

## → EARTH OBSERVATION FOR SUSTAINABLE DEVELOPMENT

### Agriculture and Rural Development

Stakeholder Meeting EO4SD Agriculture Cluster  
6 October 2017 | ESRIN, Frascati, Italy

#### Multi-scale monitoring of land degradation and food security in the African continent

*Sahel and West Africa Program (SAWAP) of the Great Green Wall Initiative and the Integrated Approach  
Pilot on Food Security in Sub-Saharan Africa (IAP Food Security)*

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## Food security:

- Increase productivity
- Sustainable management of key ecosystems
- Land degradation affects >50% of agricultural land in the world
- Need for a monitoring and evaluation system to ensure timely reporting

## Overall goal:

- Long term and large-scale assessment and monitoring of land degradation and productivity to formulate policies and investments
- Build evidence on how investments are improving local sustainable land and water resources management (LSWM) and generating global environmental benefits.

Sahel: diversity of land:  
(soil, land, practices, uses)



***Satellite Earth Observation can provide indicators to assess degradation and food security at **local, national and regional scale*****





CONSERVATION  
INTERNATIONAL



- IAP Food Security
- Sahel and West Africa Program



SDG target 15.3

- Strengthen people and natural ecosystems (resilience, food security)
- Integrated approach
- Upscaling of success stories

## How to measure impact?

# Collaboration and local capabilities

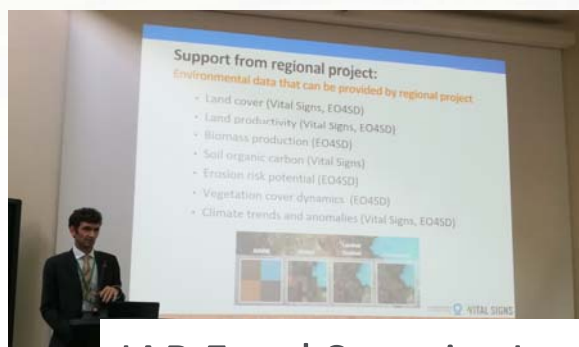


Key partners:

- IFAD/ICRAF/Conservation International (IAP Food Security, regional component)
- OSS (SAWAP/BRICKS)

Several phone conferences with key partners:

- excellent GIS/RS capabilities at OSS, CI and ICRAF
- data needs: multi-scale resilience and degradation indicators
- how to connect our data to portals:
  - CI's Resilience Atlas
  - ICRAF's Landscape Portal
  - SAWAP/BRICKS GeoPortal



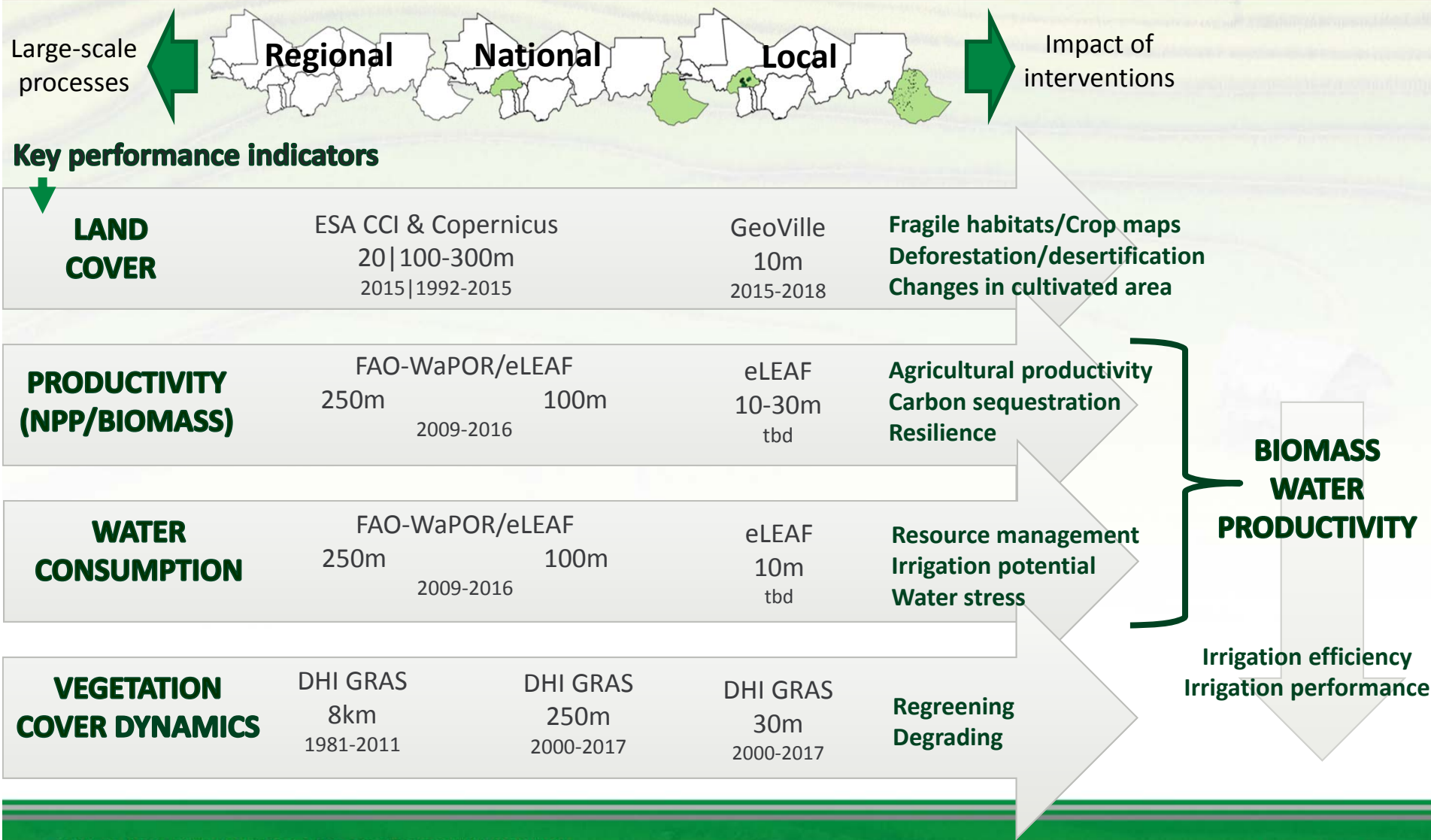
IAP Food Security Launch,  
Addis Ababa, 5-7 July 2017



