European Commission(DG DEVCO) Conference on Evaluation in Hard to Reach Areas, Tuesday 12th March, Brussels

Independent Evaluation Office
GLOBAL ENVIRONMENT FACILITY

Improving international development evaluation through geospatial data and analysis

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Outline

- The Global Environment Facility (GEF)
- Why Geospatial Data and Analysis in Evaluation?
- Application in Thematic Evaluations
- Challenges and Lessons

United Nations Framework Convention on Climate Change

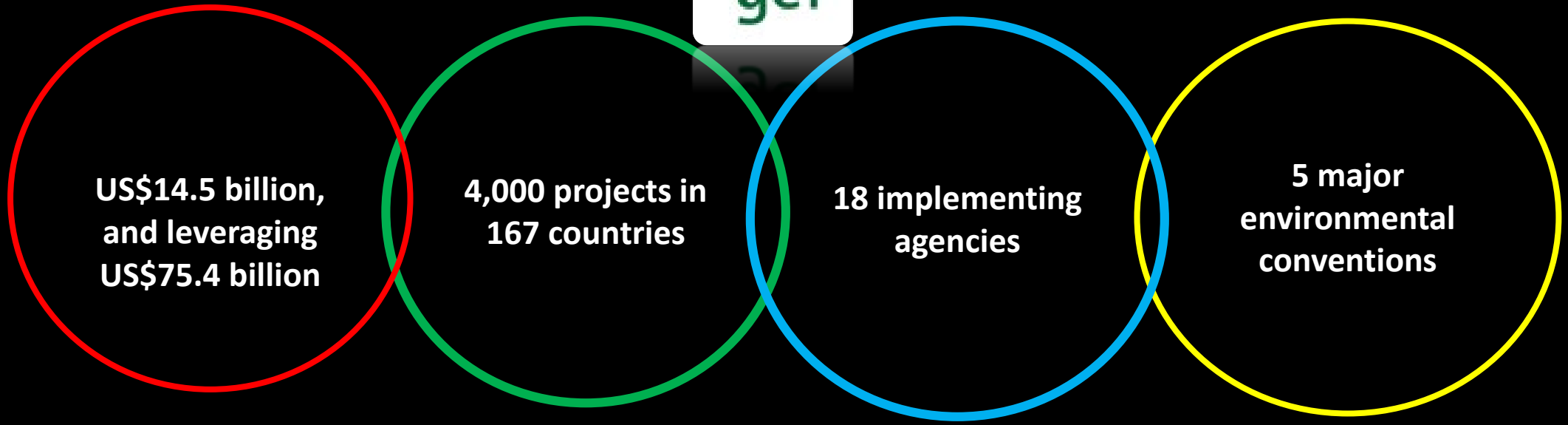
Convention on Biological Diversity

UNFF

United Nations Convention to Combat Desertification

UNEP MINAMATA CONVENTION ON MERCURY

Stockholm Convention on persistent organic pollutants (POPs)



Established in 1992 | Innovator and Catalyst | Unique Partnership | Financial Mechanism

The Global Environment Facility

Thematic Areas

International Waters

Land Degradation

Biodiversity

Sustainable Cities

Sustainable Forest Management

Chemical and Waste

Climate Change

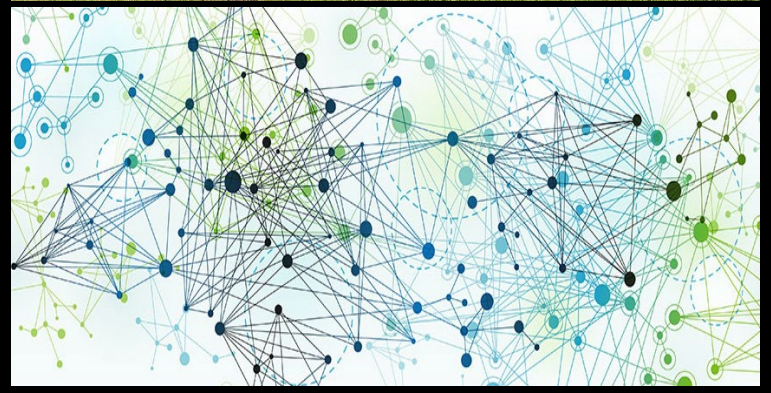
Food Systems, Land Use and restoration

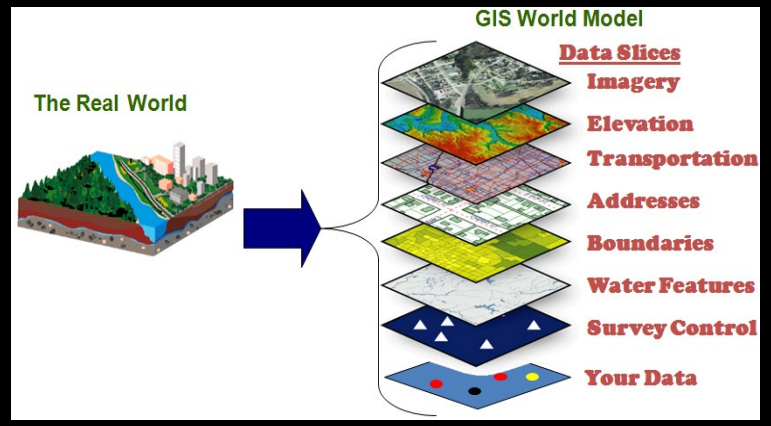
Independent Evaluation in the GEF

- Semi-Annual Evaluation Report
- Impact, Thematic, Performance, Corporate, Strategic Country Clusters
- Comprehensive Evaluation every 4 years

Methods

- Qualitative
- Quantitative including GIS, Remote Sensing, Big Data Analytics





Why have we used geospatial methods in evaluation?

Where are we operating?

Are we doing the right things? (Relevance)

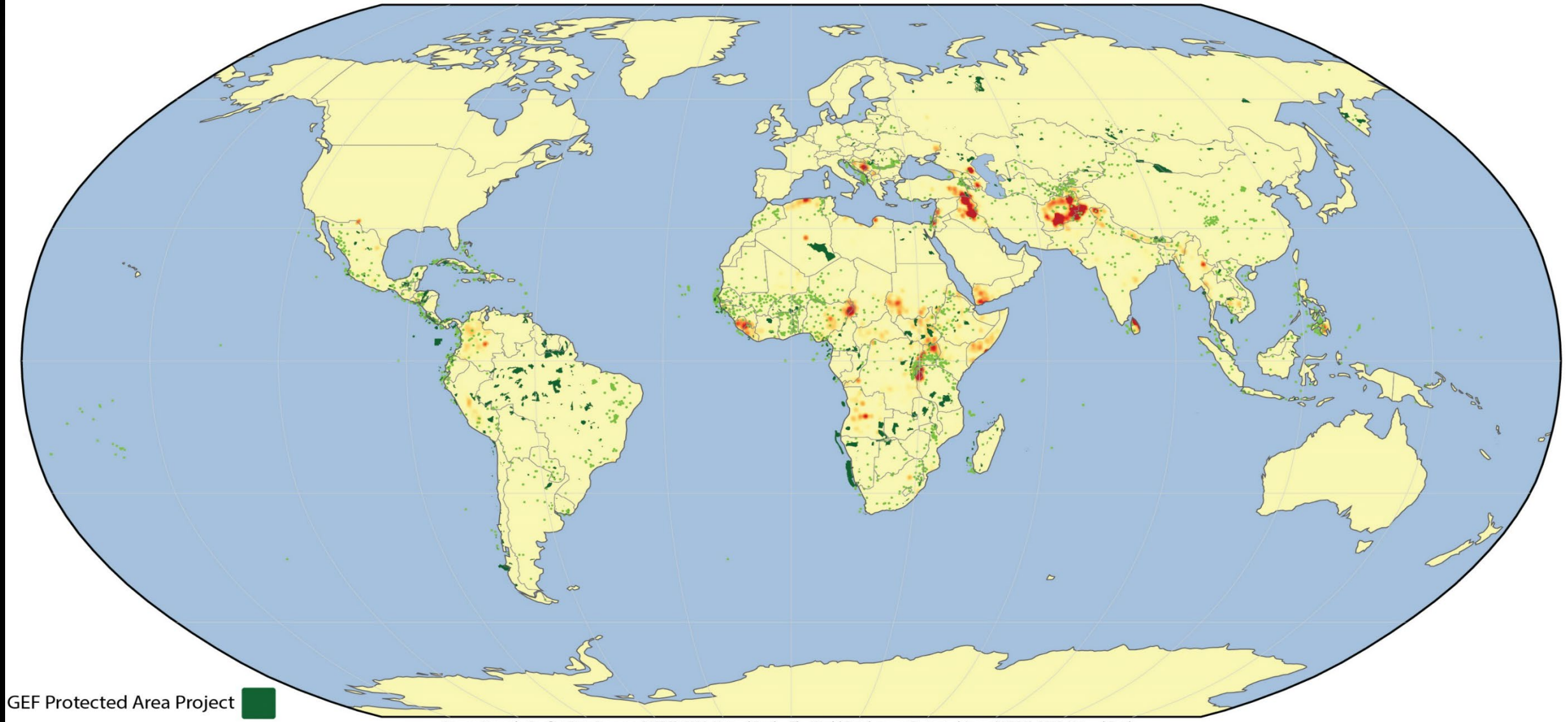
Are we doing things right? Impacts, Attribution and Drivers

