RURAL DEVELOPMENT FORESTRY NETWORK

FROM THE FIELD

PARTICIPATORY MAPPING FOR COMMUNITY FORESTRY
Bill Jackson, Michael Nurse and Hukum Bahadur Singh

A LEARNER-CENTRED APPROACH TO SOCIAL SKILLS
FOR TECHNICAL FORESTERS
Verity Smith

Network Paper 17e Summer 1994

Contents

Bill Jackson, Michael Nurse and ***Hukum Bahadur Singh*** are members of the Nepal Australia Community Forestry Project, PO Box 208, Kathmandu, Nepal.

Verity Smith is Short Course Organiser at AERDD, University of Reading, 3 Earley Gate, Whiteknights Road, Reading RG6 2AL, UK.

ISSN 0968-2627 (formerly Social Forestry Network ISSN 0951-1857)

PARTICIPATORY MAPPING FOR COMMUNITY FORESTRY

Bill Jackson, Michael Nurse and
Hukum Bahadur Singh

Summary

Understanding the relationships between farming and forest management is one of the more important aspects of community forestry. Participatory mapping is a simple method that provides an effective and efficient tool for field workers to collect the socio-economic and bio-physical data they need to understand farm-forest relationships for implementing community forestry[1] programmes. In this paper we describe the methodology of participatory mapping and discuss the merits of the system.

Introduction

Field workers involved in helping villagers develop strategies for the sustainable use of community forests[2] need to understand the relationships between farms, rural people, markets and forests.

This requires information on:

- Land tenure,
- Land use,
- Cropping patterns,
- Livestock husbandry practices,
- Location and condition of local forests,
- Traditional or historical patterns of forest use,
- Existing use rights of common forest,
- The type, seasonal use and importance of inputs from forest to farm,
- The perceptions of forest users, and
- The conflicts and co-operation within forest user groups[3] and between user groups and others.

In Nepal, as in many developing countries, very little information is available to field workers unless they collect it themselves. Maps and records are rare and when available are often incorrect or incomplete. Collecting information from the field is complicated by the fact that field workers cannot afford to spend extensive periods of time collecting data. They often have heavy

[1] Community forestry is defined as the situation where the responsibility for managing state-owned forests rests with the local villagers. The purpose of such hand-over is to give villagers the right to use these forests for both semi-subsistence agriculture and market needs.

[2] For an illustration of the methodology of community forestry see, Fisher, Malla and Jackson, 1994.

[3] Community forestry involves entrusting the management of local forests to a `user group'. A user group is a group of people with mutually recognised use rights to whom the benefits derived from that management accrue.

workloads and have to cover large geographic areas. Fortunately, community forestry does not require the collection of very technical data or the preparation of highly accurate maps. In community forestry one of the more important needs is field workers that can promote dialogue with and between villagers in a non threatening manner. From such dialogue the field worker can obtain relevant information while simultaneously helping villagers to identify, and find solutions to, their problems and needs.

Participatory Rural Appraisal (PRA) and, to a lesser extent, Rapid Rural Appraisal (RRA) methodologies are well suited to gathering the information needed for implementing community forestry and for promoting dialogue between field workers and villagers (see, for example, Anonymous, 1989; Bartlett and Nurse, 1991; Chambers, 1992; Mascarenhas, 1992; Lightfoot *et al*., 1989). Both PRA and RRA methodologies use techniques such as informal interviews, interest group meetings and discussions, transects, village and community profiles, time lines and sketch mapping. The value of these techniques is that they allow the field worker to involve villagers as participants in the processes of problem identification and problem resolution. Such a process is more likely to address the real needs of rural communities and find solutions that are effective, efficient and sustainable.

The use of PRA for community forestry in Nepal

Bartlett and Nurse (1991) and Nurse, Bartlett and Singh (1992) describe a simple PRA methodology used in Nepal to support forest user groups. Field workers' record information on a set of simple formats and a sketch map. The formats are intended to guide field workers in discussions with villagers during informal surveys and the maps provide a simple and convenient format for recording and displaying the results of those surveys. They are different from mapping exercises commonly used in PRA surveys for investigating different participants perspectives of their environment. The main purpose of such maps is the insight gained on potentially differing perspectives, rather than a factual representation of what is to be found on the ground. The sketch maps described in this paper, in contrast, do provide a good indication of the ground truth - as well as helping community forestry field workers to better understand the local use of the forest in question.

