



---

# NATIONAL FORESTRY RESOURCES MONITORING AND ASSESSMENT OF TANZANIA (NAFORMA)

**GCP/GLO/194/MUL**

---

## Field Manual - Socioeconomic



**Compiled by**

J.F. Kessy, K. Anderson, and S.Dalsgaard  
*Bases on material provided by FAO-ILUA*

FAO-Finland Forestry Programme  
Forestry Department, FAO

**Last revised 12 July 2010**

NAFORMA DOCUMENT: **M05-2010**



## Contents

<b>Abbreviations.....</b>	<b>4</b>
<b>Definitions.....</b>	<b>5</b>
<b>1. Introduction.....</b>	<b>6</b>
<b>2. Sampling design for socio-economic survey.....</b>	<b>7</b>
2.1 Relationship with the biophysical survey design.....	7
2.2 Locations of clusters.....	9
<b>3. Preparations for the fieldwork.....</b>	<b>10</b>
3.1 Overview of data collection process.....	10
3.2 Field crew composition.....	10
3.3 Preparations.....	13
<b>4. Data collection in the field.....</b>	<b>16</b>
4.1 Introduction of the project to local people.....	16
4.2 Interviews for Socioeconomic parameters.....	17
<b>5. Description of field forms and parameters.....</b>	<b>21</b>
5.1 Cluster.....	21
5.2 Questions for Key Informants at the cluster-level.....	21
5.3 Plot.....	26
5.4 Household Interviews (NAFORMA Document M02-2010).....	34
<b>6. References Cited.....</b>	<b>50</b>
<b>7. Appendix 1: NAFORMA Household Survey Instrument (NAFORMA Document M02-2010).....</b>	<b>51</b>
<b>8. Appendix 2: Interview Form for Key informants (NAFORMA Document M04-2010).....</b>	<b>59</b>

## List of Figures

Figure 1. Relationship between Biophysical and Interview components.....	7
Figure 2: Household selection procedure for interviews.....	8
Figure 3: Location of clusters in Tanzania.....	9
Figure 4. Data collection procedures.....	11

## List of Tables

Table 1: Key points to be stressed during the presentation of the project to the local people.....	16
Table 2: Sources of socio-economic data.....	17
Table 3: Plot Form parameters (data collected through interviews highlighted).....	26

## Abbreviations

ASL	Above sea level
FAO	Food and Agricultural Organization
FBD	Forestry and Beekeeping Division
FRA	Forest Resources Assessment Programme
GIS	Geographic Information Systems
GPS	Global Positioning System
ILUA	Integrated Land Use Assessment
NAFORMA	National Forestry Resources Monitoring and Assessment
NFI	National Forest Inventory
NGO	Non-governmental Organization
NWFP	Non-wood Forest Product
REDD	Reduced Emissions from Deforestation and Forest Degradation
RRA	Rapid Rural Appraisal
USDA	United States Department of Agriculture
UTM	Universal Transverse Mercator

## Definitions

**Afforestation:** The establishment of a forest or stand in areas where the preceding vegetation or land use was not forest.

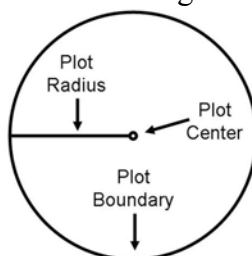
**Agroforestry:** A collective name for land-use systems and practices in which trees and shrubs are deliberately integrated with non-woody crops and (or) animals on the same land area for ecological and economic purposes.

**Breast height:** Breast height is the height of 1.3 m from the ground level, or if the ground level cannot be defined, from the seeding point. See more explanations and special cases in the section *Tree diameter measurements*.

**Dead (mortal) tree:** A tree is regarded as dead tree if it does not have any living branches. Trees that are alive but so badly damaged that can not grow in the next growing season (e.g. trees felled by storm) are regarded as dead trees.

**Living tree:** Live tree must have living branches. The tree must be able to survive at the next growing season/next year.

**Plot radius, center and boundary:** as in the next figure.



**Tree:** A tree is at least 1.35 m multiperennial wooded plant with distinct stem. Cactuses and palms are regarded as trees in the data collecting phase, but distinguished in the data analysis phase. Bamboos and shrubs are not recorded as trees.

# 1. Introduction

In Tanzania, the state and trends of the forestry resources are largely unknown. The existing information is fragmented and outdated. Reliable information on Tanzanian forest resources is mainly constrained by the lack of institutional capacity. Under the National Forest Programme of Tanzania, the National Forestry Resources Monitoring and Assessment (NAFORMA) was identified as a priority activity for the Forest and Beekeeping Division (FBD). The results of NAFORMA are needed to support the national policy processes while at the same time addressing issues of Reduced Emissions from Deforestation and Forest Degradation (REDD) and Green House Gas (GHG) as international reporting obligations.

The demand of the stakeholders in Tanzania for data and information on the state of the forestry resources is continuously expanding. NAFORMA will develop complete and sound baseline information on the forest and tree resources, assist the FBD to set up a specialized structure and put in place a long term monitoring system of the forestry ecosystems. The inventory will eventually yield information about vegetation cover, forest resources, forest utilization, and importance of forests and forest products for communities in Tanzania. When the inventory exercise is based on statistically sound sampling design, careful field work, and advanced data analysis, the final inventory report will provide estimates for biomass and carbon in Tanzanian forest lands. This information will serve emerging demands when building up forest monitoring system and international carbon trade schemes.

Proper planning is crucial for the project to meet its goals. This includes preparation of field manual to enable field crews to collect relevant data for the project. NAFORMA collects biophysical as well as socioeconomic (interview-based) data. NAFORMA Document M01-2010 is the biophysical Field Manual while the current NAFORMA Document M05-2010 is the Socio economic.

The NAFORMA socioeconomic / interview-based manual focuses on:

- Sampling design for socio-economic survey;
- Socio-economic data collection;
- Data collection field forms.

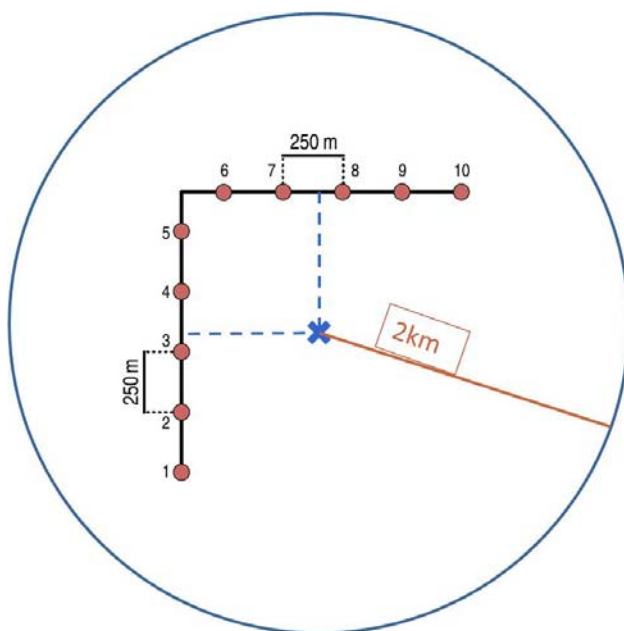
This document therefore contains the fieldwork instructions for socio economic data collection which will take place alongside biophysical data collection on clusters and concentric circular sample plots in NAFORMA Programme in Tanzania. The forest inventory system and this manual are based on experiences of Integrated Land Use Assessments (ILUA) advised by FAO. The concentric plot design to be used in the NAFORMA is adopted from several small scale inventories carried out in Tanzania (Malimbwi *et. al.* 2005).

## 2. Sampling design for socio-economic survey

### 2.1 Relationship with the biophysical survey design

NAFORMA's sampling design for socioeconomic data follows the design for the collection of biophysical data because of two important reasons: First, it will allow for a close analytical link between biophysical and socioeconomic data, which in turn will strengthen the explanatory power and policy relevance of the data. And second, it will produce an unbiased sample of the population of interest since the biophysical sampling design is stratified according to predicted variability of biomass volumes (meaning that areas with forests will have more sample points). Figure 3 presents the relationship between the two components of data collection.

**Figure 1.** Relationship between Biophysical and Interview components

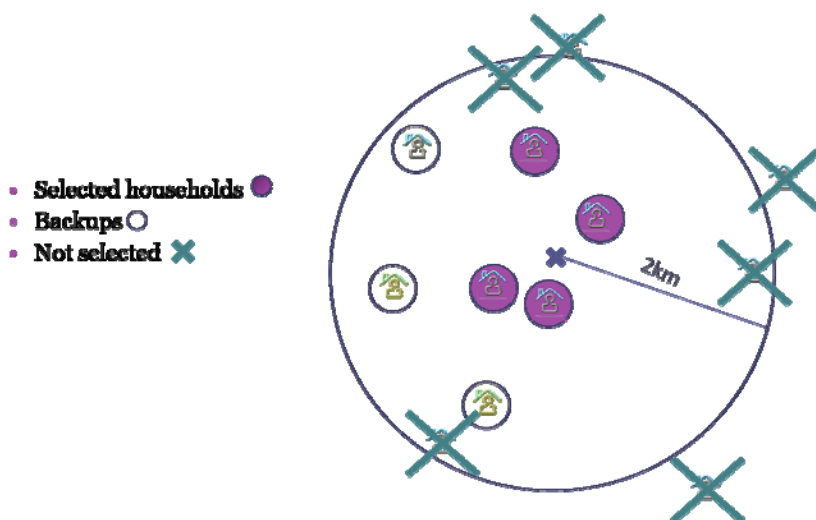


#### A. Identification of Households in SU

In each two-kilometer circle, four households will be interviewed. Three more households will be selected as back-up households, in case field crews find that no one is home in one or more of the first four. These households will be identified and mapped out (as far as possible) before going to the field, using a combination of high-resolution imagery and key informants. The seven households are selected systematically in each sampling unit by selecting the households that are nearest the center of the two-kilometer circle. Figure 4 provides an example of such a selection process.

In case there are no households within the sampling unit, two households will be selected from the human settlement that is nearest the SU. Within the settlement, the two households whose dwellings are located within the shortest distance from the center of the SU should be selected for interviews. This means that in all sampling units there will be households *and* key informants interviewed about forest use.

**Figure 2:** Household selection procedure for interviews



Once a household has been identified, one interviewee should be selected systematically in each household. As a rule, the head of the household or his/her spouse should be interviewed. Interviewees need to be at least 18 years old. The goal for NAFORMA is to achieve a gender-balanced sample of interviewees in each sample unit. To ensure such balance, it might be necessary to adjust interviewee selection after a few interviews so that both genders are represented in each cluster. This may be done by interviewing the spouse of the heads of households in subsequent interviews, should these be available.

## B. Identification of Key Informants

In addition to interviews with these sampled households in each SU, interviews will also be carried out with at least **two** key informants. Key informants may be village elders, local property owners, NGO representatives, district forestry officers, or other individuals with considerable knowledge about local forest use. These individuals will be selected with the help of the local forestry sector authorities, such as FBD personnel, forestry NGO representatives that work in the area, and district government authorities.

When identifying potential individuals to serve as key informants for a particular sampling unit, the team leader should make sure that the individuals represent different interest with regards to the forest resource. For example, a local forestry official will have different perceptives on forest use than a village elder and they will have a different interest associated with their perspectives.



