

Participatory mapping

Based on a methodology developed by Natalia Estrada Carmona, Bioversity International



Preparation:

- Organising materials: maps, transparencies, signs and coded cards, post-it notes;
- Developing the land cover and land use classification;
- Select participants and venue for the mapping exercise.

Participatory mapping

The mapping exercise takes two days (one day with women and one day with men); or one day with both genders in different groups and two maps. It consists of 4 activities:

- **Activity 1** - Mapping land cover, land uses and key features of the landscapes;
- **Activity 2** - Mapping the areas for fishing, cropping, grazing and collecting wild food, medicinal plants, fodder, green manure, etc.;
- **Activity 3** - Assessing ecosystem services (ES) provided by the natural and managed land cover/use types;
- **Activity 4** - Understanding land use change and developing a scenario for future land use.

1. Preparation for the mapping exercise

1.1 Material

Map- We need 2¹ printed maps of the landscape (about 1 m by 1 m, or larger). We will use *Landsat* images at a scale of 1:70,000, covering a 37 km radius around the community. However, radius can be bigger if needed, for example in the case of nomadic activities. Natalia will help us get the maps - please send us the coordinates of the village(s) where you plan to carry out the exercise.

Transparencies - During the activities 1, 2 and 4, we will cover the map with transparencies on which participants will be mapping (e.g. drawing and marking different features). You will need at least 8 transparencies, which should be the same size as the map. During the mapping, please make sure that every transparency is well attached onto the map in order to insure the accuracy. Also, the map has the coordinates (mark as an asterisk), to facilitate the systematization of the information, please mark it in the transparencies (Figure 1).

At the end of each activity take a photo of the drawings on transparencies to georeference them and digitize the information (Figure 1). The photo should be perpendicular to the map to avoid distortions. Please, mark every transparency with the proper information, for example, Female map, community Nalitoya, date 28 – Oct – 2014. This information will be strategic to verify the collected and systematized information.

Signs and coded cards for activity 3 - In activity 3 each participant gets 10 coded cards for 10 ecosystem services described in **Table 1**. You should keep record of the participant's name and unique code assigned to each one.

Each cards has a **question** on a particular ES, for example, "*Where do you get the water you consume from?*" in local language and in English; and an **unique number for each participant**.

In Zambia, the cards also had a symbol to indicate if it is during the raining or the dry season (**Figure 2**).

In addition we will need to prepare **signs** for all of the natural and managed land cover/use types.

The unique number on the card enable us to keep track of which land cover/use types are used by gender and by each assessed ES.

¹ Activities 1 and 2 require one map, while activity 4 requires two maps.