Sketch maps provide a particularly convenient way of recording and illustrating information about forests and the local communities that use those forests. They can be used to define the boundaries of common forests, to locate physical features such as watercourses, ridge lines and trails and to record the type and condition of a forest. Such information provides a basis for identifying potential areas of community forest, defining forest user groups, providing technical advice, discussing management options with forest user groups, setting planning objectives and monitoring progress. If a more formal map is required, the information on a sketch map can be transferred to a topographic map using the features common to both maps to tie in various points on the map (Nurse *et al*, 1993).

Shortcomings with the current PRA methodologies used in community forestry are that field workers tend to use the formats inflexibly by treating them as a structured questionnaire and they develop a sketch map without adequate consultation with local villagers. The effect of this is that the methodology becomes more `rapid' than `participatory', often resulting in poor quality information being recorded and sketch maps that contain neither accurate nor useful information.

The main reasons for this are lack of skills and lack of consultation with local forest users.

Aerial photographs have been used in some instances to overcome the shortcomings of sketch mapping (see for example, Carson, 1988; Fox, 1986, 1988). Fox describes aerial photographs as, "generally more useful than maps because they are more accurate and detailed and do not have to be extensively field checked" (Fox, 1986; 7). Carson (1985; 19) reported success with using large scale 1:5,000 and 1:2,500 aerial photographs for planning resource management. Our experience using 1:12,500 scale composite aerial photographs, is that aerial photographs do not represent an alternative to other methods of mapping or data recording for the Middle Hills of Nepal. The main reasons for this are that aerial photographs are expensive, very difficult to obtain, (particularly at scales greater than 1:40,000) require good skills for effective interpretation and, particularly in Nepal, present problems with shadows and large distortions in areas with high relief. The difficulty in obtaining aerial photographs is a result of military and bureaucratic restrictions of government, a condition not unique to Nepal.

Recognising the shortcomings of existing methods, we introduced participatory mapping to provide field workers with a simple and effective alternative methodology for collecting social and bio-physical information on community forestry. The participatory approach allows field workers to acquire a reliable understanding of forest use practices and local requirements for forest products. The idea to develop participatory mapping for community forestry came from agro-ecosystem mapping developed in India (see Lightfoot *et al.* 1989). Using examples from the Middle Hills of Central Nepal the methodology is described below.

Participatory mapping

The first steps of the participatory mapping process are to develop a basic understanding of the geography of the area to be mapped and to establish rapport with local villagers. This involves walking around and getting to know the geographical setting, and talking to local people about what interests them. This is called establishing rapport (Fisher, Malla and Jackson, 1994).

Once rapport has been established a suitable site is selected to prepare the map. The ideal site is a level area that has a reasonably unobstructed view of the area of interest and is clear of vegetation and other matter (the area in front of a house or tea shop is often suitable).

A group of key informants from the area is invited to participate in the exercise. Key informants should have knowledge about the issues and area of interest and preferably include both male and female informants as each group often has a different understanding of forest use patterns and use rights. The process begins when the field worker describes the reasons for drawing a map then scratches a line onto the ground to represent a prominent feature of the landscape; for example a stream, ridge, path or road. The name of this feature is elicited from the key informants and written on a slip of paper. The paper is placed on the ground beside the mark representing the feature and held in place by a stone.

The map is developed by informants scratching marks on the ground, or using coloured powders to represent features such as streams, ridges, villages, roads and forest boundaries. As each feature is drawn on the ground its name is added to the map. Sometimes there is disagreement between the informants as to where a particular feature should be located. When this occurs the field

worker should not intervene too early or they will risk breaking the participatory nature of the exercise if the villagers perceive that the field worker is trying to dominate.

