→ EARTH OBSERVATION FOR SUSTAINABLE DEVELOPMENT

Agriculture and Rural Development

Geospatial World Forum
3 April 2019 | Amsterdam, The Netherlands

Session 4 - Impact evaluation

EO4SD consortium, presented by Arjen Vrielink, Satelligence

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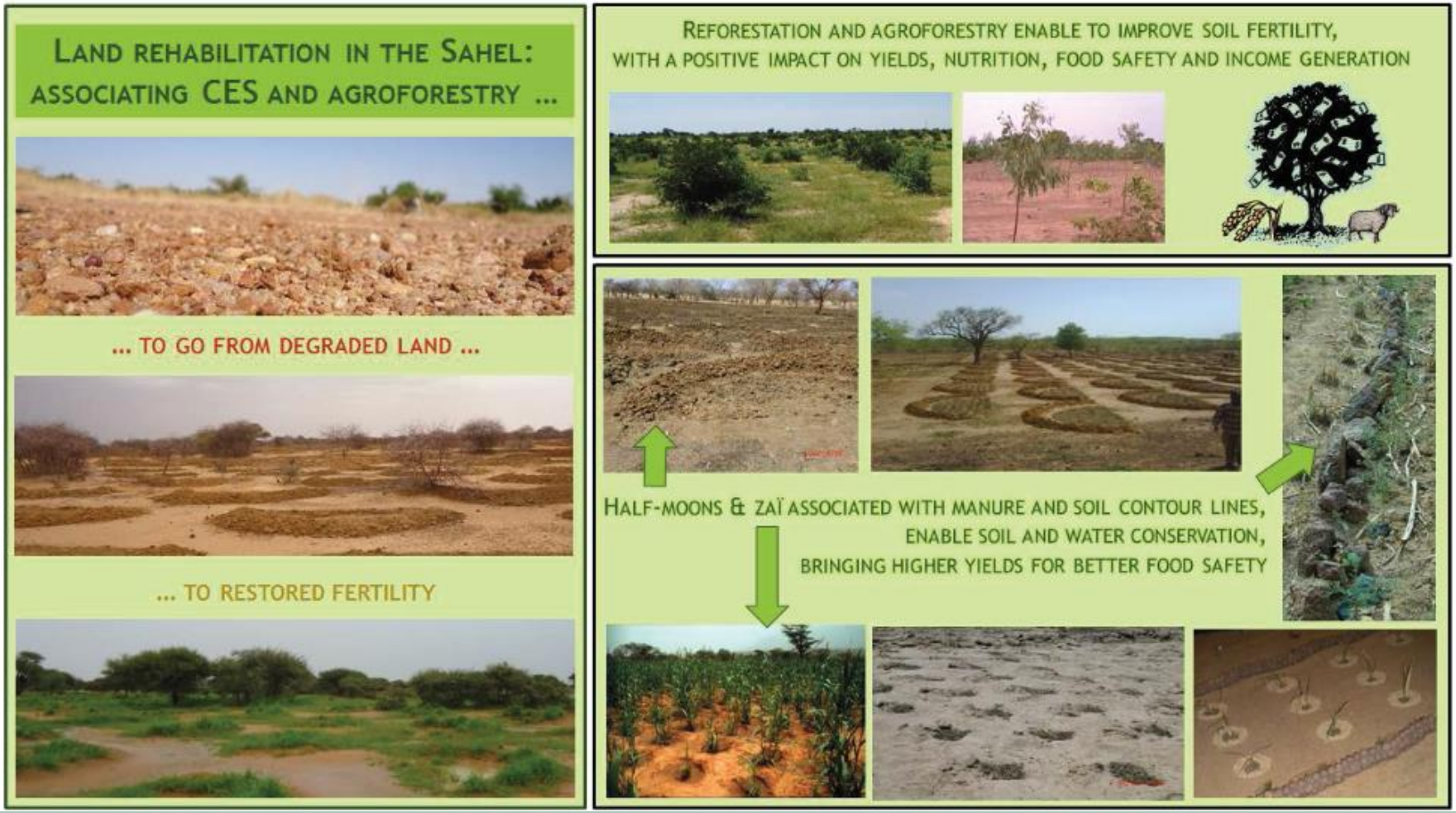
Why using satellites for impact evaluation?

- Public accountability (prove allocation efficiency, demonstrate impact of intervention)
- Generate knowledge about successful (and failed) strategies -> use for input to design of next project
- Strengthen evaluative evidence
- Enhance comprehensibililty of evaluation results
- Assess project sustainability beyond time frame of implementation
- Analyze interventions spread across entire countries/regions, making it possible to draw broadly generalizable conclusions about the impacts and cost effectiveness of development interventions

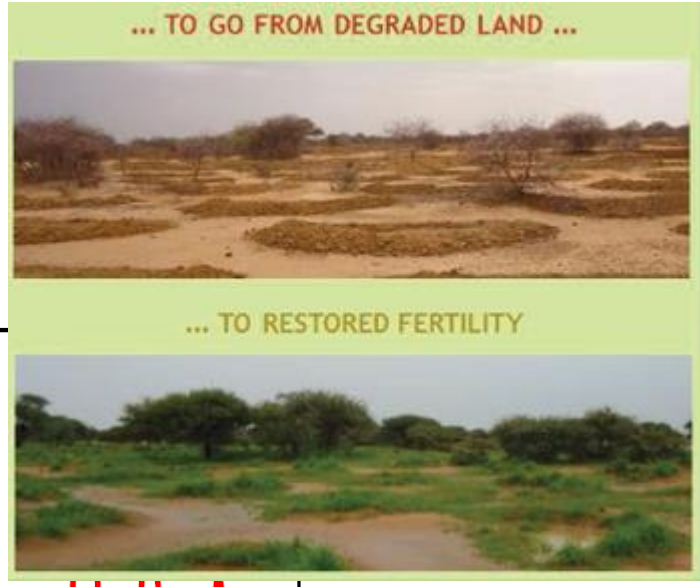
What do I expect to see after the intervention

