Panel Session 5: Education, Capacity Building, and Partnerships

Guide Questions:

- What are the potential innovative approaches to carbon farming under Southeast Asian region context?
- What are the possible research and development areas in carbon farming for undergraduate & graduate students? Who are the possible funding institutions to support these and contact person?
- How can women community leaders be involved in green financing (eg., Microfinance targeting women and women-led businesses)?
- What is the relevant capacity building for officials from NGAs and LGUs for the design of policies and regulations that can effectively support the development of sustainable finance and sustainability reporting, monitoring, and verification to enhance, transparency in the sustainable finance ecosystem?

Education, capacity building and partnerships: carbon farming and sustainable land management in SEA

Dr Eleanor Milne - CSU/WOCAT eleanor.milne@colostate.edu

- Approaches to C farming
- Tools to assess C farming impacts
  - COMET Farm USA
  - FAO Exact: e-learning
  - The Carbon Benefits Project (CBP) tools

- Introduction to WOCAT and link with CBP

Dr Isabelle Providoli - CDE/WOCAT/University of Bern

isabelle.providoli@unibe.ch

- SLM Technologies and SLM Approaches in SEA
- Integrated Farming Systems
- Gender-lense to SLM
- Embedding sustainable agriculture topics into higher education and beyond

Reducing N2O emissions from soil
Improving fertiliser timings and placements
Reduce fertiliser use

