



**PROJECT REPORT ACTIVITY ON GEOGRAPHIC INFORMATION SYSTEM**

# **CoLUPSIA Capacity Building In Spatial Planning Training**

**CIFOR Office Bogor, West Java**

**Danan Prasetyo Hadi**

**2013**

**Contents**

1. Introduction ..... 2

2. Overview of training activities ..... 2

Figure 1. Activities during the training session ..... 4

Annex 1. List of Trainers ..... 5

Annex 2. List of Trainees ..... 6

Annex 3. The agenda of Geographic Information Systems for land allocation training .... 7

Annex 4. The agenda of Remote Sensing for land cover mapping training ..... 10

## **1. Introduction**

The Collaborative Land Use Planning and Sustainable Institutional Arrangements for strengthening land tenure, forest and community rights in Indonesia (CoLUPSIA) project is a research project funded by the European Union for four years (2010 – 2013) and conducted by CIRAD in collaboration with the Center for International Forestry Research (CIFOR), Toma Lestari (ToMA), University Pattimura (UNPATTI), University of Gadjah Mada (UGM), HuMA, and TELAPAK. The CoLUPSIA project sites are located in two sites: Kapuas Hulu District (West Kalimantan Province) and Central Moluccas District (Moluccas Province).

The overall objective of the project is to avoid deforestation and environmental degradation by supporting the development of sustainable institutional arrangements promoting land policies and instruments including the local community. While the specific objective to be achieved at the end of four years is to establish collaborative and equitable Land Use Planning (LUP) and Natural Resource Management (NRM), leading to the design and testing of new institutional arrangements, environmental policies and pro-poor financing instruments based on more secure land tenure and community rights.

This report describes one of the expected results related to capacity building which is relevant to the Land Use (LU) development process (training methodology for mapping and land allocation process). This training was part of the CoLUPSIA project activities in Moluccas. The expected impact was that all participants of the training will have skills in using Global Positioning Systems (GPS) tool for data acquisition, conducting GIS data processing and analysis for defining land allocation zoning, and also participants will have skills in analyzing satellite images for land cover mapping.

## **2. Overview of training activities**

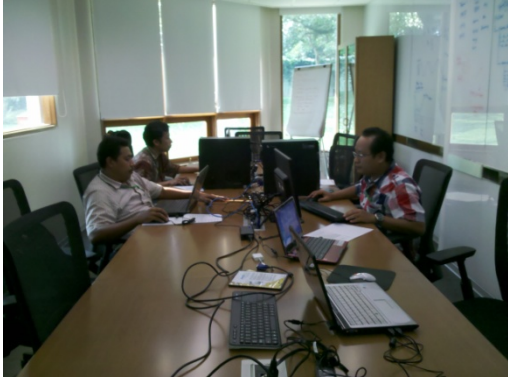
The training was conducted in Bogor, West Java Province, and took place at Centre International for Forestry Research (CIFOR) office on 8-30 July 2013. The training was attended by three participants including the University Pattimura (UNPATTI) staffs and the KAPET Seram staff (see Annex 2).

The objectives of the training are to build capacity in spatial planning for land allocation and land use planning using Geographic Information Systems (GIS) and CoLUPSIA methodology for collaborative land use planning, more specifically to introduce GIS as a supportive tool to land use planning and land allocation process; and to train local agencies staff on the CoLUPSIA methodology using GIS.

The training covers two topics including GIS for land allocation and remote sensing for land cover mapping. The training material of GIS for land allocation consists of theoretical and practical starting on how to acquire and develop accurate GIS data from various sources including how to use Global Positioning Systems (GPS) tool in the field for data acquisition, how to better manage geographic data (GIS data management) by applying geodatabase topology for ensuring data integrity, how to conduct GIS data processing and analysis, as well as on how to create map representation (map layouts) according to cartographic standards. During analysis session were also introduced on how to perform sequence analysis using model builder application of the ArcGIS Desktop software with forest score analysis for defining land allocation into functional zones as the case sample. The agenda of the training can be found in Annex 3.

The training of remote sensing for land cover mapping introduces participants to find out how pictures of earth's surface are recorded from satellites and way these images can be analyzed. The training covers concepts and foundations of remote sensing, visual image interpretation, characteristics of various remote sensing systems, and introduction to digital image processing techniques for land cover mapping (Annex 4).

At the end of the training program, there was agenda for handover one new computer supported by European Commission project - Collaborative Land Use Planning for Sustainable Institutional Arrangement (CoLUPSIA) to the University Pattimura (UNPATTI).