Analysis at different scales

Efficiency

Aids objectivity and transparency

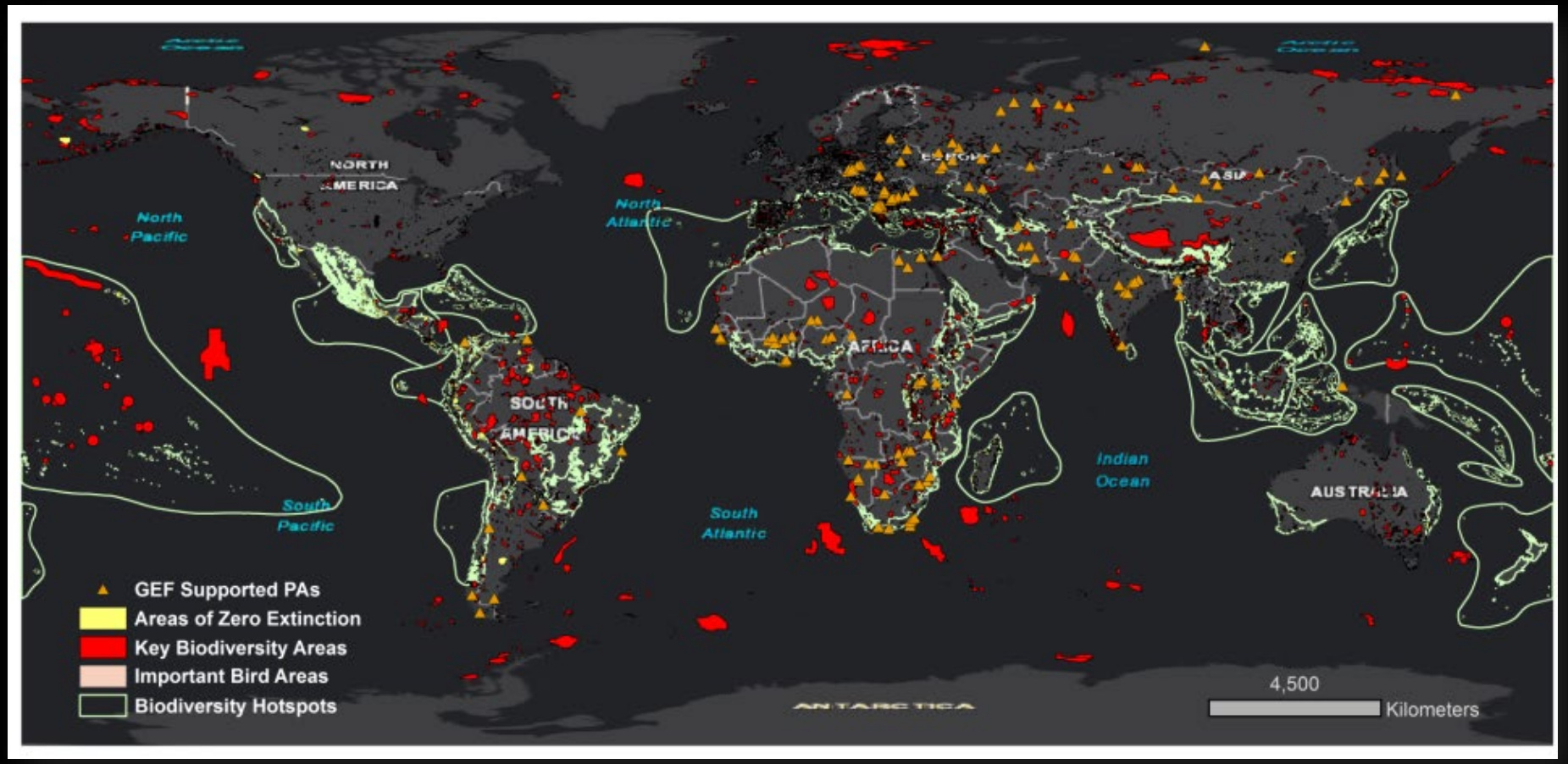
Helps with data and methodological challenges



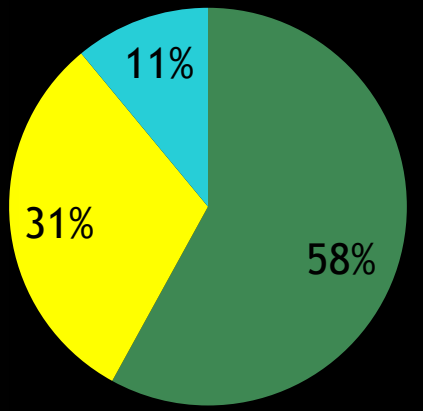
GEF projects are often located in isolated and hard to reach areas

Biodiversity: Where is GEF?

Biodiversity: Relevance

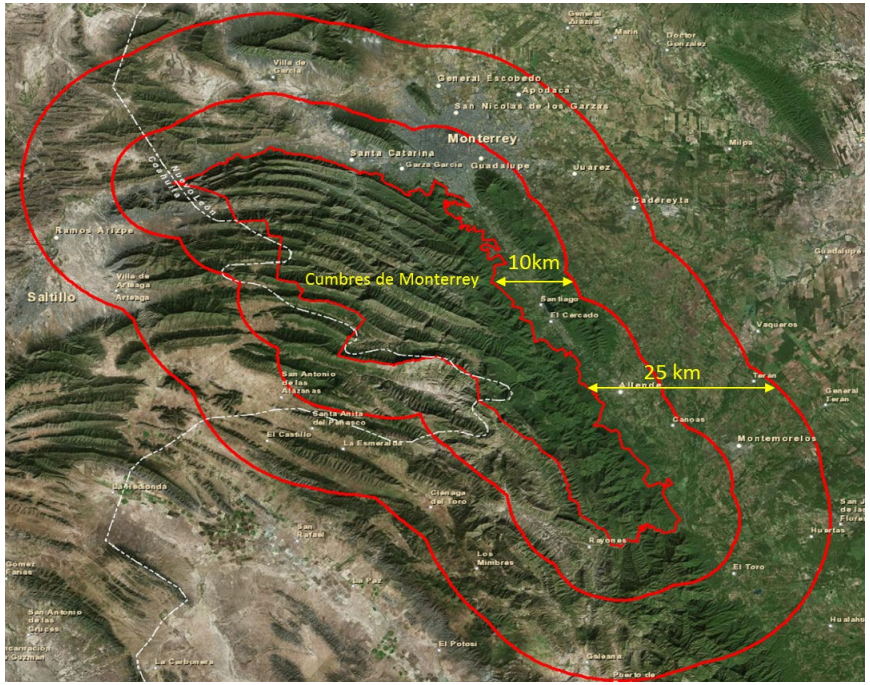


KEY BIODIVERSITY AREAS, highest scientific designation of global biodiversity significance

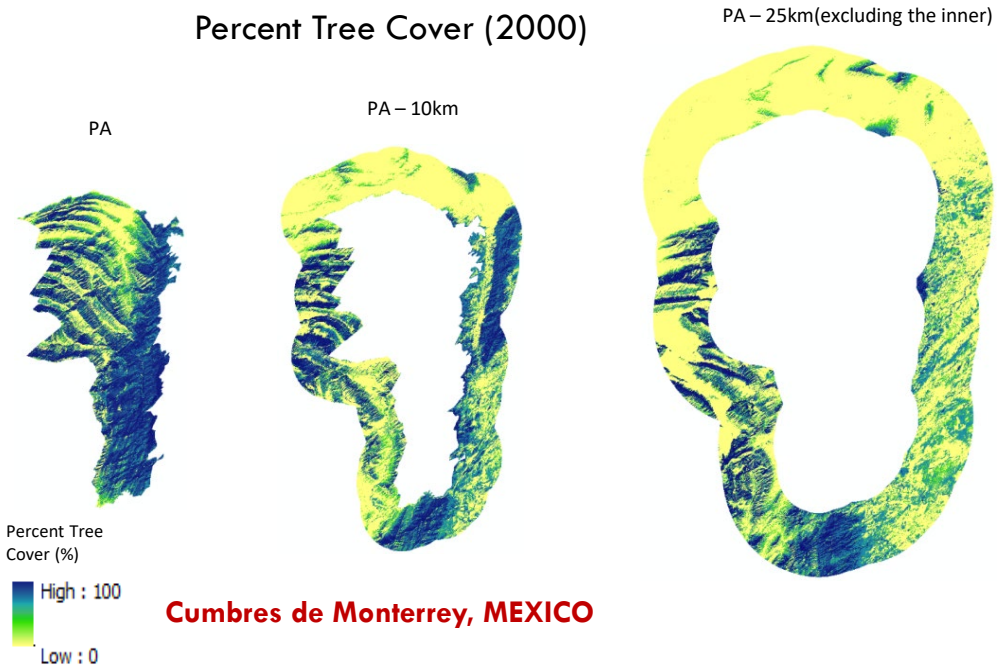


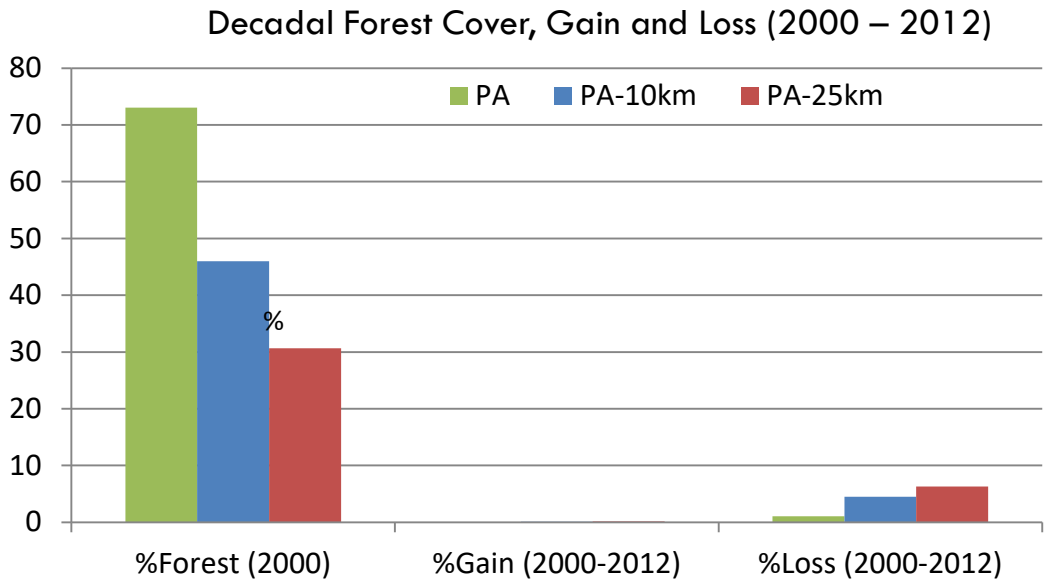
Study the impact of GEF support to 1292 global protected areas across 147 countries.

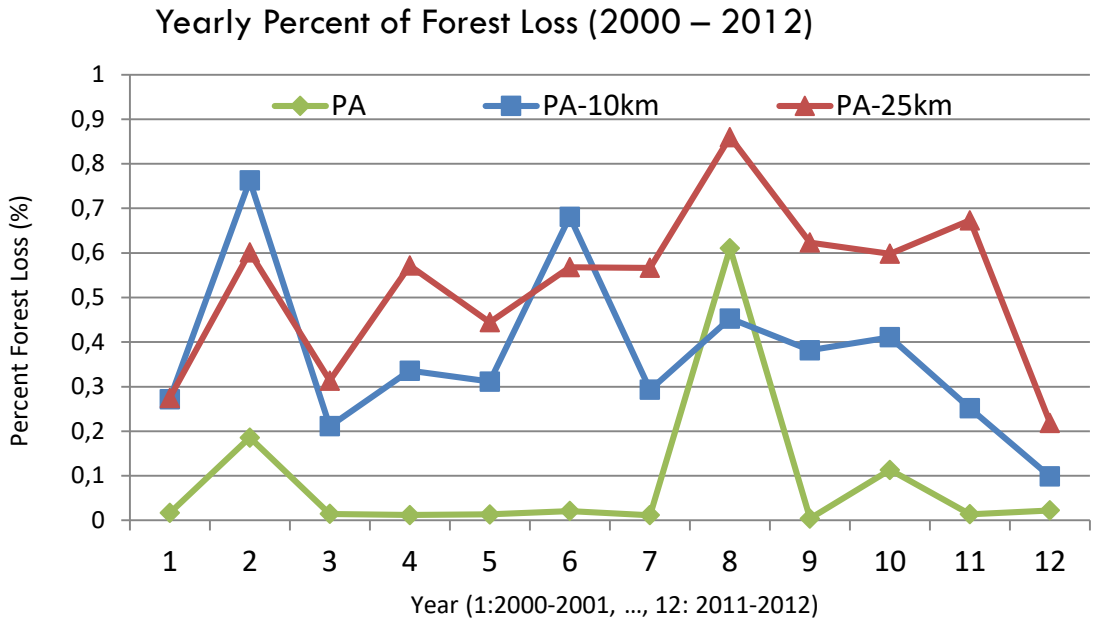
DEMONSTRATING IMPACT



Forest Cover Change Analysis

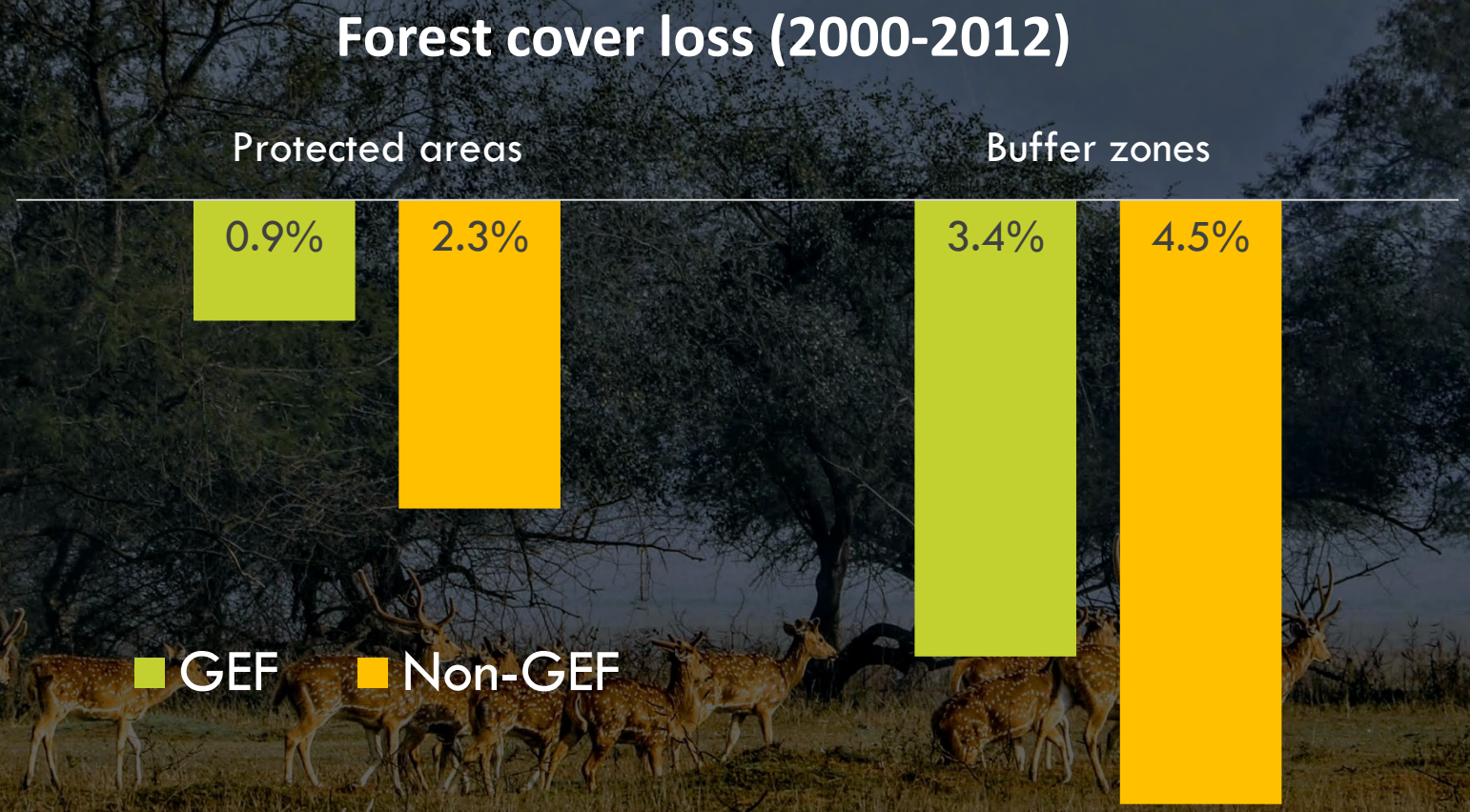






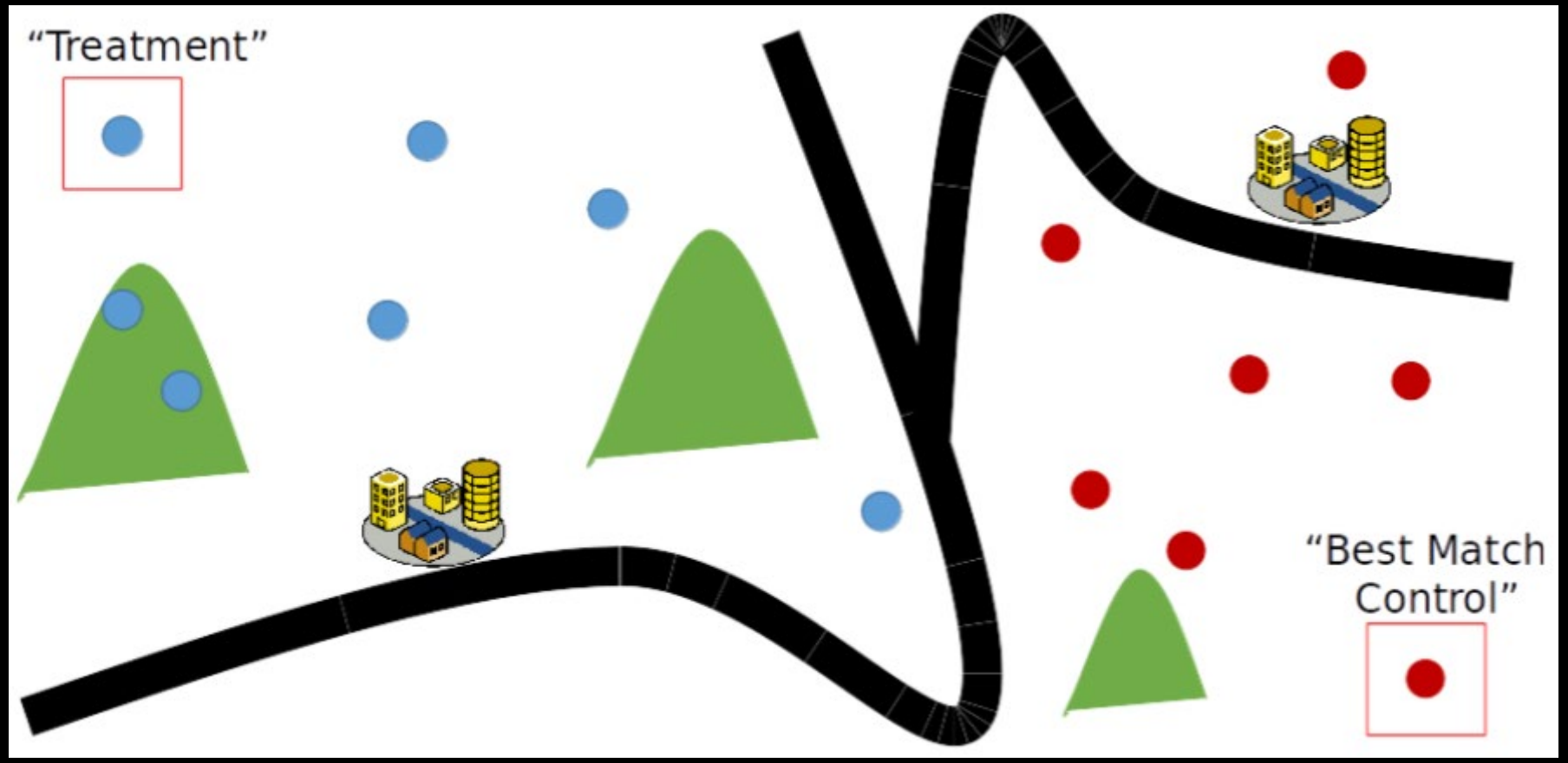
DEMONSTRATING IMPACT

Biodiversity: Global



Annual change in forest area and land under cultivation*

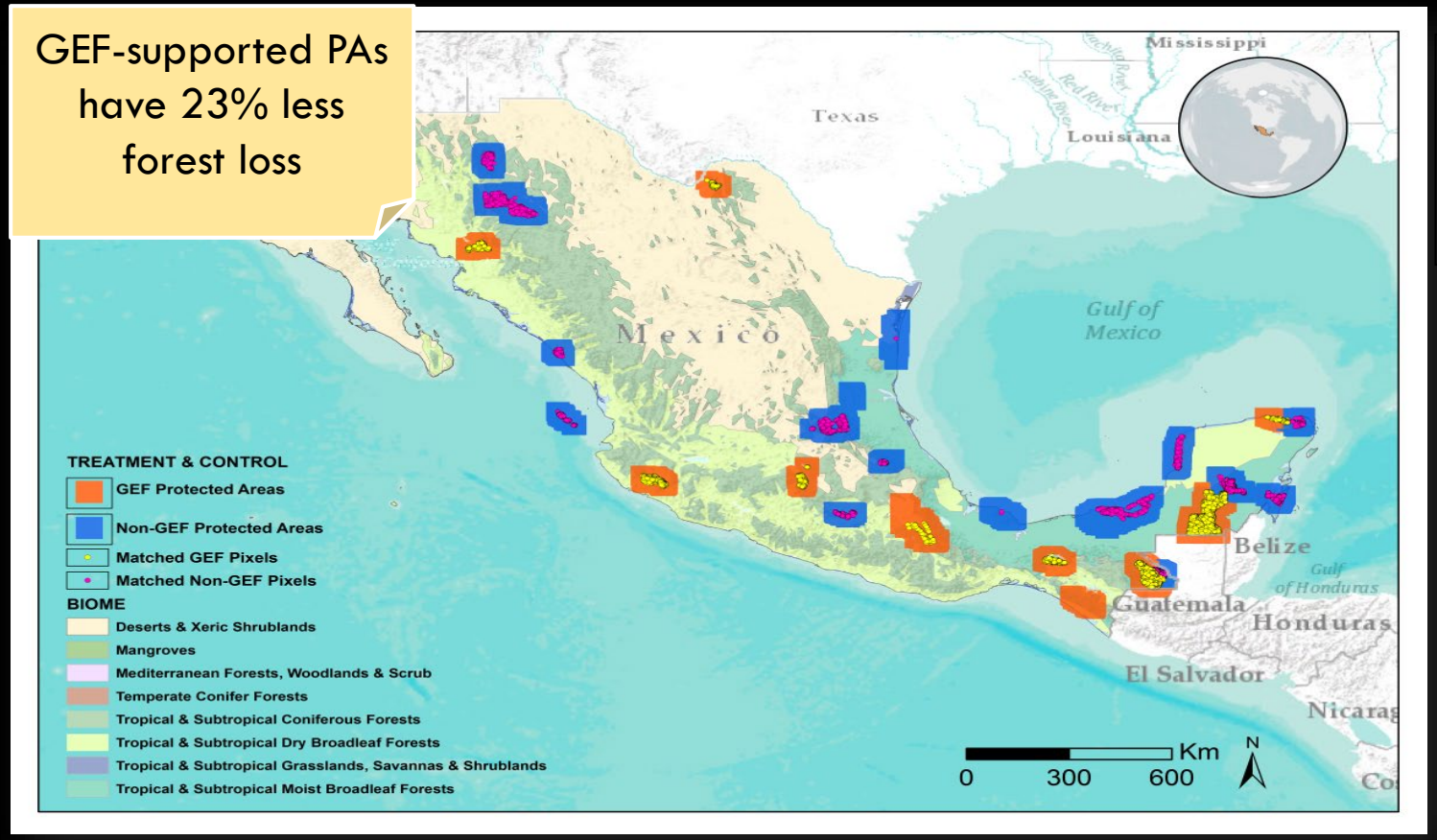
Quasi-experimental method: Propensity Score Matching(PSM)

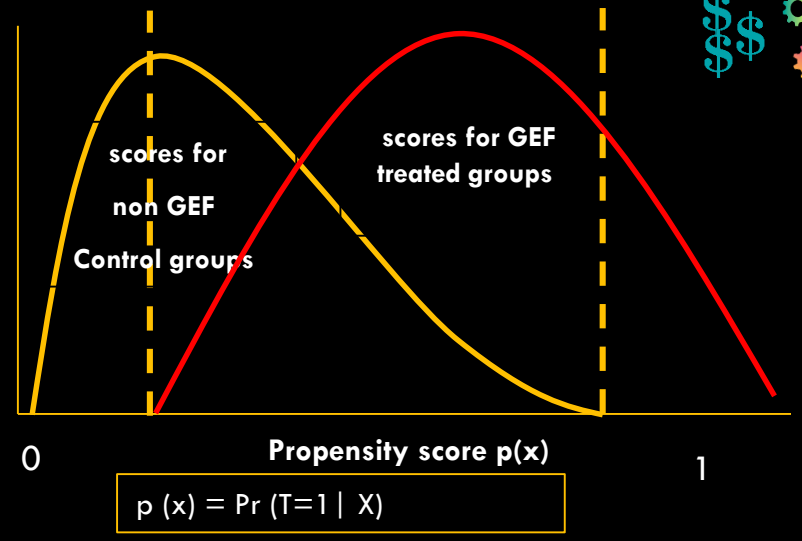


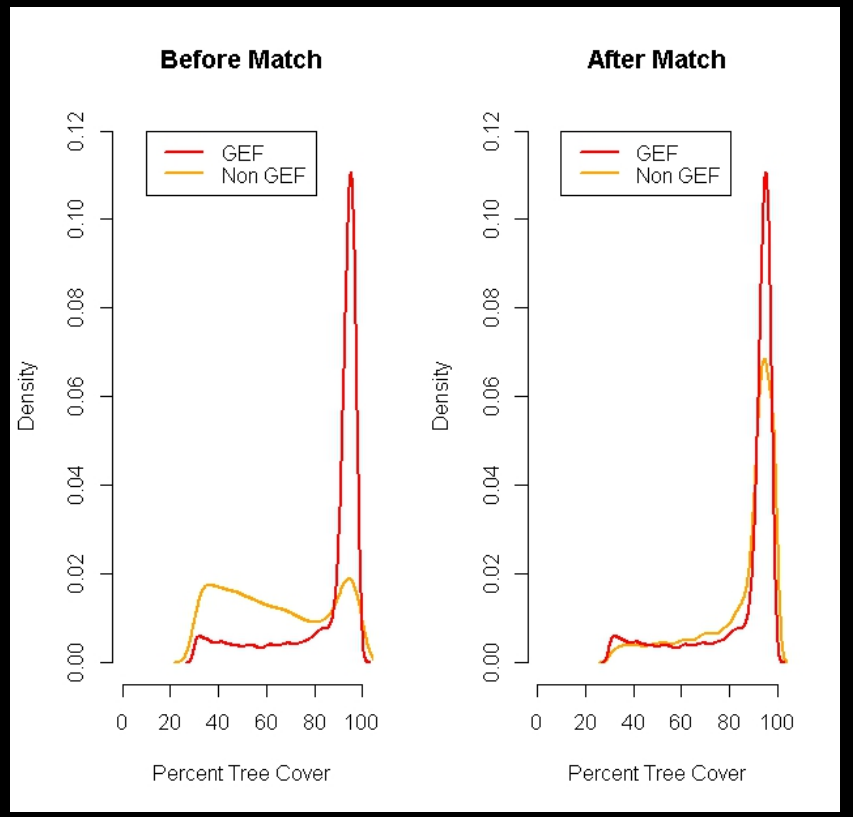
Variables that were used for matching were:

Forest Cover Percent (2000) and Forest Loss, Distance to Forest Edge, Elevation, Slope, Topographic Ruggedness Index, Land Use Suitability, Travel time to nearest major city, Distance to Road and Population Density

GEF-supported PAs have 23% less forest loss



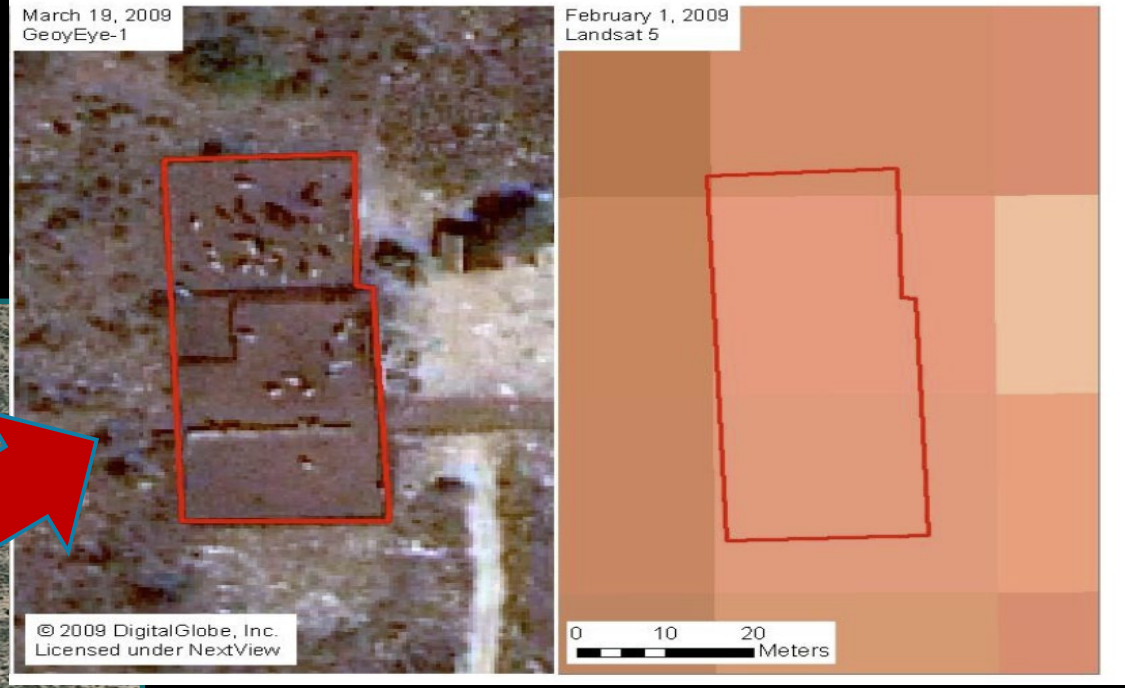




Attribution: Did the intervention cause the change?

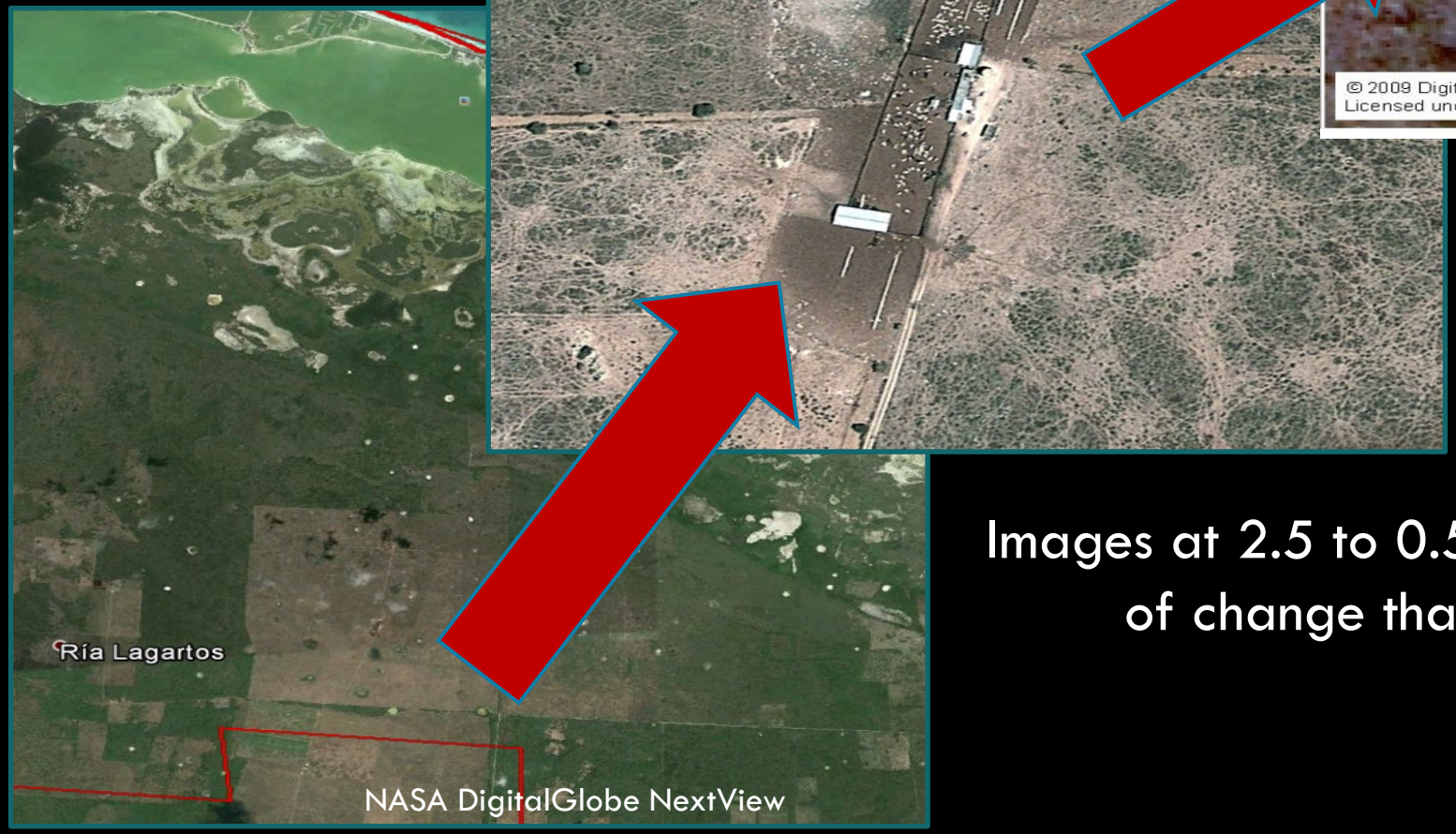
Quasi-experimental evaluation design based on PSM

Identify the drivers



2.5 m

30 m zoomed in to 2.5 m

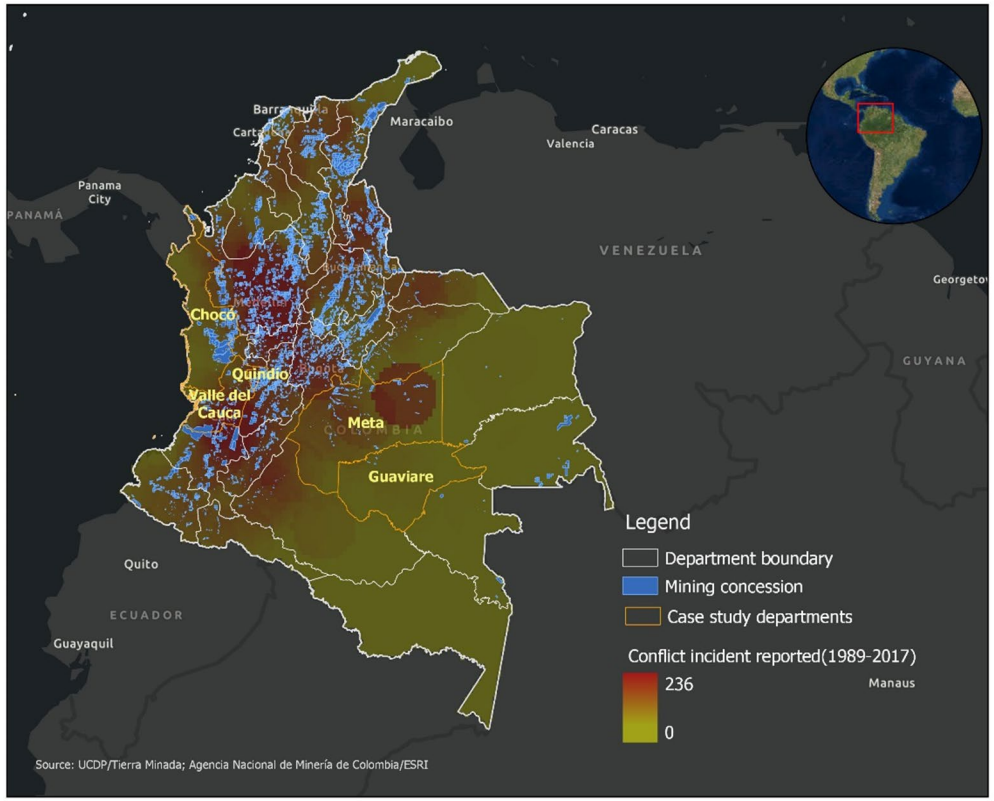


Images at 2.5 to 0.5 m resolution used to identify drivers of change that hinder success of GEF support

Analysis at scale

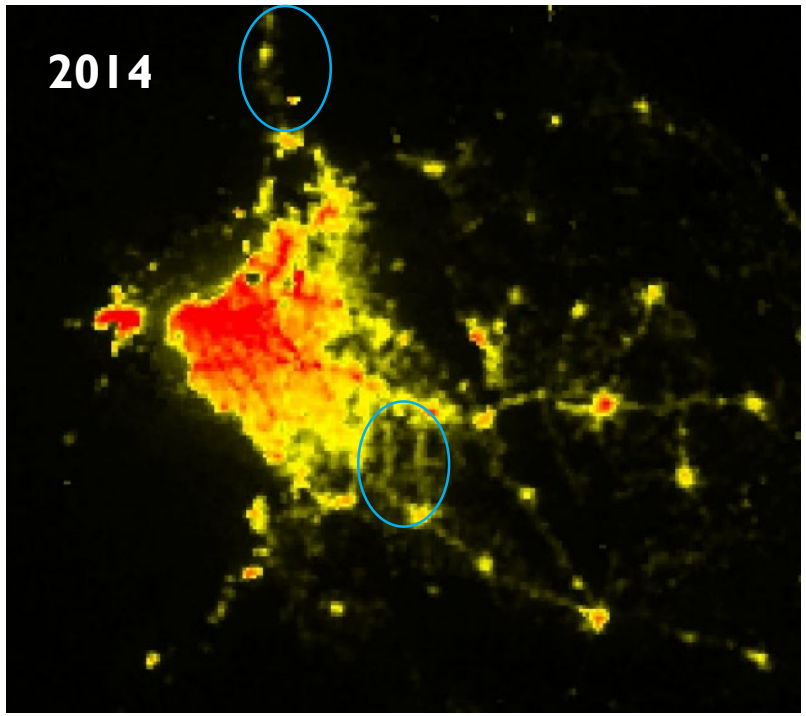
Multiplatform remote sensing with ground truthing

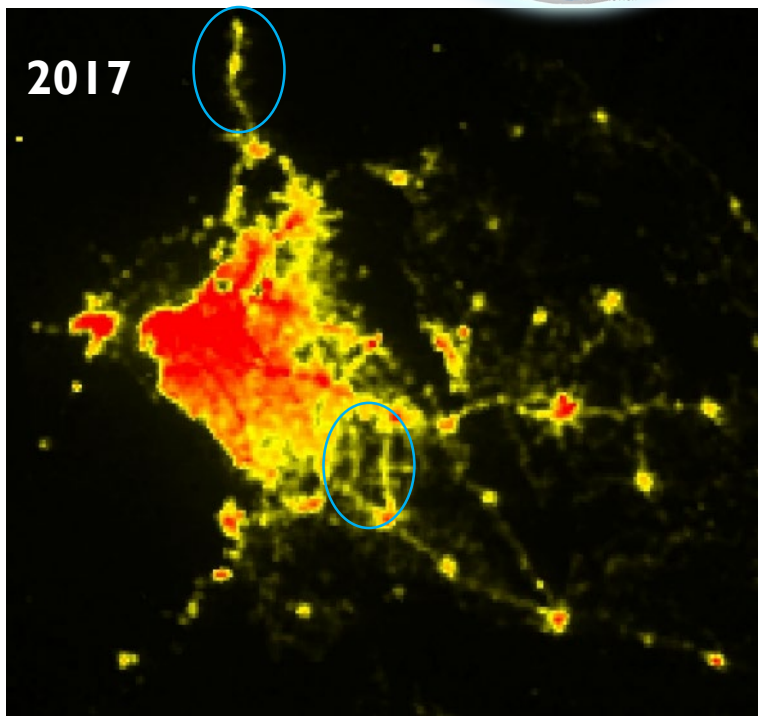
Tracking illegal mining in Chaco, Colombia



Monitoring and Evaluating development

Asuncion: VIIRS Night time light intensity





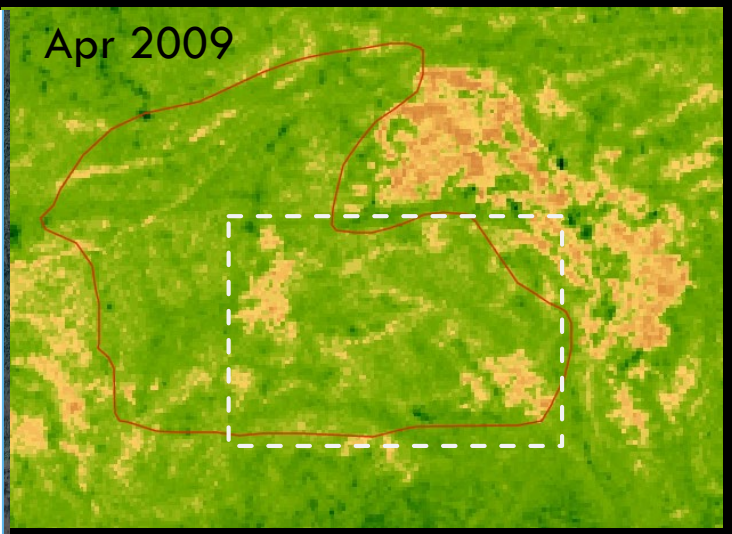
Even within a short span of 3 years one can see:

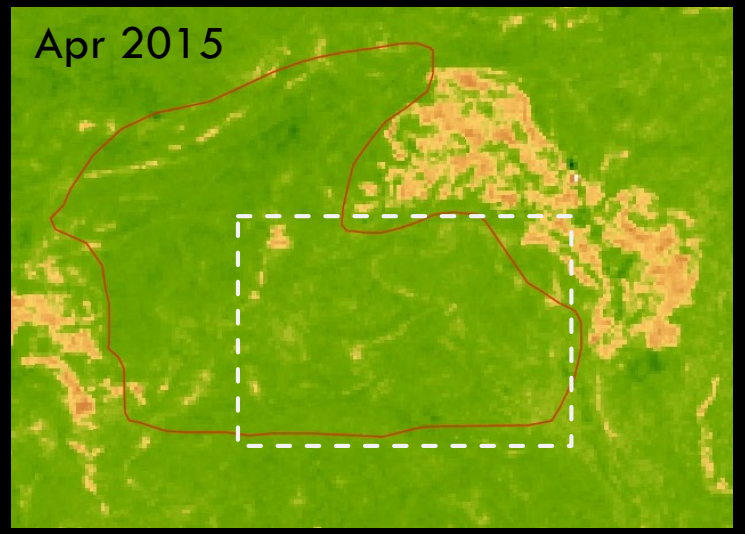
- Road network and settlement increase, particularly in north
- Increase in light intensity(red) indicates increase in building density

Beneficiary survey

Question	Response
Whats the current date and time	2016-09-18T13:27:00.000+05:30
Where is this interview taking place?	21.76722166205057 78.66110602300134 486.3959563433866 24.0
Can I take a picture?	
Name of Interviewee(s)	Premlal anke
What is your role in the project?	beneficiary
Name of Organization	Borpani
Is the project creating any positive impact in the area/region/site?	yes
Did this project contribute to better land management ?	to_a_moderate_
Has the project increased productivity in rangelands? (Y/N)	yes
Has the project allowed for creating of new jobs and livelihood?	yes
Do you believe project technicians listened to you and took your voice into account when planning or implementing the project?	to_a_moderate_
Did the project involve men and women equally?	yes
To what extent is the local community involved in the project?	to_a_moderate_

Time series analysis using Satellite data





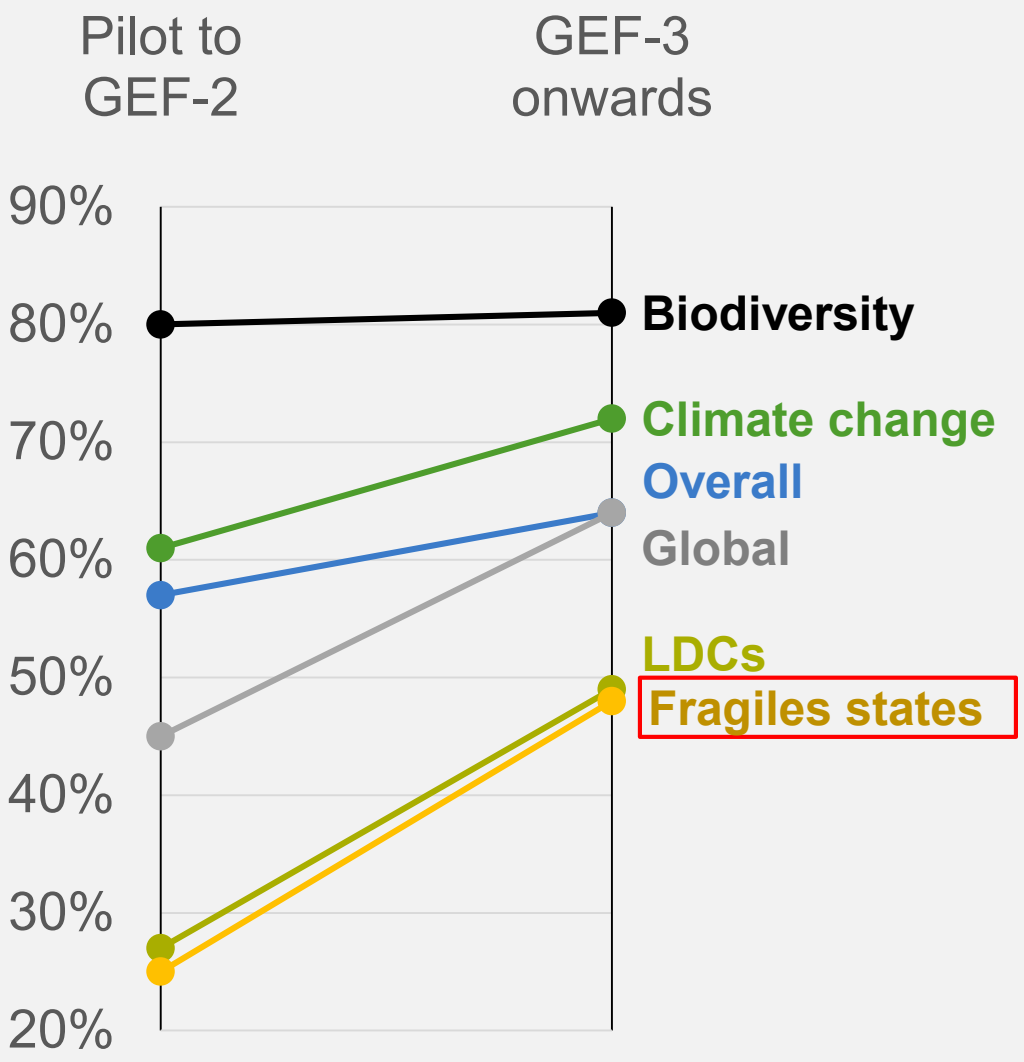
Mixed methods and triangulation of findings

Qualitative methods

- Case study
- Field visits
- Focused group interviews
- Stakeholder interviews

SUSTAINABILITY

At Project Completion (62%)



Factors

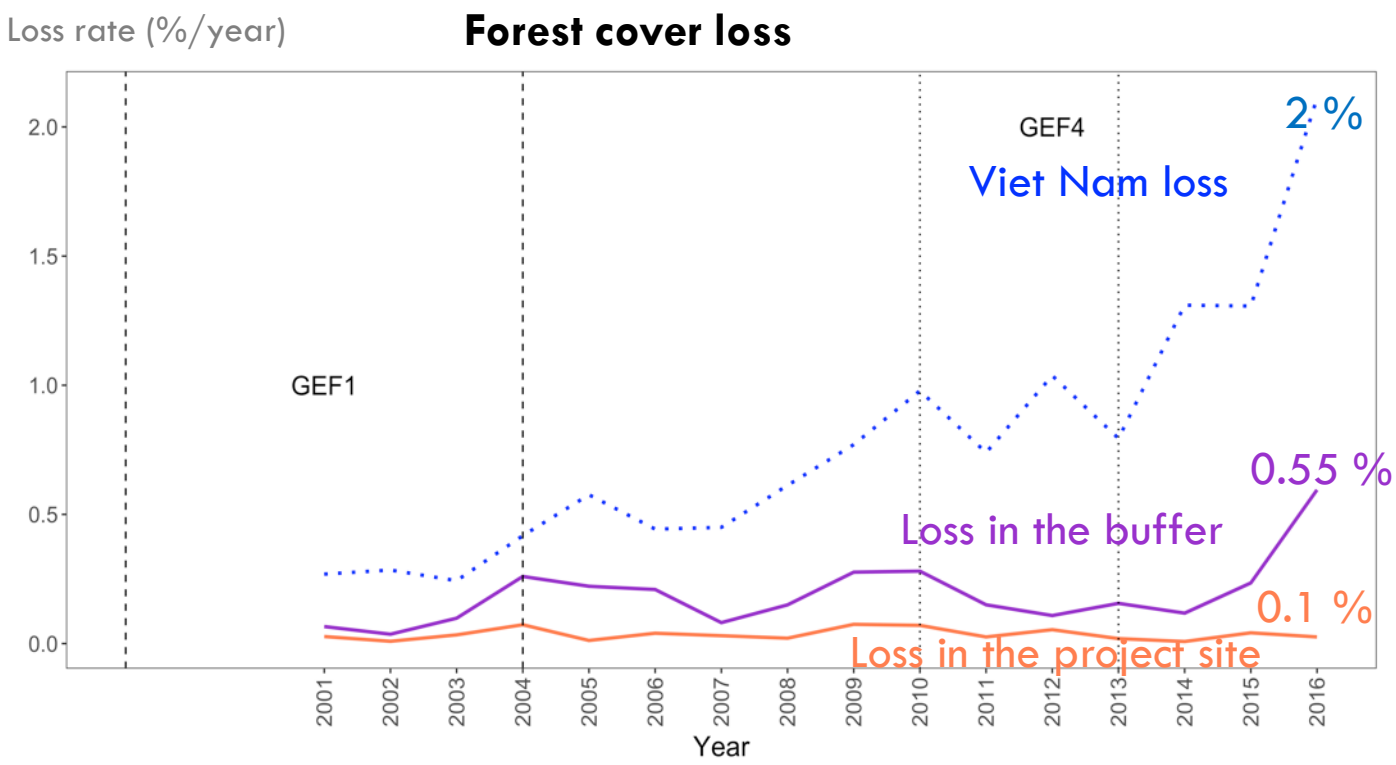
- ✓ Quality of project preparation
- ✓ Country context
- ✓ Government support
- ✓ Quality of implementation and execution
- ✓ Materialization of cofinancing

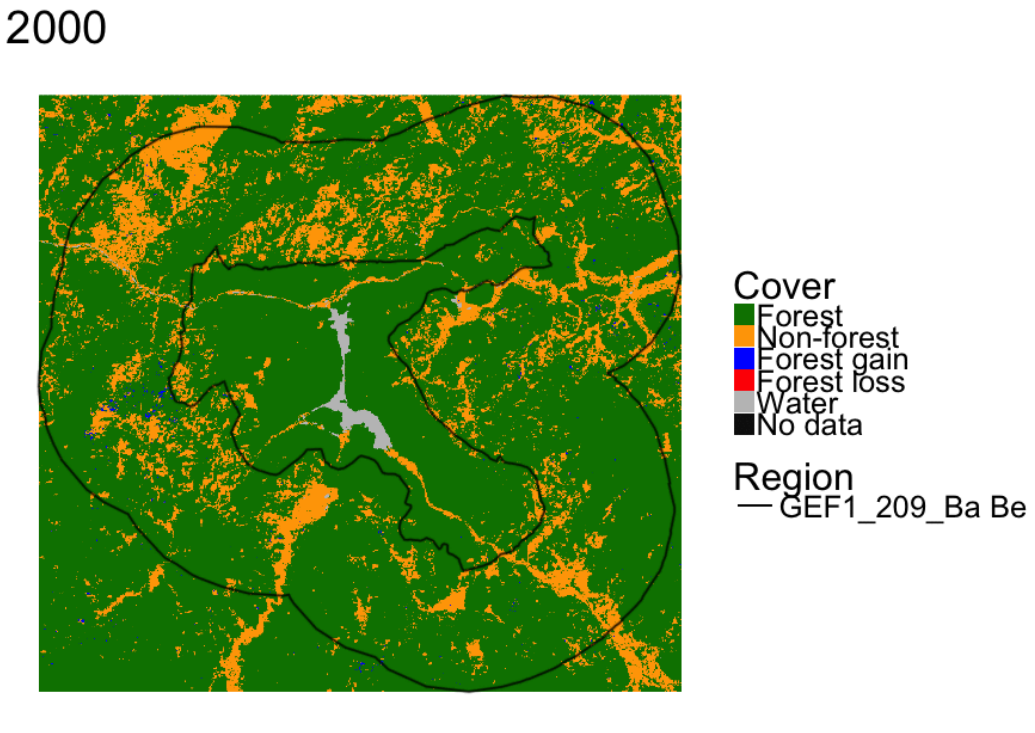
SUSTAINABILITY

Ba Be: Sustainable Forest Management, Viet Nam

SUSTAINABLE OUTCOME

Forest loss did not increase despite unprecedented increase in the buffer and at country level





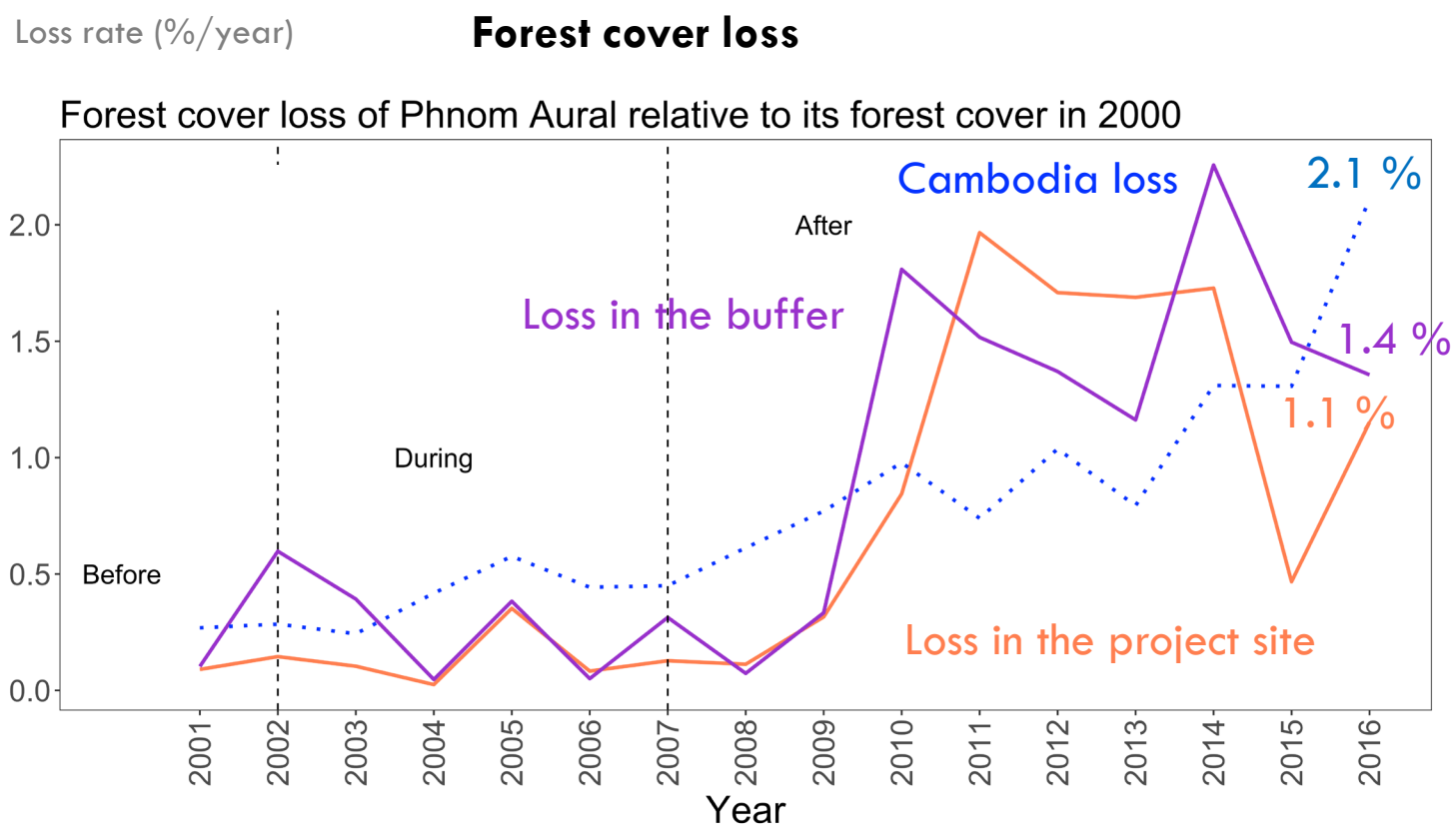
SUSTAINABILITY

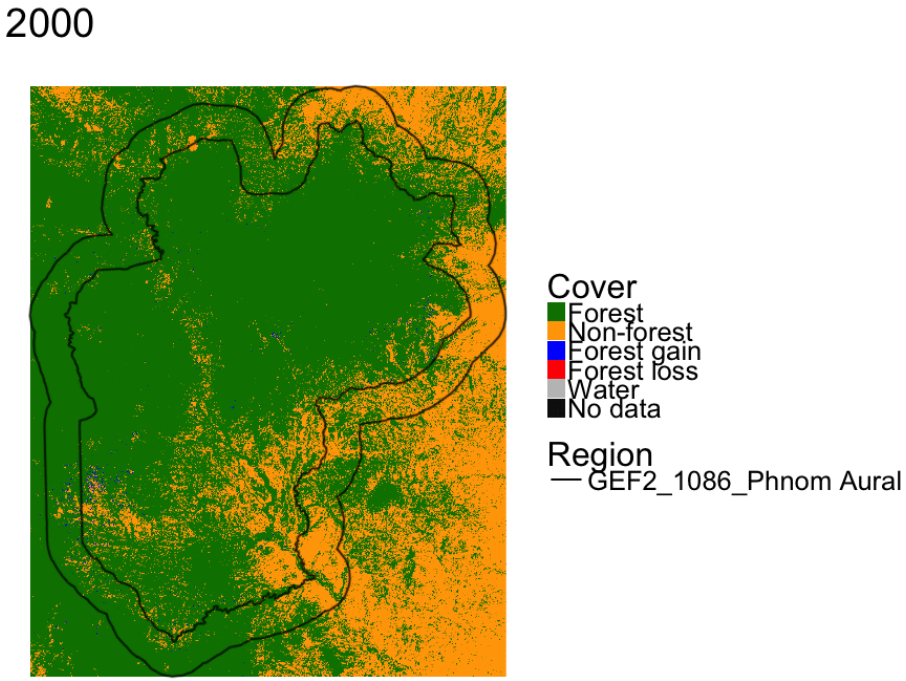
Cardamom Mountains

Integrated Protected Area System, Cambodia

NO INDICATION OF SUSTAINABLE OUTCOME

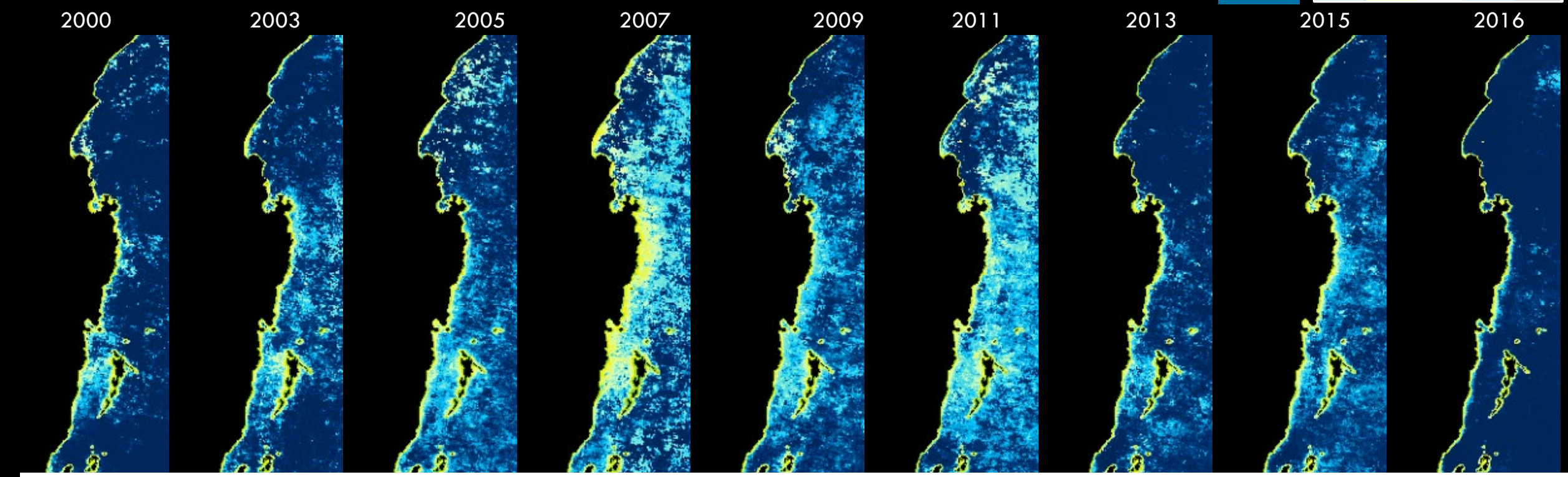
Forest loss increased at a similar rate compared to the buffer and at country level

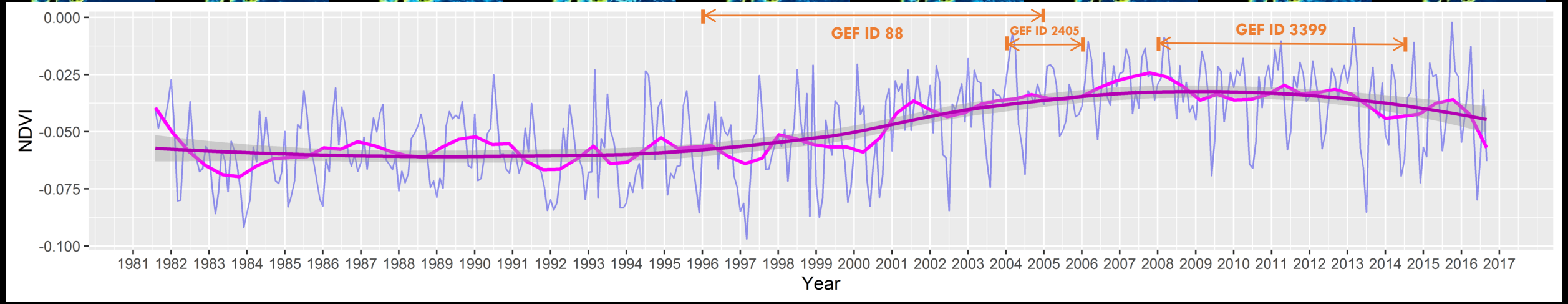




DEMONSTRATING IMPACT

International waters: Lake Victoria





Assessing the Value for Money in GEF Land Degradation Projects

Value for money analysis

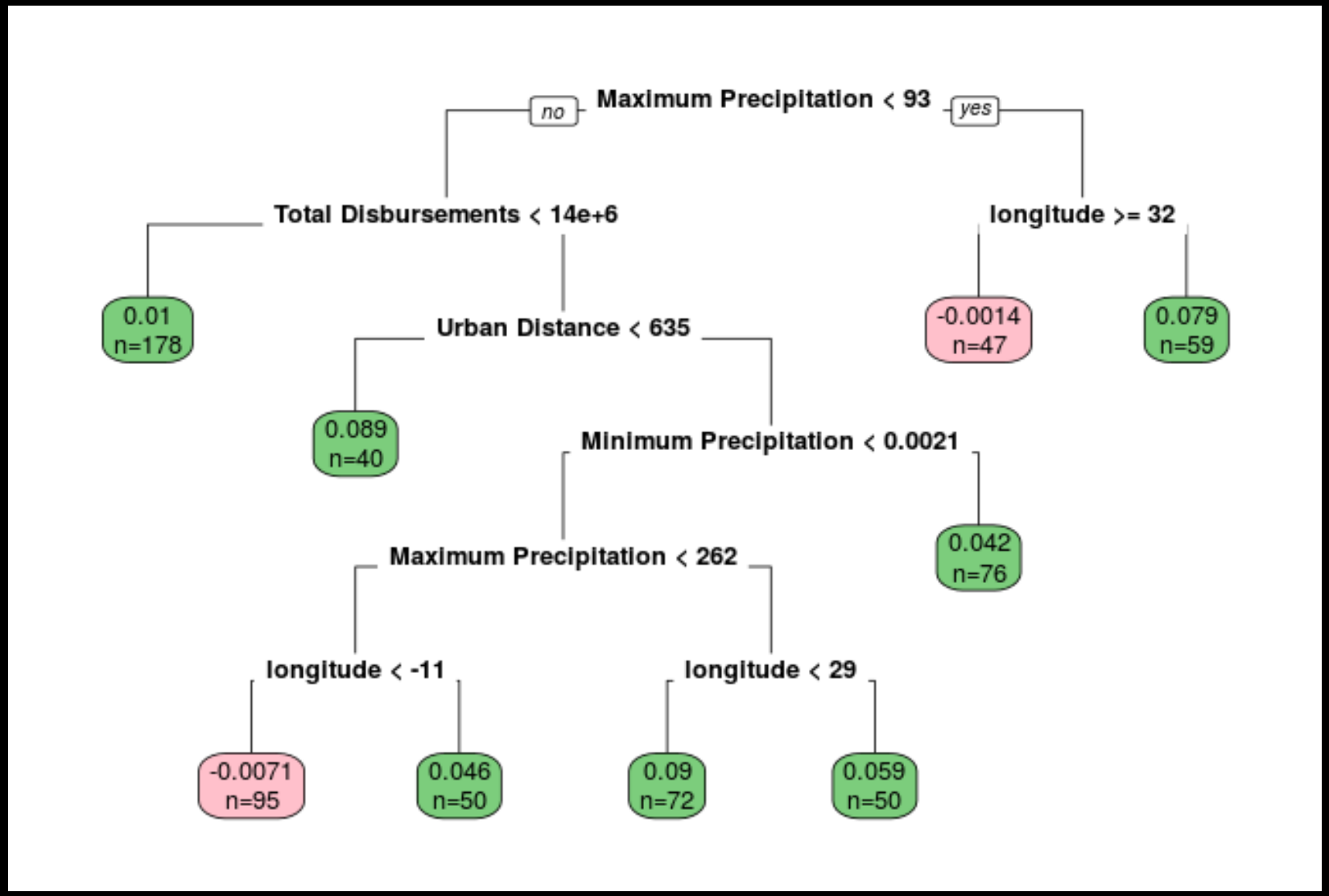
Land degradation: Global

1. What works, where, why and under what conditions? Factors associated with the outcomes

2. Value for money. In terms of carbon sequestered

LAND DEGRADATION: Geospatial data helps understand factors and heterogeneity

Machine learning and causal tree

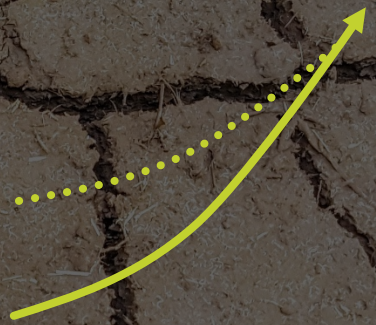


Used Indicators & sub-indicators aligned to SDG 15.3

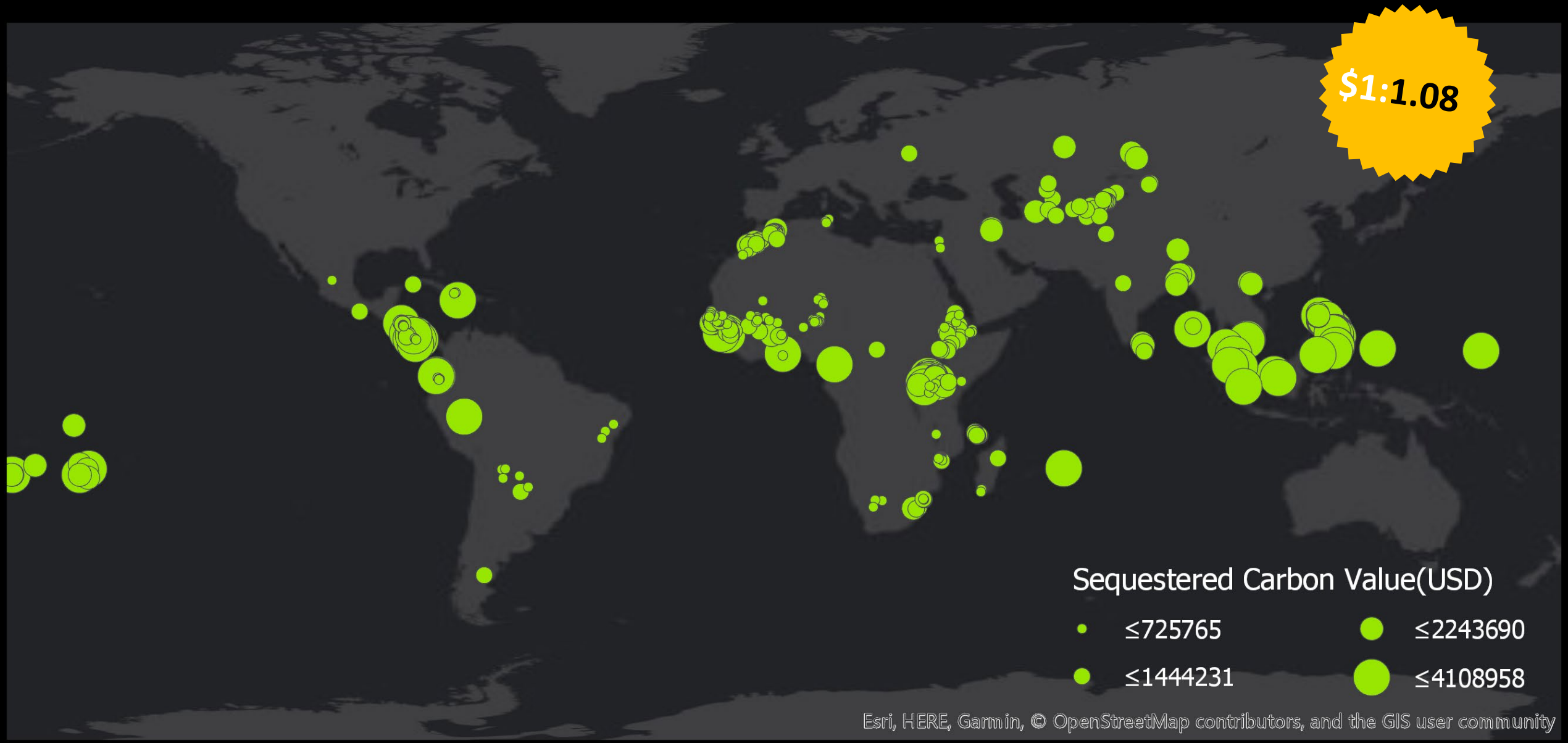
LAND DEGRADATION: Factors affecting project outcomes

Lag time of 4.5 to 5.5 years for impacts to be observed

Access to electricity associated with higher impact



Higher impact observed in areas with poor initial conditions


$1:1.08
Sequestered Carbon Value(USD)
≤725765
≤1444231
≤2243690
≤4108958
Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community

Challenges

- Need to manage costs
- Require good technical skills
- Requires multidisciplinary teams for evaluation
- Requires keeping up with dynamic learning and upgrading of skills

Lessons for the future

- Partner with global institutions and leverage open data and tools
- Leverage Geospatial methods within mixed approaches and methods-
- Variable costs which depends on scale and scope of the evaluation, type of questions, skills, partnership, software


Thank you
http://www.gefieo.org/
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