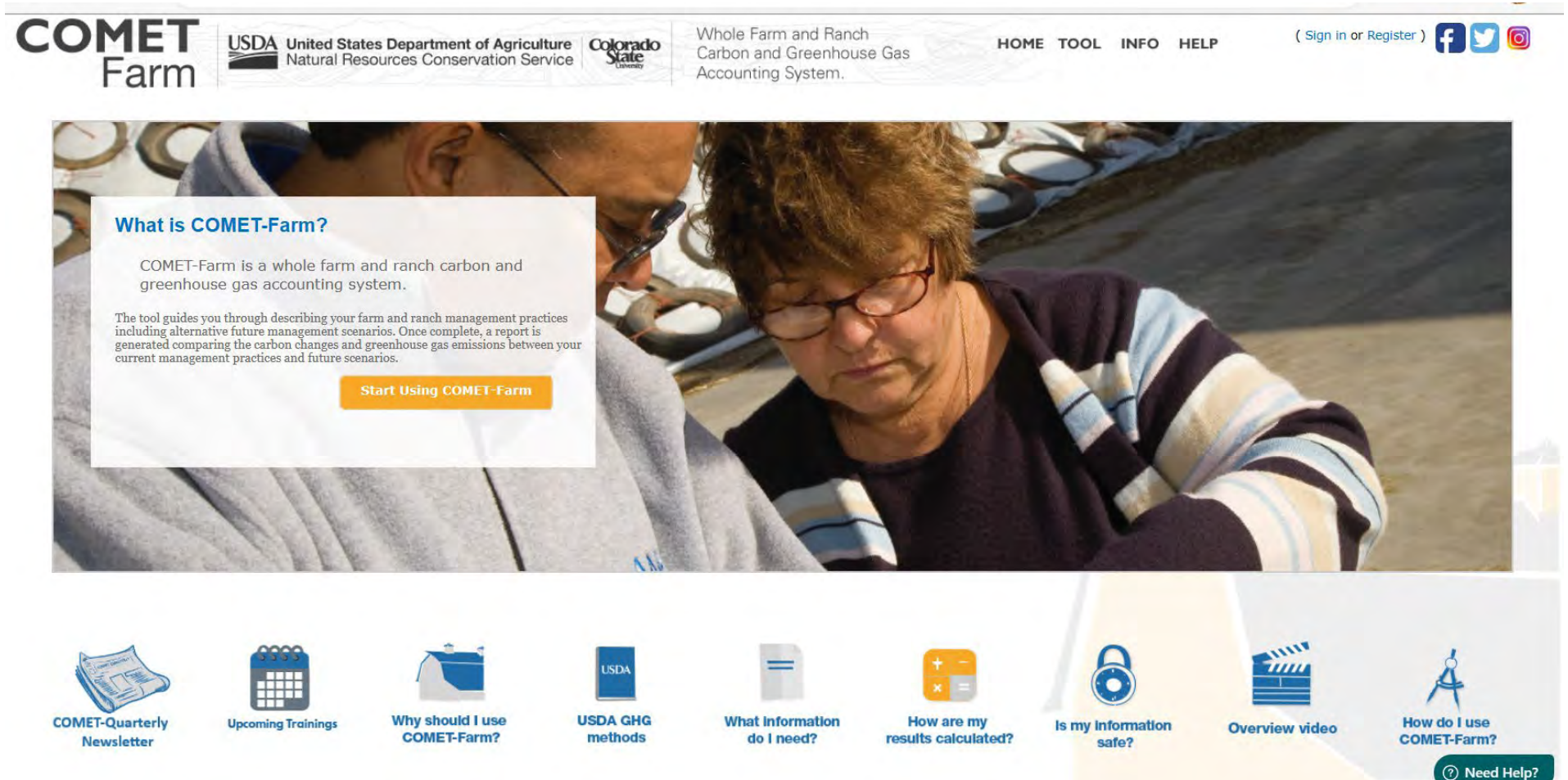


Agricultural conservation practices that can increase organic carbon storage and promote a net removal of CO_2 from the atmosphere (from Paustian 2014).

MANAGEMENT PRACTICE	INCREASED C INPUTS	REDUCED C LOSSES
Increased productivity and residue retention	✓	
Cover crops	✓	
Conversion to perennial grasses and legumes	✓	✓
Manure and compost addition	✓	
No-tillage and other conservation tillage		✓
Rewetting organic (i.e., peat and muck) soils		✓
Improved grazing land management	✓	

Range of tools available to help estimate C/GHG impacts

- Many with accompanying training materials!!

