# Academic initiative:
# including agroecology into university curriculum

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**Session 1.A: Strengthening networking, knowledge sharing and capacity building for scaling up agroecology and safe food system innovations**

Workshop on agroecology and safe food system transitions for green, inclusive and resilient COVID-19 recovery in the ASEAN region
8-9 November 2021

# Embedding agroecology / SLM in higher education

**Context:**

- Curricula of agriculture higher-level education institutions in Cambodia did not explicitly teach agroecology / sustainable land management (SLM) and sustainable development
- Large part of students go to work for extension and need to build up the right competences

**Task:**

- Agroecology/SLM needs to be integrated as a key topic in higher education
- Future generation needs to be trained on climate-resilient agroecology/SLM solutions

# How can we capacitate the young generation to become future change agents?

What **competences** do students need to master **to foster sustainable development** in their future jobs?

How are they able **to address today's and future challenges** of food security, climate change, resource degradation, and poverty?


Graduates of RUA assume positions of responsibility in **government, extension, research, teaching, private industry, civil society, …**

How can we design **effective teaching-learning arrangements at RUA** to build these competences?

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

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

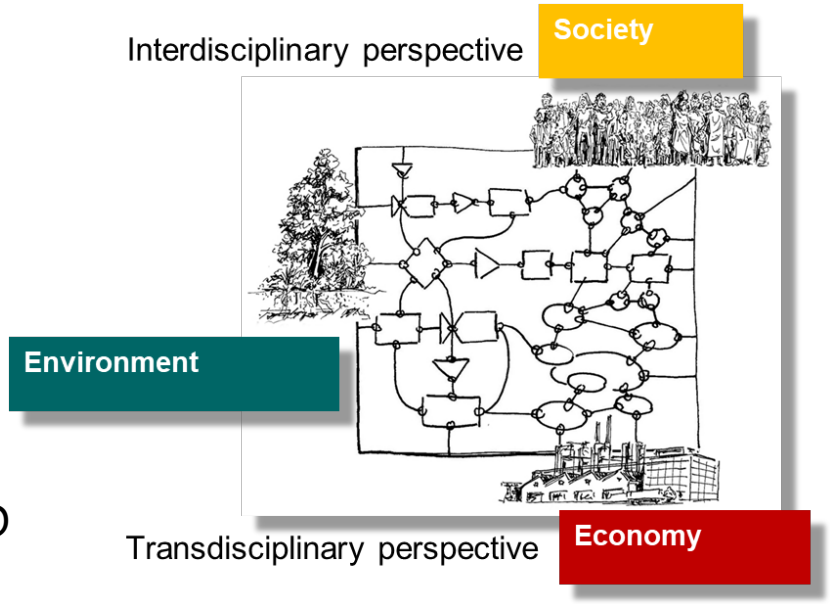
Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Education, Research and Innovation SERI

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

## Collaborative process

- Co-design of curriculum for the RUA and other agriculture-focused higher education institutions in Cambodia.
  - ✓ Including systemic perspective
  - ✓ Including tailored solutions for specific contexts
  - ✓ Building on existing knowledge bases, e.g. Global WOCAT SLM Database
  - ✓ Including participatory processes between science and practice
- Support and high interest by the rector of RUA and the UNCCD focal point of the Ministry.




*Illustrations: K Herweg*

# Education for Sustainable Development (ESD) approaches

**Combination of innovative didactics, new teaching-learning arrangements,**

and **thematic issues** of sustainable development, SLM, agroecology, climate change, DRR, …

At the end of the course …

- … what do they need to know (**academic knowledge**)?
- … what do they need to be able to do (**professional skills**)?
- … what should their attitude and values be (**critical awareness**)?

High interest by rector of RUA on ESD approaches


*Illustrations: K Herweg*

# Joint development of SD-SLM curriculum

Which competences have to be built?


- **Understand concepts and frameworks** in land degradation (LD), sustainable land management (SLM), agroecology, climate change adaptation & mitigation, and disaster risk reduction in the context of sustainable development, particularly the SDGs, and relate them to the context in Cambodia.
- **Understand the fundamental principles and functioning of (complex) nature-human interactions**
- **Master tools and methods** to document, assess and evaluate LD and SLM/agroecology practices at farm and landscape levels
- **Develop potential solutions** for SD challenges jointly with farmers and other actors (multi-perspective knowledge)
- **Monitor impacts** of implemented solutions
- **Communicate adequately** with a broad range of actors
- **Share results** in writing (reports, posters) and orally (presentations)
- Etc.

# Topics of SD-SLM curriculum

## 6 thematic chapters

- Chapter 1: Introduction to SD, LD and SLM
- Chapter 2: SLM Technologies and Approaches, and Ecosystem Services
- Chapter 3: SLM, Climate Change and DRR
- Chapter 4: Mapping land degradation and SLM by using different tools
- Chapter 5: Decision-support tools for SLM and assessment of ecosystem services
- Chapter 6: Concluding session

| | | |
|---|---|---|
| **Chapter 1: Introduction to Sustainable Development, Land Degradation and SLM** | | |
| 1.1 | Introduction to Sustainable Development | |
| | **Chapter 2: SLM Technologies and Approaches, and Ecosystem Services** | |
| | 2.1 | Introduction to SLM Technologies and Approaches |
| | | **Chapter 3: SLM, Climate Change and DRR** |
| 1.2 | | 3.1 SLM, DRR, CCA and resilient livelihoods |
| | | 3.2 SLM and Climate Change Mitigation |
| | 2.2 | **Chapter 4: Mapping land degradation and SLM by using different tools** |
| | | 4.1 Introduction to LD and SLM Maps in national and global context |
| 1.3 | | 4.2 Introduction to mapping tools including WOCAT, remote sensing for the assessment of ecosystem services, climate change adaptation and mitigation |
| | 2.3 | |
| | 2.4 | **Chapter 5: Decision-support tools for SLM and assessment of ecosystem services** |
| | | 5.1 The role of knowledge-based decision making for up-scaling SLM practices and decision-support tools for SLM |
| | 2.5 | |
| | | 5.2 WOCAT participatory stakeholder workshop |
| | 2.5.2 | Socio-economic impacts (including livelihoods) |
| | 2.6 | Cost-benefits analysis |
| | 2.7 | SLM related ecosystem services at farm and landscape levels |
| | 2.8 | Assessment framework for ecosystem services |
| | 2.8.1 | Bio-physical assessment of ecosystem services |
| | 2.8.2 | Economic valuation of ecosystem services |

