IMPACTS OF GLOBAL MARKETS AND NATIONAL POLICIES ON FOREST CARBON TRAJECTORIES AND SOCIAL OUTCOMES IN THE GUIANA SHIELD ECOREGION

NASA LCLUC VIRTUAL SCIENCE TEAM MEETING
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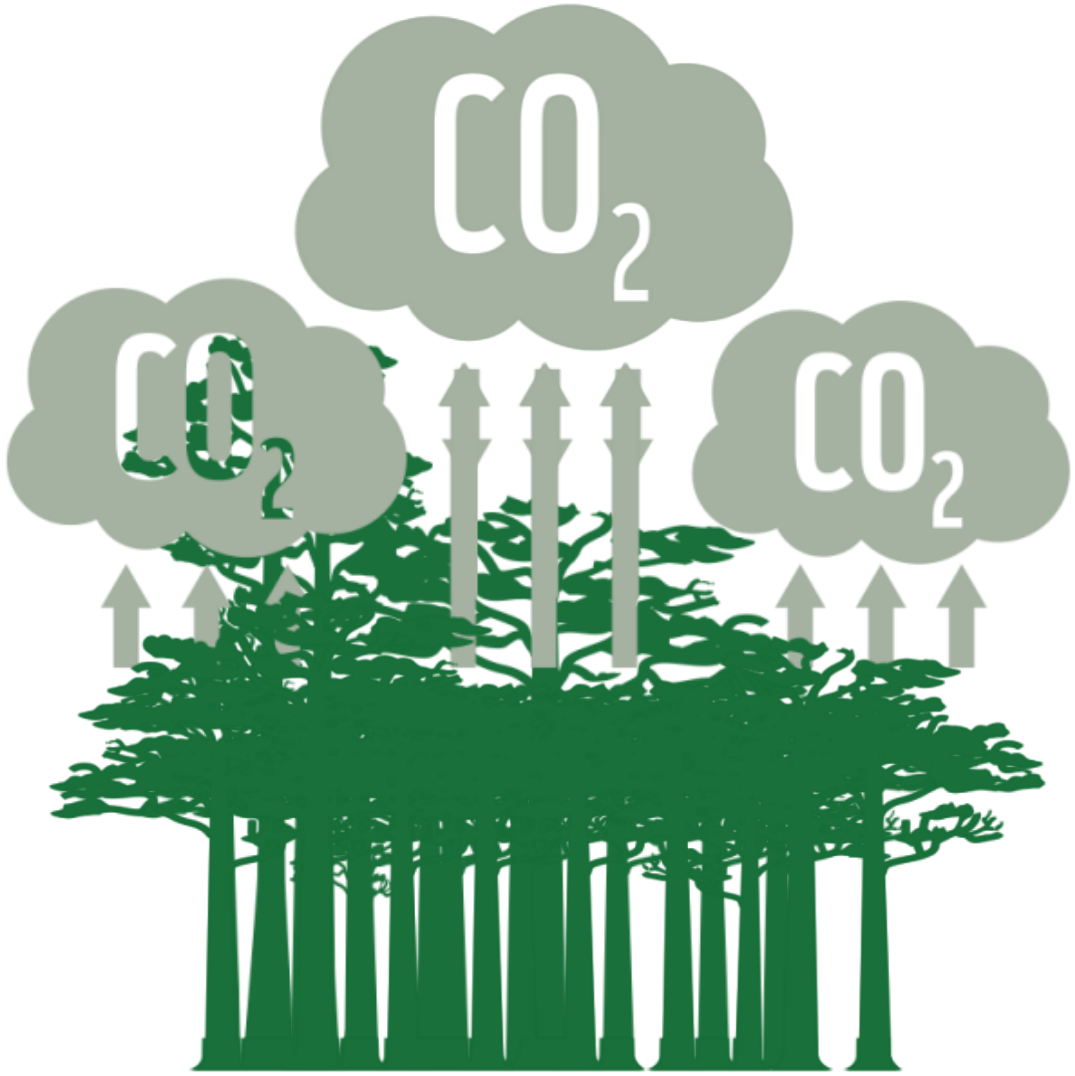
FORESTS AND CLIMATE