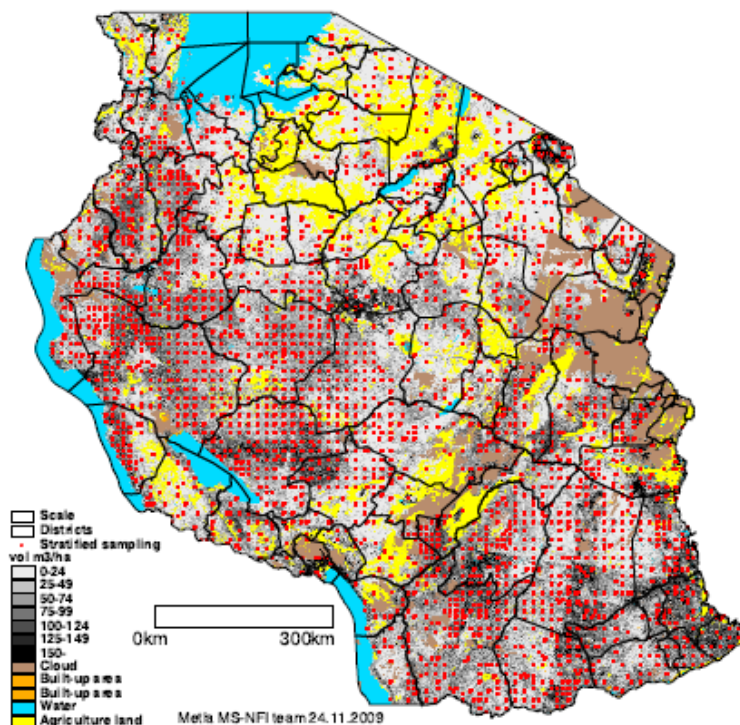
The idea of interviewing two individuals with different interests and perspectives is to be able to increase reliability of the data by comparing and interpreting their answers.

Finally, the interviews with the key informants will always be carried out with the aid of maps, aerial photographs or high-resolution satellite imagery of the SU area so that each question is spatially explicit. For example, when asking the informant about the most important forest products harvested in the area, the informant will be asked to limit his/her answer to the area of the sampling unit (the two-kilometre circle). For more detailed descriptions of the interviews with key informants please refer to Section 4.2.B and Appendix 2

## 2.2 Locations of clusters

In total the survey will involve about 3400 clusters covering the whole country. The location of the clusters is based on a tailored field sampling design based on double sampling for stratification. Figure 3 presents the location of the clusters in Tanzania

**Figure 3:** Location of clusters in Tanzania



### 3. Preparations for the fieldwork

This part includes recommendations to prepare and carry out fieldwork activities. The fieldwork is described step by step for a sample plot, together with recommendations on the data collection techniques.

#### 3.1 Overview of data collection process

Data are collected by the field crews for clusters and sample plots. The main information sources for the assessment are:

- Interviews with local people, land owners or users, key external informants such as foresters responsible for the area where the cluster is located and selected household (household survey).

The process for data collection is summarized in Figure 4.

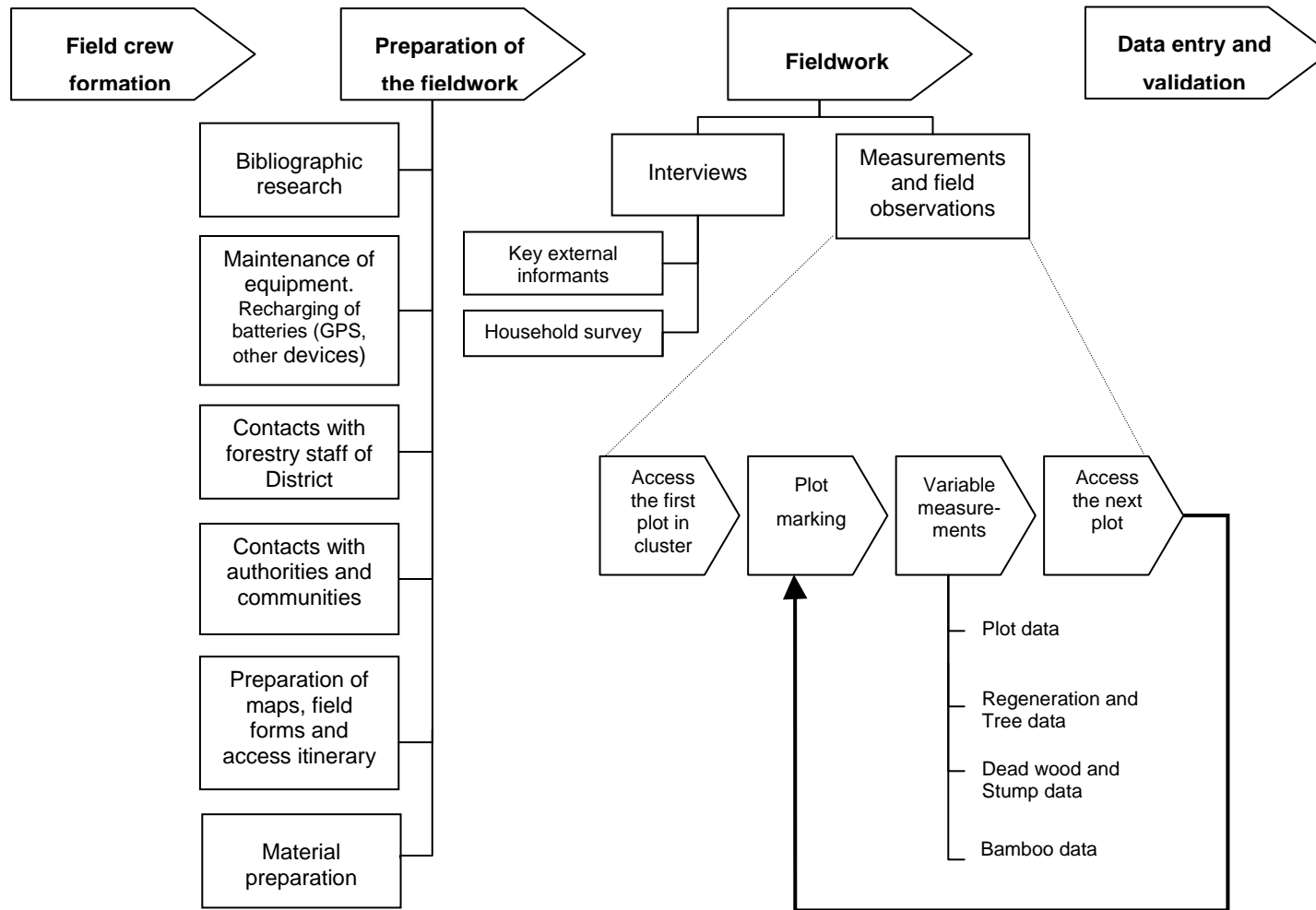
#### 3.2 Field crew composition

A recommended field crew consists of the following members:

- crew leader;
- 2 members to biophysical field measurements (enumerators);
- 2 members to socioeconomic interviews;
- driver;
- wildlife guard;
- tree identifier.

Hence the composition of a NAFORMA field crew is at least eight members. Two persons will be dedicated to the interviews carried out in the context of the household survey. One crew member is nominated to act as assistant crew leader. One or two tree identifiers from the local communities should be recruited.

**Figure 4.** Data collection procedures



In order to collect information on the various land uses, the field crew will be formed with at least one person familiar in this area of expertise. It is desirable that some in the field crews are hired locally and act as guides and tree identifiers in the field. The crew leader and/or his assistant should be experienced in participatory interview techniques to collect socio-economic data from local people. Additional persons may be included to improve performance of the field crews when conditions require greater resources, for example it may be necessary to have a cook in the camp. It is preferable that the field crews include both men and women to facilitate the interviews and it is also advised to include forestry students for capacity building.

The responsibilities of each crew member must be clearly defined and their tasks are proposed as follows below.

The **crew leader** is responsible for

- organizing all the phases of the fieldwork, from the preparation to the data collection. He/she has the responsibility of contacting and maintaining good relationships with the community and the informants and has a good overview of the progress achieved in the fieldwork; he/she has the responsibility of maintaining harmony and good working spirit within the crew;
- specifically prepare the fieldwork: carry out the bibliographic research, prepare field forms and maps;
- plan the work for the crew;
- contact local forestry officers, authorities and the community. Introduce the survey objectives and the work plan to the local forestry staff and authorities, and request their assistance to contact the local people, identify informants, guides and workers;
- administer the location and access itinerary of clusters and plots;
- take care of logistics of the crew: organize and obtain information on accommodation facilities; recruit local workers; organize access to the clusters;
- interview external informants and local people;
- fill in the forms and take notes;
- ensure that field forms are properly filled in and that collected data are reliable;
- organize meetings after fieldwork in order to sum up daily activities;
- organize the fieldworks safety;
- submit data for entry into the computer.

The **assistant of the crew leader** will:

- help the crew leader to carry out his/her tasks;
- take necessary measurements and observations;
- make sure that the equipment of the crew is always complete and operational;
- supervise and orient the workers.

The **enumerators** will carry out the field measurements and interviews.

The **temporary helpers** are assigned the following tasks, according to their skills and knowledge of local species, language and practices:

- help to measure distances;
- open ways to facilitate access and visibility to technicians;
- provide the common/local name of forest species;

- inform about access to the cluster and plots;
- provide information about the forest uses and management;
- carry the equipment.

Training of the crews on the survey methodology should be undertaken in theoretical and practical sessions in the beginning of the fieldwork where techniques of different forest and tree measurements, tally of data and techniques of interviews will be explained and practiced. The names and contact details of the crew members and NAFORMA key persons must be written down in field form 7 (Annex 1) for communication in case of emergencies and queries that may arise in the field.

The crew leader is responsible for planning the work schedule in an efficient way. In the field, crew leader locates the plot centre coordinates, defines the surrounding area, records time for time study, determines slope corrections on sloping areas and records tree measurements.. The crew leader is responsible for the quality of the work of crew members.

The crew members measure slope percentage, regeneration (i.e. number of seedlings), tally and sample trees, dead wood, and stumps. They also take tree measurements.

Above description is simply the normal way of working, but it is not necessary to follow it exactly. Number of seedlings, sample trees, dead wood etc. can be measured by any crew member that is free to do it.

### 3.3 Preparations

The preparation of fieldwork consists of the following phases:

- A. Bibliographic research;
- B. Contacts to districts and local communities;
- C. Preparation of the field forms and maps;
- D. Field equipment (maintenance, checking).

#### A. Bibliographic research

Auxiliary information is necessary to prepare the field survey and carry out the interviews. Existing reports on forest and natural resource inventories, farming systems, national policy and forestry community issues, local people, etc. have to be studied to enable the crew members to understand and to build better knowledge on the local realities. If a target cluster is located in plantation forests, the forests' history needs to be examined, especially planting year and time from previous treatments. In many cases *Land use* and *Forest ownership* needs to be studied before going to the field.

## **B. Contacts**

Each field crew, through its leader, should start its work by contacting key staff in the District in order to get formation and access to the area where the clusters are located. These local staff may help contacting the authorities, community leaders and land owners in order to introduce the field crew and its programme of work in the area. The local staff may also provide information about access conditions to the site and about the people who can be locally recruited as guides or workers. They may also inform the local people about the project.

An introduction letter to district and village governments should be written by the, Permanent Secretary, asking for support and assistance for the field crews.

## **C. Preparation of the field forms and maps**

The National Project Coordinator will ensure that the necessary field forms to cover the clusters are prepared and assigned to each crew. For each cluster 6 field forms, of one or more pages, are needed. The forms are described in details in Chapter 5.

The use of secondary data sources, particularly maps, district profiles and existing management plans, is necessary to determine information such as names of administrative centres (administrative maps), accessibility and forest ownership. Some sections of administrative data in the form may be filled in during the preparation phase, and be verified in the field.

The crew leader must ensure that enough forms are available to carry out the planned field data collection.

Maps and printed aerial photographs/satellite images covering the study area should be prepared in advance to help the orientation in the field. These may be enlarged and reproduced, if necessary.

Prior to the field visit, each crew must plan the itinerary to access the cluster, which should be the easiest and least time consuming. In fact this should be done the previous day before visiting the cluster. Advices of local informants (local forestry staff, for example) are usually valuable and help saving time in searching the best option to access the cluster.