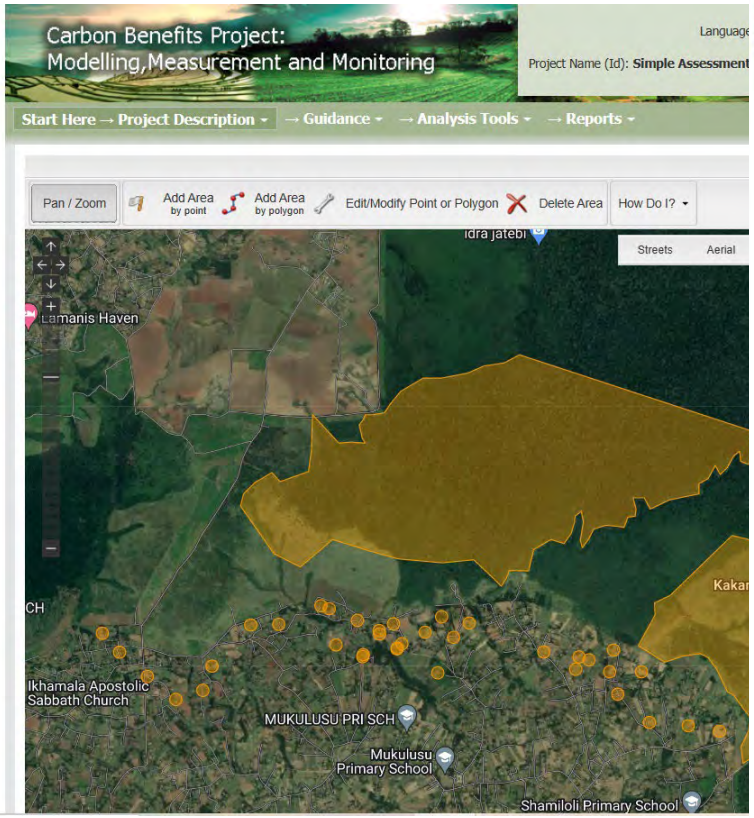


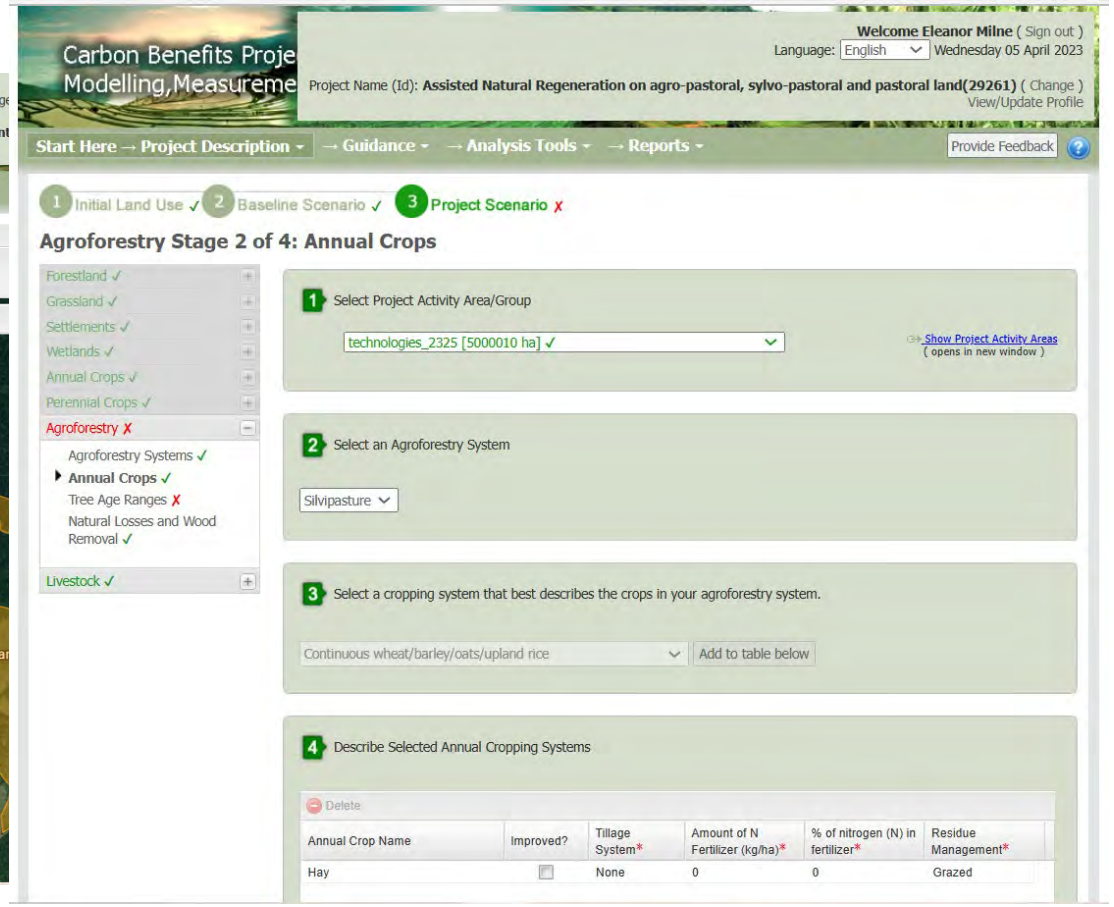
Range of tools available to help estimate C/GHG impacts

- Many with accompanying training materials!!

Range of tools available to help estimate C/GHG impacts

www.carbonbenefitsproject.org





Online tools to estimate GHG/C impacts of different land use/management scenarios

Users complete information on different land management changes

Produce a report of ghg/C impact

Training

Quick Guide

Click Quick Guide to download a quick guide to the CBP tools which includes:

1. The methodology the tools use
2. Input and output data
3. A step-by-step guide to using the tools
4. Advantages of using the tools

CBP Online Training Videos

All CBP Training Videos are on You Tube on The Carbon Benefits Platform. Videos are available in English and Russian

