

**Low-Cost Practical Forest Resource Inventories
in
African Dry Tropical Forests:
Annexes**

*ANNEX 1. SELECTED PARTICIPATORY RESOURCE
ASSESSMENT TOOLS, WITH RECOMMENDATIONS FOR
TRAINING AND WRITEUP PROCEDURES*

*ANNEX 2. PROPOSED INVENTORY METHODOLOGY FOR DRY
TROPICAL FORESTS*

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**ANNEX 1. SELECTED PARTICIPATORY RESOURCE
ASSESSMENT TOOLS, WITH RECOMMENDATIONS FOR
TRAINING AND WRITEUP PROCEDURES**

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CLUSA staff in Zambia)*

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PARTICIPATORY

FOREST AND COMMUNITY ASSESSMENTS

Training at CLUSA/Chipata 1999 - 2000

1. INTRODUCTION

1.1. Importance of participatory assessments

In the past, forest management plans were formulated mainly by foresters with little input from the people who lived in the surrounding communities. Today, there is a realization that successful forest management depends on two-way communication with local communities and other stakeholders at all stages of management including inventories and assessments, planning, implementation, monitoring, and evaluation.

Participatory forest community assessments are carried out inside the forest and with the communities surrounding it. The assessments answer some basic questions about both the communities and how the forest is perceived (valued) by them. In addition, the assessments identify the management issues to be addressed in the process of formulating the forest management plan.¹ In the context of the four-pronged strategy employed by CLUSA and the Forestry Department in Eastern Province (*preparation, development of forest management plan, implementation of management plan, and monitoring and evaluation*), a participatory assessment is one component of the first stage: preparation.

The following field guide presents a bag of tools crafted for participatory community/forest assessments and field tested by teams in Asia, Africa and Latin America. Although a variety of tools are presented, the final selection and application of the appropriate tools appropriate for the physical, cultural and socio-economic conditions of a particular region is left to the field teams responsible for carrying out the assessments. The underlying question for the teams is: Will this tool help in providing information or data that will enrich the forest management plan?

In addition to presenting a set of tools, the guide discusses

- the composition and organization of teams planning the assessments, and
- writing the assessment report.

1.2. Function of Tools

The main thing to keep in mind is the specific use for each tool presented in section 2. They are designed to assist field agents to develop an information base that will be used in the

¹Note that participatory forest community assessments may provide all the necessary background information required to formulate a forest management plan, or (depending on the complexity of the forest – community relationship) may indicate the need for more sophisticated socio-economic studies and in-depth forest inventories.

development of forest management plans. Each tool is *a method to obtain outputs satisfying the need for desired information*, as described in the following table:

VILLAGE RESOURCE ASSESSMENT INFORMATION AND SUGGESTED TOOLS

INFORMATION DESIRED	OUTPUTS FROM TOOLS	POSSIBLE TOOLS							
		G M	F G	S S I	R e v	S K M	W n T	F P S R	N T F P
1. Background information	<ul style="list-style-type: none"> ➤ Village Profile sheet (occupations, livestock, populations) ➤ Religious/ethnic composition ➤ Traditional structure (hierarchy) 	√	√	√	√				
2. Community and forest history	<ul style="list-style-type: none"> ➤ Narrative explaining: <ul style="list-style-type: none"> - how long the village has been there - why people migrated there - what changes people have seen in the forest since arriving - how they came to understand Forest Dept. policy on Local Forest use 	√	√	√					
3. Forest values and perceptions	<ul style="list-style-type: none"> ➤ Narrative explaining: <ul style="list-style-type: none"> - Conflicts btwn agriculture and forest health - Perceived ecological benefits - Social and religious significance of forest - GOOD vs. BAD forest 	√	√						
4. Spatial information	<ul style="list-style-type: none"> ➤ Updates of names of <ul style="list-style-type: none"> - streams - hills - villages ➤ Location of forest boundary 		√	√	√	√	√		
5. Temporal information	Seasonal calendar		√	√		√			
6. Quantitative information and classifications	<ul style="list-style-type: none"> ➤ Tree use inventory by gender ➤ Species ranking by product 			√			√	√	

GM = Group meeting
 FG = Focus group
 SSI = Semi-structured interview
 Rev = Review of existing information and reports
 SKM = Sketch maps
 WnT = Walk and Talk
 FPSR = Forest product Species ranking
 NTFP = Nontimber forest product collection table

1.3. Selection of Tools

Be flexible: The tools presented in section 2 are instruments for gathering, synthesizing, and analyzing information in a way that is appropriate and participatory. They should be considered with an open mind. They may have to be adapted to respond to the particular situation characterizing the region where the forest management is to be carried out. If one tool is not working well, *rethink it or suggest another one*.