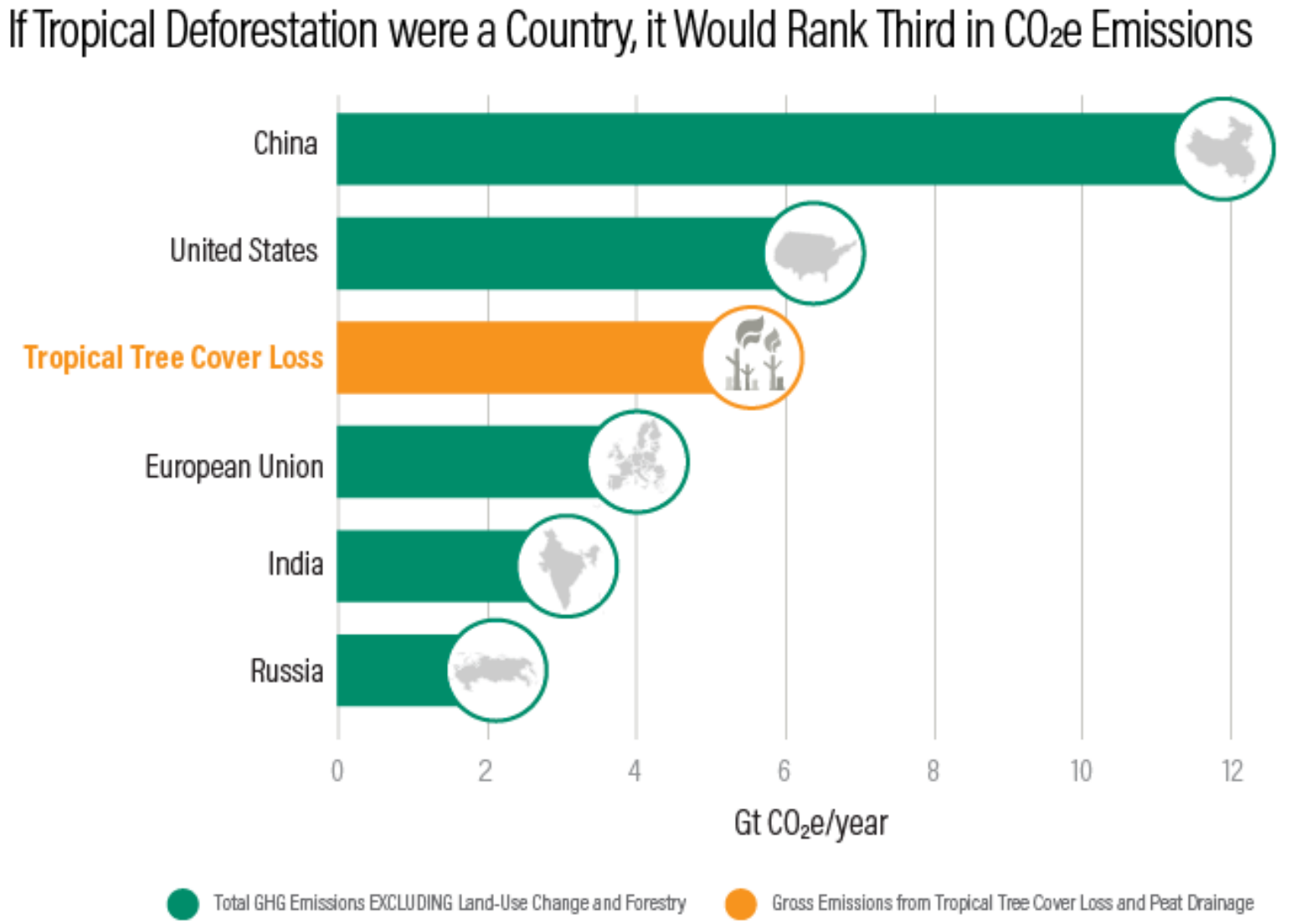
Half of all the carbon stored in the world's forests is found in tropical areas



Carbon sink to carbon sources

FORESTS AND CLIMATE

Deforestation releases 6 GT CO^2 emissions per year



Source: Seymour & Busch, 2016.

GLOBAL FOREST WATCH

WORLD RESOURCES INSTITUTE

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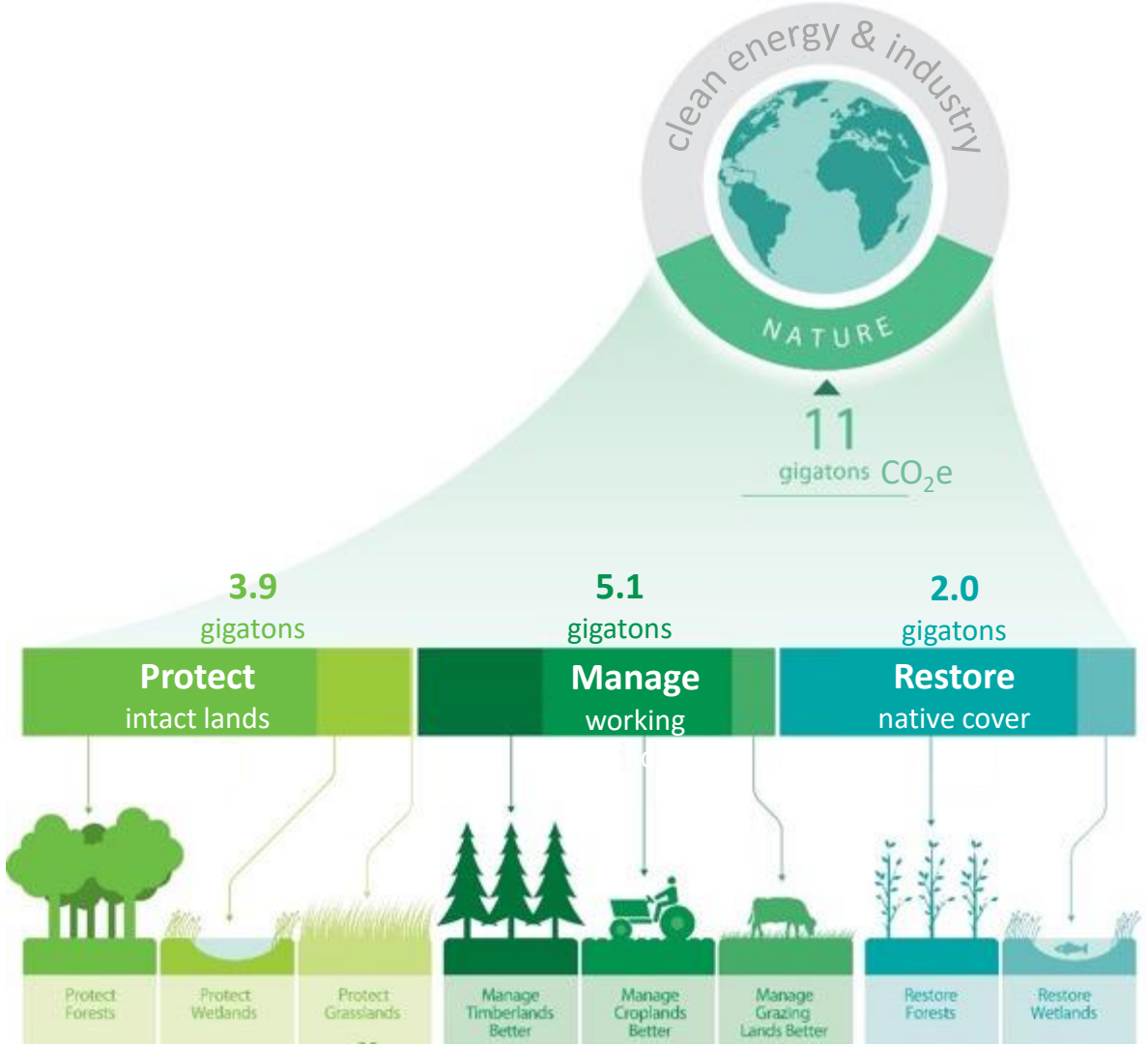
NATURAL CLIMATE SOLUTIONS (NCS)