CBP training videos 1-3 in English

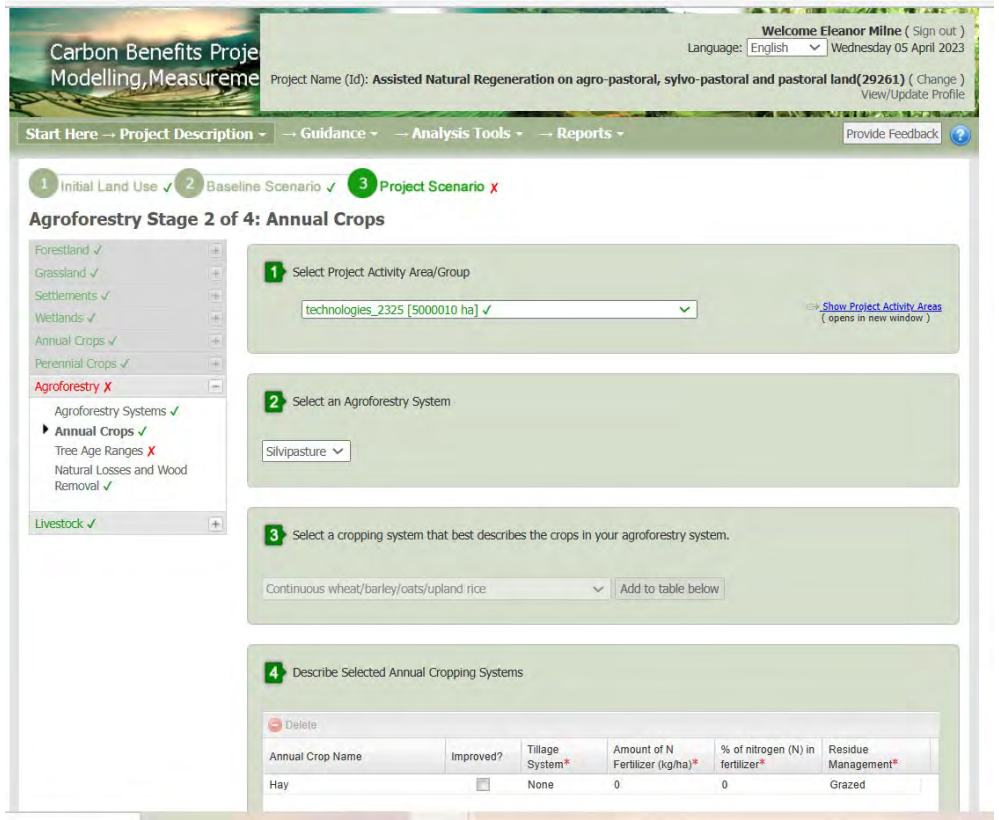
CBP training videos 5-6 in English

Uploading a CBP report to WOCAT (1:08:27)

CBP training in Russian Day 1

CBP training in Russian Day 2

CBP training in Russian Day 3



Tutorials

- CBP General Tutorial – Gives an overview of the entire CBP system and how to navigate it
- Project Description Module Tutorial – This tutorial shows you how to set up your project activity areas on a map
- Developing Land Use Scenarios For Your Project
- Measurement and Monitoring Tutorial
- Simple Assessment Tutorial
- Reports Tutorial – Helps you create a GHG balance report and understand it
- Socio-Economic Tutorial

CBP Online Training Slides

To view/download the slides, click on the links below which will take you to the presentation on SlideShare:

1. Overview of the CBP tools
2. Describing your project spatially
3. Exercise 1 'An agroforestry project'
4. The Simple Assessment
5. Overview of a mixed landscape project for Exercise 3
6. The Detailed Assessment

Data Collection

Below are some forms which can be used to collect land management information (Activity Data) needed to run the CBP tools. Forms are in English or Spanish. Thank-you to Marco Flores Maldonado and Matias Bosio for the Spanish Translation.

Exercises

English

Setting up a project

Point file for exercises 1 & 3

Possible Research and Dev Areas

- How can permanence of SOC gains be ensured?
- What are the trade-offs in terms of other ecosystem services?
- What are the impact of different SLM practices on SOC and net GHG emissions in different soil/climate conditions

About WOCAT

The World Overview of Conservation Approaches and Technologies (WOCAT) is a **global Network established in 1992**.

WOCAT supports the compilation, documentation, evaluation, sharing, dissemination, and application of **sustainable land management (SLM) knowledge**.

In 2014, WOCAT's growth and ongoing improvement culminated in being **officially recognized by the UNCCD** as the primary recommended Global SLM Database for best SLM practices.