The cluster and plot locations will be delineated on topographic maps and eventually on aerial photographs/satellite images, if available. The plot locations in the cluster are to be indicated together with their respective coordinates in latitude/longitude as well as in the UTM (datum Arc-1960).

An enlarged section of the map corresponding to the area surrounding the cluster will be prepared (photocopy or printed copy) and used to draw the access itinerary to the first plot.

The plot order for data collection may vary according to conditions of accessibility. It is determined during the preparation phase.

Reference objects (roads, rivers, houses) that contribute to the better orientation of the crew in the field should be identified during the planning phase.

The numbers of the sample plots are entered into the GPS receiver according to following: (five digits cluster number) + “P” (=Plot) + (two digits Plot number), e.g. for cluster 243, plot 3: 00243P03.

#### **D. Field equipment per crew**

The following equipment need to be collected by each field crew:

- Compass (360°);
- GPS receiver (Geographic Positioning System) and extra batteries;
- 2 measuring tapes 10-20m (metric);
- measuring tape 30-50m (metric) or 50 meter rope, marked at every 5 meters;
- 1 (self-rolling) diameter tape and 1 caliper (metric; mm scale);
- Tree height and land slope measuring equipment: Suunto hypsometer;
- Canopy coverage measuring equipment: spherical densitometer (Concave model);
- Coloured flagging ribbon;
- Waterproof bags to protect measurement instruments and forms;
- Plastic packs for soil samples;
- Spade;
- Digital camera and extra batteries;
- Mobile phones;
- Radio phones;
- Boots and waterproof outfits;
- First aid kit;
- Topographic maps, field maps and printed aerial photo/satellite image;
- Supporting board / writing tablet to take notes;
- Field forms;
- Field manual;
- Pens and markers;
- Flora and species check list;
- Flipchart;
- Flashlight;
- Pocket knife;
- Camping equipment and cooking utensils.
- Machetes / Bush-knife;
- Clip board.

## 4. Data collection in the field

### 4.1 Introduction of the project to local people

If the cluster area is inhabited, the crew must establish contacts with local people and on arrival to the site, meet with contacted persons and others, village representative, closest government institution in place, owners and/or people living in the cluster area. In many cases, it will be necessary to contact the local population before visiting the area in order to inform them about the visit and request permission to access the property. An introductory meeting may also be organized.

The crew must briefly introduce and explain the aim of the visit and study. A map or an aerial photograph/satellite image, showing the target inventory area, may be very useful to facilitate the discussion. Such imagery should be used as a point of reference during the interviews with the key informants.

It is important to ensure that both local people and the field crew understand which area will be studied. The aim of the NAFORMA must also be clearly introduced to avoid misunderstandings or raise false expectations. Cooperation and support from local people are essential to carry out the fieldwork. It is easier to achieve this support if the first impression is good. Nevertheless, it must be stressed that the fieldwork consists only in data collection and not local development project. Some key points about the project are mentioned in Box 1.

**Table 1:** Key points to be stressed during the presentation of the project to the local people

- An objective of this study is to collect data on land uses to support national decision making by interacting with the local users. The collected land use information will be used by the country and the international community. The objective is to generate reliable information for improved land use policies that takes into account people's reality and needs. Hopefully, this can lead to natural resources being managed in a sound and sustainable way. It could help also in the mitigation of the poverty.
- This project is part of a programme for land use data collection over the whole world.
- The data are collected from two sources: (1) Measurements of the forests and trees outside the forests and other land use practices and (2) Interviews with local forest users who interact with natural resources locally and other people who are knowledgeable of the area. Measurement examples to be mentioned may be: tree diameter and height, as well as forest species composition. Data on agricultural cropping system, water, pest, power source and livestock will be collected by interviews. The field crew should equally be interested in the local people's perception on land use changes, the main products extracted from land, land use related problems, and will therefore interview land users.
- The clusters where the data will be collected are distributed throughout the country.
- The results from the study will be shared with the local community.
- Some or all of the clusters/plots surveyed in the country will be monitored in the future, with the aim of assessing land use changes.



## 4.2 Interviews for Socioeconomic parameters

### A. Sources of data

Two, main informant categories will be interviewed:

- Interviews with households living within the 2 km sample unit
- Interviews with key informants;

In the absence of local inhabitants, many of the variables related to local forest use will be collected from observations, though interviews with households in a nearby settlement, and through interviews with key informants. Table 2 shows an overview of people/groups of people that may provide information.

**Table 2:** Sources of socio-economic data

<b>Groups/ individuals to be interviewed</b>	<b>How to contact, identify them?</b>	<b>Where?</b>	<b>When?</b>	<b>Information</b>
<b>Key external informants:</b> village elders, property owners, local forest services, organizations and local administration representatives etc.	By phone, correspondence or visit	In the field, or at their office	During the planning phase of the fieldwork or/and before reaching the site	<ul style="list-style-type: none"> <li>- Logistics; Background information on the cluster</li> <li>- Information on the people living in the cluster or in the surroundings</li> <li>- land use/forest type section, ownership, protection status, management, ecological problems)</li> <li>- Forest products and services</li> </ul>
<b>Four households within 2 km from the center of the Sampling unit</b>	The four households that are closest to the center of the SU	At the household	During the biophysical field work – for efficiency reasons	<ul style="list-style-type: none"> <li>- Household composition and activities, forest products and services, production system, involvement in governance</li> </ul>
<b>Two households in nearest settlement*</b>	The households in the settlement whose dwellings are the nearest to the center of the SU	At the household	During the biophysical field work – for efficiency reasons	<ul style="list-style-type: none"> <li>- Same as household interview for HH within SU (see above). <b>Note:</b> these interviews are conducted only in cases in which no households are present within the SU</li> </ul>

\* Conducted only if there are no households located within the SU

## B. Interviews with key informants

Field form **M04-2010** of NAFORMA includes data to be collected through interviews with so-called key informants. These are individuals who are especially knowledgeable when it comes to forest use in the area of the sampling unit. Examples include the property owners themselves, local village authorities, and elders. In interviews with these individuals, questions will be asked about issues such as property rights, environmental conditions and trends, and historical land uses.

There are three reasons for adding interviews with key informants as a second type of collection of socioeconomic data. First, it complements the data that households provide. Second, it allows for triangulation of data collected in household interviews. And finally, because of the way in which it is conducted, it strengthens the link between socioeconomic and the biophysical data in NAFORMA.

All of the questions on form **M04-2010** (Key informants) and **M03-2010** (biophysical) that correspond to key informants are asked after making sure that the key informants are aware of where the boundaries of the SU are. An aerial photograph, satellite image, or map should be used to make the interview as spatially explicit as possible. By asking questions about forest use in the SU in particular, rather than forest use in general as is the case for the household interviews, the key informant interviews would provide critical data about the location of resource use.

### Interview organisation

First, data collection from interviews may be collected from external key informants before going to the field (planning / preparation phase). Data collected will mainly refer to the cluster (Form 1).

In a second phase, the data may be collected **in the field**, in two different sets:

- Some variables related to the cluster may be collected from external key informants and cross-checked with the household interviewees;
- Variables related to the use of forest (products and services) in each cluster.

The data collection in the field may start during the introductory meeting with the key external informants and the local people or during the first introductory meeting.

At the end of the field work in the cluster all data collected about the cluster from the various interviews should be interpreted and synthesized onto the field forms.

### Data to be collected from external key informants

- **Background information on the cluster**

Administrative divisions “*What are the names of the administrative unit/ district/region/ village and the local name of the area?*”

- **Information on the people living in the cluster or in the surroundings**

- Population in cluster “*How many people live in this area?*”

- Population since: *“How long (from what year) have people lived here?”*
- Population dynamics: *“Have most people in the area been living here for the past 5 years?”* or *“Have you seen a lot of changes during the last 5 years of people coming or going?”* If there have been changes *“Why?”*
- Main activity: *“How would you describe the livelihood of the majority of the people living in the area surrounding the cluster?”* Cross-checking of direct observations and information provided by the interviewees may provide a good overview.
- **General information on the distance and access to the cluster:**
  - Distance to the permanent road, seasonal road, inhabited area, school, market, hospital : *“What is the distance from the cluster to the closest permanent road, etc.?”*
- **General information on the land use/forest type section:**
  - Designation/protection status: *“What is the legal designation of the forest? Is it state forest, a community [communal] Forest, a village forest, National Park, etc.?”*
  - Ownership: *“Who is the legal owner of the land (forest) in the sample area? Is it public; is it private”* If private *“Do people have land titles?”*
- **Spatially explicit data on forest use.** Using imagery and maps questions are asked about forest use within the sampling unit. One should keep in mind that in the absence of local people, the information will be provided mostly by the key informants. Moreover, even when the information is provided by the focus groups, it must be cross-checked with the data provided by the key informants and observations.
- **Other questions** for key informants:
  - Legislation and forestry incentives awareness: *“Are there any laws/ incentives concerning this product/service? If yes, which one?”* *“Are the local people aware of this legislation”*
  - Compliance: *“Is the legislation concerning this product/activity respected?”*
  - Application to forestry incentive: *“Have the people applied for incentives concerning this product/service?”*

### C. Household surveys

Data from the household survey is recorded in the designed questionnaire (**M02-2010**) (See full form in Appendix 1. The procedure for selecting individual households within each Sampling Unit is explained in section 2.2 of this manual.

#### Codes of conduct for household surveys

Before taking to the field, there are several important guidelines that should be followed. In sum, interview crews should:

- Be punctual and respect appointments
- Socialize and build the trust of the communities they will be working with

- Give enough introduction about the assignment and him/herself
- Make sure that the respondent is at ease and give expected interview time
- Explain the purpose of the survey to the respondent and show him/her that he/she is important for the success of our national programs.
- Respect respondent's ideas need not to pressure the respondent
- Avoid guiding the respondent to specific answers
- Be time conscious and when the respondent gets tired cheer him/her up(jokes)
- Observe decency in dressing that is culturally acceptable
- Avoid raising false expectations to possible future benefits
- Promise confidentiality since some of the information is sensitive.

The last point about guaranteeing confidentiality of the survey responses should be emphasized by field crews. It is absolutely imperative that the interviewees feel at ease and not worried about possible trouble with the authorities because of their responses. It is the duty of the interviewer to inspire confidence and trust by exhibit professionalism and show utmost respect for the interviewed individuals. The interviewer should always point out that their identities will not be recorded on the field forms so as to protect their anonymity.

### **Content of Household Survey**

There are ten broad topics explored in the household survey. Each topic branches out into a series of specific questions, which in turn are used to measure a set of variables on forest use and user characteristics. The ten sections are outlined.

#### 1. Interview meta data

When the interview was conducted, Who conducted the interview, who coded the responses, who entered the data, etc.

#### 2. Household Characteristics

-Which member of the household was interviewed, how many members the household has, etc.

#### 3. Assets

- which materials were used to build the home, what modes of transportation and communication does the household have access to, etc?

#### 4. Income

-which are the main sources of cash and non-cash income?

#### 5. Sources of Energy

-which sources of energy are used, and if alternatives are available why are these not used?

6. Food Security and Risk  
-which roles do forest products play during times of crisis and food shortages?
7. Household opinions  
-what are the HH members attitudes towards forest protection and existing governance initiative?
8. Forest products and services  
-which are the main products and services used by the household, and which are the main characteristics associated with their use?
9. Relationships with forest-related organizations  
-are there any local organizations that are engaged in forest governance? Are the household members involved in this work?
10. Forest Governance  
-to what extent are governance organizations effective in managing the forest?

## 5. Description of field forms and parameters

### 5.1 Cluster

In compliance with section 2.1 B at least two forms for key informants (**M04-2010**) will be filled for each cluster. **M04-2010** is the form where most of the information from interviews with the key informants are entered. Here we limit the instructions to the questions that pertain to interviews with Key Informants.