Natural climate solutions have a potential mitigation impact of 11 gigatons of CO2 annually.



Source: Griscom et al., PNAS (2017) and Griscom et al., 2020 Philosophical Transactions of the Royal Society B. Graphics from Nature Conservancy magazine and 5W Infographics

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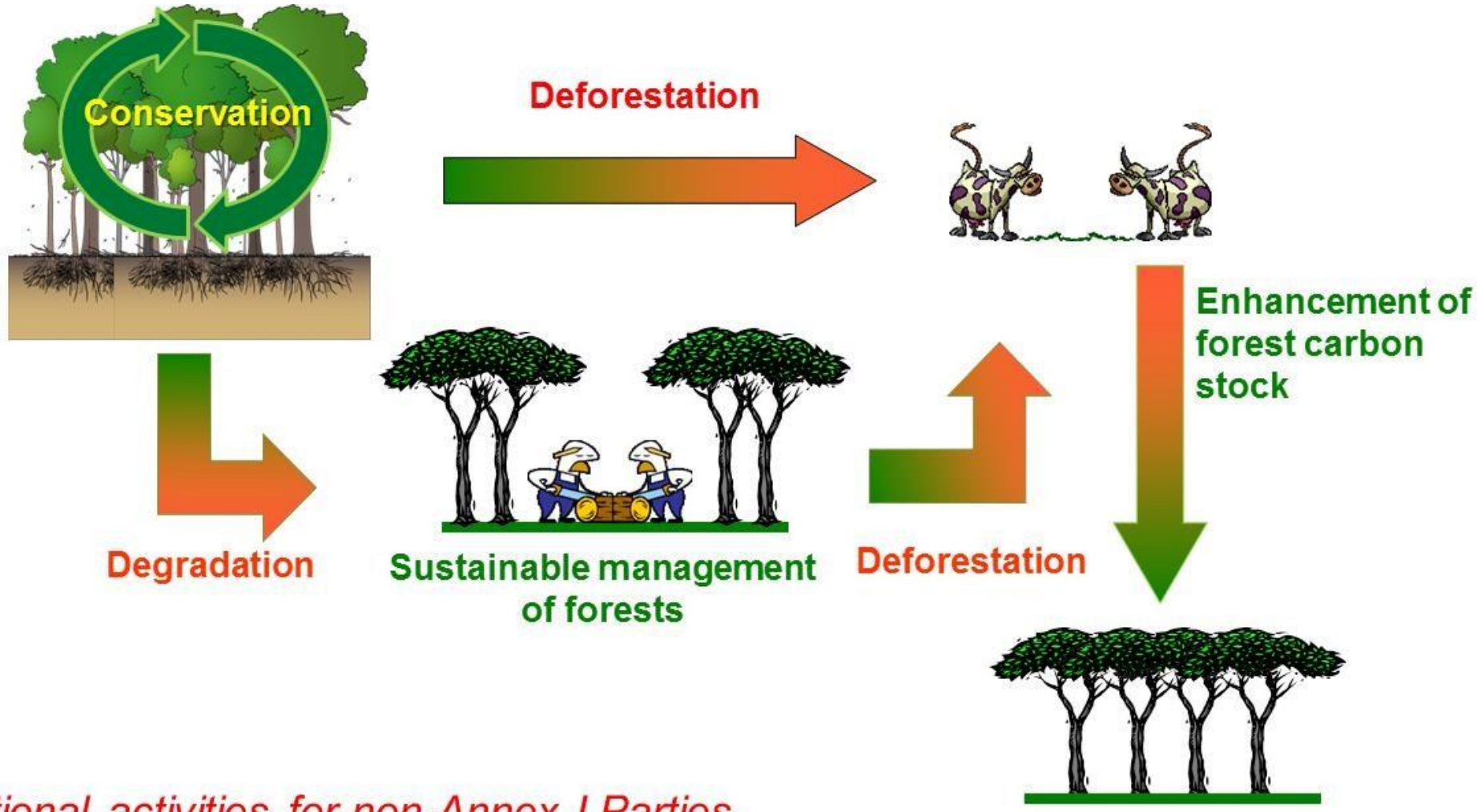
REDUCING EMISSIONS FROM DEFORESTATION & DEGRADATION (REDD+)