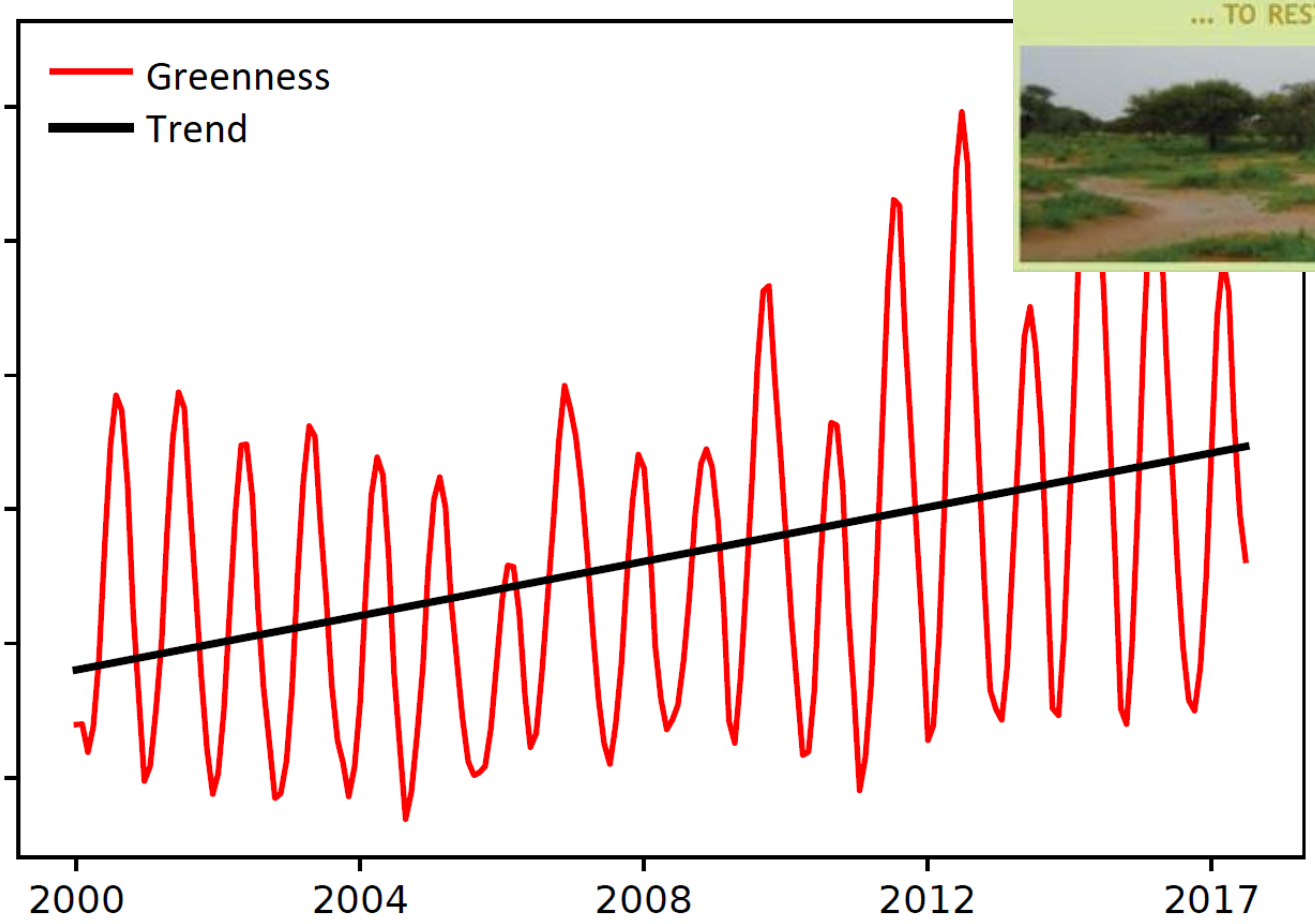
Coping and adaptive strategies - Niger

Figure 1: Overview of the soil and water conservation (SWC) /soil protection and restoration (SPR) and agroforestry techniques implemented in the Sahel, and their impact