Figure 1: Participatory Map of Dhunkharka

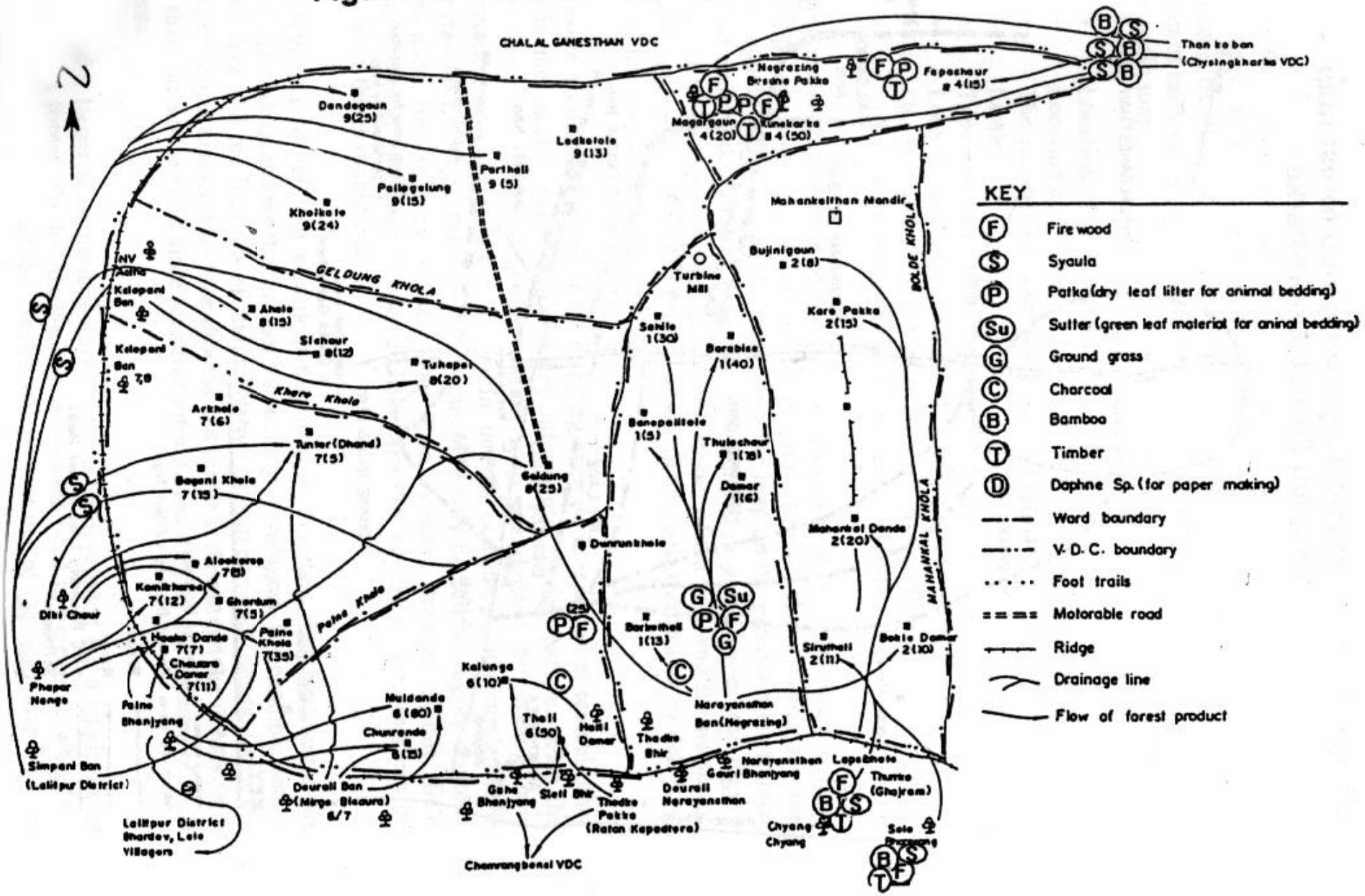
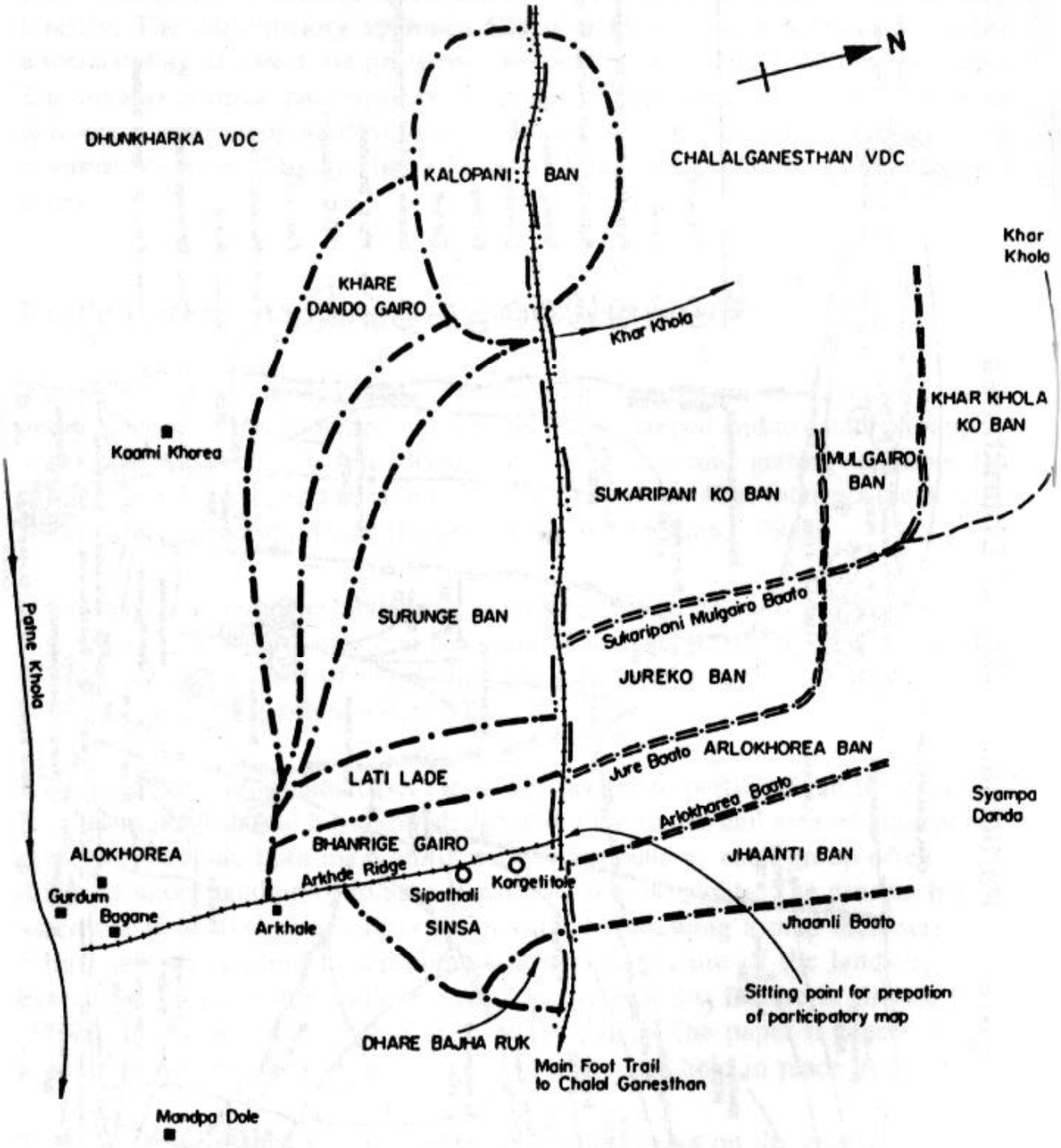