Tailor tool choice to the community: Choosing the best tool for a situation is a unique and creative process. To assist in narrowing the choices of appropriate tools from the wide range of possibilities offered, the characteristics of each are described in the following pages, along with some tips on how to determine those that the community might find most useful. Let the community (or representatives of the community) know what kinds of tools are available and choose those they think are most appropriate. Knowing which methods of communication are most commonly used in a community will help the field worker to shortlist tools that are likely to work in a particular setting.

Some guidelines for choosing the most appropriate tools for a community:

1. Watch and listen. Become aware of how community members think and communicate information. These give clues as to what tools might work best.
2. Ask how information is relayed around the community. Is it only by word of mouth? Posters? Adverts?
3. Try to contact other extension workers to determine which extension efforts have worked well (or not so well) in the past.

2. THE TOOLS

The value of the results of the assessments is partly dependent on the degree to which the team has been able to communicate with and understand information from the community, and partly dependent on consistency in collecting information. This section of the guide reviews several basic methods that have proven themselves effective in the field.

2.1. Group meetings and focus groups

*Group meetings are probably the most common communication tools employed in community development. **But** successful meetings with high interest and genuine two-way communication are rare.*

A **community group meeting** usually involves a large number of people, and therefore needs to be well-structured to maximize participation and two-way communication. Smaller **focus group meetings** can be more participatory, as information-sharing may be richer when there are common problems and a common purpose, or when the group members are comfortable speaking to one another. Outputs from focus group meetings can be presented to larger group meetings, giving a 'voice' to those in the community who are unable to speak up in a large group meeting.

Advantages of community group meetings:

- A large number of people can be reached in a relatively short period of time;
- Community group meetings are usually the first and most consistent exposure of the management teams to the community as a whole;
- Group meetings with open invitations are a means to determine level of interest in the program from all those who wish to participate.

Advantages of focus group meetings:

- Focus group meetings can be used to resolve a specific problem;
- Focus group meetings may be used to reach one segment of the community such as women or youth;
- Regular small group meetings can foster a cooperative approach to problem identification and solving by consensus.

Organization of group meetings

Much careful planning goes into the organization of a successful group meeting. Two-way communication must be fostered, interest must be maintained, and the objectives of the meeting accomplished. Some important considerations are:

- ❖ Have a clear purpose. Know what the meeting needs to accomplish, from both outsider and insider perspectives. Obtain the approval and involvement of the local leaders; be aware of proper village protocol.
- ❖ Choose a convenient time and place. Consider the size and composition of the group. Remember that people have different time constraints. Women may not be available to attend at the same time as men. In some cases, the location of a meeting may encourage or discourage attendance by specific segments of the population; then, if needed, focus group meetings can be planned.
- ❖ Inform everybody. After establishing a time when most can attend, let people know about it well in advance and inform people of the purpose of the meeting.
- ❖ Prepare and use extension aids. Develop a strategy to encourage two-way discussions during the meeting. Use of extension aids such as flip charts or exhibits is encouraged. Be sure to prepare such aids well in advance.

Facilitation of group meetings

- ❖ Make introductions. Be sure to introduce the team and clearly state the purpose of the meeting in the introduction.
- ❖ Be a good host. Ensure that there is a comfortable and pleasant atmosphere.
- ❖ Practice what you preach. Begin and end more or less on time.
- ❖ Set yourselves up for success. Start with items, topics, issues on which it is easy for the group to reach an agreement, or decide to accept differences of opinion.
- ❖ Be prepared for differences in opinion. Allow conflicting opinions to emerge and try to have these differences either resolved or accepted by the group.
- ❖ Summarize the proceedings. Outline the decisions that have been made and identify the next steps. Confirm time and place of next meeting.

Things to watch out for in group meetings

- ❖ **Beware of hidden agendas.** Some subgroups might control the meeting by bringing up their own problems. The facilitator can sometimes side-step this by saying, “That’s not the purpose of this meeting; you might want to hold another meeting to discuss that issue.”
- ❖ **Don’t get sidetracked.** The facilitator must have enough authority to keep the meeting on track but enough sensitivity to include as much input in the discussions as possible.
- ❖ **Don’t dominate every decision.** The community or group may tend to put the facilitator in the position of ‘expert’ and expect him/her to carry the whole meeting. Think of creative ways to keep handing the questions back to the community and avoid making decisions for the group.

2.2. Semi-structured interviews

The semi-structured interview provides a framework for focused, conversational, two-way communication to obtain information from individual groups. Instead of formulating detailed questions ahead of time, semi-structured interviewing starts with more general questions or issues. Relevant factors are initially identified and the possible relationship between these factors and the topic becomes the basis for more specific questions that do not need to be prepared in advance.

Semi-structured interviewing is ‘structured’ only in the sense that a set of sub-topics is identified before the interview to serve as a basis for opening the discussions. Questions may be formulated in advance, but the majority of questions are formulated during the interview, allowing both the interviewer and the person being interviewed the flexibility to probe for details or discuss issues.