https://www.wocat.net/en/about

WOCAT
World Overview of Conservation Approaches and Technologies

The Global Network on Sustainable Land Management

Consortium Partners

Funding Partners

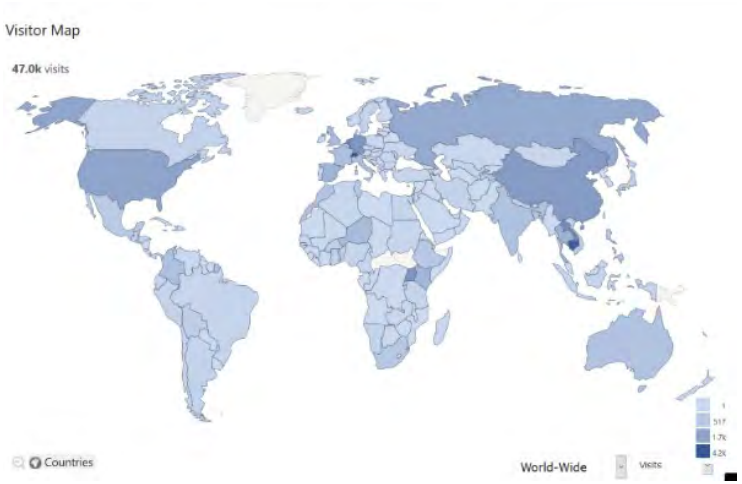
Global WOCAT SLM Database

https://qcat.wocat.net

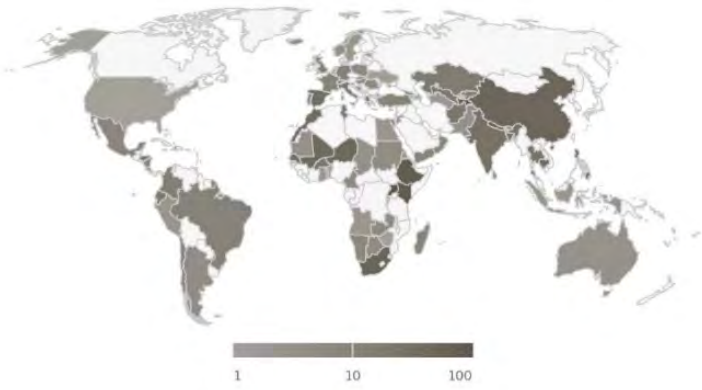
Main features of the WOCAT Global SLM Database:

- ✓ free upload and worldwide sharing of countries' good SLM practices in English, Spanish, French, Russian and Chinese
- ✓ free access to 2000+ proven, field-tested SLM practices from over 130 countries
- ✓ database filter to find relevant SLM practices for specific landscapes, land uses etc.
- ✓ possibility to integrate national SLM good practices in national/project/global platforms through API

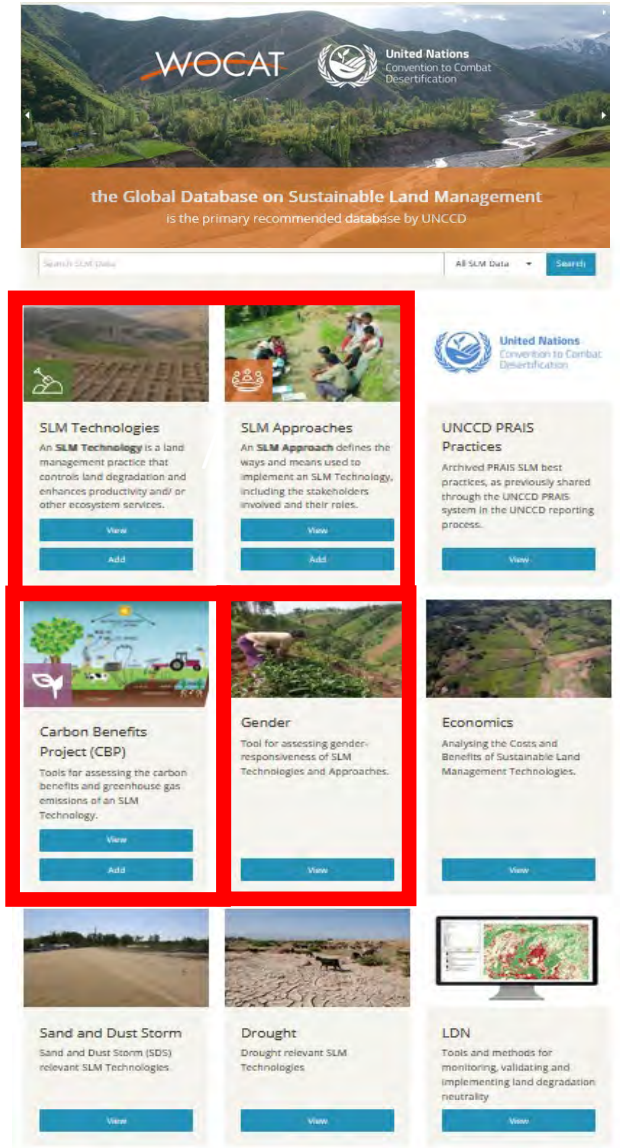
UNCCD parties and other reporting agencies are encouraged to enter and share SLM best practices in the WOCAT SLM Database, and report in PRAIS under "Implementation Framework"/"Actions on the ground" (section 7.4.1 of the PRAIS reporting manual)



