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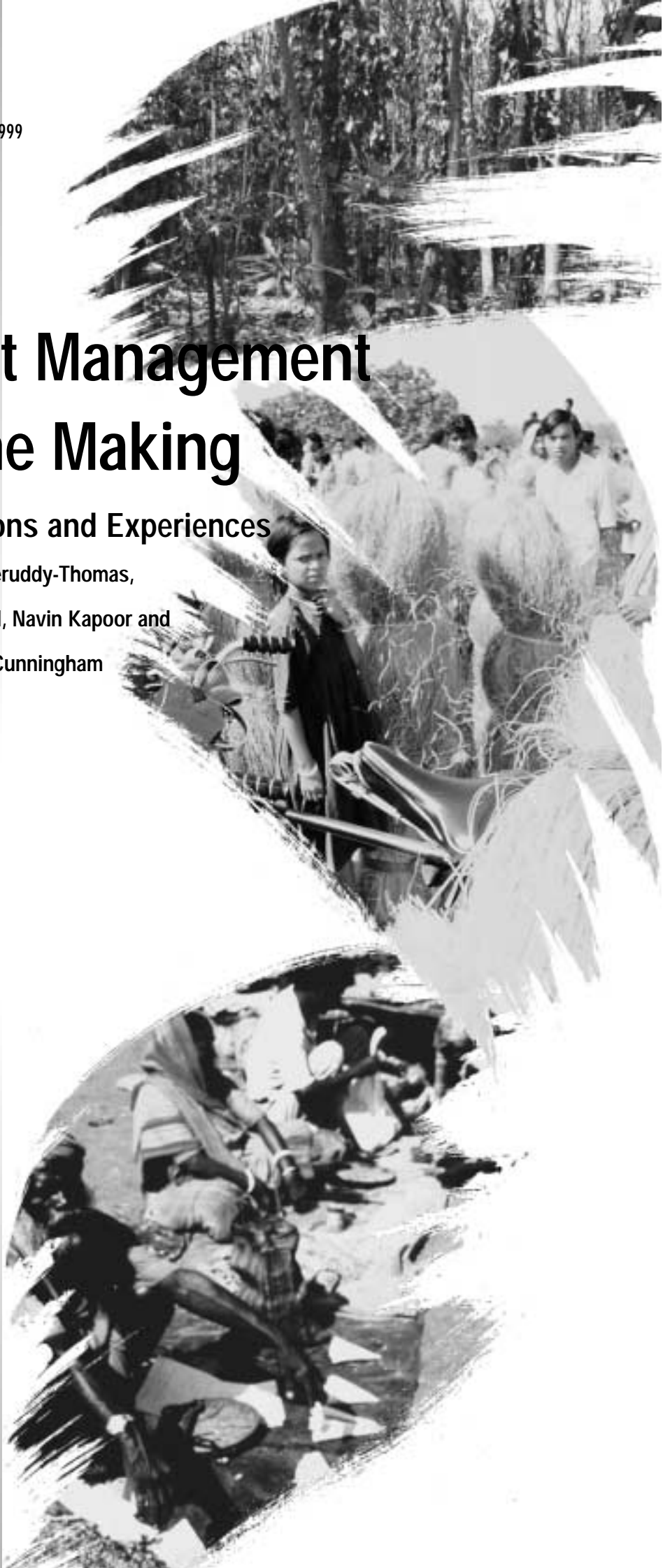
# Joint Management in the Making

## Reflections and Experiences

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People  
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*to  
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Cover: Dry Dipterocarpaceae forest, N. Thailand (top), Babar grass (*Eulaliopsis binata*) from community forests being traded at Kharagpur market, West Bengal (centre), marketing plant products in Bodgaya, India (bottom).

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# Joint Management in the Making, Reflections and Experiences

International workshop on non-timber forest product (NTFP)  
assessment methodologies for Joint Forest Management.  
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Photo 1. Group photo of workshop participants on sabai grass based items designed at the Rural Development Centre, International Institute of Technology, Kharagpur.

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Photo 2. An opportunity for field practitioners from different countries to meet during the workshop, International Institute of Technology Kharagpur. From left to right: Gemima Cabral Born (Brazil), Luiza Majuakim (Malaysia) and Augustine Masareka (Uganda)

# Introduction

As human needs and numbers increase, so do land-use conflicts at the interface between local communities and protected areas. Such conflicts are common, and practical examples of successful conflict resolution are rare - particularly where human population densities are high. One of the most extensively implemented success stories under extremely difficult circumstances of conflict between state (forest) departments and local communities has been participatory planning processes for Joint Forest Management (JFM) in India. Methods developed for participatory planning processes for JFM in India have been well publicised in the past 4 years, influencing field workers in Africa and Latin America. Conversely, field workers outside India have developed methods not yet used in India that could be of use there, and have received less media attention.

This training workshop, which was held at the Indian Institute of Technology at Kharagpur, India (7-12 November 1994), had several objectives. Firstly, to bring together field practitioners working at the interface between people and natural resources management in different parts of the world so that they could compare and contrast the methods they were using with those in West Bengal in India. Secondly, through bringing them together in the field and through case study presentations, to encourage normally isolated field-workers to realise that beyond their individual case studies there is a synergy in addressing similar issues elsewhere - which they could draw on through networking with one another in the future. Thirdly, to realise that rather than "reinventing the wheel", there are extremely useful and adaptable field methods that could be applied under their own local situations. Fourthly, to realise that while JFM in India has been accepted at a government policy level as well as being widely implemented, there was the opportunity to benefit from approaches developing in India or those used elsewhere in the world.

In the light of the experience gained from this workshop on NTFP assessment methods for Joint Management, it appeared that many fields of research and activities have to be clarified and understood - including initial conflict resolution processes, participatory approaches and methods for establishing forestry management plans, institution building, monitoring of biological and social indicators, commercial chains and trends, creation of appropriate technologies and new end-products. This multi-dimensional approach to JFM was favoured during this workshop through theoretical

discussions and fieldwork, bringing together academics from social and scientific backgrounds, workers from NGOs, protected area managers, members of communities, and government officials, particularly those from forest departments. Just as Joint Management is based on co-operation between different perspectives, and the acknowledgement of the needs and constraints of different parties, this interdisciplinary event has shown the need for crossing the frontiers of our own disciplines in order to achieve a holistic approach which aims at legally empowering communities to use and protect the forest on a sustainable basis.

Thanks to the generosity and flexibility of the local organisers and hosts, the workshop provided a rich human experience based on the sharing of information, methods and enjoyable field experiences (see Photos 1 and 2, page 1 and 2). This helped to create mutual understanding and self-confidence, an invaluable opportunity for field researchers who often work in isolation.

In order to highlight key issues in Joint Forest Management and disseminate the experience gained by workshop participants, it has been commonly agreed that these proceedings should cover the main themes discussed in the form of overviews. These express the thoughts and findings of many participants. They are grouped under three main headings: major issues in joint management, methodologies, and case studies. The latter are either case studies which were presented during the workshop, or a compilation of a few case studies which demonstrate examples from different parts of the world. The case studies also illustrate processes and solutions found by different groups in a diversity of situations, and the necessity for site-specific studies. Some participants contributed overviews directly in a written form, while other overviews are a compilation of edited notes which express the views discussed during the workshop.

This working paper is not meant to be a fixed blueprint for joint management of forests, but rather seeks to identify trends, concerns and methods, and initiate further discussion and contributions on this subject. The annotated bibliographical references are included to give the reader an extensive view of the diversity of experiences in these different fields of activity. Some references included in the text are not in the annotated bibliography which is far from being exhaustive and also because some major references became available only after the work on the annotated bibliography was completed.

# Major issues in Joint Management

## Joint Forest Management: the role of research networks

Sushil Saigal and Navin Kapoor

Joint Forest Management (JFM) is a new approach to forest management that is being tried in India. In JFM, the forest department of the Government and local communities jointly manage the state forest lands. In turn, both share the responsibilities and benefits. JFM is being adopted as a strategy to counter the problem of forest degradation in India. It stems from the realization that, without the willing and active participation of the fringe communities, no programme to regenerate the degraded forests would succeed. However, village communities will have little incentive for participation unless they benefit directly and have sufficient authority to be effective.

West Bengal is the pioneering state where early experiments with this approach were carried out. In a few other states, such as Haryana, Gujarat and Orissa, similar efforts were simultaneously initiated by forest department officials and/or communities.

The Government of India facilitated the process by issuing a circular to all state Governments, directing them to involve people in the management of degraded forests. This order was in line with the new National Forest Policy announced in 1988.

To date, fifteen states have passed resolutions to implement the JFM programme, and there are over 10,000 Forest Protection Committees (FPCs), protecting around 1.5 million hectares of State Forest lands. In addition, there are a number of informal forest protection groups, especially in Orissa and Bihar, protecting forest patches near their villages without entering into a formal agreement with the forest department.

As the programme gets underway in so many states with different sets of local conditions, different issues are coming up. A number of novel approaches are being tried at different places and there is a need to document these, share with others and obtain feedback. Similarly, there is a need for research at the policy level also as the programme is still new and policies need to be fine-tuned in the light of field experience. It is becoming increasingly clear that issues involved in JFM are more complex than those in traditional forestry. There is a need to match the diverse (and often conflicting) needs of the community with the capacity of the regenerating forests. The

issues encompass ecological, economic, social, institutional and political aspects, and these are closely interwoven together.

Forest departments are realizing the need for acquiring new sets of social skills and for developing new management tools for meeting the changed objectives of multi-product management. It is apparent that JFM practice calls for multi-disciplinary skills and research inputs. While forestry research is being conducted at the national and the state levels by the State Forest departments, this is limited to traditional fields like silviculture. The research in academic circles has not really been tuned to address the practical and immediate concerns of the community forestry manager nor have the findings been disseminated beyond academic circles to affect policy or implementation.

It is in this context that an effort was made to develop research partnerships in different states and at a national level. The networks include state forest departments, NGOs (of various levels, from grassroots community organisers to national level organizations), academic institutes/universities and individual researchers. The early efforts in developing this network were made by the Ford Foundation, several NGOs and a few foresters, who began documenting and sharing their experiences in a series of meetings and workshops. These efforts were mainly focused in the states of West Bengal, Haryana and Gujarat.

At the state level these partnerships were formalised in the form of JFM working groups in West Bengal, Haryana and Gujarat. These working groups at different levels allow discussion between forest departments, academics and NGOs, which result in more responsive policies. These working groups meet periodically and discuss the progress of JFM, identify training needs and note successes and failures. Although these groups have no legal status, they have had a very positive impact on the state policy for JFM. Recently Orissa state has also formed a similar group at the state level and termed it the steering committee. Now these states are also experimenting with working groups at circle, division and range levels. Andhra Pradesh has also issued orders for constitution of JFM working groups at different levels. In these groups, officials from other related Government departments also participate. In Himachal Pradesh, a working group of NGOs has been constituted recently with support from ICIMOD.

The national level JFM network started as a group of institutions and NGOs with grants from the Ford Foundation, along with a few forest officers from states where these were working. As the JFM programme expanded, the network also developed to include many more organizations and individuals. A National Support Group (NSG) has been constituted within the Society for the Promotion of Wastelands Development (SPWD) which has emerged as a focal point of this research network. Network members meet together to share experiences, evolve common methodologies, discuss training needs and set research agenda.

The contribution of network members has been of immense value in developing the scientific basis for village level microplanning, silvicultural practices for management of forests which are compatible with the community's needs and priorities, process documentation of the functioning of FPCs and the reorientation of foresters for the new role.

At many places specific inputs have influenced policy, as in Haryana where research by a support team from Tata Energy Research Institute (TERI) has helped the forest department in ascertaining the impact of existing forest management practices on the yield of *Eulaliopsis binata* grass (Photo 3). This helped the department and communities adopt appropriate management systems. Similarly, in West Bengal the Government order on JFM has been modified to give greater representation to women. This has been achieved in the past through a number of diagnostic studies highlighting the functioning of FPCs and discussing the findings with forest department officials.



Photo 3. Ropes made of Babar grass, *Eulaliopsis binata* (Retz.) C. Hubb, Kharagpur.

Various studies for example on the impact of leaf harvesting, and the role of NTFPs in household economy have also been carried out.

Apart from the research, many field NGOs have become involved with the programme implementation and they act as laboratories of JFM where innovative approaches are tried out. NGOs serve as an interface between the community and forest department. In almost all the states where JFM approach is being followed, NGOs are involved for example in disseminating information, organizing communities, documentation and diagnostic studies, and conflict resolution. At a number of places, NGOs have also taken up support activities such as bringing out community newsletters in local languages, orientation of forest officials and communities, and



Photo 4. Meeting of workshop participants including Sushil Saigal and Navin Kapoor with local villagers, near Kharagpur.

training of village communities in NTFP processing and marketing.

The field experience of NGOs and research findings are discussed in workshops and seminars at different levels, in which decision makers at district, state and/or national level also participate. NSG has organized several such workshops at national, state, district and village levels to discuss national or regional issues. These workshops provide excellent fora for interaction and discussion and the proceedings are widely disseminated at various levels, including policy makers.

Regular training programmes have also been organized for the network members, such as Gender Analysis Training, teaching of Trainers, and Training in NTFP Assessment Methodologies. Another mechanism for sharing information is through publications, including case studies, analytical reports, and manuals.

The JFM research network is still growing and evolving and there have been some problems. However, it is encouraging that people from so many different disciplines are coming together to search for viable alternatives for the twin objectives of empowering the local community and reversing the process of forest degradation. As the network does not have any predefined boundaries, it is hoped that it will continue to grow and evolve in the future. It has provided, and will continue to provide, a forum for the exchange of ideas and healthy debate between all involved in the complex task of JFM. It was in this spirit that this JFM workshop was held in Kharagpur.



Photo 5. At the beginning of the discussions the Forest Officer chose to sit separated from the rest of the group in the background. This changed during the course of the workshop.

## Ecological issues in JFM: diversity and resilience

Anthony B. Cunningham

It is widely recognized that co-management systems are a complex mix of ecological, social, cultural and economic factors within a particular political framework. A process that succeeds in one place will not necessarily succeed in another. This section emphasizes the need to take biological principles into account so that the ecological context of the JFM "recipe" is recognized. For purely ecological reasons, for example, implementing JFM in tall moist tropical forest or in montane coniferous forests will be very different. Three ecological issues have a particularly important influence on the success or failure of JFM systems. The first is the diversity of the vegetation type involved, the second factor is the resilience of harvested species and the third factor is soil type (or arable potential).

The fact that forest reserves and national parks cannot be conserved in the long term without acceptance and support of the surrounding human population is widely recognized. As a result, approaches to conservation have broadened worldwide since the 1960s, from the past emphasis on strictly policed preservation areas primarily for large mammals, to an emphasis on sustainable resource use, maintenance of ecological processes and genetic diversity. This change in approach coincides with the realization that, in the foreseeable future, greater human needs and numbers will pose the major challenge to conservation of biodiversity.

A greater interest in sustainable harvest of non-timber forest products (as well as wood used for building poles and fuel) has also developed since the 1960s. This includes their controlled use in forest reserves by local people and, in some cases, from national parks. Managed use of resources within buffer zones around national parks or specific zones within them has become a widespread strategy as a means of defusing land-use conflicts. "Joint Forest Management" (JFM) systems in India and community forestry approaches in Nepal are very important examples. This has increasing significance in Africa due to the wide publicity given to JFM in India and its consideration as a model for community-based resource management systems in Africa.

There is a need for caution, however. Effective management of natural resources used by people similarly depends as much on an understanding of the ecological principles as it does on the social, religious and economic aspects of natural resource use. If this does not



take place, neither local people nor protected areas will benefit if there is over-exploitation of valued and vulnerable natural resources, however well-intentioned the application of Joint Forest Management (JFM).

### What are the concerns?

There are a number of reasons for caution in transplanting the Indian JFM approach to forests in Africa. These are:

- (i) small size and fragmented nature of Afromontane and coastal forests as islands surrounded by rural farmland;
- (ii) high species diversity means a high diversity of forest products and more complex management with a likelihood of higher management costs;
- (iii) direct costs of management have to be taken into account. These costs increase with increasing species diversity, due to a higher number of uses and users. When demand is high and higher impact harvesting occurs, it is naive to assume sustainable resource use, particularly with commercially important species in forests;
- (iv) big differences in soil type and arable potential.

There is equally a need for caution in transplanting policy on forest-people interactions from Amazonia to Africa, yet a few anthropologists who have worked in South America have been very influential and effective influencing policy on people in African and Asian conservation areas. An impractical aspect of this has been the assumption of sustainable resource use by people, possibly due to the large size of the forest areas and lower human population densities there. This is not the case in southern or eastern Africa. In contrast to the massive forest areas of the Zaire (1,056,000 km<sup>2</sup>) or Amazon (8,027,760 km<sup>2</sup>) basins, Afromontane and coastal forests of eastern and southern Africa are distinguished by their small size, covering a fraction of the land surface area. Indigenous closed canopy forest cover in Tanzania is only 1 - 2%, South Africa 0.3%, Kenya 1.1% and Uganda 3% of land surface area.

Valuable lessons, both positive and negative, can certainly be gained from experience in India and Brazil, but it is essential that JFM and multiple-use management systems in East and southern Africa are developed locally, on the basis of local experience and constraints, and are not dictated by issues of political expediency that lead to resource overexploitation. This benefits no-one in the long-term, and rural communities probably least of all, for as Marilyn Hoskins recently pointed out, in a paper on forestry and food security:

"All research and management by outsiders must remember that their activities come and go, but food security - land and resources surety - is a long-term, life and death issue for rural peoples".

In forests of Zaire and the Brazilian Amazon, population densities of Mbuti pygmy (1 person/km<sup>2</sup> and Amerindian "forest peoples" are low (0.7 person/km<sup>2</sup> in the case of the Yanomami). Afro-montane and coastal forests, as small patches surrounded by rural farmlands are at the opposite extreme. In montane Rwanda and south-west Uganda, for example, forests formerly occupied by the Batwa, (a group of pygmies), have become a focus for harvesting of plant resources by the farmers who cleared them. Population densities of rural farmers in these areas are now between 100 - 400 people/km<sup>2</sup>.

Due to a cool and malaria-free environment with good rainfall, East African montane forests (particularly those stretching through western Uganda, Rwanda and Burundi), which formerly had a hunter-gather population density of about 1 person/km<sup>2</sup>, are now one of the most densely populated rural areas in Africa. Population densities in the area surrounding Bwindi-Impenetrable National Park, for example, range from 100-400 people/km<sup>2</sup>. Agricultural expansion has caused extensive transformation of these montane highlands, converting forest to field and fallow areas, with high levels of soil loss. Bwindi-Impenetrable National Park in Uganda is just one example of a forest that has become an island in a sea of rural farmers, gold miners and pit-sawyers. In 1954, approximately 120 km<sup>2</sup> of forest remained within a 15 km radius outside the Bwindi forest boundary; by 1972 this was reduced to 42 km<sup>2</sup> of forest, and by 1983, less than 20 km<sup>2</sup> of forest remained outside the protected area. Today, virtually no forest remains outside the protected area.

By contrast, miombo (*Brachystegia - Julbernardia - Isoberlinia*) and mopane (*Colophospermum mopane*) woodlands, with poor soils, tsetse flies and malaria, are less densely populated, far more extensive and have far greater potential for JFM.



Photo 6. Dry miombo woodland dominated by *Brachystegia boehmii* and *B. spiciformis* (Caesalpinaceae), Likubula, southern Malawi.

### Ingredients for successful JFM

The sal (*Shorea robusta*, Dipterocarpaceae) forests where JFM has been implemented in India are unusual in several respects, several of which are discussed in detail below. These include the arable potential of the soils on which potential "JFM" forests exist, their species diversity, resilience and size.

#### *Soil type and arable potential*

In India, Joint Forest Management has been implemented in areas with low arable potential, such as the lateritic soils of West Bengal in India. Like many production "Forest Reserves" in East Africa, these have been set aside as timber production areas, rather than strict national parks for biodiversity conservation as is the case with Afromontane forests such as Bwindi-Impenetrable National Park in Uganda. Sal forests, by contrast with many Afromontane forests in East Africa, occur on extremely poor lateritic or sand-covered laterite soils under physiologically harsh conditions due to the long dry season followed by monsoonal floods. Most remaining sal forests are on soils too poor to be worth clearing for agriculture. Sal forest on good arable soils was cleared and converted to fields long ago. I would suggest that JFM has a far greater chance of success on soils with low arable potential, such as laterites or on the Zambesian woodlands on the leached, nutrient-poor sands that cover so much of sub-equatorial Africa, than on arable soils.

#### *Low diversity, simpler management*

In sal forests, *Shorea robusta* forms large dominant stands. This is unusual amongst dipterocarps, which are often dispersed in high diversity forests. African parallels of sal forest are the two major Zambesian woodland types: miombo (*Brachystegia - Julbernardia - Isoberlinia*) savanna woodland, and mopane (*Colophospermum mopane*) savanna woodland. Similar examples are the high biomass production or resilient vegetation types such as reedbeds, thatch grass, palm savanna or Acacia thickets.

Tropical forests are generally very different, however: more complex and more expensive to manage sustainably. The higher the number of har-

vesters and uses of a species and the scarcer the resource, the greater the chance that resource managers and local people will get embroiled in a complex juggling

of uses and demands in an attempt at a compromise that could end up satisfying nobody. In theory, sustainable harvesting of plants (as opposed to seeds) from wild populations is possible, but in practice this is seldom practical. What is often glossed over is that high conservation priority habitats with a high species diversity and vulnerability to over-exploitation require a level of management of an intensity that is not possible with the economic constraints that are a feature of many conservation departments. The intensive management of forests practised in the southern Cape region of South Africa for valuable hardwood (mainly *Ocotea bullata*; Lauraceae) is unlikely to occur within national parks or forest reserves due to financial constraints and the number of species involved. Muir (1991), for example, has demonstrated that cultivating alternative sources of building material outside of indigenous forest (US\$ 7,600/yr) is ten times less than the intensive monitoring programme for the same resource (US\$ 100,000/yr). Muir (1991) only dealt with a single forest use category, building timber. Inclusion of monitoring for the greater complexity of other uses, such as for crafts and medicines, would be even more expensive, even if it were only the vulnerable species involved. For those species or vegetation types it is essential that management concentrate on providing alternative sources of supply outside core conservation areas.

