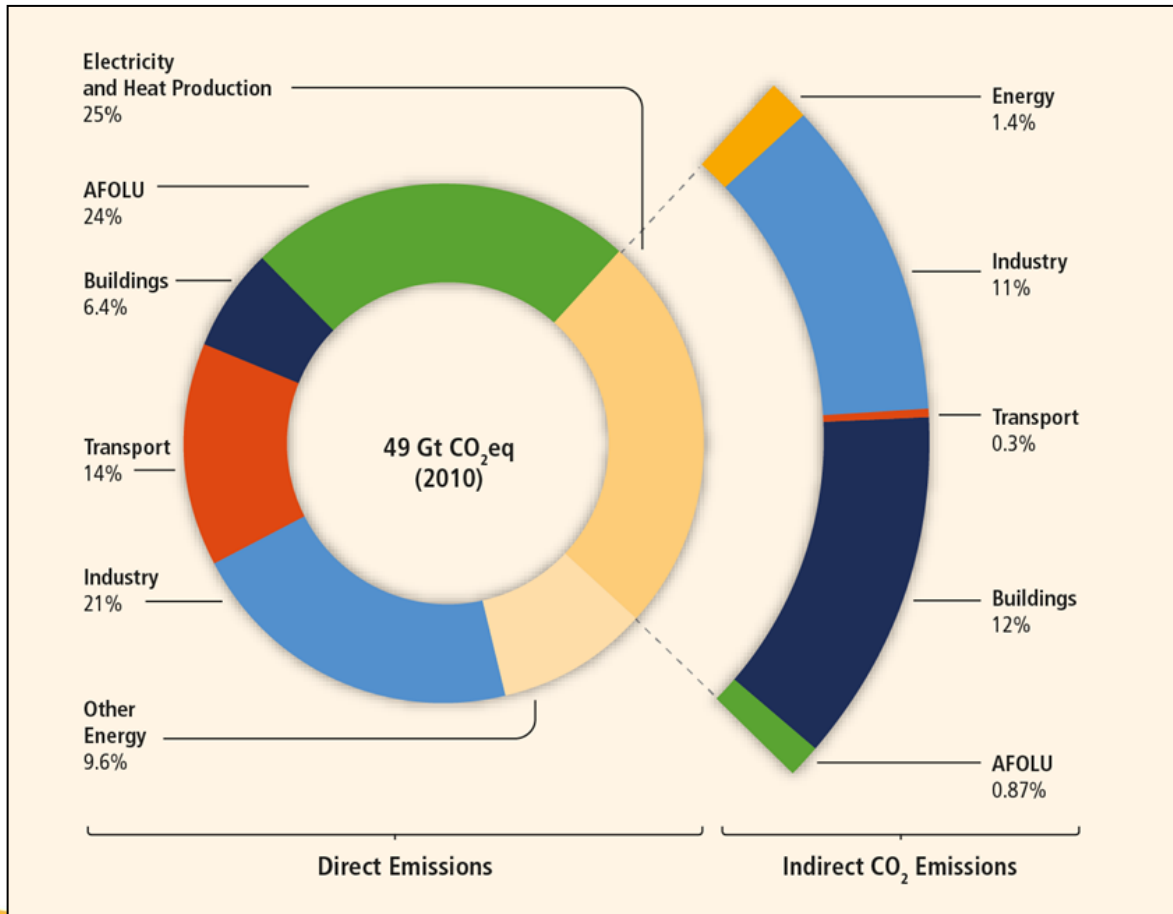
### Geocatalogs and Web Map Services

### Physical Atlases

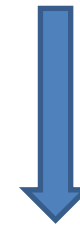




# Greenhouse Gas Emissions by Economic Sector



~25 % of GHG is produced by AFOLU (Agriculture, Forestry and Other Land Uses)



Use of geospatial technologies to produce LULC maps, LULC changes maps

# Land Degradation Indicators

## Vision and Services in support to country members

- The indicator proposed for SDG target 15.3 (also referred to as SDGs indicator 15.3.1) is the “Proportion of land that is degraded over total land area”.
- The three related sub-indicators are:
  - ❖ Land cover and land cover change
  - ❖ Land productivity
  - ❖ Carbon stocks above and below ground

