TOWARDS A REGIONAL INITIATIVE TO DEVELOP E-LEARNING RESOURCES IN AGROECOLOGY

Phnom Penh, Cambodia, 11th of October 2017

Towards a regional initiative to develop e-learning resources in Agroecology

October 11th Phnom Penh, Cambodia.

Context

In 2030, at least 82 million people are expected in the Mekong area due to an increase of up to 20 million people in 20 years (Kirby et al., 2010). Therefore this region will have to drastically increase its rice and others staple crops production. This could be done by cultivating larger areas and increasing water demand (irrigation) with consequences on water diversions requirement estimated at 8% of the current discharge to the sea (Kirby et al., 2010). Moreover, the process of rice intensification, based on the principles of the green revolution, has increased the systemic dependency of smallholder farmers on fossil fuels for both energy-intensive production and agrochemical inputs. By heavily relying on infrastructure, agro-chemical inputs, rice genetic and mechanization, rice farming is trapped into a constant need for maintenance and thematic adjustments to environmental attributes that are becoming unstable, and changing at an accelerating rate.

It is largely stated that economic growth and poverty reduction in the region are reliant on sustainable management of natural resources, which are currently threatened by a range of factors, including extreme flooding and drought, soil fertility depletion in the uplands, undiversified productions in several regions, limited fodder sources in the lowlands, and the absence of well-articulated agricultural policies. In addition, rising demands for agricultural products increase pressure to simplify crop production and agricultural landscapes in the uplands, increasing the vulnerability to climate change and promoting mono-cropping. Such sensitivities to climate variability and climate changes are crucial in most of the countries in the region and particularly in Lao PDR and Cambodia, where most agriculture is rain-fed and climate change has a potentially large influence on productivity and rural equity.

Agroecological principles based on Soil, Water and Carbon management, should be keystones to drive improved soil fertility, ensure higher water use efficiency, recycle nutrients, diversify the productions, mitigate and adapt farming systems to climate variability and climate change, and finally drive food security and build social resilience. These systems should enhance the ecological efficiency of agro-ecosystems by optimizing bio-geochemical processes, through diversified crop rotations and the use of a large diversity of crops and cover/relay crops at different scales (i.e., field, farm and landscape). The innovations have to be developed for and with farmers in their lands and territories and efficient linkages between value chains stakeholders should be established to improve connections with market.

Agroecology embeds technical, economic, societal and policy dimensions of agricultural production, generating a high degree of complexity with:

- Dealing with a diversity of practices, cropping and farming systems that have to be co-designed with, for and by farmers, agricultural engineering, (re)designing landscape …
- Understanding biological processes, soil health, nature and functions of plant diversity …
- Dealing with innovation processes that are linked to higher levels of technical and social complexity.

A large array of agro-ecological practices and systems is observed in the region under different initiatives. However, despite the formulation of several strategic documents in the countries the implementation and dissemination of agro-ecological practices are still limited even if positive signs are observed in the ASEAN region. Several issues can be emphasized explaining the relatively slow move of agroecological practices with institutional and 'structural' barriers, lack of financial tools to

support the transition to Agroecology, access to appropriate-scale machinery, among others. In addition, access to knowledge, training, educational materials are of paramount importance to foster

the dissemination of AE practices and systems. The diversity of stakeholders involved in AE, call for improved access to knowledge, experiences sharing and collective learning processes. There is a need:

- To facilitate the access to training and teaching on agroecology for smallholder farmers, development operators and scientists;
- To enhance the interdisciplinary and interactivity through better connections between farmers' practices – development operators/scientists and training/education (high schools, agricultural schools, higher education);
- To develop different approaches and products of training/educational materials (i.e., theory, testimonials, case study…), providing the opportunity to learn in different, combined and integrated ways.

Adressing stakeholders'needs in terms of knowledge sharing, training and education refer to different approaches and tools with for example:

- For smallholder farmers improved collective learning and sharing knowledge within their group and between groups using different tools including fields practices, use of 'simple' object like cover/relay crops/green manure, composting, IPM, machinery … handbook and technical leaflet but also sharing knowledge through short videos produced with smartphones (testimonies of farmers using different practices).
- For academic education (high school and higher education), better connection between farmers - development operators - research and education has to be established to bring into the classroom testimonies from the first beneficiaries (farmers), keys elements to consider for an agroecological transition (development operators) and also academic knowledge from research (biophysical, social and policies dimensions).