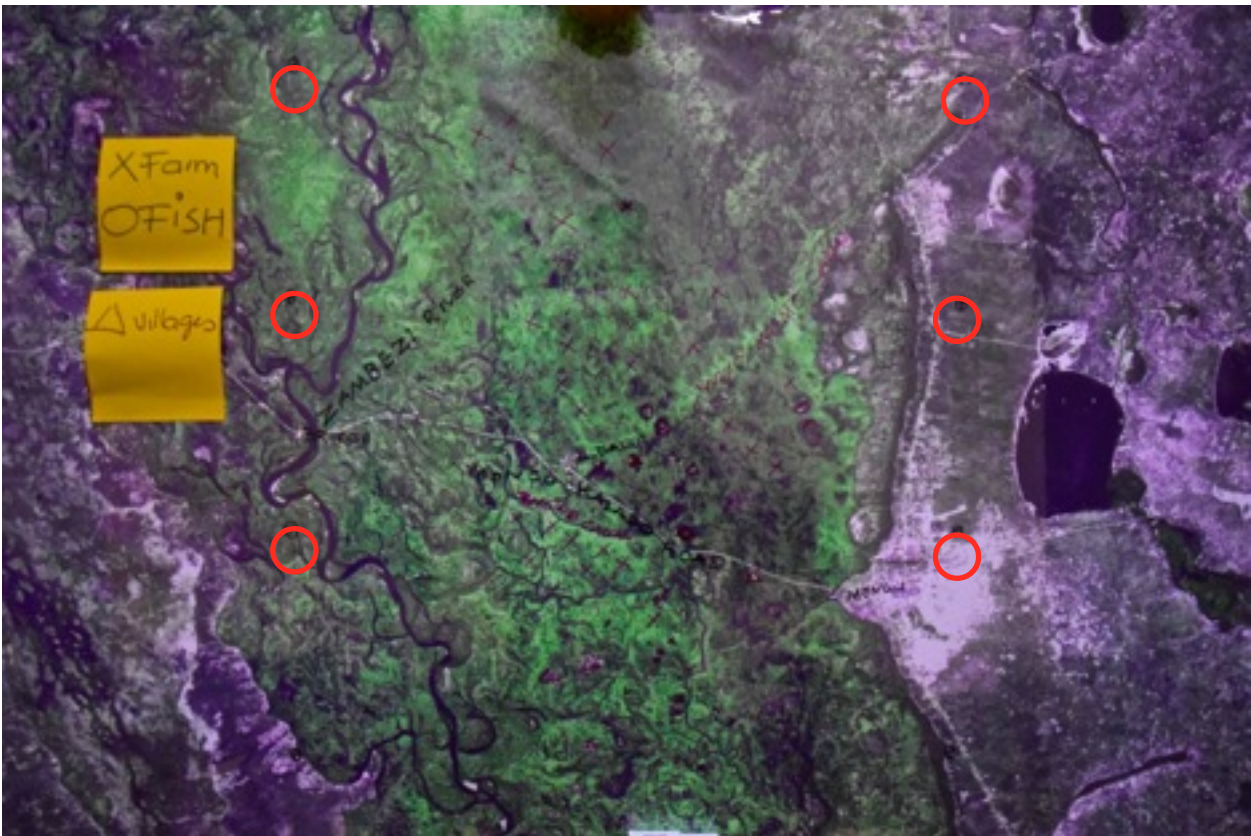


Figure 1. Picture taken after Activity 1 was finished. Notice that the picture was taken from a perpendicular angle and it includes the used labels. The red circles show the coordinates in the map also painted in the transparencies as guidelines for the georeferencing stage.

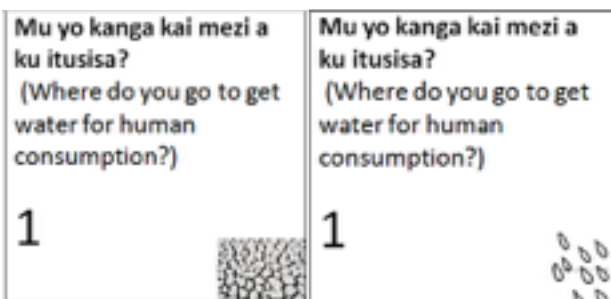


Figure 2. Coded cards to assess ES. Labels on the floor indicating the different land types that provides ES.



1.2 Land use and land cover classification

Identify the main types of land cover and land use with key informants and transect walks. This will help you guide the mapping exercises and prepare for activity 3. The main land cover/use types can include upland fields, lowland fields, agroforestry gardens, forests, sacred sites, etc.

Transect walks are guided “tours” with knowledgeable community members through transects of the landscape in order to explore and describe the physical and social organization of the communities. Transects should cover as many micro-ecological zones as possible (production, social groups, landscape units). See more information on more on transect walks in annex 1.

1.3 Organise participants and venue for the mapping exercise

The mapping exercise involves approximately 20 members per community: 10 men and 10 women. If possible, they should not be couples (i.e. husband and wife) to provide more independent data. Dividing the participants by gender allows us to determine any differences in land use and perceptions of ecosystem services between women and men. Keep in mind that a whole day activity will get people tired and results might get bias due to this. So, make sure the activities are dynamic and people have enough time to rest in between activities.

2. Mapping exercise

2.1. Activity 1 - Mapping land cover, land uses and key features of the landscapes

1. Cover the map with transparency 1.
2. Ask the participants to draw the main features (e.g. rivers, roads, ponds) and mark the exact location of their community. This will help everyone to recognize and locate themselves in the map. Make sure you spend enough time doing this, since good results depend on communities' recognition of their landscape. Make sure you assess, clarify and apply the scale and orientation concepts.
3. Then ask the participants to draw natural and managed land cover/use types by drawing polygons.
4. Before moving to activity 2 - take a picture of the drawings on transparencies for georeferencing and digitising the information.