**Figure 1.** Activities during the training session

**Annex 1.** List of Trainers

<b>No</b>	<b>Name</b>	<b>Institution</b>
1	Danan Prasetyo Hadi	CoLUPSIA - CIFOR

**Annex 2. List of Trainees**

<b>No</b>	<b>Name</b>	<b>Institution</b>
1	Aryanto Boreel, SHut, MSi	Faculty Agriculture, University Pattimura, Ambon
2	Jan W. Hatulesila, SHut, MSi	Faculty Agriculture, University Pattimura, Ambon
3	Bambang Sangaji, ST	KAPET Seram

**Annex 3. The agenda of Geographic Information Systems for land allocation training**

<b>Training on Geographic Information Systems (GIS) for Land Allocation                      CIFOR Office Bogor, West Java Province                      8 - 18 July 2013</b>			
No	Day/Date	Time	Activity
1	Monday, 8 July 2013	09.00 - 10.00	Opening remarks
		10.00 - 10.30	Tea Break
		10.30 - 12.00	Introduction to GIS
		12.00 - 13.00	Lunch Break
		13.00 - 14.00	Introduction to GIS (continuation)
		14.00 - 15.00	Introduction to ArcGIS Software
		15.00 - 15.30	Coffee Break
		15.30 - 16.30	Introduction to ArcGIS Software (continuation)
		16.30 - 17.00	Review
		2	Tuesday, 9 July 2013
10.30 - 11.00	Tea Break		
11.00 - 12.00	GIS Data Acquisition		
12.00 - 13.00	Lunch Break		
13.00 - 14.30	Map digitization		
14.30 - 15.00	Coffee Break		
15.00 - 16.30	Map digitization (continuation)		
16.30 - 17.00	Review		
3	Wednesday, 10 July 2013	09.00 - 10.00	Introduction to Global Positioning Systems (GPS)
		10.00 - 11.30	Practical of using GPS
		11.30 - 12.30	Lunch Break
		12.30 - 14.00	Practical of using GPS (continuation)
		14.00 - 14.30	Coffee Break
		14.30 - 16.00	GPS data input into ArcGIS Software
		16.00 - 16.30	Review
4	Thursday, 11 July 2013	09.00 - 10.00	Data preparation
		10.00 - 10.30	Tea Break
		10.30 - 11.30	Data preparation (continuation)
		11.30 - 13.30	Lunch Break
		13.30 - 14.30	Data preparation (continuation)
		14.30 - 15.00	Coffee Break
		15.00 - 16.00	Data preparation (continuation)
		16.00 - 16.30	Review
5	Friday, 12 July 2013	09.00 - 10.00	Table and Chart



		10.00 – 10.30	Tea Break
		10.30 – 12.00	Table and Chart (continuation)
		12.00 – 13.00	Lunch Break
		13.00 – 14.30	Map Layout
		14.30 – 15.00	Coffee Break
		15.00 – 16.00	Map Layout (continuation)
		16.00 – 16.30	Review
6	Monday, 15 July 2013	09.00 – 10.00	Spatial database
		10.00 – 10.30	Tea Break
		10.30 – 12.00	Query operation
		12.00 – 12.30	Query operation (continuation)
		12.30 – 13.30	Lunch Break
		13.30 – 14.30	Query operation (continuation)
		14.30 – 15.00	Tea Break
		15.00 – 16.00	Data Management
		16.00 – 16.30	Review
7	Tuesday, 16 July 2013	09.00 – 10.00	Introduction to Spatial Analyst
		10.00 – 10.30	Tea Break
		10.30 – 12.00	Practical of Spatial Analyst
		12.00 – 12.30	Review
		12.30 – 13.30	Lunch Break
		13.30 – 14.30	Introduction to 3D Analyst
		14.30 – 15.00	Tea Break
		15.00 – 16.00	Practical of 3D Analyst
		16.00 – 16.30	Review
8	Wednesday, 17 July 2013	09.00 – 10.00	Automating geoprocessing using Model
		10.00 – 10.30	Tea Break
		10.30 – 12.00	Land allocation for zoning Kawasan
		12.00 – 12.30	Practical of land allocation for zoning Kawasan using ModelBuilder
		12.30 – 13.30	Lunch Break
		13.30 – 14.30	Practical of land allocation for zoning Kawasan using ModelBuilder (continuation)
		14.30 – 15.00	Tea Break
		15.00 – 16.00	Practical of land allocation for zoning Kawasan using ModelBuilder (continuation)
		16.00 – 16.30	Review
8	Thursday, 18 July 2013	09.00 – 10.00	Practical of land allocation for zoning Kawasan using ModelBuilder