Figure 2: Participatory user group forest map Kalopani Forest, Dhunkharka



KEY:

SINA	Forest Name
	Forest Boundary
	Forest Boundary / Foot Trail
	Ridge
	River
	VDC Boundary (also a Foot Mail)
■	Settlement
O	Other Site

At the end of the first stage the map scratched on the ground shows the location and names of ridges, streams, villages roads and important boundaries. This provides the basic framework on which the rest of the map is constructed. In the second stage, areas of common property forest are marked on the location map by placing handfuls of grass, leaves or weeds on the ground to represent the location of each forest patch. After this, the following information can be added to the basic map:

- Location of administrative boundaries,
- Location and names of facilities (such as schools and water sources),
- The number of households and type of people in each village or hamlet,
- Type and location of farmlands,
- Location and names of forests used by local people,
- Use patterns of local forests (type of products), and
- The flow of products from the forest to farms.

Information such as names of features and numbers of households are written onto slips of paper and placed on the ground wherever the villagers say the feature should be located on the map. Once the map on the ground is completed the field worker sketches the map onto a sketch pad or graph paper (see Figure 1). Care is taken to ensure that the general layout of the area and the names of features are correct. It is important that the field worker promises to deliver a copy of the map once it is complete.

To ensure accuracy it is best if the mapping exercise is repeated at several other sites in the locality using different key informants. During each exercise the paper copy of the participatory sketch map is adjusted by adding new information and discarding information that is considered inaccurate. It is important to recognise that key informants may only be able to supply accurate information for the area in their immediate vicinity. Because of this, field workers should take care to only build a map that covers an area that can be seen from the mapping site.

The sequence of building a participatory map is important. The best method is to initially ask questions that are not threatening to villagers, for example names of villages and the location of administrative boundaries and forests. Once the villagers begin to understand the process and feel less threatened the field worker can than attempt to elicit more sensitive information such as use patterns of local forests.

