



Improving land change simulation capacity to reduce conflict
from competing land demands – Program for the train the
trainer workshops

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**Improving land change simulation capacity to
reduce conflict from competing claims – train-
the-trainer program**

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1. Introduction

As part of the project “Improving land change simulation capacity to reduce conflict from competing land demands” selected staff members in each of the countries and provinces in the Greater Mekong Region will be trained in the basics of land use science and particularly the basics in land use modeling. In addition, stakeholders from different governmental organization in the respective countries will also be invited to attend this workshop completely.

The aim of the training is twofold: the topics covered will form the basis of the academic curriculum that will be implemented in the selected National Academic Institutes and at the same time the workshop will train staff members and selected stakeholders to perform planning and policy support exercises themselves. Consequently, the train-the trainer workshops will have an applied character, and focus on planning and policy applications mainly.

By request, selected stakeholders with sufficient technical capacity to conduct a LUCS modeling exercise, will participate during the complete train-the-trainer workshop. Moreover, additional high level planners and policy makers are invited on the last day of each workshop for an awareness raising event. During this day we will present to them the added value of LUCS modeling. Subsequently, we will start design a land use change assessment that involves LUCS modeling.

2. Materials

Software, documentation and other workshop materials will be provided by the project team, and distributed by means of USB-sticks.

3. Program

Day 1: Land use and land use change

- **0830-0900: Welcome and general introduction.** All participants are welcomed, the CEP activity LUCS capacity building in the GMS is introduced, and this workshop is placed in the context of this activity.

- **0900-1000: Lecture on drivers and impacts (lecture and discussion).** This lecture discusses the main role of land use in global changes, as well as regional consequences thereof. The discussion focuses on the relation between theory and everyday practice in the respective countries is discussed, based on the input from participants.
- **1030-1100: Coffee break**
- **1100-1200: Lecture and discussion on land cover / use / systems / intensity.** This lecture will discuss the different representations of land use and land cover in (spatial) datasets. Besides terminology, we will discuss the relation between land use, land cover, drivers and impacts.
- **1200-1330: Lunch break**
- **1330-1500: LUCS software introduction.** Here we will distribute and install the LUCS software, for those who do not yet have it, and go through the user interface together.
- **1500-1530: Tea break**
- **1530-1630 Running a simulation (exercise).** We will now run a basic simulation and assess the results of this simulation. Subsequently, we will finish day one with a wrap up of the topics of the day.

In the evening we will have dinner together, to get to know each other better, and to start building a LUCS network in the respective countries.

Day 2: Land use modelling

- **0830-1000: Introduction to land use modeling (lecture).** In this lecture we will discuss the various (generic) types of land use models that are available, and place the developed LUCS model in this spectrum. We relate the role of land use models to the policy cycle, and discuss their applicability.
- **1000-1030: Coffee break**
- **1030-1200: Explanation of the LUCS model.** Detailed presentation of the CLUMONDO model and its parameters / functions, including a guided tour through the user interface to relate this interface with the model description
- **1200-1330: Lunch break**
- **1330-1500: Sensitivity analyses (exercises).** In this exercise we start adjusting model parameters, in order to better understand the system response to these changes.
- **1500-1530: Tea break**
- **1530-1630: Sensitivity analyses continued (exercises).** In this exercise we continue adjusting parameters and we end with a wrap-up of the topics covered today.

Day 3: Land use change scenarios

- **0830-1000: Scenarios (lecture).** In this lecture we will introduce and discuss the concept of scenario studies in land use science
- **1000-1030: Coffee break**
- **1030-1200: Scenarios (exercise).** In this slot we will first do a basic introductory exercise on the design of scenarios, and subsequently design a complete land use scenario for a modeling exercise.
- **1200-1330: Lunch**
- **1330-1500: Running scenarios (exercise).** In this slot we will practice running an analyzing different scenarios in the LUCS software. For this we will use predefined scenarios and also discuss how new scenarios can be implemented.
- **1500-1530: Tea break**
- **1530-1630: Discussion of scenarios and wrap up of the day.**

Day 4: Creating a new application

- **0830-1000: Designing a new application (lecture).** In this session we will discuss the design and implementation of a new model application, both from a practical point of view (what is required) and from a conceptual point of view (what is a meaningful application?)
- **1000-1030: Coffee break**
- **1030-1200: Logistic regression analysis (lecture and exercises).** Logistic regression analysis is an important part of the calibration of a new model application. In this slot we will discuss the concepts and practice with such a logistic regression analysis.
- **1200-1330: Lunch break**
- **1330-1500: setup a new application (practice).** Participants will set up a new exercise from scratch, following the steps that have been discussed in the morning. We will use a pre-existing exercise initially, to make sure no time is lost on data processing. However, this will show the principles clearly and allow participants to do it themselves independently afterwards.
- **1500-1530: Tea break**
- **1530-1630: Discussion and wrap up:** Based on the practical experience from the afternoon we will revisit this mornings' discussion on setting up a new application, making sure that each participant has all the understanding and skills to do this independently afterwards for his or her own region.

Day 5: Awareness raising event for high level planners

- **0830 - 900: Opening remarks (representative from the Ministry of Natural Resource and Environment) and introduction (Jasper).** Subsequently, the CEP activity LUCS capacity building in the GMS will be introduced.
- **0900 - 1000: Land use change assessments (lecture and discussion).** This lecture will provide a review and some concrete examples of land use change assessments that apply LUCS models at different spatial scales. The discussion will focus on the role of LUCS models in policy making and their applicability.
- **1000-1030: Coffee break**
- **1030-1200: LUCS model demonstration (break-out groups).** Break-out groups consisting of both participants of the complete workshop and stakeholders invited to this day only will sit together to conduct a basic scenario study using an application.
- **1200-1330: Lunch break**
- **1330-1500: Design your own LUCS project (break-out groups).** Break-out groups consisting of both participants of the complete workshop and stakeholders invited to this day only will start designing their own LUCS project from scratch. These projects will be based on actual cases, or even ongoing projects in their own country or region. Afterwards, break-out groups report on the headlines of their project.
- **1500-1530: tea break**
- **1530-1630: Follow-up and wrap-up.** We will first revisit the advantages of LUCS modeling for land use change assessments, and indicate how this can benefit the work

4. Entrance requirements

Because one week is a limited amount of time to discuss land use science as well as land use change modelling extensively, a certain entrance level is expected from the participants. This holds for the selected staff members as well as the national stakeholders.

- All participants are expected to have a basic understanding of geography as well as land use planning and land use policies in their region.
- All participants are expected to have a basic understanding of GIS and spatial (raster) data prior to the workshop. Raster data is the basic input data for the LUCS model, and it is beyond the scope of this workshop to also discuss basic data structures and data processing.
- All participants are expected to bring their own laptop, which uses windows, in order to run the LUCS software. During the workshop it is possible to share one laptops among participants, but no hardware will be provided by the project team.

5. Follow up

Following the workshop participants will receive the workshop material (i.e. software, documentation, presentations, other workshop material. In addition, we will provide a number of

(research) articles that relate to the topics discussed and provide as starting points for further reading.