

**Participatory Rural Appraisal  
for Agroforestry: A Primer**

*Elias Madzudo*

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## **Preface**

The Agroforestry: Southern Africa (AFSA) project is aimed at capacity building in agroforestry training and research. It is a joint project of the Universities of Alberta (UA) and Zimbabwe (UZ), funded by the Canadian International Development Agency (CIDA) of Canada. AFSA is a University Partnership in Co-operation and Development Project (UPCD) managed by the Association of Universities and Colleges of Canada (AUCC). The lead institution at UA is the Department of Rural Economy while at UZ it is the Institute of Environmental Studies. A wide range of other departments are represented on the management committees, reflecting the interdisciplinary nature of the project, including the Department of Agricultural Economics (UZ), the Department of Soil Science (UZ), the Department of Crop Science (UZ), the Department of Public Law (UZ), the Centre for Applied Social Sciences (UZ), the Department of Renewable Resources (UA), and the Forestry Commission (Government of Zimbabwe). The aims of the project include:

- developing curricula materials
- improving the agroforestry knowledge base
- training graduate students
- developing library resources in agroforestry

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## PRA and Agroforestry:

### *A Conceptual Framework*

- a. A key issue in agroforestry is that local communities are engaged in practices that shape the state of forest resources in any particular locality (Mukamuri and Kozanayi<sup>2</sup>, Nemarundwe, Mandondo<sup>3</sup>, Sithole).
- b. Each local community has a unique complex internal structure that separates it from other communities therefore one cannot use standard data e.g. national data as a basis for understanding human forest relationships.
- c. An understanding of the relationship between human behavior and the status of resources is constrained by a lack of physical and economic data (Cavendish, 2000<sup>4</sup>): most analyses of forest use are based on national levels ignoring local processes. Such data fails to capture the complexity of micro level data, which gives a greater understanding of the relationship between human behavior and the environment.
- d. Forests in a communal area setting involve several interests. These interests lead to incentives and behaviors, mediated by institutions, markets, technology, demography and politics, that shape the bio-physical status of forests<sup>5</sup>.

### *Methodological Considerations*

- (a) Any proposed intervention must be based on a full understanding of existing rights and practices of forest dependant people and communities.
- (b) The communities as regular users of the forest are aware of the areas of high economic and social importance i.e. their interests. There is a need to understand current management practices e.g. local community leadership so as to address their opportunities and constraints in managing forest areas experiencing medium to high disturbance pressures and degradation, and to identify forests with natural regeneration potential. Providing alternatives so that people do not sale products in the short term.
- (c) Low-income households in general and particularly rural women must play an important role because they are the most heavily dependent of forest products. This does not mean that well to do households and groups must be excluded as Elwert and Bierschenk point out, '... if NGOs want a 'community' project to succeed, they have to co-operate with local elites or else witness failure, since

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<sup>2</sup> Mukamuri, B.B. and Kozanayi, W. 1998 Commercialisation and Institutional Arrangements Involving Tree Species Harvested for Bark: The case of *Warburgia Salutaris*, *Berchemia Discolor* and *Adonsonia digitata* in Zimbabwe. Harare. Institute of Environmental Studies

<sup>3</sup> Mandondo, A. 1998 *The Concept of Territoriality in Local Resource Management, and Its Implications on Livelihoods in Nyamaropa Communal Lands* Harare, WWF and IES

<sup>4</sup> Cavendish, W. 2000 Empirical Regularities in the Poverty-Environment Relationship of Rural Households: Evidence from Zimbabwe *World Development* 28, 11 1979-2003)

<sup>5</sup> Agrawal, A 2000 Small is Beautiful, but Is Larger Better? Forest Management Institutions in Kumaon Himalayas, India in *People and Forests*.

*decision structures within community the community are stratified according to power and economic rank.*<sup>6</sup>

In summary, the conceptual and methodological framework presented above shows that any development or research work on agroforestry needs to go beyond the biophysical aspects of forests. Communities whose lives depend on the forest are key players in the management of the forest. There is a need to understand what material and symbolic roles forests play in the local communities' livelihood strategies. It is therefore important to consider all interests making an effort to promote the interests of those that are normally able to articulate their concerns. With this background, it will be shown how PRA tools can address issues raised in the foregoing sections.

### **What is participation?**

Participation is a difficult concept to define in theory and identify in practice<sup>7</sup>. In some cases participation is discussed in terms of a hierarchy of levels: from where there is token participation to a level where there is genuine participation. For example:

- (a) Charity/relief 'giving people fish'
- (b) Receiving benefits from a project planned by outsiders
- (c) Take action planned by others
- (d) Problem and need consultation
- (e) Empowerment and ownership 'showing people how to fish'

There is no one ideal level of participation. It is up to the participants and the facilitators to determine what level of participation is practical within a set of given circumstances. In this primer the main elements of participation are the following:

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<sup>6</sup> Elwert, G and Bierschink, T 1988 'Development Aid as An Intervention in Dynamic Systems' *Sociologia Ruralis* XXVII, 2/3 (page 102).

<sup>7</sup> Numerous texts on participation have been published in the last two decades. Some of the more recent are the following:

Cheater, A (ed.) 1999 *The anthropology of power : empowerment and disempowerment in changing structures* London : Routledge, 1999. (ASA monographs: 36)

Participation? : a question of praxis : a discussion of the "theories" of participatory development based on experiences from a sand dune fixation project in Mauritania 1982-1990 / Søren Lund.

Roskilde : International Development Studies, 1998. - xv, 465 s. - (Dissertation paper: 2/1998) - (Ph.D. dissertation)

- (a) **Power and capacity** to make decisions that affect one's life, i.e. women, girls and boys, men, rich and poor.
- (b) **Control over resource** use and structures (e.g. formal and informal institutions that reflect the interests of the forest resource users.)
- (c) Groups **taking initiative**, action stimulated by their own thinking (creating room for people to develop and test ideas as an empowering learning experience)

### **Attitudes and Behavior**

Effective participation depends on positive attitudes (mental view and temperament) and behaviour (ways of acting). Rural communities pose a challenge to PRA practitioners who are considered outsiders or sources of material support to the community and nothing more. Participants discussed attitudes and behaviour appropriate to, and the challenges of applying, PRA to rural communities.

#### ***Community in general***

- (a) appreciate their core business – tolerate
- (b) time consciousness, punctuality and brevity
- (c) fit in their programmes
- (d) patience – non-emotional involvement
- (e) be honest and remain focussed with a clear agenda
- (f) presentation i.e. language and attire
- (g) give them regular feedback –two way
- (h) avoid discussing sensitive issues (religion, N.B. this is not the time to fish for more converts, football (unless you support the same team!), politics)
- (i) better to ask than to assume

Women risk being excluded in most of the discussions. Participants in the workshops identified the causes and possible solutions that may guarantee the participation of women.

