Independent Evaluation Office
GLOBAL ENVIRONMENT FACILITY

Innovations in evaluating the impact of environmental interventions

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United Nations Framework Convention on Climate Change

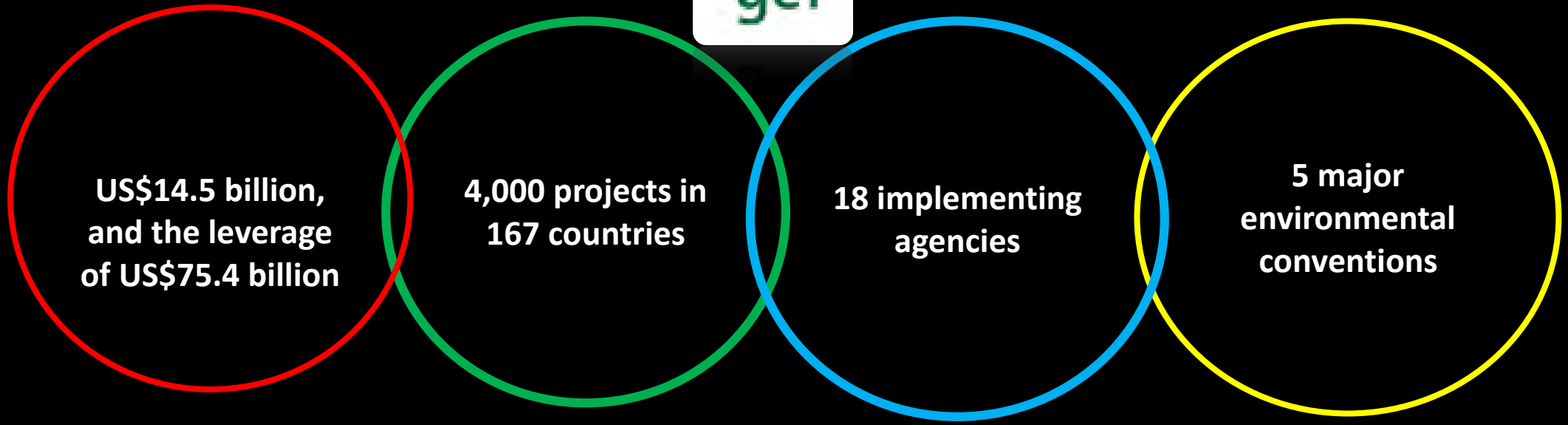
Convention on Biological Diversity

UNFF

United Nations Convention to Combat Desertification

UNEP MINAMATA CONVENTION ON MERCURY

Stockholm Convention on persistent organic pollutants (POPs)

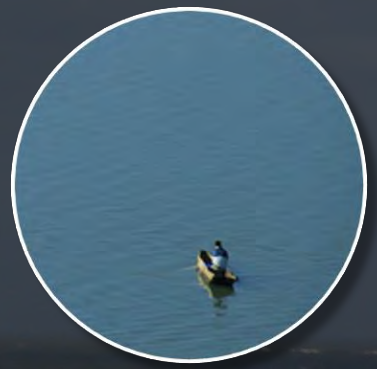


Established in 1992 | Innovator and Catalyst | Unique Partnership | Financial Mechanism

The Global Environment Facility

Thematic Areas

International Waters



Land Degradation

Biodiversity

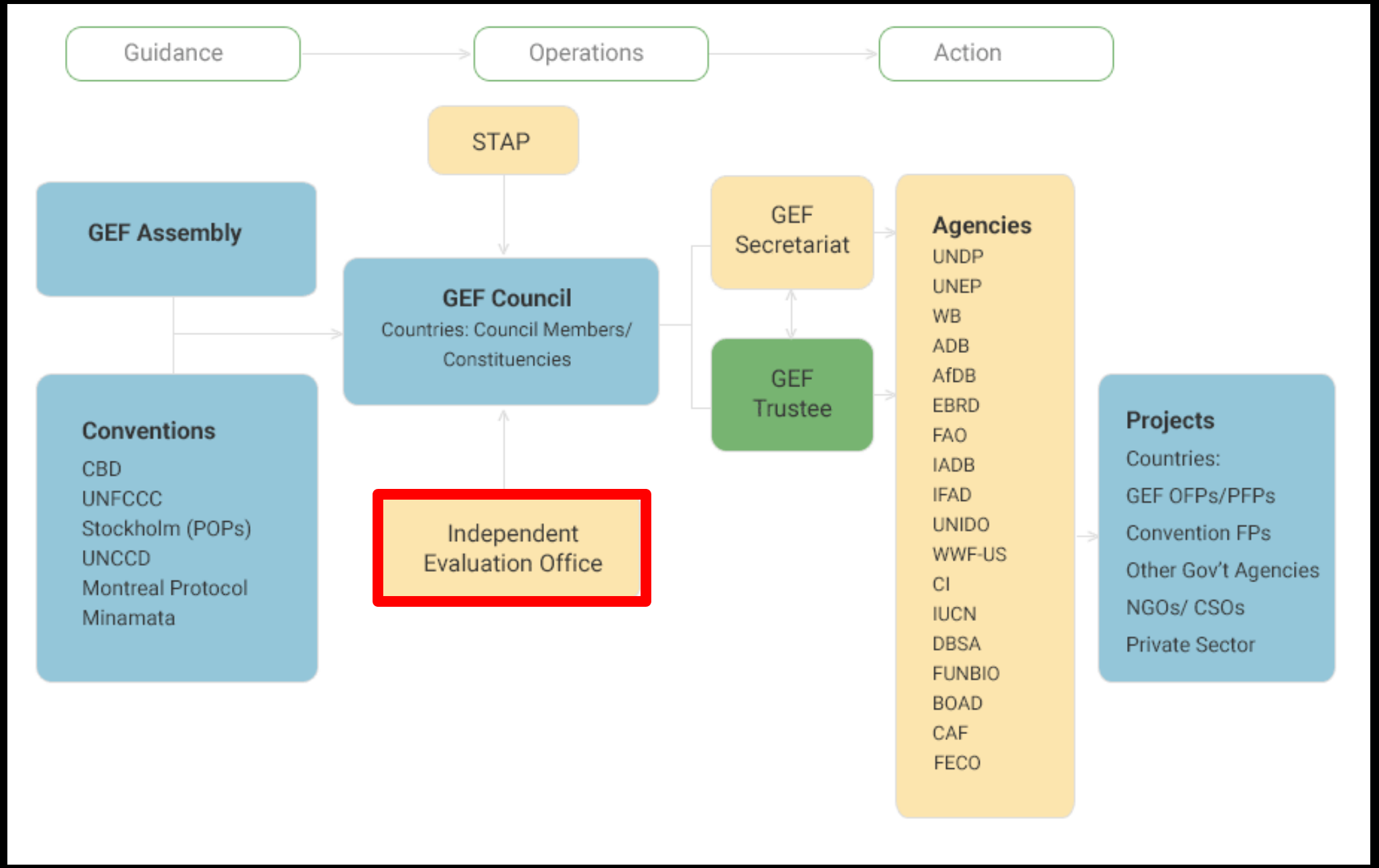
Cities

Chemical and Waste

Climate Change

Commodities

Food Security



GEF: Institutional Framework

Grants and Nongrant instruments

LOAN
Most popular

EQUITY
More prevalent recently

GUARANTEES

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Enhancing global environmental benefits through excellence in evaluation

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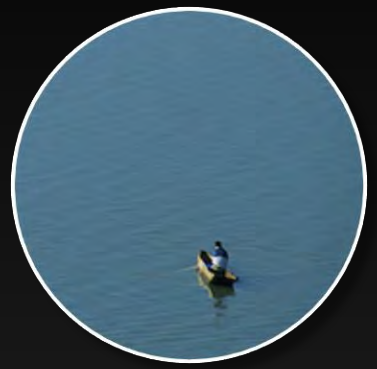
Measuring Results

Thematic Area Specific tracking tools and indicators



Reduced nutrient load

Marine protected areas (ha)

Chemical Use

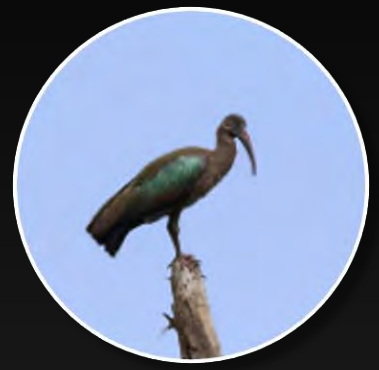
Environmental management

Area under SLM

Area restored

GHG Emissions Avoided

Number of beneficiaries



Management Effectiveness(METT)