### 5.2 Questions for Key Informants at the cluster-level (NAFORMA Document M04-2010)

1. **Informant:** the persons interviewed in the SU (household survey excluded) referred to by a code indicating existing relationship between the informant and the SU. To be indicated according to option list (multiple choice possible)

Options	Description/definition	Code
Owner	Owner of a plot or part of a plot within the SU	O
Employee	Person working in the SU	E
Manager of site	Person responsible for natural resources management in the SU	M
Settler	Person living in the SU or user from surroundings	S
Internal key informant	Individual living inside the area, with in-depth knowledge of the local settings, use of land and natural resources	I
External key informant	Individual living outside the area, but with particular knowledge about the site, the land/ natural resource use and the local community (e.g. local government officials, leaders of local organizations...)	X
Owner	Owner of a plot or part of a plot within the SU	O

2. **Number of Households within boundaries of 2km sampling unit (SU):** \_\_\_\_\_  
(Ask the Key Informant to estimate the total number of households that reside inside the boundaries of the 2km circle).
3. **Population's Health Condition:** Compared to the rest of the population in the district, how would you characterize the health condition of the population living near and inside the Sampling Unit (the 2km circle)? \_\_\_\_
- Much below average
  - A bit below average
  - Average
  - Above average
  - Much above average
4. **Main Products from SU:** We are interested to know which are the three most important products that most local people harvest from this area (point to 2km circle on map/image).
- Product 1: \_\_\_\_\_  
Product 2: \_\_\_\_\_  
Product 3: \_\_\_\_\_
5. **Number of beneficiary HH:** Approximately how many households regularly harvest these products from this particular area? (ask respondent to estimate best to his/her knowledge reminding the respondent that we are interested in the two-km circle only for this question). \_\_\_\_\_ households
6. **Rules:** Are there any rules that constrain these households' uses of products? \_\_ (yes/no)
7. **Origin of Rules:** If yes, what is the origin of these rules? \_\_ (mark all that apply)
- Private owner dictates the conditions for access and use
  - Local community norms and customs (no formal rules)
  - Local community rules/bylaws (formal rules, often written down)
  - Local Government ordinances
  - Central government rules and regulations
  - Open-access (law of the jungle)
  - Other (specify): \_\_\_\_\_
8. **Proximity to infrastructure from center of Sampling Unit (SU) to:**
- All-weather road:** distance, in km, to reach the closest all-weather road (accessible by motor vehicle all the year), departing from the SU centre (mark '0' if located within the SU) \_\_\_\_ km
  - Seasonal road:** distance, in km, from the centre of the SU to the closest seasonal road (road accessible by motor vehicle during some seasons only): \_\_\_\_
  - Village:** distance, in km, from the SU centre to the closest settlement (village...)
  - Health centre:** distance, in km, to reach the closest health centre (hospital, dispensary...), departing from the SU centre.
  - School:** distance, in km, to reach the closest school, departing from the SU centre.
  - Food market place:** distance, in km, to reach the closest food market (to satisfy domestic needs), departing from the SU centre.

9. **Years since settlement:** approximate number of years since when the settlement was established in or close to the Sampling Unit (SU). This data could be collected from external or internal key informants and verified in the field through interviews and observations. To be indicated according to an option list:

Options	Description/definition	Code
Not applicable		0
< 5 years		1
5 - 10 years		2
10 - 20 years		3
20 - 50 years		4
>50 years		5
Not known		90

10. **Population dynamics:** trend of the population living in or close to the SU, in the past 5 years. To be indicated according to an option list:

Options	Description/definition	Code
Not applicable	No inhabitants in the site or surroundings	0
Decreasing	The population living in the site decreased during the last 5 years	1
Stable	The number of people living in the site remained stable during the last 5 years	2
Increasing	The population living in the site increased during the last 5 years	3
Not known	There is not enough information to estimate this trend	90

11. **Settlement history:** major historical events that have affected the local people and land use in the area, to be indicated by marking the appropriate checkbox(es) (multiple choice possible) and date or periods of these events:

Options	Description/definition	Code
Not applicable	No inhabitants in the SU or surroundings	0
Wars	Armed conflicts that obligate people to look for safer places to live	1
Insecurity, ethnic conflict	When people move from their original places looking for safety, major problems between ethnic groups that force people to look for other places to live	2
Change of ownership/land tenure	When a new owner forces the people to move from his property	3
Expansion of agriculture	Land converted to agriculture fields or pastures from other land use	4
Urban development	Land changed from agricultural production, open rangeland, forest, or recreational uses to residential, commercial, or industrial uses	5
Infrastructure, electric power	Infrastructure, e.g., roads, water or water channel, electric line, recently installed in the SU	6
Economic crisis	Drastic reduction in income generation, enterprises, changes in consumption patterns	7
Natural disaster	Severe drought, flood, landslide, etc.	8
Human diseases	Causing drastic change in labour force and dependency ratio	9
Rural-to-urban migration	Migration of people from rural areas to urban areas	10
Urban-to-rural migration	Migration of people from urban areas to rural areas	11

12. **Management Initiatives:** Have there been any efforts to manage or somehow organize the forest resource use within this area? \_\_\_ (yes/no).

13. **Leaders:** If yes, who led this effort? \_\_\_

- h. NGO
- i. local community
- j. private owner
- k. Local Government
- l. National Government
- m. corporation
- n. other

14. **Ongoing:** Is the effort ongoing? \_\_\_ (yes/no)

15. **Degree of Success** (did the effort manage to order and regulate forest use?): Would you consider that effort to be successful? \_\_\_

- a. very unsuccessful
- b. not very successful
- c. somewhat successful
- d. very successful

16. **Management plan:** any existing forest or woodland management plan.

Options	Description/definition	Code
Formal	Formal management plan formulated and implemented	1
Traditional	No formal management plan formulated or formal management plan formulated but not implemented	2
Not known		90



17. **Management agreement:** management arrangement between the land owner and other groups. To be indicated according to option list:

Options		Description/definition	Code
Owner is the exclusive manager		The owner retains management rights and responsibilities within the limits specified by the legislation	1
Joint management	with communities	Management decisions remain with the owner and the management activities are executed by local communities (including indigenous and tribal communities), according to an agreement. The agreement allocates temporary exploitation rights for specific products or activities. Are included lands allocated for extraction purposes through licenses or concession	2
	with private companies/ private sector	Management decisions remain with the owner and the management activities are executed by private companies, according to an agreement. The agreement allocates temporary exploitation rights for specific products or activities. Are included lands allocated for extraction purposes through license or concession	3
Devolution of management rights	to communities	The owner devolves land management to the local communities (including indigenous and tribal communities) according to leases or management agreement	4
	to private companies/ private sector	The owner devolves land management to the private companies/private sector/individuals according to leases or management agreement, including rental	5
Not known		There is not enough information to obtain management agreement	90
Other		To be specified in notes	99

Options		Description/definition	Code
Private	Individual	Forest owned by individuals and families	1
	Industries	Forest owned by private enterprises or industries	2
	Local communities	Forest owned by a group of individuals belonging to the same community residing within or in the vicinity of a forest area. The community members are co-owners that share exclusive rights and duties, and benefits contribute to the community development	3
	Others private	Forest owned by private co-operatives, corporations, religious and educational institutions, pension or investment funds, NGOs, nature conservation associations and other private institutions (religious, educational, etc.)	4
Public	State	Forest owned by central government, or by government-owned institutions or corporations	5
	Local government	Forest owned by local government (district, municipalities)	6
Indigenous / Tribal communities		Forest owned by community of indigenous or tribal people	7
Not known		No information available on the forest ownership	90
Other		To be specified. Also includes areas where ownership is unclear or disputed.	

18. **Illegal activities:** To what extent is this particular area affected by large-scale, illegal forestry activities? \_\_\_

- Not at all
- Not much
- Quite a bit
- Very much

19. **Enforcement:** If a person engages in large-scale illegal activities, (i.e. large timber operation, industrial charcoal making, etc) in this area, what is the likelihood of anybody detecting or stopping this activity? \_\_\_\_\_

- Extremely unlikely
- Not so likely
- Quite likely
- Very likely

20. **Enforcement:** If a person engages in small-scale illegal activities, (i.e. cutting of timber operation, charcoal making for local markets, etc) in this area, what is the likelihood of anybody detecting or stopping this activity? \_\_\_\_
- Extremely unlikely
  - Not so likely
  - Quite likely
  - Very likely
21. **Local Leadership:** Are there any local individuals who have shown leadership to organize forest activities among forest users in this area? \_\_\_\_ (yes/no)
22. **Forestry organization:** Which is the most active forestry organization in this area?  
\_\_\_\_\_
23. **Distance to organization:** How far away from this cluster does this organization have its nearest office? \_\_\_\_ km

### 5.3 Plot

Plot Forms will be filled in for each sample plot contained in the cluster. Most of the information collected on this form corresponds to biophysical data, which are covered by the Field Manual for Biophysical measurements. But there are also quite a few questions on this form that are to be responded either through direct observations or by the key informants. These questions are about the land use activities, forest management regimes, property rights, etc that are encountered in the plot. This section focuses on these non-biophysical data questions.

**Table 3:** Plot Form parameters (data collected through interviews highlighted)

Plot parameters				
Object	Definition	Source	Format	Notes
Cluster number	Cluster ID in Tanzania	Inventory plan	Number	
Plot number	Plot number within cluster	Inventory plan	Number (1-10)	On shared plot, add <b>A</b> or <b>B</b>
Share	Estimated share of total plot area (radius of 15 m)	Estimated in the spot	Number, percentage (%). Default=100% (full plot)	
Group Leader	Group leader name		Text	
Accessibility code	<i>See codes in the previous section</i>	Field observation		
GPS Coordinates	Location of the plot center point	GPS receiver	Numbers. Latitude/Longitude Seconds with 2 decimal digits	Aim to receive 3D measurement ( $\geq 4$ satellite signals)
Direction to plot centre	Direction from GPS measurement point to the plot center point	Compass	Number. Unit: degrees.	Required if proper GPS signal can not be recorded in the plot centre

Plot parameters				
Object	Definition	Source	Format	Notes
Distance to plot centre	Distance from GPS measurement point to the plot center point	Measuring tape	Number. Unit: meters.	Required if proper GPS signal can not be recorded in the plot centre
Description of plot centre	Description how to relocate plot centre.	Compass, Measuring tape	Text	Bind location into visible, stable object as stone, cliff, marked trees, ditch, etc.
Date	Measurement date		Day, Month, Year (dd/mm/yy)	
Start time	Time of arrival at the plot		Hours, Minutes (HH / MM)	
End time	Time of leaving the plot		Hours, Minutes (HH / MM)	
District code	National district code	District code list, see Annexes	Number	Code be recorded at the office
District name		Inventory plan; Map	Text	
Division		Map	Text	
Ward		Map	Text	
Village		Map	Text	
Forest name		Map	Text	
Slope	Slope inside the plot area	Field measurement	Number. Unit: percentage (%)	Slope is computed as average of two measurements (uphill and downhill)
Photo	Photo ID in camera and File name in computer	Capture also a sign with <i>Cluster No</i> and <i>Plot No.</i>	Digital photo file.	
Land use	Land use code	Field observation, interviews	Number / Text code	
Vegetation	Vegetation code	Field observation	Number / Text code	
Ownership	Ownership code	Map, Documents, Interviews	Number	
Canopy coverage	Canopy coverage of trees at the plot centre point.	Field measurement	Number, 0-100. Unit: percentage (%).	
Undergrowth	Undergrowth code	Field observation	Number	

Plot parameters				
Object	Definition	Source	Format	Notes
Damage	Damage code	Field observation	Number	2 fields; in the plot
Severity	Damage severity code	Field observation	Number	2 fields
Planting year	Planting year is recorded in plantation forests only, if this information is available	Forestry documents and plans, interviews	Number. Unit: Year	
Soil depth		Field measurement	Number. Unit: cm.	
Soil colour	Soil colour code	Field observation	Number	
Soil texture	Soil texture code	Field observation	Number	
Soil structure	Soil structure code	Field observation	Number	
Erosion	Erosion code	Field observation	Number	
Grazing	Grazing code	Field observation, interviews	Number	
Water catchment	Water catchment code	Field observation, interviews	Number	
Human impact	Human impact code	Field observation, interviews	Number	3 fields
Estimated time	Estimated time of occurrence of <i>Human impact</i> .	Field observation, Interviews, Documents	Number. Years.	
Non-timber forest products (NTFP) and services		Field observation, Interviews	Number	3 fields
Management proposal		Field observation, interviews	Number	2 fields
Biodiversity		Field observation, Interviews	Number + Text	3 fields
Remarks			Text	

The codes for aggregated data to be collected through interviews are explained in more detailed below.