Afromontane and coastal forests are relatively small, yet are characterized by many species with comparatively low biomass production per species, each with multiple uses. Medicinal plants are harvested for leaves, roots, bark and fruits, traditional dyes from bark and roots, poles and laths for hut building, and edible fruits gathered. These greatly complicate sustainable management plans which are normally for a single size class "cohort", such as mature trees for timber, with sustainable management plans based on DBH measurements and densities of species populations. Wood use by local communities is by no means as simple. In East Africa, for example, the same species may be used, for example, for bean stakes (1-4 cm DBH), building poles (5-15 cm DBH) and beer boats (>50 cm DBH), each use affecting the forest canopy, either during the present time, where trees are felled for beer boats or the future canopy of 200 yr time, when bean stakes are cut. In contrast to the short rotation times of reedbeds (1-2 yr) or palms for palm sap tapping (6-8 yr per stem), forest tree replacement times between harvesting and regeneration are seldom less than 50 yr and often as much as 200 yr. Rotation times for Afromontane forest in Uganda for example is about 80-100 yr.



Photo 7. Sustainable management of diverse forests such as this one in coastal Kenya is particularly complicated.

### *Reseeding, resprouting and resilience*

These deciduous savanna woodlands have a low tree species diversity (about 8-10 tree species >10DBH/ha) with high resilience to harvesting due to their vigorous resprouting habit. At the other extreme are forests and shrublands dominated by trees that reproduce primarily (or solely) by re-seeding. Examples are the Mediterranean type shrublands of western Australia, the Cape floral region of South Africa (both dominated by Proteaceae) and California (with most reseeders in the Pinaceae), the coniferous forests of the Himalaya or coniferous species such as *Juniperus* and *Podocarpus* in African mountain forests.

Reseeders and resprouters are at opposite ends of a continuum (Box 1). Most trees for example resprout to some extent, some very vigorously, some weakly, and a few, like *Podocarpus* trees and *Raphia* palms, not at all. As a consequence, tree species like *Podocarpus* and *Juniperus* have been seriously overexploited for their timber. Characterizing plants according to resprouting or reseeded habit is useful, however, as this has important implications for

resource management and wider implementation of the JFM approach.

Financial and material returns from rotational harvesting sal (*Shorea robusta*) stems is an important component of the JFM system. This is possible because sal trees are vigorous resprouters, coppicing when cut to enable rotational harvest of timber. Tree, climber or shrub species and populations vary tremendously in their vulnerability to stem removal, however. The same applies to stem death due to harvesting or tapping of apical meristem in monocarpic species or die-off after uprooting or ring-barking. Important questions to ask when considering the ecological aspects of resilience and the opportunity for JFM are: Is the species characteristically single-stemmed or multi-stemmed? What are the selection criteria, if any? Do plants regenerate after stem cutting or not? Does this vary between sites or with stem age/diameter? Does the species have multiple uses and do these uses affect recruitment by exploiting different stem size classes within the same population?

Photo 8. *Juniperus procera* stand on Mt. Elgon, Kenya: a species reproducing primarily by re-seeding.



## **Box 1: Characteristics across a continuum: reseeders and resprouters** (from Cunningham, in press).

### **RESEEDERS**

- ⇒ examples are common in the Proteaceae, Pinaceae, Ericaceae,
- ⇒ regenerate from seed, some maintaining canopy seed-banks ("serotiny");
- ⇒ are single-stemmed, not multi-stemmed. Examine smaller shrubs closely. Some reseeders are single-stemmed, but branch off close to the ground, giving the incorrect impression that they are multi-stemmed reseeders.
- ⇒ do not resprout when the stem is cut;
- ⇒ usually are self-pollinated or have diverse pollinators;
- ⇒ vulnerable to extinction if dependent on specialist pollinators or seed dispersers;
- ⇒ seeds often germinate faster than those of resprouters;
- ⇒ produce abundant seedlings (a large "seedling bank");
- ⇒ have higher growth rates than resprouters, as they allocate nutrient resources into growing upwards, rather than into underground storage organs. As a result, reseed species in a particular vegetation type tend to be taller than resprouters.
- ⇒ most are short-lived compared to clonal resprouters;
- ⇒ often are habitat specialists (wetlands, moist montane sites, cool temperate forests);

### **RESPROUTERS**

- ⇒ maintain "bud-banks" rather than seed-banks, regenerating clonally by sprouting rather than from seeds;
- ⇒ often multi-stemmed, some shedding stems as they get older;
- ⇒ produce new stems from buds which are above or below ground level (basal or upper trunk sprouting);
- ⇒ cut stems show obvious signs of resprouting (but be careful here: resprouting vigour declines when trees are cut low down, and with tree size or age);
- ⇒ may have large underground storage organs (rhizomes, tubers, ligno-tubers) or lateral runners (eg. many forest lianas);
- ⇒ recruitment from seed is infrequent and irregular;
- ⇒ may be pollinator limited, but can still maintain long-lived clonal populations consisting of a genetically identical clonal organism (the genet) which is made up of ramets, sprouted from buds, each of which has the potential to grow and reproduce as an independent, individual plant.
- ⇒ few seedlings in the population, most small plants are ramets;
- ⇒ grow slower than reseeders, as they have to put resources into underground storage organs and into protection and production of buds.
- ⇒ usually generalists, found in a wide variety of habitats, rather than habitat specialists.

Regeneration after stem harvesting can be from seed or re-sprouting or both. Stem removal of single-stemmed plants can reduce reproductive output of the species population, but this is less the case with multi-stemmed plants where several stems remain due to selective harvesting or where rapid re-sprouting occurs. Intensive harvesting of seed, flowers, stems or roots has very different effects on reseeders or resprouter populations. Distinguishing reseeders from resprouters is not possible directly from herbarium specimens and has to be done in the field. Ethnobotanists have an advantage in this, as they work in the field with resource users who often have valuable insights into how various tree, palm or shrub species respond to fires or other disturbance or to stem removal when they been cut for local use.

#### **Why is this important in a wider context?**

Where the objective of timber and non-timber forest product (NTFP) use is either economic or ecological sustainability, it is important that these ecological factors are taken into account. This is crucial, for example, where JFM or multiple-use management systems are proposed for national parks or protected areas set aside with the primary goal of maintaining habitat and species diversity. Achieving these goals requires an understanding of ecological processes as well as socio-economic ones.

An example given in August 1994, during a field workshop in the Babati district of Tanzania, was the decision supposedly "taken by the communities" to exclude fire and cattle from miombo woodland. This is a decision applicable to closed canopy forest, but not to miombo woodland, where natural fire frequency is 1-3 years and where cattle/wildlife are an important economic use of miombo woodland. Second, the approaches taken to community management of miombo woodland are also being promoted in dry Afromontane forest patches at the edge of the Rift Valley, as if they were the same vegetation types. In each case, inappropriate resource management recommendations are being made, due to an apparent lack of understanding of ecological principles. In addition, rather than a collaborative approach between the state forest department and the local community, which has been the Indian JFM model (where the community harvest NTFPs and get 20% of the revenue from auctioned timber managed by the Forest Department and cut on a 15yr rotation), Tanzanian forest department local staff and forest guards have now been excluded from any control over the exploitation of miombo woodland resources and are reduced, as one forester in Babati said "to

carrying polythene bags [for tree seedlings] from Babati town to the local office".

In summary, JFM has led to successful co-management systems in several cases - but it does need to be applied with caution.

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### **Comparative analysis: searching for a matrix for analysing different situations**

**Vasant Saberwal, Rob Wild and Gary Martin**

A comparative analysis group was formed during the workshop and had as its principal objective the identification of key factors that might influence the success or failure of Joint Forest Management programmes. Table 1 (page 11) is the result of discussions within that group.

We thought that some form of comparison of JFM across political, cultural, economic and ecological contexts might elucidate key factors responsible for success or failures in particular JFM initiatives. Rob Wild first drew up a list of criteria likely to influence the functioning of JFM programmes. He tried to make a comparison, using these criteria, between the situation in West Bengal and Bwindi National Park, Uganda. Rob and I (Vasant) discussed these criteria briefly, then sat down with Gary to come up with the final list given below. The comparative information on Bwindi and West Bengal remains that provided by Rob. The process of trying to draw up a comprehensive list was illustrative of the value of making such comparisons, for a number of tangential themes distilled out as we worked. Each of us works in different cultural, ecological and political contexts. Each of us has a different professional background. In a sense we represented some of the diversity that the workshop sought to bring together in the first place.

The most obvious outcome of the exercise was the realization of the fact that such an exercise must necessarily be multidisciplinary and multi-cultural. Even given the preliminary nature of the list we drew up, there is an obvious need for inputs from a range of disciplines, including anthropology, sociology, economics, ecology, and others. Equally, the creation of such a list should be based on inputs from all cultural groups likely to be influenced by a JFM programme. Thus while constituting an evaluative team or one assessing the potential of initiating a JFM programme in an area, care needs to be taken to ensure that the team is both multidisciplinary and multi-cultural.

Table 1 is an example of factors used during the workshop to compare different sites. We are sure there could be other criteria, and, as Gary outlined in his presentation, this list is likely to grow as people attempt such comparisons. In turn, this list is likely to be classified and subdivided into divisions other than the ones we have suggested. In other words, this is a suggestion of what an initial comparison might be based upon, and should be elaborated as comparative cases come to light.

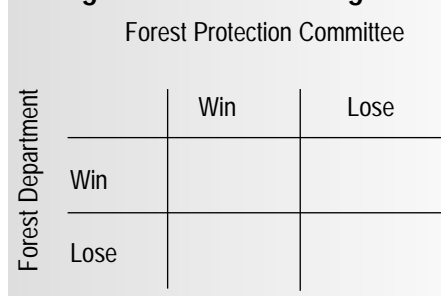
*What might such a list be used for?*

Primarily for two things: to evaluate existing JFM initiatives, and to assess the potential success of establishing a JFM initiative at a new site. Further, we see this as a circular process, in which criteria used to evaluate a JFM project become part of a growing list used to assess the potential of future JFM projects, and in turn to evaluate existing JFM initiatives.

Finally, we attempted to construct an overarching framework by which one might describe or analyse the conditions under which a JFM project originates, and progresses over time. Let us imagine a four-square box, with the Forest Department (or analogous state elite) on one axis and the Forest Protection Committee (or analogous community institution) on the other axis. One can think of the two being in win/lose situations, and so we have four boxes, as shown in Figure 1.

Under what win/lose combination will the state elite and local community come together to jointly manage a forest (or any other resource)?

**Figure 1. Win - lose diagram**



**Table 1. Contrasting and comparing factors affecting joint management in West Bengal, India, and Bwindi, Uganda.**

List of criteria	Range of responses	West Bengal	Bwindi
<i>Site features</i>			
Intensity of use	Low - High	High	Low
Site integrity	Low - High	Low	High
Biodiversity	Low - High	Low	High
Cultural diversity			
Site purpose	Description	Production forest	Biodiversity conservation
Status	Description	Reserved Forest	National Park
Resilience	Low - High	High	Low
Size	km <sup>2</sup>	Extensive	330 km <sup>2</sup>
<i>Community</i>			
Cultural diversity	Description (number and size of groups)	Several tribal communities in West Bengal	Bakiga 70%, Bafumbira 25%, Batwa 5%
User groups		many	many
Population density	People/km <sup>2</sup>	<40km <sup>-2</sup>	100-350km <sup>-2</sup>
<i>Institutional criteria</i>			
Institutions	Listing	Forest Department, Forest Communities, NGOs	Uganda Wildlife Authority, local NGOs, local governments (LCs)
Conflict levels	High - Low	Currently low	Low
Methods of estimation	Description/PRA/ planning	PRA	Meetings, surveys of households and in the forest
Institutional capacity	High - Low	High	Low
Community institutions	Good - Bad	Good	Good
Segmentation within the community	High - Low	Low	Low

Thus, ten years ago in West Bengal, it was a lose-lose situation, with both the FD and the communities suffering because of the absence of any protection to the forests. By co-operating with each other, rather than one trying to impose the law, forest protection increased dramatically, and both the FD and the FPC moved into a win/win situation. However, with the imminent harvesting of the sal forests in 1995, one can imagine the situation changing, such that the FD could see itself in a win position and the FC might find itself in a lose situation. Should that happen, protection by the FC would cease, and regeneration return to the Pre JFM levels. The JFM initiative could move once again, to the box it started in, with both the FD and the FCs in a lose/lose scenario.

Such a win/lose analysis contrasts with the first, criteria-based analysis we presented above. In the criteria-based analysis, we suggested the use of a detailed list of factors that might influence the successes of JFM initiatives. In a sense, such a list compromises the nuts and bolts approach, which examines the actual functioning of a JFM program, as well as the specific political, ecological, cultural and social factors that influence the working of such a programme. It tries to identify key factors that might be potential loci for conflict, factors that need to be dealt with prior to setting up a JFM programme, or monitored in an on-going initiative. The matrix approach allows a more over-arching analysis, providing, in a sense, a snap-shot view of the conditions (win/lose) under which the main participants are likely to co-operate. One might be able to use such a model to predict how a particular JFM initiative might progress, should the win/lose situation of one or the other participant change over time.

To be cautious, participants suggested that there was no empirical evidence of how useful this type of analysis may be. What we did learn, however, was the value of contrasting two very different situations. The complexity of any one situation became that much clearer when viewed in the context of a totally different situation. It is for this reason that we think that there is value in attempting such an analysis.

What participants in this section of the workshop were unaware of at the time was the extent to which the "ingredients" for successful (or unsuccessful) community-based natural resources management had already been identified in studies by Eleanor Ostrom (1990) and Robert Wade (1987).

## **Conflict resolution**

Identifying conflicts pertaining to resource use and the reasons underlying these conflicts is probably the first step to Joint Management. A

conflict can be defined as a misunderstanding or a disagreement between two or more parties. Conflicts are usually based on incompatibility of needs, disagreement in terms of opinions, internal values, interest, actions, goals and means to achieve goals. Conflicts give way to physical violence, coercive methods to the detriment of one party, argument, non-cooperation or indifference. Situations of conflicts are common features to all human societies, and conflict is a universal characteristic of human nature, the same person being sometimes in conflict between one state of ego and another.

Among the situations where conflict arises is the case of natural resource scarcity which affects human survival. In the field of forest management the traditional forestry approaches which restricted access to resources, to people for whom these resources were vital, has generated and still generates tangible conflicts in terms of thefts, fines, abuse of resources, poverty, and non-tangible conflicts such as psychological feelings of injustice, dissatisfaction, deprivation. The latter may also emerge between for example different social groups, sexes, races, nations, and religions. Value systems differ from one society to another, or between different social groups of the same society, according to factors such as gender, and age. Values may be put in two main categories:

- preferences not supported by formal rules and laws
- values based on rules and laws.

Values and norms express themselves through institutions, an institution being, according to Roy (1994), "a cluster of roles and statutes designed to meet a certain social need. It consists of the resources and roles required to pass knowledge and cultural traits from one generation to the next". In cases of conflict over natural resources, conflicts arise not only between individuals, but also between institutions which do not have a mutual appreciation of each other's goals and problems.

### **Approaches to resolving problems**

Conflict resolution in West Bengal has been based on the following ideas (for further details see Roy & Bhadra, undated):

- raising awareness of foresters through training in order to leave aside the shell of prejudices, develop active listening, become aware of body language (for example much attention is focused on the ways people sit, their gestures, postures and intonations) Photo 5 (page 6) is an example of what a forester should not do if he starts negotiations for resolving conflicts with villagers.

- starting to learn from villagers instead of telling them what to do.
- using participatory tools to involve the local community in the processes of learning about aspects such as the amount of resources used, the distribution, and problems of access.
- appreciating and nurturing grounds of common interest.
- generating recognition between institutions, and underlining similarities of their aims.
- establishing realistic, dependable and complete information on the resources on which conflicts are based.
- conducting group discussions with villagers in order to find consensus which correspond to the collective goal of villagers rather than individual goals.
- raising questions on real issues, seeking options or suggestions for planning together forest management and ways of implementing pragmatic plans.
- developing and monitoring a plan of action.

Conflict resolution processes in Bwindi, Uganda were based on three types of activity: trust building, initial resource assessment, and negotiations on multiple-use management.

Many conflicts about resources arise in crisis conditions. In India for instance the process of establishment of JFM has been boosted by a situation of crisis which enhanced large-scale felling of forests after abolition of the Zamindari (West Bengal Estate Acquisition Act, 1953, and West Bengal Land Reforms Act, 1955) in post-independence India. Forest exploitation which had previously been controlled by land-lords (Zamindar) supported by the British Administration were not under the same type of control anymore and rights of use of the population were no more respected as a situation of free access was established momentarily from lack of control. Forest degradation was also enhanced due to the influx of population from Bangladesh into South West Bengal as well as a general increase of indigenous populations.

In Uganda a similar scenario took place: post-independence civil war prevented progress in conservation activities, and during this period there was minimal protection, widespread poaching, encroachment and overuse of resources in all protected areas (Wild and Mutebi 1996). In these two cases it was too costly for the new forestry sector to apply an efficient control on protected areas and public lands. Slowly the idea of seeking the participation of local populations emerged, as is described in the historical background in India (see case studies in Chapter 3). Similar experiences developed in other parts of the world.

## Questions raised

Who sets the priorities during conflict resolution processes? Do the communities have an equal power of decision? Communities and foresters have different perceptions of the values and uses of resources and we may pose the question of how far this diversity has been documented? How much local-based knowledge is allowed to express itself?

## Conclusion

The most difficult thing to achieve in conflict resolution processes is the change of attitude which is required, both from the forestry sector, and from the inhabitants who may still have feelings of mistrust. Face to face interactions between the two parties is required, and creative tools such as drama and video need to be found and adapted according to each specific site. Transfer of conflict resolution processes, as such, is not always possible.

Recommendations and possible strategies:

- ⇒ Tools should be used only after gaining clear understanding of each situation
- ⇒ Self-sensitization is most important
- ⇒ Short workshops and manuals may help in training of conflict management tools
- ⇒ Follow up and process documentation of conflict management will help
- ⇒ There is a need for collecting bibliography and sharing information through networking

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# Methodologies and approaches

## Participatory approaches and planning

### Participatory approaches

In order to establish partnerships between the State (forest department) and the resource users, a step-by-step approach may be used for the planning process. The main idea is to establish a shift from protection to management of resources by merging the empirical technical knowledge of communities and the scientific technical knowledge of the forest departments. Eventually this will lead to better recognition of the needs and priorities of communities without negating the goal of maintenance of habitat and species diversity.

Participatory methods have been developed in different fields of activity. Their development has been noteworthy in agricultural extension services to facilitate group discussions using as far as possible visual techniques. The development of Joint Management plans in India is marked by the emergence of participative approaches, in particular the PRA (Participatory Rural Appraisal) techniques. A recent article by Chambers and Guijt (1995) describes PRA (Participatory Rural Appraisal) as "a growing family of approaches and methods to enable local people to share, enhance and analyse their knowledge of life and conditions, to plan and to act". Though RRA (Rapid Rural Appraisal) and PRA have many common grounds, PRA differs from RRA in that the latter is used by outsiders to gain information quickly and in a flexible way while analysis of the data is carried out outside

the area of study. "PRA field exercise is not only for information and idea generation, but it is about analysis and learning by local people. It is about building the process of participation, of discussion and communication, and conflict resolution" Chambers and Guijt (1995).

Participatory Rural Appraisal Methods have been used by many groups as a tool for assessing resources used by communities in a way which is a learning process between the researchers and the communities. PRA methods are also used for working out microplans for development at the village level. The two JFM Field Methods Manuals produced by the Society for Promotion of Wastelands Development and the Ford Foundation show the diversity of tools which are used in PRA to generate interdisciplinary data. The following sequence of activities may be obtained from these manuals:

- before initiating PRA fieldwork activities, all useful information from reports, case studies, bibliography on physical and human backgrounds of the area need to be reviewed.
- the first step may then be to establish with the community the historical background of resource use in the area, through historical transects, trend lines and time lines. Maps may be produced to show the forest extent at different periods, and lists of useful species available at different periods may reveal information about the decline of some of the products.
- community perceptions and attitudes towards forest and resources may be explored through ranking exercises (see Box 2).

### Box 2: Community forest perceptions and attitudes

extract from Poffenberger *et al.* (1992).

"The Ghodbar research team learned a substantial amount regarding community perceptions of the forest's environmental importance while conducting a forest product scoring exercise. The team began this activity by walking through a three year protected forest with village members and then holding an informal discussion under a tree. Rather than initiating the exercise by referring to the species list prepared earlier, the team asked village members about the relationship of the community to the forest and its importance. The ensuing dialogue elicited a range of social and environmental functions the community perceived the forest to play. The team encouraged the villagers to construct a typology of benefits which was given in the following order: peace, clean environment, protector of the water table, nest for birds, shade, green manure, fruits, fuel, grass, timber, and income earning opportunities. It is interesting to note the preponderance of social, environmental, and non-commercial values mentioned by the community participants. Although the Ghodbar team did not request the villagers to score the relative importance of each of these types of benefits, this may have generated a deeper understanding of their perceived significance."



- sketch maps of land use and resource use are useful tools which provide a visualization and rapid understanding of distribution of villages, forest lands, farm fields, markets, roads. This type of map (Photo 9) provides an opportunity to discuss resource use management issues, product flow, and conflicts over specific resources. Details of the distribution of resources can be superimposed on the same map.

Many other types of exercise are carried out with the community in a sequential way in order to progressively acquire a holistic view of the situation of resource use. Other types of exercise described in the J.F.M. Field Methods Manual (Poffenberger *et al.*, 1992) deal with subjects as diverse as: activity schedule and seasonal calendars, species inventories, ranking and scoring of forest products, produce volume flows, labour and capital costs, forest product prices, processing, marketing, analysing forest product benefits and cost. A main observation is that analysis of data with the participant community is of prime importance in planning a joint management scheme with the community.

### Planning

Planning of project activities as such needs to go further than the phase of understanding the situation or resource use through PRA methods. Regarding planning, the following ideas were discussed during the workshop at Kharagpur:

- A broader geographical approach is preferable as opposed to the isolated village approach. An area may also be selected because of its relevance for biological conservation, or for social reasons for example because specific resources are endangered which are vital for sustaining livelihoods.
- Once a site has been selected, the second step consists in assessing with Participatory Rural Appraisal (PRA) methods, the needs and priorities of the communities, qualitatively and quantitatively, the different user groups (men, women, specialists, "outsiders" to the village), the state of tenureship of resources (land, forest), local village institutions and authorities controlling resources still existing or which existed.
- Groups such as NGOs are currently working as facilitators at the interface between State officers and communities in the planning process in order to facilitate communication and negotiations, and to diffuse secular attitudes. They also make the link with scientists and academics, who bring in methodologies for making inventories of resources, assessing the social and ecological sustainability of resource use.