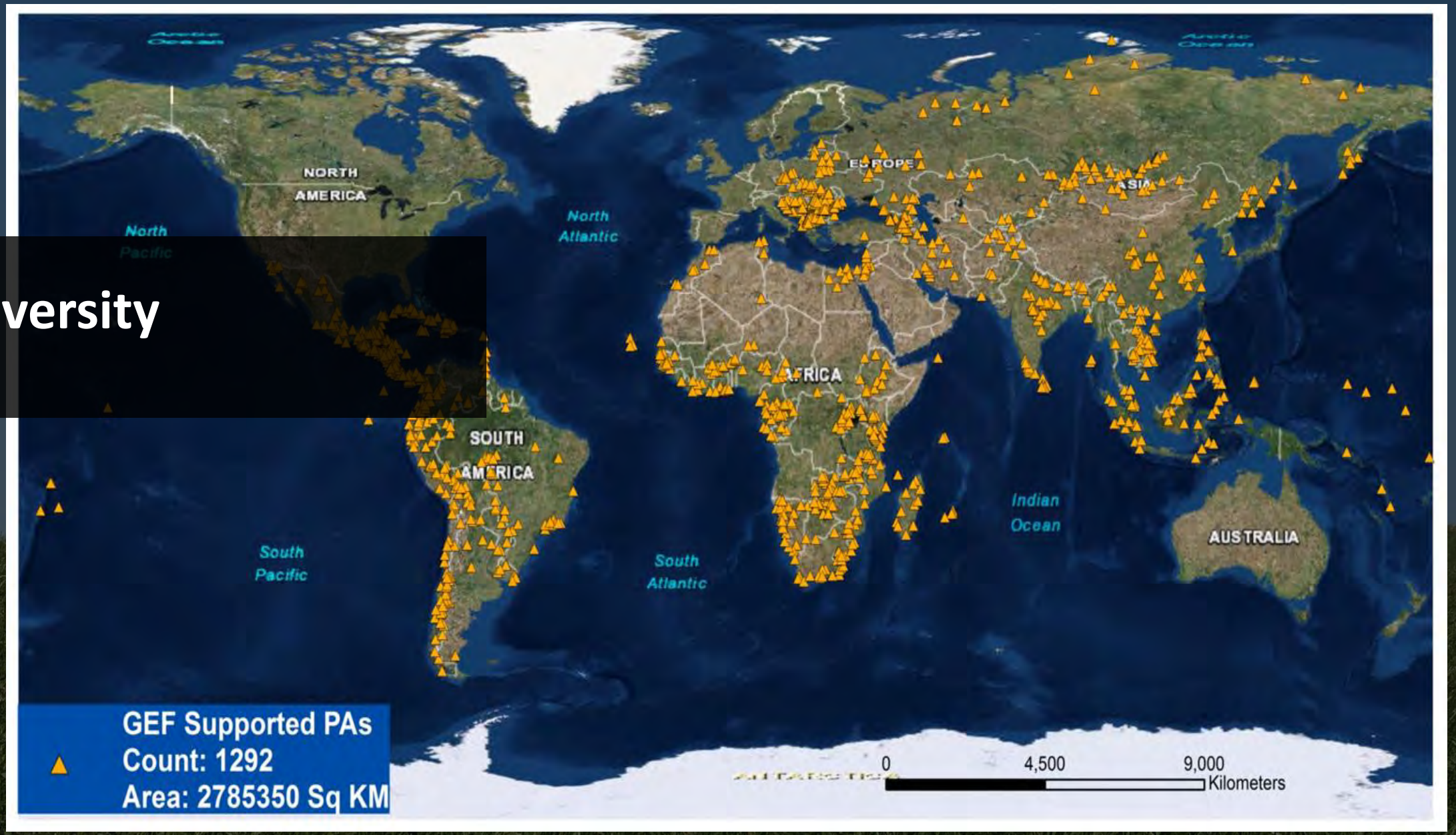
PA coverage

…..Indicators have limitations

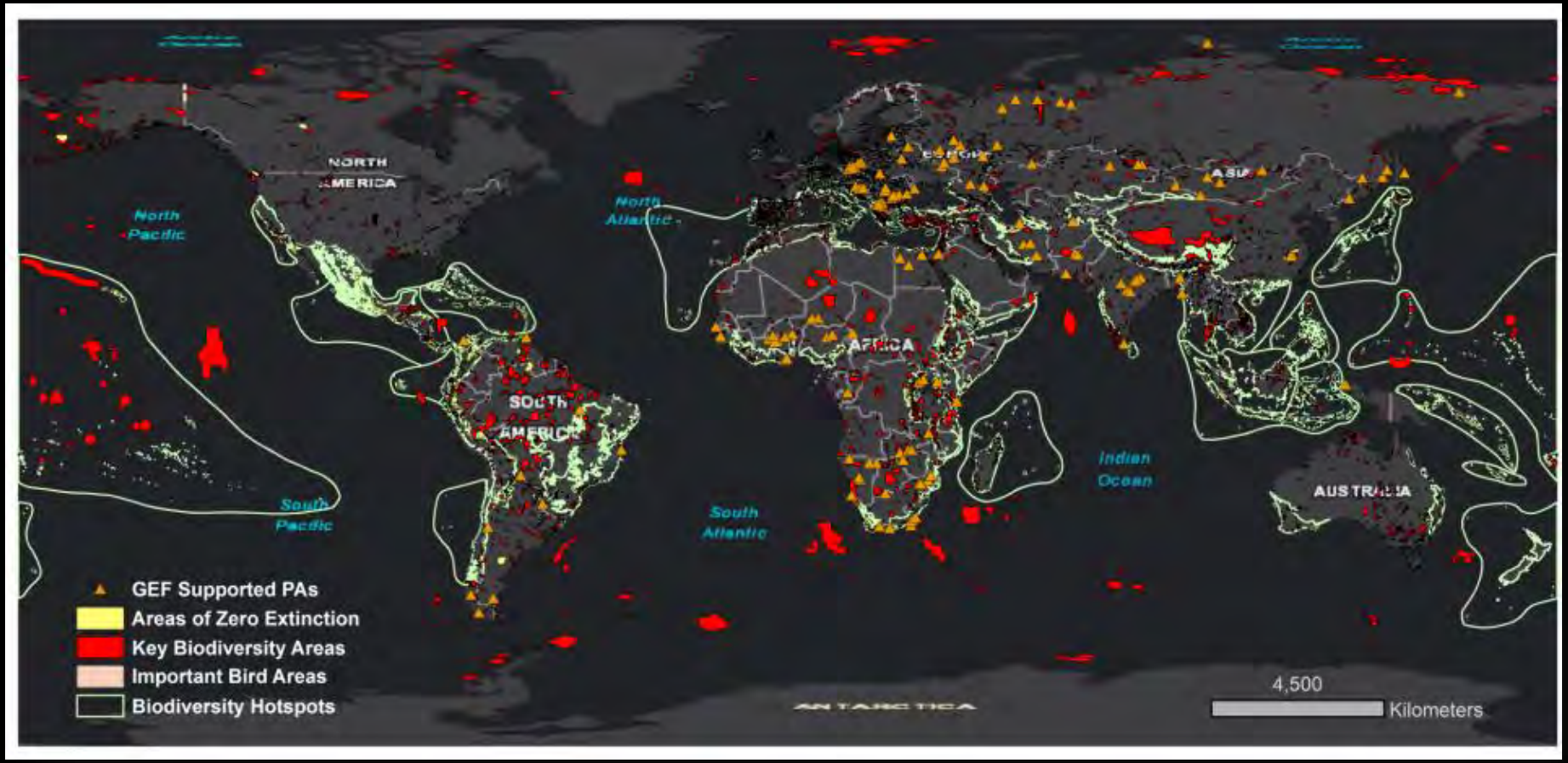
Questions we seek to answer through evaluation

- Relevance of the intervention—is it in the right context?
- Trends in performance and impacts going far back in time…even if we didn't have baseline data?
- Attribution: Did the GEF make a difference? – counterfactuals
- Does the intervention deliver value for money?

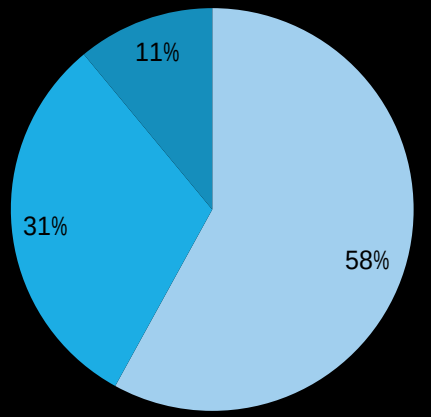
Biodiversity



Biodiversity: Relevance



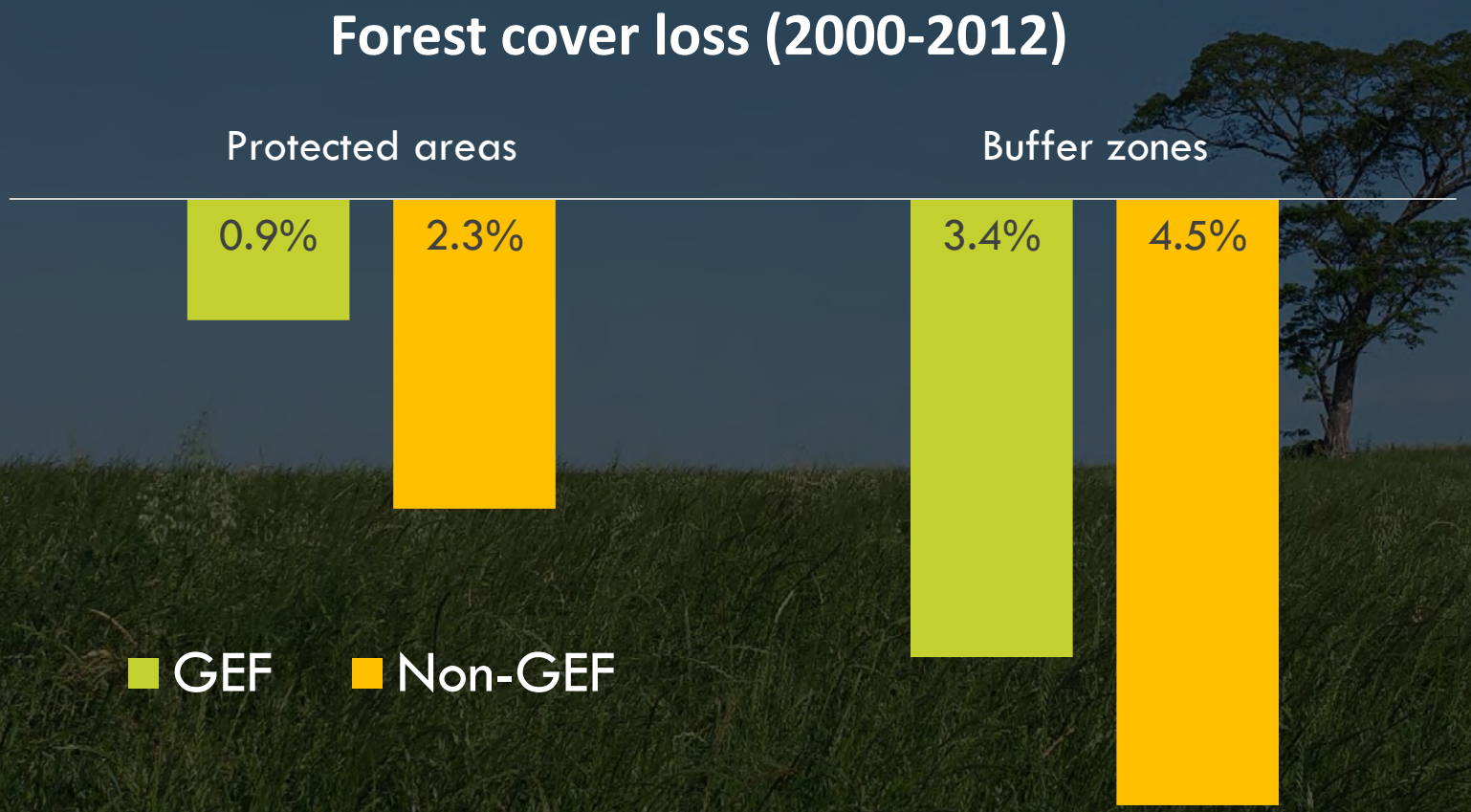
KEY BIODIVERSITY AREAS, highest scientific designation of global biodiversity significance