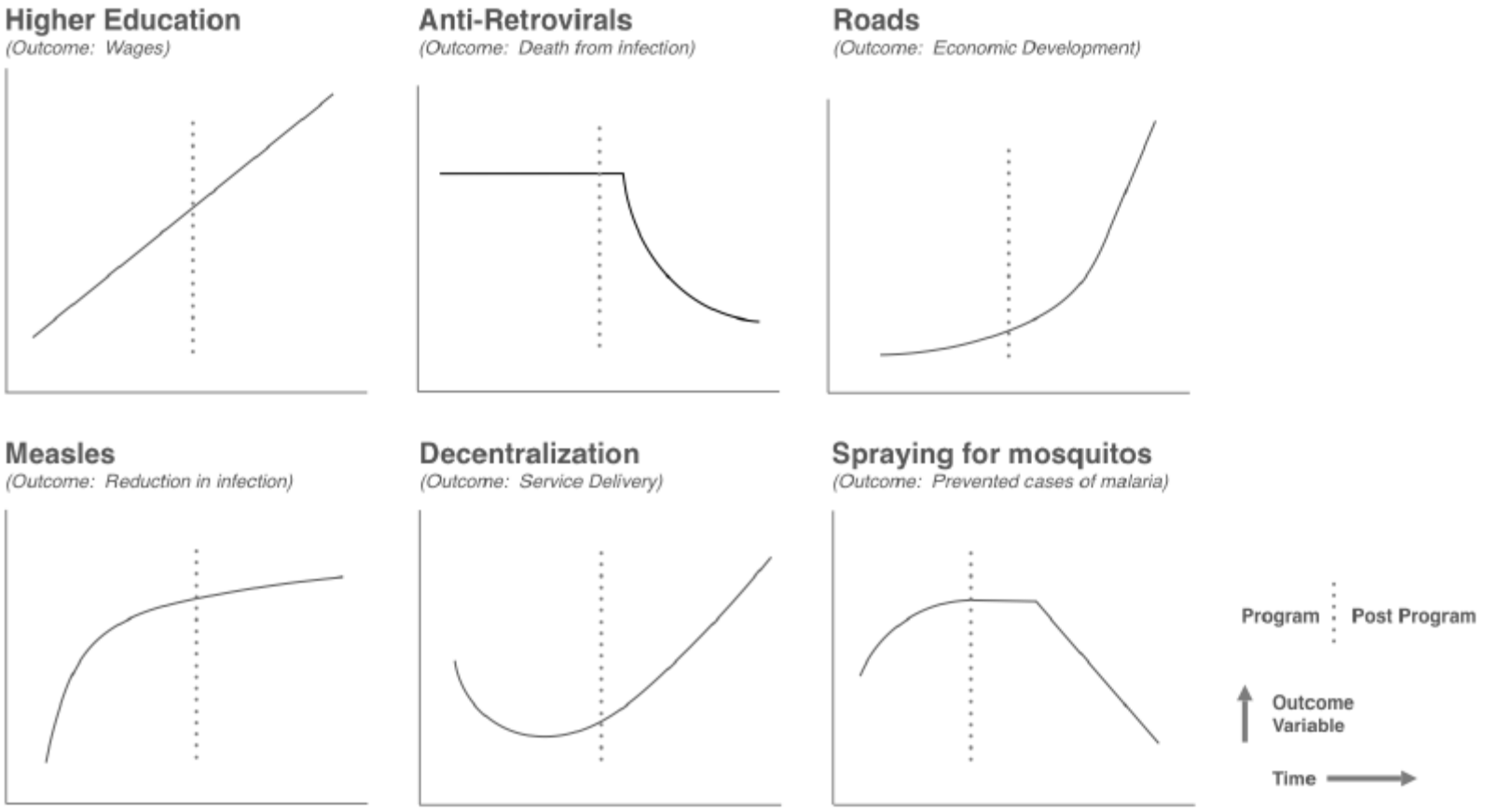


What do I expect to see after the intervention

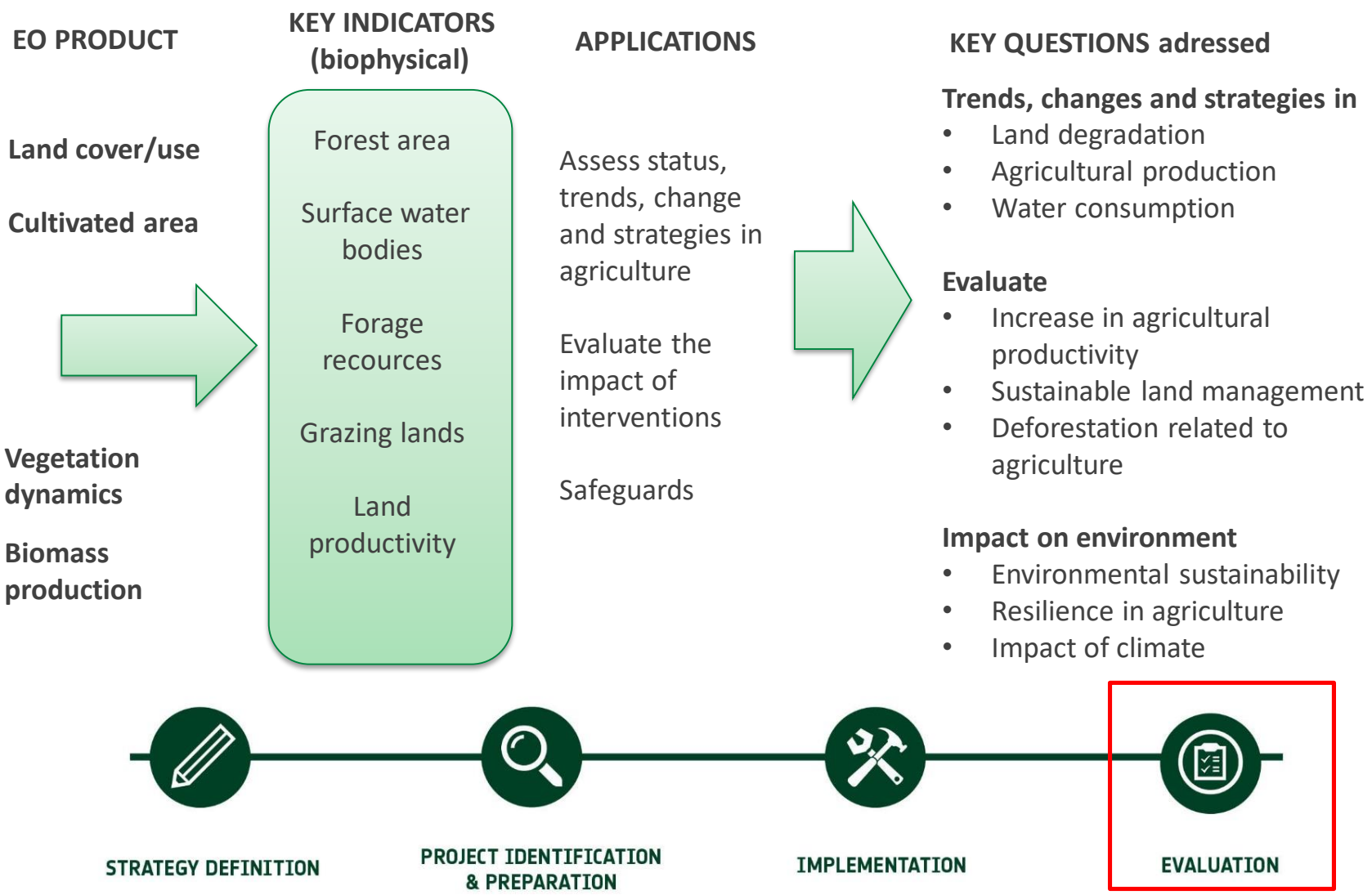




When do I expect to see the impact - Impact trajectories



Supporting project success with Earth observation

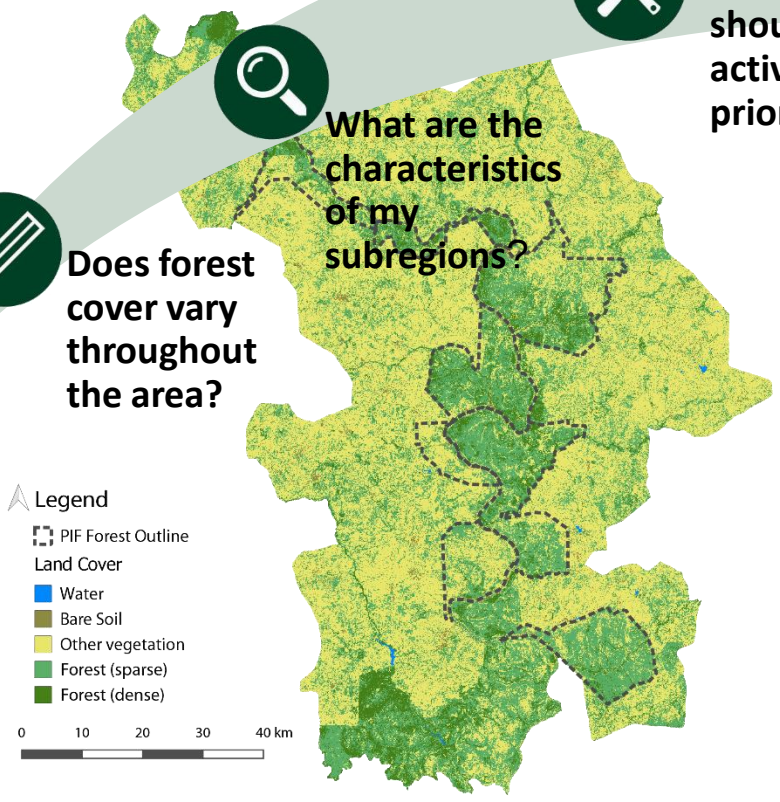