Photo 9. Drawing resource use maps on the ground, Bwindi, Uganda.

- Long term monitoring of the impact of harvest systems on the conservation of biodiversity requires ecological assessment methods and approaches which may vary from one site to another.
- Change may be required in institutions both in the forest department sector and at village level. Old institutions may be rehabilitated or new ones created. NGOs may here play a role in developing skills in the village community and also facilitate the transfer of information from top to bottom. For example, in West Bengal, work was carried out with Forest Protection Committees at the village level, in close collaboration with Panchayat situated at the district level. The horizontal spreading of successful experiences to other communities lies in the co-ordination of grassroots workshops and training programmes which act as multipliers. New bodies, such as associations of village committees, may be needed to deal with various matters such as lobbying, and marketing chains.

### Policy and institutional level

In order to secure usufruct rights to communities, changes are often needed at a policy level. Co-operation between NGOs, academics, and communities for lobbying at the State level may give positive results as has been the case in India, in order to legally empower communities to use and protect the forest. Joint management implies having a clear legal background, because long-term security of rights plays an important role in the way the terms of the negotiations are respected.

- It has been argued that the budget of forest departments should be flexible, so that budget may be reallocated to other areas of activity according to the new management plan. Transparency and accountability of

financial and management records should be available at all levels.

- Changes in decision making are also induced by the change of perspective related to joint management. For example, forest guards staying near the villages need to have greater power for making decisions which were initially taken at the top. However, a record of what is happening is required at all levels.

### Conclusion

Planning is site-specific. The most difficult aspect of planning is to obtain shifts in power and decision-making systems which fit into existing structures such as forest departments. Moreover, the forest department is not a rural development department, while Joint Forest Management addresses development issues. Good microplanning requires a lot of time and funds. Planning might shift from its initial focus and get very diffused. There is a need for constant readjustment of the objectives, according to advances made and the results of the monitoring of biological and socio-economic sustainability. Increasing population creates problems of demand versus supply. Introducing new technologies may create some flexibility, but requires capacity building. A good knowledge of commercial trends and circuits is very useful for planning. Evaluations and monitoring require processes which involve participation at all levels. Working with traditional decision-making institutions also introduces biases in terms of equity because they usually do not represent in an equitable way all user groups (for example women, lower classes, ethnic minorities), some of which may be neglected. Whose values are being respected - the high diversity of cultural and social values are based on different perceptions of uses? - What is useful, and for whom? Joint Management planning introducing new methods should take into consideration local social processes.

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## Monitoring ecological and social sustainability indicators

### Ecological indicators

Joint management schemes should be based on a good knowledge of resource availability, vulnerability, ecology and turnover. Ecological monitoring is required during the negotiation processes, that is through participatory approaches with the community, and preliminary ecological studies may also be required to obtain accurate estimates.

During the workshop, Dr.N.H. Ravindranath gave some guidelines of methods which could be used to assess the diversity and amount of NTFPs available, estimate the seasonality of NTFP flows, the production and level of extraction, and estimate the impact of local practices on regeneration. These methods are based on conventional ecological methods such as species distribution, density per hectare of trees, shrubs, climbers, grass productivity, canopy cover, vegetation profile, use of quadrats and transects, and analysis of biomass (DBH, height). Plots are selected according to different types of management systems used by the community (for example protected plots, grazing area, firewood collecting area). These methods are completed by a systematic record of volumes, in metric and traditional units, of products extracted according to season. Household approaches may be used, with trained people from households filling data sheets weekly, monthly or at specific seasonal rhythms.

A major problem lies in the difficulty of mimicking local practices. For this reason the simultaneous use of four different approaches to estimate availability and harvest flow of NTFPs is recommended. Table 2 (page 17) is a summary of the four methods recommended by Dr. Ravindranath for cross-checking ecological field data.

During the workshop, participants were divided into three sub-groups to investigate the use of firewood in a village, using ecological direct measuring, social surveys and PRA. This quick survey showed that the three methods reached similar results and are therefore quite reliable.

Studies on NTFPs are now carried out in many development and conservation projects around the world. In India, the book dedicated to "The role of non-timber forest produce in village economy" published by IBRAD (Malhotra and al. 1992) develops a methodology to determine the volume, flow and varied uses of NTFP along with the total income flow to the forest communities. "Sustainable Harvest of Non Timber Plant resources in Tropical Moist Forest: an Ecological

**Table 2. Estimation of products used and quantities**  
(Table provided by Dr.N.H. Ravindranath, Kharagpur Nov. 1994)

Method	Main characteristics	Advantages and constraints
Conventional social science surveys	Based on "memory of quantities", questionnaire survey	Seasonal variations are difficult to recollect; quantification is difficult
P.R.A.	Semi-structured interviews with: key informants, group interviews, sampling of households, participate in gathering	Seasonal variations can be captured, methods are flexible, community consensus may be obtained
Direct measurement	Local trained investigators mimic the harvest and transportation	Very intensive, continuous presence of investigator needed, accurate estimation, expensive method
Daily diary kept by local students, teachers, collectors	Daily entry in notebook	Accurate data, training of local personnel, payment is an incentive for participation, periodic monitoring is needed.

Primer" (Peters 1994) published by BSP (Biodiversity Support Programme) is a manual which may be considered as "a toolbox that provides simple and effective tools for the what and how of determining sustainable harvest level of NTFPs in tropical moist forest". In Uganda, recommendations for the use of resources in multiple-use zones around Bwindi Forest were based on Rapid Vulnerability Assessment techniques (Box 3).

The FAO Non Wood News disseminates ideas and information on latest trends and activities in the field of NTFPs. The FAO has also published since 1995 a series of publications dealing each with specific non-wood forest products (medicinal plants, gums and resin, edible nuts etc.).

Ecological monitoring indicators found to be very useful by participants at the workshop are given in Table 3.

Indicators are site-specific and need to be determined for each situation according to social, economic, ecological and political issues. For example in India, the visit to sal (*Shorea robusta*; Dipterocarpaceae) forests showed that this extremely resilient species regenerated into

### Box 3: Factors considered in Rapid Vulnerability Assessments from Cunningham (in press)

SITE	
<b>Ecosystem Characteristics</b>	<b>Social characteristics</b>
habitat diversity, life form diversity, species diversity, size	population density, community cohesion, development level
SPECIES	
<b>Species ecology</b>	<b>Species use</b>
life form, abundance, distribution, habitat specificity, persistence, growth rate	parts used, demand, age/size class selectivity, quality, seasonal collection, traditional conservation practice, subsistence/commercial use, availability of alternatives

monospecific stands where other native species such as mahua (*Madhuca indica*; Sapotaceae) and some *Terminalia* species are now absent, possibly due to very bad soil conditions and to large-scale felling which took place just after independence. Furthermore the actual management system, a 10-year coppicing rotation cycle of sal, will probably not enhance the regeneration of species such as mahua which are slow growing trees. A consequence of this is that local people plant mahua trees in adjacent cultivated

**Table 3. Ecological indicators**

Indicators	Methods	Location
Biodiversity	Monitor valuable species, Community biodiversity monitoring, area cover (aerial photos)	Forest protected areas, forest outside protected areas.
Impact on individual species caused by human harvest	Inventory, use of harvest and control plots	Comparison of harvested vs protected sites
Alternatives provided	Tree cover outside a protected area	Adjacent conservation area

areas. As was emphasized by Tony Cunningham during the workshop, one may talk about economic sustainability for regenerated sal forests, but he considers that ecological sustainability is doubtful, since most vulnerable species of these forests are no longer regenerating (see chapter on Ecological issues, page 6). The success of JFM in West Bengal, through community protection, could be explained on the basis of the large demands from landless farmers who rely on NTFPs, in particular sal leaves as a main source of income (Photo 10).



Photo 10. Sal (*Shorea robusta*) leaves traded at Kharagpur market.

In Bwindi, where the gorilla population is a major issue of conservation importance, the movements of gorilla groups need to be monitored so that the multiple-use area may be closed when used by gorillas (Wild and Mutebi 1996).

#### **Social and institutional indicators**

Monitoring ecological indicators cannot be considered a sufficient exercise in systems where the central actors are people with economic needs and specific social and institutional backgrounds. As we have seen in the case of the Rapid Vulnerability Assessment method, the use factor is important to determine the level of vulnerability of species or ecosystems. Before establishing joint management plans, thorough surveys on socio-economic status, market flows, and systems of control over resources may be useful to identify the main user groups, and conflicts over resources. Though this can be done through conventional socio-economic surveys, participatory approaches may be useful at the starting stages, for establishing joint planning. Once joint management planning has been achieved it is assumed that the population will benefit from this new situation, and social and

economic impacts should be monitored in order to analyse changes.

Social indicators of "success" or "failure" of joint management may show a high degree of complexity, as the following questions raised by Melanie McDermott, one of the participants to the workshop, show.

What is success? According to Melanie, the definition of success is value-laden and relative. Possible definitions of success should consider the increase in well-being for the poorest social groups without generating major social conflict or causing unacceptable losses for others. Levels of success should be evaluated according to standards of relative poverty and well-being as defined by different actors or social groups. For example the community standards or international standards (nutritional level, infant mortality and education) may diverge.

Most difficult is to let different social groups define "success" for themselves; their definitions must also be operationalized so that they can be monitored.

In order to evaluate the impact of joint management policy or projects, these issues should be resolved, even if only instrumentally for a particular case.

Guidelines given in Box 4 (page 19) by Melanie McDermott also show that monitoring social and economic indicators requires a cautious approach.

#### *Changes in resource management and marketing and associated social impacts*

Triangulating among PRA, interview and direct measurement methods will also allow the following set of indicators to be monitored.

Main questions could be as follows:

- Who went to the forest then (before co-management implementation) and who goes now? What management activities do they undertake there? (Results may indicate that certain uses and/or user groups have been excluded).
- What products and quantities are being extracted or harvested in much smaller quantities then versus now ?
- Are certain products being marketed for the first time, or in much larger quantities than before? How have prices changed for collectors and traders in marketed products?
- If some products are either being harvested in much smaller quantities or not at all, or are being marketed to the extent that subsistence uses are being displaced, what, if any, are their substitutes? Who is availing themselves of them, and at what cost? What are the con-

## Box 4: Monitoring social indicators of "success" or "failure" of co-management or joint management

Success for whom?

Who participates?

We should consider among other things:

- Membership of management committees and the like (such as FPCs in W. Bengal)
- Attendance at management meetings or other venues in which resource management decisions are made (for example for resource management plans as required for co-management implementation)
- Who speaks at such meetings?
- Who approves or objects to the outcomes of such meetings or other decision-making processes?
- Who has knowledge and understanding of them?
- Do these "actors" include women, the landless, ethnic or other minorities, illiterates, youth, elders? All the different user groups of various forest products/natural resources?
- What is the relationship of various social groups to the government partner(s) (such as local government, Forest/Wildlife/Park Departments), in the co-management relationship?
- Use PRA techniques (for example social mapping, wealth indexes & ranking) to identify the local bases of differentiation (both in terms of wealth & power and in terms of degree of use and dependence on different sets of forest products) and the nature and membership of different social groups within this community and their relationships to outside stakeholders.
- Once the groups are identified, the extent of their participation in and derivation of benefits from the co-management policy can be assessed by:
  - PRA exercises with relatively homogenous groups, and by
  - Interviews. Main question: Are you better or worse off than before the initiation of this policy? How and why or why not?

sequences for those who do not have access to substitutes?

- How has the ownership of forest products or other concessions, licenses or permits changed?
- Who processes, buys and or sells forest products? Are these roles now filled by different groups (women vs. men, migrant vs. indigenous residents)? Who is making profit from trade in forest products?

It is possible that while formal rights to forest products have changed, the social relations of production and exchange or patterns of surplus extraction have not, or have not changed in a direction beneficial to user groups within local communities. In other words, formal relationships (including with the government agency acting as the co-management partner) and rights (such as concessions) may be less important to social welfare than relationships with traders, suppliers of credit and the like.

### *Changes in the division of labour and intra-household relations*

- Are more indigenous community members and, or migrants finding employment either in non (forest) resource-based areas or in distant places?

- How are labour patterns changing and to whose gain or detriment?

- How has the composition of the local community changed?
- How have intrahousehold relationships changed (among genders and generations)? Have the allocation of income and or the rights of resource control and inheritance changed?

### *Changes in social institutions*

- Have traditional institutions been incorporated into co-management processes? If so, have old patterns of equity (or the lack thereof) been reproduced?

If new organizations have been introduced, which functions, if any, of traditional institutions are they replacing? How does the membership of the new organizations differ from that of the old, if at all (for example tribal elders)? What status, power and welfare have resulted?

- What sort of changes might be commented on or observed in local cultural expression (such as stories and songs)?

The researchers' monitoring team should try to understand and document local land and tenure systems, tenurial security relative to out-

siders (government, migrants), channels of access to and control over resources and markets (such as harvesting concessions, licenses, relationships to traders, and sources of credit) and how these may be changing under the implementation of co-management policy. Who wins and who loses?

The team should be aware of the possibility that a local or external elite (in terms of either wealth or resource control, education, ethnicity, "acculturation" or other factors) may be able, under a co-management arrangement, to gain privileged access to the state, and thus have yet greater access to resources (such as government subsidies, and concessions) relative to other community members.

#### *Other changes*

- Have the rates of occurrence of violation of (forest) laws and acts of resistance (such as burning or uprooting plantations) changed with the implementation of co-management?

Indicators for monitoring institutional and economic changes as given in Table 4 (below) have been indicated by a group of participants to be particularly useful.

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**Table 4. Monitoring institutional and economic indicators**

Category	Indicators	Method (Approach) Location	Location	Source
INSTITUTIONAL	Community attitude	PRA and interview surveys	Different distances for source	Adjacent communities, FD, NP
	Changes in size of resource e.g. forest	Maps, aerial photo, species abundance		
	Conflict between Forest Department (FD), Nature Protection institutions and community	Map sites of conflicts e.g. logging, fires	Forest catchment area	
	Extent of policy implementation	Identify key individuals supporting JFM	FD, NP staff	
ECONOMICAL	Price changes in NTFPs	Market surveys	Markets	Cities, towns, villages, local markets
	Percentage of people engaged in NTFPs industry	Interviews, market surveys, PRA	Adjacent communities	
	Volume of NTFPs used (consumed) by local communities	PRA, interview, surveys	Adjacent communities	
	Changes in household incomes	PRA, interview, surveys	User communities	
	Changes in quality of NTFPs	Direct observation, PRA, interviews	Farmers, primary producers	Markets

## Approaches and methods in marketing and trade

### Marketing of NTFPs and management issues

Anthony B. Cunningham

Developing a predictive understanding of whether harvesting is likely to be sustainable or not depends on interfacing information on biological factors influencing resilience or vulnerability to harvesting with the economic and socio-cultural factors that drive demand. Understanding these social and economic processes is as important in selecting species for monitoring or management. One of the strongest influences on increasing intensity and scale of harvesting occurs when local or indigenous peoples shift from a subsistence to a cash economy, as this strongly influences factors such as resource tenure and the intensity and frequency of harvesting.

From a resource management perspective, there are several reasons why marketing and sale of wild plants should be the focus of ethnobotanical surveys leading to well-designed JFM systems. First, commercial trade or barter reflect demand. If demand for a species or resource category (such as fuel, basketry fibre, herbal medicine) is high, then these species or resource categories will be sold in many market places. Conversely, a species or category of plant use in low demand would be less common in market places. The most useful species will be frequently sold by more sellers in many more markets than species for which there is little demand. Systematic market surveys therefore provide a useful way not only of classifying the species on sale, but of arranging them into hierarchical levels which reflect their relative popularity and usefulness - with one proviso: some of the most useful and popular species no longer feature in markets, due to over-exploitation. Second, price reflects resource supply in relation to demand. Locally common species are rarely sold in local marketplaces unless it is for bulk-sale for processing or retail elsewhere. When a popular species is scarce, whether it is due to geographical distribution or over-exploitation, then trade occurs from resource-rich areas to the places where there is demand, but little or no supply. As scarcity increases, so does the price. When alternatives are not available, the higher the price, the greater the incentive to go further and further afield for a scarce species.

Improved roads and cheaper transport reduce this cost. As a result, internal marketing systems change in two ways, each shortening the marketing chain. First, cheaper transport enables rural

people to get to larger centres to sell their products. Second, better roads improve the access that outsiders have to more remote plant resources. Outsiders frequently have more buying power than local people in remote, resource-rich areas. If this takes place and resource tenure starts to break down, then this hastens the scramble for resources in high demand.

Price also stimulates a shift from high density, resource-rich patches to low density, less accessible or marginal areas where resource densities are lower. Where alternatives are available, this continues until what is termed price capping occurs, where prices reach a point where other alternatives are cheaper. For highly species-specific uses, such as traditional medicinal plants, prices continue to rise because only that species will suffice in a traditional remedy for symbolic or medical purposes. This stimulates a trade over very long distances. In between these is a situation where there is a ripple-effect, where over-exploitation of one species results in a shift in harvesting onto other species. It is becoming increasingly difficult and expensive to obtain aromatic bark of the Afromontane forest tree *Ocotea bullata* (Lauraceae) for the traditional medicines trade, for example. As a result, bark of two forest trees in the same family (*Cryptocarya latifolia*, *Cryptocarya myrtifolia*), each with a similar bark aroma to *Ocotea bullata*, are substituted and sold by urban herb traders as the real thing.

Third, the shift from subsistence use to commercial harvesting, with commercial demand from towns or cities in the case of regional trade or for export in the case of international trade (such as for rattan, medicinal plants, selected fruits, and oilseeds), provides an incentive to overturn customary controls of resource use. Harvesters are often people with low incomes and few resources in reserve. The temptation to "mine" rather than manage the resources is high, particularly when there are many other harvesters as a result of high local unemployment or where resource tenure is weak.



Photo 11. Workshop participants looking at herbarium samples displayed at the Rural Development Centre, IIT, Kharagpur.

A result is that high quality plants (taste, fibres, medical effectiveness etc.) with the greatest value to local people, or those with national/international potential for horticultural/industrial development as new crops, are those most likely to be over-exploited.

In some cases, commercial harvesting strengthens resource tenure and the incentive to conserve individual plants. Commercial sale of wild fruits for example, maintains the incentive to conserve wild fruit-bearing trees in parts of Africa where development of a social stigma against gathering wild fruits as a food resource is undermining the "traditional" practice of conserving wild fruit trees. The "use it or lose it" philosophy is behind the concept of extractive reserves in Latin America and JFM in Asia, which has been strongly supported by several conservation and development agencies. In other cases however, commercial harvesting can lead directly to depletion of economically and culturally important plant resources. As transport systems reach further and further into remote resource-rich frontiers, catalysing settlement, clearing and commercial harvest, this problem is likely to increase. Improved transport networks strengthen the link between rural resources and urban demand. They also result in an influx of outsiders, frequently disrupting traditional resource tenure systems and increasing the scramble for economically valuable resources.

which a management plan would be particularly useful. Market studies reveal ways people rely on resources.

One way to work on market chains is to do market surveys and trace back the resources to the sources. This reveals a hidden economy, and in particular the role of different intermediates between the production centre and the market.

#### Monitoring

Aspects of market field surveys discussed by Tony Cunningham during the workshop:

- Rapid surveys are simple inventories of the number of species of medicinal plants or other forest resources sold on one market.
- Surveys of quantity of biomass harvested (small-large), harvest frequency (low-high) lead to a better knowledge of actual flow of a specific product on a market place.
- When looking at markets, a main issue lies in biological characteristics of the species which are being marketed and in the parts which are marketed. Such knowledge enables one to know whether these species are vulnerable or not.

Surveys based on local knowledge at the source area are cost-effective and give many insights into resource availability. At the same time, urban specialists may also have a good perception of scarcity. Cross-checking from both sides is relevant. When visiting the source area, morphological characteristics of plants harvested,

and harvesting methods deserve close investigation. For example, ringbarked trees will die very quickly and one can measure the percentage of bark which is being harvested (>10%, 10-25%, 26-50%, etc.; see Figure 1). This gives an idea of the sustainability or otherwise of the harvest system.

Transects made in collection areas show these different classes of damage. The same type of exercise may apply for roots.

- The shape of tree crowns reveal the amount of roots collected. Indeed there is a direct relationship between roots and different parts of the crown.

- In cases where flowers are collected, flowering rhythm of the species can be investigated and also impact on regeneration of this species.

- The monitoring of the thickness of bulbs and bark collected over a period of time may also show the trends and biomass collected and therefore also reveals whether a species is being over-harvested or not.

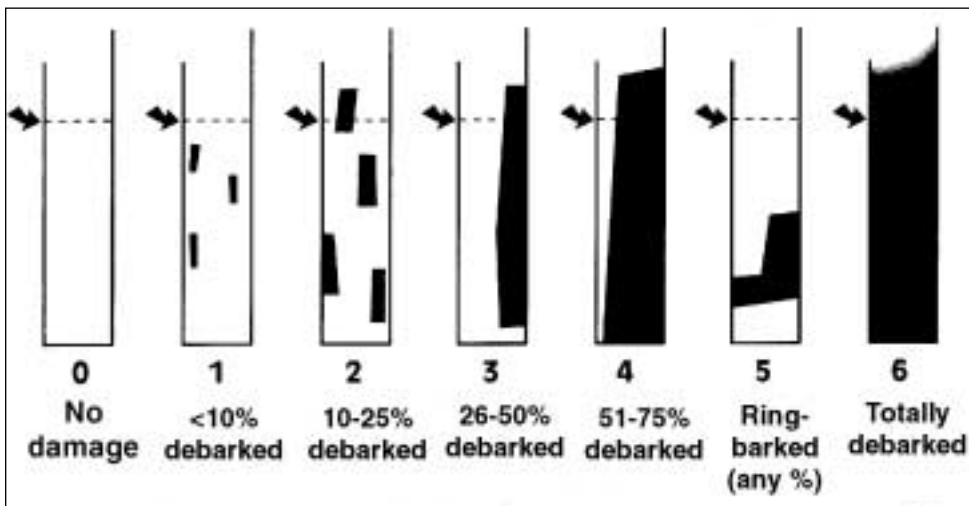


Figure 1. Categories of bark damage

#### Some methodologies

A good knowledge of market geography and marketing chains is required if a joint management scheme is to become successful. Market studies are useful before starting the joint management plan in order to trace the origin of marketed resources, the quantities of products being marketed, and therefore the key resources for



*Adding value in order to decrease pressure on resources?*

Tom Hammett, using a case study from Nepal, suggested methods of increasing the marketing power of producers. How can people learn on their market grounds? A participatory method consisted in getting farmers to make their own inquiries at markets about the price of their own product.