# High-level launch of SD-SLM curriculum

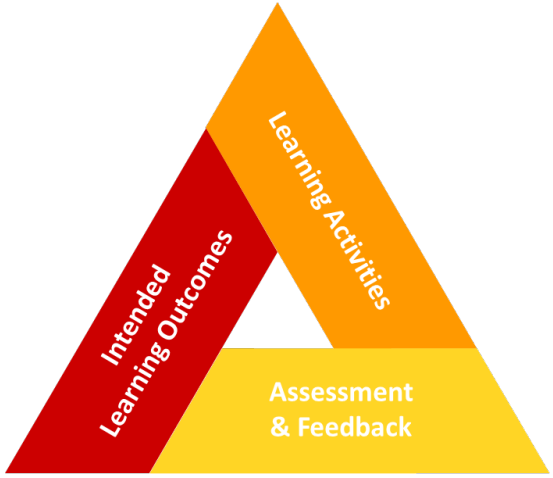
The **High-level official launching event** of the SD-SLM curriculum held in January 2020 in Phnom Penh

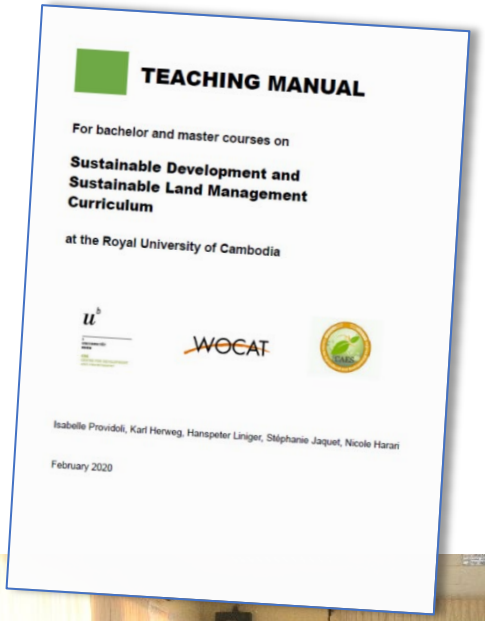
- 64 participants:
  policy-level officials, donors, HEI lecturers and researchers
- Among others high interest by the UNCCD focal point of the Ministry.

# Training of Trainers (ToT)

**4.5-days** for 15 RUA's lecturers and researchers, delivered by CDE senior research scientists

- innovative didactics, new teaching-learning arrangements, and
- thematic issues of SD-SLM-agroecology



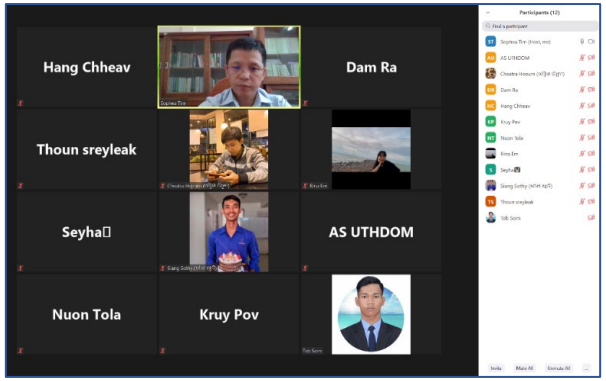

# Pilot teaching

## 1st pilot, May 2020

SD-SLM course at RUA Faculty of Forestry Science, BSc. 3rd Year,
3 Credits, 64 hours

### Challenges faced…

- Covid-19 problems
- Lecturer is teaching this course for the first time
- Concept of sustainability is new and abstract for students




## 2nd pilot, May 2021

SD-SLM course at RUA Faculty of Forestry Science, BSc. 3rd Year,
3 Credits, 64 hours

### Improved experience…

- Covid-19 problems, yet virtual class via Zoom is improved due to the better familiarity with it
- Group exercises possible
- More adapting on the content

*Students presenting group work results on Cambodia SDGs*

# Key takeaways

- Agroecology / SLM topics need to be included into higher education
  - ✓ Including systemic perspective of landscape
  - ✓ Tailored solutions for specific agro-ecological zones

- 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)

- Building on regional/global Databases related to agroecology/SLM
  - ✓ Global WOCAT network, www.wocat.net and others

- Link outputs of implementation projects (e.g. tools developed and evidence generated) with higher education curricula.

Agroecology and Safe Food System Transitions

# Thank you !

Mr. Tim Sophea, RUA

Further information about the project:

https://www.wocat.net/en/projects-and-countries/projects/bringing-sustainability-science-cambodia-education-sustainable-development

# Reference

New publication:

Herweg, Karl; Tribelhorn, Thomas; Lewis, Anna Lena; Providoli, Isabelle; Trechsel, Lilian Julia; Steinböck, Camilla (2021). ***Transdisciplinary Learning for Sustainable Development. Sharing Experience in Course and Curriculum Design*** *[Textbook]* . Bern, Switzerland: Centre for Development and Environment (CDE), University of Bern, with Bern Open Publishing (BOP)

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