National activities for non-Annex I Parties

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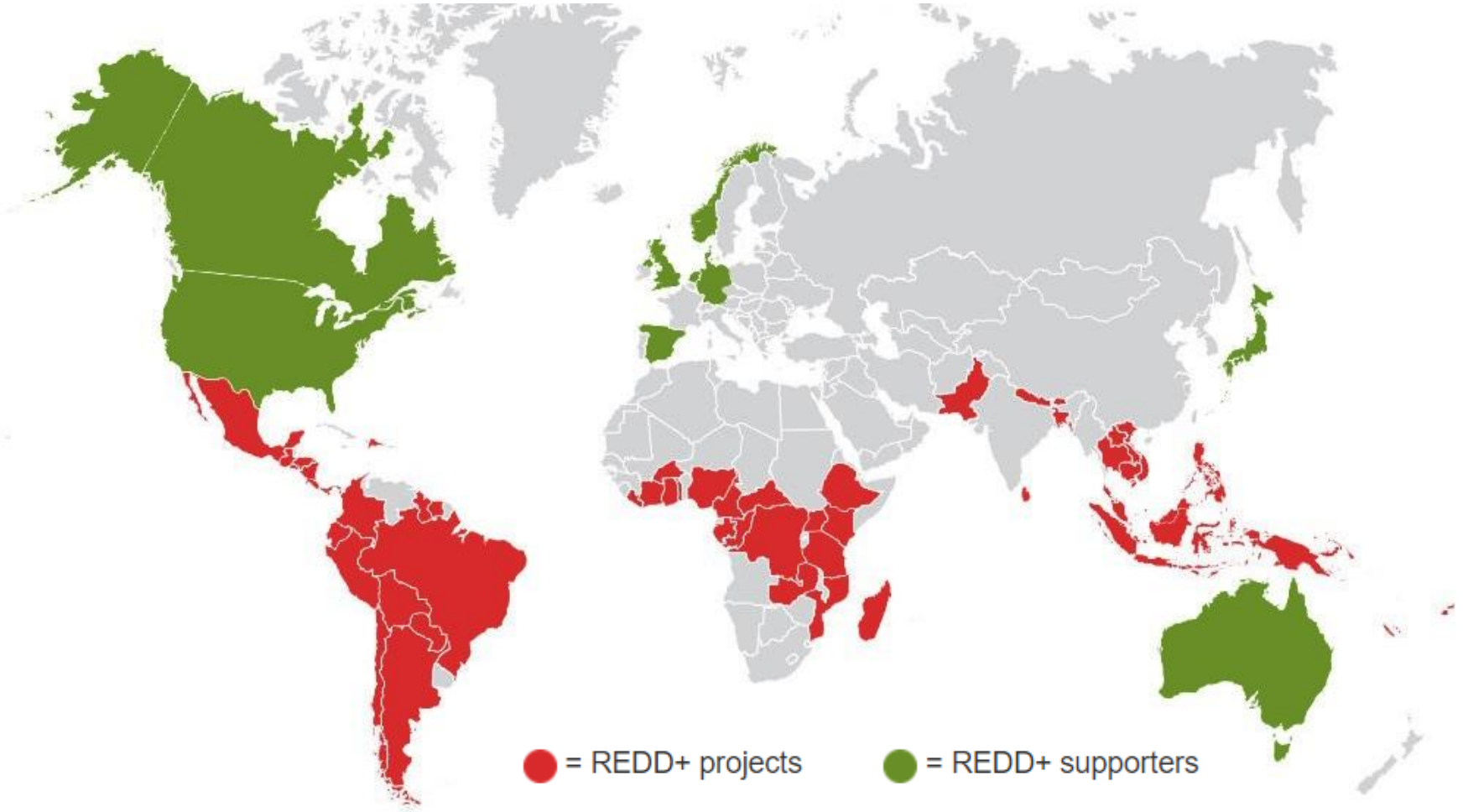
REDUCING EMISSIONS FROM DEFORESTATION & DEGRADATION (REDD+)