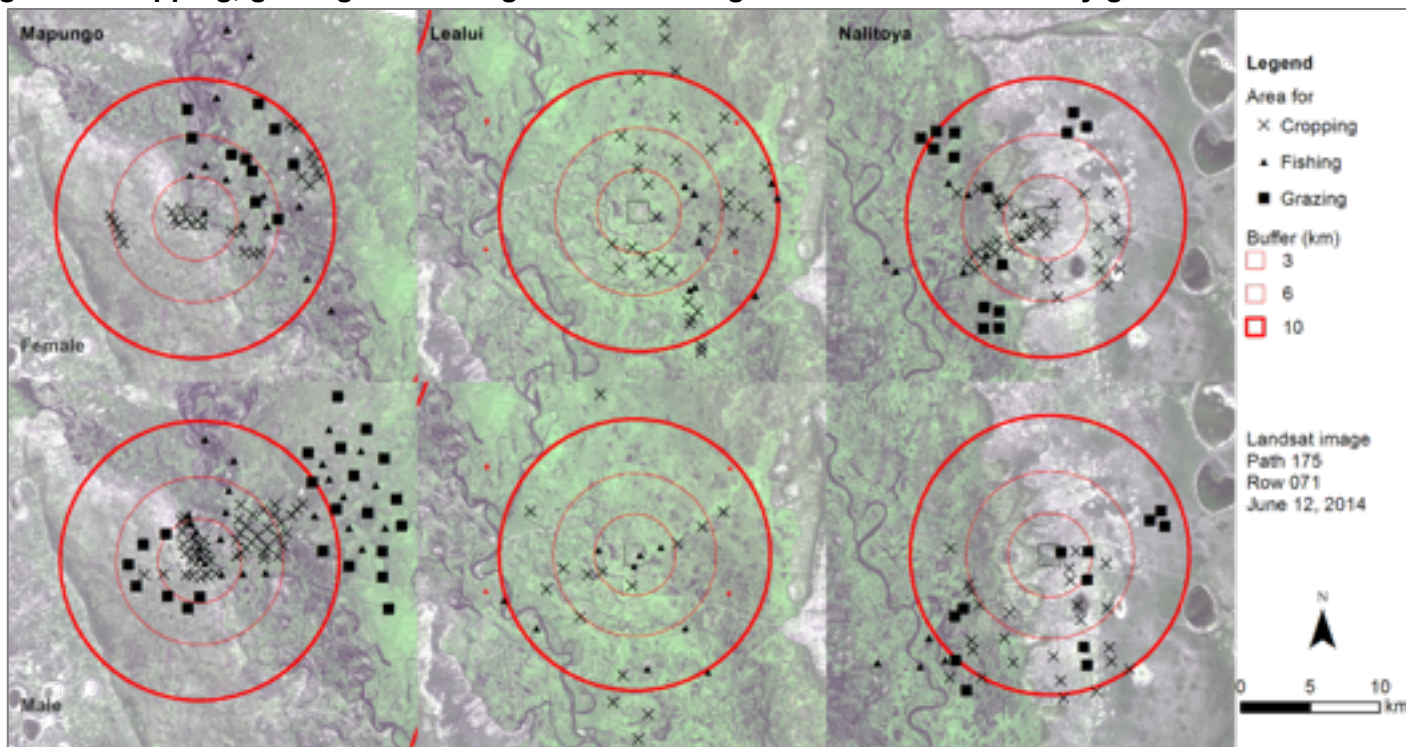
2.2 Activity 2 - Mapping the areas for fishing, cropping, cattle grazing and wild plant collection

1. Cover the map with transparency 2
2. Ask each participant to mark the areas they use for
 - fishing
 - cropping
 - cattle grazing
 - collecting wild foods, medicinal plants and plants for other uses green manure, fodder and composting materials.

Differential symbols can be used for each of the 4 categories: crosses for cropping; triangles for fishing; squares for grazing and circles for wild food and medicinal plants.

3. Take a picture of the drawings on transparencies. Figure 3 is an example of how the information looks when its georeferenced and digitalised

Figure 3. Cropping, grazing and fishing areas in 3 villages in Zambia stratified by gender.



2.3 Activity 3 - Assessing ecosystem services

Ecosystem services are assessed in a game-like exercise using signs for each land cover/ use type and coded cards.

Signs for all of the natural and managed land types - Make signs for each land cover/use type on a sheet of paper. For example, a sheet of paper with forest sign, which can simply say forest in local language. Distribute the signs in the room. The distributed signs represent the landscape.

Coded cards - Prepare coded cards with a unique number and a question (in English and local language). A unique number is a number assigned to each participant beforehand. For example the participant with number 1 will get 10 cards - each card with one of the 10 questions (Table 1). The farmer with number 2 will get 10 cards with number 2 on them, and so on.