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

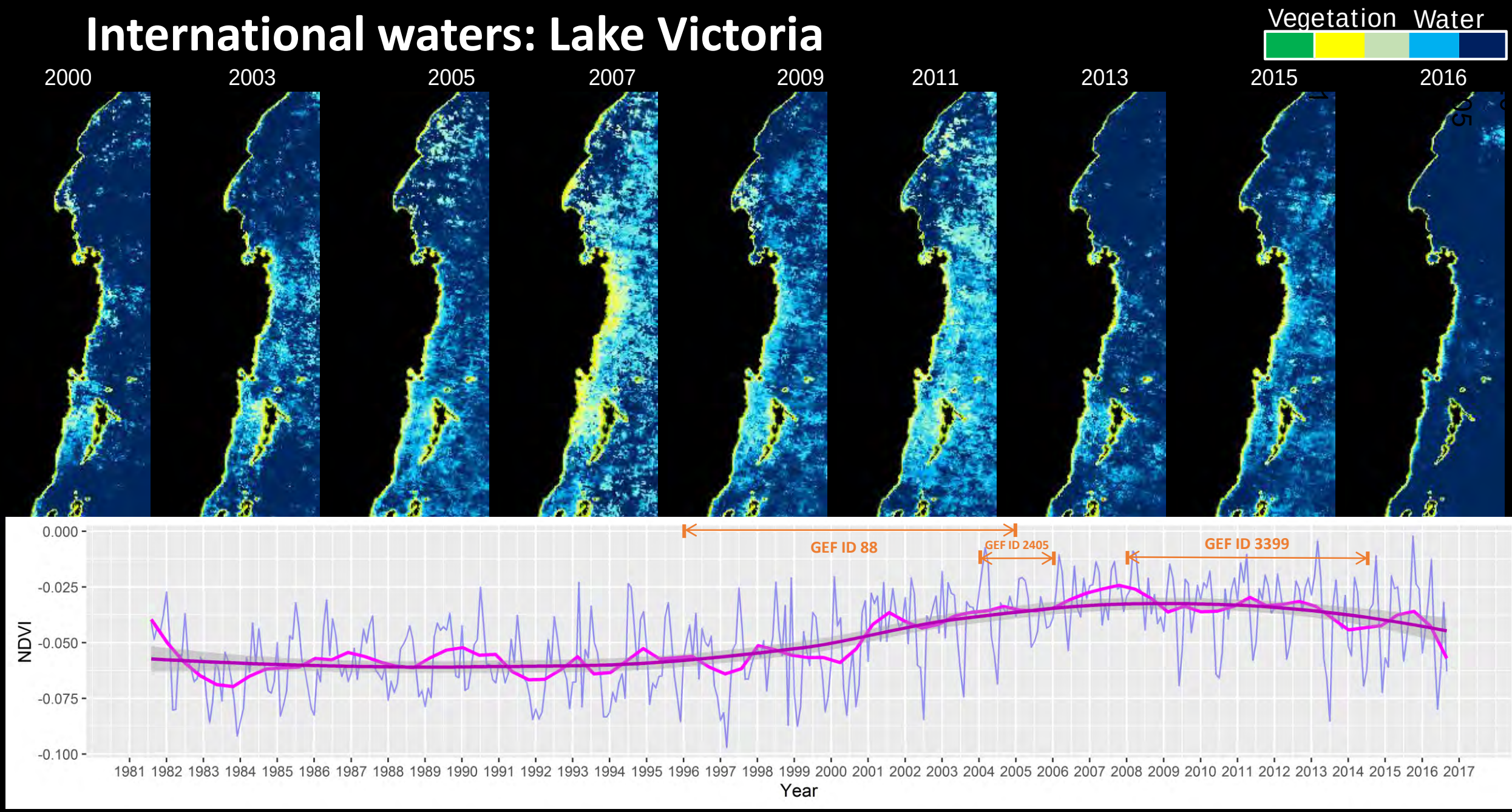
DEMONSTRATING IMPACT

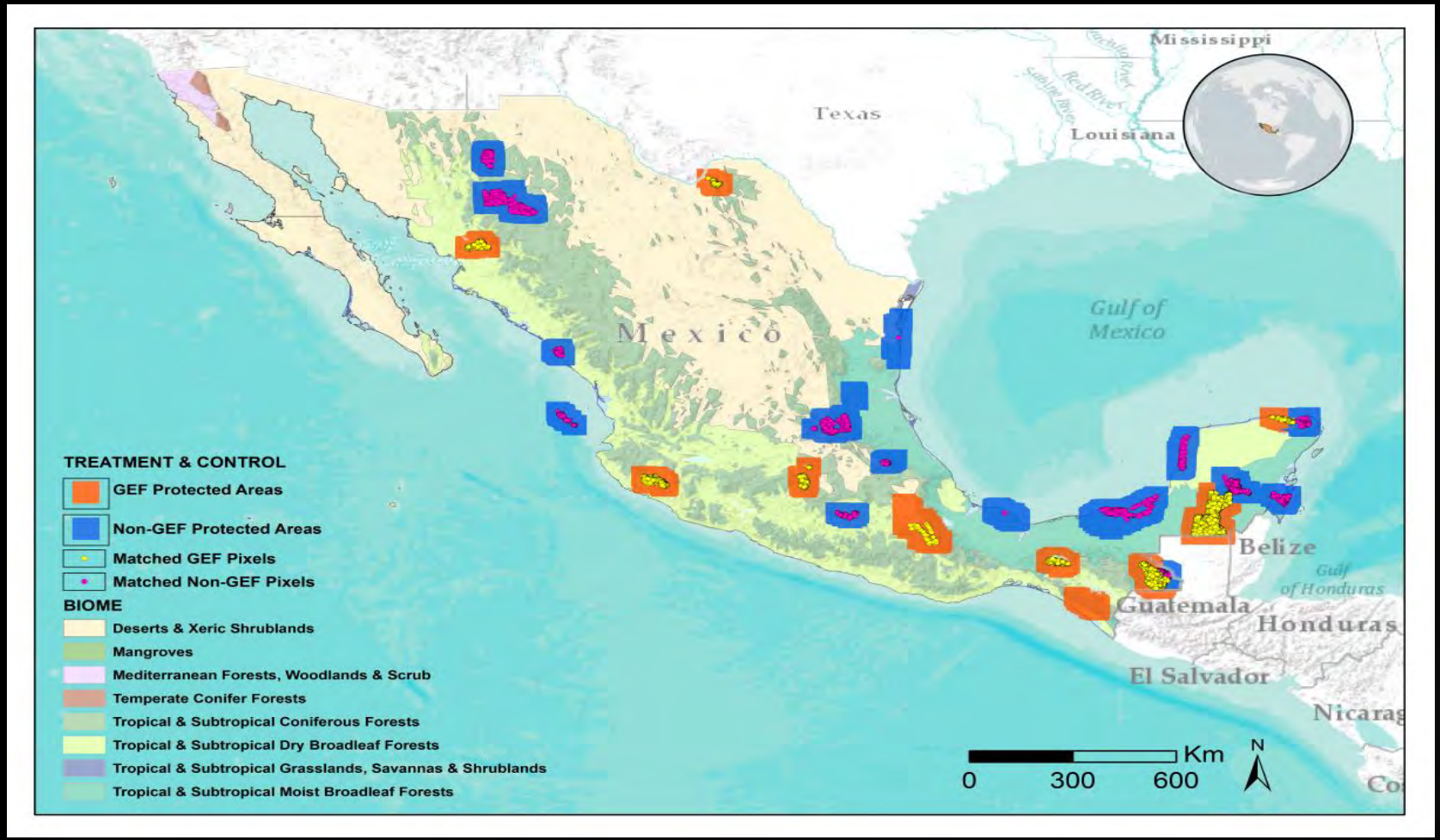
Biodiversity: Global

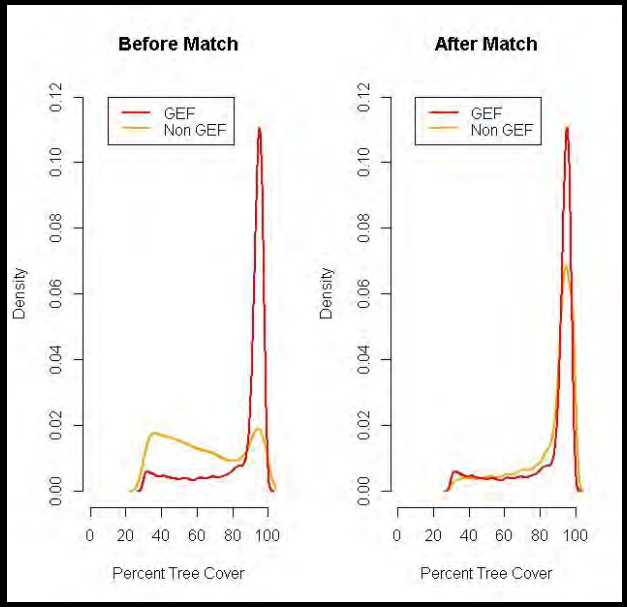


DEMONSTRATING IMPACT

International waters: Lake Victoria





