Call for Incentive Research Collaboration 2025 Laureate

Project SIHTED

Soil **I**ndicators of **H**uman-induced **T**ropical **E**cosystem **D**egradation

AURORA

Co-funded by the European Union

UNIVERSITY OF ICELAND

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UNIVERSITAT ROVIRA i VIRGILI

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UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

PROJECT IDENTIFICATION

Project title:
Soil **I**ndicators of **H**uman-induced **T**ropical **E**cosystem **D**egradation

Project acronym: SIHTED

COORDINATOR

Principal researcher:
Thomas Lerch

University:
Université Paris-Est Créteil (UPEC)
Institute of Ecology and Environmental Sciences of Paris

Email: thomas.lerch@u-pec.fr

PARTNERS

Principal researcher:
Bořivoj Šarapatka

University:
Palacký University Olomouc (UP)
Department of Ecology and Environmental Sciences

Email: borivoj.sarapatka@upol.cz

Principal researcher:
Lucia Santorufo

University:
Università Federico II of Naples (UNINA)
Department of Biology

Email: lucia.santorufo@unina.it

Principal researcher:
Saysongkham Sayavong

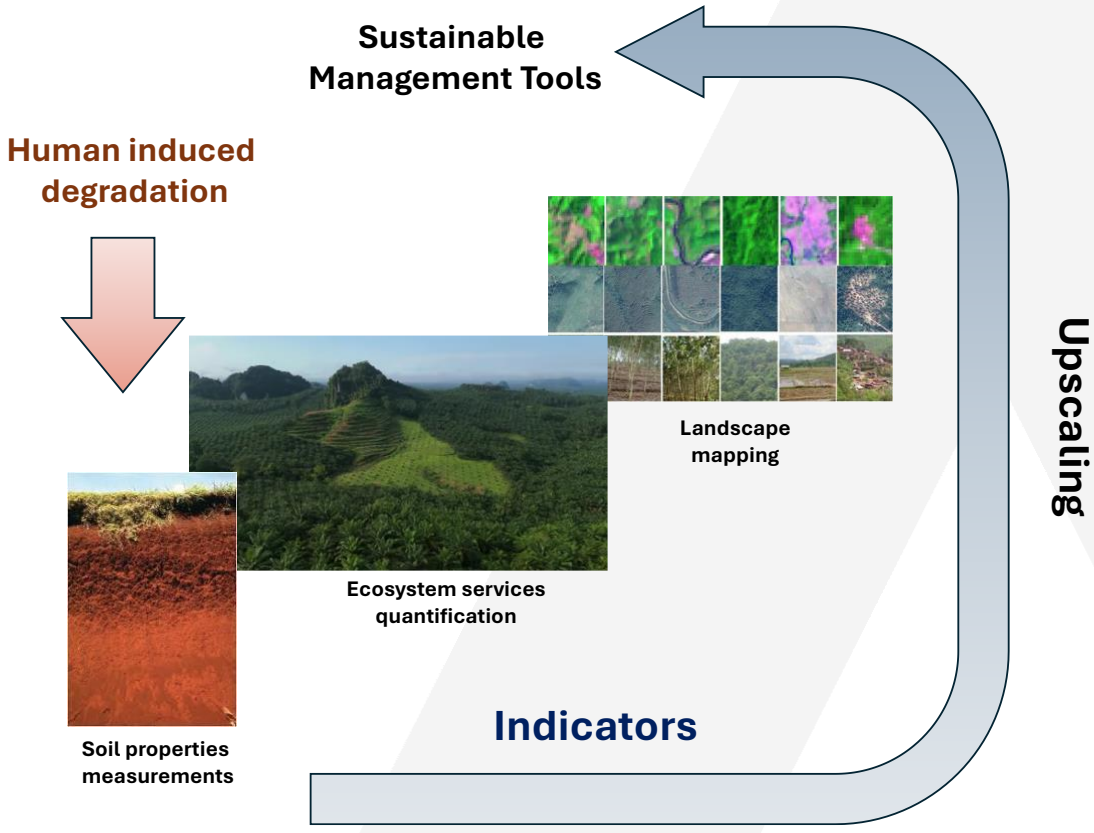
University:
Ministry of Agriculture Lao PDR
Department of Agricultural and Land Management

Email: saysongkhams5@gmail.com

OBJECTIVE

Degraded ecosystems show major declines in biodiversity and functionality, reducing the services they provide. Identifying reliable variables to predict ecosystem condition is therefore essential. This project aims to develop indicators for the early detection of ecosystem degradation. It focuses on tropical forests in Lao PDR, a key biodiversity hotspot threatened by expanding intensive agriculture. By combining expertise in biogeochemistry, soil ecology, and modeling, it will deliver innovative tools for ecosystem assessment and management.

ILLUSTRATION OF THE PROJECT



SOCIAL IMPACTS AND TARGETED SDG

The overarching goal of our collaborations with Lao partners is to develop and transfer robust methodologies to diagnose the degradation of tropical ecosystems driven by human activities, in support of sustainable agricultural intensification that balances economic development with the preservation of biodiversity and natural resources. This effort combines capacity building in agroecology with international collaboration, and integrates landscape ecology and soil science to develop reliable indicators of ecosystem degradation and associated ecosystem services.

By strengthening scientific expertise and linking knowledge to decision-making, this work contributes to the United Nations Sustainable Development Goals, supporting socio-economic development through SDG 1 and SDG 2, enhancing capacity building through SDG 4, while promoting the conservation of terrestrial ecosystems under SDG 15 and contributing to climate change mitigation in line with SDG 13.

AURORA ADDED VALUE

The project's added value lies in integrating expertise in biogeochemistry, landscape analysis, and soil biodiversity across three universities (UPEC, UNINA, UP). This interdisciplinary approach is essential for developing a robust tool to assess ecosystem health. It combines analyses of soil physical, chemical, and biological processes with landscape-scale modeling. This will link fine-scale changes to broader ecosystem transformations and improve understanding of ecosystem dynamics.