**Land use** refers to dominant land use purpose for humans at the time of observation. Land use is observed within the plot's outer boundary (radius of 15 m). If a plot is located at the edge of two land use types, it must be shared (see instructions for *Share* code) and two Plot Forms are filled in and **all trees** on both shared plots are recorded on separate field forms.

If a plot is not accessible but the land use can be observed, this information needs to be filled into the field form.

The land use codes are as follows:

Land use			
Code	Text Code	Description	Explanation
1		Production forest	Land designated for production and extraction of products (wood, fibre, bio-energy and/or non-wood forest products). Includes concessions, exploitation licenses, community forests etc.
2		Protection forest	Protected forest lands. Including also nature reserves, soil conservation, water and watershed protection, protection against erosion and landslides.
3		Wildlife reserve	National parks, game reserves, game controlled areas etc
4		Shifting cultivation	
5		Agriculture	Incl. agro-forestry
6		Grazing land	
7		Built-up areas)	Urban or rural, or mixed. Including roads, buildings, power lines etc.
8		Water body or swamp	Seasonal, Permanent or Swamp
99		Other land	To be specified in Remarks

## Ownership

Ownership refers here to the legal right to freely and exclusively use, control, transfer, or otherwise benefit from a forest. Ownership can be acquired through transfers such as sales, donations, and inheritance. Forest ownership refers here to the ownership of the trees growing on land classified as forest, regardless of whether or not the ownership of these trees coincides with the ownership of the land itself.

If a plot is not accessible but the ownership type can be observed, this information needs to be filled into the field form.

This parameter is recorded on all land types.

Ownership			
Code	Text Code	Description	Explanation
1		Central government	Owned by central government, or by government-owned institutions or corporations
2		Local government	Owned by local government (district)
3		Community owned	Owned by a collective, a group of co-owners, a community who hold exclusive rights and share duties.
4		Private: companies	Owned by private enterprises or industries
5		Private: individuals and families	
6		Private: others	Owned by private co-operatives, corporations, religious and educational institutions, pension or investment funds, NGOs, nature conservation societies and other private institutions
7		General land	Public land that does not belong to any of the above categories
90		Not known	No information available on the land ownership

### Grazing

Grazing refers to the intensity of grazing in the forest land or bush land. It refers to the impact animals have on forage growth and reproduction and on soil and water quality. This parameter is recorded on *Forest*, *Woodland*, and *Bushland* vegetation types.

Grazing			
Code	Text Code	Description	Explanation
0		No grazing	
1		Occasional	
2		Frequent	
3		Extensive	

### Water catchment

Water catchment refers to the importance of area in collecting and feeding water into rivers, lakes and undergrowth water reserves. This parameter is recorded on all vegetation types.

Water catchment			
Code	Text Code	Description	Explanation
0		Bare land	No water catchment value.
1		Low	
2		Medium	
3		High	Area contains lakes, ponds, rivers, or it is a forest land which collects/feeds water to lower land areas.

### Non-wood forest products/services

Data about non-wood forest products (NWFP) and services is recorded on *Forest*, *Woodland*, and *Bushland* vegetation types. These data refer to non-wood products and services provided by the trees, forest and other wooded land.

Non-wood forest products/services			
Code	Text Code	Description	Explanation
0		No data	
1		Fruits, nuts, seeds, roots, berries, etc	Vegetable foodstuffs and beverages provided by fruits, nuts, seeds, roots, etc.
2		Mushrooms	Foodstuffs provided by mushrooms.
3		Fodder	Animal and bee fodder provided by leaves, fruits, etc
4		Rattan	
5		Plant medicines	Medicinal plants (e.g. leaves, bark, roots) used in traditional medicine and/or for pharmaceutical companies.
6		Herbs and spices	
7		Dying / tanning	Plant material (bark and leaves) providing tannins and other plant parts (especially leaves and fruits) used as colorants.
8		Other plant products	Specify in Remarks
9		Wildlife	
10		Beekeeping activities	
11		Windbreaks	
12		Shade	
13		Aesthetic	
14		Recreation and tourism potential	Including ecotourism, hunting or fishing as leisure activity. Unique feature.
15		Cultural heritage potential	Including religious / spiritual potential
99		Other	Specify in Remarks

### Human impact

Human impact or influence refers to a disturbance or change in ecosystem composition, structure, or function caused by humans. Human impact is recorded on *Forest*, *Woodland*, and *Bushland* vegetation types.

Human impact			
Code	Text Code	Description	Explanation
0		No impact	No cutting or other impact, or the cutting has happened more than 5 years ago.
1		Selection cutting (commercial)	
2		Selection cutting (domestic use)	
3		Clear felling	Removal of all trees has been carried out. The generation of forest is done by planting, seeding or coppicing.
4		Shifting cultivation	
5		Silvicultural treatment	e.g. pruning, planting, climber cutting, weeding, boundary clearing, fire line construction
6		Illegal cutting	
7		Burning or/and ringbarking	
8		Charcoal production	
9		Timber sawing	
10		Honey hunting	
11		Medicinal activities	Collecting of medicinal plants (e.g. leaves, bark, roots) used in traditional medicine and/or for pharmaceutical companies
12		Sacred place	
13		Land-use change (from forest, woodland or bushland)	Specify previous Land use class in Remarks
14		Afforestation	Establishment of forest through planting and/or deliberate seeding on land that, until then, was not classified as forest.  Implies a transformation of land use from non-forest to forest. Specify previous <i>Land use type</i> in Remarks
99		Other	Specify in Remarks



### Management proposal

The proposed action is suggested to be done during the next 3 years. This information is used to estimate the potential amount of silvicultural and sustainable harvesting activities to be done on forest lands. Management proposal is recorded on Forest and Woodland vegetation types.

Management proposal			
Code	Text Code	Description	Explanation
0		No treatment	
1		Selection cutting (commercial)	
2		Selection cutting (domestic use)	
3		Thinning	In the case of plantation
4		Clear felling	
5		Silvicultural treatment	e.g. pruning, planting, climber cutting, weeding, boundary clearing, fire line construction
6		Law enforcement	
7		Change status	E.g. productive to protective or vice versa. Explain in <i>Remarks</i> .

## 5.4 Household Interviews (NAFORMA Document M02-2010)

### A. Control Information

These are questions for the enumerator, most of which should be filled out completely before the interview begins.

### B. Identification and Location of Household

Like Section A, these questions are for the enumerator and should be filled out before the interview begins.

### C. Household Characteristics

1. How many members are there in this household (people who share meals on a daily basis)? \_\_\_\_\_ ind.

**INSTRUCTION:** Indicate the total number of individuals including children

2. How many members did this household have five years ago? \_\_\_\_\_ individuals.

**INSTRUCTION:** Using the same definition for HH, indicate the total number of individuals

3. For how long has the head of this household lived in this location? \_\_\_\_\_ years.

**INSTRUCTION:** Round up to whole years. Refer to living in the exact same location (+/- 1 km)

4. What is the birthplace of the head of the household? \_\_\_\_\_ (name of district)

**INSTRUCTION:** Use the official name of the district (as per NBS list of districts in TZ)

5. Who are the heads of the household (head of household and spouse(s)? (fill in table below)

Position in household	Person interviewed (0=no; 1=yes)	3. Age	4. Sex (0=male; 1=female)	5. Education (highest level attained)*
<i>Head</i>				
<i>Spouse</i>				
<i>Other (specify):</i>				

**INSTRUCTION:**

In column 2, indicate who is interviewed by marking "1".

For columns 3 and 4, enter the age and sex of **both** the head of household **and** spouse(s)

For column 5, education is measure according to the highest level of formal education attained as per the following scale:

1= None;

2= primary school;

3= secondary school;

4=college/university;

5=post-graduate

**D. Household Assets**

1. Describe the house in which this household lives (Enumerator's observation)

a. What is the type of material of (most of) the walls?*	
b. What is the type of material of (most of) the roof?***	

**INSTRUCTION:**

For 1.a use the following codes for wall materials:

- 1 = mud and poles/withies;
- 2 = wooden (boards);
- 3 = iron (or other metal) sheets;
- 4 = mud bricks;
- 5 = burnt bricks;
- 6 = concrete bricks, or concrete;
- 7 = reeds/straw/grass/fiber;
- 9 = other, specify.

For 1.b. use the following codes for roofing materials:

- 1 = thatch;
- 2 = iron or other metal sheets;
- 3 = tiles;
- 9 = other, specify

2. Please indicate the number of the following items that are owned by the household:

<i>Item</i>	<i>Number of units</i>
Cattle (excluding oxen)	
Goat/Sheep	
Poultry	
Pig	
Draught animals (oxen, donkey, etc)	
Car/truck	
Plow	
Carts/wheel barrow	
Bicycle	
Motorcycle	
Phone	
TV	
Radio	
Other items, specify	

3. Please indicate the household's main sources of energy and how they are acquired.

<i>Energy Source Used</i>	<i>Acquisition Methods*</i>	<i>Quantity/month consumed</i>	<i>End Purposes**</i>
Firewood		Head loads	
Charcoal		bags	
Gas		kg	
Kerosene		liter	
Electricity		TShs	
Other (spec)			

**INSTRUCTION:**

For column 2, use the following codes

- 1 = own collection;
- 2 = purchase;
- 3 = other: please specify: \_\_\_\_\_

For column 3, please estimate the average quantities consumed per month by the household

For column 4, please code responses according to the following alternatives:

- 1 = cooking;
- 2 = lighting;
- 3 = heating;
- 4 = other, Please describe): \_\_\_\_\_.

If firewood or charcoal were mentioned as energy sources, please ask the following questions about availability of alternative energy sources (if not, skip to question 4):

3. a. Are there any alternatives to firewood/charcoal that are available here but not used? \_\_\_\_\_

**Codes:**

- 1 = yes;
- 0 = no

3. b. If yes, which sources are available? \_\_\_\_\_

**Codes:**

- 1 = Gas;
- 2 = Electricity;
- 3 = Kerosene;
- 4 = Solar panels;
- 5 = other: (please specify)

3.c. What are the main reasons for not using these sources instead of firewood/charcoal? \_\_\_\_\_

**Codes:**

- 1 = too expensive;
- 2 = different preferences;
- 3 = other reasons, (specify)

4. Please indicate the amount of land that you currently own and have access to:

Category	Area owned individually		Do outsiders respect boundaries?*	Area of land owned communally to which the household has access**	Do outsiders respect boundaries?*
	Acres	Hectares			
Cropland (not irrigated)					
Cropland (irrigated)					
Pasture (natural or planted)					
Forested land (including woodlots, silvipasture etc)					
Other vegetation types, spec: _____					
Land rented or borrowed					

**INSTRUCTION:**

For this question, estimates of land areas may be given in either hectares or acres, whichever is preferred by the household member interviewed.

For column 3 use the following codes:

- 1 = yes, everybody;
- 2 = yes most people respect ;
- 3 = No, most people do not respect;
- NA = Not applicable;

For column 4, regarding the question about access to communally-owned land, please use ranges of estimates. For example, 10-15 acres or 80-100 hectares if the respondent does not know the exact figure.