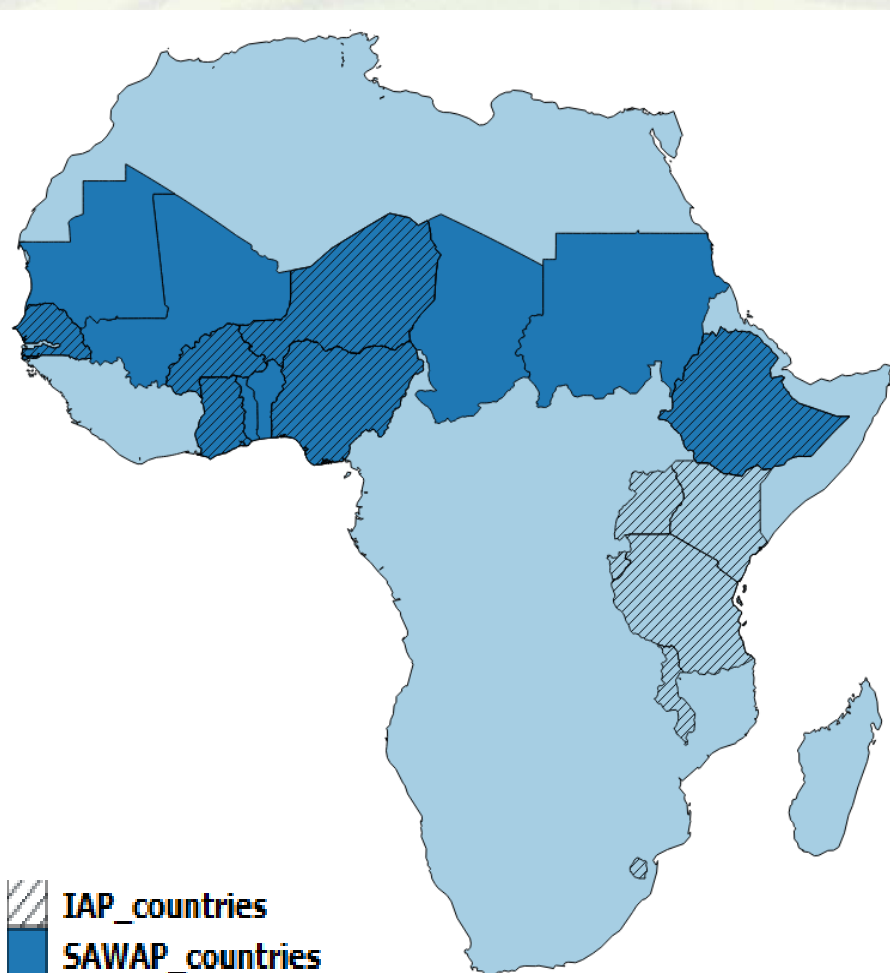
SAWAP conference,  
Accra, 8-10 May 2017



# Multiscale data products



# Demonstration areas



EO4SD agriculture cluster:  
demonstrations at local scale in  
Burkina Faso, Ethiopia and Uganda

Approach can be upscaled to other  
countries and regions

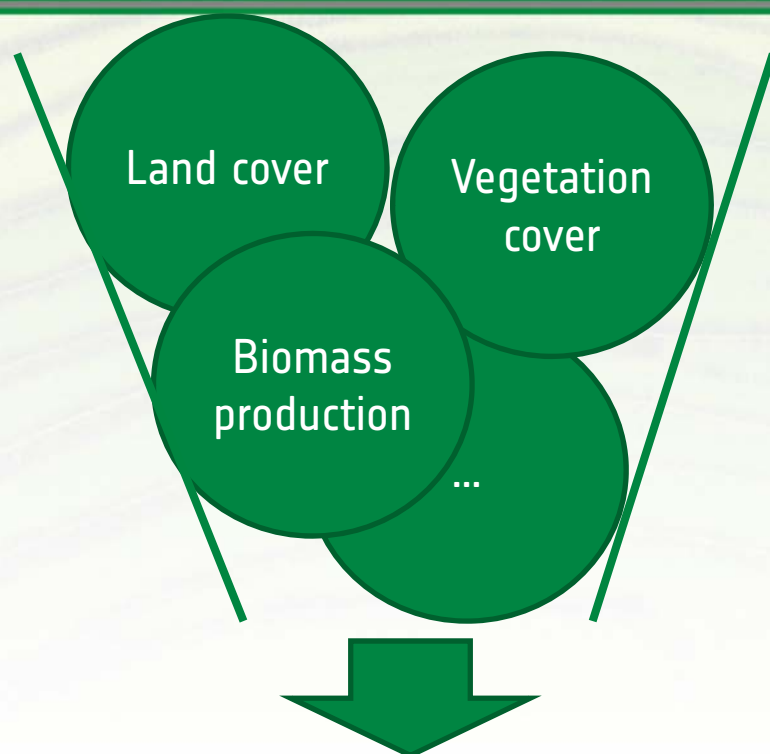
Linkage to EO4SD water cluster:  
demonstrations at national scale in  
Niger and Malawi

