



ERASMUS+

HIGHER EDUCATION – INTERNATIONAL CAPACITY BUILDING
PROGRAM

Participatory and Integrative Support for Agricultural Initiative

Module 2 Environmental/Ecosystem Services for Sustainable Agriculture



Module 2 –Production Environment

1. Scope Environmental/Ecosystem Services for Sustainable Agriculture

2. Team
Leader: Khon Kaen University
Member: 1. SupAgro
2. Agrinatura- IRD
3. Helsinki University

3. Period: 21stOctober – 9thNovember 2019

4. General Learning Objectives

- 1) To be able to identify and characterize the diversity of farming systems (crops and livestock) in one local area
- 2) To assess the impact of agricultural and breeding practices on the natural resources, more specifically on the soil component of the ecosystem
- 3) To integrate social, environmental and economic impacts into a global assessment of the farming systems, on the state of natural resources on agriculture, and on the impact of agriculture on environment.

Week 1: Oct 21st - 26th, 2019

Specific Learning Objective(s):

- 1) To understand the common farming systems in northeast Thailand
- 2) To develop capacity for building a farming systems appraisal
- 3) To be able to identify and characterize farming systems at the household scale, i.e; a set of agricultural activities combined and interrelated with each other (cropping systems and animal rearing systems), and off-farm activities, guided by coherent decision taking

(Department of Agricultural extension and Agricultural systems, Department of Agricultural Economics)

Outputs :

Identification of parameters for sustainability (social, economic, environmental)
Zonation of the area
Historical profile of the area (versus innovations)
Typology of farming systems

Date	Time	Topics	Resource persons
Monday (21 Oct 2019)	9:00 – 10.00	Opening ceremony	Vice president & Dean of Agriculture, KKU
	10.00-10.15	Break	
	10.15-11.00	- Student introduction	Sukanlaya
	11.00-12:30	- Introduction on ecosystem services and sustainability in North-East Thailand:	Prof. Dr. Anan Phonthani
	13.30-14.15	Challenge issues on sustainable agriculture : from theory to practice	Didier
	14.15- 15.00	Group work Discussion on “How to study the challenging issues on sustainable agriculture”	Didier/Yumi /Theerachai/Sukanlaya
	15.00-15.15	Break	
	15.15-16.15	Groups’ report and feedback	Didier/Yumi /Theerachai/Sukanlaya
	16:15- 17:00	Introduction to Module 2 (schedule and programme for the 3 weeks)	Didier/Sukanlaya
Tuesday (22 Oct 2019) <i>(Stay overnight at the station)</i>	9:00-9:30	Using secondary data for area analysis	Didier
	9:30-11:00	Group work Using google earth images for preparing the zonation of the study areas (2 villages/2 groups/village)	Didier/Yumi Theerachai/Sukanlaya
	11.00-12.00	Groups’ feedback and synthesis	Didier/Yumi /Theerachai/Sukanlaya
	13.00-15.00	Group work Building interview guide for historical survey of the village (Crops, animal husbandry, land use, technical innovations, institutions)	Didier/Yumi /Theerachai/Sukanlaya
	15.00-15.15	Break	
	15.15-16.00	Groups’ feedback and synthesis	Didier/Yumi /Theerachai/Sukanlaya
	16:00 –18:00	Traveling to KKU Agricultural Training Station, Roi-Et province	Didier/Yumi /Theerachai/Sukanlaya
	18.00-19.00	Dinner	
	19.00-20.30	Preparation for agroecological observations	Didier/Yumi /Theerachai/Sukanlaya
Wednesday (23 Oct 2019) <i>(Stay overnight at the station)</i>	08.00-09.00	Breakfast	
	9:00-12:00	Group work Agroecological zonation (walking line transects and characterizing stations)	Didier/Yumi /Theerachai/Sukanlaya
	13.00-15.30	Group work Data processing at the station (building	Didier/Yumi /Theerachai/Sukanlaya

Date	Time	Topics	Resource persons
		profiles and agroecological maps)	
	15.30-16.00	Groups' feedback and synthesis on agroecological zonation	Didier/Yumi /Theerachai/Sukanlaya
	16.00-18.00	Group work Village survey (Key stakeholders' interviews on agricultural history)	Didier/Theerachai/Sukanlaya
	18.00-19.00	Dinner	
	19.00-20.00	Group work Modelling historical transformations(Crops, animal husbandry, land use, technical innovations, institutions)	Didier/Yumi /Theerachai/Sukanlaya
Thursday (24 Oct 2019) <i>(Stay overnight at the station)</i>	08.00-09.00	Breakfast	
	09.00-10.00	Groups' report and feedback	Didier/Yumi /Theerachai/Sukanlaya
	10.00-12.00	Group work Working at the station (preparing farming systems survey/interview guide and sampling)	Didier/Yumi /Theerachai/Sukanlaya
	13.00-16.00	Group work Continue working Working at the station (preparing farming system survey/interview guide and sampling)	Didier/Yumi /Theerachai/Sukanlaya
	16.00-18.00	Group work Village survey (testing interview guide)	Didier/Yumi /Theerachai/Sukanlaya
	18.00-19.00	Dinner	
	19.00-20.00	Group work Revising the interview guide	Didier/Yumi /Theerachai/Sukanlaya
Friday (25 Oct 2019)	08.00-09.00	Breakfast	
	9.00-15.00	Group work Villages survey (3 households/group) Lunch in the village	Didier/Yumi /Theerachai/Sukanlaya
	15:00-17.00	Travelling to KKU	
Saturday (26 Oct 2019)	9:00-12:00	Group work Collective Exercise: Building Farming Systems Typology	Didier/Yumi /Theerachai/Sukanlaya
	13:00 -15:00	Preparation of the presentations	
	15:00 - 16:30	Presentation of the outputs of the week 1 to week 2 teaching team: agroecological zonation, historical transformation models, and farming systems typology	All team (esp. week 2 team)