The best marketed species are generally the rarest species. The idea of a green label may be a way of regulating the marketing of scarce resources.

Tom Hammett gave some guidelines during the workshop on how to conduct a marketing survey which can benefit communities (see Box 5).



Photo 12. Non conventional energy press for mounding sal (*Shorea robusta*) plates at the Rural Development Centre, Indian Institute of Technology, Kharagpur, West Bengal. One of the key questions discussed during the workshop was how to launch viable enterprises of an appropriate size which do not keep people in low income activities.

The idea of suppressing middlemen so that producers may get more income is naive because the middlemen also need to make a living and would probably turn to other products if some are no longer available for sale.



Photo 13. Sal plates produced with non-conventional press at the Rural Development Centre, Kharagpur.

A main issue raised at the workshop is how to launch viable enterprises, having the right scale and which do not keep people in too low income activities. Moreover, any commercial enterprise approach within communities should take into consideration risks related to variation of international enterprise. Domestication of wild products may be a solution in some cases when technically possible. Landless people however, who are the usual collectors of NTFPs, may not benefit from this process of domestication.

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## Box 5: Guidelines for establishing a local level market information system for community managed non wood forest products by A.L. Hammett

### A. Pre-feasibility study

#### a. Assess request for marketing information assistance

1. identify need for increased market information by a local community group
2. determine whether there is or is not a formalized system for collecting, assembling, and disseminating market information at the local level
3. determine whether marketable products are (or will be soon) produced above the local consumption levels.

#### b. Establish partnership with local counterpart group at site

1. establish contact with potential counterpart groups
2. investigate feasibility of starting a working group focused on market information
3. develop working relationship with appropriate counterpart group

### B. Local situation analysis

#### a. Assess current collection and use of market information

1. identify and describe existing markets for local community level forest products
2. identify and describe existing (formal and informal) market information systems
3. describe current use of market information (type of information and its users)
4. assess the capabilities of the local people to use increased levels of market information to support their marketing efforts
5. assess the scope of system needed.

#### b. Assess local market information needs

1. identify and survey key informants including farmers, extension workers, and local leaders to determine what information should be collected
2. develop a profile of local market information needs (type and frequency of information; common products and markets).

#### c. Identify sources of market information

1. identify existing market information sources available at the local level
2. identify new market information sources
3. identify appropriate communication channels for market information
4. locate other organizations having relevant market information systems

#### d. Identify possibilities for institutionalization

1. identify mechanism(s) by which the system can be sustained without outside financial or other support
2. survey local leaders for possible ways to institutionalize system within existing infrastructure
3. develop an institutional framework
  - 3.1. determine possible linkages with other agencies to make system institutionally sustainable
  - 3.2. assess support system's needs
4. determine appropriate method(s) of financial and logistical support
5. identify local user group, co-operative or farmer association involvement opportunities
6. identify potential collaborating organizations.

### C. Setting up the system

#### a. Determine whether to operate within an existing system

1. assess existing organizations which collect and disseminate market information
2. assess possible linkages with or use of existing information systems

#### b. Develop market information collection procedures

1. determine approximate level of sophistication
2. determine suitable collection format
3. determine necessary collection logistics
4. determine appropriate collection channels

#### c. Determine appropriate procedure to analyse and process the market information

1. determine appropriate market information record keeping procedures to insure
2. determine appropriate market data storage format
3. develop appropriate data analysis techniques
4. develop appropriate information presentation methods

#### d. Determine appropriate information dissemination method(s)

1. select appropriate dissemination techniques (ie. dissemination media and location)
2. develop system of reporting so that group will be accountable to collaborating or supporting agencies

#### e. Determine needs for training system operators

- f. Determine appropriate extension activity to devise on either on use of market information. [Re-write this sentence]

### D. Monitoring and evaluation

#### a. Determine composition of evaluation team

#### b. Develop evaluation criteria

#### c. Conduct market information system evaluation

1. identify and survey the information users
2. appraise the appropriateness and the scope of data collected, its timeliness, and the availability of information to potential users
3. examine the system by interviewing farmers outside the system operating area
4. examine the system's operations
5. determine the sustainability of the system
6. assess the system's applicability to other sites
- d. Prepare evaluation report and disseminate to appropriate organizations and collaborated agencies.

#### Some suggestions

1. Protecting rare species in their natural environment is a way of preserving value. On the other hand if value is added for example by rearing or cultivating species, value falls on the market.
2. When large landowners cultivate some resources, prices on the market tend to fall. Poorer people may then need to harvest more from the wild to earn enough money. A problem of equity lies at the source and need to be solved first.
3. A way to give value to NTFPs is not necessarily through international markets.

New rules need to be drawn up which rely on local values of exchanges of services which fit into the social context. This may lead in adding valuebut not necessarily in terms of money.

# Examples of joint management systems

## Joint Forest Management in India

Extract from Malhotra *et al.* (undated)

"By mid-sixties vast tracts in the three south-western districts were denuded of natural vegetation. This led to acute shortage of fuel, fodder, food and other non-timber forest produce (NTFP) for the local communities. The bulk of the population had to seasonally, 4-6 months per year, migrate to other areas in search of wage employment. The denudation of forests resulted in erosion of soil affecting its water holding capacity and reduced biodiversity and decline of productivity of both forest and agricultural lands. The forest department lost all the sources of revenue, and instead had to spend a great deal in the maintenance of infrastructure and forest personnel.

The conventional measures of Forest Department (FD) became grossly inadequate even to protect regenerating Sal [*Shorea robusta*] coppice bushes (Palit, 1990). In this context it is of great significance to note that in a conference of the foresters of the West Bengal Forest Department (WBFD) observed while deliberating on "Problem of Protection" that *"effective forest protection is possible only through the co-operation of the local people and by meeting the needs of the local population without losing sight of the ultimate aims of scientific forest management in the region"*. It was also at this conference that for the first time in the history of the forest management in the country the idea of 'Joint Management of Forest' (JMF) was mooted as revealed by the recommendations made to the Government of West Bengal. The recommendations were: *"(a) to encourage setting up of local forest protection committees with suitable recognition and conferring powers of honorary forester on members and such other concession as may be made available; (b) to identify the needs of forest produce of local population, particularly where such communities are set up and meet their need before any sale to market through open auction is done...."* (Anonymous, 1972).

It is highly noteworthy that in 1972, Dr. A.K. Bannerjee, the then Divisional Forest Officer, Midnapore District, launched a most innovative project (on the lines of the above rec-

ommendations) called "Socio-Economic Project", in a cluster of 11 villages in the Arabari Block of the District. This approach involved eliciting local villages in the protection of coppicing Sal forest (as well as plantation of a few selected species) through the formation of Forest Protection Committees (FPC) in return for free usufructs of all non-timber forest produce (NTFP), first preference for employment, and a promise share in the net cash benefits from sale of short rotation Sal poles. Altogether 618 families participated in the project, protecting 1,272 ha of forest lands.

Based on the overwhelming success of the Arabari experiment, the Joint Management of Forest Lands programme gradually spread to neighbouring areas and received increasing support from the Forest Department and NGOs."

## Case study from Bwindi Impenetrable National Park (BINP), Uganda

by R.G.Wild and J. Mutebi

National parks in UGANDA are surrounded by high population densities, resource-poor farmers who depend on the forests as an important contribution to their livelihoods. Restricted access to forests over the last eight years has led to considerable bitterness and hostility towards the park authorities and the parks themselves. To improve park benefits to adjacent communities, Uganda has made a progressive decision to allow resource use from within its national parks. The principle of the management at Bwindi Impenetrable National Park has been to establish low impact, specialist resource use from multiple-use zones inside the park and provide substitutes to high impact, general uses of forest resources on farms outside, in what is called the sustainable development zone. Cunningham (1992) recommended that high volume general uses, where a wide range of species are harvested by all community members in large quantities in this densely populated landscape, should not be considered for resource use. Community needs for these resources should be met by on-farm substitution. Specific uses, practised by specialist resource users, using small quantities of selected species, were recommended. Medicinal plants and basketry species were the main resources considered.

Negotiations for Joint Management had three main purposes:

- Trust building
- Final selection of resources and areas
- Production of a joint management agreement

Trust building took place in group sessions encouraging wide debates and allowing people



Photo 14. Conflict resource management: an example of the use of the flanel board to prioritize resources at Bwindi, Uganda.

to express their anger against the national park. A flannel board with pictures depicting resource use was an important tool to facilitate the expression of frustration in a structured way (Photo 14). Group sessions also included special sessions on community events and forest history, resource availability and population trends.

Various methods have been used for the final selection of resources:

- Rapid Vulnerability Assessment, which examines ecological, social and use factors, and assesses where the species lies on a gradient of potential use (for more details see Cunningham in press),
- community workshops using PRA techniques such as resource identification and ranking, ground mapping of forest and villages, resource flows,
- resource user interviews with nominated users,
- product surveys, during which individual products were quantified and demands per household calculated,
- market surveys: markets were visited to examine the forest resources that had entered the commercial trade. They provided valuable insights on the economic activities of the local communities and impact on the forest.
- forest surveys: these consisted in visiting parts of the forest with local resource users,

locating and estimating the abundance of species in demand. Potential sites for multiple use were identified.

- participatory plots: permanent and temporary forest plots were established at resource sites. Plots were set up and recorded with resource users. Species identification of trees in the plots was recorded, using local experts identifying using local taxonomy. This was supplemented by the collection of herbarium specimens.
- participatory harvesting trials: trial harvesting was carried out with specialists or nominated users, often in plots. Material harvested was weighed and measured. Information was gathered about the number of items made or people supplied from the harvested quantity. Field and summary forms were developed to assist with the collection of data. Once summarized, a team of people took the decision as whether to use the species. Species were put into categories, and a flow-chart used to help clarify thinking on the species to be used, and monitoring levels.

Joint management negotiations were conducted during workshops and aimed at identifying community management structures, and nominating resource users. A Forest Society was established, aiming at improving relationships with Uganda National Parks and on farm production of forest products. Finally, a Joint Management Agreement was signed between Uganda National Parks and the community, and a monitoring programme was laid out.

## Example from Nepal

Forest policies have been in continual change over the last 3 centuries in Nepal, moving from the period of the Gorkha Empire (1768-1846), when all forests were owned by the empire but remained relatively uncontrolled - and forests could be handed to individuals and institutions as a privilege - to the Panchayat system under King Mahendra who established the Forest Act of 1961 which included a provision for handing over the protection of forests to the newly-formed panchayats (village level institutions). In the 1980s, the Sixth Five-Year Plan (1981-85) emphasized community participation in the management, conservation and utilization of forest resources. The period of establishment of community forestry in Nepal is described in Box 6 (page 27).

## Box 6: Extract from "Participatory Forestry: the process of change in India and Nepal" (M. Hobley 1996)

"The decade of 1980s was an extraordinary period of experimentation with different forms of community forestry [...]. This array of diverse experiences gained its greatest focus in 1987, when the government undertook the task of developing a 20-year Master Plan for the Forestry Sector (MPFS). This placed greater emphasis on community forestry, with 47% of proposed investment to the forest sector in support of community forestry programmes. The Master Plan formed the basis for a draft forest policy in 1989, the first priority of which was to meet the basic forest-product needs of local people through community forestry and private planting. Several principles were clearly articulated to meet this priority:

- \* phased handing over of all accessible hill forests to the local communities, to the extent that they are willing and able to manage them
- \* entrusting the users with the task of protecting and managing the forests and receiving all the income
- \* emphasis on an extension approach aimed at gaining the confidence of the woodcutters and others, particularly women, who actually make the daily management decisions
- \* retraining the entire staff of the Ministry of Forests and Soil Conservation for their new role as advisers and extensionists.

[...] As project and government staff gained more experience there was a more general questioning of the underlying causes of deforestation. Several projects reappraised their interpretation of community forestry and began to look in detail at the communities and their existing forest practices. The evidence provided by several studies suggested that farmers are not ignorant but are quite capable of managing their natural resources. Farmers have not been wantonly destroying the forests and trees, but in many cases have preserved and planted trees on their private lands without any outside support. [...] This was a fundamental shift from panchayat or village-based forest management system as a unit for organization to user group forestry. [...] The user group as an organizing concept was formalized post-1990 in legislation and policy statements."

## Conclusion

This section of the Working Paper is an assemblage of discussions and ideas which emerged from the 1994 workshop (Kharagpur). It aims at giving a vision of the different phases which may lead to joint management experiences. It shows that a multidisciplinary approach is required, including ecological, social, economical and political perspectives, which requires long-term involvement and monitoring. The experience of the Indian research network speaks for itself. Building into existing institutions such as the Forest Department or village committees (panchayats) to create new institutional concepts, such as the user group concepts in Nepal and Uganda, are major challenges.

Joint management, community forestry, co-management or multiple-use zone system - this diversity of names highlights a diversity of situations. Site-specificity appears - whether it is ecological, social or political - as a major underlying principle of joint management. However, all these different experiences may gain from each other. The Ugandan experience, which is a case

of joint management of areas of very high biodiversity, is probably a situation not yet encountered in the Indian experience, which puts much emphasis on regeneration of highly degraded forests. However, protected areas and national parks also require specific types of joint management in India or Nepal, and the Ugandan experience, which is specifically about the people/parks interface, is a key experience in that field which it is to be hoped will help improve the people/parks interface in South Asian countries.

The different aspects which are discussed in this paper could obviously be developed in a number of different ways. However this patchwork also represents the reality of joint management, which involves being able to have an overall view of the different ingredients which make up a joint management scheme. The rest is very much a question of creativity, networking, and humanity, together with a good background knowledge of ecological and social sciences.

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The report documents and assesses five cases of afforestation programmes in India. It was carried out under the inter-regional research project on energy and rural women's work with the support of the Netherlands Government under the programme on Rural Women of the Rural Employment Policies branch of the ILO. Comparative studies have been cited from Peru, Ghana, Mozambique, India and Indonesia. This study is a policy-oriented effort intended to offer lessons and promote discussion in India as well as in other developing countries.

- 2 Ahmed, M. Rukunuddin. 1993. Community Forestry Development in Bangladesh: Constraints, Priorities and Strategies. Paper presented at the Forest, Trees and People Programme Review and Planning Meeting held on 14-17 December, 1993 at RECOFTC, Kasetsart University, Bangkok, Thailand.**

The author gives a brief history of community forestry development and details constraints of community forestry development in Bangladesh. The constraints include biophysical, socio-cultural, institutional, political, technological and economic aspects. The conclusion is that community forestry, developed as a component of an integrated approach to farming and rural development, offers excellent scope for social and economic rehabilitation of the landless agricultural farmers and ecological stability of the environment in Bangladesh. Prerequisites for this are changes in government policy and legislation in the forestry sector, restructuring of the existing forest department, adopting participatory forestry management techniques with community members, involving women in project activities, provision of incentives and supports, technologies and extension, and conducting client-oriented research.

- 3 Anonymous. 4th Consultative Workshop on Upland Development Issues. Proceedings, 1994. Benguet, La Trinidad April 28-May 2, 1993. Upland NGO Assistance Committee, Manila, UHAC/ PURC.**

The proceedings highlight the activities on community organizing in the uplands and the status of selected people-oriented forestry programmes. Though there was no common framework evolved in community organizing, it was generally viewed as both a critical requisite in the NGO's work and a major source of weakness in their development strategies based on their experiences in ongoing community forestry programmes. Undoubtedly, community organising (co) was found to be the key process in sustaining a meaningful and constructive interplay between people, forests and NGOs.

- 4 Anonymous. 3rd NGO Consultative Workshop on Upland Development Issues. Proceedings, Cebu City, May 28-June 1, 1992. Upland NGO Assistance Committee, Manila: UNAC/PURC.**

The book highlights the main agenda that was set for UNAC's third NGO consultative workshop on Upland Development Issues. The emergence and implementation of different approaches and programmes for upland development have been discussed. The different NGOs in the Philippines shared their experiences and strategies that

they feel, will lead to the end goal of community-based forestry. It also focuses on two current major government programmes affecting the pace and efforts of upland development - the community Forestry Programme (CFP) and the Local Government Code (LGC).

- 5 Anonymous. Joint Forest Management in India. 1995. Rajagiri College of Social Sciences Kalamassery, Cochin and Land People, Trivandrum.**

This study examines the overall technical, social management and sustainability aspects which are related to participation of people in the management of forest resource in the country, both in philosophy and practice. Almost all the states in India have decided to implement JFM and they have adopted the classic models developed in West Bengal, Gujarat, etc. The existing models in West Bengal, Tamil Nadu and Gujarat have been specially selected for this study. It intends to study the historical evolution of JFM, the various aspects of the present models, need for changes etc., so that location and community-specific sustainable models can be designed. It concludes that keeping the momentum of existing JFM models at this level, it is high time that all concerned also look at other options, which provide much stronger partnership and sustainability to meet the goals of JFM.

- 6 Arora, S. Sunder, Rohini, Vijn and V. Varalakshmi. 1993. Yield of Bhabbar and Grasses From the Areas Managed by HRMS and Ballarpur Paper Mill - A Comparative Analysis (Joint Forest Management series -5). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report is based on a study undertaken to assess and compare the yield of bhabbar and other grasses from the forest areas leased to different agencies. Economics of the bhabbar extraction and marketing mechanisms being practised by the two agencies (Ballapur paper mill and the Hill Resource Management societies) have also been worked out. The conclusions show that when the Department leases its forest areas to the societies, the lease amount is based on a proper estimation of the actual/potential production from that particular area, whereas when the paper mill is the lessee, a per quintal rate is agreed upon by the department and the mill does not find it economical to harvest the entire produce. This, in turn, leads to a proportionate loss in revenue to the department.

- 7 Arnold, J.E.M. 1991. Community Forestry, Ten years in Review, Forests, Trees and People Programme (Community Forestry Note 7). Food And Agriculture Organisation of the United Nations, Rome.**

This note (review) provides an historical perspective of the development of new kinds of forestry activities, and contributes a forward-looking assessment of constraints and opportunities for strengthening participation in all forestry activities.

- 8 Arnold, J.E.M. 1992. Production of forest products in agricultural and common land systems; economic and policy issues. In Narendra P. Sharma, [ed.]. Managing the World's Forests; Looking for Balance between Conservation and Development, Washington, D.C.: World Bank, pp. 433-53.**

This paper distinguishes different kinds of forest products in the rural household economy - 1, household inputs such as fuel, fodder and food; 2, agricultural income and employment. It sometimes happens that fodder shortages

are more threatening than fuelwood shortages because, unlike the latter, there are no available alternative sources of fodder. It examines the adverse environmental impact of the replacement of local leadership and authority with centralized political control, thereby undermining local institutions for communal management of natural resources. Most communal woodlot-planting in India has been on dry, degraded lands where CPRs are in abeyance - and has concentrated on tree stocks and wood products rather than intermediate products such as fuelwood and grass that were previously harvested from those areas. The transfer of responsibility for management of woodlots on common land to the community that was planned is rare, and the planning and control of woodlots tend to be centred in local government bodies rather than user groups, so that communal woodlot projects may be unwittingly converting CPRs into state-controlled resources. It recommends interventions to bring about joint management of forest land, building on the mutual benefits to be obtained from greater access to forest products by local people, and reduced protection costs for the forestry department. Seven factors that contribute to successful participatory forestry are: (i) availability of government land for CPRs; (ii) similar patterns of resource use throughout the community; (iii) management by user groups rather than whole villages or panchayats; (iv) security of tenure to the user group; (v) use regulations that have evolved and are enforced locally; (vi) community management of benefit allocation; (vii) management focus on low value products of local importance. Worldwide, constraints on participatory forest management include: (a) reluctance of government staff to devolve control; (b) pressures within the community such as immigration, which undermine local protection agreements; (c) combination of access to forest products with cultivation rights; (d) weaknesses in the legal framework. In social forestry interventions, the emphasis on meeting subsistence needs has tended to overshadow the importance of market demands for wood products, such as urban demands for wood fuels, so that there has been a failure to match project production to market possibilities, or to link producers to markets.

**9 Arnold, J.E.M., and W.C. Steward. 1991. Common Property Resource Management. Tropical Forestry Paper No. 24. Oxford Forestry Institute, University of Oxford.**

In an evaluation of the Orissa Social Forestry project it was found that 82% of villagers didn't know how the produce from village woodlots would be distributed; most didn't expect any share from the final output and looked on these as another category of reserved forests; nearly everywhere the Forest Department had worked through panchayats rather than user groups or other local organizations selected by a village specifically for managing the woodlot; benefit sharing agreements are frequently neither finalized nor formalized.

**10 Berkes, Fikret [ed.]. 1989. Common Property Resources: Ecology and Community-based Sustainable Development. London: Belhaven Press.**

Excellent collection of articles and editorial overview which clarifies many of the critical issues involved in interventions designed to improve CPR management; includes articles by Gadgil and Iyer: On the diversification of common property resource use by Indian Society.

**11 Bernard, H.R., Killworth, P., Kronenfeld, D. 1984. The problem of informant accuracy: the validity of retrospective data. In Ann. Rev. Anthropol. 1984, 13: 495-517.**

This review focuses on informant accuracy in reporting

past events, behaviour and circumstances. A simple example of the problem is this: if an informant says that she drives 6 miles to and from work, then does she? If she really drives 5.3 miles each way to work, then is her report close enough, and under what circumstances is it inadequate? This paper also reports on relevant literature dealing with informant accuracy in the field of child care, health care, communications and social interactions.

**12 Bhatia, Anupam. 1995. Challenging the new professionals, moving from Participatory Rural Appraisal to Empowering Rural Appraisal, Presented at Nepal Participatory Action Network Workshop, Dhulikhel, Nepal. Unpublished report available from ICIMOD.**

This author introduces the changing development paradigm from the overriding state centralized actions to the emergence of people's participation in development. He emphasizes the role of community institutions as well as that of individuals and professionals.