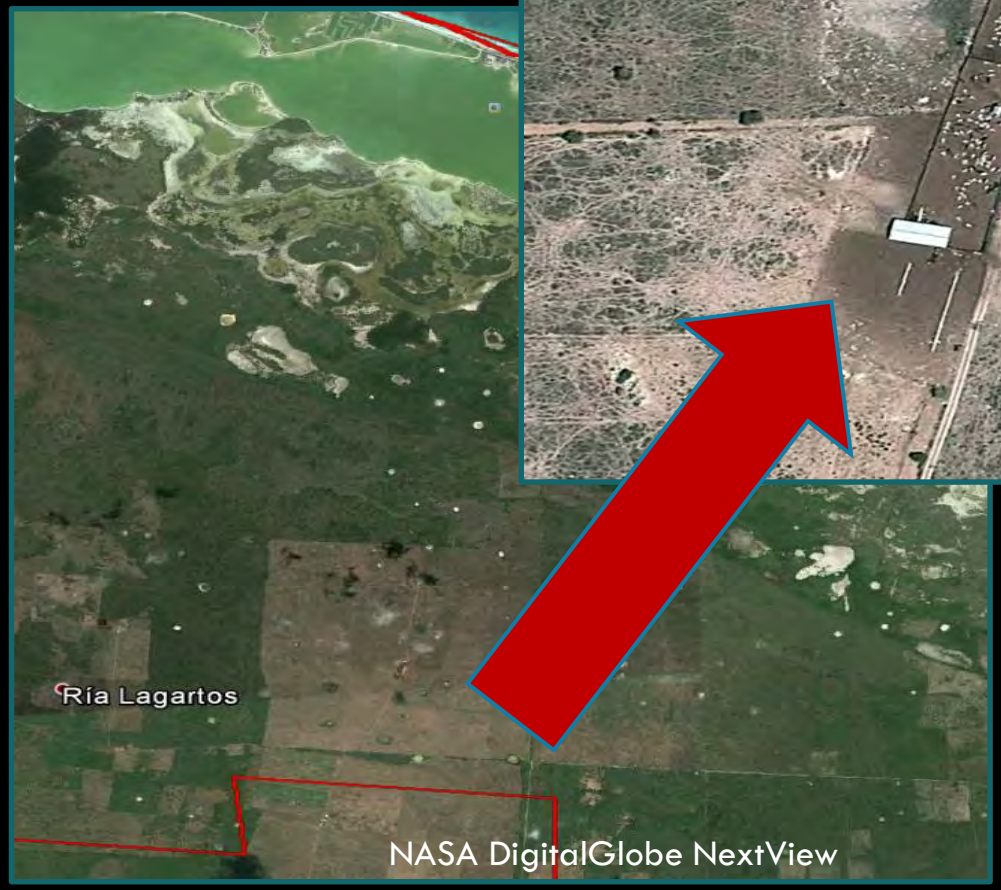


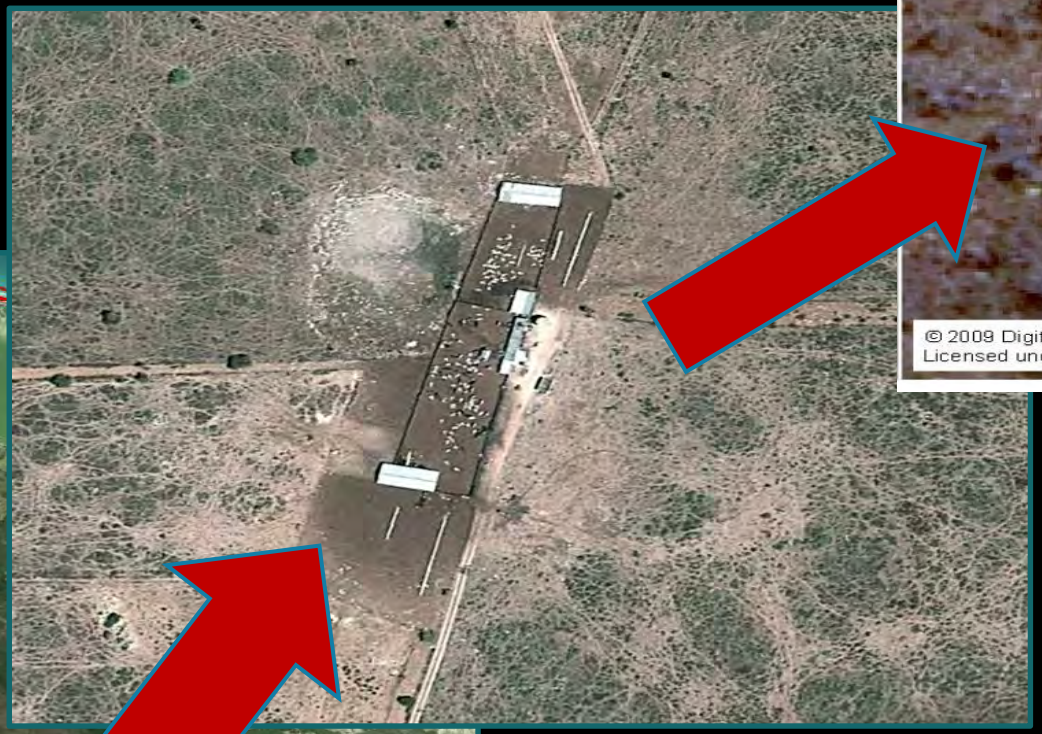
GEF-supported PAs have 23% less forest loss

Attribution: Did the intervention cause the change?

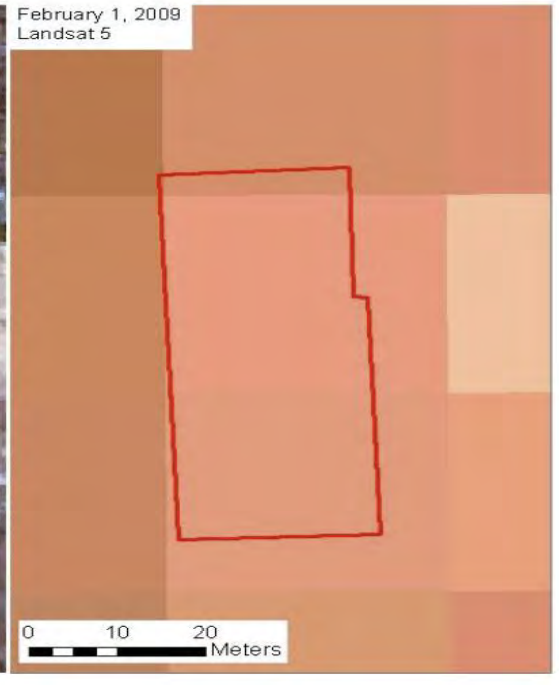
Quasi-experimental evaluation design based on Propensity score matching