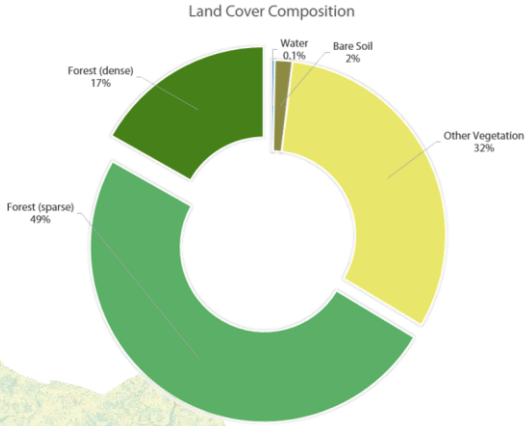
Forest resources

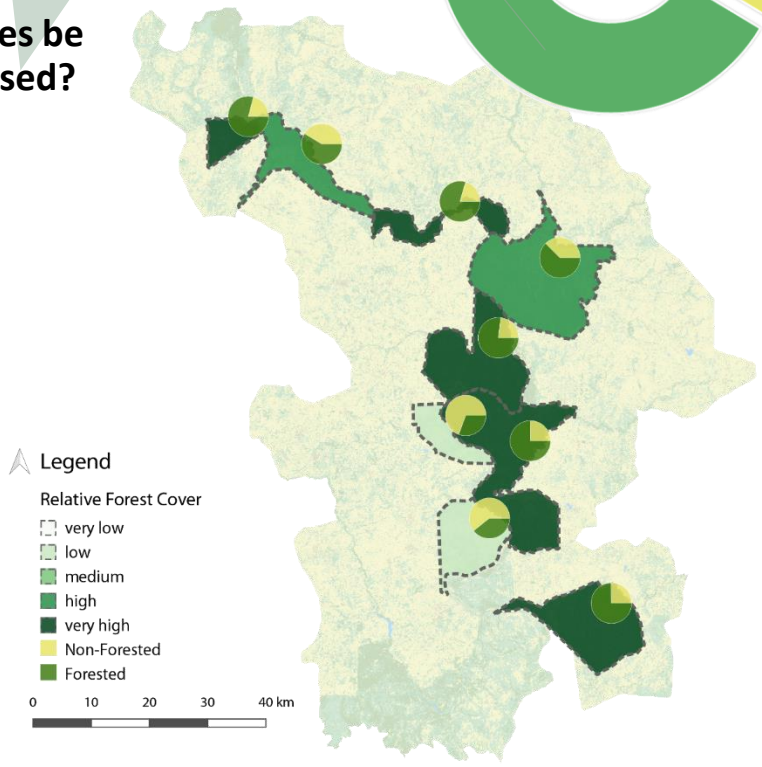
Does forest cover vary throughout the area?

What are the characteristics of my subregions?

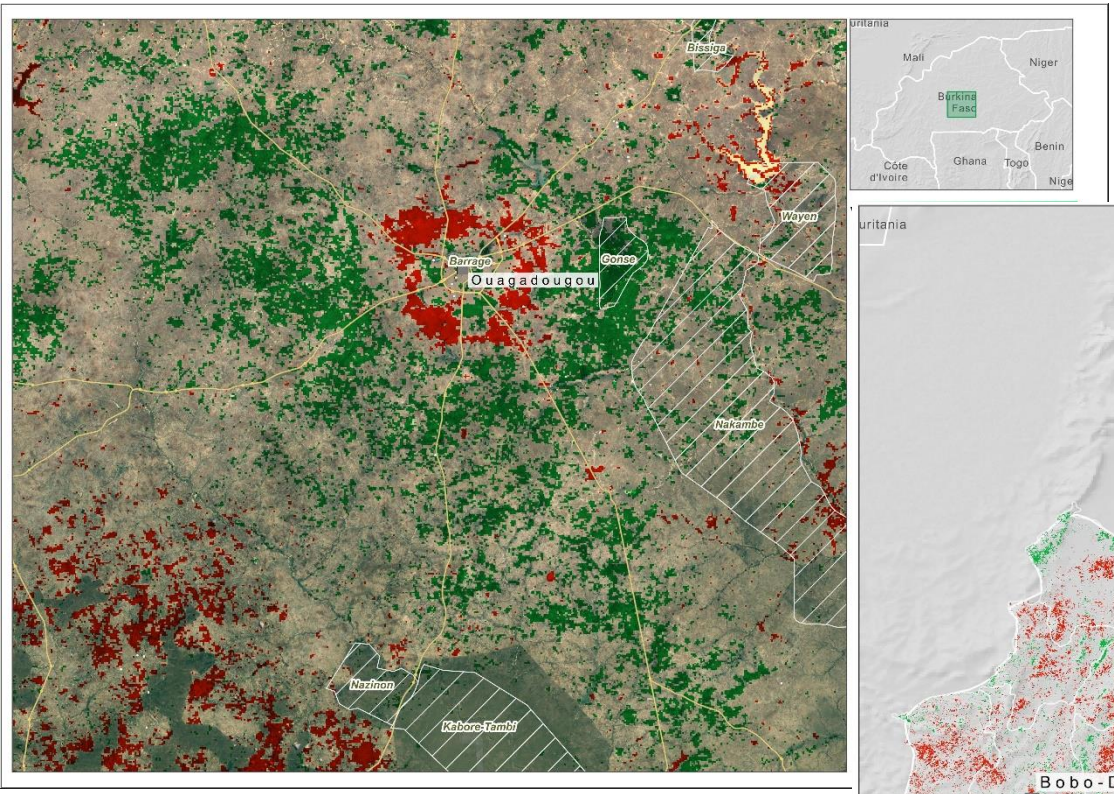
Where should activities be prioritised?