**13 Bhattarai, Tara N. and J. Gabriel Campbell. 1985. Monitoring and Evaluation of the Community Forestry Project in Nepal. In FAO/SIDA. Monitoring and Evaluation of Participatory Forestry Projects, pp. 31-102, FAO, Rome.**

Under the overall rubric of Panchayat Forestry, blocks of up to 125 ha of government grazing land and upto 500 ha of government forest are allocated to each of 4,000 Village Panchayats to meet local needs; researchers tried to keep monitoring and evaluation close to standard national monitoring systems, but had to improve on these so as to account for local impact, rather than just efficient supply of infrastructural inputs. They found that field officers and technicians on low salaries were placed in duty stations which frequently required two to three days walk from a seasonally served airstrip or fairweather roads, and that promotion from jobs in these harsh conditions is generally perceived as having little relation to performance; this situation has encouraged bureaucratically conservative behaviour, where the most successful strategy for government employees is to avoid decisions which would jeopardize their sinecure. There is a strong preference for informal oral rather written evaluation procedures at the local level, since written communications are understood as legal documents for which the writer can be held accountable. It suggests additional roles for Monitoring & Evaluation (M. & E.): to encourage more attention to work planning; to increase the extension of activities of Community Forestry Assistants, and to provide a performance incentive to field staff by encouraging self-evaluation at the national level. M. & E. information can gather additional political support for community forestry and answer inappropriate criticism.

**14 Bhattacharya, Debasish, et al. 1994. Socio-Economic Profile of Forest Protection Committees (FPCs) of Nayagram, West Midnapore, West Bengal (PFM study series (Sept. 1994)). Participatory Forest Management (PFM) Project, Rural Development Centre, Indian Institute of Technology, Kharagpur.**

This paper deals with the various aspects of socio-cultural and economic life of the people of Nayagram in District Midnapore of West Bengal. Socio-economic aspects of Forest Protection Committees (FPCs) have also been highlighted in detail. It is meant especially for network circulation, with the purpose of transmitting up-to-date information and experiences amongst all who are involved in the movement (JFM), especially the West Bengal Forest Department who are the initiators of the programme in the eastern region.

**15 Bishop, J., A.B. Cunningham, M. Pimbert, I. Scoones and B. Terry. 1994. Beer and Baskets: The Economics of Women's Livelihoods in Ngamiland, Botswana. Hidden Harvest Project, International Institute for Environment and Development, Worldwide Fund for Nature, Switzerland.**

This report examines the economics of basket making and beer production in two sites on the western edge of the Okavango delta in Ngamiland, Botswana. Using Participatory Rural Appraisal methods, the study focuses on the priority concerns expressed by villagers, and explores women villagers' use of wild species. Income-generating activities based on the use of wild resources are evaluated in a total livelihood context. After offering a very brief introduction to methodology, the report provides an overview of the social and environmental setting of the study area. This is then followed by an examination of the natural resource profiles of each village site. Resource management and control issues are addressed by examining harvesting practice and resource tenure issues. The next section examines the costs and benefits of basket making and contrasts the economics of using wild and cultivated palm. The comparative returns to labour of different livelihood activities are discussed, setting the role of basketry within a wider context; resource conservation and management options are then identified.

**16 Brown, L.D. and Tandon R. Ideology and Political Economy in Inquiry: Action Research and Participatory Research. Journal of Applied Behavioral Science Volume 19(3): 277- 294.**

The spread of applied behavioral science requires adaptation to new circumstances and audiences, and applications in new settings can generate new insights. This paper examines two traditions of applied behavioral science inquiry - action research and participatory research - that espouse many similar values and employ common methods in different settings. The authors have worked together as applied behavioral scientists in each other's countries (the United States and India), applying common conceptual equipment to diverse cultural, political and economic settings. They have used both action research and participatory research approaches to inquiry, and this paper focuses on the ideological, political and economic differences between these approaches.

**17 Campbell, J. Gabriel, and Jeannette Denholm [eds]. 1992. Inspirations in Community Forestry Kathmandu: International Centre for Integrated Mountain Development.**

Report of the Seminar on Himalayan Community Forestry, Nepal, June 1-4; the Nepalese policy of turning over 100% of forestry income to local communities was seen by many participants as something which India should learn from, whereas the Nepalese were interested in learning from the Indian experience in dealing with commercialised forest products through revenue-sharing arrangements. Arguments for and against 100% local control of forestry income are examined; there is general agreement on some lessons so far from both Nepal and India. Community plantations through panchayats have failed to elicit genuine participation. Private farmer tree-planting has exceeded all expectations, although marketing and technical support are still inadequate. Farm households have shown little interest in planting trees to meet their own subsistence needs; equal participation of women in either community or household forest decision-making is lacking; natural regeneration of forest through community participation is potentially cost-effective. Silvicultural technologies need radical revision to address social, economic, and conservation needs; and

long-term changes in policies, legislation, training, and institutional support are needed.

**18 Carter, J., S. Connelly and N. Wilson. 1994. Rural Development Forestry Network - Participatory Forestry in Sri Lanka: Why so limited? Change on the Horizon. (Network Paper 17b), RDFN. Overseas Development Institute, London.**

This paper is an outsider's view of the Sri Lanka forestry situation though the comments are based on experience of participatory forestry in a number of countries as well as the authors' work on professional foresters in Sri Lanka. The authors have described how past attempts of people-oriented forestry in Sri Lanka have fallen short of participatory forestry. They suggest forest policy and legislative reform for improving the implementation of the joint management system.

**19 Case, D. D'Arcy, T. Grove and C. Apter. 1990. The Community's Tool Box; The Idea, Methods and Tools for Participatory Assessment, Monitoring and Evaluation in Community Forestry (Community Forestry Field Manual 2). FAO Regional Wood Energy Development Programme in Asia, Bangkok, Thailand. Food and Agriculture Organisation of the United Nations, Rome.**

This manual is organized into three sections. Section one introduces the idea and benefits to be gained from a new approach. This section also provides some two-way communication exercises for field staff. Section two provides the methods for determining information needs, and ways that information can be analyzed and presented. Section three describes the information collecting tools and offers some suggestions for selection of tools.

**20 Cernea, Michael. 1992. A sociological framework: policy, environment, and the social actors for tree planting. In Narendra P. Sharma, [ed.]. Managing the World's Forests: Looking for Balance Between Conservation and Development. Washington D.C. World Bank. pp. 301-335.**

A simple and clear overview of the need for social analysis and 'social engineering' in social forestry projects; attention of planners needs to shift emphasis from commodities to people and their activities; future policies must pursue change in agricultural practices to incorporate trees; these should be complemented by natural forest management; social actors need to be empowered to grow trees, and discouraged from forest-degrading activities; collective social forestry needs organised groups, information which convinces people that it is in their interest to grow trees, and leadership/norms and procedures to enable people to manage trees; units may be those already existing, purpose-built forestry units, or organizations designed for non-forest purposes which can add forest to their functions; economic incentives for tree-planting are of vital importance. The report lists seven reasons why 'communities' are rarely ready to take on sustained and equitable collective tree cultivation: (i) residential populations are not necessarily corporate organizations; (ii) community subgroups often have widely different interests that preclude the kind of collective unified action required by long-term afforestation programmes; (iii) community lands often too limited for tree-planting; (iv) tenure status uncertain; (v) authority systems have uneven mobilization power over community subgroups; (vi) benefit-sharing and exclusionary rules against non-contributors seldom specified at outset; (vii) most communities not organized for other joint productive activities. It concludes that foresters and planners of social forestry community-based programmes should acknowledge that social forest connotes both the



philosophy of development and a pragmatic operational strategy.

- 21** Chambers, Robert, N.C. Saxena, and Tushaar Shah. 1989. *To the Hands of the Poor: Water and Trees*. London: IT/New Delhi. Oxford & IBH Publishing Co.

A key text that looks at connections between degradation of the commons, failures of institutional development for improved CPR management, and rural poverty; the rural poor need not only income but stable subsistence, security based on assets and rights, and self-respect based on independence and choice. Looks at lift irrigation, tree-planting, and natural forest management, and how interventions in these sectors could help the poor and the reasons why they fail. Key problems examined include: insecurity of land tenure, legal problems in harvesting and sale of trees, market imperfections, lack of extension services, and the 'catches' and 'hassles' involved in tree planting schemes. The 'practical political economy' approach is advocated as a strategy, which identifies ways for both the powerful and the powerless at the same time.

- 22** Chatterjee, M. Undated. *Women in Joint Forest Management: A Case study from West Bengal, Technical Paper 4*. IBRAD (Indian Institute of Bio-Social Research and Development), Calcutta.

This paper discusses how Government policy regarding forestry programmes can change women's role in a community and how this policy can also help to raise the economic status of rural women. To begin with women's contribution in the domestic economy in rural areas is examined, followed by their role in utilization of natural resources and the effect of deforestation on women. Lastly, a community forestry programme in West Bengal is briefly described.

- 23** Chatterjee, M. and S.B. Roy. 1994. *Reflections from Training on Gender Issues in Joint Forest Management, Indian Institute of Bio-Social Research and Development, Calcutta*.

This book is the result of the two authors' research and training experiences through a Participatory Forest Management Project supported by the Ford Foundation and the Ministry of Environment and forest, Government of India. It starts with a brief preface in which the gender issues are highlighted, followed by 10 chapters dealing with different aspects in relation to JFM.

- 24** Chatterji, J. and M. Gulati. Undated. *Co-managing the Commons - The Jammu & Kashmir Experience, Society for Promotion of Wastelands Development, Shriram Bharatiya Kala Kendra, 1, Copernicus Marg, New Delhi*.

This report is based on a study of the functioning of the village forest committees, commissioned by the Department of social forestry of J&K to the SPWD. It presents a dynamic picture of the evolutionary process of JFM as it is practised in Jammu and Kashmir. The issues discussed in the report are peculiar to the Himalayan region but it may be of relevance anywhere in the country.

- 25** Chetri, Ram. B. and Tulsi R. Pandey 1992. *User Group Forestry in the Far-Western Region of Nepal. Case Studies from Baitadi and Achham Kathmandu, ICIMOD (International Centre for Integrated Mountain Development)*.

Available from ICIMOD GPO Box 3226, Kathmandu; eight case-studies with details on User Group composition and local population, nature of forests, and protection and management practices; the authors agree with the general view that User Groups have been effective in slowing or reversing deforestation.

- 26** Colchester, M. 1994. *Salvaging Nature; Indigenous Peoples, Protected Areas and Bio-diversity Conservation. Discussion Paper 55*. UNRISD. World Rain Forest Movement, WWF.

This paper catalogues the programme on Environment, Sustainable Development and Social Change taken up by the United Nations Research Institute for Social Development. It gives a critical review of the implications for livelihood and conditions of life, especially of the low income groups, of a wide variety of projects to rehabilitate degraded sources and protect wild animals and plant species in national parks and reserves. The author argues that conservation, which has emerged as a powerful global force, dominated by Northern technical institutions, increasingly seeks to limit human activities in biodiversity-rich areas, especially in the south. Mainstream conservationists have sought to impose their culturally bound vision of natural resource management on indigenous peoples without taking into account their rights under international law or their different priorities and perceptions.

- 27** Cunningham, A.B. 1994. *Combining Skills: Participatory Approaches in Biodiversity Conservation*. In Huntley, B.J. (ed.). *Botanical Diversity in Southern Africa, 1994*.

This paper emphasizes the value of a 'cross-pollination' of ideas between resource users, researchers and resource managers in conserving customary knowledge and botanical diversity, on the basis of examples drawn from Africa, Australia and the Americas. Knowledgeable rural people, who have learnt through resource use and acute observation rather than through formal training, can be an invaluable source of information for plant conservation purposes. In this context, people from rural communities surrounding protected areas can play decisive roles in species inventory, planning, research and monitoring, for conservation purposes. What is urgently required before much of the accumulated customary knowledge of ecosystem functioning and species uses disappears, is the development of formal and field-based training to develop cross-cultural communication skills for participatory research.

- 28** Cunningham, A.B. 1996. *People, Park and Plant use. Recommendations for multiple-use zones and development alternatives around Bwindi Impenetrable National Park, Uganda. People and Plants Working Paper 4*. UNESCO Paris.

This working paper focuses on resource use and management issues relating to wild plants and multiple-use zoning in Bwindi Impenetrable National Park. Foresters usually group products into two categories for forest management purposes: major forest products (such as timber, fuelwood or other wooden products), and minor forest products (all non-wooden products). The results and recommendations of this report are presented first for the latter category, involving mainly specialist users of non-wood products, including wild plant resources, honey, basketry and bamboo use. The various uses of wood, the major forest products (e.g. blacksmiths, carved wooden handicrafts, beer boats, building poles, bean stakes) are then considered. These recommendations need to be seen as part of an ongoing process of interaction between rural communities surrounding Bwindi Impenetrable National Park and the park management; with DTC (Development Through Conservation) staff at the interface between the two groups.

- 29** Dahal, Dilli Ram. 1994. *A Review of Forest User Groups: Case Studies from Eastern Nepal, International Centre for Integrated Mountain Development, Kathmandu, Nepal*.

This study is one in a series commissioned by ICIMOD to provide insights into community-managed forests. This

particular document looks at User Groups from three different areas of Nepal; Sankhawasabha, Dhankuta, and Ilam, and appraises them in the context of success and failure, with a practical perspective on what we can learn for the future in relation to problems and conflicts that are arising and which may arise. It is part of a nationwide review of FUGs undertaken by ICIMOD, and the objective is to help in identifying mechanisms and processes that can promote more effective management and development of forest resources in Nepal.

**30 Das, Nilanjana et al. 1994. Ecological study of the Forest Under FPCs in the Nayagram Range, West Midnapore, West Bengal. Participatory Forest Management Project, Rural Development Centre, Indian Institute of Technology, Kharagpur.**

This paper based on a study in Nayagram in the West Midnapore division of West Bengal reveals that the Sal (*Shorea robusta*) coppice generating forests have tremendous natural ability to establish a large diversity of plants. A significant portion is used very frequently by the local communities for subsistence needs of food, fodder, fuel, medicine, household articles, religious and ornamental purposes. It also provides a methodology for the analysis of vegetation status. The findings clearly demonstrate that in most of the FPCs, regenerating forests are gradually getting into better shape as far as coppice regeneration is concerned. Compared to a plantation approach, natural regeneration of degraded forests is not only cost effective but also socially relevant and ecologically sound. The signs are definitely positive as far as participating forest management practice is concerned. The villages have taken adequate care and interest to protect the forest. Continuous monitoring is suggested to check the deterioration in the ecosystem.

**31 Das, S., A. Das and P. Sharangi. 1995. A Report on Interim Assessment of Impact of JFM Activities on Forest Based Ecosystem. Ramakrishna Mission Lokasiksha Parishad, Ramakrishna Ashram, Narendrapur, West Bengal, India.**

The report is based on a study of a village (Ichadih) in Purulia Forest Division of West Bengal. It aims at evaluating the performance of the Forest Protection Committee members, in various activities in order to develop their skills in managing both the human and natural resources on a sustainable basis for amelioration of the ecosystem and improving their socio-economic status. The main recommendations of the study presented in the report are: (i) appropriate skill is yet to be developed through regular training and monitoring to cover the period of unemployment; (ii) NTFP resources are yet to be identified and developed both silviculturally and commercially; and (iii) alternative fuel arrangements are to be explored and introduced.

**32 Das, S., A. Das and P. Sharangi. 1995. A Study Report on Status & Marketing of Lac Under Joint Forest Management Project. Ramakrishna Mission Lokasiksha Parishad, Ramakrishna Mission Ashrama, Narendrapur, West Bengal, India.**

This report is based on an intensive study conducted in the area of Jhalda, the major lac producing area in Purulia District in West Bengal. In this area the main village economy is totally dependent on lac cultivation. The objectives of the study are to understand the status of lac cultivation; socio-economic problems among the fringe population in and outside the forest areas; lac marketing; and to find out the problems of cultivators with remedial measures. The major findings of the study are that from the substitutes of lac point of view, the future status of the lac market is

uncertain. Buyers decline to pay the cultivator the real price for lac because mixed lac is widespread on the market. Lac provides an additional annual income of Rs. 2000-3000 on average. Women are involved in lac cultivation at almost all stages of activities, i.e. production, processing and marketing. It is recommended that the Kusum plants may be introduced in sizeable numbers in the future plantation programme, and an easy and workable arrangement is to be made for supply of good seed lac to the cultivator in time.

**33 Das, Chandreyee et al. 1994. Aspects of Commercialisation of Selected Non-Timber Forest Products in the Nayagram Range of West Midnapore, West Bengal. Participatory Forest Management (PFM) Project, Rural Development Centre, Indian Institute of Technology, Kharagpur.**

This report intends to explore the possibilities of product diversification through appropriate technology transfer and its commercial disposal. It attempts to bring out the inherent potential and possibilities of NTFPs to serve a separate section of ultimate users so that the value addition component increases significantly. Four projects initiated under the programme – the production of sabai grass-based items; making moulded sal leaf plates using non-conventional energy devices; cultivation and processing of mushrooms; extraction and processing of medicinal plants - are discussed. It is concluded that the introduction of the sets of new items to the existing economic and marketing fabric would call for a reorientation of the system as it implies a few new forms of production, a new channel of distribution and a new set of customers. Diagrammatic presentation of the present and prospective channels of production and marketing of the various NTFPs and their byproducts has been made in the report.

**34 Dembner, Stephen A. Undated. Forest Land for the People: A Forest Village Project in North East Thailand. Food and Agriculture Organisation of the United Nations.**

This report is one of the series of case studies of FAO-assisted community forestry projects. This forms part of FAO's Forestry for local community development programme. This is based on the work of Jacques Amyot of Chulalong Korn University Social Resource Institute in Bangkok. The author had interviewed representatives of the several government cooperating agencies who had personally been involved in the implementation of the project. All were unanimous in the view that the project was worthwhile and had generated many benefits.

**35 Dhar, S.K., J.R. Gupta, and Madhu Sarin. 1991. Participatory Forest Management in the Shivalik Hills: Experiences of the Haryana Forest Department, New Delhi. Ford Foundation. Sustainable Forest Management Working Paper No 5.**

Useful case-study of a famous success story (at least in its initial stages). By the mid-70s, Sukhna Lake in Chandigarh had lost nearly 70% of its water storage capacity due to siltation; the HFD had failed to persuade herders (mainly Gujjars) not to graze their animals in the catchment area; the concept of 'social fencing' was tried out in Sukhomajri, a Gujjar hamlet 4 km from Pinjore Garden; villagers were given irrigation dams in return for protecting catchment, resulting in annual three-fold increase in agricultural yields; water was distributed equally, irrespective of land ownership; barbed wire fences were removed; milk production increased by 200 litres per day, giving villagers additional Rs. 150,000 annually; the project was replicated in Nada, also in Shivalik foothills, 15 km from Chandigarh, in a hamlet of 17 Harijan families; Nada villagers were

very successful in growing bhabbar, which brought good returns within about 4 months of planting; concept of Hill Resource Management Societies caught on rapidly from 1983 to 1988 - too fast to be effective, so there were initial problems in administration and communication; Joint Management Planning team was formed to strengthen HFD's capacity to work with villagers; also informal working groups to meet every 4 to 8 weeks, chaired by PCCF, with DFO, Support team Leader, RO, and consulting group; also HRMS Support Unit with social scientists organizers, and HFD staff formulated Range and Beat profiles prior to each project initiation, giving information on local geography, forest use, social composition, etc to help draw up microplans for JFM agreements; the departmental constraints on dealing with female forest offenders were discussed, and it was recommended that the only long-term solution was to increase the strength of the women staff at all levels of the FD hierarchy.

**36 Dhar, S. K. 1994. Rehabilitation of Degraded Tropical Forest Watersheds with People's Participation (Joint Forest Management series 16). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report deals with the status of land degradation in the foothills of northern India. The traditional forest management practices have failed to provide goods and services to the village community. The Report says that the attitudes of the villagers and foresters have changed with the adoption of a new conservation strategy which includes harvesting of rainwater for irrigation to rainfed agricultural lands, grants of fodder and fibre grass leases to registered village societies and involvement of the people in forest management. It concludes that harvesting rainwater from hilly watersheds for the benefit of the local community helps in enlisting their active support in protection which has greatly promoted the rehabilitation of the degraded forest watersheds. Thus due to trees and grasses over the hills, the risks of soil erosion have been minimized. It also seems possible that backward villages can be turned into self-sustaining units of development.

**37 Directorate of Social forestry, Jammu & Kashmir, (Undated), Social Forestry in Jammu and Kashmir, Social Forestry Project, Jammu & Kashmir.**

This report in brief, presents the status of Social Forestry, in the state of Jammu & Kashmir. It has been presented in 8 chapters. The first chapter deals presents general background information about the forest and forestry in the state. It is followed by a chapter II on 'Socio-Economic Profile of Jammu & Kashmir, chapter III on 'community participation', chapter IV on 'Forestry Development Programme', chapter V on 'Social Forestry' Project Jammu & Kashmir, Chapter VI on 'Wood Balance Studies', Chapter VII on 'Involvement of NGOs' and the last chapter on 'Impact of Social forestry on wildlife of Jammu & Kashmir'. Thus, the report covers almost all aspects of social forestry. It is mainly based on secondary information collected from different sources - mainly from the Forest Department.

**38 Dove, Michael R. 1985. Government perceptions of traditional social forestry in Indonesia: The history, causes and implications of state policy on swidden agriculture in Y.S. Rao et al. [eds]. Community Forestry: Socio-Economic Aspects. Bangkok: FAO Regional Office for Asia and the Pacific/Honolulu: Environment and Policy Institute, East-West Centre.**

Argues a very strong case for politico-economic analysis of the reasons for state misinterpretation of local forest use and forest management; provides an overview of empirical evidence in favour of swidden (shifting) agriculture's high

returns on labour, and the Indonesian government's dogmatic refusal to recognize this; traces deliberate ignorance to early Hindu Kingdoms in Java which wanted to keep people in concentrated populations cultivating irrigated land which they could tax and control; antipathy to scattered populations. Swiddening, natural forests, has persisted in contemporary Indonesian national ideology; looks at contemporary forest policy towards tree crop development and commercial forestry development and interprets their biases in this light.