Identify the drivers



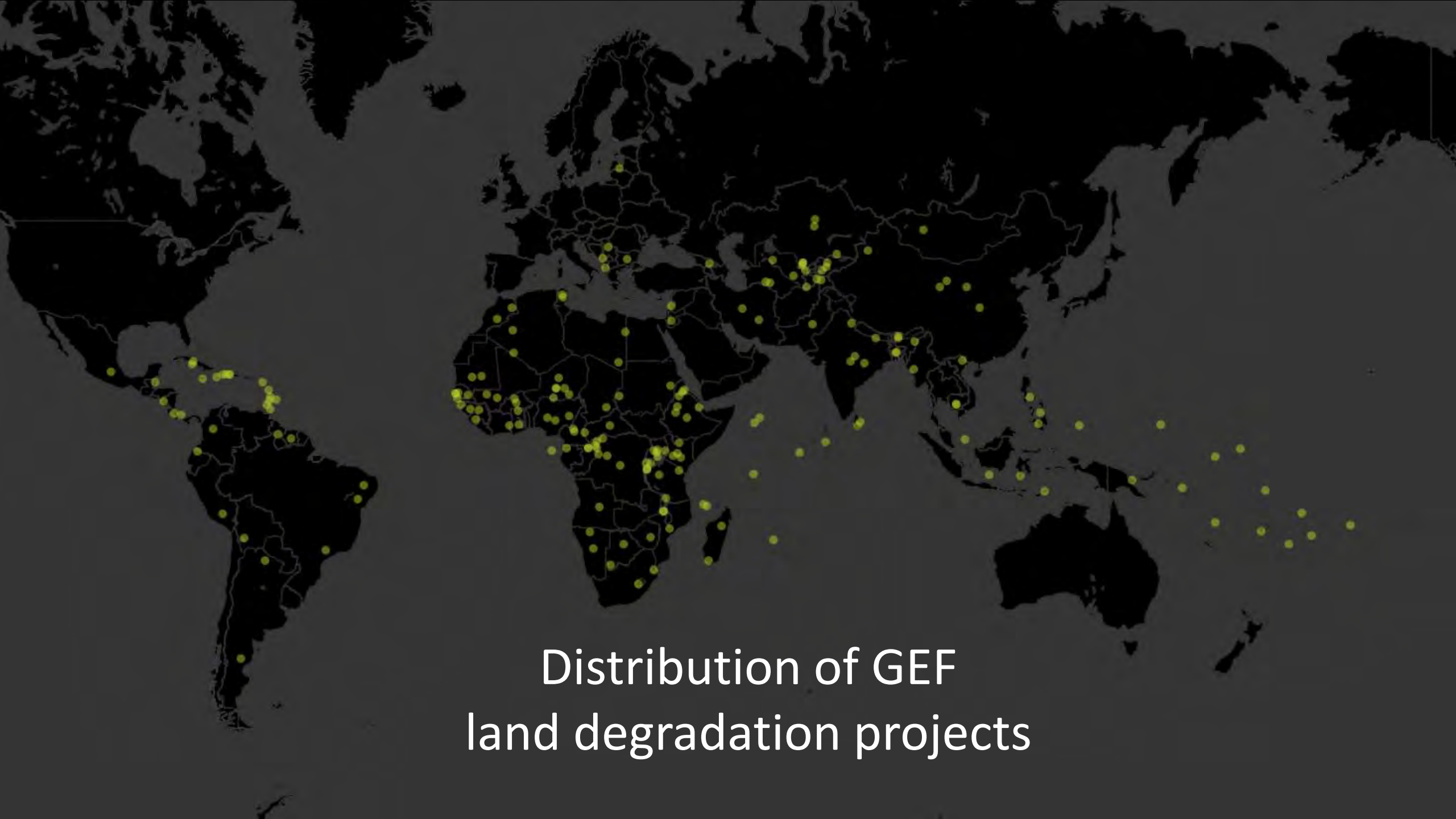


2.5 m



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

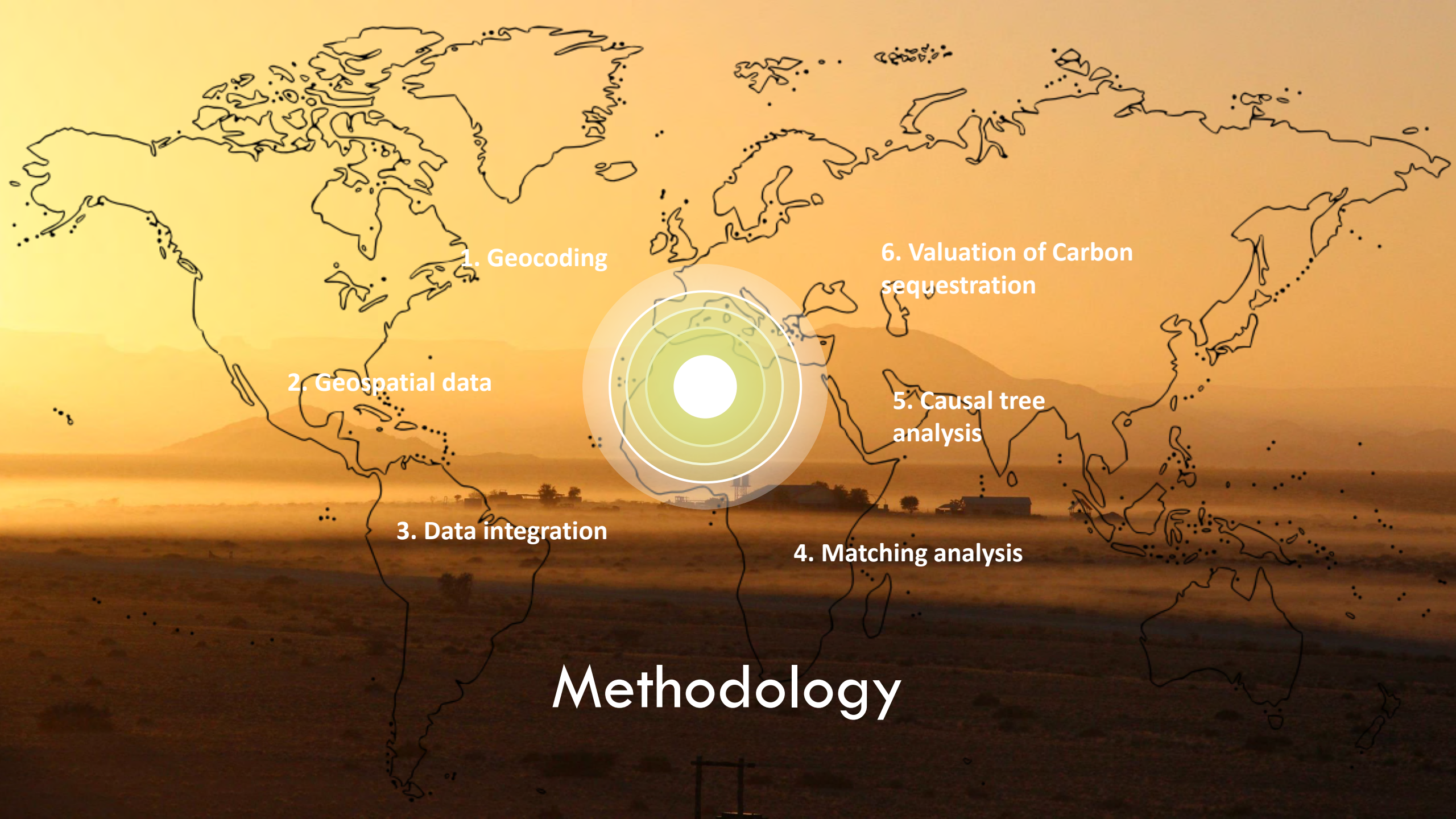


Distribution of GEF
land degradation projects

LAND DEGRADATION

Value for money analysis: 3 main objectives

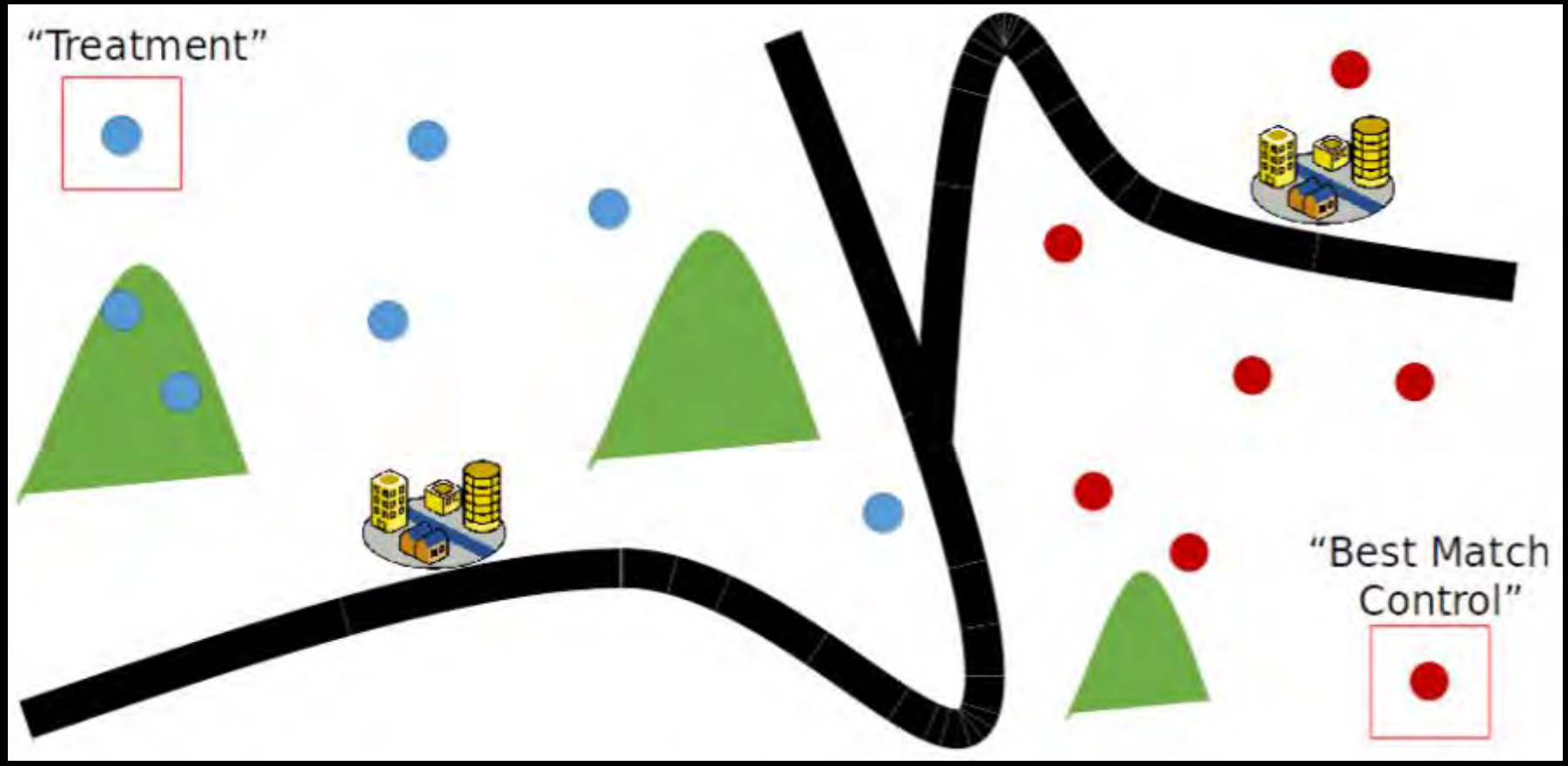
1. Impact of GEF land degradation interventions
2. Factors associated with the environmental outcomes
3. Value for money in terms of carbon sequestered