#### ***Challenges and solutions of using PRA with women***

- (a) Cultural inhibitions, i.e. idea of having male facilitators, wife never argues with husband or suggests anything
- (b) Attitudes (both Practitioners and Recipients)
- (c) Tools (complex and need time to master)

- (d) Inadequacies of the facilitators
- (e) Gender imbalance (opportunities)
- (f) Gender roles

### ***Solutions***

- (a) use of appropriate tools and personnel (use of best judgement)
- (b) facilitators should go through a process of de-learning a lot of issues / positive attitude to situations
- (c) education *vis-à-vis* awareness creation – facilitator/community
- (d) mutual commitment and respect (the community members should respect one another and the facilitators should respect the community)
- (e) Start with less controversial issues and gradually move to sensitive issues

### **Triangulation**

Data regarding forest users can be biased by:

- (a) Facilitator attitude and behaviour: e.g. obsession with conservation.
- (b) The macro and micro political environment (natural resources board has just arrested people, national or local council elections are about to take place) or a councillor using the exercise as a campaign exercise.
- (c) Inappropriate tools, impractical conditions despite effort e.g. ‘attempts were made to interview one group of men and one group of women from each community, but this was not always possible.’<sup>8</sup>
- (d) Team composition (interviewing women about their incomes from forest products in the presence of their husbands, or discussing ‘illegal’ harvesting of forest products in the presence of natural resource officers).

To take care of some of the biases that may arise facilitators should use different methods, team composition and sources of data. This process is called **Triangulation**. Triangulation is a way of verifying information that is gathered through PRA. In the absence of extensive sampling, this helps to check the validity of the information and improve accuracy. From the outset it is important to point out that triangulation does not guarantee, but with more care improves the quality of the data<sup>9</sup>.

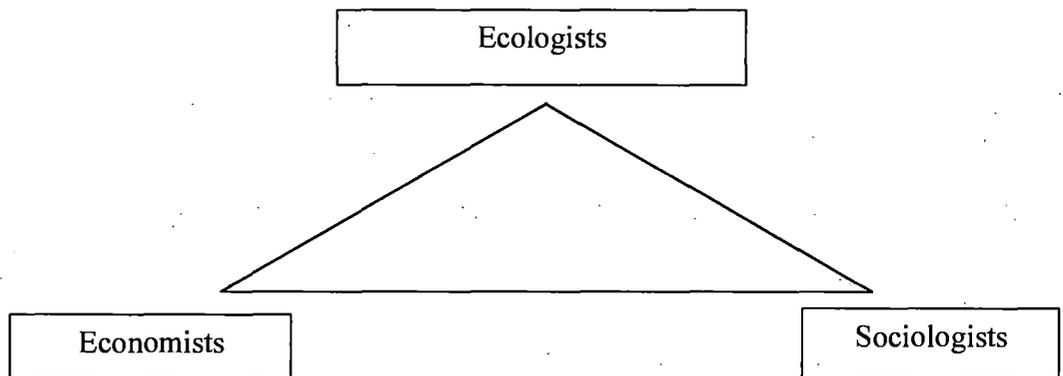
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<sup>8</sup> Smith, K *et al* 2000 ‘Participatory Risk Mapping for Targeting Research Assistance: With an Example from East African Pastoralists’ *World Development* 28, 11 (pp.1945-1959)

<sup>9</sup> For a detailed critique of triangulation see: Fielding, N.G. and Fielding, J.L. 1986 *Linking Data*. Beverley Hills: Sage (Qualitative Research Methods Series, Volume 4).

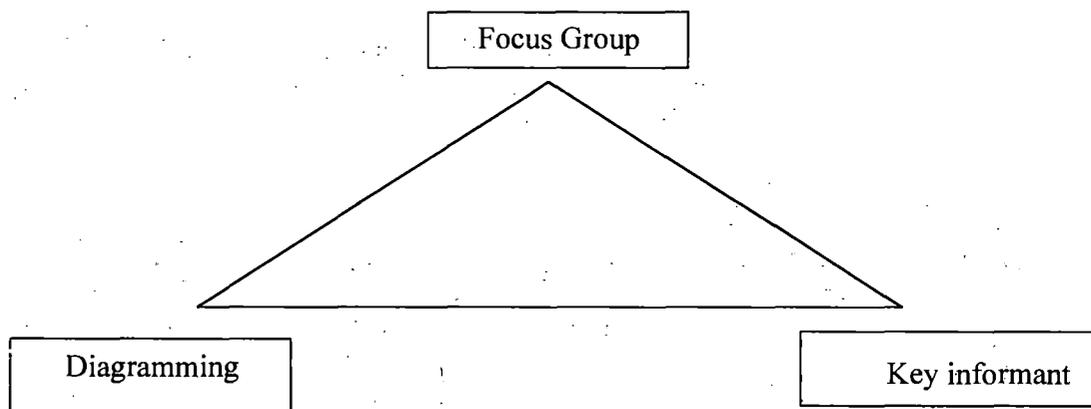
Agroforestry has technical and social aspects that must be taken into account when one makes an assessment of forests. This aspect of necessity requires the inclusion of people from different disciplines (team composition). PRA processes have an inherent danger of excluding some of the relevant communities. There is a need to take into account all interests that are involved in the use of the forest.

*Triangulation in team composition*



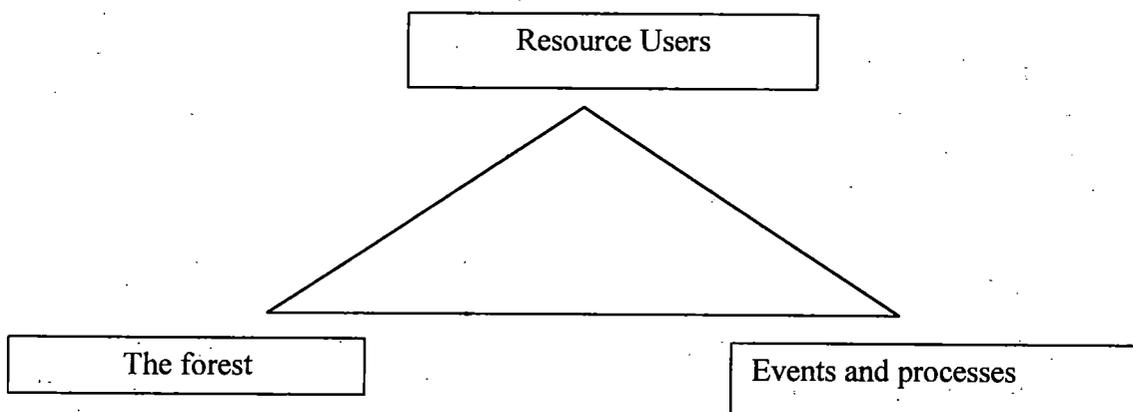
Team composition: Many of the development issues that are of particular concern today- poverty reduction, environmental protection, gender relations, privatization etc.- are best studied in multi-disciplinary holistic perspective. It is necessary to develop methods of interpretation and intervention as a compliment to the methodologies applied by the individual disciplines. The team composition must be balanced in terms of gender.

*Triangulation in techniques*



Mix of Techniques: Extraneous factors like time of year, respondent expectations, presence of dominators can influence PRA. Triangulation can improve the quality of the data by comparing data derived from different techniques e.g. interviews, diagrams, observation, role-plays.

### *Triangulation on sources of data*



Sources of data: The comparison of data relating to the same phenomenon but deriving from different phases of the fieldwork, different points in the temporal cycles occurring in the setting, or the accounts of different participants involved in the setting e.g. women, men, children, officials.