5. Has the **size** of the household's private land property changed over the last five years? \_\_\_\_\_

**Codes:**

- A = yes, increased;
- B = yes, decreased;
- C = no change.

If there is no change, the enumerator can skip to question E.1

6. If area of private land property changed, by how much did it change? \_\_\_\_\_ acres **or** \_\_\_\_\_ hectares

For this question, estimates of land areas may be given in either hectares or acres, whichever is preferred by the household member interviewed.

7. Why did this change occur? (text to indicate source of change) \_\_\_\_\_

**INSTRUCTION:** Please limit the text variable to 20 words

### E. Household food security and risk

1. In the past year, where did the household's food come from?

<i>Source</i>	<i>Months food lasts</i>
Food grown on land owned and cultivated by household	
Food grown on land cultivated <b>but not</b> owned by household (i.e. land rented)	
Food purchased from the market	
Food from forest (mushroom, fruits, bushmeat, etc.)	
Food given as gift or food aid	
Other ( <i>please specify</i> ): _____	

**INSTRUCTION:**

Here, the enumerator should document the number of months out of the year that the household's food needs are met by each specified source of food in the table.

2. Which months of the year do you experience food shortages in the household? \_\_\_\_\_ *month*

**INSTRUCTION:**

Here, the enumerator should document which months (if any) that the household experiences a food shortage. If there are no months of food shortage, the enumerator should skip to question E.5.

3. During critical food shortage months does your household use forest products to meet food needs?

\_\_\_\_\_

**Codes:**

0 = No

1 = Yes

If no, please go to question 5

4. If yes, please indicate the forest products that are collected to supplement household food supplies during periods of food shortage:

<i>Product</i>	<i>Species</i>	<i>Quantity</i>	<i>Rank (1 – 5)</i>
Tubers			
Wild vegetables			
Mushrooms			
Honey			
Fruits			
Others (specify):			

5. Has your household faced any unexpectedly large expenditures during the past 12 months? \_\_\_\_\_

**Codes:**

0 = no

1 = yes

6. If yes, what event(s) caused this shortfall (fill in table below--multiple answers possible):

<i>Event</i>	<i>Existence*</i>	<i>Response**</i>
Serious crop failure (drought, pests, floods)		
Serious illness or disability in family		
Death of productive age-group adult		
Land loss (expropriation, etc.)		
Major livestock loss (theft, drought, etc.)		
Social events (Wedding, funeral, religious events)		
Other, specify: _____		

**INSTRUCTION:**

For column 1 on existence, please indicate

1 = yes;

0 = no

For column 2, on type of response, use the following codes (multiple answers possible):

1 = Harvest more forest products;

2 = Harvest more wild foods not found in the forest;

3 = Harvest more agricultural products;

4 = Spend cash savings;

5 = Sell assets (i.e. land, livestock etc.);

6 = Do extra casual labor;

7 = Assistance from friends or relatives;

8 = Assistance from NGO, community organization, religious organization or similar;

9 = Get loan from money lender, credit associations, bank etc.;

10 = Tried to reduce household spending;

11 = Did nothing in particular;

99 = Other (specify)

7. In the last 5 years have there been any major disturbances to the local forests that decreased the availability of forest products? \_\_\_\_

**Codes:**

1 = yes;

0 = no

If yes, what were these events and how did your household cope with this shortfall?

<i>Event*</i>	<i>Response**</i>

**INSTRUCTION:**

For column 1 on the types of event, please use the following codes:

- 1 = Fire;
- 2 = Disease;
- 3 = lumbering;
- 4 = encroachment;
- 5 = grazing;
- 6 = charcoal making;
- 9 = Other (specify);

For column 2, on types of responses please use the following codes:

- 1 = By harvesting fewer forest products;
- 2 = By harvesting more of other forest products;
- 3 = No change in harvesting;
- 4 = By harvesting from a different forest;
- 9 = other

**F. Household Income**

1. In the past **12 months**, which have been the most important sources of income for the household?

*If no income was received from a particular source, a “NA” should be recorded*

<i>Income source</i>	<i>Source of subsistence</i>	<i>Rank subsistence</i>	<i>Source of cash income</i>	<i>Cash income (Tshs)</i>
Forest products (timber, game, charcoal, etc)				
Agriculture				
Livestock				
Wage income				
Income from own business				
Remittances				
Other sources (spec):				

**INSTRUCTION:**

For columns 2 and 4 (source of subsistence and cash income), please use

- 1 = yes;
- 0 = no

For column 3, on rank of subsistence, please rank in order of importance, 1 being the most important.

For column 5, ask the respondent to estimate the amount of cash income for the past year. Ranges are acceptable if the respondent is not able to give exact figures.



*G. Household Opinions*

**INSTRUCTION:**

For all of these questions, ask the respondents to answer according to a scale ranging from 1, completely disagree to 5= fully agree.

Please indicate the extent to which you agree with the following statements (Codes: 1=completely disagree...5=fully agree)

1. In your opinion do you think households in this area can reduce their consumption of forest products? \_\_\_\_

Comment: \_\_\_\_\_

2. Do you think that local communities in this area are more effective in protecting forests than government officials? \_\_\_\_

Comment: \_\_\_\_\_

3. Do you think that the rules regarding the use of forest resources in this area are fair to everyone? \_\_\_\_

Comment: \_\_\_\_\_

4. Do you think that the penalties for breaking forest use rules in this area are fair to everyone? \_\_\_\_

Comment: \_\_\_\_\_

**H. Forest Products and Services**

1. Please list all tree and forest products used in the past 12 months. For the three most important products for the households, please characterize demand, supply etc (variables in shaded portions of the table)

<i>All tree and forest products</i>				<i>For top three products ONLY</i>									
<i>Product Category</i>	<i>Species names (multiple)</i>	<i>Land use cat.</i>	<i>Rank</i>	<i>Distance to Source</i>	<i>Who harvests?</i>	<i>Harvesting change</i>	<i>Quantity harvested</i>	<i>End Use</i>	<i>Rights</i>	<i>Conflicts</i>	<i>Local Rules</i>	<i>Legislation awareness</i>	<i>Legislation enforcement</i>



### Products harvested

This table is used to record the forest and trees products harvested by the households. If the table is not big enough, please use the back of the form to record other products.

**1. Product category:** categories of products harvested in the Land use class (one line for each product category). To be indicated according to option list:

Wood Products	Options	Description	Code
	Production Wood	Timber, beams, poles for construction, etc	101
	Firewood		102
	Charcoal		103
	Wood Carvings	Tools, artwork, small wood for artisanal products	104

Plant products (other than cash crops)	Human plant food	Vegetable foodstuffs and beverages including fruits, nuts, seeds, roots, mushrooms, food crops, etc.	201
	Fodder	Animal and bee fodder provided by leaves, fruits, flowers, etc.	202
	Plant medicines	Medicinal plants (e.g. leaves, bark, roots) used in traditional medicine and/or for pharmaceutical companies	203
	Soap / cosmetics	Aromatic plants providing essential (volatile) oils and other products used for cosmetic purposes such as soaps, perfumes	204
	Dying / tanning	Plant material (bark and leaves) providing tannins and other plant parts (especially leaves and fruits) used as colorants	205
	Herbs and spices	Food additives	206
	Exudates	Substances such as gums (water soluble), resins (water insoluble) and latex (milky or clear juice), released from plants by exudation	207
	Utensils, handicrafts	Non wood products	208
	Construction material	Includes thatch, bamboo, rattan, wrapping, leaves and fibres	209
	Ornamentals	Entire plants (e.g. orchids) and parts of plants (e.g. pots made from roots) used for ornamental purposes	210
	Seeds	Seeds collected for regeneration purposes	211
	Fuel	Combustion materials	212
	Fiber	For instance for making clothes	213
	Fertilizer	Additives to improve soil fertility	214
Other plant products	To be specified	299	
Animal products	Living animals	Mainly vertebrates such as mammals, birds, reptiles kept/bought as pets	301
	Honey, beeswax	Products provided by bees	302
	Bush meat	Meat provided by vertebrates, mainly mammals	303
	Other edible animal products	Mainly edible invertebrates such as insects (e.g. caterpillars) and other "secondary" products of animals (e.g. eggs, nests)- To be specified	398
	Hides / skins	Hide and skin of animals used for various purposes. Includes trophies	304
	Medicines from animals	Entire animals or parts of animals such as various organs used for medicinal purposes	305
	Colorants	Entire animals or parts of animals such as various organs used as colorants	306
	Fuel	Biogas, dung	307
	Other non-edible animal products	E.g. bones used as tools – To be specified	399

**2. Local or scientific name** of species for the product category harvested in (one line per species). If a local name is used then the language used to name the species should be specified into brackets.

**3. Land use category:** for each product indicate all land use categories from which the product is harvested (multiple answers possible)

1. Forest land
2. Pasture
3. Fallow
4. Garden
5. Other, please spec:

**4. Rank:** Indicates which products are the most important to the household. Only top three will be coded in the order of importance among those three.

1. Most important product
2. Second most important product
3. Third most important product

**For top three products only:**

**5. Distance to source:** The distance from HH where product is harvested

1. Less than 1 km from HH
2. Between 1-2 km from HH
3. Between 2 and 5 km from the HH
4. Between 5-10 km from HH
6. More than 10 km from HH

**6. Who harvests:** Gender balance: gender balance of harvesters of the product.

Options	Description/definition	Code
No women	Women don't harvest the product	0
<30% women	Less than 30% of the women living in the place participate in the harvest of the product	1
30 – 70% women	Between 30 – 70% of the women living in the place participate in the harvest of the product	2
>70% women	More than 70% of the women living in the place participate in the harvest of the product	3
Only women	Only women harvest the product	4

**7. Harvest Change:** indicate whether the household is harvesting more or less of the product than what they have been accustomed to in the past five years.

Options	Description	Code
Not Applicable	Timber, beams, poles for construction, etc	0
Decreasing	When quantity harvested has decreased	1
No Change	When the quantity harvested has not changed	2
Increasing	When quantity harvested has increased	3

**8. Quantity harvested:** Indicate the weight/volume that the HH harvests each month.

NOTE: Please specify the unit of measurement for each entry.

**9. End-use:** main end-use of the species. To be indicated according to option list:

Options	Description/definition	Code
Only domestic use	The product is only used for home consumption. No commercial use of the product	0
<25% commercial use	Less than 25% of the product is sold in markets (more than 75% of the product is used for home consumption)	1
25-50% commercial use	25% to 50% of the product is sold in markets (50% to 75% of the product is used for home consumption)	2
50-75% commercial use	50% to 75% of the product is sold in markets (25% to 50% of the product is used for home consumption)	3
>75% commercial use	More than 75% of the product is sold in markets (less than 25% of the product is used for home consumption)	4
Only commercial use	All harvested product is sold. The product is not used for home consumption	5
Not known	There is not enough information to know about the commercial use of the specie	90

**10. Rights:** user rights to harvest the product. To be indicated according to option list:

Options	Description/definition	Code
Individual rights	The harvester is the land owner or has been transferred property rights	1
Rent	Pays a fee, percentage of harvest, for having the right of harvest the product	2
Product lease	Pays a fee for harvesting the product	3
Land lease	Pays a fee for leasing the land	4
Customary or common rights	Rights to harvest the product based on tradition or habit, to satisfy local people's needs or a specific group. Might be regulated through permits and licenses	5
Open access	The harvest of the product is a common right. Everybody has the right to harvest/use the product.	6
No right	The harvest of the product is prohibited	7
Not known	There is not enough information to know about the user rights	90

**11. Conflicts:** existence of conflicts between different users/harvesters of the product. To be indicated according to option list:

Options	Description/definition	Code
No	No conflicts due to use/harvest of the product	1
Yes	Conflicts due to use/harvest of the product	2
Not known	There is not enough information to know about conflicts of harvesting the product	90

**12. Local rules:** indicate to what extent local rules limit the harvesting of the product according to the options below:

Options	Description	Code
No	No local rules exist that regulate use of product	0
Yes, but not enforced	Local rules exist but they are not enforced	1
Yes, and enforced	Local rules exist and they are enforced	2

**13. Legislation Awareness:** Is the respondent aware of any government rules and regulations concerning the harvesting of this product?