*week 2: 28th October – 1st November 2019

Learning Objective (s):

- 1) To learn on the tools for evaluate of environment conditions
- 2) To analyze the sustainable agriculture systems

Keywords: plant production, soil quality, biodiversity, macro and micro fauna

Date	Time	Topics	Resource persons
Monday (28 Oct 2019)	8:30-10:00	Introduction to soil quality (Exercise on papers based on soil quality)	Dr. Alain/ Nancy Rakotondrazafy/ Dr. Phrueksa
	10:15-12:00	Short presentation of each paper by each group	
	13:00-14:00	Introduction: the soil a living habitat	Dr. Alain
	14:00-15:00	The soil quality a new vision of an old concept	Dr. Alain
	15:00-15:30	Nematodes: soil quality indicator	Dr. Prakaijan
	15:30-17:00	Biofunctool a tool to monitor soil functional quality	Nancy Rakotondrazafy
	17:00	Travel to Roi-et Agricultural Training and Experimenting Station (stay overnight)	
Tuesday (29 Oct 2019)	9:00-16:00	Field work with BIOFUNCTOOL and macrofauna biodiversity (TSBF)	Dr. Alain/ Nancy Rakotondrazafy/ Dr. Phrueksa/ Ms. Phantip/ Ms. Monrawee/ Ms. Porntip
	16:00	Back to KKU	
Wednesday (30 Oct 2019)	9:00-12:00	Biofunctools: laboratory work	Dr. Alain/ Nancy Rakotondrazafy/ Dr. Phrueksa/ Ms. Phantip/ Ms. Monrawee/ Ms. Porntip/ Dr. Chutinan
	13:00-16:00	Introduction to R and Data analysis workshop	Ms. Phantip
Thursday (31 Oct 2019)	9:00-12:00	Data analysis	Dr. Alain/ Nancy Rakotondrazafy/ Dr. Phrueksa/ Ms. Phantip/ Ms. Monrawee/ Ms. Porntip/
	13:00-16:00	Analyses data and preparing the presentation on agricultural effect on environments	Ms. Phantip/ Ms. Monrawee/ Nancy Rakotondrazafy
Friday (1 Nov 2019)	9:00-12:00	Preparation of oral presentation	Dr. Alain/ Ms. Phantip/ Ms. Monrawee/ Nancy Rakotondrazafy/
	13:00-17:00	Student presentation on agricultural effect on environments	Dr. Alain/ Dr. Prakaijan/ Ms. Phantip/

			Ms. Monrawee/ Nancy Rakotondrazafy/
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week 3: Nov 4 th - Nov 9 th , 2019			
Learning Objective(s):			
1) To understand economic evaluation of farming system			
2) To be able to assess economic performances of different farming systems			
Date	Time	Topics	Resource persons
Monday (4 Nov 2019)	9:00-12:00	- Economic assessment of activity systems (Lectures) - Comparison of tools for economic analysis	Yaowalak/Satit + Didier
	13.00-16:00	Group work Assignment and preparation for economic assessment of different cropping and animal rearing systems	Didier/Theerachai/Sukanlaya
	16.00-17.00	Groups' report and feed back	Didier/Theerachai/Sukanlaya
Tuesday (5 Nov 2019)	8.00-10.00	Traveling to KKU training station	
	10.00-16.00	Village survey Group work Economic assessment of cropping and animal rearing systems (<i>lunch in the village</i>)	Didier/Theerachai/Sukanlaya
	16.00-18.00	Group work Data analysis	Didier/Theerachai/Sukanlaya
	18:00-19:00	Dinner	
	19.00-20.00	Group work Data analysis (cont'd)	Didier/Theerachai/Sukanlaya
Wednesday (6 Nov 2019)	8.00-9.00	Breakfast	
	9.00-12.00	Village survey Group work Economic assessment of cropping and animal rearing systems (adding information complements - triangularisation)	Didier/Theerachai/Sukanlaya
	12.00-13.00	Lunch	
	13:00-14:00	Group work Data analysis	Didier/Theerachai/Sukanlaya
	14.00-16.00	Groups' feed back and synthesis	Didier/Theerachai/Sukanlaya
	16.00-18:00	Traveling to KKU	
Thursday (7 Nov 2019)	9:00-10:00	Wrap up / Going back to the theoretical models of sustainability	Didier
	10.00-12.00	Group work : Integrating the triple sustainability into the farming systems of the types identified in week 1	
	12.00-13.00	Lunch	
	13:00-16:00	Group work	Didier/Theerachai/Sukanlaya



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		Continuation of the integration and preparation of the presentations	
	16.00 -17.00	<u>Feedback and draft presentations</u>	All students
Friday (8 Nov 2019)	9.00-17.00	Fishery production in Northeast Thailand (Lecture/farm visit) Finalization of the presentations (continue)	Dr. Penpan
Saturday (9 Nov 2019)	9:00-12:00	Students final presentations/ Student evaluation and official closing	All teams