Introduction to the event

In the region, several initiatives are taking place around different dimensions and practices of Agroecology with SRI, organic farming, conservation agriculture, IPM, Agroforesterie, permaculture… A diversity of training materials is developed for smallholder farmers, e-learning teaching materials developed for higher education in Cambodia, farmer fields schools, experimental station dedicated to AE practices, university that focuses their teaching and strategy on AE … Few examples of initiatives and stakeholders involved in the design and development of training/educational materials are listed hereafter:

- Agrisud, GRET and their partners developed handbooks and others resources in AE for smallholder farmers in Lao PDR and Myanmar, respectively.
- The Lao Uplands Sourcebook, Improving livelihoods in the Uplands of Lao PDR developed by NAFRI, NAFES and NUoL (http://ali-sea.org/online-library/).
- NAFRI and CIRAD, and their partners, developed a handbook in CA for smallholder farmers in Lao PDR.
- In Cambodia, a project (IPERCA) funded by the Agropolis Foundation pooled together the Royal University of Agriculture, the University of Battambang, Montpellier SupAgro, the General Directorate of Agriculture and CIRAD to develop e-learning educational materials in the field of AE and CA. Several courses and modules are developed (http://e-learning.rua.edu.kh/) and institutionnal relationship was established between RUA and the Institute of Technology of Cambodia (ITC) which has the leadership at the national level to provide technical support to others universities which want to design e-learning courses.
- ITC developed several e-learning courses and modules (13 courses, 8 departments) and ITC is linked with three national universities (RUA, UHS, NUM). ITC is also part of a regional network of Cyber University bringing together universities from Lao PDR (NUOL), Vietnam (HUST), Myanmar, and Thailand (Sripatum University). This group of universities along with

Montpellier SupAgro can provide efficient support to others partners who are willing to develop training/teaching materials.

- Montpellier SupAgro has successfully developed a massive open on-line course (MOOC) in AE in French and English languages (https://www.fun-mooc.fr/courses/Agreenium/66001S02EN/session02/about). Montpellier SupAgro is also one of the partners of IPERCA project.

In addition, through the projet Towards Agroecological Transition in South-East Asia (ACTAE) and the two main components Learning Alliance in Agroecology (ALiSEA, led by GRET, http://www.ali-sea.org) and Conservation Agriculture Network in South-East Asia (CANSEA, led by CIRAD), national partners from Vietnam, Laos, Myanmar and Cambodia are producing knowledge on a range of AE practices and systems. Most of these experiences and results could be translated into educational materials to be used as case studies adressing the different dimensions of Agroecology (technical, social/policy and academic/scientific). As an example, GRET is promoting the use of Smartphone for farmers and development operators to produce technical videos that are, then, shared widely through Facebook & Youtube[1]. Specific initiatives, funded by ALiSEA, are also related to produce training/educational materials in AE with projects in Cambodia (*Khmer Online Meta-Network Agroecological Training, first module about soil fertility topics*; NGO Vivre de sa terre) and Laos (FAG, *Developing of Teaching & Learning Material in Agroecology in the Lao PDR*). In Cambodia, as mentioned before, the IPERCA project designed e-learning materials (12 courses, 30 modules) in AE and CA for higher education programs with the Royal University of Agriculture (RUA) and the University of Battambang (UBB). In addition, a project funded through CANSEA/ACTAE (*Agrarian dynamics in Laos and Cambodia, socio-economic and environmental impacts*) produced two e-learning resources as case studies to be used by lecturers to complement the face-to-face teaching; they can be consulted through the following links with also an introduction to Conservation Agriculture: http://e-learning.rua.edu.kh/support-the-transition-to-agroecological-practices/.

These initiatives are promising and have to be connected through a common and collective strategy on how to give better access to training/education to smallholder farmers, development operators and students in the region. It could be an objective that could be endorsed by ASEAN members with the support of international players (Agreenium, USAID and others). In this dynamic, ALiSEA organized an event in Lao PDR (June 13th) to identify a coherent and collective strategy to design training and educational materials for different audience using a diversity of tools. The full proceedings of the workshop of this event are available through the following link (http://ali-sea.org/alisea-experience-sharing-workshop-review-of-existing-pedagogical-materials-and-initiatives-for-mainstreaming-agroecology-practices-in-laos-june-2017/).