**39 Dutta M. and M.Adhikari. 1991. Sal Leaf Plate Making in West Bengal: A case study of the cottage industry in Sabalmar, West Midnapore (Working Paper 2). Indian Institute of Biosocial Research and Development, Calcutta.**

This paper looks at the way the sal (*Shorea robusta*) plate industry operates, both in terms of the production process and the marketing system. The relative importance of sal plate production in the village economy is then evaluated. The machine-finishing of the raw plates is finally discussed. It is a household level survey on sal plate production in 9 villages in Sabalmar (West Midnapore District), covering 45 representative households. It has been concluded that this household industry, which is largely operated by women, is very cost-effective, and should be encouraged, to enhance rural welfare.

**40 FAO. 1985. Tree Growing by Rural People. FAO forestry paper 46. Food and Agriculture Organization of the United Nations, Rome.**

The report assembles a clear picture of the different circumstances in which the growing, managing and use of trees and tree outputs is of benefit to rural people, and indicates the most effective ways in which support can be provided. It focuses on one of the most important production strategies which meets such needs - tree growing by rural poor.

**41 FAO. 1991. Trees and Forests in Rural Land Use. Food and Agriculture Organization of the United Nations, Rome.**

This booklet is a modest contribution to the Tenth World Forestry Congress, especially to the role of trees and forests in land management. Deforestation is nothing new; nor are its consequences. As it proceeds, especially throughout much of the developing world, the rational management of remaining forests and trees become increasingly important in rehabilitating degraded lands, supporting agriculture, enhancing food security, protecting water supplies and increasing the well-being of rural people. In order that this role of forestry is appreciated, its contribution to sustainable rural development requires thorough economic appraisal, hitherto confined to traditional forestry, which focused on industrial wood production. The role of forests and trees in rural land use are discussed and assessed under the main headings of forestry and ecological security; forest genetic resources; forest management and the economics of forestry in rural land use.

**42 FAO/SIDA 1985 Monitoring and Evaluation of Participatory Forestry Projects. Rome: FAO**

Based on M and E of two FAO/World Bank projects, one in Malawi and one in Nepal. People's use of trees and forest outputs is usually embedded in complex human and resource systems, so that project implementation is affected by many non-forestry factors, which are often only partially understood at the project design stage. Chapter by Eric Clayton on M and E of Participatory Forestry Projects recommends on-going evaluation, along with monitoring, in order to make any needed adjustments to the objectives, activities, operation and performance of an on-going pro-

ject; useful indicators include the production and consumption of forest products by wood growers and users, attitudes to wood scarcity, commercialization of wood products, prices, patterns of social organization for tree planting, adoption of more efficient wood using technologies, tree survival rates and growth rates (proxy indicators where it takes too long to see whether they actually grow as expected); Tara N. Bhattarai and J. Gabriel Campbell 'M and E of the Community Forestry in Nepal' (see separately).

**43 Forest Department, Junagadh , AKRSP (I) and VIKSAT, Ahmedabad, 1994, Report of Training Programme on Joint Forest Management.**

This report is based on the proceedings of the Training Programme on Joint Forest Management held at AKRSP, Gadu campus, Distt. Junagadh, Gujarat during May 6-8, 1994. It brings out interesting issues, and identifies areas of cooperation between the partners in the JFM programme. Whole report has been presented in 4 chapters. Chapter I deals with the background, chapter 2 gives information about the training schedule, while chapter 3 presents the session wise report, of the training in which history of JFM, its status, role of NGOs, etc. are briefly discussed. The annex contains some details and an interesting game of snake and ladder used during the training.

**44 Fox, Jefferson. 1990. Diagnostic tools for social forestry in Mark Poffenberger [ed]. Keepers of the Forest: Land Management Alternatives in Southeast Asia. West Hartford, Conn. Kumarian Press, pp. 119-33.**

Very useful article which looks at various PRA methods - semi-structured interviewing, aerial photos, sketch maps as tools for planning community participation in forest management; argues that if foresters and farmers are to communicate, the onus is on the forester to start the process by understanding farming practices; this includes knowing the crops grown, the place, time, and methods of planting and harvesting, how the products are disposed of, and how income and other benefits are shared; in addition, understanding how forester management plans affect different members of the community requires some knowledge of village tenure systems; understanding patterns of conflict and cooperation within and among villages requires some knowledge of historical land-use practices, while sensitivity to local priorities requires some knowledge of farmers' perceptions of environmental problems; discusses interview techniques structuring while looking as though in a free conversation; key informants, group interviews; observation to offset misleading local myths; crop calendars, labour calendars, activity-sequence calendars, animal-feed calendars; the role of local informants as essential interpreters of aerial photos; discusses the different uses of small-scale (> 1:50,000), medium (1:10-50,000) and large (1:10,000) photos; plastic overlays can be used to record information about land and resource-use on public and private land; sketch maps can serve similar functions in absence of photos; good if based on enlargements from printed topographic maps; for social forestry appreciated technology, since it is cheap, easy to do, easy to teach, although often very inaccurate and may introduce distortions into mapping process.

**45 Government of India Ministry of Environment. 1988. National Forest Policy Resolution 3, 1/86-FP New Delhi: GOI.**

Salient features include environmental stability, conservation of natural heritage, meeting the basic needs of the people (especially fuelwood, fodder and small timber), protecting the customary rights of tribal land, other poor people living in and around forests, through people's own

involvement in protection, conservation, and management of the forests; the objective of increasing the productivity of forests to meet essential national needs is to be combined with provision for local based needs; this will involve the strategy of 'creating a massive people's movement with the involvement of women, for achieving these objectives and to minimize pressure on existing forests'; explicitly forbids state governments from leasing or assigning forests to private parties or NGOs without prior approval of the Central Government; the diversion of good and productive agricultural lands to forestry should be discouraged in view of the need for increased food production; the national goal should be to have a minimum of one-third of the total land area of the country under forest or tree cover (two-thirds in the hills and in mountainous regions), unused village and community lands should be developed for tree crops and fodder resources, and the revenues generated should belong to the panchayats who control the lands, or shared with the local communities; land laws should be modified wherever necessary so as to facilitate and motivate individuals and institutions to undertake tree-farming and grow fodder plants, grasses and legumes on their own land; degraded lands should be made available for this purpose, either on lease or on the basis of a tree-patta scheme; there should be substitution of wood for building and fuel; fuel-efficient "chulhas" should be popularized in rural areas; construction of dams and reservoirs, mining and industrial development and expansion of agriculture should be consistent with the needs of conservation of trees and forests, and projects which involve such diversion should provide funds for regeneration and compensatory afforestation; contractors for forest products should be replaced by institutions such as tribal co-ops, labour co-ops, and government corporations; there should also be integrated area development programmes to meet the needs of the tribal economy in and around the forest areas; there should be no regularization of existing encroachments into forest land; grazing in forest areas should be regulated with the involvement of the community; forest-based industries must not only provide employment to local people as a priority, but also involve them fully in raising trees and raw material; natural forests should be conserved for their biodiversity value and ecological functions rather than being made available to industries for plantation etc, and the practice of supplying forest produce to industry at concessional price should cease.

**46 Government of India, Ministry of Environment and Forests. 1990. Involvement of village communities and voluntary agencies for regeneration of degraded forest lands. Circular No 6-21/89-FP. New Delhi: GOI.**

Sent in June to Forest Secretaries of all states and Union Territories, it clarifies issues concerning participation of NGOs and local people in implementing the national Forest Policy. The NFP, 1988, envisages people's involvement in the development and protection of forests. The requirements of fuelwood, fodder, and small timber such as house-building material, of the tribals and other villagers living in and near the forests, are to be treated as first charge on forest produce. Committed voluntary agencies/NGOs, with proven track records, may prove particularly well suited to motivating and organizing village communities for protection, afforestation and development of degraded forest land, especially in the vicinity of habitations. The State FDs/Social Forestry organizations ought to take full advantage of their expertise and experience in this respect for building up meaningful people's participation in protection and development of degraded forest lands. The voluntary agencies/NGOs may be associated as an

interface between State FDs and the local village communities for revival, restoration and development of degraded forests, although no ownership or lease rights over the forest land should be given to the beneficiaries or to the voluntary agency/NGOs; the beneficiaries, but not the voluntary agency/NGO should be entitled to a share in usufructs; access to forest land and usufructuary benefits should be only to the beneficiaries who get organized into a village institution, specifically for forest regeneration and protection. This could be the panchayat or the co-operative of the village, with no restriction on membership. It could also be a VFC; FDs should be people for raising nurseries, preparing land for planting and protecting the trees after planting, using funds from the SF programme, although village organizations may obtain funds from other Government agencies and sources for undertaking these activities; it should be ensured that there is no grazing at all in the forest land protected by the village community. Permission to cut and carry grass free of cost should be given so that stall feeding is promoted; no agriculture should be permitted on the forest land; tree to meet needs other than fuel, fodder and timber may be grown - e.g. fruits, legumes, medicinal plants; the benefit of people's participation should go to the village communities and not to commercial or other interests, which may try to derive benefit in their names; the FD should closely supervise the works. If the beneficiaries and/or the voluntary agency/NGO fail or neglect to protect the area from grazing, encroachment, or do not perform the operations prescribed in the working scheme in a satisfactory manner, the usufructuary benefits should be withdrawn without paying compensation to anyone for any work that might have been done prior to it. Suitable provisions in the MOU for this purpose should be incorporated.

**47 Gulati, Mineesh and Sushil Saigal. 1992. Joint Forest Management Orientation workshop for A.P. officials. Society for Promotion of Wastelands Development, New Delhi.**

This report was prepared as reading material for the participants of an orientation workshop on Joint Forest Management for A.P. officials organized by the Society for Promotion of Wastelands Development, New Delhi, at Hyderabad during October 21-22, 1992. It consists of information on Andhra Pradesh forests, including general background of the state. An analysis of earlier schemes, and of Andhra Pradesh forests have also been given in the report. JFM resolution of Andhra Pradesh and areas which need to be further strengthened have also been discussed in depth. In the last, salient features of JFM resolutions in 11 states have been presented, with information about various aspects of the programme, including a systems diagram of forest users and managers in Pinjore, Haryana.

**48 Hammett, A.L., Messerschmidt, Don and Richard Camille (eds.). 1994. User Groups in Community Forestry: lessons learned and case-studies from Nepal (IOF project technical paper TP 94/2), USAID/Nepal. Office of Agriculture and Rural Development, Institute of Forestry, Tribhuvan University, Nepal.**

The report (study) is based on field data and findings from the Forest User Group (FUG) study conducted in 1991 in the Districts of central and western Nepal, combined with interviews and secondary data on forest user group development, provided by a number of projects in central and eastern Nepal. Parts of this study are based on a short report highlighting twenty-two hypotheses generated from the work and presented at a regional conference on Community forestry in 1992. That unpublished paper is entitled "Forest User Groups in Nepal - perspectives on what works and why". Rapid Appraisal technique have

been used. It includes a brief account of different forest committees under study.

**49 Harris, Jill Carr. (undated). Forests and People: A Study of the Development of Forest Dependent Communities. South-South Solidarity and Lok Jagriti Kendra.**

This report is a significant contribution to South-South solidarity's Development Series. It draws attention to one part of the forest's biomass resources, that is, minor forest produce. There is a tremendous conflict between commercialization of minor forest produce on a large-scale and the subsistence needs of forest dependents. As it is difficult for the forest department to understand the traditional and subsistence use value of minor forest produce, this report covers a local study in south Bihar. It focuses on communities whose subsistence requirements and livelihoods are conditioned by their nearness to a forest. With the hindsight of twenty years of Government regulation, it has been concluded that deregulation would strengthen the local development of forest dependents. It gives an exposure towards alternative strategies for forest dependent communities.

**50 Harvey, Nick. 1994. Changing Colours or Maintaining The Status Quo; Institutional Aspects of Joint Forest Management in Bankura District of South-West Bengal, India. School of Agriculture and Forest Sciences, University College of North Wales, Bangor, United Kingdom.**

This report is an outcome of a dissertation (MSc) submitted to the university college of North Wales, Bangor, United Kingdom. It reveals that the changes offered by JFM are evaluated differentially according to the perceptions and experiences of the particular interest group or individual involved. These actors, having weighed the benefits and costs of accepting and maintaining such an agreement, will then adopt their own strategies within or outside of the set of rules laid down. For the strategies not to jeopardize such a collaborative venture and return the management regime to one of open access, both the forest department and the forest protection committees need to strengthen their own capacity to monitor, evaluate and implement this programme. This dissertation has attempted to highlight the process of decision making and evaluation that FPCs, the interest groups found within them and the individual FPC members undertake when presented with and when acting within a new approach to forest management. Set of conditions are not conducive to a uni-modular approach spread over a country whose heterogeneity of people is as, if not more, varied than its diverse ecological zones and history. Thus, a process-oriented approach is required which acknowledges and builds upon these.

**51 Hughes, Erin. 1994. Women in Forestry and Natural Resources -Workshop Proceedings. Institute of Forestry, Pokhara Campus, Tribhuvan University, Nepal.**

This report contains the proceedings of the workshop on women in forestry and natural resources held at the Institute of Forestry, Pokhara campus, Tribhuvan University, July 14-18, 1994. It summarizes the presentations made by different participants in the workshop. It is concluded that in Nepal, women are the day to day managers of forest resources and are directly affected by decisions regarding natural resources. Despite their important role in national resource management, cultural norms and biases preclude women in general from holding local level and national level resource management positions. It is suggested that if participating natural resource management is going to succeed, women need to be included in local and national level management positions, in spite of the social barriers. Women need to be included and repre-

sented in user group meetings, in committee meetings and within the Ministry of Forest and soil conservation. Summaries of twelve case-studies relating to different aspects of women's participation in local-level natural resource management are also presented in the report. Appendices contain talks presented by two important participants, PRA techniques, selected references on women in forestry and natural resources etc.

**52 IBRAD. 1992. Problems and Prospects of Participatory Community Development (Working Paper No. 15). IBRAD and Department of Sociology and Anthropology, North Bengal University.**

This paper is an outcome of a seminar held at the Department of Sociology and Social Anthropology, North Bengal University, jointly organised by the Indian Institute of Bio-social Research and Development, Calcutta and the Department of Sociology and Social Anthropology, North Bengal University on Aug. 21-22, 1992. It presents proceedings of the seminar. Some papers entitled "Women's Education is Essential for Real Community Development" by Mahbulul - Alam, "Problems and Prospects of Participatory Community Development. A case study of ICDS in West Bengal" by Manas Gupta, "Role of Participatory Development and its Rivals" by P.C. Sarkar, "Deforestation and People Participation in Conservation of Forest Resources in West Bengal" by M.M. Jana, and "Spirit of Participatory Development" by Dr. Rangadhar Sahu are enclosed/presented in the report.

**53 IBRAD, Calcutta & RDC, Indian Institute of Technology, Kharagpur. 1994. International Conference on Participatory Forest Management: Enabling Environment - Abstracts.**

The booklet includes the abstracts of the papers presented in the Conference which explores the opportunities and challenges encountered during the implementation of Participatory Forest Management programmes in different parts of the world, and discusses the prerequisites of a suitable enabling environment. The proposed bill of 1994 and its likely impact on participatory Forest Management programmes in India are discussed. Resource-sharing proposals for the Mafungausti Forest Area (MFA) in Zimbabwe are compared with experiences of Joint Forest Management in India. The term 'JFM' is critically examined. In total, it consists of abstracts of 32 papers relating to the theme from different authors from India, as well as abroad.

**54 Indian Environmental Society/Ford Foundation. 1990. Forest Management Partnerships: Regenerating India's Forest. New Delhi: Ford Foundation.**

Executive summary of Workshop on Sustainable Forestry; expresses optimism about JFM on recent efforts by FDS in West Bengal, Haryana, Gujarat, Orissa, Jammu and Kashmir, to collaborate meaningfully with rural communities; in 1975, State Forest Departments managed nearly 75 million ha of land, 22% of the nation's territory - but they had to try to control 300 million forest users with only 100,000 FD officers; between then and 1982 the nation lost 1.3 million ha each year, and these losses resulted in the 1980 Forest Conservation Act which put sweeping restrictions on commercial logging; social forestry was neither designed nor able to address the increasing degradation of India's reserve and protected forest management; by comparison, JFM is much cheaper; recent Landsat imagery indicates 40% of the state forest area (30 million ha) has the capacity to regenerate naturally with community protection - at a cost of less than 5% of the comparable costs of managing plantations; benefits would include better biomass supplies, better groundcover with improved

soil/water conservation, better employment opportunities, especially for landless and women in forest management, harvesting, processing and marketing, increased income through higher forest productivity, reduced conflicts between FD and locals, improved capacity for community resource management; studies of West Bengal's Forest Protection Committees show that groups with at least 75% of all communities participating are the most effective forest management units; tribal communities and other groups with heavy forest dependent people; recommends sketch mapping and micro-planning as important ways of involving local people in planning-especially women since men often must consult their wives about biodiversity, areas from which fodder and fuel are collected, etc. case study of Shivaliks in Haryana shows that social fencing resulted in increasing fodder grass productivity by 10 to 40 times between 1982-87, and sale of fodder by FD reduced costs to villagers from Rs. 460 to Rs. 150 per year, even where opportunities for increasing forest productivity area was limited, there may be huge potential for increasing revenue by improving processing of NTFPs e.g. sal leaf plates, medicines; presently, many NTFPs are sold at 5 to 20% of their market value; improved access to markets could similarly increase income for forest dependents.

**55 Jackson, Bill, Michael Nurse and Hukum Bahadur Singh. 1994. From the Field: Participatory Mapping for Community Forestry, Rural Development Forestry Network.**

Understanding the relationships between farming and forest management is one of the most 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 programmes. In this paper the author describes the methodology of participatory mapping, and discusses the merits of the system.

**56 Jodha, N.S. 1986. Common property resources and rural poor in dry regions of India in Economic and Political Weekly 11, 27, July 5.**

Similar to his paper published by HED (1991), but with more specific details; in Karnataka 100% of poor families depend substantially on common property biomass for needs of fodder, fuel and fibre, and 84% for food; the monetary value of only a part of this (product collection and animal husbandry) was found to be between 530 and 830 rupees per family; these incomes, underestimation of the total, are higher than the income generated by a number of government-supported anti-poverty programmes in similar areas; but by the time of the study, none of the villages had even simple communal control measures such as grazing taxes or penalties for violation of norms on the use of common lands; only 8 out of 82 had rotational grazing or had appointed watchmen to protect commons; only 12 were doing any fencing or trenching to improve upkeep of the commons; the proportion of Common property Resource (CPR) to total village area ranged from 9 to 28%; poor households' greater dependence on CPRs for grazing is mainly because they don't own grazing land; CPRs are also important for employment - study looked at time allocation, number of employment days spent on CPRs, share of CPR based activities in total household labour time allocation, and CPR activities during days of involuntary unemployment for the poor. CPRs provide exclusive employment on 43-89 days per household or 18-31 days per adult worker - marginally higher than their employment on their own land; CPR activities take 10-20% of daily labour time; supplies from CPRs don't translate well into income flows - the

importance of income received from the use of CPRs should be evaluated more in terms of its temporal and situational contexts, rather than in terms of its magnitude alone; CPRs reduce income inequality and contribute more than a fifth of the incomes of the poor; since land reforms of 1950s, re-allocation of CPR land to poor has actually made things worse for the poor by denying them access to CPRs. Alternative strategies to help the poor are needed, such as to develop CPRs and improve their use through technical and institutional interactions; however, growth in CPR productivity alone may prove counter-productive, since this may attract wealthier users who oust the poor; i.e. there is a catch in operation - CPRs are only useful to the poor if they are useless to everyone else.

**57 Kanetkar, Rajashree S. and V. Varalakshmi. 1994. Women in Godam - Haryana: A Gender and Caste based Study on Conservation of Forest Resources (Joint Forest Management series -13), Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report is based on a study conducted in the village of Godam of northern Haryana which is inhabited by people belonging to 4 different castes. Women in the village perform both household as well as productive activities, wherein the income generating activities have been referred to as productive activities and those which are carried out to run the household and take care of the family members, such as fuel and water collection, food preparation, cleaning and laundry etc. have been categorised as household activities. The former are mostly caste based and the latter are common. Some of the productive activities help in income generation directly and the others contribute towards their traditional role of house keeping. It assesses as to what impact these activities have on the lives of women belonging to the few castes and whether these do in any way either modify or redefine their roles and status. Further, depending upon the activities, the relationship between women and the forest resources, has been defined.

**58 Kant, Shashi, Neera M Singh and Kundan K Singh. 1991. Community Based Forest Management Systems (case-studies from Orissa), Indian Institute of Forest Management, Bhopal, Swedish International Development Authority, New Delhi and ISO/Swedforest, New Delhi.**

The report raises important issues of policy, including a possibility of subsequent conflict between the need to preserve forests and the rapaciousness of village committee office-bearers who might be swayed by greed in future. It provides systematic analysis of community-based forest management systems in Orissa. The philosophy and dynamics of such management systems can provide a basis for the development and strengthening of participatory forest management systems. Specifically three different case studies - from Binjgiri Protected Forest, District Puri, Rupabalia reserved forest District Dhenkanal, and lastly from Phulbani are presented. These cases have been selected to present a wide spectrum of locally evolved management systems. The first two situations have been presented in the form of case-studies, whereas an overview has been provided for the third. The study (report) is the result of collaboration of three organisations - Indian Institute of Forest Management, ISO/Swedforest and Swedish International Development Authority (SIDA).

**59 Kapoor, Charla, Britt, 1994, A Tale of Two Committees: Villager Perspectives on Local Institutions, Forest Management and Resource use in Two Central Himalayan Indian Villages (Network paper 17 a), Rural Development Forestry Network - Overseas Development Institute, London.**

This paper concentrates on the experiences of two forest committees and community forest users in two villages situated in the middle hills of Nainital District, Kumaon, India. After briefly reviewing historical developments leading to the institution of the Van Panchayat (forest committee), the paper traces the history of forest management institutions in each village, by comparing present procurement patterns with those of the past. The work draws from research that was conducted over a four month period of residence in the villages. Methods used included semi-structured interviews, participant observation and a village-wide survey questionnaire. Field work was based on the premise that past and present use practices shape users' decision-making and resource-related activities. The emphasis throughout is on villagers' perceptions of their relationship with forests and in particular, the role of women, who are the main forest product procurers. By building upon the institutional history of the villages' forest committees and their procurer-users, this paper attempts to provide insights into factors which positively or negatively influence the effectiveness of local resource management bodies.