Options	Description	Code
No		0
Yes,		1

2. Please list all forest-related services that the household has benefited from in the past 12 months

<i>Environmental Services from forests</i>				<i>If payment was received:</i>	
<i>Service type</i>	<i>Exists*</i>	<i>Rank</i>	<i>Payment*</i>	<i>Payment from</i>	<i>Amount</i>
Fresh water/water conservation					
Climate regulation					
Windbreak					
Recreation /Tourism					
Soil protection					
Shade					
Aesthetic					
Employment					
Other (spec)					

## 2. ENVIRONMENTAL SERVICES FROM FORESTS

**Exists:** Does the respondent indicate that the household receives benefits from this forest-related service?

**Codes:**

Yes = 1;

No = 1.

**Rank:** Which are the three most important services for the household?

Options	Description	Code
Most important		1
Second most important		2
Third most important		3

**Payment:** Has the household received any money from any individual, organization, or the government to protect the forest area from which this service comes?

**Codes:**

Yes = 1;

No = 1.

**Source of Payment:** Indicate which type of organization made the payment, according to the options below:

Options	Description	Code
Not applicable	No payment was received from anybody	0
Central Government	Central government office and its agencies	1
Sub-national Government	Regional or district level government	
NGO	Non-governmental Organization	2
Individual	An individual has paid for the environmental service, i.e. tourists paying a visitor's fee	3
Other	Please describe:	9

**Amount:** Please indicate, in Tanzanian Shillings, how much the household has received in the last 12 months?

3. During the last five years, how have the following land use characteristics changed in this locality?

Land Use	Change
Cultivated land	
Forest land	
Natural surface water ( <b>excluding</b> man-made reservoirs)	

**INSTRUCTION:**

For Change, please use the following codes:

- 1 = decrease;
- 2 = stable;
- 3 = increase

**I. Participation in Organizations and Forest User Groups**

We are interested in learning about your household's involvement in groups that seek to improve forest use (i.e. these can be either formal or informal groups that undertake forest use activities):

1. Are you aware of any initiatives related to Participatory Forest Management <i>Codes</i> :	
<b>INSTRUCTION:</b> 1 = yes; 0 = no.	
2. Are there any other organizations in this area that work on forest-related issues?	
<b>INSTRUCTION:</b> 1 = yes; 0 = no. If 'no', go to question 6.	
3. Are you or any member of your household involved in a group that organizes activities related to management of the forest (i.e. fire fighting, patrolling, tourism, tree planting, etc)?	

<p><b>INSTRUCTION:</b>  1 = yes;  0 = no.  If 'no', go to question 6.</p>	
<p>4. What is the name of the group(s) your household is involved with?</p>	
<p><b>INSTRUCTION:</b>  Please indicate the name of the group as described by the enumerator. Offer examples of groups whose local work key informants may have told you about.</p>	
<p>5. Overall, how would you say the existence of the organization has affected the benefits that the household gets from the forest?</p>	
<p><b>Codes:</b>  1 = large negative effect;  2 = small negative effect;  3 = no effect;  4 = small positive effect;  5 = large positive effect.</p>	
<p>6. How frequently does the group/community that you belong to actively monitor and patrol the forests to detect intruders and thieves of forest products?</p>	
<p><b>Codes:</b>  0 = Never;  1 = Hardly ever;  2 = Regularly (&gt;1 time/month);  3 = Frequently (&gt;1 time/week)</p>	
<p>7. How frequently do government officials (district, region, central) visit the forest area?</p>	
<p><b>Codes:</b>  0 = Never;  1 = Hardly ever;  2 = Regularly (&gt;1 time/month);  3 = Frequently (&gt;1 time/week)</p>	
<p>8. In the past 12 months, approximately how many individuals have been caught breaking the established rules of forest use?</p>	
<p><b>Codes:</b>  0 = none;  1 = &lt;5;  2 = 5-10;  3 = 10-20;  4 = &gt;20</p>	
<p>9. Who decided which punishment these individuals should receive?</p>	
<p><b>Codes:</b>  1 = local community group that made the rules;  2 = village council;  3 = district government;  4 = central government;  5 = court of law;  6 = other (specify)</p>	



***J. Relationships with forest-related organizations***

1. Which organizations do you consider to be the most important for your participation in forest-related activities? (if the respondent perceives no organization to be important, please mark 'NA' above table)

<b>Type of Organization</b>	<b>Rank (1-3)</b>	<b>Frequency of Interaction*</b>
<i>National Government</i>		
<i>District Government</i>		
<i>Village government</i>		
<i>NGO (WWF, IUCN, etc), please specify:</i> _____		
<i>Other, please specify:</i> _____		

**Codes for Rank**

1=most important... 5=least important

Codes for frequency of interactions:

0 = none,

1 = 1-5 times;

2 = 5-10;

3 = 10-15;

4 = 15-20;

5 =>20

***ENUMERATOR'S COMMENTS***

---

This is where the enumerator should note all those observations that were **not** captured by the respondent's answers.

## 6. References Cited

Dahdouh-Guebas, F., Koedam, N. 2006. Empirical estimate of the reliability of the use of the Point-Centred Quarter Method (PCQM): Solutions to ambiguous field situations and description of the PCQM+ protocol. *Forest Ecology and Management* 228: 1–18.

FAO. 2006. *Guidelines for Soil Description*. 97 p.

Glossary of Forestry Terms in British Columbia. 2008. Province of British Columbia. Ministry of Forests and Range. Available at:

<http://www.for.gov.bc.ca/hfd/library/documents/glossary/>

Malimbwi, R.E., Shemwetta, D.T.K., Zahabu, E., Kingazi, S.P., Katani, J.Z. & Silayo, D.A., 2005. *Report of Forest Inventory for the Eleven Districts of Eastern and Southern Tanzania*. Forestry and Beekeeping Division, Dar es Salaam, Tanzania.

Michalak, R. 2008. Comparison of the scope, terms, definitions and classifications applied for the FAO Global Forest Resources Assessment 2010 and the MCPFE/UNECE/FAO Report on State of Europe's Forests 2007. Part I - Definitions and classifications structured according to FRA reporting tables. UNECE/FAO Timber Section, Geneva. 38 p.

Saket, M., Altrell, D., Vuorinen, P., Dalsgaard, S., Andersson, L.G.B. Melin, Y., Bassil, M., and Branthomme, A. 2006. *Field Manual for Integrated Land Use Assessment, Zambia*. Forestry Department, FAO.

Woodall, C.W., Rondeux, J., Verkerk, P.J. and Ståhl, G. 2006. Estimating Dead Wood During National Forest Inventories: A Review of Inventory Methodologies and Suggestions for Harmonization. Proceedings of the Eighth Annual Forest Inventory and Analysis Symposium  
At: [http://www.nrs.fs.fed.us/pubs/gtr/gtr\\_wo079/gtr\\_wo079\\_179.pdf](http://www.nrs.fs.fed.us/pubs/gtr/gtr_wo079/gtr_wo079_179.pdf)

## 7. Appendix 1: NAFORMA Household Survey Instrument NAFORMA Document M02-2010

### A. Control Information

Task	Date(s)			By whom?	Status
	Year	Month	Day		
Interview					
Checking questionnaire					
Coding questionnaire					
Entering data into data base					
Checking and approving data entry					

### B. Identification and Location of Household

Household number [District#-Cluster #-HH#]	[xxx-yyyy-zz]	
Distance from household to nearest forest	meters	
Village	Name	
Ward	Name	
District	Name	
GPS location of household	[UTM format]	
Duration of interview	Starting time	Ending time

### C. Household Characteristics

6. How many members are there in this household (people who share meals on a daily basis)? \_\_\_\_\_ ind.
7. How many members did this household have five years ago? \_\_\_\_\_ individuals.
8. For how long has the head of this household lived in this location? \_\_\_\_\_ years.
9. What is the birthplace of the head of the household? \_\_\_\_\_ (name of district)
10. Who are the heads of the household (head of household and spouse(s))? (fill in table below)

Position in household	Person interviewed (0=no; 1=yes)	3. Age	4. Sex (0=male; 1=female)	5. Education (highest level attained)*
Head				
Spouse				
Other (specify):				

\*  
CODES: 1= None; 2= primary school; 3= secondary school; 4=college/university; 5=other (spec)

**D. Household Assets**

1. Describe the house in which this household lives (Enumerator's observation)

a. What is the type of material of (most of) the walls?*	
b. What is the type of material of (most of) the roof? **	

**CODES:** \* 1=mud and poles/withies; 2=wooden (boards); 3=iron (or other metal) sheets; 4=mud bricks; 5= burnt bricks; 6=concrete bricks, or concrete; 7=reeds/straw/grass/fiber; 9=other, specify. \*\*1=thatch; 2=iron or other metal sheets; 3=tiles; 9=other, specify

2. Please indicate the number of the following items that are owned by the household:

<i>Item</i>	<i>Number of units</i>
Cattle (excluding oxen)	
Goat/Sheep	
Poultry	
Pig	
Draught animals (oxen, donkey, etc)	
Car/truck	
Plow	
Carts/wheel barrow	
Bicycle	
Motorcycle	
Phone	
TV	
Radio	
Other items, specify	

3. Please indicate the household's main sources of energy and how they are acquired.

<i>Energy Source Used</i>	<i>Acquisition Methods*</i>	<i>Quantity/month consumed</i>	<i>End Purposes**</i>
Firewood		Head loads	
Charcoal		bags	
Gas		kg	
Kerosene		liter	
Electricity		TShs	
Other (spec)			

**CODES:** \* 1= own collection; 2= purchase; 3= other, \*\*1=cooking; 2= lighting; 3= heating; 4=other.

**If firewood or charcoal were mentioned as energy sources, please ask the following questions about availability of alternative energy sources (if not, skip to question 4):**

3. a. Are there any alternatives to firewood/charcoal that are available here but not used? \_\_\_\_\_

**Codes:** 1=yes; 0=no

3. b. If yes, which sources are available? \_\_\_\_\_

**Codes:** 1= Gas; 2= Electricity; 3=Kerosene; 4=Solar panels; 5=other: (please specify)

3.c. What are the main reasons for not using these sources instead of firewood/charcoal? \_\_\_\_\_

**Codes:** 1= too expensive; 2= different preferences; 3=other reasons, (specify)

4. Please indicate the amount of land that you currently own and have access to:

Category	Area owned individually		Do outsiders respect boundaries?*	Area of land owned communally to which the household has access**	Do outsiders respect boundaries?*
	Acres	Hectares			
Cropland (not irrigated)					
Cropland (irrigated)					
Pasture (natural or planted)					
Forested land (including woodlots, silvipasture etc)					
Other vegetation types, spec: _____					
Land rented or borrowed					

\* 1= yes, everybody; 2= most people; 3= Most do not respect; NA=Not applicable; \*\* Estimates, including ranges of value--i.e. 10-15 acres--permitted.