There is a need to pursue the reflexion that was initiated during the previous event in Lao PDR with a serie of questions/expectations that have to be adressed:

- Which groups do we target among smallholders, development operators, lecturers …?
- What objectives do we have for each group (technical, academic background on principles and concepts, case studies)?
- What methods and training/teaching materials, based on context, should be developed for each group?
- How projects results can be used to develop training/teaching materials?
- What could be the place and role of the e-learning? Does the e-learning an appropriate tool to aggregate various tools (clip, content, pictures, activities, assessment…) and to pool together different stakeholders with different needs (technical, academic)?
- Who will implement these approaches and activities?
- Should a regional pedagogical platform be implemented to host the training/educational materials?

[1] Example given here on seed production : http://www.dailymotion.com/video/x50i1qw

Overal objectives

- To share experiences of keys stakeholders involved in the design and development of pedagogical materials;
- To identify initiatives and partners that could be involved in the development of first resources at the national or eventually regional level;
- To explore a common and collective dynamic for the development of pedagogical resources with keys stakeholders and means (physical, human resources and financial);

Expected outcomes

- A roadmap for the development of first resources in AE capitalizing on ACTAE's initiatives (Alisea and CANSEA);
- Updated mapping/benchmarking of training/teaching initiatives in the region in AE.

Participants

The participants will come from different horizons with (i) universities involved in the development of educational resources with the Institute of Technology of Cambodia (ITC), the National University of Lao PDR (NUOL), the University of Agriculture of Hanoi (Vietnam), Mae Jo and Kasetsart Universities (Thailand), University of Agriculture of Yezin (Maynamar) and SupAgro Montpellier, (ii) development operators and NGOs, (iii) research and development teams also involved in the development of training materials.

Date, venue and tentative program

The event will be organized on October 11th in Phnom Penh, Cambodia.

Time	Activities	Speaker/Facilitator
07:45 – 08:15	Registration of the participants	
08:15 – 08:30	Welcoming remarks	Dr. Koy Ra (GDA/DALRM)
08:30 – 08:45	Introduction to the event, objectives and agenda	Dr. Malyne NEANG (RUA) and Dr. Florent Tivet (CIRAD)
08:45 – 10:15	**Initiaves in the field of AE and development of educational resources**: • Challenges to develop educational resources and to teach/train AE (15') • Mapping/benchmarking of AE training/teaching resources in the region (15') • E-learning resources developed in Cambodia: challenges and next steps (15') • MOOC on Agroecology by SupAgro (15') • The dynamic of Cyber universities in the region (15')	 Dr. Stéphane de Tourdonnet (SupAgro) Mr. Pierre Ferrand (GRET) Dr. Mrs. Malyne Neang (RUA) Mrs. Sarah Clerquin (SupAgro) Dr. Samboeun Hean (ITC) and colleagues
10:15 – 10:30	Coffee break	
10:30 – 12:00	**From which initiatives pedagogical resources can be developed:** • Mapping of on-going projects in AE supported through ACTAE and others donors (15') • Dynamic of Alisea to share knowledge and develop pedagogical resources for smallholders and others stakeholders (15') • Dynamic of the project *Khmer Online Meta-Network Agroecological Training* (15') • Development of AE pedagogical material in Laos (15') • Dynamic at Mae Jo University (15')	 Dr. Philippe Cao-Van and Dr. Patrick D'Aquino Mrs. Lucie Reynaud Mr. Guillaume Jumel (Vivre de sa terre) Dr. Malavanh Chittavong & Ms Oulavanh Sinsamphanh (NUOL) Representative from Mae Jo University

12:00 – 13:00	Lunch break	
13:00 – 15:30	**Working groups:**	
	• Identifying a regional strategy for the development of pedagogical resources in AE (institutional, means required: human resources/students/pedagogical engineer, funds, training…)?	ITC (Cambodia) and Alisea
	• Exploring approaches and tools to be used to develop pedagogical resources (diversity of contents and tools to learn in different and combined ways)	Representatives from Mae Jo University and SupAgro (Montpellier)
	• Identifying first resources that can be developed based on on-going initiatives (ACTAE and others) and potential support from partners (SupAgro, ITC, network of Cyber universities…)	Royal University of Agriculture/Cambodia, and ACTAE representatives
15:30 – 15:45	Coffee break	
15:45 – 17:00	Restitution of the working groups	
17:00 – 17:30	Closing remarks and way forwards	Dr. Malyne NEANG and Dr. Florent TIVET