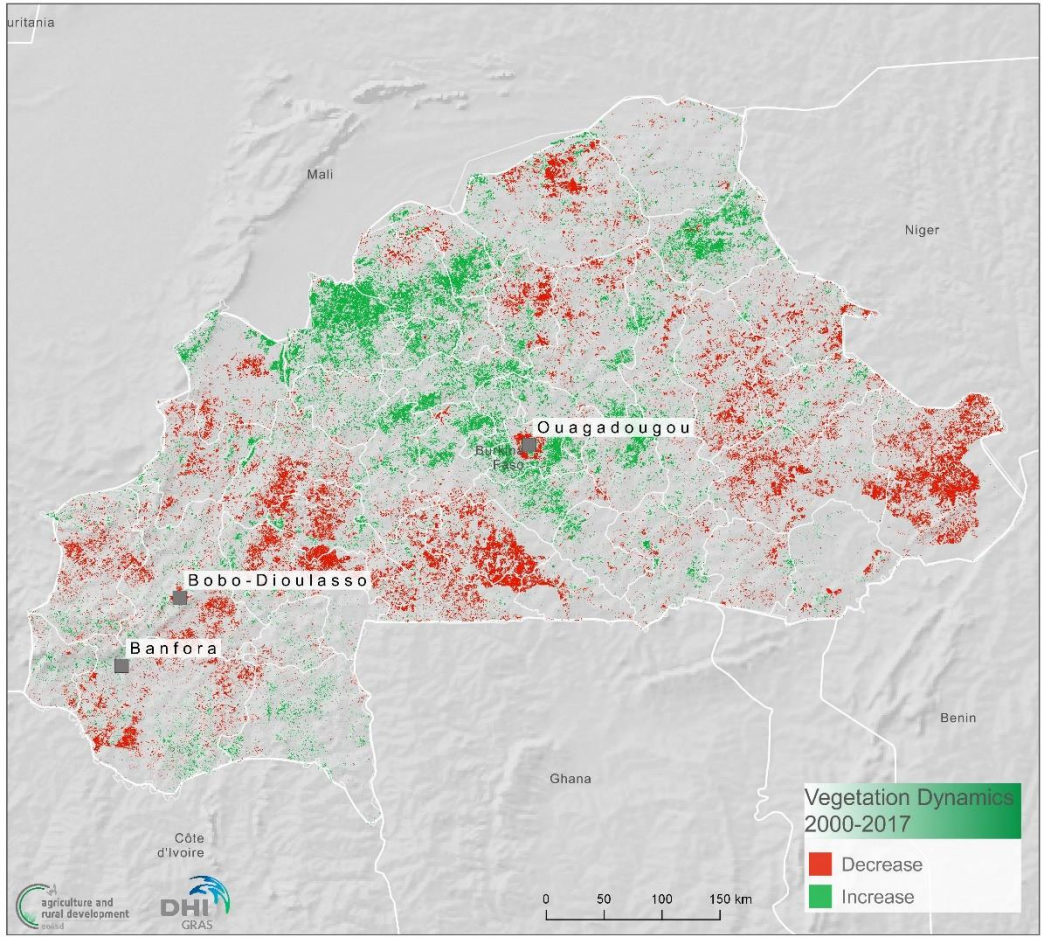




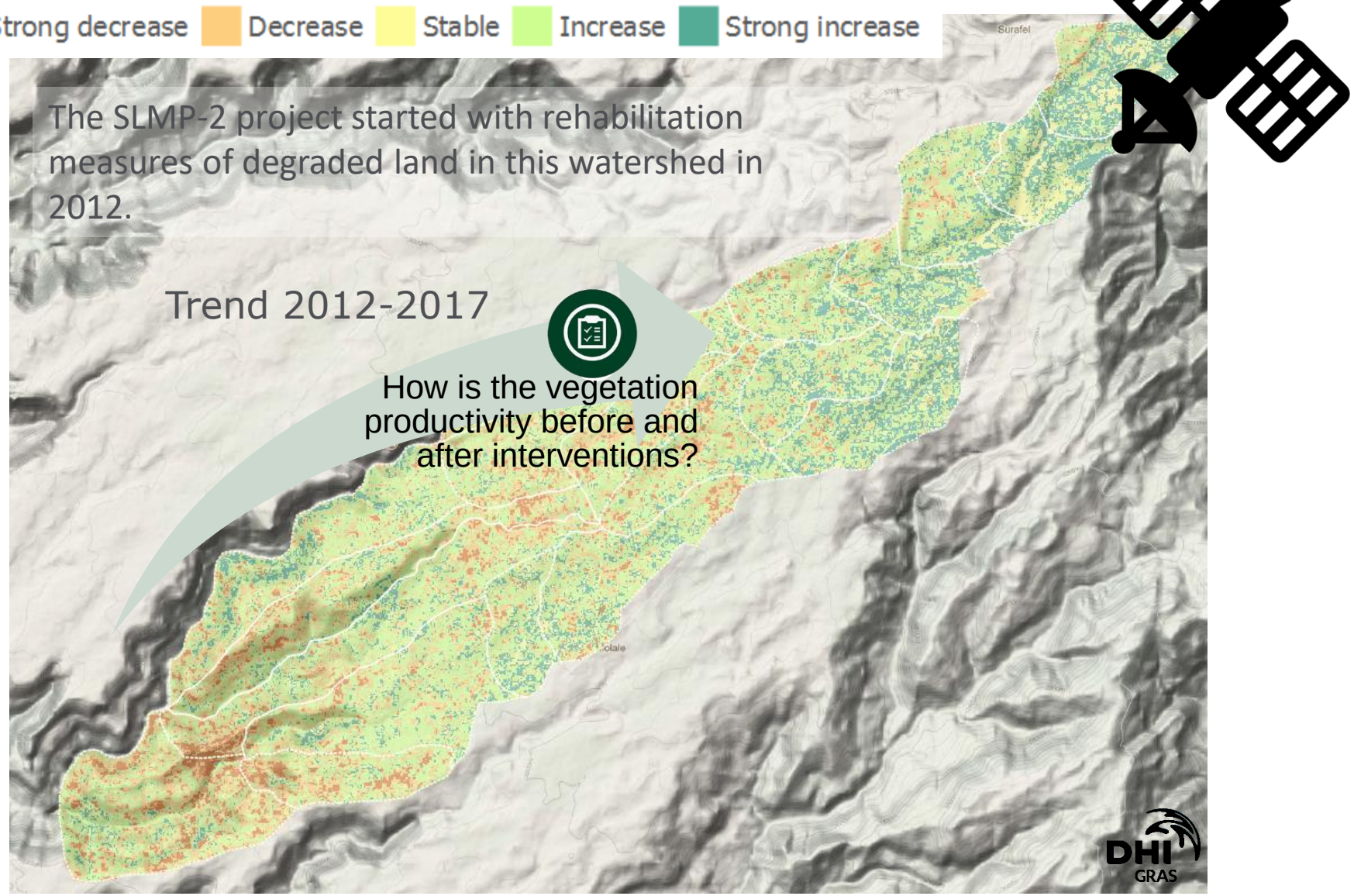


Land productivity – urbanisation and deforestation



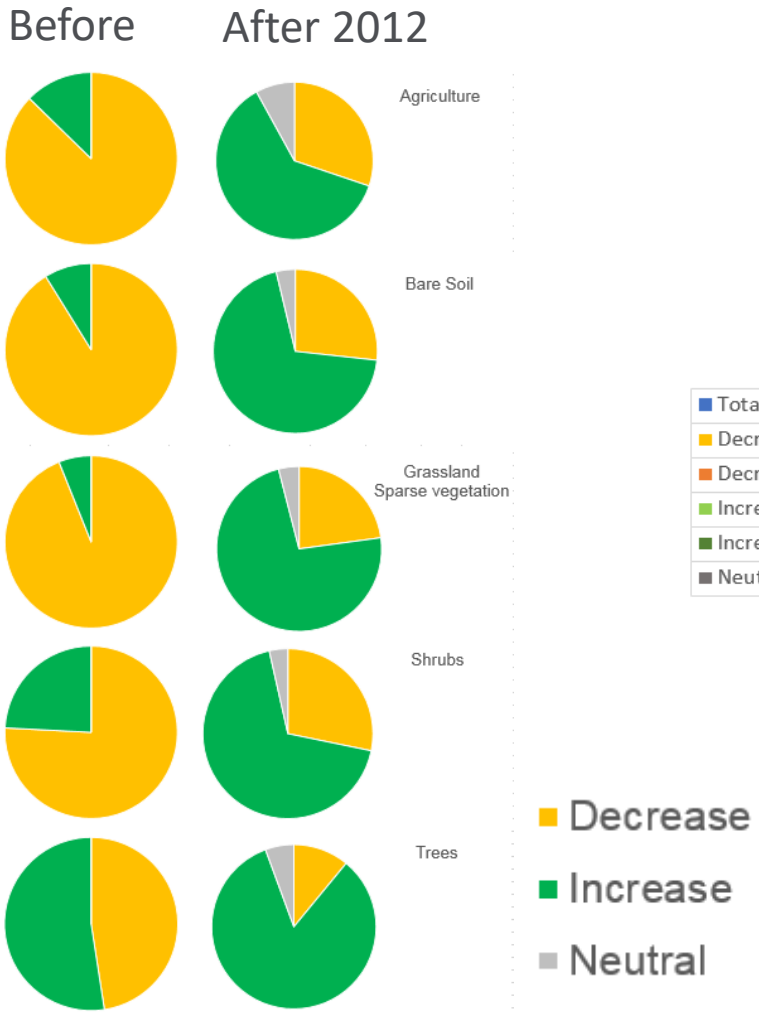


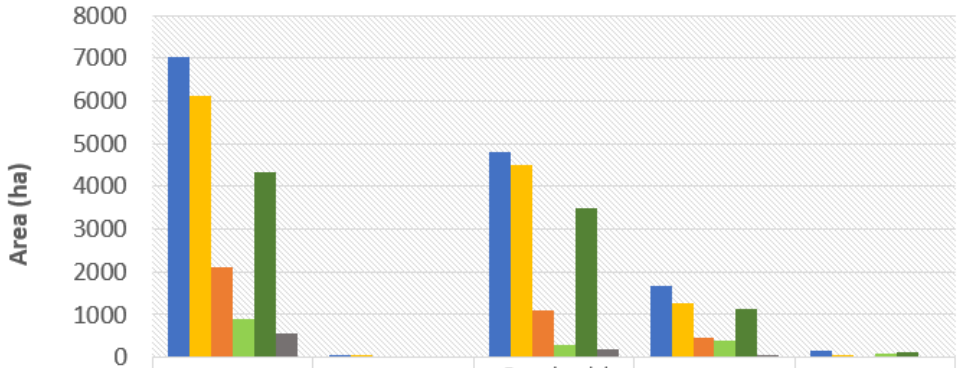
Monitoring land productivity before and after inplementation



Vegetation dynamics: quantifying trends per land cover

Trend in vegetation productivity





	Agriculture	Bare Soil	Grassland / Sparse vegetation	Shrubs	Trees
Total area	7021	49	4790	1679	152