47 countries with national REDD+ programs & sub-national projects in 8 countries



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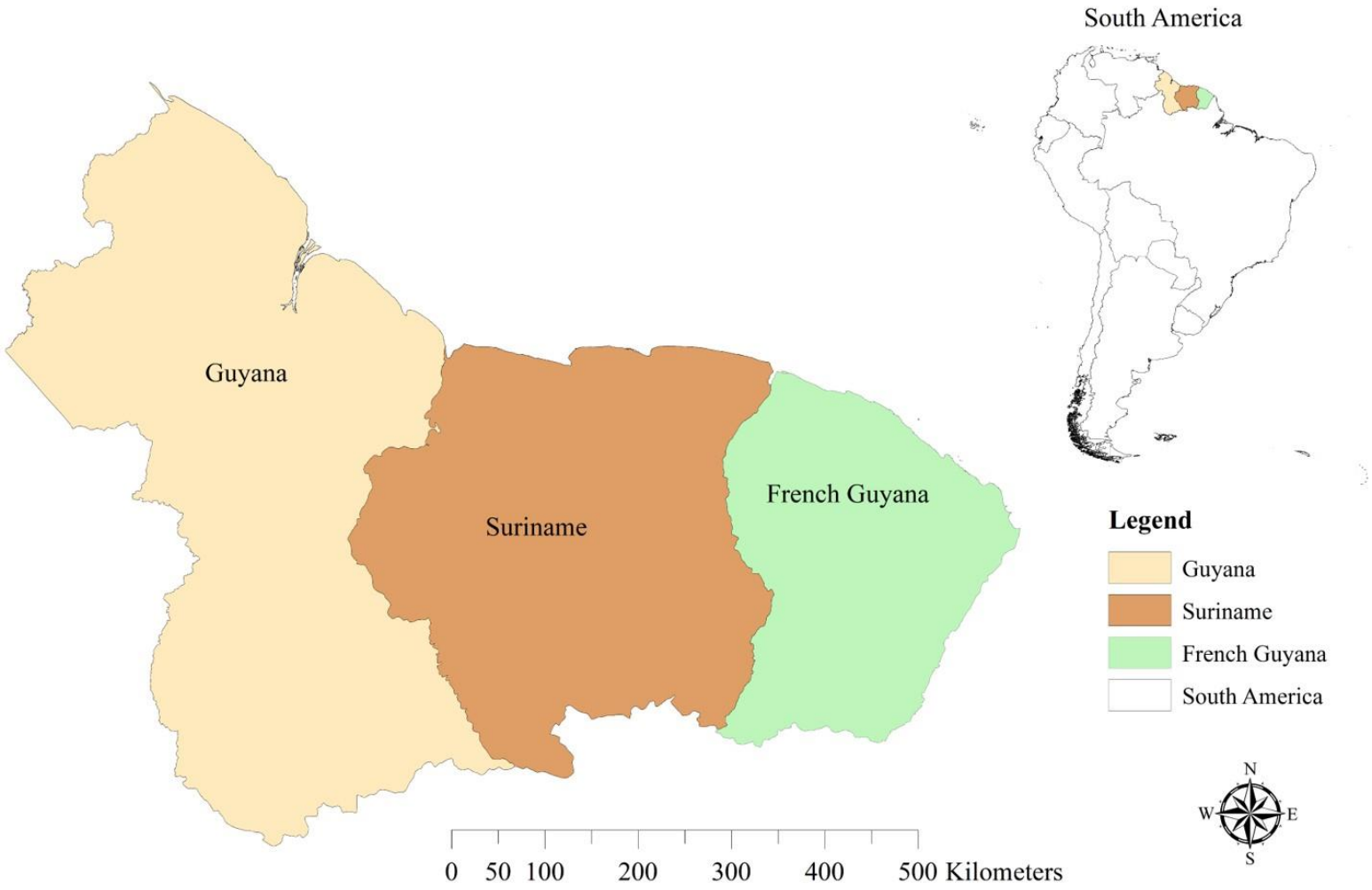
STUDY GEOGRAPHY: GUIANA SHIELD ECOREGION

High Forest Cover Low Deforestation Countries

Different NCS Interventions (REDD+, Community projects)



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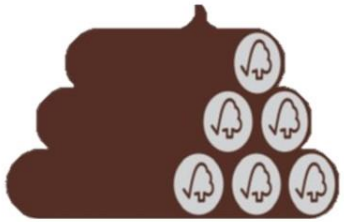
OVERVIEW OF PROJECT APPROACH

Integration of remote sensing with rigorous impact evaluation to assess both carbon and livelihood outcomes



$$\int_0^t Se^{\frac{-\mu_g D_g}{G_g}} e^{-\mu_c t} a\left(D_g + G_c t\right) dt$$