5. Has the household's private land property changed over the last five years? \_\_\_\_\_

**Codes:** a= yes, increased; b=yes, decreased; c=no change. **If there is no change**, please skip to E.1

6. If area of private land property changed, by how much did it change? \_\_\_\_\_ acres or \_\_\_\_\_ hectares

7. Why did this change occur? (text to indicate source of change) \_\_\_\_\_

\_\_\_\_\_

**E. Household food security and risk**

1. In the past year, where did the household's food come from?

<i>Source</i>	<i>Months food lasts</i>
Food grown on land owned and cultivated by household	
Food grown on land cultivated <b>but not</b> owned by household (i.e. land rented)	
Food purchased from the market	
Food from forest (mushroom, fruits, bushmeat, etc.)	
Food given as gift or food aid	
Other (please specify): _____	

2. Which months of the year do you experience food shortages in the household? \_\_\_\_\_ month/ Na

3. During critical food shortage months does your household use forest products to meet food needs? \_\_\_\_\_

*Codes: 1=Yes, 2=No.*

**If no, please go to question 5**

4. If yes, please indicate the forest products that are collected to supplement household food supplies during periods of food shortage:

<i>Product</i>	<i>Species</i>	<i>Quantity collected/week</i>	<i>Rank (1 – 5)</i>
Tubers			
Wild vegetables			
Mushrooms			
Honey			
Fruits			
Others (specify): _____			

5. Has your household faced any unexpectedly large expenditures during the past 12 months? \_\_\_\_ (1=yes; 0=no).

6. If yes, what event(s) caused this shortfall (fill in table below--multiple answers possible):

<i>Event</i>	<i>Existence*</i>	<i>Response**</i>
Serious crop failure (drought, pests, floods)		
Serious illness or disability in family		
Death of productive age-group adult		
Land loss (expropriation, etc.)		
Major livestock loss (theft, drought, etc.)		
Social events (Wedding, funeral, religious events)		
Other, specify: _____		

**CODES:** 1=yes; 0=no \*\*multiple answers possible: 1=Harvest more forest products; 2=Harvest more wild foods not found in the forest; 3=Harvest more agricultural products; 4=Spend cash savings; 5=Sell assets (i.e. land, livestock etc.); 6=Do extra casual labor; 7=Assistance from friends or relatives; 8=Assistance from NGO, community organization, religious organization or similar; 9=Get loan from money lender, credit associations, bank etc.; 10=Tried to reduce household spending; 11=Did nothing in particular; 99=Other (specify)

7. In the last 5 years have there been any major disturbances to the local forests that decreased the availability of forest products? \_\_\_\_ *Codes: 1=yes; 0=no*

If yes, what were these events and how did your household cope with this shortfall?

<i>Event*</i>	<i>Response**</i>

*\*CODES: 1=Fire; 2=Disease; 3=lumbering; 4= encroachment; 5= grazing; 6= charcoal making; 9=Other (specify); \*\* 1=By harvesting fewer forest products;2=By harvesting more of other forest products;3=No change in harvesting; 4=By harvesting from a different forest; 9=other*

### F. Household Income

1. In the past **12 months**, which have been the most important sources of income for the household?

*If no income was received from a particular source, a "NA" should be recorded*

<i>Income source</i>	<i>Source of subsistence *</i>	<i>Rank subsistence</i>	<i>Source of cash income*</i>	<i>Cash income (Tshs)</i>
Forest products (timber, game, charcoal, etc)				
Agriculture				
Livestock				
Wage income				
Income from own business				
Remittances				
Other sources (spec):				

*\* Codes: 1=yes; 0=no*

### G. Household Opinions

Please indicate the extent to which you agree with the following statements (using a scale from 1 to 5, 1 meaning completely disagree and 5 meaning fully agree.)

1. In your opinion do you think households in this area can reduce their consumption of forest products? \_\_\_\_

Comment: \_\_\_\_\_

2. Do you think that local communities in this area are more effective in protecting forests than government officials? \_\_\_\_

Comment: \_\_\_\_\_

3. Do you think that the rules regarding the use of forest resources in this area are fair to everyone? \_\_\_\_

Comment: \_\_\_\_\_

4. Do you think that the penalties for breaking forest use rules in this area are fair to everyone? \_\_\_\_

Comment: \_\_\_\_\_

**H. Forest Products and Services**

1. Please list all tree and forest products used in the past 12 months. For the three most important products for the households, please characterize demand, supply etc (variables in shaded portions of the table)

<i>All tree and forest products</i>				<i>For top three products ONLY</i>									
<i>Product Category</i>	<i>Species names (multiple)</i>	<i>Land use cat.</i>	<i>Rank</i>	<i>Distance to Source</i>	<i>Who harvests?</i>	<i>Harvesting chance</i>	<i>Quantity harvested</i>	<i>End Use</i>	<i>Rights</i>	<i>Conflicts</i>	<i>Local</i>	<i>Legislation awareness</i>	<i>Legislation enforce</i>

2. Please list all forest-related services that the household has benefited from in the past 12 months

<i>Environmental Services from forests</i>				<i>If payment was received:</i>	
<i>Service type</i>	<i>Exists*</i>	<i>Rank</i>	<i>Payment*</i>	<i>Payment from</i>	<i>Amount</i>
Fresh water/water conservation					
Climate regulation					
Windbreak					
Recreation /Tourism					
Soil protection					
Shade					
Aesthetic					
Employment					
Other (spec)					

*Codes: 1=yes; 0=no*



3. During the last five years, how have the following land use characteristics changed in this locality?

<i>Land Use</i>	<i>Change</i>
Cultivated land	
Forest land	
Natural surface water ( <b>excluding</b> man-made reservoirs)	

*Codes: 1= decrease; 2; stable; 3=increase*

### I. Participation in Organizations and Forest User Groups

We are interested in learning about your household's involvement in groups that seek to improve forest use (i.e. these can be either formal or informal groups that undertake forest use activities)

1. Are you aware of any initiatives related to Participatory Forest Management <i>Codes: (1=yes; 0=no).</i>	
2. Are there any other organizations in this area that work on forest-related issues? <i>Codes: 1=yes; 0=no. If 'no', go to question 6.</i>	
3. Are you or any member of your household involved in a group that organizes activities related to management of the forest (i.e. fire fighting, patrolling, tourism, tree planting, etc)? <i>Codes: 1=yes; 0=no. If 'no', go to question 6.</i>	
4. What is the name of the group(s) your household is involved with?	
5. Overall, how would you say the existence of the organization has affected the benefits that the household gets from the forest? <i>Codes: 1=large negative effect; 2=small negative effect; 3=no effect; 4=small positive effect; 5=large positive effect.</i>	
6. How frequently does the group/community that you belong to actively monitor and patrol the forests to detect intruders and thieves of forest products? <i>Codes: 0=Never; 1=Hardly ever; 2= Regularly (&gt;1 time/month); 3=Frequently (&gt;1 time/week)</i>	
7. How frequently do government officials (district, region, central) visit the forest area? <i>Codes: 0=Never; 1=Hardly ever; 2= Regularly (&gt;1 time/month); 3=Frequently (&gt;1 time/week)</i>	
8. In the past 12 months, approximately how many individuals have been caught breaking the established rules of forest use? <i>Codes: 0= none; 1=&lt;5; 2=5-10; 3=10-20; 4=&gt;20</i>	
9. Who decided which punishment these individuals should receive? <i>Codes: 1=local community group that made the rules; 2=village council; 3= district government; 4= central government; 5=court of law; 6=other (specify)</i>	

### J. Relationships with forest-related organizations

1. Which organizations do you consider to be the most important for your participation in forest-related activities? (if the respondent perceives no organization to be important, please mark 'NA' above table)

Type of Organization	Rank (1-3)	Frequency of Interaction*
<i>National Government</i>		
<i>District Government</i>		
<i>Village government</i>		
<i>NGO (WWF, IUCN, etc), please specify: _____</i>		
<i>Other, please specify: _____</i>		

*Codes: 0= none, 1=1-5 times; 2=5-10; 3=10-15; 4=15-20; 5=>20*

### **ENUMERATOR'S COMMENTS**

(Continue on back, if necessary)



## 8. Appendix 2: Interview Form for Key informants NAFORMA Document M04-2010

Field form 1 of NAFORMA includes data to be collected through interviews with so-called key informants. These are individuals who are especially knowledgeable when it comes to forest use in the area of the sampling unit. Examples include the property owners themselves, local village authorities, and elders. In interviews with these individuals, questions will be asked about issues such as property rights, environmental conditions and trends, and historical land uses.

At least two individuals per SU should be selected and interviewed. See field Manual for instructions on how to select these.

All of the questions on this form are asked after making sure that the key informant is aware of where the boundaries of the SU are. An aerial photograph, satellite image, or map should be used to make the interview as spatially explicit as possible. By asking questions about forest use in the SU in particular, rather than forest use in general as is the case for the household interviews, the key informant interviews would provide critical data about the location of resource use. The enumerators should follow the instructions in the Field Manual for how to code the responses to the questions.

### KEY INFORMANT INTERVIEW FORM

1. Who is the **Informant**? \_\_\_\_\_ Code according to option list in Field Manual (multiple choice possible)
2. What is the **total number of households** that reside within boundaries of 2km sampling unit? \_\_\_\_\_
3. Compared to the rest of the population in the district, how would you characterize the **health condition** of the population living near and inside the Sampling Unit? \_\_\_\_  
To be indicated according to option list in Field Manual.
4. Which are the three most important **products** that most local people harvest from this area (refer to area within SU-- point to 2km circle on map/image)?  
Product 1: \_\_\_\_\_  
Product 2: \_\_\_\_\_  
Product 3: \_\_\_\_\_
5. Approximately how many **households** (regardless of where they live) regularly harvest products from this particular area (refer to area within SU-- point to 2km circle on map/image)? ). \_\_\_\_\_ households

6. Are there any **rules** (informal or formal) that constrain local households' uses of products? \_\_\_\_ (yes/no). If no, go to Q7.
7. If yes, what is the **origin** of these rules? \_\_\_\_ (mark all applicable options from codes in Field Manual)
8. What is the distance from the center of the SU to the following infrastructure features?:
  - a. **All-weather road**: \_\_\_\_ km
  - b. **Seasonal road**:: \_\_\_\_ km
  - c. **Village**: \_\_\_\_ km
  - d. **Health centre**: \_\_\_\_ km.
  - e. **School**: \_\_\_\_ km.
  - f. **Food market place**: \_\_\_\_ km.
9. When was this **settlement established** (when did the local household dwellings arrive to the area)? \_\_\_\_ To be indicated according to Field Manual's option list.
10. What is the **population trend** for the past 5 years for this area? To be indicated according to Field Manual's option list.
11. What are some of the **major historical events** that have affected local people and their land use in this area? \_\_\_\_ To be indicated according to Field Manual's option list--multiple options possible).
12. Have there been any efforts to manage or somehow organize the forest resource use within this area? \_\_\_\_ (yes/no). *If no, go to Q15.*
13. If yes, was there a particular **leader** of this effort? \_\_\_\_ To be indicated according to option list in Field Manual.
14. Is this effort still **ongoing**? \_\_\_\_ (yes/no)
15. In your opinion, would you consider the efforts to manage and order forest use in this area to have been **successful**? \_\_\_\_ To be indicated according to option list in Field Manual.
16. Does this area have an **active forest management plan**? \_\_\_\_ To be indicated according to Field Manual's option list
17. Is there an active **management arrangement** between the land owner and other groups? \_\_\_\_ . To be indicated according to option list in Field Manual.
18. To what extent is this particular area affected by large-scale, **illegal forestry activities**? \_\_\_\_ . To be indicated according to option list in Field Manual.

19. If a local person engages in large-scale illegal activities, (i.e. large timber operation, industrial charcoal making, etc) in this area, what is the likelihood of anybody detecting or stopping this activity? \_\_\_\_\_ To be indicated according to option list in Field Manual.
20. If a local person engages in a small-scale illegal activities, (i.e. cutting of timber, charcoal making for local markets, etc), what is the likelihood of anybody detecting or stopping this activity? \_\_\_\_\_ To be indicated according to same option list as for previous question.
21. Are there any local individuals who have shown leadership to organize forest activities among forest users in this area? \_\_\_\_ (yes/no)
22. Which is the most active **forestry organization** in this area?  
\_\_\_\_\_
23. If applicable, how far away from this SU does this forestry organization (mentioned in Q22) have its **nearest office**? \_\_\_\_ km

---

ENUMERATOR'S COMMENTS: