

## **TAs Exit Report**

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Third Mission (March 24 – December 22, 2003)

### **General Activities and Output per TOR**

#### **A. MANAGEMENT INFORMATION SYSTEM (MIS) ON UPLAND DEVELOPMENT**

- ❑ Development of MIS on Upland Development
- ❑ Training and deployment of “MIS on Upland Development” on Municipal LGUs

#### **B. GEOGRAPHIC INFORMATION SYSTEM (GIS)**

- ❑ Development of GIS Handbooks  
*Output – Published GIS/GPS Technical Handbooks*
- ❑ Installation of ArcView GIS on Municipalities that procured the software.  
*Output – installed GIS software on selected Municipal LGUs.*
- ❑ Provide training on municipalities that procured the GIS software and the six UDP covered provinces  
*Output – trained participants in using the GIS and GPS technology*

**Management Information System ( MIS )  
on  
Upland Development**

**A-1. UPDATES of ACCOMPLISHMENTS IN MIS :**

The MIS system was developed to help the municipalities in having an efficient method of storing all necessary information of the community landuse plans. This MIS system was developed by UDP for LGUs for them to maintain and update their own data to keep track of all the information available in their municipality. Although a great volume of data should be included in the design of such MIS, it only covered for the meantime three schemes namely : (a) Landuse, (b) Forest Management System and (c) Land Tenure Instruments. These came from the Enhanced Community Watershed Management Scheme.

To automate this process, the data to be fed in the system should be standardized. This has resulted to the formulation and creation of a three standard form. This will be filled-out by the municipalities who will be using the system. The standard forms are presented below.

**a. Land Use Information Form**

Land Use Information Form (Site Level)

Province: \_\_\_\_\_ Municipality: \_\_\_\_\_ Barangay: \_\_\_\_\_  
 Name of (SAG) \_\_\_\_\_ Site: \_\_\_\_\_  
 Name/Coordinate of site: \_\_\_\_\_

Land Classification	Area (Has.)	Proposed Land Use	Area (Has.)	Name of Projects (Intervention)	Proposed Coverage	Completed
					Area (Has.)	Area (Has.)
Agri. Land (Low)						
Agri. Land (Upland Rice)						
Agri. Land (Banana)						
Agri. Land (Fruit Orchard)						
Agri. Land (Coconut)						
Agri. Land (Coffee/Cacao)						
Other Agri. Land Sub-Class						

  

Forestland						
Brushland						
Plantation Forest						
Cropland/Up-land						
Other:						

Certified By: \_\_\_\_\_ Date Certified: \_\_\_\_\_

## b. Forest Management Information Form

**Forest Management Form (Site Level)**

Division: \_\_\_\_\_  
 Municipality: \_\_\_\_\_  
 Region: \_\_\_\_\_  
 Site: \_\_\_\_\_  
 Name of FOM: \_\_\_\_\_  
 (to be filled in by the FOM)

**I. Natural Forest**

of total area \_\_\_\_\_

Total Area (ha)	Protected Area (ha)	Production Area (ha)	No. of Trees	Volume of Timber

Initial location: \_\_\_\_\_  
 Feasibility: \_\_\_\_\_

ii. Mixed Forest/Products:

(to be filled in by the FOM)

Species	Unit of Measurement	No.

Initial location: \_\_\_\_\_  
 Feasibility: \_\_\_\_\_

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**II. Plantation Forest**

Species	(ha.)	No. of trees	Volume of timber

Date established: \_\_\_\_\_  
 Investigated by: \_\_\_\_\_

**III. Protected Natural Regeneration on**

Area (ha.)	No. of trees (ha.)	Total No. of trees

Date of beginning: \_\_\_\_\_  
 Investigated by: \_\_\_\_\_

**IV. Disturbance Impairment (PROTECTED FOREST)**

Forest Area (ha.)

No. of Protected Area (ha.)	Volume of FOM

Initial location: \_\_\_\_\_  
 Investigated by: \_\_\_\_\_

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## c. Land Tenure Information Form

**Land Tenure Information Form (Communal)**

Barangay: \_\_\_\_\_

Type of Tenure Instrument	Control Number	Area (ha.)	Date issued	Issuing Agency	Name of PO	Covered Sites	Number of Beneficiaries
CFMA							
CADC/CAIT							
FIMA							
Other							

Date Completed: \_\_\_\_\_  
 Compiled By: \_\_\_\_\_

**CSC (Certificate of Stewardship Contract) Information Form - Individual**

Barangay: \_\_\_\_\_

Name of holder	Control Number	Date issued	Issuing Agency	Covered Area (ha.)	Under Site

**CLOA (Certificate of Land Ownership Award) Information Form - Individual**

Barangay: \_\_\_\_\_

Name of holder	Control Number	Date issued	Issuing Agency	Covered Area (ha.)	Under Site

Date Completed: \_\_\_\_\_  
 Compiled By: \_\_\_\_\_

**Specify Name: \_\_\_\_\_ - Individual**

Barangay: \_\_\_\_\_

Name of holder	Control Number	Date issued	Issuing Agency	Covered Area (ha.)	Under Site

Date Completed: \_\_\_\_\_  
 Compiled By: \_\_\_\_\_

## **1.1 Systems features and functionalities of the MIS on Upland Development**

- ❑ Provides interface to store all the necessary information in the database.
- ❑ Records all the existing data based from the standard form provided.
- ❑ Keeps track of the progress and development of projects on landuse and forest management information.
- ❑ Displays and monitors all the encoded information on landuse, forest management system and tenurial instruments in a level specified by the user (Ex. Province level, Municipal level, Barangay level and sitio level)
- ❑ Automatically generate and print reports.

## **1.2 MIS System Development**

The first phase of system development is the system study and analysis phase. This is where all the specification of the system like the scope, rules, flow, process, outputs, etc. are specified and established. This will be the basis of the programmer in making an application system. All the process or functionalities that are not indicated in the system specification will not be included in the programming phase.

Enumerated below is the actual schedule of the system development.

- ❑ System Study and Analysis - 2 weeks  
- The most important and critical phase in system development. This is where the process are studied develop a structure how it can be automated. Functionalities that are not included in the system analysis will not be included in the next phases of system development.
- ❑ Database design - 1 week  
- the design and structure of all the tables, links and relationships of data in the database.
- ❑ Application design - 1 week  
- Designing of the interface and flow of the system in an MIS. This will be the interface that the users will be using.
- ❑ Programming Phase - 1 month & 3 weeks  
- This is the phase where automation is developed. The programmer will have to develop a script or codes to produce the desired output automatically.
- ❑ System Testing and Packaging - 1 week  
- This is the phase where the MIS is tested for bugs or errors.

A full-blown MIS on Upland Development was completed and tested after 3 months.

### **1.3 MIS on Upland Development Training**

After the development of the system, trainings in the actual usage of the MIS on Upland Development were scheduled. The following were the training schedules conducted per province.

- PPO3 (Davao del Sur) - November 13-14, 2003
- PPO1 (Compostela Valley) - November 20-21, 2003
- PPO2 (Davao Oriental) - November 27-28, 2003
- PPO5 (South Cotabato) - December 2-3, 2003
- PPO4 (Sarangani) - December 4-5, 2003

Training Participants :

#### First Day of Training

- 1 data controller/computer operator - Mun. Planning Office
- 1 data encoder/computer operator - Mun. Agri. /Env. Office

#### Last Day of training

- 1 Mun. Agri. Officer
- 1 MPDO

Every last day of the training, the Municipal Agriculture Officers and Municipal Planning Department Officers were invited to aware them on the benefits and advantages in putting their information in an MIS. Knowing its advantages, they can insert this into their everyday work and become a part of their process of monitoring and updating of data.

### **A-2. ISSUES AND CONCERNS on MIS**

1. In establishing an MIS, it should be clearly defined in the specification all the process, rules in data entry, and outputs that the system will perform. It should be clearly listed all the detailed information that should come out in the data display.
  - The programmer has based the system design and analysis on the initial three standard forms. He has designed the outputs and created a format of report based on available data. In the system specification, the system analyst should have specified the format and the outputs that the system should produce. This outputs should be carefully studied for the users to really use the reports produced by MIS.
2. During the training on the MIS on Upland Development, the GIS Consultant/Programmer noticed that the forms given to the

Municipalities has not been properly filled out. Listed below are the reasons why they failed to fill-out the forms:

- ❑ There was a delay on giving of forms to be filled-out on the municipalities.
  - ❑ There were no consolidated data yet so they have to gather information from their Barangay development plans, landuses, UDP maps, etc.
  - ❑ Some data are not available that is specified on the form
  - ❑ They haven't done inventories yet of their forest
3. Participants trained in using the MIS on Upland Development easily understood the flow and design of the system. They properly identified the functionalities of every button, making the storing and recording of data easy.