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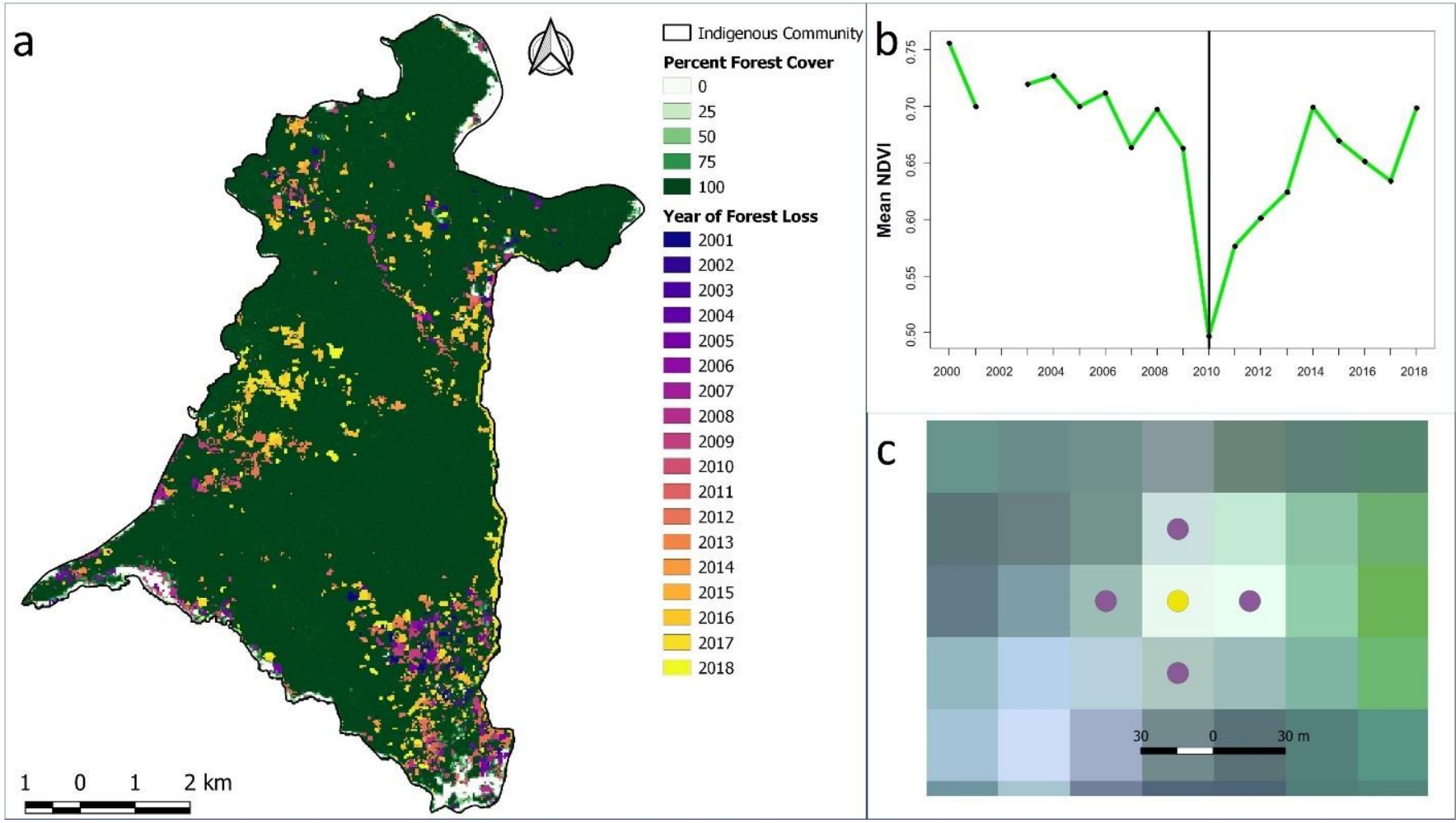
OBJECTIVE 1: IMPROVE MAPPING OF FOREST CARBON OUTCOMES

Integration of different remote sensing products (Landsat, NISAR, GEDI)