If needed a larger scale participatory map can be developed for a single forest or part of a forest. To do this the key informants need to be people who have relevant knowledge about the history and present use of the particular forest in question. The aim of developing large scale maps is to enable the field worker and local villagers to better understand issues such as forest use patterns, forest condition and the potential of the area to provide for the needs of forest users. An example of a large scale participatory map of a single forest area is shown in Figure 2.

In locations where there are large areas of forests, local forest users often refer to the forest as consisting of a number of smaller contiguous forests with internal boundaries defined according to availability of forest product and accessibility. Locating and recording such boundaries is important to community forestry as they often represent the division of the forest into areas that have discrete user groups and the field worker may need to negotiate the hand over of individual patches of forest with a number of separate user groups, as opposed to handing over a single

forest to a large user group. Compared to more formal mapping techniques, participatory mapping provides a simple but accurate method of producing a larger scale map that indicates the internal forest boundaries and patterns of forest usage.

Discussion

We have found participatory maps to be far more accurate than the sketch maps produced by field workers in isolation from local forest users. Particularly as a participatory map can be easily transferred to a topographic map by using points that are common to both maps.

For community forestry, participatory mapping has many advantages over other methods of information gathering. It is quite easy for field workers to produce a good quality map that contains a great deal of essential information about farm-forest linkages from which to plan and implement community forestry. Unlike formal mapping or even non-participatory sketch mapping, participatory mapping is far less threatening to villagers because the forest users themselves are supplying the information and they can readily see (and indeed control) what is being produced.

Participatory mapping provides a more reliable and cost effective way to collect, store and display information than methods and formats that were previously used. They are very useful for obtaining and recording bio-physical and socio-economic information needed for implementing community forestry. They are a very effective way of displaying:

- Topographic and hydrological features
- Location of villages and hamlets
- Administrative boundaries
- Numbers of households and type of people in each village or hamlet
- Land use
- Patterns of livestock usage (grazing, watering)
- Location and names of local forests
- Patterns of forest use for each village or hamlet, and
- Boundaries of forest user groups

Participatory maps can be produced at various scales to yield different types of information. Smaller scale maps can form the basis for a preliminary PRA exercise, complementing other PRA tools such as informal interviews, focus group sessions, transects and time lines. Larger scale maps allow more detailed investigation of an individual user group and their community forest.

In conclusion, participatory mapping allows field workers to collect reliable information in a simple format. It is efficient, effective and produces good quality sketch maps that are appropriate for use in planning and implementing community forestry.

* * *

References

Anonymous (1989) An Introduction to Participatory Rural Appraisal For Rural Resources Management. Program for International Development Clark University, Worcester, Massachusetts and National Environment Secretariat Ministry of Environment and Natural Resources Nairobi, Kenya

Bartlett, A G and **Nurse, M C**, (1991), `A participatory approach to community forestry appraisals', *Banko Janakari* 3 (92: 25-38).

Carson, B, (1985), `Aerial Photography as a Base for Village Level Planning in Nepal', Land Resource Mapping Project, Kenting Earth Sciences Limited, Kathmandu.

Carson, B, (1988), `HMG/USAID F/FRED Training Workshop on Local Level Forest Land Use Planning', Winrock.

Chambers, R, (1992), `Participatory rural appraisals; past, present and future', *Forests, Trees and People Newsletter* (15/16): 4.

Fisher, R J Malla, Y B and **Jackson, W J**, (1994), `Forestry Work in Villages: A Guide for Field Workers' (Second Edition), Nepal Australia Community Forestry Project Technical Note 1/94, Kathmandu.

Fox, J, (1986), *Aerial Photographs and Thematic Maps for Social Forestry*, Social Forestry Network Paper 2c, ODI, London.

Fox, J, (1988), `Diagnostic Tools for Social Forestry', East-West Environment and Policy Institute, East-West Center.

Lightfoot, C, Axinn, N, Singh, P, Botrall, A, and Conway, G, (1989), *Training Resource Book for Agro-Ecosystem Mapping*, International Rice Research Institute, Philippines and Ford Foundation, India.

Mascarenhas, J, (1992), `Participatory rural appraisal and participatory learning methods: recent experiences from MYRADA and South India', *Forests, Trees and People Newsletter* (15/16).

Nurse, M C, Bartlett, A G and **Singh, H B**, (1992), `Rapid Appraisal of Forest Resources in Community Forestry', Nepal Australia Community Forestry Project.

Nurse, M C, Singh, H B, Paudyal, B R and **Bonjan, S**, (1993), `Beat Level Planning: Towards the Development of a Management Information System for Community Forestry' Discussion Paper, Nepal Australia Community Forestry Project.

*** * ***