

Addressing Landscape Restoration on Degraded Land (in Indonesia and Brazil)

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WHAT IS RESTORE+?

The RESTORE+ project is a five-year partnership (2017-2021) that aims at addressing challenges surrounding the Food-Land-Energy nexus of restoration or utilization of degraded areas.



GOALS

- Provide decision makers in the tropical region with lasting capacity, technical recommendations and enhanced datasets to inform the restoration of degraded and marginal areas
- Comprehensive assessment of degradation and **restoration**, including the identification of degraded areas, multi-objective modelling and trade-off analysis
- Generate information, tools and understanding on:
 - 1) the **extent** and **distribution** of degraded land 2) the socio-economic and environmental (e.g. GHG emissions and biodiversity) implications of varying definitions, and related uses of degraded land
 - 3) the **options** and **trade-offs** for ecosystem restoration or sustainable food/energy crop production on degraded lands.
- Develop a **generic methodology** that can be applied to other regions

Brazil

- Enhance established land monitoring and modelling capabilities (GLOBIOM Brazil)
- Identify degraded areas, assess restoration options and explore trade-offs associated with implementation of the **Brazilian** Forest Code

Congo Basin Outreach and preparatory land use modelling activities to obtain **relevance** for all three tropical basins

Indonesia

- Combining crowdsourcing campaigns for data gathering with land-use and supply chain modelling
- Identify areas with scenarios for **restoration** and sustainable utilization and understand implications on production, **biodiversity**, **GHG emissions** and social impacts
- Analyse supply chain implications of varying policy scenarios to utilise degraded/marginal land for bioenergy

RESTORE+ APPROACH

RESTORE+ methodology combines biophysical information from advanced remote sensing technologies with socioeconomic insights obtained through crowdsourcing. Enhanced datasets are then used for multi-objective modelling analysis to inform policy makers in the tropics.



Legend GLC2000 MCDIS GLOBCOVE

Identifying degraded land

• Examination of the various possible definitions of degraded land including social and biophysical consideration

• Assess land degradation through satellite imagery analysis





2 Assess implication of using different degraded land definitions in • Vegetation modelling to project carbon stock, productivity of restoration measures etc. (e.g. EPIC, G4M) • Biodiversity assessment (priority areas, species, biodiversity modelling)



• Big earth observation data analysis Crowdsourcing and grass-root engagement

Visualization of land cover data sets, suitability maps, land use information, biomass, etc.



Crowdsourcing of land cover analysis



Validation of Land **Cover Maps**





mobile apps

Serious Games (Cropland Capture)



Assess sectoral interaction of Food-Land-Energy nexus

• Production and trade of forestry and agriculture (food) commodities • Land use/cover projection scenarios based on spatially explicit models (e.g. GLOBIOM)

• Bioenergy supply chain and the overall energy system (e.g. BeWhere) • Market support for sustainability safeguards

More about RESTORE+	More about the models:
www.restoreplus.org	EPIC: <u>www.iiasa.ac.at/epic</u> G4M: <u>www.iiasa.ac.at/g4m</u>
	GLOBIOM: <u>www.globiom.org/</u> BeWhere: <u>www.iiasa.ac.at/bewhere</u>

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