**60 Karki, Madhav, Jay B. S. Karki and Neeta Karki. 1994. Sustainable Management of Common Forest Resources: An Evaluation of Selected Forest User Groups in Western Nepal - case studies of Palpa District and the Phewa Watershed. International Centre For Integrated Mountain Development (ICIMOD), Kathmandu, Nepal.**

This book is one in a series commissioned by ICIMOD to provide insights into community managed forests. The main objective of this book is to provide a comprehensive evaluation of selected forest user groups (FUGs) with particular reference to their structure, function and performance. It deals with the operational procedures and forest management activities of selected FUGs in Palpa and reviews the performance and impact of the Phewa Tal Watershed Development Project's (PTWDP) activities in Kaski to emphasise sustainability, equity and environmental soundness.

**61 Kaul, R.N. and M.G. Gogte. 1993. Greening of Forest Grasslands in Nasik District. National Afforestation and Eco-development Board, Ministry of Environment and Forests, Government of India, New Delhi.**

This report documents a centrally-sponsored scheme of Western-ghats development, known as the Intensive Development of Fodder resources division, in Nasik and its environs. It has been prepared based on observations made during visits to a number of grassy banks (locally known as kurana) and on the information furnished by the intensive development of fodder resources division, Western ghats, Nasik. It is apparent that community investment in protection of Kurans is necessary for fostering strong community stake in grassland protection. The method of benefit-sharing by the community will have to come from the community itself, rather than imposing a single model by the department, as it will vary greatly from village to village. The report gives an idea for developing degraded forest areas through community participation.

**62 Kaul, O.N. (ed.). 1993. Joint Forest Management in Haryana - Workshop Proceedings (Joint Forest Management series 15), Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report is an outcome of a state level workshop on Joint Participatory Forest Management organised by the Haryana Forest Department at Pinjore on March 24, 1993. It was attended by the officials of the Forest Department, TERI, the Ford Foundation, and representatives of the

selected Hill Resource Management Societies. It reviews the progress/programmes undertaken by the said partners. It discusses the strengths and weaknesses or successes and failures of the programme. Finally it gives an account of the future strategies/programmes and facilitating factors. The report is presented in 8 chapters. Two papers entitled 'Joint Forest Management' in Haryana by Gurnam Singh and 'Joint Forest Management on Haryana' by O. N. Kaul are also annexed in the report. In the 'summary' part, an outcome of the whole workshop has been presented.

**63 Kremen, C., Merenlender, A.M., D. D. Murphy. 1994. Ecological monitoring: a vital need for integrated conservation and development programs in the tropics. Conservation Biology 8(2): 388- 397.**

The following abstract is taken from the above published article: The integration of conservation with rural economic development is the latest proposed means of preventing loss of the earth's biodiversity and of solving the dilemma of "people versus parks". International development agencies now recognize the need to preserve natural resources and biodiversity in concert with improving human well-being likewise, conservation agencies acknowledge that parks cannot be protected over the long term without the consent and the support of local inhabitants. Nonetheless, of 36 integrated and development projects (ICDPs) reviewed by us and others, only five demonstrate that they have positively contributed to the conservation of wildlife. In this paper, the authors promote ecological monitoring to: (1) evaluate the ICDP paradigm and specific ICDPs, (2) provide feedback to guide the future course of ICDPs, and (3) integrate information relevant both to conservation and development. Few ICDPs have included ecological monitoring programs to date, although several have plans to monitor in the future. The authors outline a flexible plan for ecological monitoring of ICDPs and provide an example from our ongoing work in Madagascar. To establish comprehensive ecological monitoring programs, the authors recommend that two types of monitoring be carried out at multiple levels of ecological organisations and across diverse taxa. First, monitoring programs should assess the total effects of ICDPs on biodiversity and on overall ecosystem health by tracking indicator assemblages across space and through time (biodiversity monitoring). Second, ICDPs should monitor ecological processes that will be directly affected by changes in human activities due to implementation of ICDPs by comparing target species diversity and abundance in unregulated areas, managed buffer-zones, and core protected areas through time (impact monitoring). Comprehensive ecological monitoring is critical in shaping ICDP management plans and in furthering the integration of conservation and development.

**64 Kuusipalo, J. and Kangas. J. 1994. Managing biodiversity in a Forestry Environment, Conservation Biology 8(2): 450-460.**

In forest management and other land-use planning, ecological, social, and economic demands often conflict. Forest planning in particular has been biased towards maximising economic output while disregarding the ecological effects of forestry practices. In this paper an approach is presented for taking biological diversity into account in strategic forest planning. The Analytic Hierarchy Process (AHP) method for resource allocation and priority setting is used. A case-study was conducted whereby a set of management strategies was evaluated in order to identify the strategy which best fulfills the requirement of maintaining biological diversity while at the same time yielding a reasonable income from timber production. This was applicable in solving different forest management and conservation

planning problems, as well as assessing ecological impacts.

**65 Lahiri, Somdeb. 1994. Sharing costs and sharing Revenue under Joint Forest Management, National Workshop on Joint Forest Management (August 25-26, 1994). Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad.**

The main objective of this paper is to prove the existence and optimality of solutions which adhere to the rules of costs and revenue-sharing taking place in the same proportion. It critically examines the question of cost and revenue sharing under JFM and proposes proportional sharing as a workable mechanism for simultaneous costs and revenue sharing rather than based on abstract notions of equity.

**66 Lal, J.B., Rekha Singhal and J.K. Das. 1994. Experiencing Community Forestry Programmes in Philippines: Modalities and Outcomes, Indian Institute of Forest Management, Bhopal.**

This report is an account of the details of the experiences of the IIFM team which visited the Philippines from July 26-31, 1993. In the first part, the background about Philippines forestry and relevant policies is dealt with. The second part gives a brief description of the organisational set up of the Department of Environment and Natural Resources in the Philippines. Part 3 provides the details of various alternatives under the National Afforestation programme of the Philippines. An account of various field projects visited and the salient features of the field visits are given in the fourth part. Finally, the fifth part presents the general conclusions that emerged and the lessons the IIFM team learned from the experience.

**67 Lele M. Sharachchandra. 1993. Degradation, Sustainability or Transformation? A case study of villagers' use of forest lands in the Malnaad Region of Uttara Kannada District, (CES Technical Report No. 27). Energy & Resources Group, University of California, Barkeley, U.S.A. and Centre for Ecological Sciences, Indian Institute of Science, Bangalore, India.**

The book proposes an approach that recognises the socially constructed nature of "degradation", uses multiple assessment criteria to deal with the complexity of forest ecosystems under intensive human use, and focuses on the variation in needs, interests and constraints of the rural households using the resource. This approach is applied in a case-study of villagers' use of forest lands in the hilly Malnaad region of Uttara Kannada District in Southern India. The results of a woody biomass balance for the sampled villages show that production in the village forests is higher than previous estimates and that woody biomass harvests do not in general exceed its production. Herb layer production shows substantial trade-offs, with tree canopy, and significant intra-annual reductions under certain grazing regimes. The results of investigations of vegetative structure and soil characteristics are inconclusive. In the rural Malnaad, forest use is not directly linked to the market. The outcome of biomass resource use is, therefore, governed by the balance between a number of variables operating at the household level: a household's domestic, agricultural, and livestock-related needs, its access to uncultivated biomass resources to satisfy them, its capacity to control those resources and to invest in their management, and the regime of property rights that enables and allocates this access and control.

**68 Lele, Sharachchandra (undated) Village-forest interactions in Uttara Kannada : Ongoing research and its implications for forest management. [Source unknown: may be available with ODA/DfID]**

This paper addresses the problem of zoning according to different biophysical and social requirements, and rural



people's involvement in planning and management of forests; recommends a people-oriented approach in which planning and zoning would begin from the village upwards and starting with the identification of people's biomass needs and the development of an ecologically sound management strategy to satisfy those needs, along with an institutional framework for implementing this strategy. The paper also outlines research on the following: rural biomass consumption (fuel, fodder, mulch/manure, timber, etc); productivity of natural and lopped forests, grasslands, areca gardens, paddy fields, nutrient flows from forests to agricultural lands and resultant status of soils; physical production-consumption patterns and economics of live-stock management; historical, political and legal issues that have shaped availability of access to forests, and conversion of forest lands to other uses; special problems of landless and marginal cultivators; categories of forest in Uttara Kannada (Reserve Forest, Minor Forests, Soppina bitta Forests, Hakkals, Village Forests); emphasises variation in size of revenue villages, and diversity of kinds of forest category to which they have access; suggests that because of uneven village allocations of usufruct rights to forests, re-allocations of forest areas across or transcending revenue village boundaries might be needed; stall feeding can reduce destruction of saplings, but only those able to afford to hire labour for fodder collection can afford this; landless or marginal farmers, who have a greater need for livestock as productive resources, cannot afford stall feeding, and will have to be provided with grasslands and assisted to practise rotational grazing.

**69 Mahapatra, Sundip. 1994. Identification of Leadership: A Quantitative Approach (Working Paper No. 33), IBRAD, Calcutta.**

This paper is submitted as a dissertation under the six months diploma course on Participatory Forest Management conducted jointly by the Indian Institute of Bio-Social Research and Development, Calcutta and the Rural Development Centre, Indian Institute of Technology, Kharagpur. It is based on quantification of certain qualitative characters through the process of scaling and ranking of the characters under consideration. The main objective of this paper is to identify a leader in the easiest way and which is also mathematically sound. In order to test the model, a few common characteristics of a leader have been enlisted depending on the community character and nature of the study. But this list may not be applicable everywhere.

**70 Mahapatra et al. 1994. Technological Approach Towards NTFP Utilization for Livelihood Generation under the Participatory Forest Management Programme, Participatory Forest Management (PFM) Project. Rural Development Centre, Indian Institute of Technology, Kharagpur.**

This report deals with the five areas identified for appropriate technology transfer which are based on the studies on NTFPs and human resources. These are sabai grass and sabai rope-based utility and decorative items manufacturing; collection, cultivation and processing of edible mushrooms; sal leaf plate and bowl making; collection and processing of forest-based medicinal plants; and development of agro-forestry. This report is meant for network circulation with the purpose of transmitting information and experiences amongst all who are involved in the movement, especially the West Bengal forest department, who are the initiators of the programme in the eastern region.

**71 Malhotra, Kailash C. 1991. People, Biodiversity and Regenerating Tropical Sal (*Shorea robusta*) Forests in West Bengal, India (Working Paper No. 7). IBRAD, Calcutta or In: Tropical Forests, People and Food,**

**Biocultural Interactions and Applications to Development, Eds. Hladik, C. M., Hladik A., Linares, O.F., Pagezy, H., Semple, A. and Hadley, M. Man and Biosphere Series, Vol 13.**

This paper was prepared for the International Symposium on Food and Nutrition in the Tropical Forest: Biocultural Interactions and Applications in Development held at UNESCO, Paris from Sep. 10-13, 1991. The aim of this paper is four-fold: (i) to document historical processes that led to the denudation of biodiversity in five Districts of West Bengal, India, (ii) to give a description of the processes that led to the emergence and spread of the concept of Joint Management of Forest Lands (JMFL) in West Bengal, (iii) to highlight the salient features of the innovative approach, and (iv) to report results of our extensive studies on the restitution of biodiversity, and the role it plays in meeting the subsistence needs of food, fuel, fodder, medicine, etc. of the local communities. It has been emphasised that the biodiversity in the sal forests has profound potential for the overall well-being of the people, and the development of the area.

**72 Malhotra, Kailash Chandra and Debal Deb. 1991. History of Deforestation and Regeneration/Plantation in Midnapore District of West Bengal, India (Working Paper 13). Indian Statistical Institute, Calcutta and Indian Institute of Biosocial Research and Development, Calcutta.**

This paper was prepared for the IUFRO International Conference on 'History of Small Scale Private forestry' held at Freiburg, Germany during Sept. 2-5, 1991. The paper shows the historical processes that led to change in the management, and deforestation of forests in the Midnapore District of West Bengal. Five phases in this regard have been identified. It shows how privately managed and owned forests by local communities were gradually taken over by the state. During all these phases the forests progressively got denuded and eventually totally destroyed. With the emergence of the Joint Management of Forests in the District since the early eighties, much of the lost biodiversity has been established in the region. The restituted biodiversity plays a very important role in meeting the subsistence needs of the local communities.

**73 Malhotra, K.C., Debal Deb and T.S. Vasulu. Undated. Restitution of Natural Biodiversity in South West Bengal Forests (Working Paper No. 5). IBRAD, New Delhi.**

This paper reports the innovative approach of Joint Management of Forest Lands initiated by the West Bengal Forest Department and its adoption by several other states like Haryana, Gujarat, Rajasthan and Bihar. Its endorsement by the Government of India has opened up fresh avenues and hope for the restitution of biodiversity in the millions of hectares of degraded forest lands. Studies clearly demonstrate that wherever feasible, the regeneration approach should be preferred as against the plantation approach. In the former approach, not only more biodiversity gets established, but it also fulfils the subsistence needs of the forest-dwelling communities. It has also been emphasised that the said approach is highly cost-effective, ecologically sound and capable of meeting the subsistence needs of the rural poor.

**74 Malhotra, K.C., N. Satish Chandra, T.S. Vasulu, L. Majumdar, S. Basu, M. Adhikari and G. Yadav. Undated. Joint Management of Forest Lands in West Bengal: A Case Study of Jamboni Range in West Midnapore District, Technical paper No. 2. Indian Institute of Bio-Social Research and Development, Calcutta.**

This paper reports the results of a diagnostic study undertaken among 42 FPCs in Jamboni forest range of

Midnapore District. The object is to examine the role of selected socio-economic factors on the functioning status of the FPCs. The study concludes: (i) 74% of the FPCs were functioning well; (ii) the smaller the number of villages participating in a FPC the greater its effectiveness; (iii) the greater the proportion of tribal composition in the FPC the greater its effectiveness; (iv) the greater the proportion of households in each participating village(s) included as FPC members the better its management of the forest and (v) the greater the proportion of natural forest to plantation in the FPC project area, the better the protection.

**75 Malhotra, K.C., Mark Poffenberger, Arunabha Bhattacharya and Debal Deb. Undated. Rapid Rural Appraisal Methodology Trials in South West Bengal: Assessing Natural Forest Regeneration Patterns and Non-Wood Forest Product Harvesting Practices (Working Paper No. 11). Sustainable Forest Management - Working paper series: Ford Foundation, New Delhi.**

The paper examines a methodology used in rapid understanding of the general pattern of sal (*Shorea robusta*) forest regeneration in the Jamboni range in West Midnapore District of West Bengal. It has been concluded that the rapid assessments of forest regeneration patterns and NTFP harvesting systems can be useful in providing information on change in forest areas experiencing rapid regrowth under community protection. The analysis indicates that enrichment planting of fodder grasses and kendu (*Diospyros melanoxylon*) should be limited to forest periphery areas, where they will not be shaded out by sal trees. Enrichment planting of mushrooms and many medicinal plants should probably be delayed until the 4th or 5th year of regeneration to ensure sufficient canopy closure has occurred to protect shade-tolerant species from too much light. Further field trials of RRA methodologies for understanding illuminating management options for regenerating natural forests need to be carried out to enhance the research tools discussed in the paper.

**76 Malhotra, K. C. and Mark Poffenberger. 1989. Forest Regeneration Through Community Protection: The West Bengal Experience - Proceedings of the Working Group Meeting on Forest Protection Committees, West Bengal Forest Department, Calcutta.**

The Report is an outcome of a working group meeting on Forest Protection Committees held at Calcutta during January 21-22, 1989. It begins with an excerpt from the Minister's inaugural address, in which he underlines the commitment of the State Government to respond to the needs of forest people in an ecologically sound manner. Part I presents papers from two of West Bengal's most senior foresters (Shri U. Banerjee and Shri S. Palit) who have played an instrumental role in the development of the forest protection committee programme and provide considerable insights into the programme's implementation and evolution. In Part II, the results of the workshop discussion are presented, covering needs for improving protection, production, planning and departmental staff support capacity. Part III deals with the results of case-studies from forest protection committees.

**77 Mascarenhas, James. 1992. Participatory rural appraisal and participatory learning methods: recent experiences from MYRADA and South India. Rome: FAO Forests, Trees and People Newsletter 15/16.**

Discussions of Participatory Learning Methods (PALM) - alternatively known as Participatory Rural Appraisal - promoted by MYRADA for participatory planning of natural resource development; the typical PALM exercise has about 25-30 'outsiders' taking part - drawn from various

organisations - NGOs, research and training institutions, government; a village is selected where some external assistance is proposed; seems to use 'PALM' interchangeably with 'PRA'; the exercise usually last 5 days; a major issue is learning how to deal with 'dominant' participants - especially those with 'vested interests'.

**78 Mascarenhas, James et al. (ed.). 1991. Participatory Rural Appraisal - Proceedings of the PRA Trainers' Workshop (RRA Notes Number 13). IIED, London and MYRADA, Bangalore.**

The principal aim of the report is to share current experiences and methods among practitioners of RRA and PRA throughout the world. The objective of this report is to share some of the thoughts and findings of the participants of the workshop conducted by the MYRADA, an NGO in Bangalore. It is presented in the main sections. The first is an overview of the major issues arising during group discussions and presentations. The second section contains thirteen different papers presenting overviews and case-studies of PRA, particularly detailing innovations in both methods and process.

**79 Mascarenhas, J. et al. 1991. Participatory Rural Appraisal: Proceedings of the February 1991 Bangalore PRA Trainers Workshop London: IIED.**

Very useful basic introductory guidebook, 140 pages; introductory section covers full range of techniques; emphasises importance of night halts and report-writing in the field; includes the following papers: James Mascarenhas 'PRA and participatory learning methods: recent experiences from MYRADA and South India'; Aloysium Fernandez, J. Mascarenhas, and Vidyaz Ramachandran 'Sharing our limited experience for trainers'; Parmesh Shah, Giris Bhardwaj and Ranjiit Ambastha 'PRA and Planning (PRAP)'; 'The experience of AKRSP'; Parmesh Shah, Giris Bhardwaj and Ranjit Ambastha 'Farmers as analysis and facilitators in training workshop for Action Aid India and Tagore Society for Rural Development'; John Devavaram et al., 'PRA for rural resource management'; Somesh Kumar 'Anantpur experiment in PRA training'; Ravi Jayakaran 'PRA camp at Mahilong, Bihar: Krishi Gram Vikas Kendra'; Anup Sarkar, 'Wealth ranking in Mahilong, Bihar'; Eva Robinson, 'PRA approach and strategy: the HIDA/MYRADA agroforestry Programme in Andhra Pradesh'; Parmesh Shah, Giris Bhardwaj and Ranjit Ambastha 'Participatory impact monitoring of a soil and water conservation programme by farmers, extension volunteers and AKRSP'; A.L. Shivaraja et al. 'MYRADA Kamasamundram Project: a brief report'.

**80 McGean, Betsy. 1991. Sustainable Forest Management: Working Paper Series, NGO Support Groups in Joint Forest Management: Emerging lessons (Working Paper No. 13), Ford Foundation, New Delhi.**

This report is based on a workshop held at New Delhi during May 29-30, 1991. The report summarizes the important issues and plans for follow up which emerged from the workshop. A synthesis of the four panel discussions, which addressed relevant themes and reviewed experiences, is presented first, and is followed by an encapsulation of the small working group discussions which highlighted specific topics of concern and derived action agendas and tentative research schedules.

**81 McGean, Betsy [ed.] 1991. NGO Support groups in joint forest management ; emerging lessons New Delhi : Ford Foundation. Sustainable Forest Management Working Paper No 13.**

Discusses the importance of NGO involvement to patch over contradictions between the policy of participatory for-

est management and the current unsuitability of FDs for implementing the policy; whereas the JFM program calls for an approach to management that is multi-sectoral, interdisciplinary, process-oriented, need-driven, flexible and participatory, the FD structure by nature is sectoralized, uni-departmental, target-oriented, resource-driven, standardized and authoritarian in terms of management; there is a lack of training in 'attitude reorientation, value adjustment, behavioral change, inter-personal skill-building, and participatory techniques for JFM. Furthermore, despite much pressure from NGOs and donors to incorporate gender sensitization in forestry training, the treatment of women's issues has remained superficial or marginalized into separate, token programs'; discusses the Aga Khan Rural Support Programme (Gujarat) approach which suggests a 'microwatershed development strategy' as a wider approach than just 'JFM' - this they hope will generate a more unanimous vested interest group in a village than a single-resource user group; JFM societies tend to become too formalised - if they formally register there is a danger that as an 'NGO' they will no longer be entitled to sign lease agreements with FD so that benefits can accrue to members (see GOI memo June 1990 on this); there is an urgent need for 'social process documentation to track patterns of institutional change'; JFM may not be an appropriate entry strategy in some village, for example, where 75% of the population migrates for six months each year; social process research should address the following issues: patterns of user-group formation; factors affecting management systems; variance in local approaches to management; problems in control of resource use; users' interactions with FD staff, contractors, middlemen and others; changes in FD as management devolves to local people; effectiveness of staff re-training; changes in departmental procedures, staff attitudes and behaviour; ways in which FD staff involve communities in JFM; suggest baseline studies on the following, using RRA: history of degradation and human activities that have caused it; livestock and animal pressure; inter-relation of different types of degradation activity; the pattern of regeneration once protection is in place (which species predominate and which are suppressed?). Changes in succession? Increase of biomass? Changes in regenerative processes under silvicultural manipulation; rate of increase in productivity of NTFPs; effects of enrichment planting strategies on volume yields; total value of produce for each year or regeneration; cost of inputs at various points during the regeneration process; which management systems give good supply of steady income with rapid start-up?

**82 Mehrotra, Shivnath and Chandra Kishore. 1990. A Case study of Voluntary Forest Protection in Chhotanagpur, Bihar, Indian Institute of Forest Management, Bhopal.**

This is a project report prepared by the authors in partial fulfilment of the postgraduate programme in forestry management for IIFM Bhopal. It is a result of the collaborative efforts of SIDA and IIFM. The interest in forest property management has been stimulated by discoveries of village-level institutions which have been managing their sources successfully and effectively. Information about their existence in the Chhotanagpur area of Bihar was little regarding their functional modalities. This report gives information on such community efforts and has the following objectives - to enumerate villages practising voluntary forest protection in Ranchi and Hazaribagh Districts, and to study 10 selected villages to understand the mechanism behind such protection.

**83 Ministry of Environment and Forests, Government of India, New Delhi. 1994. India's Initiatives in Implementation of the Forest Principles.**

This document deals with the initiatives on implementation of the forestry principles. They have listed the policies and programmes, views on information-sharing, steps taken towards strengthening of institutional capabilities, approach to plantation forestry, trade of forest produce and international cooperation to show their Commitment to the implementation of the forestry principles.