Decrease before 2012	6130	45	4499	1273	72
Decrease after 2012	2120	13	1094	474	17
Increase before 2012	891	4	291	406	79
Increase after 2012	4338	34	3503	1146	126
Neutral after 2012	563	2	192	59	9

Note: statistics should be extracted for intervention areas, to assess the project impact

Monitoring biomass production

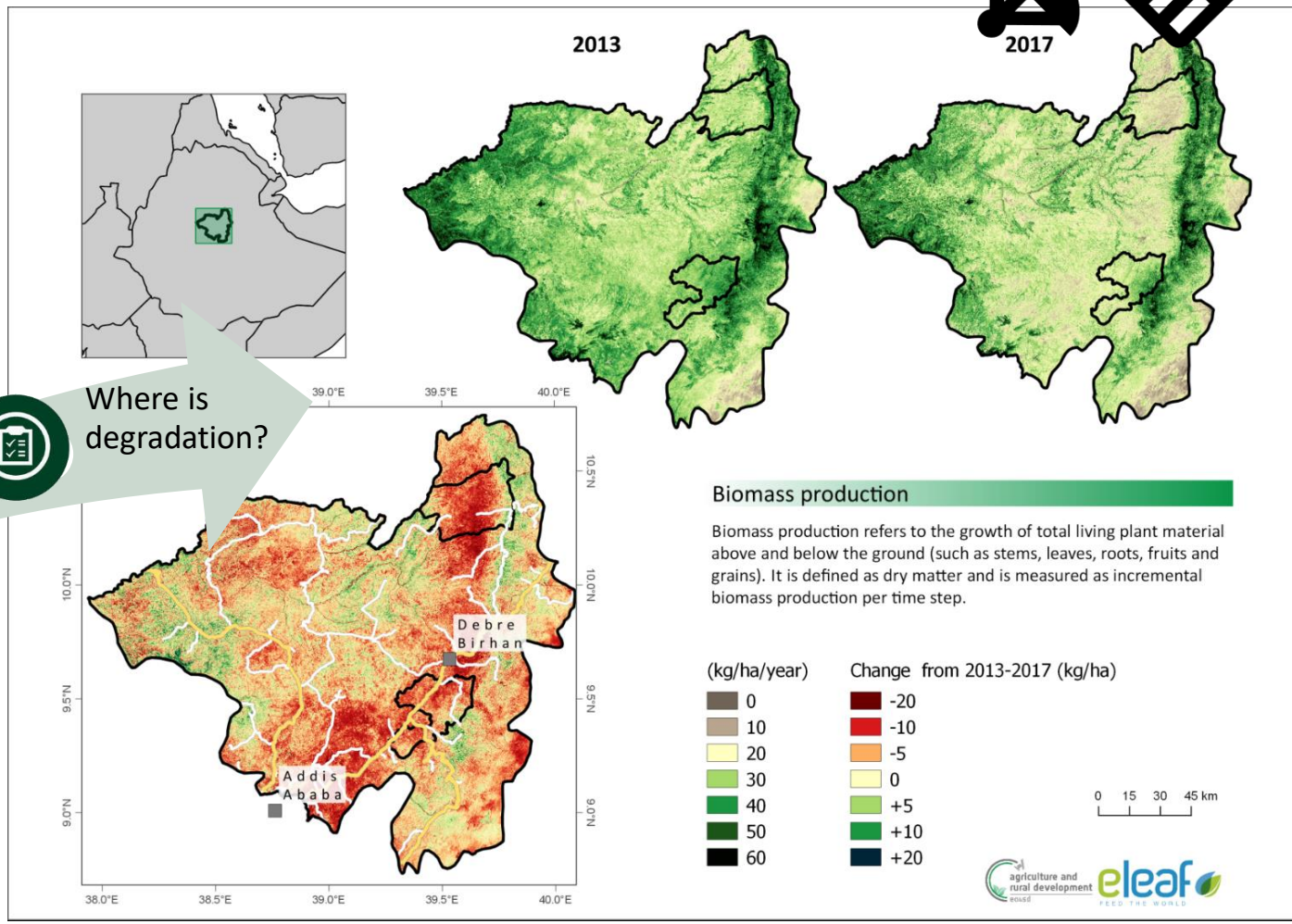
North Shewa, Ethiopia

EO provides objective information, but ground surveys often provide explanations behind changes.