Methodology

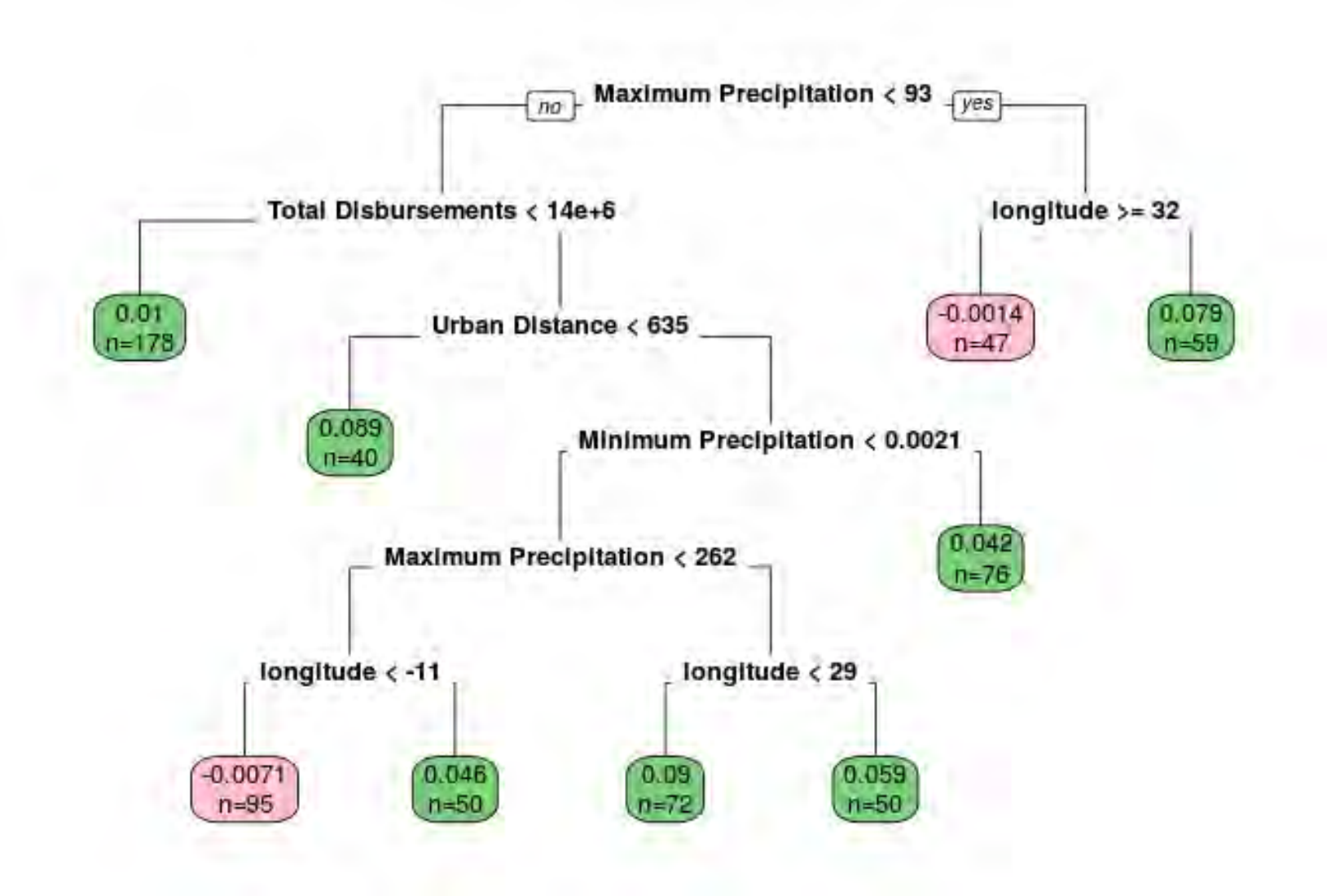
LAND DEGRADATION

Quasi-experimental method

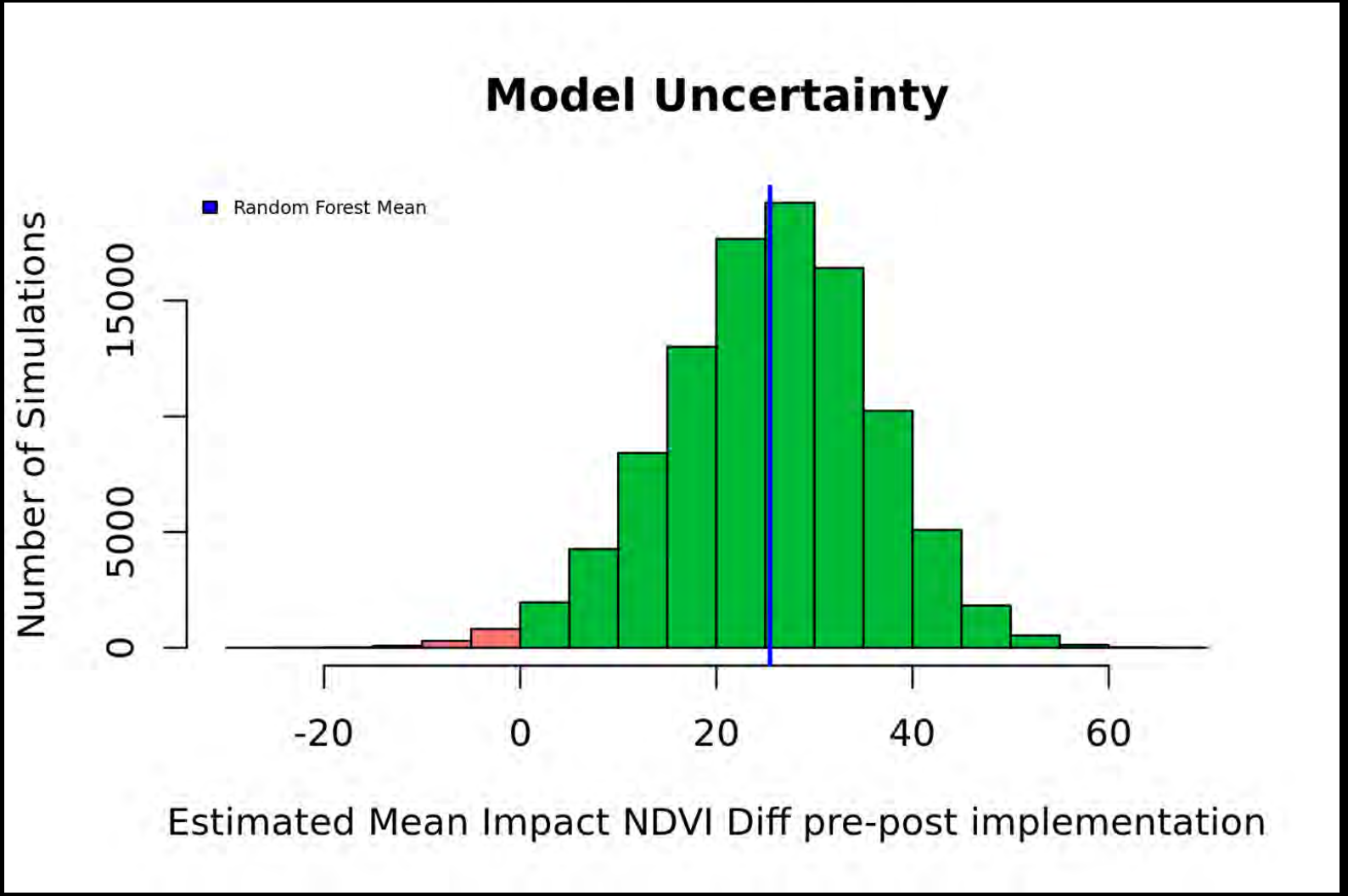


LAND DEGRADATION

Machine learning and causal tree



LAND DEGRADATION



LAND DEGRADATION

Finding: value for money

+

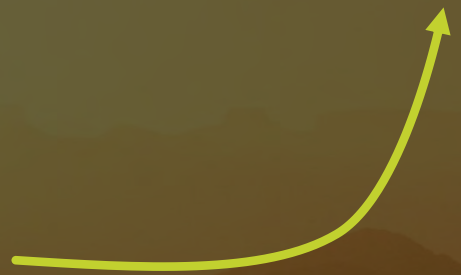
Vegetation productivity

−

forest loss and land fragmentation

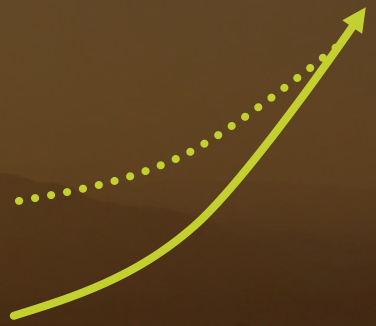
LAND DEGRADATION

Findings: value for money



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

Access to electricity associated with higher impact

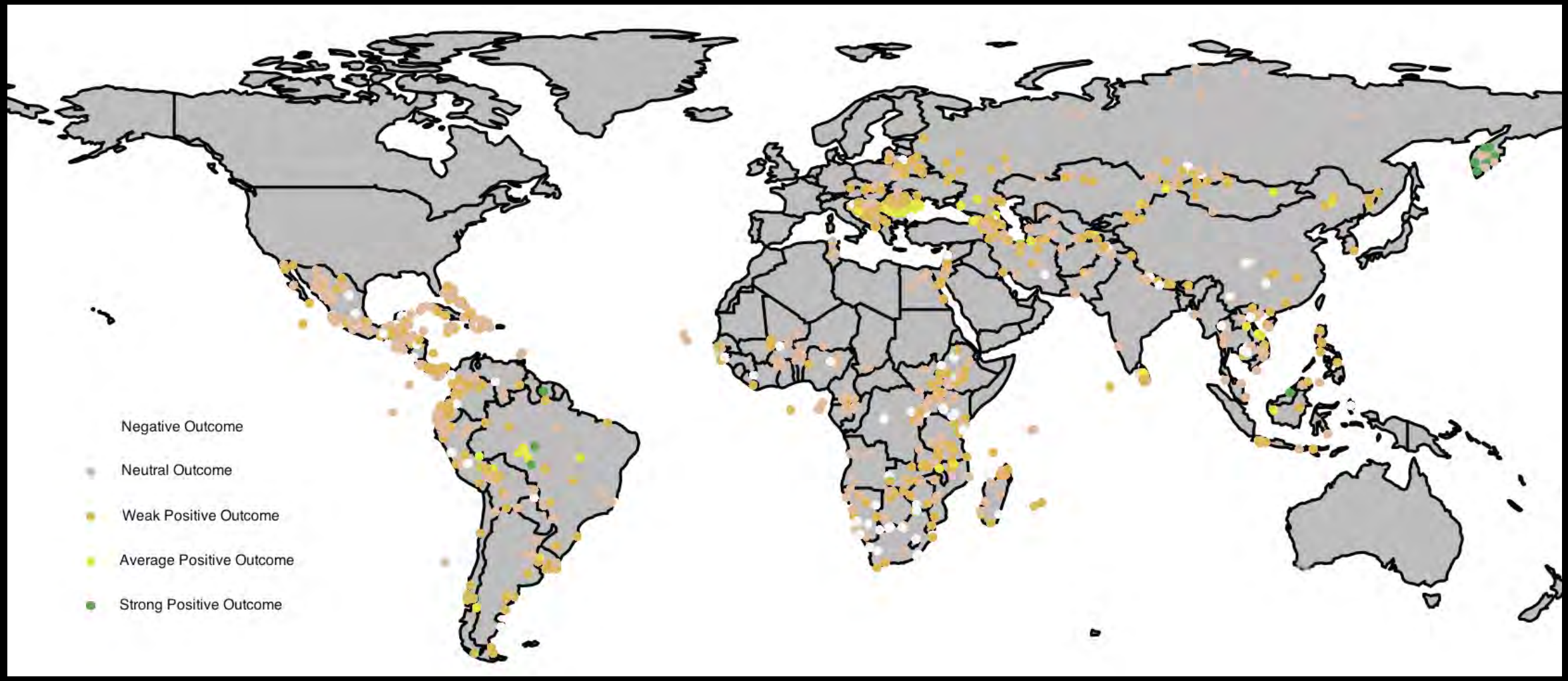