### **Tools**

Several tools are used for PRA. In some cases the same tool is known by different names depending on the background and the field of the user. Names of tools are not important neither should a facilitator rigidly try to follow all the steps regarding a particular tool. In PRA the facilitator should adapt to the situation that she finds in the field. In this primer only those tools relating to issues raised in the conceptual and methodological section will be discussed. These are:

- (a) Semi-structured interviews
- (b) Social/natural resource mapping
- (c) Transect walks
- (d) Linkage Diagrams
- (e) Pairwise Ranking
- (f) Matrix Ranking
- (g) Seasonal Calendars
- (h) Trend and Change Analysis

### ***Types of semi-structured interviews***

- (a) **Informal conversational interview** – *no pre-determined topics, contextual*
- (b) **Interview guide approach** – *predetermined topics with flexible ordering*
- (c) **Open-ended interviews** – *predetermined wording and sequence*
- (d) **Closed quantitative interviews** – *predetermined questions and categories*

A key feature of interviewing in PRA is its serendipity<sup>10</sup>: Informal conversational and interview guides are good at achieving this serendipity. Open-ended and closed interviews do not allow for the interview to digress from the topic. With experience an interviewer can move from the flexible to the inflexible, depending on the level of specificity required and the time available.

A Focus Group Discussion is a variation of interview guide approach. A distinguishing feature of the FGD is that the respondents are usually people with an in-depth knowledge of the subject under discussion. For example, it could be a group of women or men that are engaged in palm wine tapping, or a group of men that weave mats from tree bark. In this case the facilitator has pre-determined issues that guides her discussion. Properly done a FGD can be a good source of detailed information.

### ***Mapping***

Forests should not be considered as the source of wood only but they provide a wide variety of resources. These multiple products also mean that there are multiple user groups that can be defined in terms of property rights, product, location, citizenship, religion, caste, ethnicity and technology income and access. Mapping exercises are good at identifying the resources, the location, and the relative position of particular groups to forest products.

### ***Social/ Natural Resource Mapping***

Maps are valuable summary of the social, economic, ecological condition of the study area. If carefully done maps can provide qualitative and quantitative (e.g. demographic) data. While maps are good for warming up the participants they can be exhausting in some cases.

#### **Steps:**

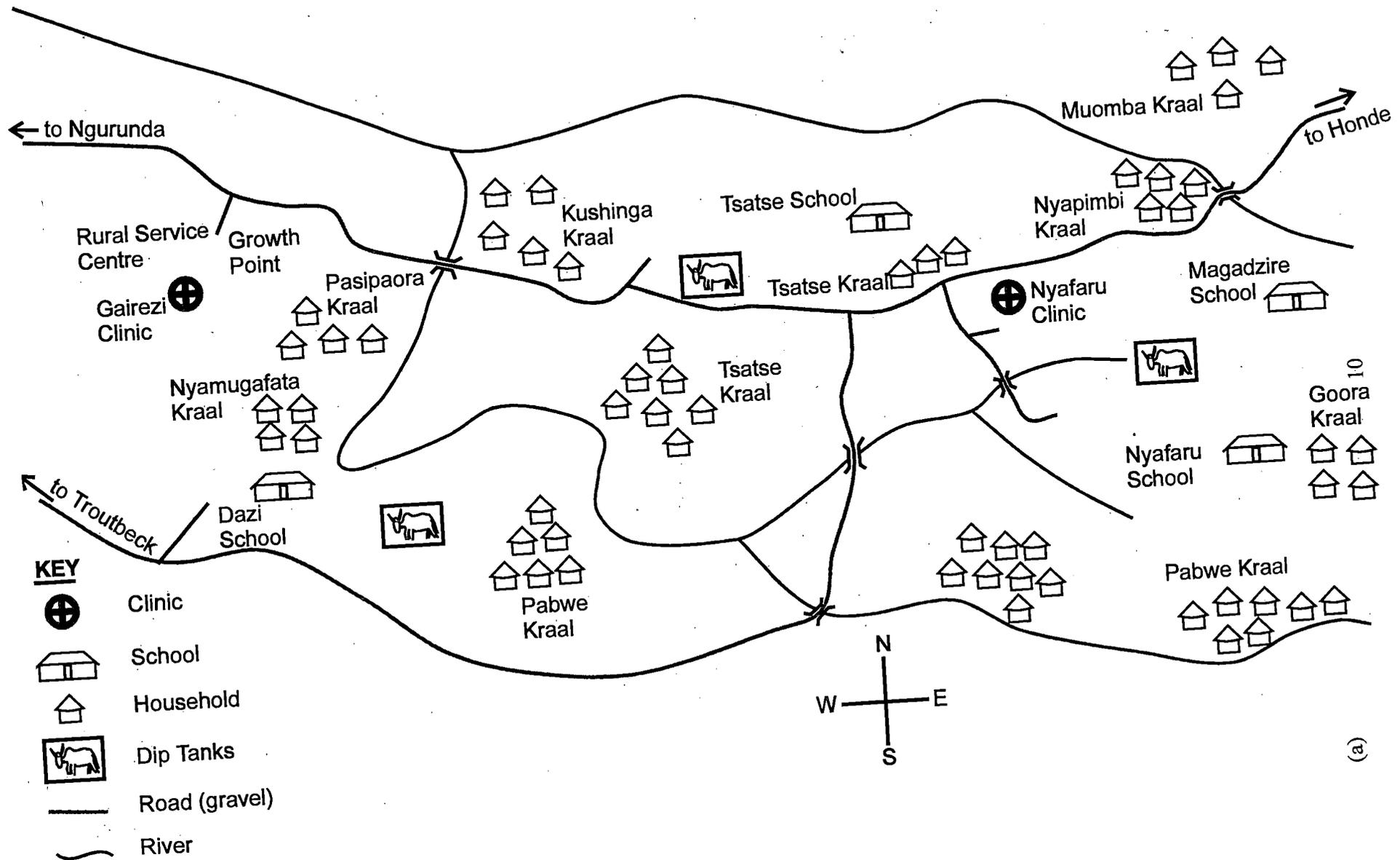
- (a) Note: Maps are an involving process, they must be allocated time. On average they take two to three hours.