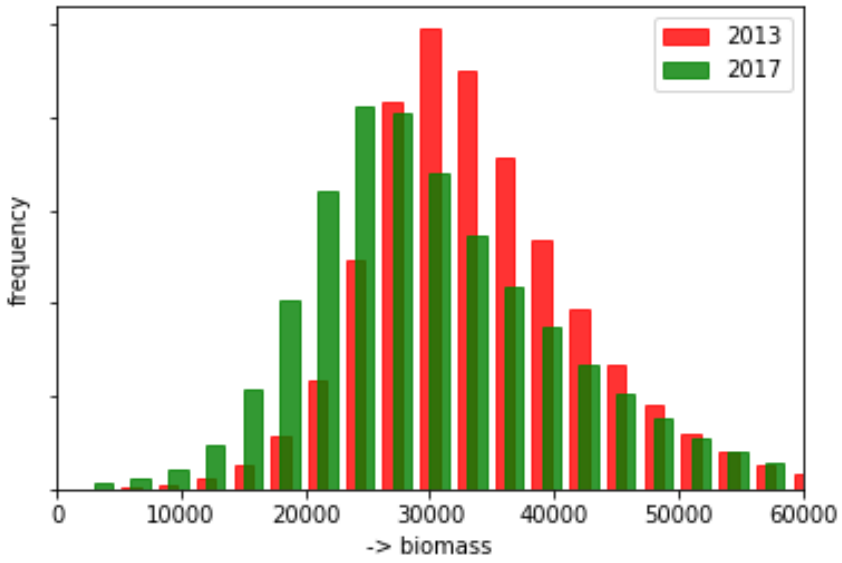
Where is the largest change in biomass happening?

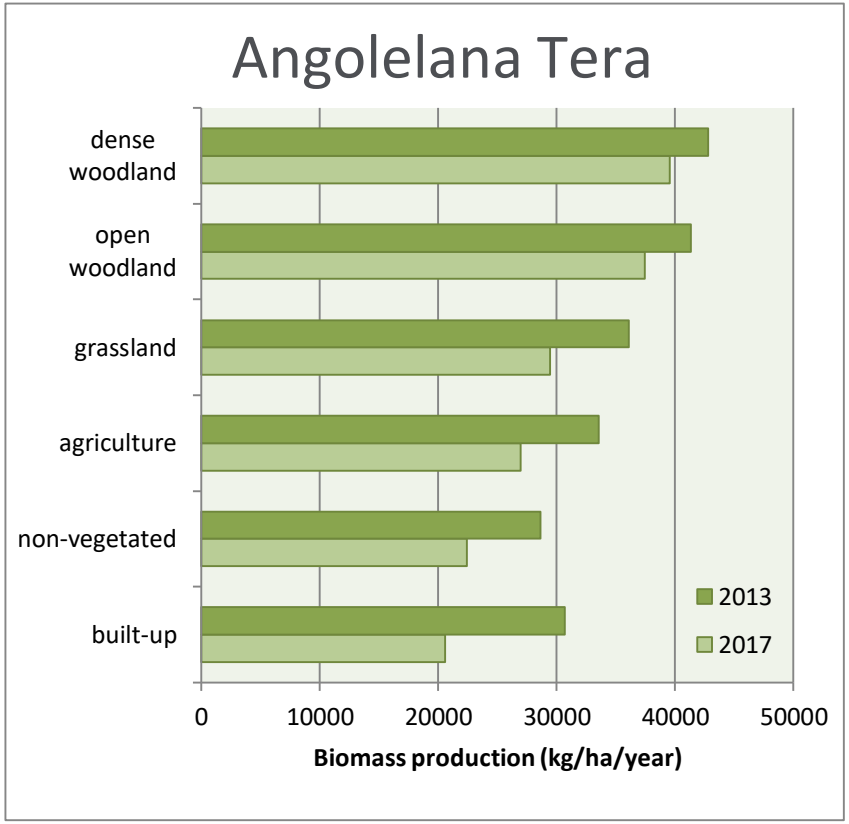
Where is regreening?

Where is degradation?



Biomass production: quantifying trends per land cover





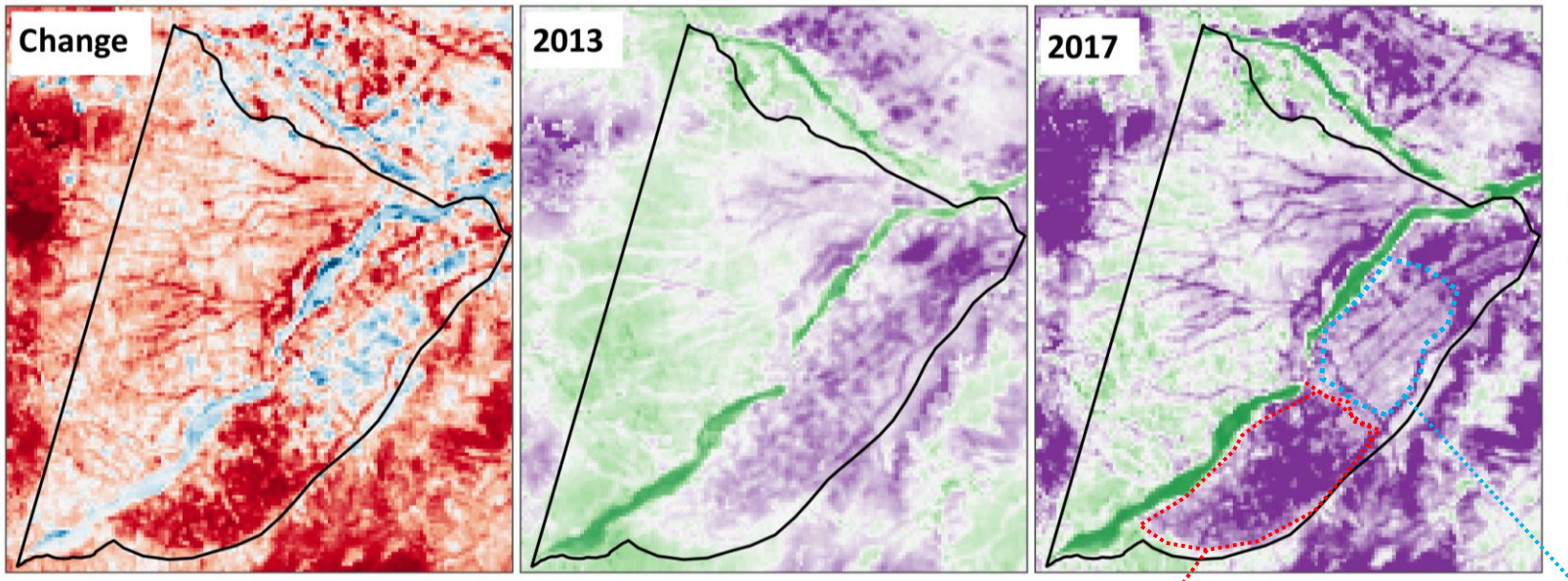
Biomass production was higher in 2013

Decrease in biomass production is highest in non-vegetated, agriculture and grassland areas