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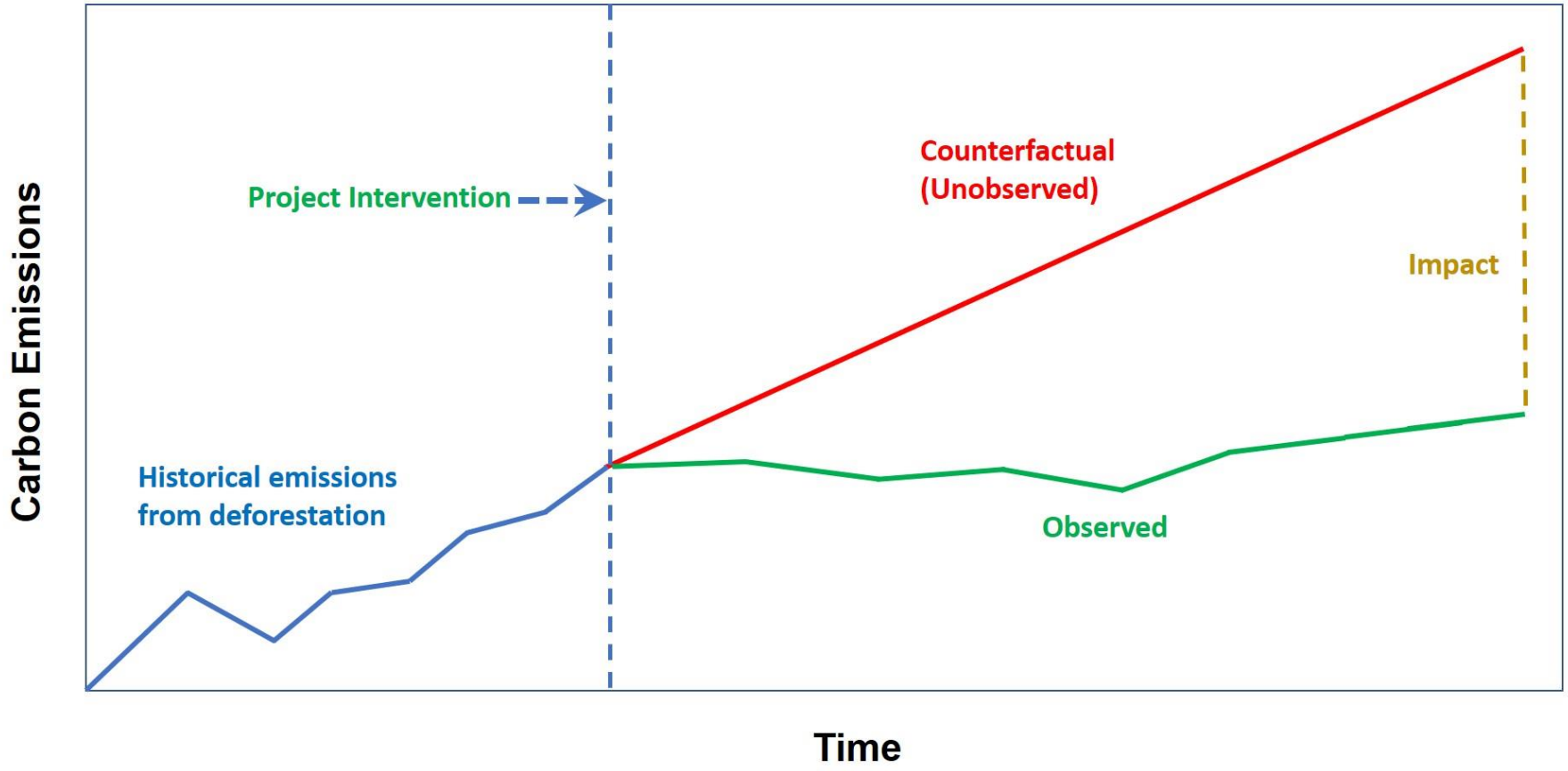
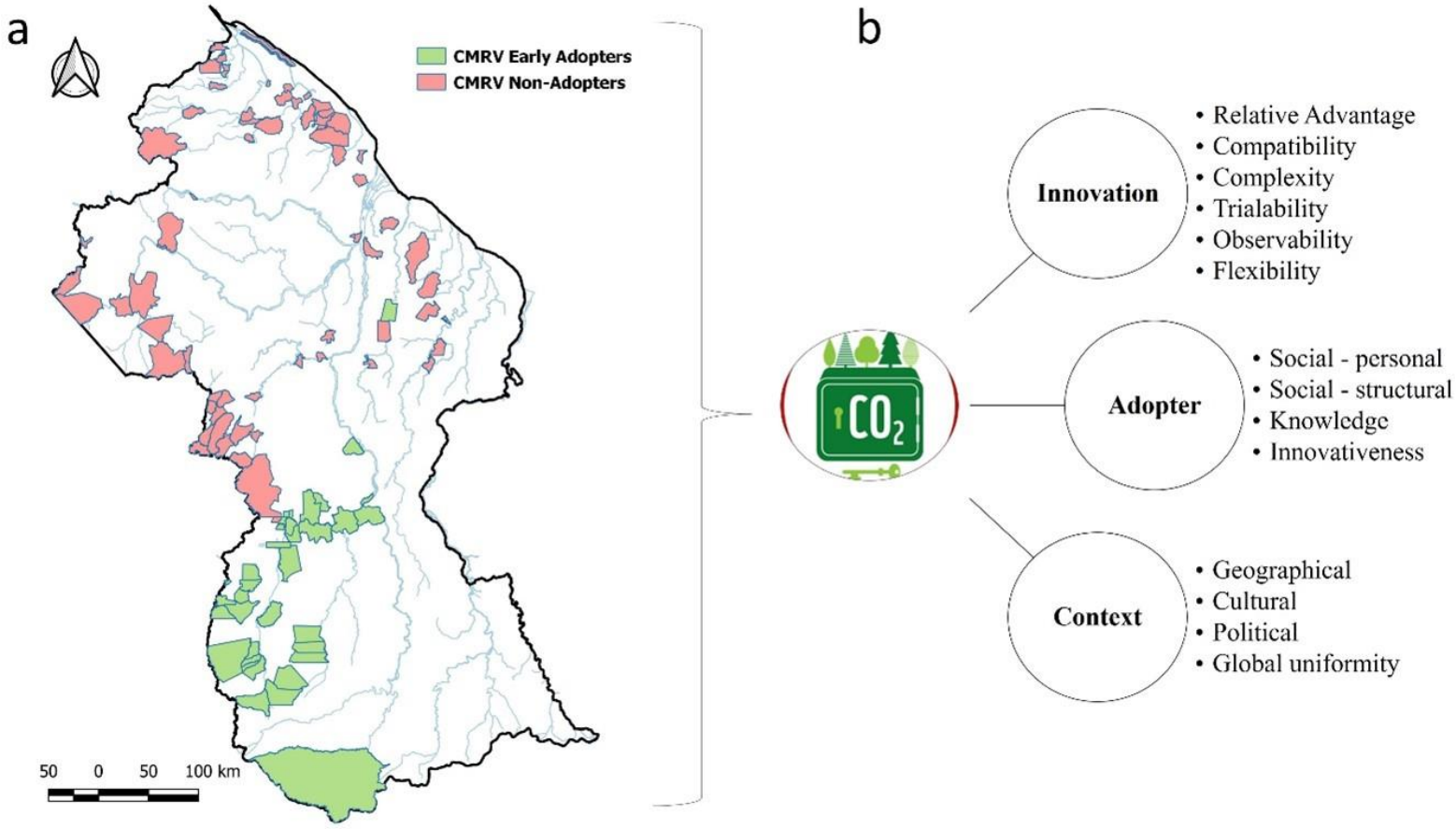
OBJECTIVE 2: IMPACT EVALUATION OF NCS INTERVENTIONS