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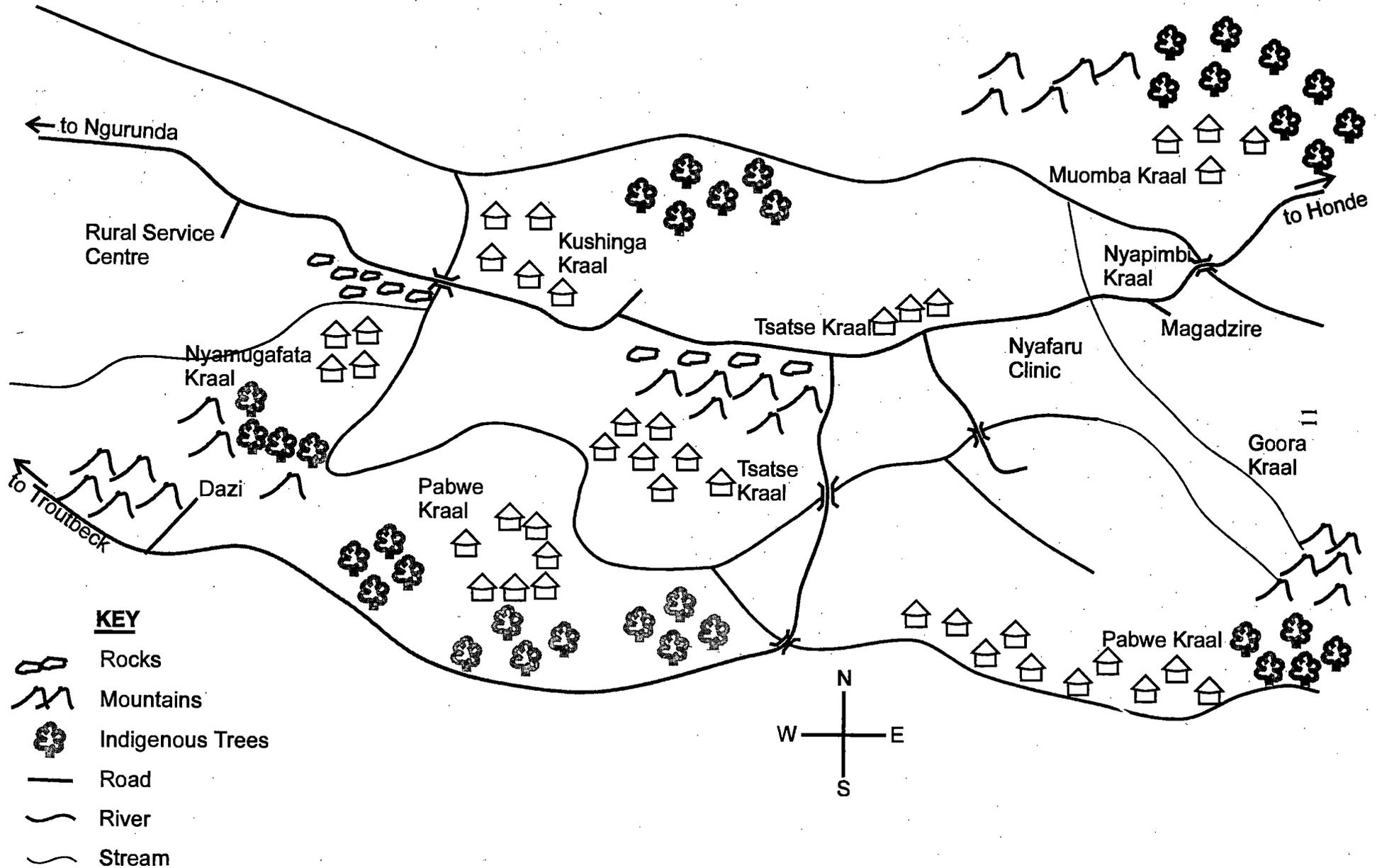
<sup>10</sup> Serendipity means recognising or creating situations in which the researcher can take advantage of chance. Unlike formal surveys (with a fixed timetable, pre-determined respondents and a standardised questionnaire), the researcher can pursue a different line of enquiry in response to an interesting individual or an unexpected situation.

- (b) Decide preferably well before hand the sort of data that is required from the map (e.g. boundaries, resource areas, infrastructure, land use, ethnicity, ecology, soil and vegetation types etc.)
- (c) Clarify with the community the boundaries that will be considered. In some areas there are state and community defined boundaries, for example, village development committee boundaries or areas under the control of a traditional leader *sabhuku*
- (d) People with a good knowledge of the area must draw the map
- (e) Ask two groups e.g. women and men to draw maps of the area. This is important because particular groups in the community tend to include those aspects that they consider important and ignore what they consider to be irrelevant. Women and men's interests tend to be different and having two groups ensures that the all important details are taken into account.
- (f) Facilitators must participate in drawing the map to take note of the debates that the map generates. It is also important to interview the map with the community members to ensure they have included most of the detail and why they choose to exclude some of the information.
- (g) Present the map to the community in a plenary for triangulation and for all community members to confirm that the map is a reflection of the area they live in. This is an opportunity for the facilitators to learn more about boundary disputes, community problems and aspirations.

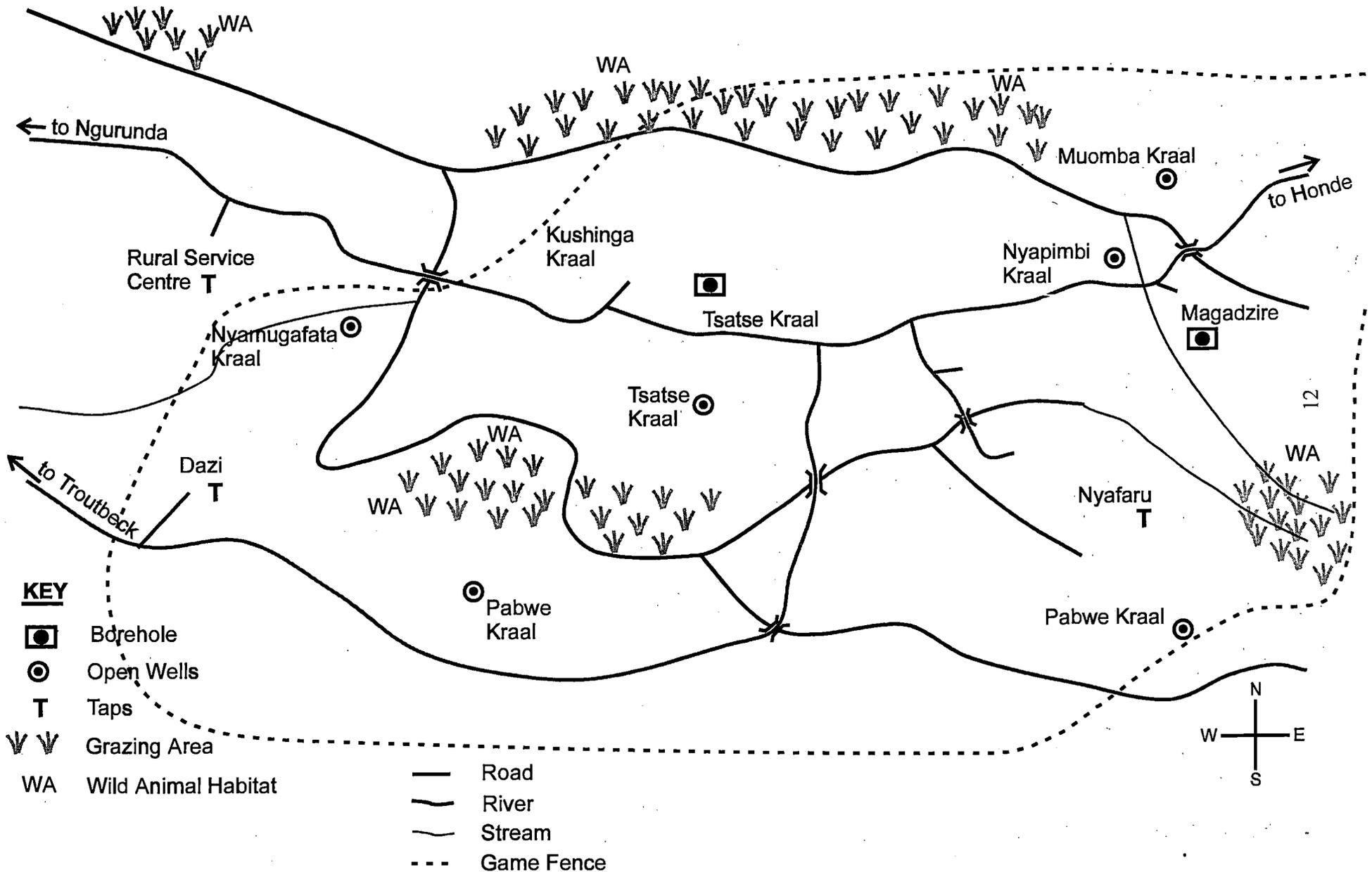
# SOCIAL MAPPING Household Sizes, Schools, Clinics, Dip Tanks