However, with the absence of actual data that should be recorded on the standard forms, the GIS Consultant/Programmer had to improvise data to show how the system works and properly be oriented with the common functionalities of the system.

### **A-3. RECOMMENDATIONS ON MIS**

**Issue 1.** The data that should be included in the MIS on Upland development should be carefully reviewed. An assessment should be conducted on some municipalities to know the information that are available and essential for their planning and monitoring. We should know first the reports that will be useful for us to automate it and include in the MIS. I greatly emphasized that the MIS should adjust to the process and flow of the work. However, there are things that needs to be standardized for a flow to be automated like the creation of the forms to have a uniform data that will be fed in the MIS.

The M&E consultant has a proposed MIS on project monitoring to be deployed on LGUs. With the current MIS system for Upland Development, I would strongly recommend that before the MIS system for Upland development be improved and the MIS on project monitoring be deployed, it should be again carefully reviewed to prevent us from introducing different MIS. Hence, this two should be integrated.

**Issue 2.** Since the municipalities don't have a complete consolidated data on the information of their landuses, forest management system and tenorial instruments, the GIS consultant/programmer strongly suggests to first collect and consolidate all the data needed and record it on the standard form provided. If there is a need for the UDP to adjust on the standard form based on the available data that they have, the MIS will be updated accordingly.

## **Geographic Information System (GIS)**



## **B-1. UPDATES of ACCOMPLISHMENTS IN GIS :**

### ***B-1.1 GIS Awareness***

For the municipalities to sustain its process in map development and production, it would require them to have an appropriate software and equipment to process all the available and newly gathered spatial data of their municipalities. With the existing software installed in their municipalities, it is impossible for them to produce and develop maps. UDP has initially installed an ArcExplorer software, a freeware downloaded from the internet. This is a lighter version of a GIS software where it allows the user to view the maps already generated but limits them to process and modify spatial and even textual data. UDP also had installed a GPS Utility, an application software where it handles all the data downloaded from the GPS Receiver. After the orientation and conduct of trainings and technical support on ArcExplorer, a second level is introduced to all UDP municipal covered LGUs, the use of ArcView Software. This ArcView software offers more functionality that could sustain the process of making and producing maps. It has been used by UDP for more than 3 years. However, this software is a bit costly and would require for the municipalities to really allot a budget on it.

For the municipalities to allot a budget on the software, it needs for the local executives and mayors to be oriented and be aware of what the GIS can do to their municipalities. With this, a prototype using GIS was developed that will be presented on the decision bodies of every municipality. The prototype features some GIS applications like tax mapping, project monitoring, thematic mapping, location finding.

The actual schedule per municipality is as follows:

Date 2003	Municipality
23 - May	Maragusan
26 - May	Lupon
	San Isidro
27 - May	Magsaysay
	Sta. Cruz
30 - May	Tampakan
	Tupi
3 - Jun	Pantukan
4 - Jun	Maco
	New Bataan
5 - Jun	Laak
9 - Jun	Banay-banay
	Mati

10 - Jun	Tarragona
11 - Jun	Caraga
	Baganga
17 - Jun	Don Marcelino
18 - Jun	Malalag
19 - Jun	Malungon
20 - Jun	Maitum
23 - Jun	Tantangan
25 - Jun	Mabini
26 - Jun	Malapatan
27 - Jun	Kiamba
	Maasim
30 - Jun	Manay
	Cateel
2 - Jul	Glan

A total of 28 municipalities have been visited to demonstrate the advantages and benefits in using GIS to the mayors and local executives. Only the municipalities of Malita and Jose Abad Santos have not been visited due to the unavailability of the Mayor or other decision bodies.

UDP Counterpart

As UDPs support in helping the LGUs in establishing the GIS in their municipalities, UDP has facilitated the procurement, arrangement and follow-up of the needed documents between the municipality and the soul distributor of GIS in manila.

Another support provided by UDP is establishing and developing LGUs capacity in using these technologies. As UDPs counterpart, a 5-day intensive training has been scheduled. They will be taught how to use the GPS receiver and gather ground surveys. They will also be taught how to use and be oriented with the ArcView Software they bought, integrate these two technologies and relate it to the actual work in their municipalities.