Assessment of forest carbon, and socio-economic outcomes with quasi-experimental methods



OBJECTIVE 3: DIFFUSION AND SPILLOVER IMPACTS OF NCS

Diffusion of innovation theory



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NATURAL CLIMATE SOLUTIONS - OUTCOMES AND METRICS TO BE TRACKED

Outcome	Metric and Units
1. Climate benefit from improved forest management, compared to bau baseline	1. tonnes CO2 (forest loss and conversion)
2. Climate benefit from avoided forest conversion, compared to bau baseline.	2. tonnes CO2 (forest loss and conversion)
3. Areas of High Conservation Value Forest (HCVF) protected from all commercial impacts.	3. Hectares designated HCVF
4. Forest area protected from conversion.	4. Hectares in Conservation Agreements committed to remain native forest cover.
5. Increased value of Nature	5. Net present value (USD) of commercial species of pre-commercial size not damaged due to RIL-C.
6. Net revenue to community above conventional practices baseline	6. U.S. dollars
7. New local jobs associated with best practices (e.g., community monitoring)	7. Number of jobs
8. Diffusion and adoption of REDD+	8. Number of adopters

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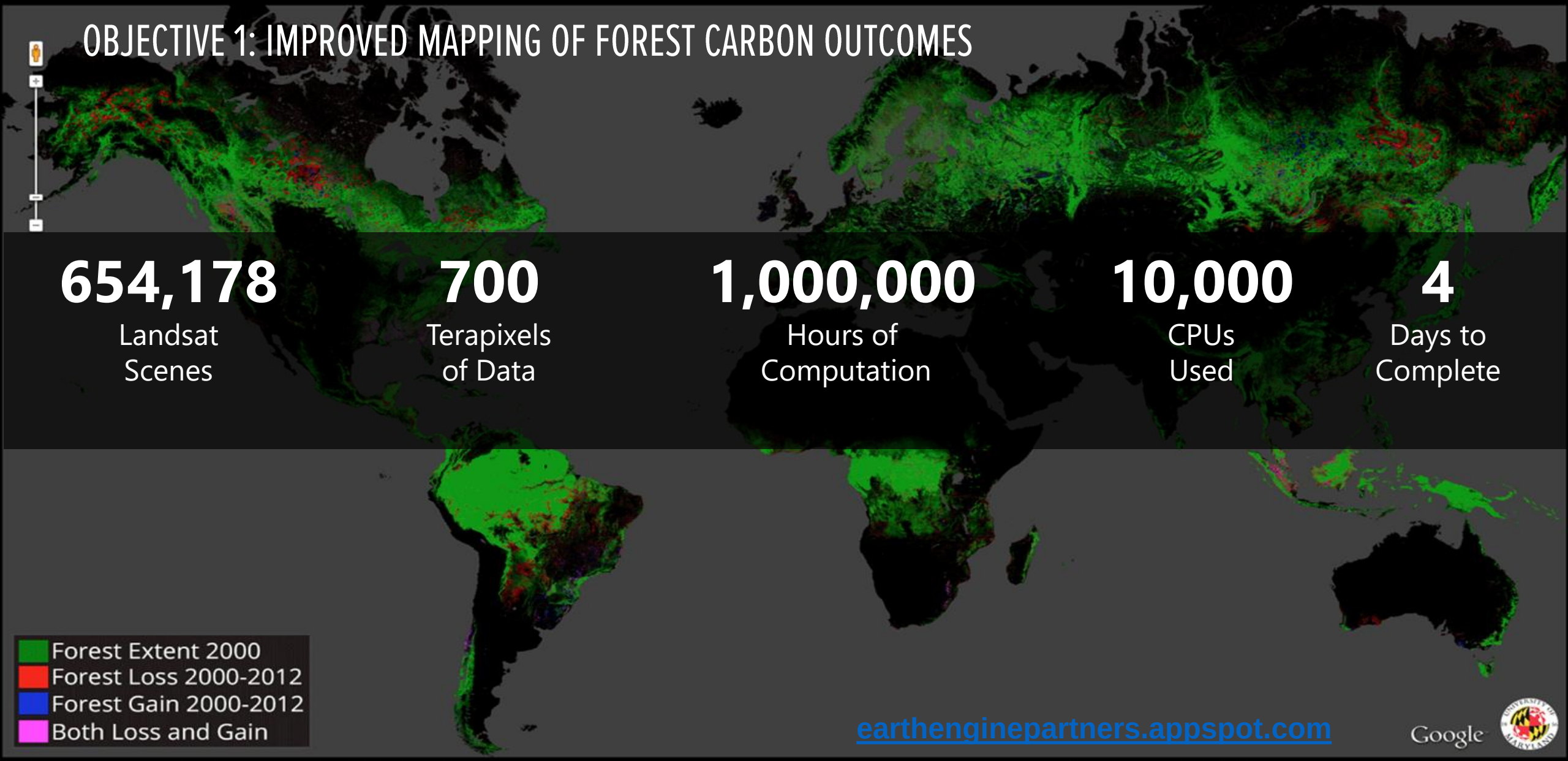
OBJECTIVE 1: IMPROVED MAPPING OF FOREST CARBON OUTCOMES



Global Forest Change, 2000-2012 Source: Hansen, Potapov, Moore, Hancher, et al. (Science, 2013) Powered by Google Earth Engine