Database Visitors

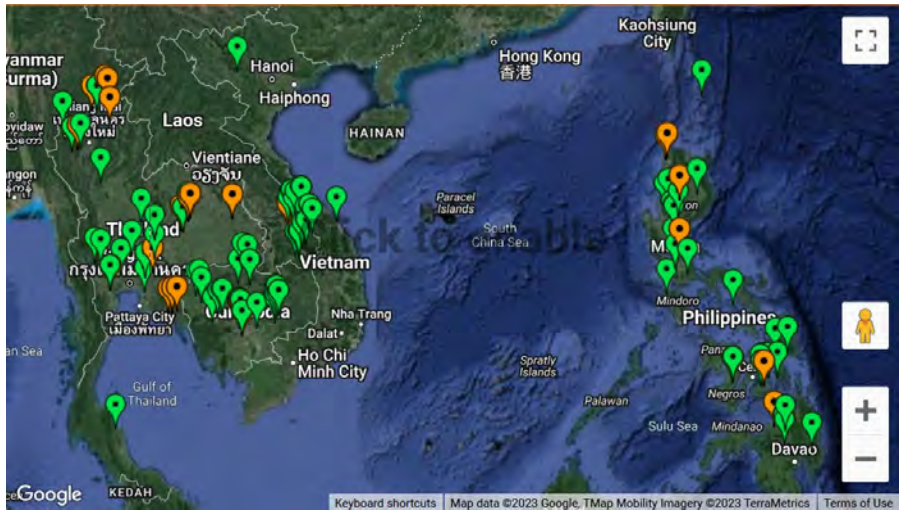


SLM good practices in Database



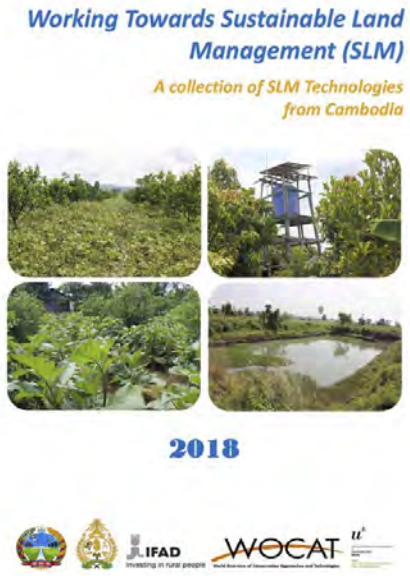
SLM Technologies / Approaches in SEA

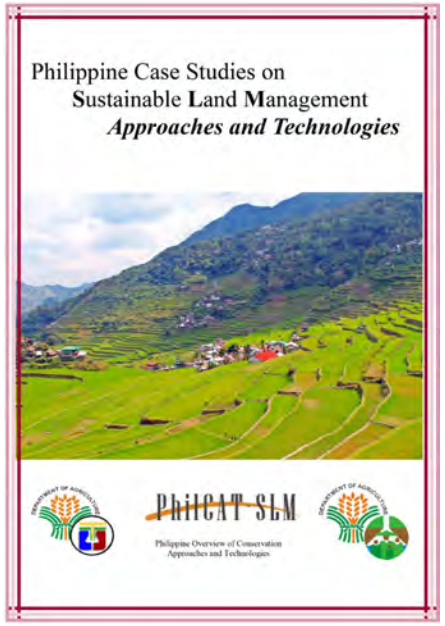
[WOCAT Database](#)



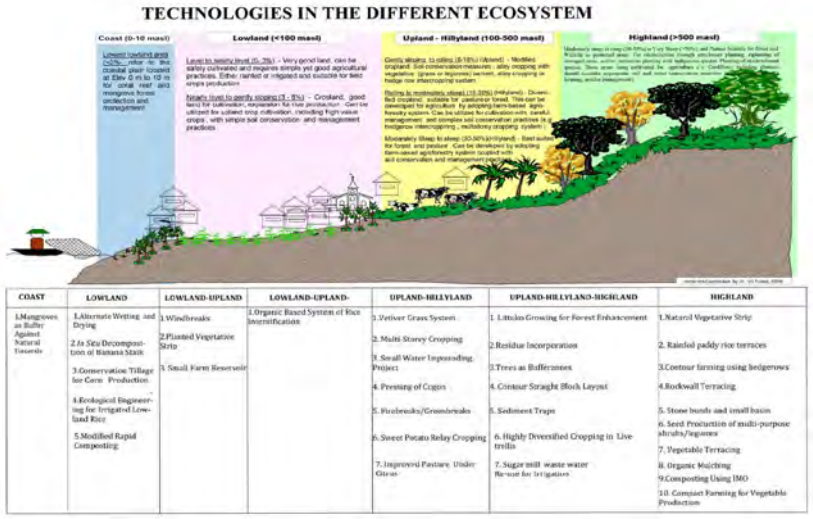
Intercropping of orange trees with mungbean in mountainous areas (Cambodia)

Assisted Natural Regeneration (ANR) (Philippines)





[PHILCAT](#)



Integrated farming systems

Picture: Tim Sophea, RUA

*Integrated farming systems (IFS) evolved with the aim to **combine multiple crops** (e.g., cereals, legumes, tree crops, vegetables) and **multiple enterprises** (e.g., livestock, apiary, aquaculture) **on a single farm** in an integrated manner (Behera et al., 2015).*

IFS include a combination of different SLM Technologies each of them aiming at a specific benefit

… but may also :