# RESOURCE MAPPING Location of Households in relation to Natural Resources available in the area.



# RESOURCE MAPPING Safe Water Points for Households, Water for Livestock and Wild Animals, Grazing Areas, Wildlife Habitat and Game Fence



Transect walks are a mapping exercise that, apart from triangulating other sources of data like mapping, give a cross-sectional view of the area. They are a valuable source of data on changes in land use, ecology and economy. These walks are an opportunity for facilitators to develop a closer relationship with the community. In some cases facilitators find themselves overwhelmed by the number of people that turn out for the PRA sessions. In such cases some of the people can be kept busy by taking them on a transect walk. The same applies to the facilitator's camp, in the event of the facilitator's team being too large to the extent of being inefficient some can go on a transect walk<sup>11</sup>.

**Steps:**

- (a) Discuss the aim of the transect before leaving
- (b) In your note book create columns as shown in the example below
- (c) Split the groups into several groups depending on the number of transects required.
- (d) Facilitators should join different groups
- (e) Ensure that there are enough community members to answer the questions from facilitators

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<sup>11</sup> The transect walk across the palm tree fields was a popular one, for it always ended at the 'water hole'

## An Example of Data from a Transect Walk Exercise

(a) Topography										
(b) Land Use	Woodland	Agriculture	Waterway	Vegetable Gardens	Road	Pastures	Agriculture	Grazing, Homesteads	Agriculture	Grazing
(c) Vegetation	Mugoriondo Munhondo Mubvee Mupangara Muzeze	Vegetation cleared for agriculture	Indigenous berries, Reeds	Brushwood, Hedge	Cleared except pockets of sisal on roadsides	Overgrazed, <i>lantana camara</i>	Vegetation cleared for agriculture	Fruit trees, Exotic species especially gum	Vegetation cleared for agriculture	Short trees,
(d) Grass	Tsine, Kahwama, Nguyu, Tsinde	Pfende Tsangadzi Nkotha	Soso, Nunje	Feso, Soso		Pfende Tsangadzi Nkotha Chibaya-mahure	Pfende Tsangadzi Nkotha	Vertiva, Tsangadzi	Pfende Tsangadzi Nkotha	Feso Dhongi
(e) Water			Stream					Borehole Protected wells		
(f) Livestock	Donkeys, cattle, goats		Donkeys, cattle, goats		Donkeys, cattle, goats	Donkeys, cattle, goats		Chicken Donkeys, cattle, goats		Donkeys, cattle, goats
(g) Soils	Sandy loam	Sandy loam		Sandy loam	Sandy loam	Sandy loam	Sandy loam	Sandy loam	Sandy loam	Sandy loam
(h) Crops		Maize, sorghum Beans Melons		Tomatoes Beans Delele			Maize, sorghum Beans Melons		Maize, sorghum Beans Melons	
(i) Human Activity	Trees cut Bark stripping	Cultivation	Brick making	Cultivation	Road clearance	Pastures	Cultivation	House construction	Cultivation	Pastures
(j) Problems	Deforestation	Erosion	Siltation							
(k) Development Opportunities	Afforestation	Erosion control				Controlled grazing				

### ***Linkage (Flow) Diagrams***

Rural communities are not homogenous. Likewise they use and value forest resources differently. But all this variability characterising the communities is important for any exercise that seeks to understand or plan for local community forest use. Such information is important for any subsequent planning or resource allocation to ensure those rights of forest dependant people and communities are not compromised<sup>12</sup>. One way of identifying uses that the community puts forest resources to is a the linkage diagram:

Linkage diagrams are used to demonstrate linkages, flows, and causality. They can be used as a starting point for discussions on different topics. This tool is similar to the problem tree.

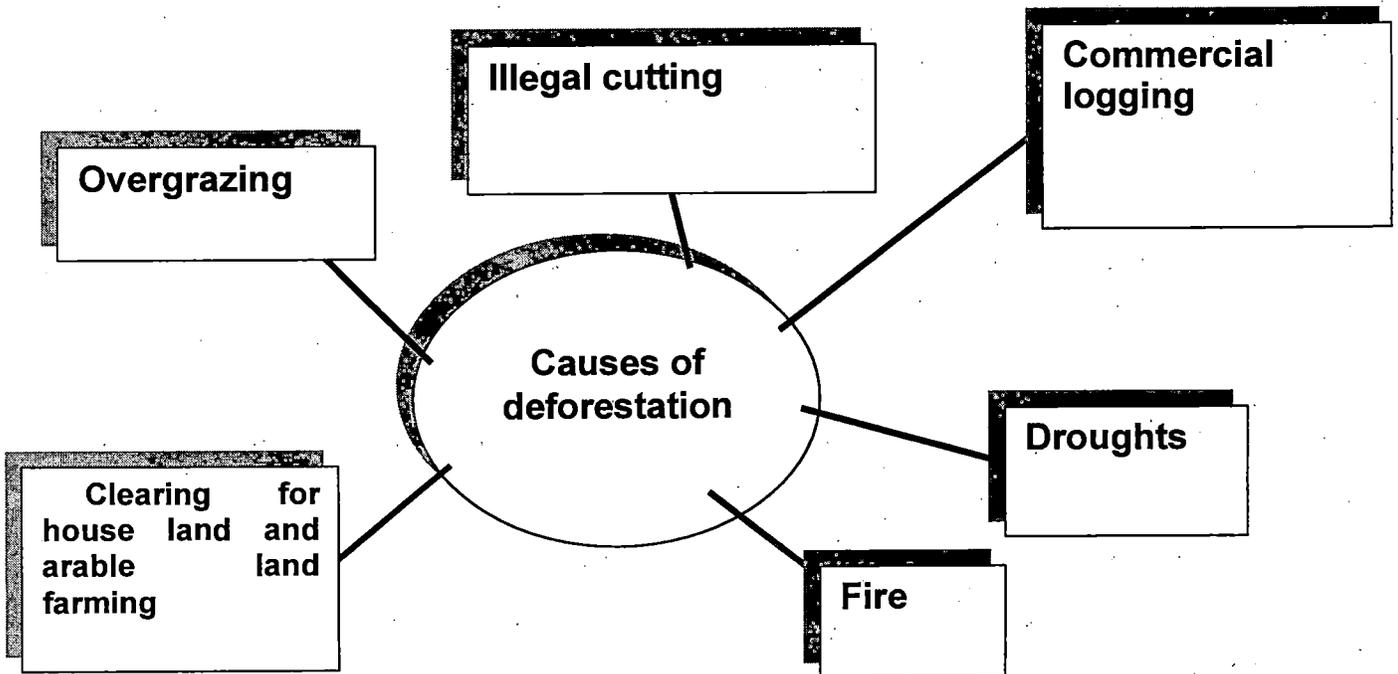
#### **Steps:**

- (a) Write the subject to be discussed in the centre of the chart and circle it e.g. causes of deforestation
- (b) Ask participants to mention their causes of deforestation
- (c) With the participants rank the causes in order of degree of harm.
- (d) Ask the participants to state attributes that explain for the ranking, some of these are stated when the ranking is done
- (e) Discuss the results - what do they mean at present, for the future and for adoption of new methods