Some findings from the analyses….
Changes in water stress 2013|2017

Clear change in distribution:

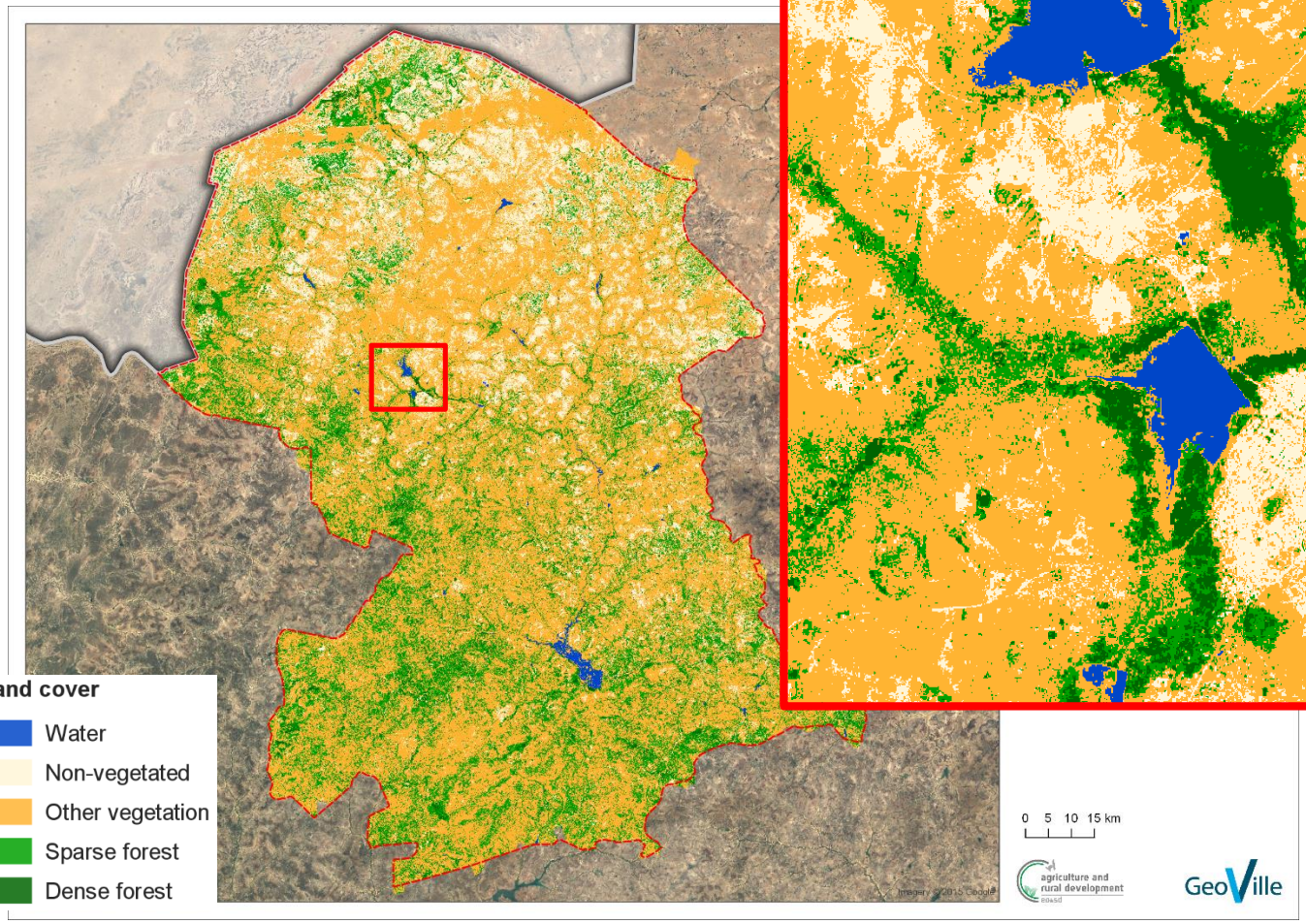
- Better access to water?
- Different type of crops?



Water stress similar to surrounding areas

Less water stress, clear irrigation infrastructure visible

Customized land cover map
Region Nord, 2016
10m spatial resolution



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Thank you

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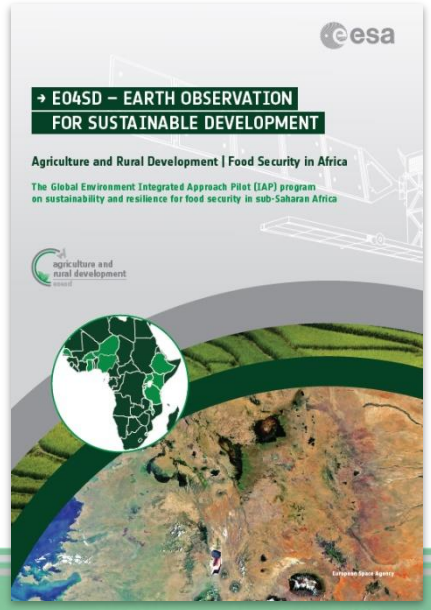

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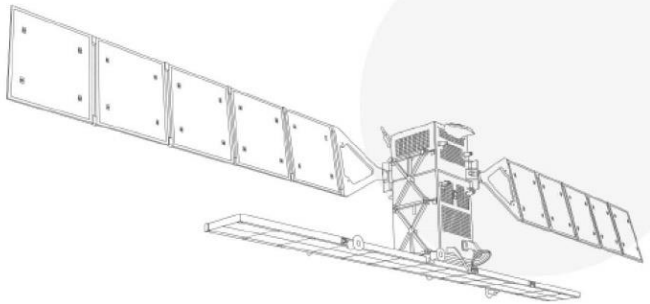

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Round table questions

- Identify 3 information gaps that could be filled in with satellite-based information in order to enhance your monitoring and reporting activities.

- Is your team sufficiently trained to work with satellite derived information for M&E?
  - Yes: give 3 examples of your project work
  - No: give 3 main constraints

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