Ask question by question and let the participants move around to allocate the card in the land cover type that best corresponds to the question. For example, ask the first question “*Where do you go to get water for human consumption?*”. After all participants allocate the card that best corresponds to that question (for example lake or forest) - move on to the next question.

Provide additional cards in case a ES is provided by two or more land types.

Table 1. Ecosystem services and questions for the cards

Type	ES assessed
1 Provisioning	Where do you go to get water for human consumption?
2 Provisioning	Where do you go to get water for agriculture?
3 Cultural	Which areas are important for cultural reasons?
4 Regulating	Which areas are important to minimise the impacts of floods?
5 Regulating	Which areas are important to minimise the impact of droughts?
6 Regulating	Which areas are important to reduce soil erosion?
7 Regulating	Which areas are important to maintain soil fertility?
8 Regulating	Which areas are important for pollination?
9 Regulating	Which areas are important for wildlife (for example for mating season, forage, spawning, migration)
10 Regulating	Which areas are important for pest control?

2.4 Activity 4 - Past and future landscapes

Split the participants in 2 groups (5 participants in each group).

1. Cover the map with transparency 3 and ask the participant in group 1 to make a map of land cover/uses in the past (for example 40 years ago) in the same way like in Activity 1 - by drawing polygons on the map.
2. Cover the map with transparency 4 and ask participant in group 2 to imagine and draw how they would like the landscape to be in the future.

2.5 Final discussion

Discuss the differences between past, present and future landscape maps.

Table 2. Check list - Before, during and after the mapping exercise

Before mapping workshop	
Print the map	
Organise material for mapping: transparencies, markers, paper	
Select participants and venue for the mapping exercise	
Prepare land cover and land use classification	
Make signs for the natural and managed land cover/use types for Activity 3	
Make coded cards for Activity 3	
Arrange refreshment(lunch, tea, coffee and cookies). You can pay the people in the community to prepare refreshments and lunch.	
Participatory mapping (2 mapping workshop, each lasts 1 entire day)	
Introduction	
Make a participant list: Collect information about the participants (name, age, gender, village name).	
Activity 1 - Mapping land cover, land uses and key features	
Activity 2 - Identifying areas for fishing, cropping, cattle grazing and wild plants collection	
Activity 3 - Assessing ecosystem services	
Activity 4 - Past and future landscapes	
Data analysis	
Georeference and digitise the information on the transparencies from activities 1, 2 and 4. Write up the results from activity 3.	

Transect walk

One way to do the transect walk is described in the paragraph below.

Divide the map into grids and define a route that passes through various micro-ecological zones. The research team and the informant/s transect (walk through) the grids either by foot (or vehicle, depending on the distances involved) but it is better to do it slow to register more details. During the walk, you can draw the main components of the transect and asks questions to the informant/s. The notes taken during the tour can be expanded into full transcripts for each transect walk.

Below you will find some examples of the questions for the transect walk. These questions were taken from: <http://www.fao.org/docrep/t1700e/t1700e06.htm>

Sample questions

- When does the group cross into different micro-ecological zones/one clue is to note when the soil type changes)?
- Are there different land uses in different micro-ecological zones?
- As the different micro-ecological zones are crossed, questions should be asked to get a sense of what kind of tenure arrangements exist. Is the land owned? borrowed? the subject of conflict? Is it farmed by men? women? outsiders?
- Are there some areas that are more in demand than others? How is this land allocated?
- What is the significance of any fences or boundaries that are observed? Are there more in some areas than another? Why? (Fences are often indicators that there is a competition for land or competing uses such as grazing and cultivation.)
- Uses of various trees should be investigated. Who is allowed to use the trees and for what purpose? Are the rules the same for all tree species? Do they vary depending on where the tree is located?
- Do people plant trees? protect trees?
- What are the water sources in the territory? How are they controlled or managed?
- Is any of the land that is being passed through borrowed? if so, it is useful to begin to find out about borrowing practices in the community.
- Where do animals pasture? drink? Are there conflicts associated with either of these activities?
- Do animals come from outside the village to use the territory?
- How does land use vary at different times of the year?

- Is the group crossing through any communally owned areas? if so, it is an opportunity to begin to find out how they are managed.

For more information on transect walks visit:

<http://catcomm.org/transect-walk/>

http://www.ifad.org/pub/map/pm_web.pdf

<http://www.fao.org/docrep/t1700e/t1700e06.htm>