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<sup>12</sup> IUCN 1996 *Communities and Forest Management* Cambridge IUCN Publications Unit

Linkage diagram to show causes of deforestation

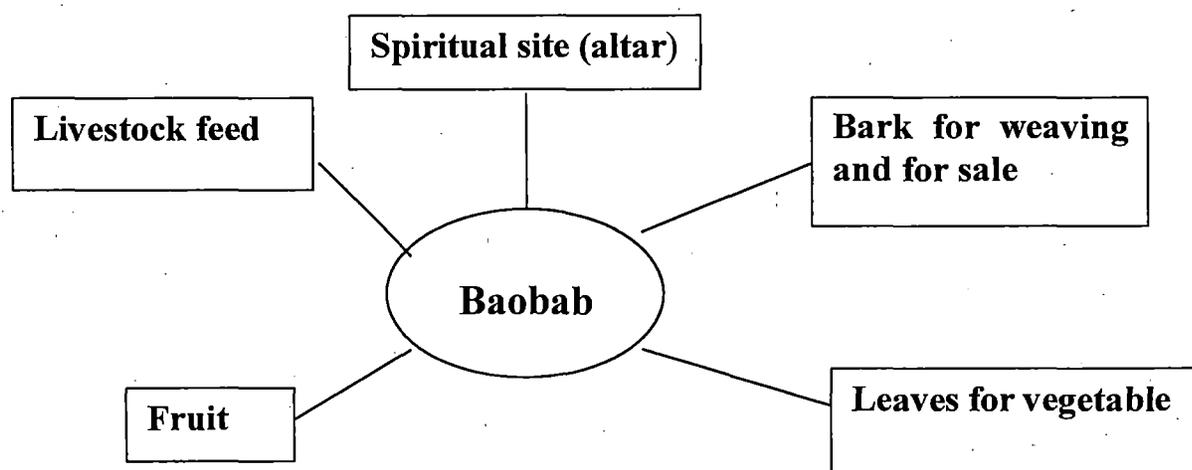


Identifying causes of the deforestation in the manner shown above is useful. However, the technique has the weakness of painting a static picture of deforestation, human behavior and other processes. The data while useful can be enhanced by a study of how deforestation has taken place over a period of time. Such a trajectory puts deforestation in context of other related developments for example arrival of refugees, development of a market for charcoal in urban areas, increased surveillance by the Natural Resources Board. For this reason it is necessary to score for each of the causes over a specific period of time to have a greater understanding of the severity of the each cause. A variation of matrix ranking (discussed in detail below) can be used for this purpose. Scoring is based on a maximum scoring of 5 dots (stones or seeds) for each cause in each year.

## An Analysis of Deforestation over a period of 5 years

	2000	1999	1998	1997	1996
<b>Fire</b>	....	.....	...	...	..
<b>Drought</b>	.	..	..	...	.
<b>Commercial Logging</b>	.....	.....	....	...	..
<b>Poaching</b>	..	..	..	.	.
<b>Clearing</b>	.	.	.	.....	.....
<b>Overgrazing</b>	.	.	..	...	.....

### Linkage Diagram showing community use of baobab trees



The linkage diagram shown above was derived from a PRA session with the Gudyanga community in Chiredzi. This study focused on community use of bark products. Of particular interest was the baobab as a source of income for households. The study went further to look at what activities were done by which members of the household using a **division of labour matrix**. In this matrix, fixed scoring is used to show who is doing which work the most. Participants were asked to distribute scores across the social categories, out of a possible ten scores, awarding the most to those that did the most in each particular task.

Results from the male and female groups differed significantly, thus the results for the two groups are presented separately.

**Division of Labour Matrix: Men's Group<sup>13</sup>.**

	<b>Women</b>	<b>Men</b>	<b>Girl</b>	<b>Boys</b>	<b>Hired Labour</b>
<b>Stripping the bark</b>	1	8		1	
<b>Weaving hats</b>	9			1	
<b>Weaving door mats</b>	5	3	1	1	
<b>Weaving bags</b>	9		1		
<b>Dyeing</b>	9	1			
<b>Transport</b>	1	9			
<b>Selling</b>	8		1	1	
<b>Total</b>	<b>42</b>	<b>21</b>	<b>3</b>	<b>4</b>	<b>0</b>
<b>Ranking</b>	1	2	4	3	5

**Division of Labour Matrix: Women's Group**

	<b>Women</b>	<b>Men</b>	<b>Girl</b>	<b>Boy</b>	<b>Hired Labour</b>
<b>Marking portion to be</b>	6	3	0	1	0
<b>Dyeing bark</b>	6	3	0	1	0
<b>Drying of fresh bark</b>	6	3	0	1	0
<b>Plaiting</b>	4	2	2	2	0
<b>Sewing</b>	4	2	2	2	0
<b>Weaving hats</b>	5	3	1	1	0
<b>Weaving door mats</b>	6	2	1	1	0
<b>Weaving bags</b>	4	6	0	0	0
<b>Weaving carpets</b>	5	2	1	2	0
<b>Transport</b>	7	3	0	0	0
<b>Selling</b>	4	3	1	2	0
<b>Total</b>	<b>85</b>	<b>41</b>	<b>8</b>	<b>17</b>	<b>0</b>
<b>Ranking</b>	1	2	4	3	5

<sup>13</sup> The second illustration is based on field report prepared by Nontokozi Nemarundwe.

Both tables above show that women carry out most of the activities involved in the bark industry. Costs of hiring labour forecloses this option to the villagers.

The matrix tables shown above are not an end in itself. Facilitators need to discuss the implications of the results. In such discussions respondents will be able to give reasons why a particular cause has increased or declined. Facilitators must not be overly concerned with steering the discussion to agroforestry issues only: in some cases a seemingly unrelated issue might indicate why people are displaying a particular form of behavior towards the forest. An effective way of doing this is the use of semi-structured interviewing<sup>14</sup>.

### ***Pairwise Ranking***

Pairwise ranking, is one of several tools used to get the community to order their preferences or perceptions of a situation. It can be used to triangulate data from semi-structured interviews or to generate information for detailed interviewing.

#### **Steps**

- (a) Get a list of items from the participants or from a linkage diagram
- (b) List them horizontally and repeat the order vertically as shown in the diagram below
- (c) Insert columns or rows for scores and ranking
- (d) Compare a pair of items, one from the vertical and the other from the horizontal list. Let the participants consider the most important item by discussing the attributes (remember to take note of the discussions, and how they arrive at a decision)
- (e) Count the number of times an item has been selected from the pairing exercise
- (f) Rank the scores
- (g) Compare with the linkage diagram scores
- (h) Discuss the implications of the results with the participants and in the report back session with the group.