Higher impact observed in areas with poor initial conditions

LAND DEGRADATION

Bang for the buck

$1:1.08



Ecological forecasting: Predicting the future

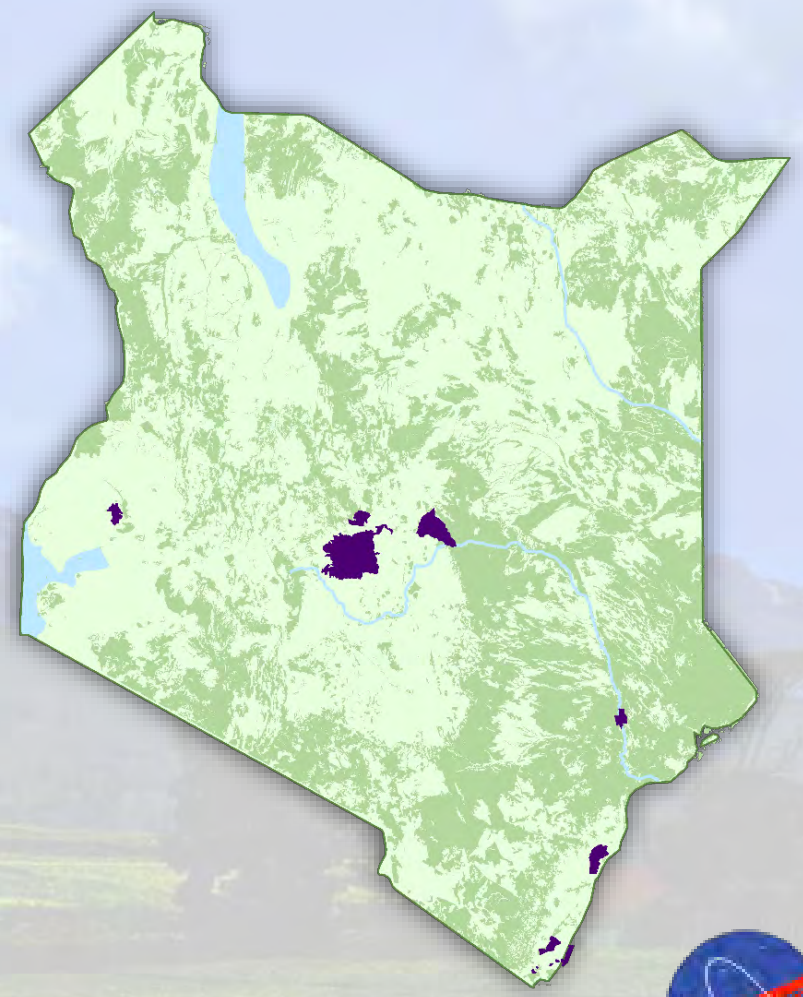
1. Estimating the impact
2. Project design
3. Scenario building

Kenya Ecological Forecasting

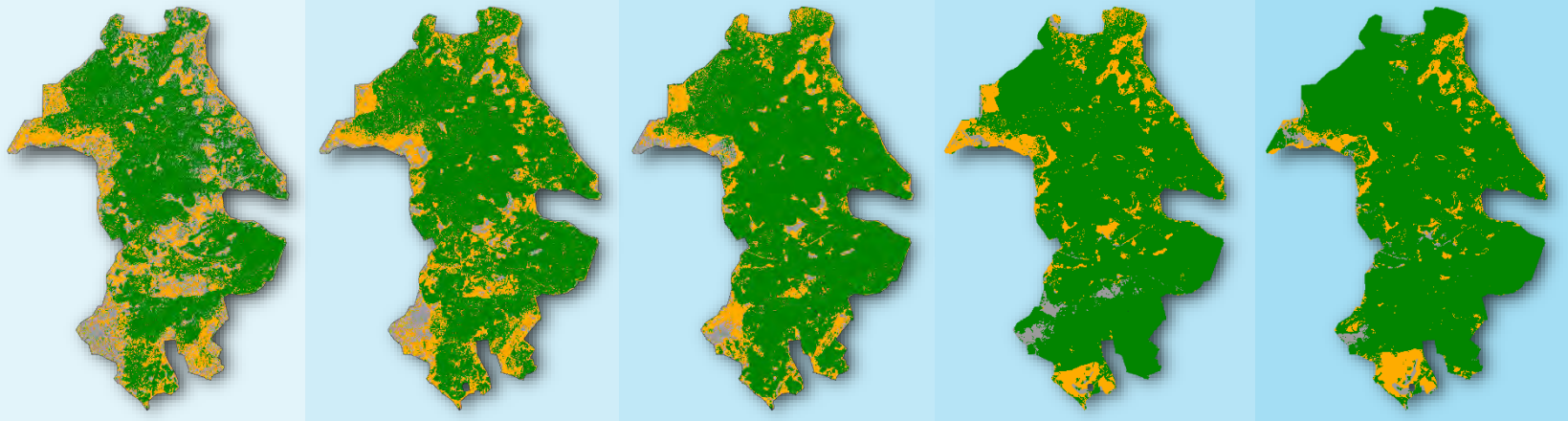
"Estimating Carbon Sequestration within Global Environment Facility (GEF) Funded Protected Areas in Kenya to Aid Future Policy"

- Research collaboration between the Global Environment Facility's Independent Evaluation Office (GEF-IEO) and NASA DEVELOP program