The purpose of the semi-structured interview is to:

- ❖ obtain specific quantifiable information from a sample population;
- ❖ obtain general information relevant to specific issues;
- ❖ gain a range of insights on specific issues.

Advantages of semi-structured interviews

- They encourage two-way communication because the interviews are not intrusive. People are more at ease than in a large group to discuss sensitive issues.
- The people being interviewed can ask questions of the interviewer, which means the interview can be used as an extension tool.
- Semi-structured interviews will provide not just answers, but the reasons for the answers.
- They help field staff become acquainted with a broad range of community members.

2.3. Review of existing information

By understanding historical changes in forest conditions, population, resettlement patterns and the local economy, forest management issues and the forces driving them will be better understood and resolved.

An important tool for gaining background on community and forest history is the review of available documentation about the study area. It is useful to research secondary information such as reports, case studies, and District Management Plans before beginning fieldwork. Reviewing existing information on the social and physical environment can save time when it comes to understanding the work environment. Information on human and livestock populations, soils, climate, rainfall, geography and forest species composition is sometimes available in government extension manuals and university or local (Forest Department, Ag Department) archives.

Community background information from each of the participating communities is essential. To guide research teams, a background information sheet for completing information on each community is included in **Annex I** of this manual.

2.4. Sketch maps

Forest maps have historically been produced by mapping agencies relying on aerial photography with little or no information from the richest source of knowledge about the area to be mapped, i.e., the local population. With the evolution of participatory forestry, community member knowledge about the forest is included in map information along with social and cultural information.

The main purpose of sketch mapping is to create a visual representation of the resource system that can be easily understood and mutually adopted by villagers and foresters.

The main purpose of sketch mapping is to create a visual representation of the resource system that can be easily understood and mutually adopted by villagers and foresters. In addition to providing information valuable to the research team, the process of creating the map, similar to the walk and talk and other tools, may lead to in-depth discussions between participants on forest management issues. Not only do these discussions offer insights about how the villagers view the forest, but also they are an opportunity for the team to introduce notions of forest management and why it is necessary. Notions that may come up include boundary locations, locations of fields and villages inside forest boundaries, disappearing wildlife, and sustainable harvest of nontimber products from inside the boundaries.

Finally, **sketch maps are not meant to replace maps traditionally employed by resource management specialists but rather to enrich these maps with local knowledge.** Aerial photos or satellite images, Geographic Positioning System receivers, old topographic and management maps, and reports are all used to create base maps into which local knowledge will be incorporated.

How to create a sketch map

Note: It was found after using the method described below that it would be better to provide a template that is local and geographically correct to those

villagers making the map. The template can be produced by tracing a government topographic map either by hand or with computer software. It should include major streams, hills, and roads in the vicinity of the village. Participants can then “fill in” names and locations of features based on the skeletal information.

Alternatively, the exercise could be carried out as described below, followed by a wrapup session of transferring features drawn on the ground onto the template. In any case, the template should be used. Otherwise, the scales and orientations of sketch maps, when produced in the freeform way described below, will cause information on them to be very difficult if not impossible to incorporate correctly in forestwide base maps for management.

1. Prior to the actual mapping, the research team needs to explain to community members the purpose of the mapping activity as a way to learn more about the forest’s condition and community use patterns.
2. Locate a suitable site for map construction. It should be a large, relatively flat area where participants can relax and work without disturbance, possibly off the road under a tree or in a communal courtyard. Ideally, one could find a vantage point on a hill or mountain from which the forest could be viewed. Another option is to find a place in the forest and work directly there.
3. Ask villagers (men, women and key informants) to draw a map of their village and adjacent forest on the ground, utilizing stones, twigs, leaves, seeds and other local materials to identify these features:

forest boundary location and shape	areas where certain species are found/harvested	historical/cultural sites such as cemeteries or ritual areas*
forest types	aspect (north, east, west, south)	grass collection areas
households, villages	streams/rivers	agricultural areas
forest trails, roads	charcoal producing areas	beehives
wildlife areas	degraded areas	mukwa stands
mushroom collection areas	pitsawing areas	grazing areas

** This is an important element that should not be overlooked.*

The process should proceed with as little intervention as possible by the researchers. Once the ground map has been discussed and finalized, it is recorded on a flip chart (or on the template described above) with markers.

2. To improve the accuracy of the sketch map, the exercise should be repeated at other sites using different key informants. After each mapping exercise, adjust the map by incorporating the new information and discarding unclear inaccurate information. **TO STREAMLINE THE PROCESS, PROVIDE A PREDRAWN TEMPLATE OF THE VILLAGE AREA FOR VILLAGERS TO FILL IN WITH THE DETAILS THAT THEY KNOW.** The same empty template can be presented to different sites to evaluate their interpretations of where features are located.
3. Once the maps have been recorded, draw a map of the entire forest or separate maps of ‘management units’. Present the maps to the communities for discussion, correction, and adoption. The question “What is a management unit?” can be discussed at this point. Field checking should be done before finalizing the maps.

4. Give the area maps to the central mapping unit, located in Chipata headquarters in this example, where they will be integrated into the forest base maps using GIS. Forest resource maps will cross-check or complement the sketch maps after the forest inventory.

5. Any map coming out of the sketch map exercise (and any map coming out of information generated by any of the tools in this manual) is to be presented back to the villages who provided the information. It was found in Chiulukire that once villagers saw what CLUSA was doing with their information and that it was not going unused, trust in the program and in the field staff increased. Villagers that were initially reluctant to speak up and supply information about their livelihoods (and knowledge of resource locations) then desired to have input placed on the map along with the others.

The end product of this exercise is a forest map that will be used to describe the entire area to be managed by provisions of the management plan. See section 3 on writing up results.

2.5. Walk and Talk

Walk and talk involves systematic walks with groups of local forest experts through areas of interest while observing, asking, listening, looking, identifying problems, and seeking possible solutions. The walk can serve at the very least as an icebreaker to get information flowing and start communication. You may well end up with pages of information on special local uses of many forest species and on how they serve as site indicators.

The route to follow on the walk and talk is jointly selected and follows either a straight line or zigzag course. The walking distance can vary between a few hundred meters to 2-3 kilometers depending on the points of interest and their distance apart.

Care should be taken in the selection of the group to participate in the walk and talk. The group (3-5 people) might include both men and women or genders on separate walks. Participants will have knowledge of the forest and a stake in its management. Hunters, pitsawyers, caterpillar gatherers, herbalists, beekeepers and charcoal producers are all good candidates for walk and talk.

Remember to walk slowly and stop often. Observe, listen and ask questions. Important points of information should be recorded and a report should be written following the walk.

The following are samples of subjects to be discussed during walk and talk:

- ❖ Identification of local names of trees, shrubs, herbs, grasses, and climbers
- ❖ Uses of different parts of plants (leaves, roots, stems, etc.) and their seasonal availability
- ❖ Characteristics of a “good” forest and a “bad” forest
- ❖ Species that are over-used due to unsustainable harvesting pattern
- ❖ Species that are most common, moderate, less available, rare and extinct
- ❖ When do species flower, leave, and fruit?
- ❖ Identification of wildlife present (mammals, birds, insects, caterpillars, snails) and absent
- ❖ What types of mushrooms are in the forest? When are they harvested?
- ❖ Regeneration status of plants: best and least regenerated

If it is known ahead of time which of these subjects will be important to the management plan, then walk and talk “forms” should be used to ensure that all the questions pertaining to these subjects are answered at some time during or after the walk. For instance, if you want to determine which areas of the forest have the greatest fruit or honey production, then walk and talk guides in all regions of the forest (five, in the case of Chiulukire) should pose the same questions about fruit or honey trees.

2.6. Forest product ranking

In addition to quantifying and classifying, researchers can also assess the relative importance of different species used as forest products in the community.

1. Begin by making a list of major local forest product categories: timber, fodder or browse, fuel, food, medicine, honey production, and so on. You can work on the ground or on paper; use the local name, a picture, or the actual object to represent each type of product.
2. For each category of product, allow villagers to identify all the species that are important to it. Write them down.
3. Then, within each product category, rank the important species by providing participants with seeds or stones to award scores. Explain that a score of 5 stones will indicate the species (one or more) most important to that product category, and 1 stone will indicate least importance when compared to the others.

For example, if 15 species have been identified as important to medicine, participants can be asked to place 5 stones next to the species' name(s) which is (are) most important in relation to other products on the list. The participants may need some time to agree on a score, and men and women may wish to score the products differently, in which case two columns should be used or rankings could be done separately.

4. In scoring exercises, *it is important that the researchers assess and write down the criteria that the participants are using to rank species*, whether it is commercial value, strength, ease of collection, nutritional value, or whatever.

Criteria will vary by product type. For example, villagers may give higher scores to fuelwood species that produce less smoke; are easier to cut or collect; or burn hotter or longer. By investigating criteria for evaluation, the researcher will uncover considerably more information about why certain species are more valuable than others. Once the rankings have been completed and tables developed as below, the researcher may want to return to the village to further explore the rationale or criteria used in scoring different species by use.

Since there may not be sufficient time to acquire this knowledge during the first scoring exercise, a follow-up session could be very useful.

Ranking and scoring techniques can also be used to determine priority management problems and options perceived by the community or forestry field staff.

Data from the scoring exercises can be displayed in tables as shown in the following example. It is important that the researcher explain the significance of the different scores given. For example, why is mukwa ranked above mpampa for timber? The criteria give the answer.

SPECIES	TIMBER	SPECIES	CHARCOAL	SPECIES	HONEY
mwanga	****	mlombe	****	marula	*****
mbawa	**	mukusi	***	mkeke	***
mwemba	***	mfendaluz i	**	mbali	**
marula	*	mzizi	*****	mfendi	*
mukwa	*****	mbawa	**	ntachi	****

2.7. Non-Timber Forest Products (NTFP) assessment table

In Eastern Province communities, you may find that NTFPs have as much value as (if not more than) traditional timber products like planks and poles. Traditionally in Africa, women are more involved in the collection, processing and marketing of non-timber forest products; notable exceptions are honey and game.

The best way to complete the table shown below is to join the collectors for an outing in the forest for another version of walk and talk. Another approach would be to interview people in markets who are selling the products. Ideally, both approaches would be employed to complete the table.

DATA SHEET FOR NTFP COLLECTION

Name of species	Forest Product	Collection period	No. of collection trips per household per year	Amount of time spent per trip	Number of collectors from village	Amount collected per trip	Price received per collector

3. WRITING UP RESULTS

IN THE FIELD:

A good three days need to be allowed to do a nice job of writing up the results of a two-week assessment involving a group of villages.

It will facilitate later writeup of a global report when field staff report their findings in a consistent way. Wherever possible, tables of information can be used to organize the data.

- Ranking information and Walk and talk information on species utilization can be tabulated.
- Forest history information must necessarily be in prose.
- Whenever prose is used, consistent subheadings can be used such as “Settlement history”, “Establishment of forest boundary”, “Methods of conflict resolution”, “Relationship with Forest Department”, “Specific signs of forest condition changes”, “Good forest versus bad forest”.
- Sketch maps will end up on a paper medium, and the information should be checked with informants for correctness before being submitted to central office.
- Information from focus group meetings and interviews may or may not be able to be tabulated.
- Lists are a form of table that can be used to describe species present or other outputs from Walk and Talk.

Information that is placed in tables need not be stated again in paragraphs of text. The exceptions are cases where there are notable differences in opinion between villages, or tables that lead to logical conclusions such as the existence of resource use conflicts. These exceptions can be pointed out in the text to highlight issues that should be addressed by groups writing the management plan.

Logistical problems that were encountered during field work and **recommendations for changes in the methods used** should be the objects of separate sections of the field report. To include these subjects in the main body of the report renders it more confusing to interpret.

AT THE CENTRAL OFFICE:

To maximize the usefulness of field work and to increase credibility with donors, field staff, and villagers, it is worthwhile to synthesize individualized area information into a single report that describes the forest to be managed. In the case of Chiulukire, more than 70 villages were represented in the resource assessments through about 30 interview sites; these villages were “divided up” into five management areas that will eventually form joint forest management groups. When contents of the Resource Assessment report are presented back to the village groups, the normally-scattered populations can begin to see how they are going to be working together on a management project that focuses on a common resource. They can begin to see their role in the grand scheme, the “problems” that they may be asked to resolve as groups, and the importance of their input into the process from the beginning.

Make maps that combine sketch maps from all the areas

The sketch maps that come in from the field will contain names and features not shown on currently available government topo maps. GIS mapping software can be used to update the old information and add in new information. This is where it is

helpful to have sent out large-scale printed-out templates (1:20,000 or larger) for sketch map information to be filled in. Villages like to see their names and input on the updated maps; it edifies project interest and helps assure cooperation in project activities.

Make tables that compile similar information supplied by different areas of the forest

Assessment information will come from many areas around the forest. Some of it will already be in tabular form, and other information will be in prose. Any information that can be tabulated will help in organizing the report and will also help in deciding which information can be mapped or used to update maps. Tables of species that were ranked highly for different products, for example, can be presented back to each group of villages and each group can see how they ranked a product compared to other groups and how their criteria differ. Naturally, any mistakes that were made can also be identified. Some village members may change their minds about a ranking, and then you must decide whether to alter the report or allow changes to be made.

Grand tables that combine individualized tables can be compiled for ranking, species use, populations, occupations, livestock numbers, and infrastructure. Tables have the advantage of being translatable into mapping software, allowing presentation in the form of maps and symbols in case there is a low literacy rate. In Chiulukire the villagers appreciated this approach. At the same time, the tables can justify numerically

- the formation of certain resource user groups that will help write management plan chapters;
- the targeting of certain areas for certain management activities; and,
- the targeting of certain areas for literacy and health campaigns.

Use the tables of findings and results of Walk and Talk to identify further study needs

In the case of Chiulukire, the most important nontimber forest products (honey, traditional brooms, mushrooms, and brooms) were identified during the Resource Assessment. Subsequently, student volunteers were employed to do more indepth research on collection methods, prices, markets, and species associated with each product. This allows for more economic analyses to be done on the importance of those resources.

Use the tables and sketch maps to show how the management maps will look

Final boundary locations, village locations and populations, streams, and roads can all appear on the base map. Additional features on separate maps can include:

- village occupation information
- livestock populations
- infrastructures (clinics, boreholes, schools)
- current agricultural fields in forest boundaries
- proposed management unit boundaries

Symbolizing results on maps (rather than presenting tables on flipcharts) can help all villagers to foresee their roles in the management plan and to see which areas are working with the same resources and marketable forest products. They will also see immediately which villages and fields will have to be displaced and which occupations will need to be relocated.

REFERENCE ONE

COMMUNITY AND FOREST HISTORY: INTERVIEW GUIDELINES

Sources of Information

As a preliminary step, it is worthwhile to ask both key informants and the Forest Department (FD) about any informal historical written records which may exist on the community/forest relationship (e.g. case histories, songs, stories). Secondary data sources such as FD Working Plans, maps, photographs should be reviewed prior to PRA interviewing to assist in formulating more site-specific interview questions.

Interviewing and recording Information

As the interviewer elicits information from village members and key informants concerning changes in the forest, natural resource base, and community, another team member can simultaneously sketch out historical transects, timelines, and trendlines based on these description to then share with the interviewees.

Cross-Checking Information

Many of the same or parallel questions should be asked of both the FD and community members, including stratified sub-groups, in order to compare responses, improve validity and accuracy of the information and reveal differences in values, perceptions and goals.

Examples of questions for Forestry Department

- ❖ When did the FD take over management responsibility for forests in the area?
- ❖ Who managed the forests prior to that? What institutional arrangements existed (formal or informal) and how did they change over time?
- ❖ What were the contractual arrangements for commercial logging?
- ❖ How have the forest use rights of the local communities changed over time? Are the rights of the communities listed in any settlement acts or FD orders?

Forest use history

- ❖ Describe the history of logging activities in the area. What silvicultural management systems have been employed? What factors have contributed to successes or failures in the prescribed management systems?
- ❖ Describe the history of non-timber forest product (NTFP) collection in the forest. Have there been any major changes in availability? Have there been any shifts from subsistence to commercial uses? Has there been a historical development of processed, value-added products? What potential opportunities exist?
- ❖ Describe the fire history of the area, both natural and man-induced. How and when do fires occur? How are they controlled and by whom? What impact do they have on ecological succession? How has the use/misuse of fire changed over time?
- ❖ Describe the history of illegal felling, both for commercial and subsistence purposes.
- ❖ Describe the history of FD/community relations: cooperation, user group conflicts, women's roles and issues, and dispute resolution mechanisms.
- ❖ Describe changes in status of floral and faunal biodiversity, including changes in species compositions and frequency with secondary succession, extinctions, etc.

- ❖ Describe and score parameters for assessing potential for natural regeneration of forest areas (any variance between areas)?

Settlement History

- ❖ When was the community first established? Who were the original settlers? Who came after?
- ❖ What is the history of communities/households settling in the forest? When did communities begin to move into the forest? Why?

Institutional Issues

- ❖ What institutions functioned in the village in the past and present (formal and informal)?
- ❖ Describe the communities that utilize the forest. Are there any special groups who are more dependent on these forest resources than others (women, tribal, artisans or other)?
- ❖ What rights do the community, other communities, or specific user groups have to utilize this forest's resources? How have these rights changed over time? Are there any formal or informal agreements among user groups regarding rights to products?

REFERENCE TWO

Village Profile: Background Information Sheet

	Total adult population	No. of households Male	Female
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Name of Village: _____

No. of males 11 yrs old and older who can read and write in any language _____

No. of females 11 yrs old and older who can read and write in any language _____

Neighboring villages you cannot work with:

Distance to forest boundary Km. _____ Distance to collect firewood _____

Number of landless households in the primary village: _____

Livestock population: Goats _____ Sheep _____ Cattle _____ Dairy Cattle _____ Other _____

Village occupations:

	Type	No. households		Type	No. households
1.	_____	_____	6.	_____	_____
2.	_____	_____	7.	_____	_____
3.	_____	_____	8.	_____	_____
4.	_____	_____	9.	_____	_____
5.	_____	_____	10.	_____	_____

Number of households migrating out annually _____ Number of months absent _____

Number of households migrating in annually _____ Number of months present _____

NUMBER OF POLES USED PER HOUSEHOLD PER YEAR (NOT SOLD) _____

NUMBER OF BEEHIVES USED PER HOUSEHOLD PER YEAR (FOR HOME USE) _____

NUMBER OF MORTARS USED PER HOUSEHOLD _____ PER _____ YEARS

BUNDLES OF FIREWOOD USED PER HOUSEHOLD _____ HEADLOADS PER _____ DAYS

INFRASTRUCTURE LOCATIONS:

INFRASTRUCTURE CONDITION:

Borehole _____

Roads _____

Primary school _____

Water _____

Secondary school _____

Crop storage _____

Medical clinic _____

Other: _____

***ANNEX 2. PROPOSED INVENTORY METHODOLOGY FOR
DRY TROPICAL FORESTS IN A TWO-YEAR TIMEFRAME***

ANNEX 2. PROPOSED INVENTORY METHODOLOGY FOR DRY TROPICAL FORESTS IN A TWO-YEAR TIMEFRAME

The following proposed schedule of inventory events is based on certain assumptions:

(1) The site to be managed has been selected through some process that has incorporated government and local community wishes. This means that villages likely to participate in inventory activities are also identified.

(2) Some preliminary information about the comanagement concept and required cooperation between Forest Service, project, and village groups (with their associated traditional governing hierarchies) has been shared with participating villages.

(3) The site to be managed has some tree cover and the main focus of the inventory will be assessment of the potential for long-term provision of tree products, habitat, and nonmarket forest benefits to be treated in the management plan.

(4) Some well-qualified, field-based, community-oriented assistants (such as “sociologues” or “facilitators”) will be available for major roles in the Preliminary Resource Assessment as well as the the numbers inventory. They will be needed to be a presence at the PRA, and then to temper, buffer, and translate the most technical aspects of the inventory so that its results are as useful as possible to both communities and the Forest Service.

(5) Some initial idea of issues important to the areas around the forest and relating to its management has already been recorded during site selection.

INVENTORY METHOD

By end month number:	ACTIVITY	WHO PARTICIPATES
2	<ul style="list-style-type: none"> □ Establish rapport with Forest Service personnel likely to assist in inventory. □ Establish rapport with nongovernmental personnel likely to assist; hire necessary personnel or make arrangements with existing gvt services or projects. □ Order maps, equipment, camping supplies, and photography or imagery for area of interest. 	Project/ forest manager; admin assistant
4	<ul style="list-style-type: none"> □ Make 1- or 2-year workplan for all work related to inventory work and mapping, going until the time that the management plan is composed. □ Initiate upper-level training and information on upcoming Participatory Resource Assessment PRA; decide on who will do what, practice some of the tools, go through procedure. □ Follow up map, eqt, and photography orders. □ Initiate <i>yield studies</i> through local carpenter shops, interviews, and Forest Service confiscations. 	Hired forester, mapper, Forest Service, facilitator/ sociologues Specially-engaged foresters

INVENTORY METHOD -- CONTINUED

By end month number:	ACTIVITY	WHO PARTICIPATES
5	<ul style="list-style-type: none"> □ Prepare Participatory resource assessment or socio-economic-type study: hold a workshop for those who will collect the info. Objectives of workshop: <ul style="list-style-type: none"> ○ Practice selected participatory tools ○ Set up format for information to be collected ○ Coordinate the field program schedule ○ Start defining what info should be collected for mapping □ Conduct GPS training for immediate recording of new village and road locations. Record as many as possible. 	<p>Forest Service at Cantonmnt and forest levels, mapper, facilitator/ sociologues</p> <p>Forest Service field agents</p>
6	<ul style="list-style-type: none"> □ Participatory Assessment is held in identified (and probably grouped) villages. OBJECTIVES of the PRA include: <ul style="list-style-type: none"> ○ Identify important forest use issues specific to areas of potential management groupings. ○ Rank vegetation species in order of importance for each use and discuss regeneration potential. ○ Identify locations of resources inside mgmt boundary that are important to the local economy. ○ Identify locations where boundary is not clearly understood. ○ Start updating maps with named watercourses, hills, boundaries. If sketch maps are used, provide template with spatially-arranged large features. ○ Start identifying the most knowledgeable sawyers, botanists, and artisans that can be employed later as resource informants on the technical crew. Let villagers set their own preferred qualifications, but ideally, ability to communicate in French/English is desired. 	<p>Forestry coordinator from project, mapper, Forest Service field agents, facilitators/ sociologues</p>
7	<ul style="list-style-type: none"> □ Verify progress of yield study (month 4) and other potential sources of diameter – volume relationships (research papers, roadside interviews with product sellers, university specialists) 	
8	<ul style="list-style-type: none"> □ Write up PRA results in table and map form. Use GPS results and village input. Include tracings from photography if available. 	

INVENTORY METHOD -- CONTINUED

By end month number:	ACTIVITY	WHO PARTICIPATES
9	<ul style="list-style-type: none"> □ Present PRA results back to villagers: maps, tabled results, photos taken on site, and photography if available. <ul style="list-style-type: none"> ○ Get additions and modifications from those hearing the presentation. ○ Identify resources that need special inventories and discuss how this can be done if possible. ○ Inform villagers of intention to establish remeasure plots for tree growth information, if that is going to be part of the forest plan. ○ Prepare villagers for the next steps toward tech inventory, representation/ elections of steering committee delegates, and user group organization for writing management plan. ○ Arrange for choosing qualified members of the tech inventory crew. Agree on chosen members to be exclusively available in the following 4 to 6 weeks for their area's inventory. 	<p>Forestry coordinator, mapper; Sociologues and Forest Service field agents for clarification.</p> <p>The best resource informant helps with presentation</p>
11	<ul style="list-style-type: none"> □ Stratify forest into simple homogeneous zones that probably will have unique management objectives based on continuity of photographic appearance and topography. □ Write up a sampling plan based on confidence in method known and on recommendations given in preceding document. <ul style="list-style-type: none"> ○ Incorporate PRA results into choices of: areas to sample, points to record on GPS unit, assignment of accessibility/cost values for the sample allocation formula, and number of crews needed. ○ Incorporate PRA results into resources other than trees to be measured on each plot or transect. □ Pick sample points randomly or systematically; plan sites for camping (in village if possible) and routes to reach plot centers. □ Establish <i>remeasurement plots</i> for growth data, if that is part of the program. □ Finalize choices of village resource assistants on inventory crews for each area of forest 	<p>Mapper, Forestry coordinator</p> <p>Forestry coordinator, field foresters, village resource assistants</p>
12, continued below	<ul style="list-style-type: none"> □ Design an inventory form to fill out in the field. □ Train field crews for technical inventory: 3 days of equipment training, 3 days of trying out the inventory form and navigating to and measuring plots. OBJECTIVES of the training include: <ul style="list-style-type: none"> ○ Refine field form and data collection procedures as needed 	<p>Forestry coordinator, Forest Service field agents and cantonmt level, selected resource informants;</p>

INVENTORY METHOD -- CONTINUED

By end month number:	ACTIVITY	WHO PARTICIPATES
12, suite	<ul style="list-style-type: none"> □ Determine whether other resources such as bamboo and grasses can or should be measured at the same time <ul style="list-style-type: none"> ○ Determine feasibility of incorporating wildlife information ○ Give extra time to field agents needing training in new or old eqt ○ Get the field crew to practice listening to each other and working with each other ○ Develop good work habits so that sources of variability due to sloppiness will be eliminated; develop a routine for efficient work □ Make necessary changes to maps and report produced after PRA 	Forestry coordinator, Forest Service field agents and cantonmt level, selected resource informants; wildlife and pasture experts or researchers; Mapper
13	<ul style="list-style-type: none"> □ Plan logistics and scheduling of technical inventory: <ul style="list-style-type: none"> ○ Finalize dates of inventory ○ Plan forestry camp locations ○ Get necessary photography, maps, equipment, transportation, food, per diems, and Forest Service personnel together ○ Pass word to necessary personnel in villages 	Forestry Coordinator, Project Admin, Forest Service personnel, mapper, resource infomants
14	<ul style="list-style-type: none"> □ Execution of plots for 4 to 6 weeks <ul style="list-style-type: none"> ○ Keep field sheets organized and collected once per week ○ Quality control each week by coordinator □ Keep working on boundary locations, mapping other resources, distributing outputs to Forest Service upper levels and to steering committees for management plan 	Forestry Coordinator, Forest Service personnel, resource infomants Mapper
15	<ul style="list-style-type: none"> □ Writeup of inventory data: tables and maps, spreadsheets □ Maps of preliminary operational zones drawn, with areas specific to each group of villages or users specified (draft) 	Forestry coordinator, Forest Service personnel, Mapper
16	<ul style="list-style-type: none"> □ Present results of inventory back to villagers for input and appreciation: <ul style="list-style-type: none"> ○ Propose operational and/or user boundaries for management plan ○ Define and resolve remaining issues: boundary incertitudes, resources insufficiently quantified ○ Take in changes desired by the villagers □ Based on user group and foresters' knowledge, and on inventory information, work out user group definitions of sustainability for purposes of management plan. 	Forestry coordinator, Forest Service personnel, mapper, resource informants User groups, plus above

INVENTORY METHOD -- CONTINUED

By end month number:	ACTIVITY	WHO PARTICIPATES
18	<ul style="list-style-type: none"> □ Complete any remaining sampling, census, or other quantification of important resources missed in first inventory. □ Remeasure growth plots established in month 11; use data for approximate growth increment in first years. □ Follow up <i>yield studies</i> started in month 4; make inferences about timber species' yield. □ Write up results of additional resource information. 	Specialized local inventory crews; Forest Service assistants; Forestry coordinator
19	<ul style="list-style-type: none"> □ Finalize maps and inventory reports; deliver results to appropriate government and village organizations for their use. 	