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<sup>14</sup> A Semi-structured interview can be defined as a conversation or discussion, put into an organised form or arrangement, that aims at obtaining information

**Example of a pairwise ranking matrix. Mavhurume village Musami Communal Lands**

	<b>B/hole</b>	<b>Deep Well</b>	<b>Shallow well</b>	<b>Spring</b>	<b>Rivers</b>	<b>Dam</b>	<b>Score</b>	<b>Rank</b>
<b>B/hole</b>		/hole	B/hole	B/hole	/hole	B/hole	5	1
<b>Deep well</b>			S/ well	D/ Well	/Well	D/ Well	2	4
<b>Shallow well</b>				S/well	S/ well	/ well	4	2
<b>Spring</b>					Rivers	Spring	1	5
<b>Rivers</b>						Rivers	3	3
<b>Dam</b>							0	6

**Pairwise ranking matrix.** Boreholes are the major source of water in Mavhurume. Reasons given for this choice are that boreholes perennial and do not break down and provide clean and safe water. Shallow wells are ranked second because they were close to people's homes. Stream water is also used for vegetable gardens. The Dam was ranked last because the authorities had denied the community an irrigation scheme, to them Chivake Dam was juts a 'white elephant'.

Source: Vombo, S and Chikozho, C 1999 Water Resources and their use in the Nyagui and Nyadire Sub-Catchments

An example of a Pairwise Ranking Exercise: Reasons for low literacy levels among the young in the village

	<b>Sch. Fees</b>	<b>Working to supplement family income</b>	<b>Early marriage</b>	<b>Peer pressure not attend school</b>	<b>Distance to school</b>
<b>School fees</b>		<i>Working to supplement family income</i>	<i>School fees</i>	<i>School fees</i>	<i>School fees</i>
<b>Working to supplement family income</b>			<i>Working to supplement family income</i>	<i>Working to supplement family income</i>	<i>Working to supplement family income</i>
<b>Early marriage</b>				<i>Early marriage</i>	<i>Distance to school</i>
<b>Peer pressure not attend school</b>					<i>Peer pressure not attend school</i>
<b>Distance to school</b>					
<b>Score</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Rank</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>3</b>

Comments

- Numbers shown should not be taken as measurements, they just show a pattern that forms the basis of discussion with the community
- In the last example the community should discuss whether they feel that **Working to supplement family income** is the major reason why there is low levels of literacy among the youth
- Discussing the results enables the community to objectively assess their situation (but beware of those that dominate and steer community decisions in a particular direction that they desire)
- Pairwise ranking gets the community to evaluate two possibilities when making a choice
- Results should be triangulated through other tools

## ***Matrix Ranking***

Analysing the basis on which people make their choices further enhances ranking. For example, what are the issues that people consider most important when choosing a particular water source. A matrix ranking exercise is one tool that is used to do such analyses.

### **Steps**

- (a) Consider all attributes relevant for an item
- (b) Change the negative attributes to positive ones e.g. high cost to low cost, dirty to clean, so that scoring follows a uniform pattern
- (c) List all the sources of water on the horizontal line or from the linkage diagram as shown in the table below. The participants can use symbols for the sources.
- (d) Using counters (stones, grain) score for each water source against each attribute agree that a high score shows a high preference
- (e) Ran scores vertically (to get the water source most desired)
- (f) Discuss the results with the participants

**An example of Matrix Ranking on internal and external stakeholder rights (scored out of 10 in each cell)<sup>15</sup>**

	People living in village		People living in next village		People living beyond next village	
	S	M	S	M	S	M
Access	10	10	10	10	10	10
Withdrawal	10	10	4	6	1	3
Management	10	10	0	0	0	0
Exclusion	10	10	0	4	0	2
Alienation	0	0	0	0	0	0

S = Samanyika Village; M = Mawadza Village

The example shown above shows the nature of rights that locals and outsiders have regarding forest resources. Both villages give themselves all rights except alienation rights. Outsiders are given access rights, lower withdrawal and exclusionary rights. Such

<sup>15</sup> Mandondo, A 1998 *The Concept of Territoriality in Local Natural Resource Management and its Implications on Livelihoods in Nyamaropa Communal Land* Harare WWF Programme Office

data is valuable in showing the livelihood systems that exist within and between villages and thus the opportunities and constraints of making villages exclusive resource management units.

### ***Seasonal Calendars***

A seasonal calendar shows the time of the year or any defined time period when a particular event or events are observed. It is a useful planning tool that helps identify the period when efforts are most effective. Discussions based on the calendar will yield information on causes, symptoms and consequences of the events in question. Such calendars will help outsiders know the best times to work with the community, for example when they are least busy.

#### **An example of a seasonal calendar of water sources in Darare Village, Musami Communal Lands**

<b>Water source</b>	<b>Month</b>		
	<i>July - August</i>	<i>September - October</i>	<i>November - June</i>
<i>Deep wells</i>	Water levels receding	Most well dry	Rains, all wells full rains
<i>Shallow wells</i>	Some wells dry	All wells dry	Water muddy and dirty.
<i>Stream/river</i>	Water no longer flowing but still available	Water levels low- few pools still have water	Rivers and streams flowing
Spring	Spring has perennial water supplies	Pressure on springs increasing	Only people close to spring using it
Bucket Pump (private)	People beginning to use pump	Most neighbours using pump	Owner only using the pump

### ***Historical Profiles***

As mentioned above, forests are always changing due to disturbance from human beings and nature. This change at the local level is usually gradual than dramatic. A static picture of the forest does not yield adequate information. Another method that can be used to capture trends and processes within the forest are historical profiles. Historical profiles are a useful tool that integrates the current physical status of forest resources and other social and institutional developments within the area and the region.

### **An example of a Historical Profile; Mahlerema Village Chivi**

<b>Date</b>	<b>Events</b>
1940-50	Settled in the area from Shurugwi
1952	First store in the area, built up by Mr. Chibaya
1967	Introduction of contour ridges by the colonial government
1968	Severe frost killed livestock
1976	The guerrilla war gets to the area, agriculture and livestock affected
1978-9	The colonial government impounds livestock
1980	Independence, introduction of boreholes in the area
1983-4	Severe drought kills cattle, general food insecurity in the area
1987	Another drought people depend on government food aid and gold panning increases
1991-2	General shortage of draught power in the area, poor yields
1992-4	Severe drought people do not harvest any crops
1994-7	Government introduces grain loan scheme

### ***Case Studies***

Case studies are a valuable data gathering technique. They help elaborate and illustrate conclusions that are drawn from summaries of qualitative or quantitative data

### **Guidelines for case studies**

- (a) Case study data are collected with the usual PRA tools starting with SSI and direct observation. They can also be the results of mapping or ranking exercises.
- (b) Although they often relate to individuals or households, they can also chart the history of a marketing initiative or a particularly interesting storage technique for example.
- (c) They can help illustrate a particularly complex issue.
- (d) Case studies make a document more interesting to read.
- (e) They should be clearly indicated in the document; shaded boxes are often used to highlight them.
- (f) If they contain sensitive information, names or locations may be omitted.

## An example of case study

### How much the community values the role of CAMPFIRE in protecting their agricultural livelihoods from wildlife: a case study<sup>16</sup>

In 1992, the RDC, with financial assistance from USAID, erected barbed wire fences to control grazing. The RDC had always argued that if farmers used the pastures 'efficiently' there would be no need for local cattle to go deep into the *lagisa* area in search of pastures, as had been the current practice. Indirectly, the RDC was arguing for more space in the *lagisa* area to be reserved for safari hunting. Weeks later the fence was cut up and gates destroyed. The fence was never repaired. Local people used some of the fence to trap small animals. The community showed no remorse over the destruction of the fences.