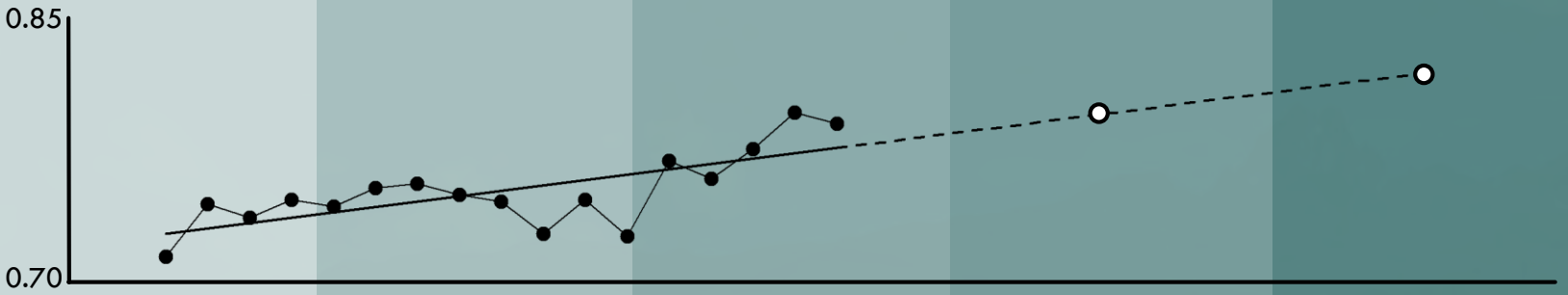
- Evaluated land cover and aboveground carbon stocks for 12 GEF protected areas in Kenya



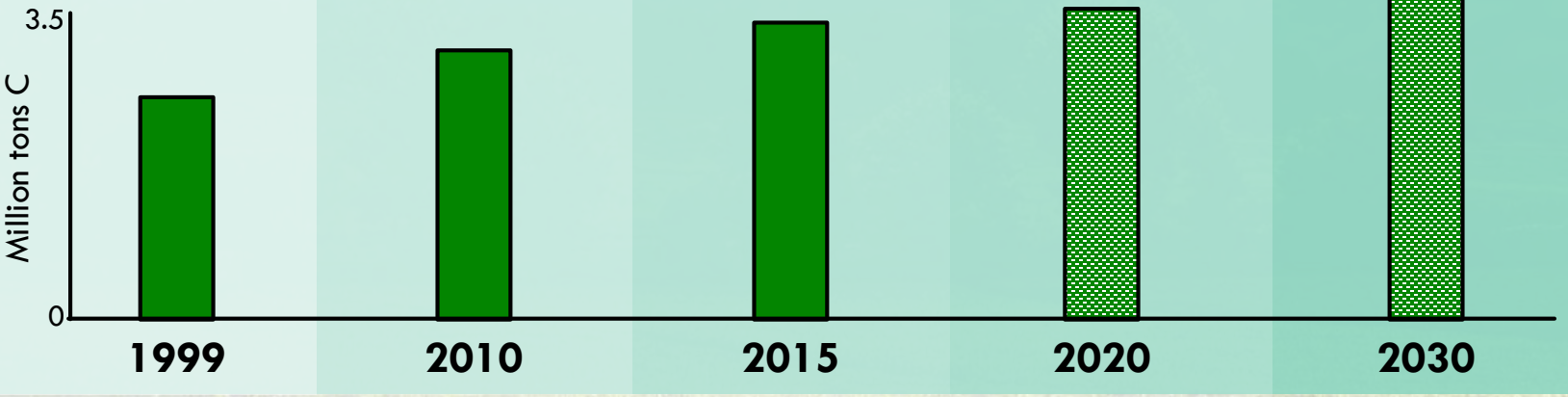
Land Cover Change



NDVI

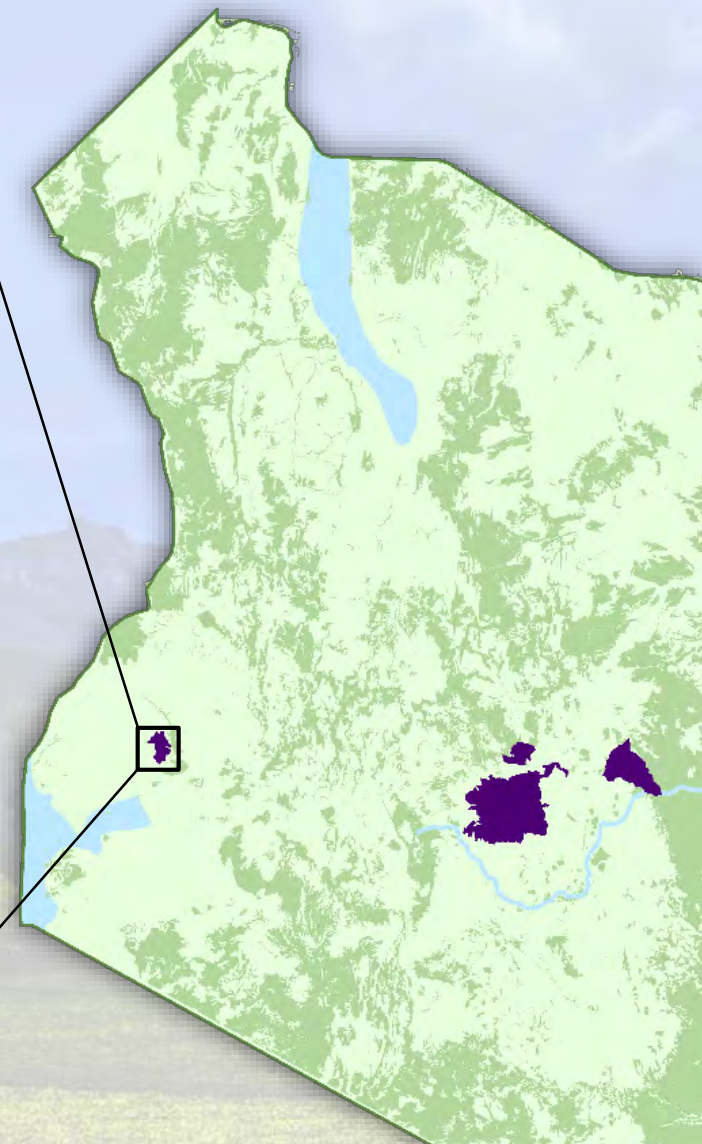


Carbon Sequestration



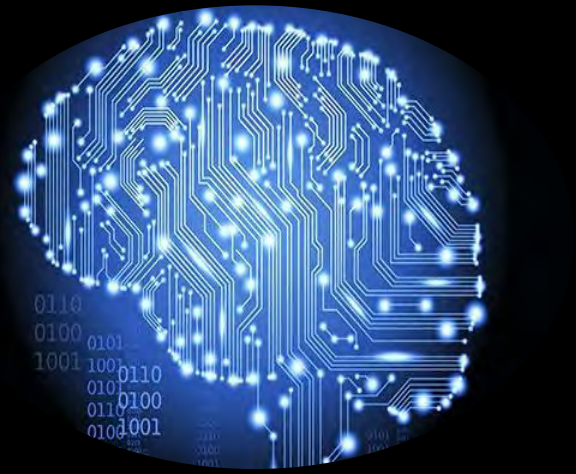
Case Study:

Kakamega Forest Reserve



Triangulating Across Methods

Challenges and Limitations



High computing power and technical skills needed

Uneven availability and accuracy of contextual variables across sites

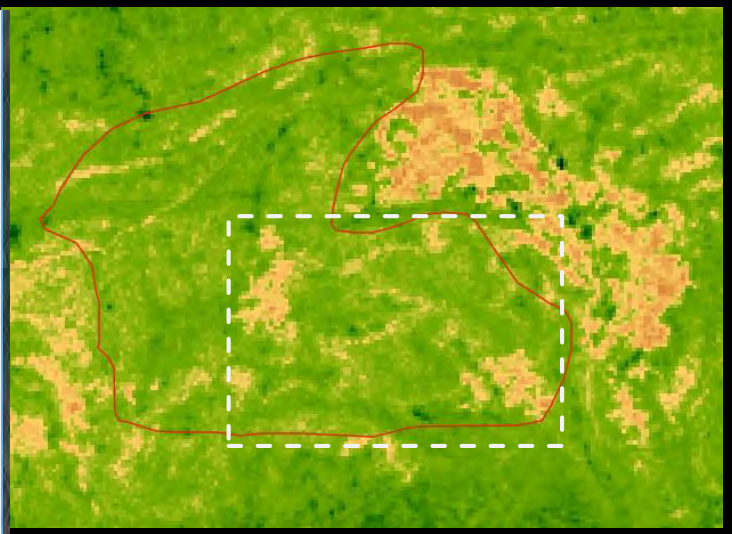
Cannot always answer "how" and "why" questions

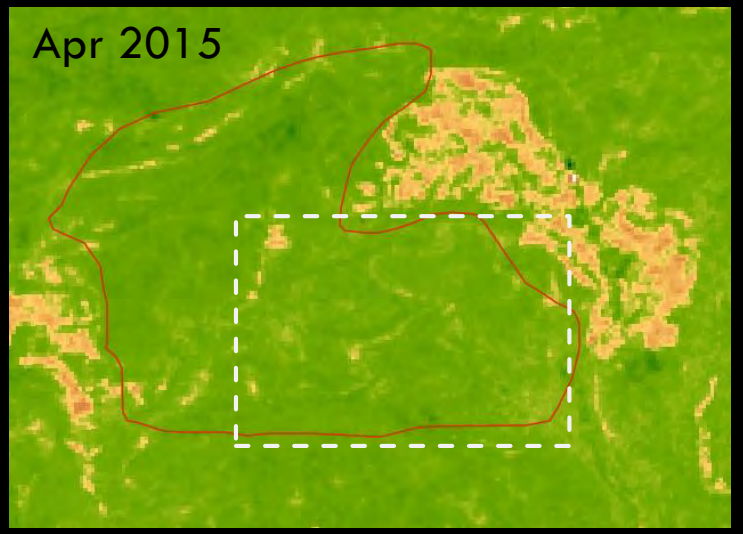
Need for field verification/ groundtruthing

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 interview
- Stakeholders interview

Lessons for the future

Partner with global institutions

Use mixed approaches and methods

Continue exploring new technology

Approach evaluation as a dynamic learning process

Thank you

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