- Crop map
- Irrigation management





# A first concept: beyond products towards M&E support tools



Customized based on user requirements,  
data availability, and scale

## Key performance indicators

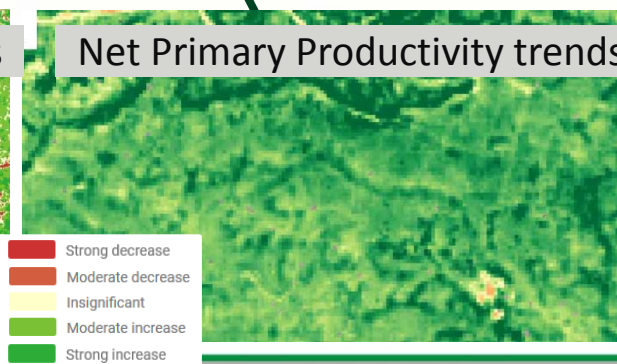
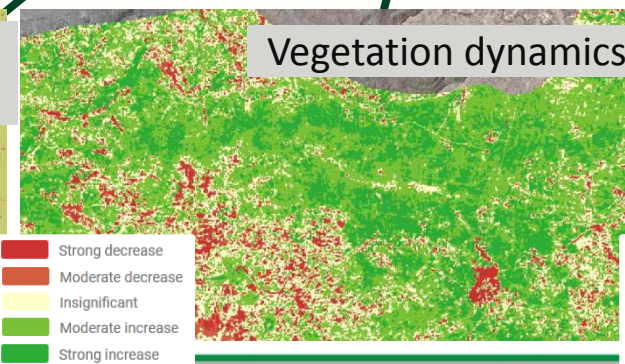
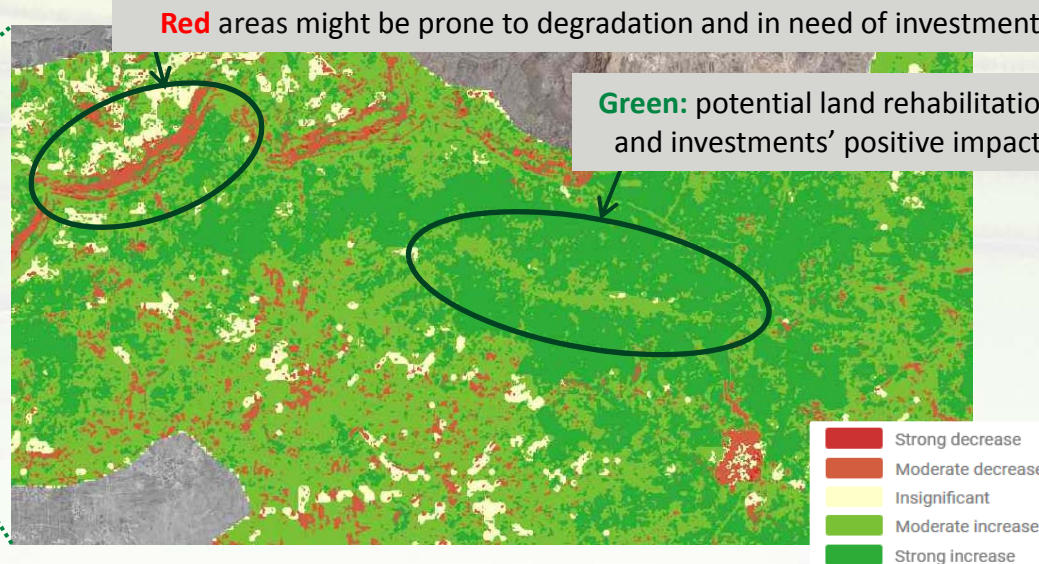
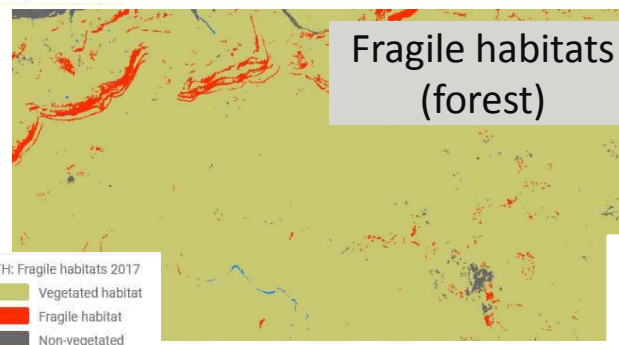
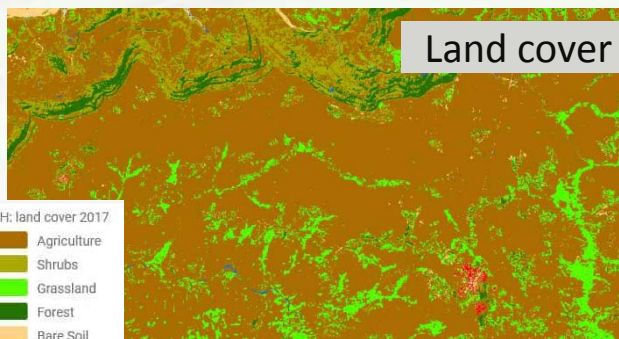
for land degradation (vegetation) following reporting  
guidelines of FAO LADA, GM-UNCCD, CBD and the 2020  
Aichi targets, monitoring towards SDG 15.3