In 1993, there was talk of erecting an electric fence that would separate wildlife from domestic animals. Fearing that the electric fence might be destroyed, the RDC consulted the community on where to site the fence. The communities chose the point furthest away from the settled area. The project proponents felt that leaving an area that small for wildlife did not make ecological sense. In the end it was resolved that the wildlife and cattle should mix, and the electric fence should be erected close to the settled area. During a survey done after the fence had been put up, a respondent complained that the fence was too close to the homes. Some complained that it would not deter animals but would give electric shocks to their children.

In 1999 four solar panels and energisers used to generate the power for the electric fence were stolen. The male elders of the community organised themselves into a group and sent a complaint to the RDC to address the matter. They mentioned that since the erection of the fence their harvests had improved. RDC officials did not respond. After sending another message, the RDC replied saying that they were not in a position to come and investigate the issue because they did not have any transport. The elders then contributed money and sent it to the district town of Plumtree, asking the CAMPFIRE manager to board a bus at their own expense. They also guaranteed him the return fare. Still the CAMPFIRE manager did not come. The elders then organised a meeting where they decided that they were going to deal with the issue of the missing solar panels themselves, without the RDC. They again decided to use their own money (\$1,350) to consult a sorcerer (*inyanga*) who would cast of spell on the culprit, who was destined to fall ill and die. The RDC was also informed that whether they responded to the request or not, the elders would go ahead and retrieve the stolen components. The CAMPFIRE manager then came and met the elders. He assured them that the solar panels would be replaced. He also sought a guarantee that whoever was doing the replacements would not be affected by the magic potion. Before the elders could consult the *inyanga*, the thief was apprehended after a tip off.

<sup>16</sup> Author's surveys in Bulilimamangwe South.

## Analysis of Data

### *Participatory Gender Analysis*

As mentioned earlier women are a marginalised group in communal areas. Research on forest product use needs to go beyond the idealised image of a community. A useful way of doing this is to analyse resource use practices in terms of gender. Gender analysis allows for participants and facilitators to understand the manner in which women and men participate in various activities. Gender analysis can be carried out using most of the PRA tools. Below are some of the key questions, categories and methods that can be applied.

<b>Key Questions</b>	<b>Categories</b>	<b>Methods</b>
(a) Who plays which role in the household	Gender roles/Division of Labour	Division of labour matrix
(b) Who has what	Access to control of resources	Resource by gender matrix/Case studies
(c) Position of women	Socio-political position	Institutional analysis
(d) Factors influencing position of women	Influencing factors	Focus Group Discussions
(e) Who has which needs	Practical and strategic needs	Focus Group Discussions
(f) Responsiveness of institutions to gender needs	Institutional gender capacity	Institutional gender profile
(g) Who gets what in projects	Project benefits	Matrix Ranking of benefits
(h) In which policy framework does the project operate	National policy with regard to gender and development	Analysis of National Policies regarding e.g. land tenure

### *Stakeholder Analysis*

'Agroforestry policy is shifting from centralised state or market driven management practices to more involvement of the communities. Experience has shown that involvement of communities does not mean complete removal of the state. Both the state and the community have their niches, which they seek to protect within the field on forest management. For this reason a stakeholder analysis helps to understand the rule-making process in the local area and any contests among or between institutions.

Stakeholder analysis is an approach for understanding a system by identifying the key actors or stakeholders (both female and male) in the system, and assessing their respective interests in the system. Stakeholders include those who affect and are affected by policies, decisions and actions of the system. They can be individuals, communities, groups or institutions of any size, aggregation or level in society. Stakeholders thus

include policy makers, planners and administrators in government and other organisations as well as commercial and subsistence user groups.

Stakeholder analysis helps to improve :

- (a) The effectiveness of projects on the ground
- (b) To better address the distribution and social impacts of projects
- (c) Participants identify principal stakeholders and discuss their interests and patterns of interaction
- (d) Any of the PRA tools can be used for stakeholder analysis

**An example of stakeholder conflict analysis using Pairwise Ranking**

Govt Dept.		X	X	X	X
NGOs			X	X	X
Wood based Industry				X	X
EX-Situ Land Owners					X
Local People					
	Government Dept.	NGOs	Wood based Industry	EX-Situ Land Owners	Local People

Dot size shows the degree of conflict

***Problem Analysis***

After the community has identified the problems regarding forest management and or use. These can be ordered using the pairwise ranking method. Facilitators must take note of the debates that emerge around ranking particular problems or options. The main objective is to identify, assess current coping strategies and explore with the community opportunities that have not been tried. Below is an example of problem analysis process.

### **An Illustration of Problem Analysis:**

<b>Problem</b>	<b>Causes</b>	<b>Present Coping Strategies</b>	<b>New Opportunities</b>
<b>Poor crop yields</b>	Low rainfall Crop damage by wildlife Pests	Early planting Problem animal control Pesticides	Drought resistant crops
<b>Weak Institutions</b>	Ineffective village extension teams Lack of incentives	Continue to hold meetings Select dedicated members	Organise training workshops Pay office bearers
<b>Soil Erosion</b>	Steep slopes Overgrazing Deforestation Heavy Rains	Avoid settling on steep slopes Afforestation1991-2	Gully Reclamation Destocking Restrict tree cutting

A community action plan follows the data analysis. This process because it is a planning stage has the problem of raising the expectations of the participants. Some facilitators seek community co-operation by pretending that indeed the plans will be implemented. If resources are not guaranteed it is preferable to be honest with the community or not get the to the planning stage at all.

Improving soil fertility	Objectives
-fertile soils -well aerated soils, good harvests	Community Criteria
permaculture training -rotations -inter-cropping -agro-forestry -proper plant spacing	Current Activities
applying: ant hill soil, manure, compost, fertiliser, -seed exchange program	New Opportunities
- availability of funds -permaculture course -seeds -bigger and more fields -work hard	Assumptions
Anthill soil applied Compost heaps	Indicators
-headman -vidco -agriculture extension worker	Human resource
December 1997 to March 1998	Time
seed exchange	Community Resources
Trainers manure seeds labour	Outside Resources

Getting ready for fieldwork:

Before getting into the field the facilitators must develop a programme that will be the basis of:

the data to be collected

the tools that will be used

the persons that will facilitate each session including energisers

the persons that will be responsible for note taking: this is an important responsibility that should be assigned to a specific person or more.

the persons that will take care of the dominators

the persons that will give a special interview to the traditional leader

The group prepares a checklist of the issues that will be investigated. For example:

Map showing the distribution of the baobab trees *vis a vis* human settlements:

Sources of income in the village

Benefits from the baobab tree: who uses what? What are the rules regarding the use of the tree and what are the problems of controlling use the tree.

Who are the local stakeholders regarding the baobab tree, these include local and external stakeholders e.g. traditional leaders, NGOs, Rural District Council, Natural Resources Board, Weavers, Sellers of baobab products, what is the pattern of interaction

The following table is an example of the checklist used in the Gudyanga Bark Study

<b>Data</b>	<b>Tool(s)</b>	<b>Facilitators/Note Takers</b>
Distribution of tree species	Map, Focus Group Discussion, Transect walk	
Sources of income	Linkage diagram, matrix ranking	
Trends	Time lines	
Uses of the baobab tree	Linkage diagram	

## **Conclusion**

PRA can be a useful approach that provides data about the community and its forest resources. The method does not displace other data gathering methods but is part of a broader process. PRA users need to be flexible in the manner they use the tools.



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