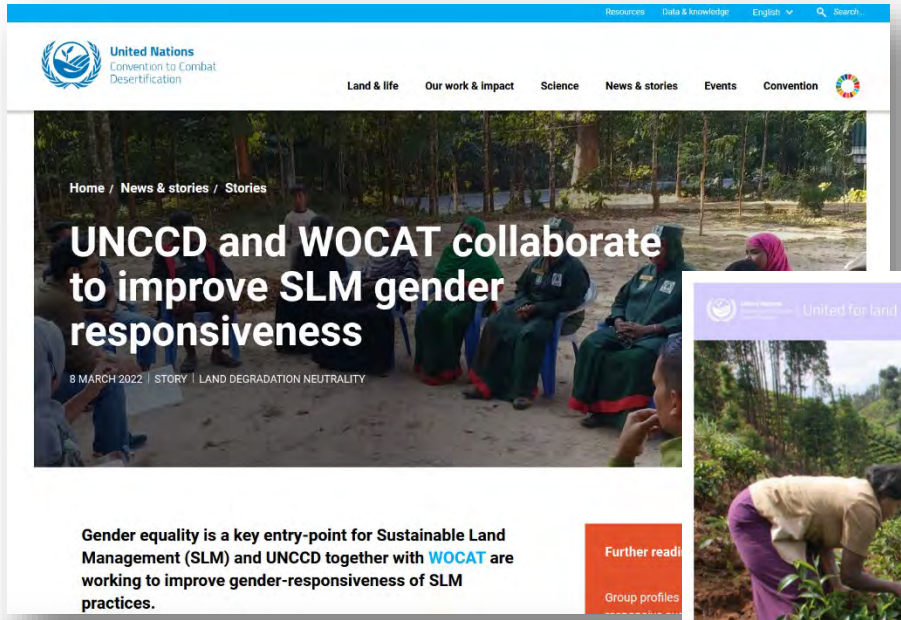
include «synergies» between different SLM Technologies:
e.g. farm manure from livestock is used for improved vegetable gardens, rice straw is used for mulching of vegetable gardens, etc.

Increased C inputs
- ✓ Residue retention
- ✓ Cover crops
- ✓ Manure & compost
- ✓ …

Reduced C loss
- ✓ Conservation tillage
- ✓ Conversion to perennial grasses & legumes
- ✓ …

Adding a gender lens to Sustainable Land Management

- **assess the gender responsiveness of SLM practices**
- evaluate how **gender responsiveness** of SLM Technologies and Approaches **can be improved**, **stepping up adoption** and **dissemination**, making SLM beneficial for women and men alike
- support project planners, designers and implementers to **identify, implement and scale gender-responsive SLM Technologies and Approaches**



Questionnaire

SLM Technology Group Profiles
with insights from 15 countries

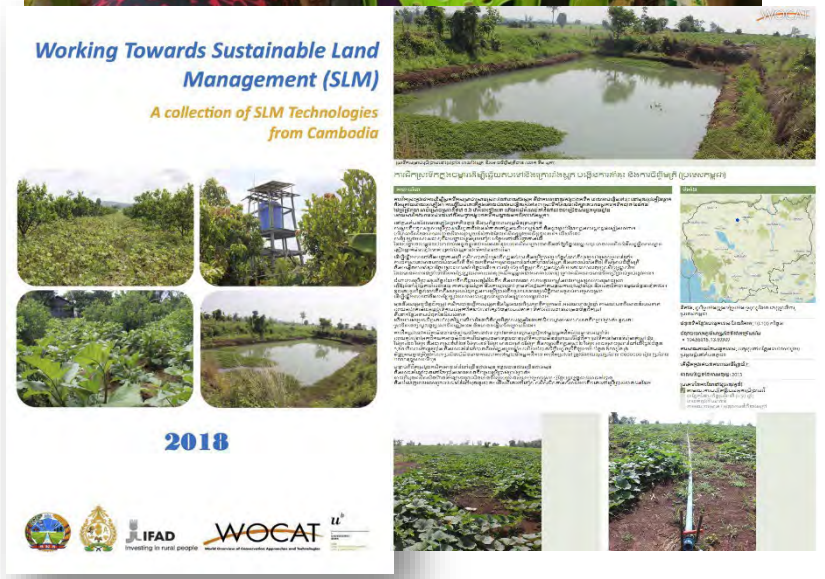
Embedding sustainable agriculture topics into higher education and beyond

- **Agroecology / SLM / carbon farming / integrated farming** need to be included into higher education teaching
  - ✓ Systemic perspective of farming and landscapes
  - ✓ Tailored solutions for specific agro-ecological zones
  - ✓ Integrated participatory approaches