The Green Resilience – Investment Pointer

Points out hotspots (areas with  
major changes) at multiple scales







# EO4SD.LIZARD.NET



File Edit View History Bookmarks Tools Help

Lizard Eo4sd x Lizard Eo4sd x +

https://eo4sd.lizard.net/en/map/satellite/point/@18.4171,22.5879,5/May.03.2017-May.05.2017

Search for places, or dates (i.e. 23-10-2013)

Apps Export Dashboard Favourites Annemarie

Country and Project Selection Options:

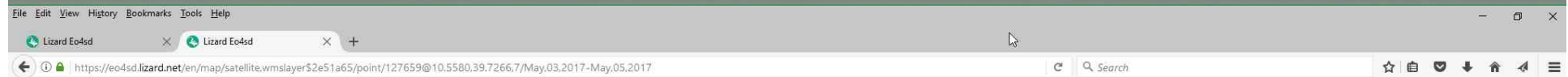
- Bolivia
- Burkina Faso
- Cambodia
- ETH IAP-FS
- ETH Land degrad
- ETH PASIDP II
- ETH SLMP II
- Morocco
- Paraguay
- SAWAP
- Syria
- Uganda
- Uruguay

Where to plan interventions?  
How to measure impact?

using multi-scale EO datasets



# SAWAP SLMP-2 project areas in Ethiopia

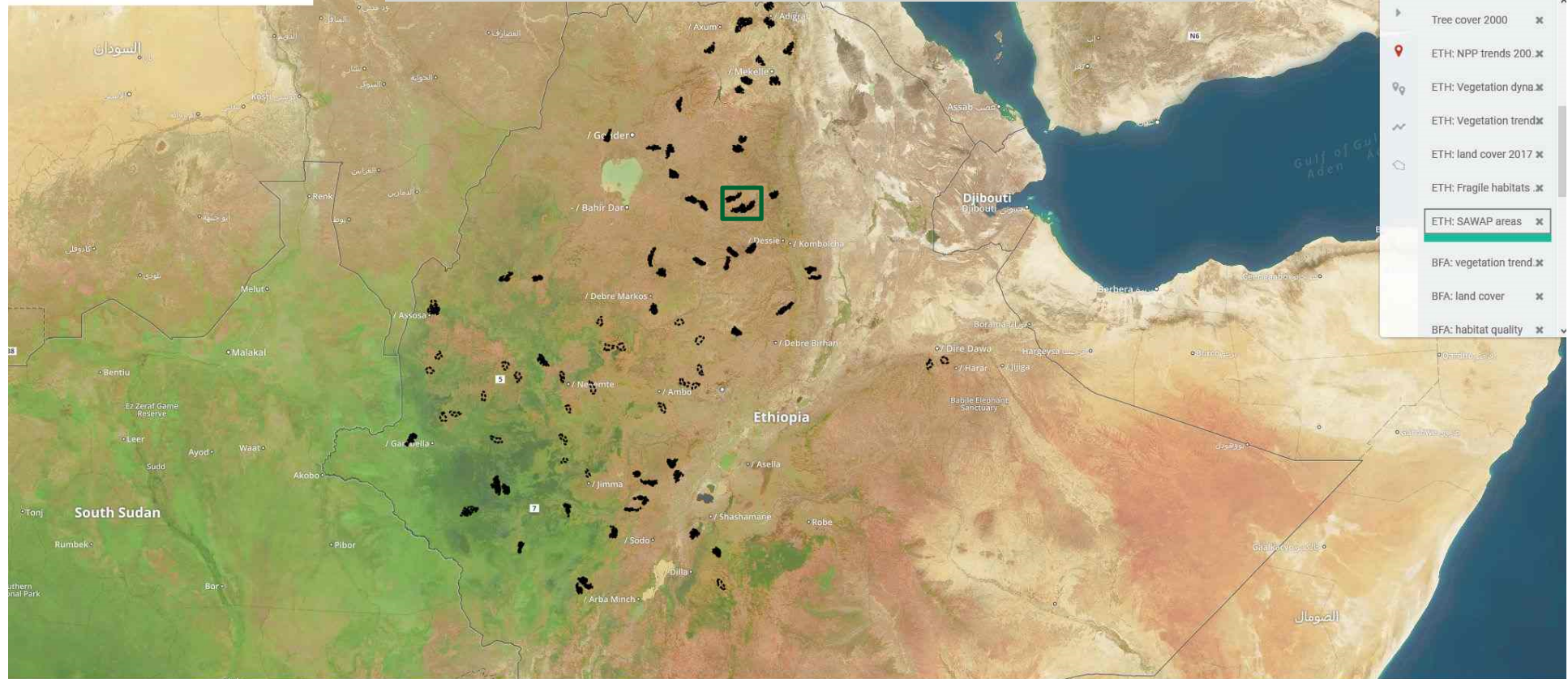


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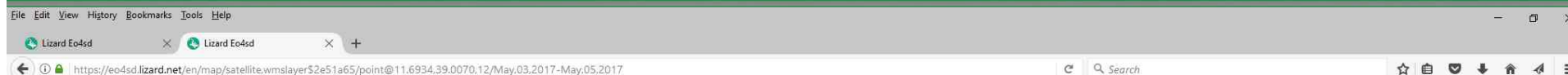
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How to monitor and evaluate the impact of interventions?

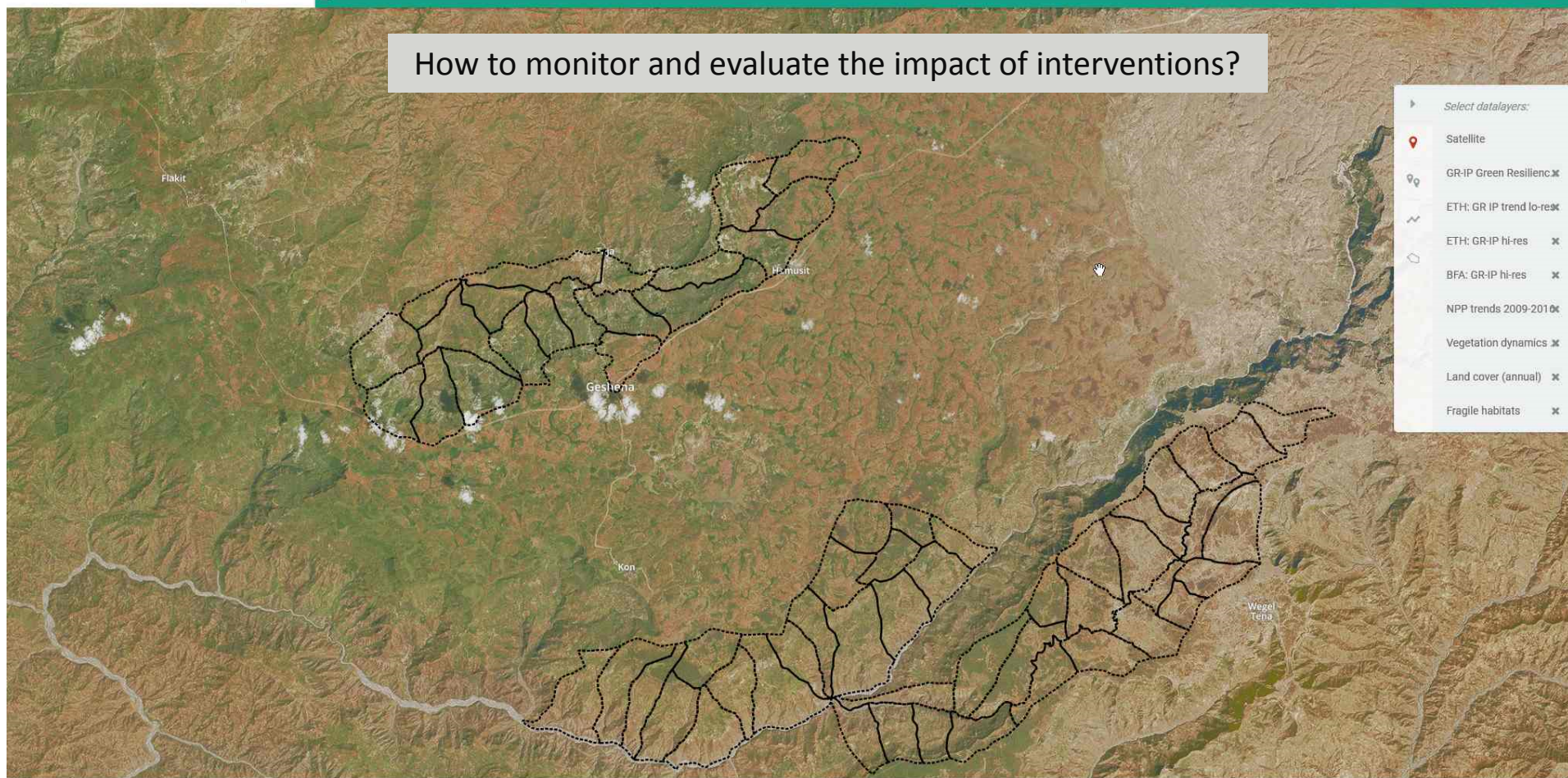




# SAWAP SLMPII project areas in Ethiopia

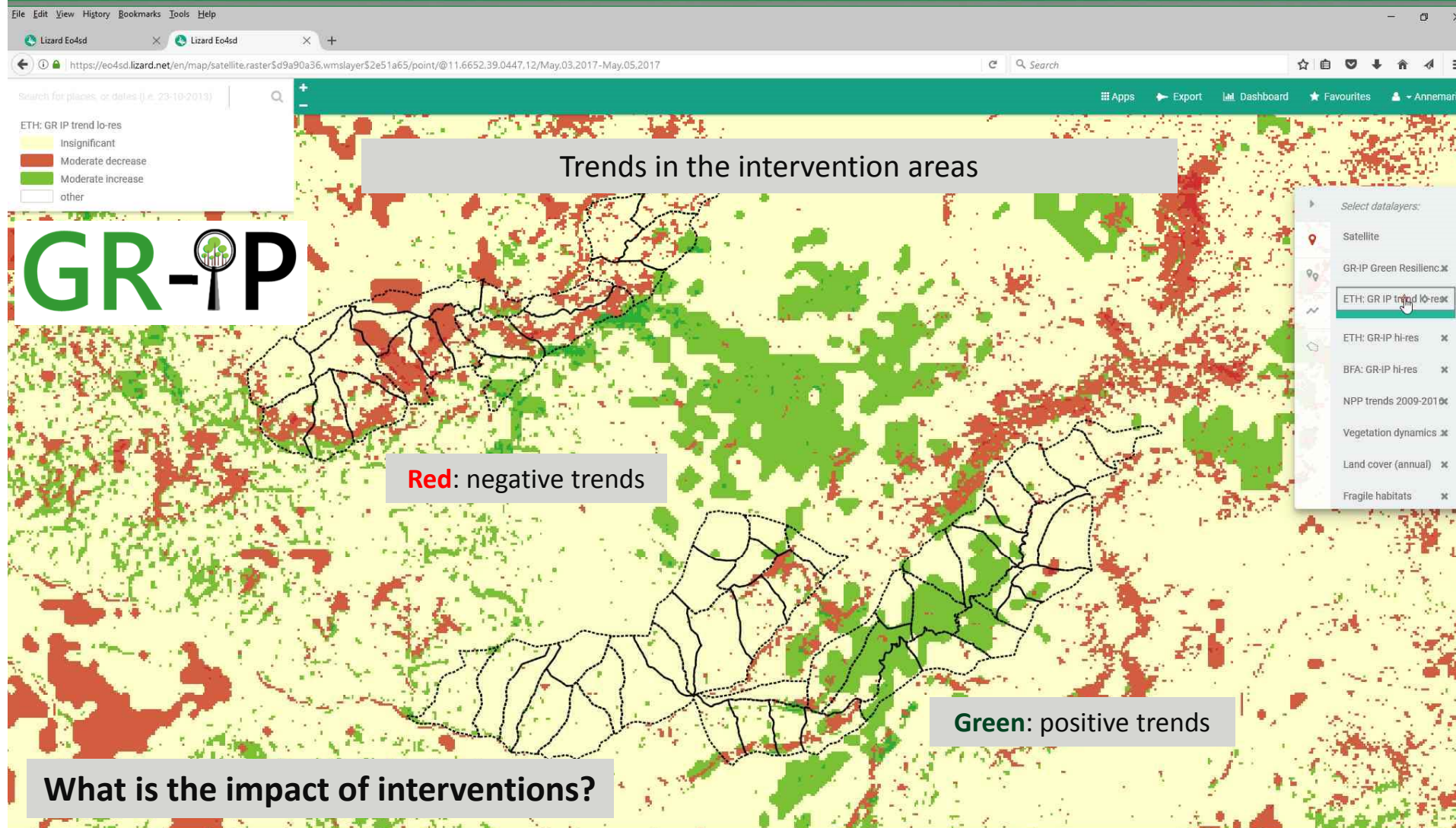


How to monitor and evaluate the impact of interventions?