Result of GIS presentations on municipalities

As a result of the GIS presentations, nine municipalities procured the software and they are :

- ❑ Province of Compostela Valley
  - Laak
  - Maragusan
  - New Bataan
  - Pantukan
- ❑ Province of Davao Oriental

- Mati
- Province of Sarangani
  - Malapatan
  - Maasim
  - Malungon
- Province of South Cotabato
  - Tupi

### **B-1.2. Training on GIS/GPS for LGUs**

Training duration : 5 days  
 Training venue : Mindanao Training and Resource Center  
 Bajada, Davao City  
 Instructors : Rogelio Abalus – GPS  
 Krusty Alvarez - GIS  
 Rossevic Borcegue - Digitizing

Training Scope :

#### **a. Global Positioning System (GPS)**

Activity	Methodology
Discussion on the basic information of GPS	Lecture
Hands-On orientation on the GPS Receiver in getting waypoints	Hands-On
Field Exercise in using the GPS Receiver in getting waypoints and mobile tracking.	Hands-On

#### **b. Geographic Information System (GIS)**

Activity	Methodology
Discussion on the basic information of GIS	Lecture
Discussion and exercise in using the ArcView Software	Lecture and Hands-On
Discussion and exercise in integrating the GPS data to the ArcView software.	Lecture and Hands-On

### c. Digitizing

Activity	Methodology
Discussion on the basic information of Digitizing	Lecture
Discussion and exercise in using the tablet digitizer	Lecture and Hands-On
Digitizing the maps brought by the participants	Hands-On

Below are some photo documentations of the training:

GPS Receiver orientation and exercise



Downloading of data from the GPS Receiver to the computer



Discussion and hands-on exercise on the GIS Software ArcView 3.3



Digitizing the maps brought by the participants



## **B-2. ISSUES AND CONCERNS ON GIS**

1. The data of the sitio profile is not yet entered to the new MIS database while the UDP\_Mapping System is already linked to the Sitio profile database. Whenever a user clicks on the map in the GIS and wants to know the Profile of the sitio, it displays no record. Second is modification of the picture library system to link it to the GIS\_Mapping\_System. This is to eliminate the duplication in storing of images to the MIS and to the GIS
2. The UDP-Mapping System has been further enhanced, now featuring display of UDP project information upon clicking a project site. However, this enhancement is not yet available in the UDP provincial offices since it was first required to gather all the pictures and project sites of UDP using the GPS receiver. The project code of the MIS will be the link to the UDP Project sites in the GIS.
3. The first batch of the GIS/GPS training for LGUs has been successfully completed. However, these participants need UDPs full technical support and coaching as they progress with the production and development of their maps and later on to link it to the existing database on their municipality.

## **B-3. RECOMMENDATIONS on GIS**

**Issue 1.** The GIS consultant/programmer strongly suggests to finish the Sitio Profile MIS. If this will be finished, the new database will contain the existing data. It is also suggested for the modification of the picture library system to link all its stored images on the GIS\_Mapping\_System.

**Issue 2.** In preparation for the upgrading of the UDP\_Mapping\_System of the five provinces of UDP, the GIS Consultant/Programmer is requesting the GIS Operators or Provincial RM Specialists to organize and download all the UDP Project Sites from the GPS Receiver. Collect also all the pictures taken that is related to the site and indicate the project code for every udp project site. The project code will serve as the link between the GIS and the MIS database to monitor the current status of the project.

**Issue 3.** It is strongly recommended to monitor all the municipalities that have been trained during the GIS/GPS training. Going to the municipalities will be best for them to be coached in their actual data.

Since the selected municipalities have already procured the GIS software, it is now suggested on them to allot a budget for the tablet digitizers for them to digitize all the paper maps, existing or new, in their municipalities. For the meantime, municipalities may use the digitizers available in UDP offices.

### **Planned Activities that should be established next year**

- ❑ Upgrading of UDP\_Mapping\_System for project monitoring on the five UDP provinces.
- ❑ Training on GIS/GPS for LGUs second batch. Participants of this training will be the municipalities that have allocated the budget for the procurement of the GIS software. All the municipalities will be given trainings on the use of GPS and GIS, the same that UDP did on the first batch.
- ❑ Coaching and Monitoring of municipalities that has been trained in GIS and GPS. Actual visits on the municipalities and coaching in processing their actual data using the GIS Software and GPS receiver.
- ❑ Assessment on the Tax Mapping procedures and specifications of the provincial and municipal LGUs. This is to develop a GIS-based tax mapping system for the provincial as well as municipal LGUs.
- ❑ Coaching and monitoring of municipalities that has been trained in GIS and GPS for the second batch. Actual visits will also be given to the second batch municipalities in processing their actual data.