- **Education for Sustainable Development (ESD)** approaches need to be included into higher education
  - ✓ A broad range of competences need to be built (academic knowledge, skills and attitudes)
  - ✓ Combination of innovative didactics, new teaching-learning arrangements – link to practice / field

- Building on **national / regional / global Databases**
  - ✓ Global WOCAT network, www.wocat.net and others

- Link **outputs of implementation projects** with higher education curricula
  - ✓ Tools developed and evidence generated



Pilot project: develop a Sustainable Development and Sustainable Land Management / Agroecology curriculum at RUA

Collaborative process

Co-design of curriculum for the RUA and other agriculture-focused higher education institutions in Cambodia.

- ✓ Including systemic perspective and tailored solutions for specific contexts
- ✓ Including participatory processes between science and practice

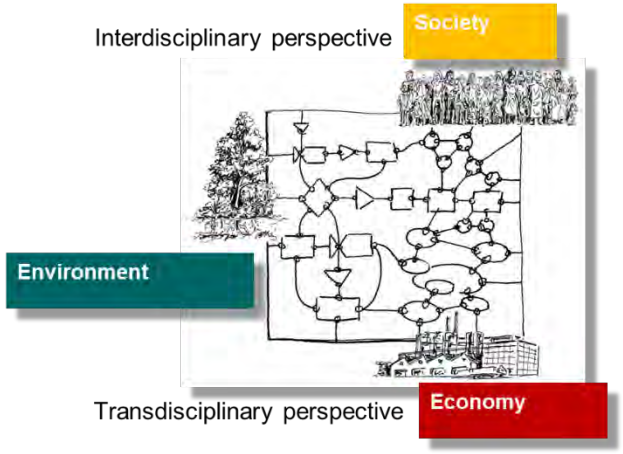


Illustration: K Herweg

Climate-resilient integrated farming systems – SUCRA project

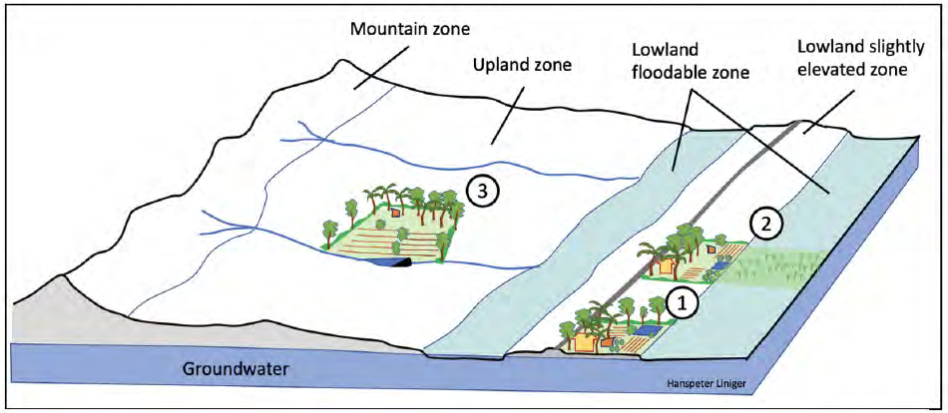


Figure 3. Simplified illustration of the identified General Landscape Units for IFS implementation. 1: Homestead (GLU1), 2: Homestead with Rice (GLU2), 3: Chamkar (GLU3).

Homestead – IFS including artificial pond and aquaculture
(GLU1 – IFS M3)

Photo: Hanspeter Liniger

Vegetables, fruit trees, multi-purpose crops, small livestock, and **artificial pond and aquaculture:**
1: Farmhouse
2: Pond with fish
3: Irrigated leafy vegetables
4: Irrigated climbing/fruit vegetables
5: Agroforestry with fruit trees
6: Banana, herbs along walk path
7: Small livestock (chickens, ducks)
8: Wells
9: Water storage tanks
10: Vegetable nursery
11: Living fence, multipurpose trees, indigenous trees

Tim et al. 2023

→ Integration into teaching at RUA

WOCAT

World Overview of Conservation Approaches and Technologies

Contact/follow us: www.wocat.net wocat.cde@unibe.ch @WOCATnet @wocatnet

Photo: RUA Cambodia

UNIVERSITÄT BERN CDE CENTRE FOR DEVELOPMENT AND ENVIRONMENT

ISRIC World Soil Information

ICARDA Science for resilient livelihoods in dry areas

Food and Agriculture Organization of the United Nations

Alliance Bioversity International CIAT

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

ICIMOD