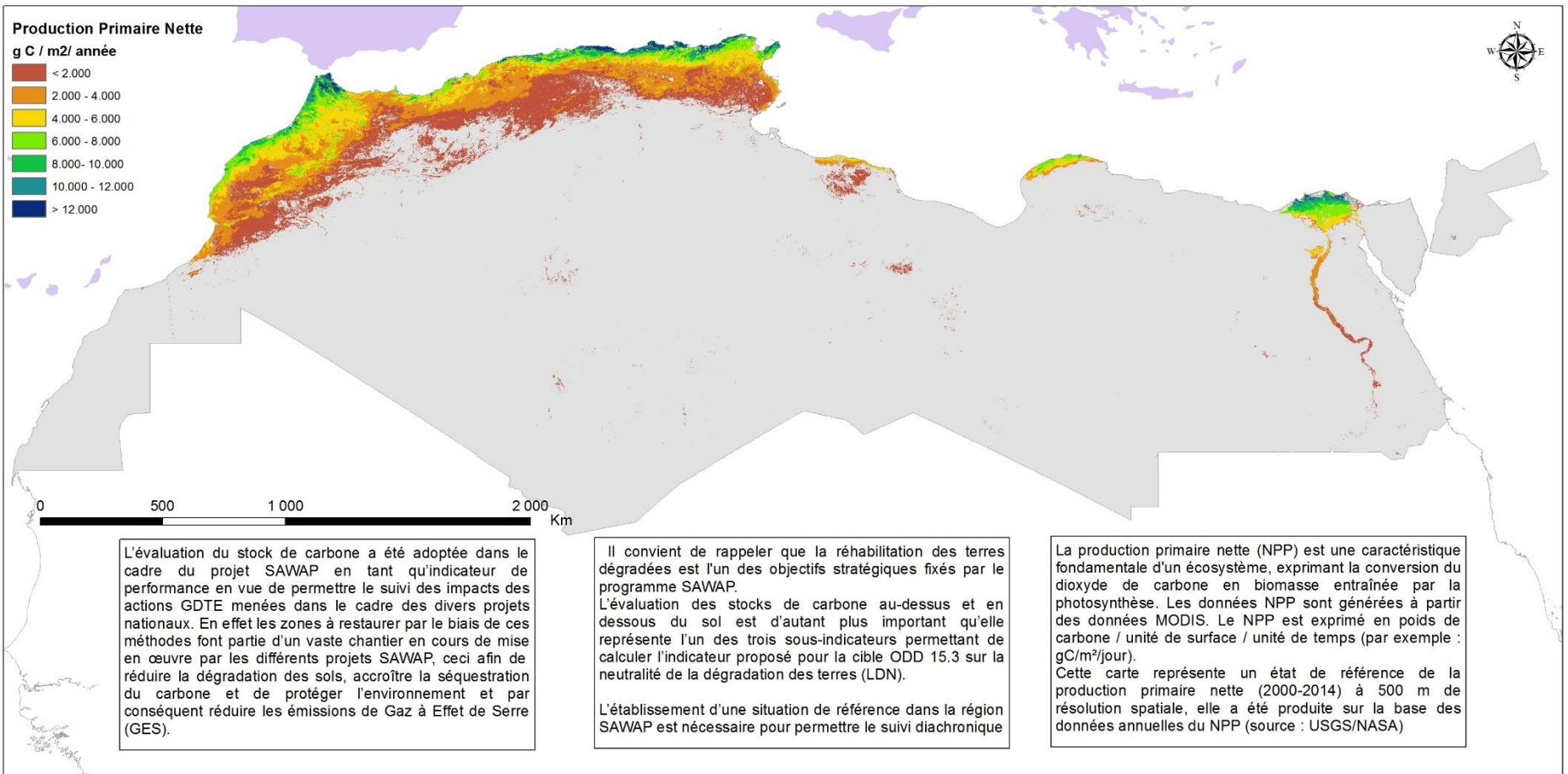


# UNCCD Global method

## of computation of the **SDG** sub-indicators

- **Establishment of baselines** : in order to determine the initial status of the sub-indicators in absolute values. This would be done for:
  - ❖ **Land cover**, and based on land cover standard ontology (e.g., LCCS/LCML);
  - ❖ **Land productivity** (e.g., NPP/NDVI), and
  - ❖ **Carbon stocks**, with an emphasis on soil organic carbon below ground and building on the IPCC's work on carbon above ground
- **Detection of changes** in each of these 03 sub-indicators
- **Derive the indicator**

# Some LDN indicators





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THANK YOU FOR YOUR ATTENTION

**OSS: YOUR PARTNER IN ACCESSING CLIMATE FINANCE IN AFRICA**

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