			(continuation)
		10.00 - 10.30	Tea Break
		10.30 - 12.00	Practical of land allocation for zoning Kawasan using ModelBuilder (continuation)
		12.00 - 12.30	Practical of land allocation for zoning Kawasan using ModelBuilder (continuation)
		12.30 - 13.30	Lunch Break
		13.30 - 14.30	Practical of land allocation for zoning Kawasan using ModelBuilder (continuation)
		14.30 - 15.00	Tea Break
		15.00 - 16.00	Practical of land allocation for zoning Kawasan using ModelBuilder (continuation)
		16.00 - 16.30	Review
9	Friday, 19 July 2013	09.00 - 10.00	Review the overall materials
		10.00 - 10.30	Review the overall materials (continuation)
		10.30 - 11.30	Closing remarks

**Annex 4.** The agenda of Remote Sensing for land cover mapping training

<b>Training on Remote Sensing for Land Cover Mapping</b> <b>CIFOR Office Bogor, West Java Province</b> <b>22 -30 July 2013</b>					
No	Day/Date	Time	Activity		
1	Monday, 22 July 2013	09.00 - 10.00	Opening remarks		
		10.00 - 10.30	Tea Break		
		10.30 - 12.00	Introduction to Remote Sensing		
		12.00 - 13.00	Lunch Break		
		13.00 - 14.00	Electromagnetic radiation principles		
		14.00 - 15.00	Introduction to ArcGIS Software		
		15.00 - 15.30	Coffee Break		
		15.30 - 16.30	Introduction to ArcGIS Software		
		16.30 - 17.00	Review		
		2	Tuesday, 23 July 2013	09.00 - 10.30	Remote Sensor Data and Platforms
10.30 - 11.00	Tea Break				
11.00 - 12.00	Viewing digital imagery and understanding digital numbers				
12.00 - 13.00	Lunch Break				
13.00 - 14.30	Viewing digital imagery and understanding digital numbers				
14.30 - 15.00	Coffee Break				
15.00 - 16.30	Viewing digital imagery and understanding digital numbers				
16.30 - 17.00	Review				
3	Wednesday, 24 July 2013			09.00 - 10.30	Image pre-processing
				10.30 - 11.00	Tea Break
		11.00 - 12.00	Image corrections (image retoration)		
		12.00 - 13.00	Lunch Break		
		13.00 - 14.30	Image corrections (image retoration)		
		14.30 - 15.00	Coffee Break		
		15.00 - 16.30	Image corrections (image retoration)		
		16.30 - 17.00	Review		
		4	Thursday, 25 July 2013	09.00 - 10.00	Image enhancement (image improvements for visual interpretation)
				10.00 - 10.30	Tea Break
10.30 - 11.30	Image enhancement				
11.30 - 13.30	Lunch Break				
13.30 - 14.30	Image enhancement				
14.30 - 15.00	Coffee Break				

		15.00 - 16.00	Image enhancement
		16.00 - 16.30	Review
5	Friday, 26 July 2013	09.00 - 10.00	Interpretation of remotely sensed images
		10.00 - 10.30	Tea Break
		10.30 - 12.00	Visual image interpretation
		12.00 - 13.00	Lunch Break
		13.00 - 14.30	Visual image interpretation
		14.30 - 15.00	Coffee Break
		15.00 - 16.00	Digital image processing
		16.00 - 16.30	Review
6	Monday, 29 July 2013	09.00 - 10.00	Image classification - unsupervised
		10.00 - 10.30	Tea Break
		10.30 - 12.00	Image classification - supervised
		12.30 - 13.30	Lunch Break
		13.30 - 14.30	Land cover mapping using remote sensing technologies
		14.30 - 15.00	Tea Break
		15.00 - 16.00	Image classification and land cover mapping
		16.00 - 16.30	Review
7	Tuesday, 30 July 2013	09.00 - 10.00	Image classification and land cover mapping
		10.00 - 10.30	Tea Break
		10.30 - 12.00	Image classification and land cover mapping
		12.00 - 13.00	Lunch Break
		13.00 - 14.30	Image classification and land cover mapping
		14.30 - 15.00	Review the overall materials
		15.00 - 16.00	Review the overall materials (continuation)
		16.00 - 16.30	Closing remarks