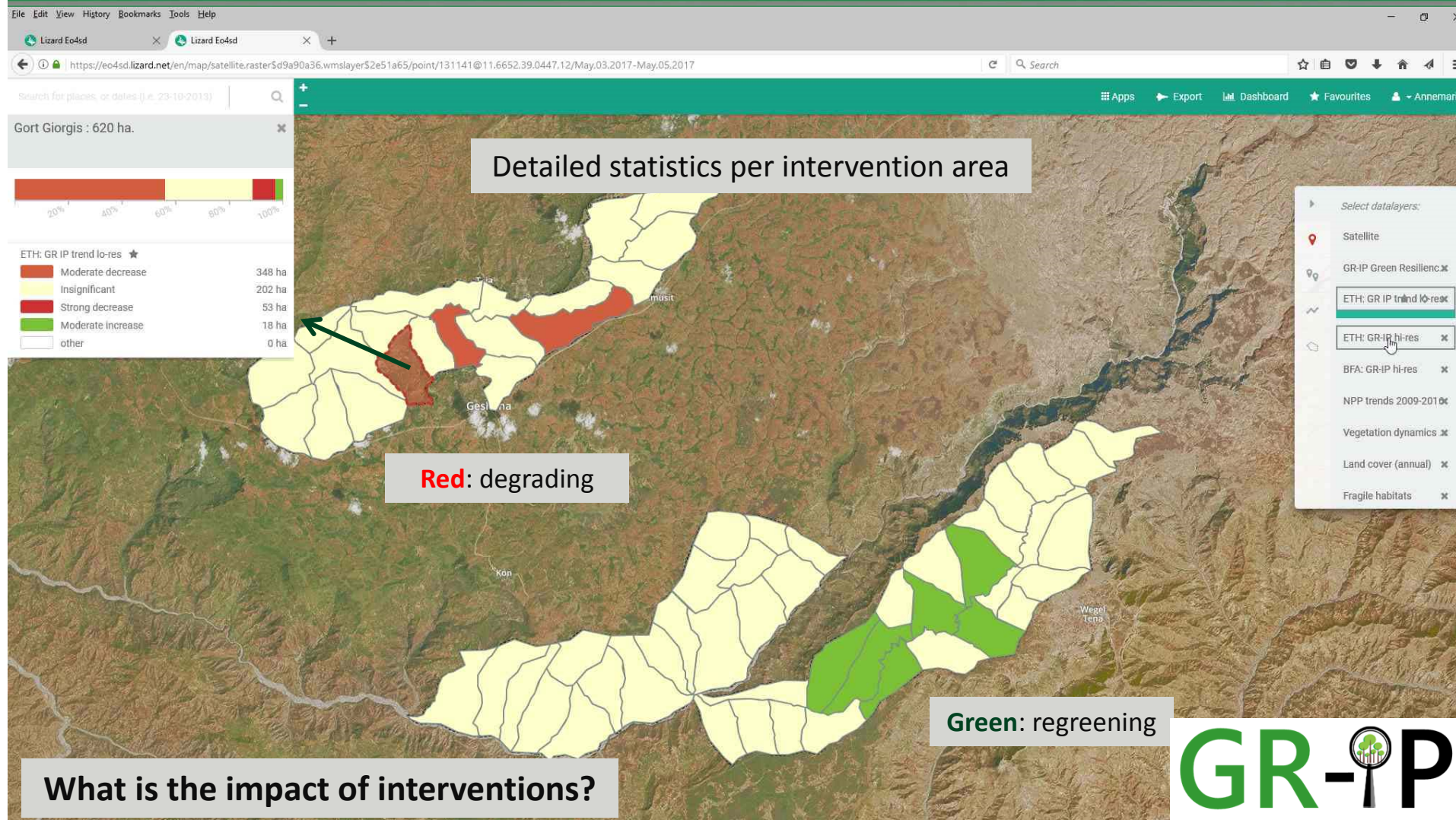


# Green resilience in project areas



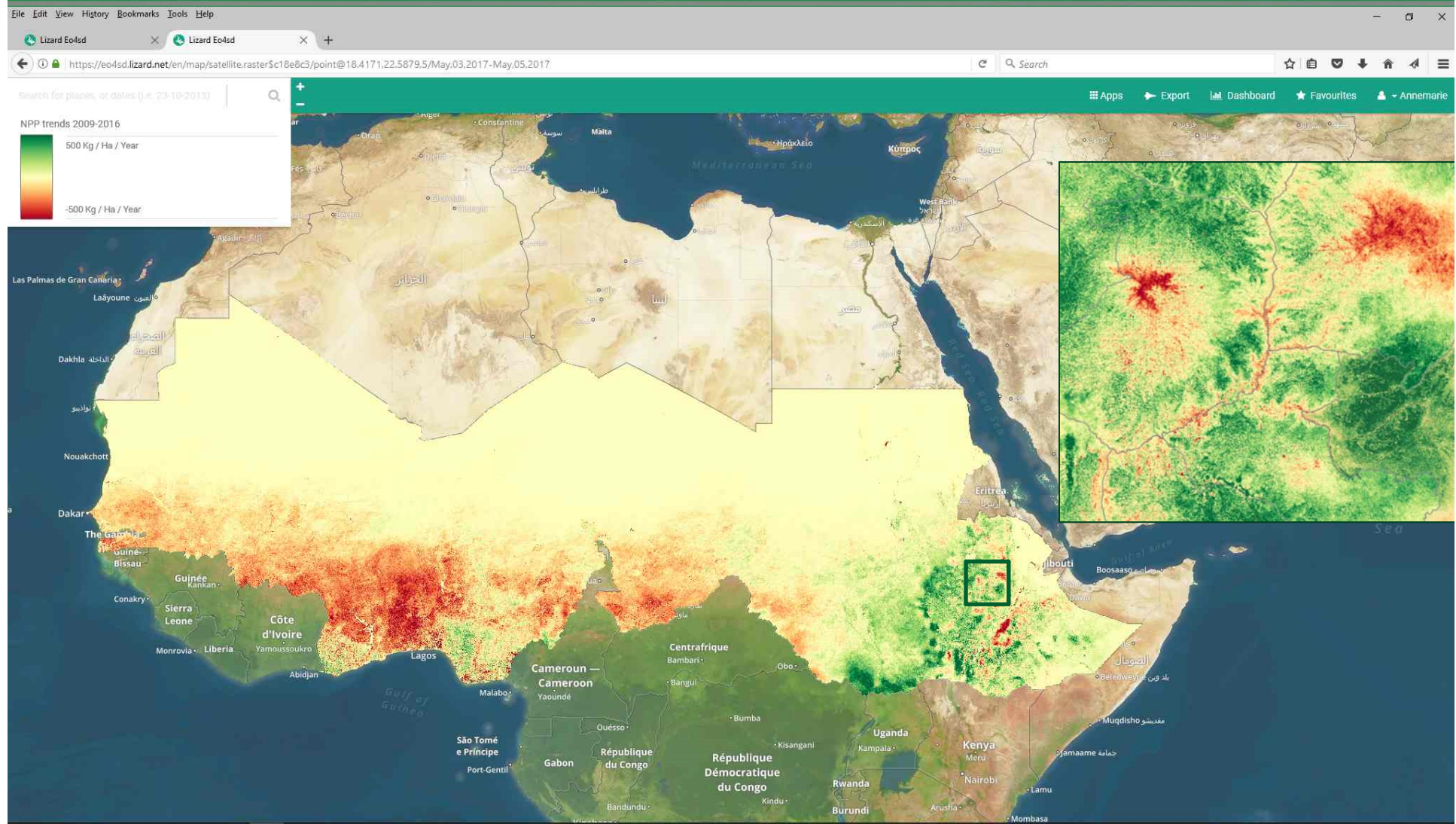


# Project intervention areas: GR-IP statistics



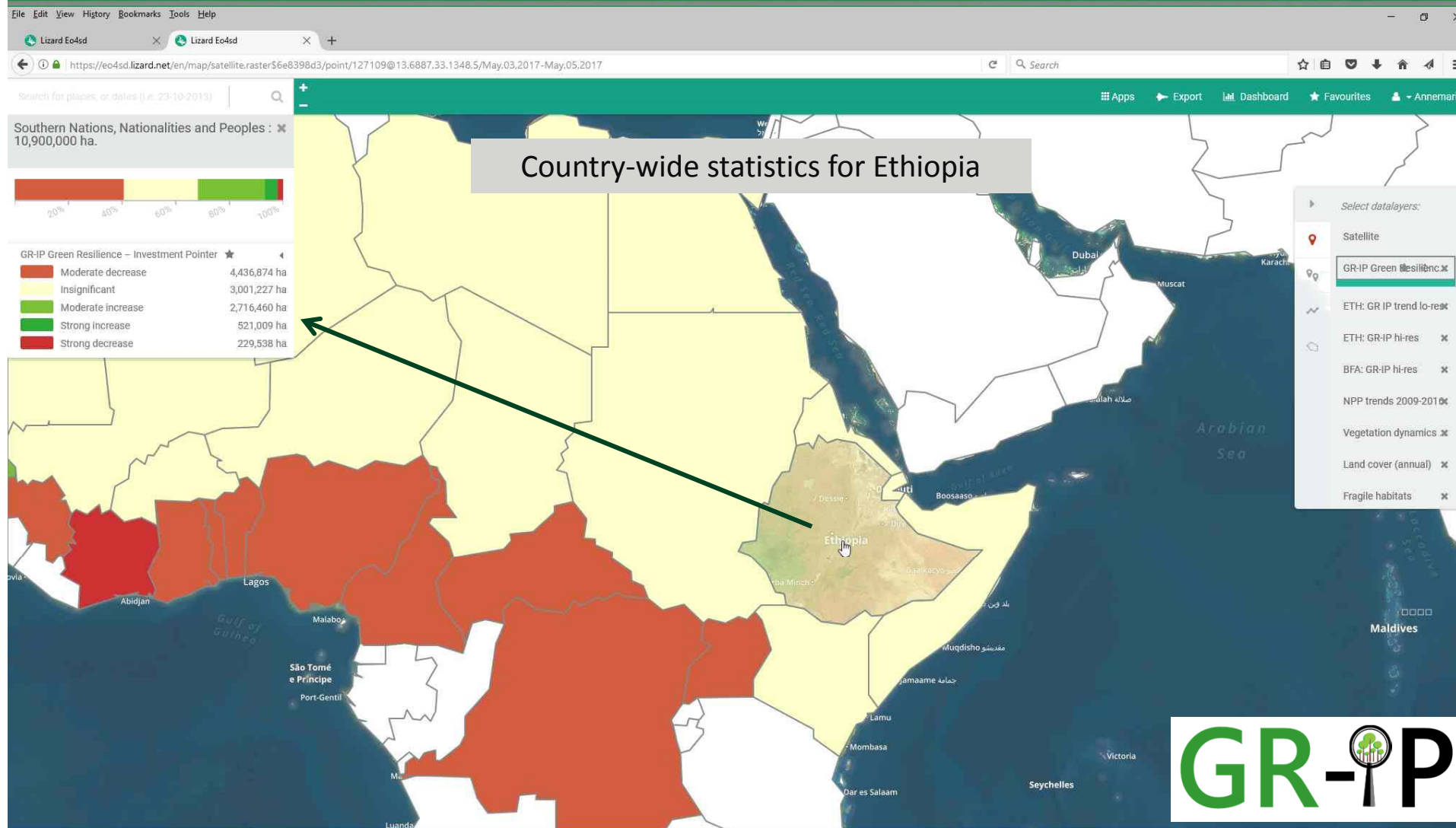


# Multi-scale GR-IP: regional input





# Regional level: GR-IP statistics



- Validation of datasets and GR-IP approach
- Ongoing development of GR-IP
- Update available regional datasets when appropriate:
  - ESA CCI land cover dataset at 20m (launched 2 October 2017)
  - FAO WaPOR data for 2017 & 2018 (expected October 2017)
  - Add FAO WaPOR datasets on biomass water productivity
- Local roll out in Burkina Faso and Ethiopia

## Upcoming events:

- Capacity building workshops in Ethiopia and Burkina Faso (Jan/Feb 2018)
- IAP Food Security workshop, Nairobi (Jan 2018)