**84 Moench, Marcus. 1991. 'Training and planning for joint forest management' New Delhi: Ford Foundation. Sustainable Forest Management Working Paper No 8.**

Defines JFM as 'sharing of products, responsibilities, control, and decision-making authority over forest lands between forest departments and local user groups which involves a contract specifying the distribution of authority, responsibility, and benefits between villages and state forest departments with respect to lands allocated for joint management'; problems are likely to increase greatly as the number of villages regularly using a single forest area grow, so joint management possibilities may be best where a single forest area is used by a single village; JFM institutions are likely to function better and more equitably in villages which are relatively homogeneous with less domination by elite powerful groups, and a broadly-shared interest in forest resources; lists five factors contributing to successful JFM: 1. available resources to be shared with villagers in return for protection; 2. possibility of establishing a direct logical link between improvement of degraded lands and access to specific resources; 3. individual villages are primary users of a specific forest area; 4. homogeneity of villages in terms of caste/economic makeup; 5. high dependence of participants on forest resources. FD staff still tend to take a technical approach to exercises that demand a more qualitative approach - JFM is seen as 'dam building' or 'society formation' without assessment of whether the technical activities support the organisational ones; the main primary source of 'diagnostic information' is the villagers themselves, but forest guards also have intimate local ecological and social knowledge, and FD records have lots of information, such as existing resource allocation arrangements (e.g. lease or collection rights for NTFPs and timber harvesting schedules) and detailed maps showing legal demarcation of forest areas and timber stock.

**85 Moench, Marcus. Undated. Sustainable Forest Management - Working Paper Series - Training and Planning for Joint Forest Management (Working paper No. 8). Ford Foundation, New Delhi.**

Despite widespread interest and Joint Management Project activity, there are few clear statements on what Joint Forest Management is or how to go about it. As with the slogan "people's participation", Joint Management can be interpreted in many ways. The purpose of this paper is to present one definition of Joint Management and then to explore some of the practical implications for programme initiation which flow from that definition. Besides this, the paper examines methods, training requirements, and the implementation of Joint Management programmes.

**86 Mukherjee, Raktima. 1994. Process Documentation of the Meeting for Cooperative Formation held on 22/11/93 at Illambazar (Working Paper No. 25). IBRAD, Calcutta.**

The proceedings of the meeting for cooperative formation to support JFM programme at Birbhum District held on 22/11/93 at Illambazar have been documented in this paper. It is concluded that the cooperative system helps to bridge the gap between FD & FC, and also helps to take a

joint decision and the responsibility that goes along with this decision are shared jointly.

**87 Mukherjee, R., D.S. Roy, G. Yadav and S. Mahapatra. 1994. Comparative study of the Functioning of Forest Protection Committees of the Villages Dahi and Lengamara, Midnapore District, West Bengal (Working Paper No. 26). IBRAD, Calcutta.**

This paper presents a comparative picture of the functioning of Forest Protection Committees of the villages Dahi and Lengamara in District Midnapore, West Bengal. The aspects covered are structure and functions and rights of FPCs, physical background, ethnic composition, occupation, dependence on forest, historical background of the forest, and its management, inter-villages conflict, present condition of the forest factors affecting the functions of FPCs, meetings patrolling, offences, punishment, awareness, the government order, ways of getting usufructuary benefits, relationship with forest department, conflict within the FPC and leadership, possible ways of intervention to make the programme sustainable.

**88 Nadkarni, M.V., K.H. Ninan and Syed Ajmal Pasha. 1994. The Economic and Financial Viability of Social Forestry Projects: A study of selected projects in Karnataka, Joint Forest Management, Working Paper No. 16. National Support Group for Joint Forest Management, Society for Promotion of Wastelands Development, New Delhi and Ford Foundation, New Delhi.**

This paper examines the economic and financial viability of 13 social forestry projects in Karnataka. The basic question it attempts to answer is whether the direct benefits in terms of fuelwood, fodder, food and timber produced by social forestry projects are commensurate with the costs incurred. Among the costs is included the opportunity cost of the land in the form of grazing opportunity foregone. Financial viability is assessed in the criterion whether the financial returns expected from that part of the produce which is sold is commensurate with the paid out costs. This paper attempts an economic evaluation, avoiding some of the conceptual and methodological pitfalls. It clearly establishes the economic as well as financial viability of social forestry projects, even under fairly rigorous assumptions under all the three measures -net present value, cost-benefit ratio and internal rate of return.

**89 Nadkarni, M. V., Syed Ajmal Pasha and L.S. Prabhakar. 1989. The Political Economy of Forest Use and Management, Sage Publications, New Delhi.**

This book provides a unique perspective on the problem of forest use by combining historical analysis with contemporary field studies. It examines the conflict of interests involving the local population, the Government and the commercial forces at work in the wider economy over a 100 year period (1880-1980) and the impact of this conflict on the forests and the local economy. Simultaneously, based on a survey of selected villages in Karnataka, the authors highlight the class character of the local socio-economic structure and the highly inequitable use of forests by different interest groups. In the process, they show how the bulk of the local population was alienated from the management of forests and how most of the benefits of forest use accrued to the two richest classes of rural society. The study exposes the weaknesses inherent in the populist solution which calls for handing over forests to the locals and in the bureaucratic and technocratic solution which is based on the presumed omnipotence of the forest department. In conclusion, it argues for a more objective approach to the problem and urges that alternative institutional forms be evolved which involve the local popula-

tions, including poor peasants and the landless, in forest management.

**90 Norgaard, R. 1992. Environmental science as a social process. Environmental monitoring and assessment 20: 95-110.**

The need for better environmental information for planners and voters is based on maladaptive beliefs about the nature of knowledge and social order. Because there is not a meta-model which links the individual environment sciences into a coherent whole, understanding complex environment problems is necessarily a process of discourse between scientists from separate sciences – a process of gaining trust, building new patterns of thinking, and reaching toward new consensus. By acknowledging the nature of the process, we can improve upon it and relieve the need for better environmental information.

**91 NWDB. 1988. Hill Resource Development and Community Management: Lessons Learnt on Micro-Watershed Management from cases of Sukhomajri and Dasholi Gram Swarajya Mandal. National Wastelands Development Board, New Delhi.**

The report briefly describes the Sukhomajri project and the activities of the Dasholi Gram Swarajya Mandal, especially those related to the rehabilitation and management of uncultivated lands by village communities. It identifies key elements in the success of both these projects and considers replication of these projects and proposes an intermediary support agency as a buffer between voluntary agencies and government in the development of micro-watershed and related village development. Also it mentions constraints in the management of uncultivated lands by village communities and suggests some policy changes. Finally, it discusses the broader implications of these projects on hill development.

**92 Pachauri Rashmi. Undated. Sal Plate Processing and Marketing in West Bengal, (Working Paper No. 12), Sustainable Forest Management: Working Paper Series. Ford Foundation, New Delhi.**

This paper presents a detailed study of the production and marketing of sal leaf plates in South West Bengal. The first section includes information on area under sal forests, volume levels, marketing channels for both the products, pricing structures and profit margins at each step of the marketing channels, persons involved in the collection and processing systems, seasonal fluctuations and labour demand, problems and opportunities. Case-studies of village level production groups have also been included. The second section deals with an attempt at estimating the potentials both on the demand side as well as on the supply side, of sal leaf 'plate' and of consumption and production. The last section includes the broad constraints and opportunities both for non-wood forest products in general and for sal plates specifically.

**93 Palit, Subhabrata. 1993. 'The future of Indian forest management: into the 21st century'. New Delhi: Society for Promotion of Wastelands Development. Joint Forest Management Working Paper No 15.**

Looks at forest management and deforestation in pre-colonial, and post-independence periods as the backdrop to contemporary long-term forest management objectives; discussing the trade-offs between timber and NTFP productivity, recommends that technical and research support for NTFPs should include market cells in FDs, liberalization of transit rules, better communications, collection depots, dissemination of market information, local processing products, establishment of small-scale industries. The need for creating supportive staff attitudes and skills is emphasised - to be achieved through orientation and train-

ing, community motivation for JFM, performance assessment, and creating a meritocracy in FDs; FDs' new organizational needs include staff redeployment, planning and management information systems, and independent M&E; strategies are required for reducing community dependence on forests; supportive policies and procedures for JFM still need to be developed - especially under the JFM system, the forestry personnel will have to maintain a very high level of integrity in financial matters, transparency should be maintained in all dealings as this will help plug corruption at the staff and community levels. This is a new culture that has to be introduced gradually, and its acceptability might not be easy; the West Bengal experience shows that only 10 to 15% employment can provide for some additional income, the extent of which will vary widely, depending on the situation; further support activities will be needed, such as assistance and organisation in marketing of NTFPs and reassessment of whether co-ops and LAMPS need to continue or whether their functions can be taken over by FPCs.

**94** **Panda, Abhash, Manoj Dabas, V. Varalakshmi, V.N. Shah and J.R. Gupta. 1993. Grass Yield Under Community Participation in Haryana Shivaliks (Joint Forest Management series No. 1). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report shows that effective protection and management of degraded areas improves their vegetative cover due to better regeneration. In order to maintain grass production on a sustained basis in the jointly managed forest areas, alternate management strategies like wider spacing for planting of tree species, use of light-crowned tree species for afforestation, identification of separate areas suitable for tree and grass cultivation etc., need to be worked out. It shows that the Joint Forest Management in the lower Shivaliks by the Haryana Forest Department has given good results in regenerating degraded forests and grasslands.

**95** **Panda, Abhash, V. Varalakshmi, J. R. Gupta, Bakhshish Singh and Manoj Dabas. 1992. Impact of Participatory Forest Management on the Ecology of Shivalik Hills in Haryana State (Joint Forest Management Series No. 2). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

The report shows that the local community is actively participating in the joint management programme initiated by Haryana Forest Department in the degraded forest patches of the lower Shivaliks. The Report shows that in order to provide incentives to the forest community on a sustainable basis the Haryana Forest Department has to take into consideration factors like composition of crop, land-use pattern, hydrology of the watersheds, and the significance of the diversity of the resources. Water for irrigation from the earthen dams, fodder grass as forage for the livestock and bhabbar grass for rope making are some of the important incentive mechanisms through which the Haryana Forest Department involves the local community in the protection and management of the above forests.

**96** **Pathan, R.S. 1992. Forest Protection Committees in Gujarat - Joint Management Initiative. Ford Foundation, New Delhi.**

Since the Gujarat Forest Department initiated its forest protection committee activities in 1987, significant progress has been made in involving forest villages in the regeneration of degraded lands and the custodianship of healthy forests. The experiences coming out of south Gujarat are important because, prior to this programme, successes from the West Bengal programme were often

attributed to site-specific conditions including the socio-political context, the coppicing ability of sal, and the greater rainfall in Bengal. The Gujarat Forest Department's programme demonstrates that in a very different human ecological setting, empowering communities to protect degraded lands can result in rapid ecological recovery. Despite lower rainfall and a different cultural environment, community response has been very strong, with vigorous forest regeneration resulting as local management controls have emerged. Further department officers and field staff have shown great capacity to shift from a confrontational mode to a cooperative style, effectively mobilizing community action, while building local management capacity. The government of Gujarat is currently reviewing a government order which would allow for the gradual expansion of this promising approach to participatory forest management.

**97** **Pathan, R.S., N.J. Arul and Mark Poffenberger. 1991. Forest Protection Committees in Gujarat - Joint Management Initiative. Ford Foundation, New Delhi. Sustainable Forest Management Working Paper No 7.**

Gujarat has only 0.05 ha of forest per capita - less than half India's 0.11 average (world average 1.04 ha); there has been dramatic reduction (about 75%) in the incidence of violence against forest officers since the mid-eighties, due to new arrangements between FD and Forest Protection Committee; FPCs are commended for policing the forest (though the report ignores the possibility that such community policy may, like FD policing before it, be carried out in a socially insensitive manner - i.e. keeping defenceless migrant herders out of their path of forest, thus forcing them to overgraze other patches of land); operating the forest restoration project is maximally effective if worked simultaneously in groups of adjacent villages; presents case-study of the Aga Khan Rural Support Project in Pingot village.

**98** **Pati, Biswanath. 1994. Status of Medicinal Plants in the Reserve Forest of Marakanam Medicinal Plants Conservation Area (Working Paper No. 29). IBRAD, Calcutta.**

This paper concludes that sound forest management ensures adequate regeneration of forest all the time. Regeneration may be by seed or by coppice or by any other vegetative part. In the Reserve Forest of Marakanam regeneration occurs naturally. Most of the medicinal plants are shrubs, and they regenerate very well from seed and stumps. So regeneration will come up if grazing is controlled. No grazing rights were recognised in this reserved forest, yet this right is not possible to enforce due to local pressure and local demand. Soil condition, temperature, rainfall etc. are suitable for the regeneration of the medicinal plants.

**99** **Pendzich, Christine, Garry Thomas and Tim Wohlgemant. 1994. Forests, Trees and People Programme, The role of Alternative Conflict Management in Community forestry. RESOLVE and Food and Agriculture Organization of the United Nations.**

This working paper has been prepared as 'concept paper' written for a global audience, rather than the primarily Latin American audience of the Workshop. It includes three case-studies contributed by Mauro Barbosa de Almedia, Zulema Lehm and Carlos Villarreal. Appendices include the outline used in preparing the case-studies, the list of names, institutional affiliations and addresses of all workshop organisers and participants, and the workshop agenda. This paper deals largely on conflict management issues. It argues that when incorporated into broader participatory strategies and adapted to the local cultural context, alternative conflict management can empower com-

munities to develop creative solutions to their forest resource dilemmas. Alternative conflict management is not easy to implement - it certainly is no panacea - and there might be times when the alternatives of legal or political confrontation are the more intelligent choices, despite the costs. But when the costs of conflict are great for all stakeholders, when the issues are highly complex, and when building good, long-term relationships among the parties is important, alternative conflict management has a number of distinct advantages to more adversarial strategies of goal attainment.

**100 People's Management School. 1992. JFM Executive Committee Training Manual, Seva Mandir, Udaipur.**

This manual presents a session-by-session plan of a Joint Forest Management Executive Committee training. The sessions are based on a training which was conducted by Seva Mandir's People's Management School to train the Executive Committee members of Shyampura village, the site of the JFM project in Rajasthan.

**101 Peters, Charles M. 1994. Sustainable Harvest of Non-Timber Plant Resources in Tropical Moist Forest: An Ecological Primer, Biodiversity Support Programme, World Wildlife Fund, The Nature Conservancy and World Resources Institute, Washington.**

This Report attempts to narrow the gap between the potential and the reality of land-use practice. The main objective is to give a concise overview of the ecology, exploitation and management of non-timber tropical forest plant resources in terms that can be easily understood by non-specialists. Section I summarizes the principal ecological characteristics of tropical plants that limit the nature and intensity of resource exploitation. Section II discusses the potential long-term ecological impacts resulting from the harvest of different parts. Section III presents a general strategy for managing non-timber plant resources on a sustained-yield basis. Within the context of the report, a sustainable system for exploiting non-timber resources is defined as one in which fruits, nuts, latexes, and other products can be harvested indefinitely from a limited area of forest with negligible impact on the species being exploited. The report focuses exclusively on the ecological context of non-timber tropical forest products, with particular emphasis on the structure and dynamics of tree populations. It does not address the innumerable economic and social factors which are also important in determining the overall sustainability of forest resource exploitation.

**102 Phillips, O., Gentry, A.H., Reynel, C., Wilkin, P., Galvez-Durand, C. 1994. Quantitative Ethnobotany and Amazonian Conservation. Conservation Biology 8(1): 225-248.**

Ethnobotanical data were used to compare the usefulness of six floristically distinct forest types to *mestizo* people at Tambopata, southeast Peru. The aim was to evaluate which forest types are most useful, and why. Ethnobotanical data were collected with informants in inventory plots and analysed using a new technique that uses a two-tier calculation process to derive an informant indexed estimate of each species' use value. Use values are estimated based on the degree of consistency between repeated interviews of each informant, and between different informants.

**103 Poffenberger, Mark. 1991. 'Joint forest management in West Bengal: the process of agency change'. New Delhi: Ford Foundation. Sustainable Forest Management Working Paper No 19.**

The closed forest cover in the Midnapore District of West Bengal has increased from 11% to 20% in the past six years, mainly due to the discovery that local people will enable sal stumps to coppice by restricting grazing and lop-

ping, if provided with the right incentives; rapid growth to 2000 FPCs in West Bengal has meant that they aren't yet well registered or monitored.

**104 Poffenberger, Mark, Betsy McGean, Arvind Khare and Jeff Campbell (ed.). 1992. Field Method Manual Volume II, Community Forest Economy and Use Patterns: Participatory Rural Appraisal (PRA) Methods in South Gujarat, India. Society for Promotion of Wastelands Development, New Delhi.**

This 'Field Methods Manual' is an outcome of a 'Field Training Workshop' held in Gujarat between April 5-11, 1992. The Manual is organised into an introduction, two main parts and a summary discussion. The introduction begins with a brief description of the research settings in Gujarat, India, followed by the rationale for employing PRA and a process approach to initiating the field research, including team formulation, site selection and team introduction to the community. Part I describes nine different classes of information collection with useful outputs which can be generated through application of PRA methodologies, such as key informant and group interviewing, stratified sample surveying, sketch mapping, participant observation, and secondary background research. Part II begins with a description of the natural resource situated in Gujarat and a forest divisional history in the research area in order to provide background for the current forest management programme. Then it describes three village case-studies, representing different forest conditions, years of protection, rehabilitation and management strategies. The manual (report) concludes with a summary of the methodological lessons learned through the PRA trials, and a discussion of the forest contexts, product flows, and participatory management implications which emerged through the exercise.

**105 Poffenberger, Mark. 1990. Joint Management of Forest Lands: Experiences from South Asia. Ford Foundation, New Delhi.**

This booklet briefly examines three regions within South Asia where poor land management is causing environmental degradation and social and economic problems for rural communities. Within each setting, an example is given of a Government Agency which is attempting to improve land management through partnerships with community groups. The experiences of each programme are discussed and assessed in terms of the productivity, equity and sustainability of emerging joint management systems. It concludes by describing the Foundation's efforts to support forest agencies developing new approaches to participatory management. The three human-ecological settings included in the booklet are tribal regions of central India, semi-arid western India, and the middle hills of the Himalayas where the Ford Foundation is attempting to focus its land resource programme on the development of a joint management system for degraded reserves and protected forest land.

**106 Poffenberger, Mark. 1991. Joint Forest Management in West Bengal: The Process of Agency Change. Working Paper No. 9. Ford Foundation, New Delhi.**

The West Bengal experience indicates that communities and forest departments can work together to establish effective control over forest use. These promising developments are of recent origin. Twenty years ago the area suffered from high tensions between forest community and forest department, where violent conflicts were common events. This paper discusses the process of change through which agency community relationships improved in three phases: the emergence of joint management systems during 1972 to 1982; the informal expansion during 1983 to

1989, in which forest protection committees emerged in Chingra Forest area; and the consolidation of the programme from 1990 onwards.

**107 Poffenberger, Mark, Betsy McGean, N. H. Ravindranath and Madhav Gadgil. 1990. Field Methods Manual Volume I: Diagnostic Tools for Joint Forest Management Systems. Society for Promotion of Wastelands Development, New Delhi.**

This book suggests selected research tools that forest departments, NGOs and researchers might use to assist communities in developing effective forest management systems. It describes a range of diagnostic tools and techniques which can be employed to better understand the complexities of the community forest relationship, and thereby help derive improved participatory management strategies. The methods are designed to provide an initial understanding of forest use practices and conditions, while opening a dialogue with community members regarding management problems and opportunities. Part I of the book reviews the macro-forest management context in India and highlights common management problems that can be addressed through diagnostic research. Part II outlines the steps in preparing for community forestry research. Part III describes the four major components of an integrated rapid appraisal strategy for helping develop community forest management programmes. These include: community profiling techniques using PRA methods and analysis procedures for understanding patterns of vegetative change, approaches for illuminating socio-political and institutional characteristics affecting resource management and assessment of the economics of forest production systems. Part IV reviews strategies for forest departments and community groups to utilize learning from rapid appraisals in order to develop more effective, collaborative management systems.

**108 Poffenberger, Mark and Betsy McGean. 1994. Asia Sustainable Forest Management Network: Policy Dialogue on Natural Forest Regeneration and Community Management. Research Network Report No. 5, East-West Center, Hawaii.**

This report is based on a workshop held at East-West Center, Honolulu, Hawaii during March 2-4, 1994. Part I of the report reviews the current conditions of forests in Thailand, the Philippines, Indonesia and India as presented by senior policy makers at the meeting. Part II describes preliminary strategic action plans formulated by each participating country.

**109 Poffenberger, Mark and Madhu Sarin. Undated. Fibre Grass from Forest land: A Case from North India, (Working Paper No. 10). Working Paper Series. Ford Foundation, New Delhi.**

This paper explores how acacia forests and grasslands are managed by the Haryana Forest Department and lease harvesting rights allocated to contractors and a paper mill. It also chronicles the experience of the Hill Resource Management Societies (HRMS) in protecting and utilising the grass lease lands under a forest Department (HFD) programme to transfer non-wood forest product harvesting rights to communities to improve forest management. The information presented in the report is drawn from field studies and process monitoring reports compiled under the Joint Forest Management Support Programme, over a period of three years. The experience of working with communities to manage reserve forest lands may provide lessons which can help in developing new approaches to managing and restoring India's valuable forests and grasslands. The authors suggest that the community grass leasing arrangements need to be integrated with long-term resource man-

agement requirements of the larger forest ecosystem. As tree cover increases and forest succession proceeds, grass production will gradually fall, and communities will need to continue to benefit through rights to other forest products. They say that the experience of the HFD's Joint Forest Management programme is significant as it represents the types of problems other forest departments and communities will be likely to encounter as they attempt to develop collaborative forest management systems and enhance the productivity and profitability of non-wood forest products for rural families. This shift to collaborative management will continue to require major changes in forest department procedures and Working Plans.

**110 Raju, G. 1994. JFM orders : a critique from the field. Wastelands News 9(2): 65-68.**

Criticises the JFM orders issued in Gujarat, Orissa, and West Bengal, based on a year-long study of forest protection committees (FPCs) in those states; gives a table showing the main features of JFM Orders; found that the relevant Sarpanches were often unaware of the activities of the FPCs, especially where villages come under group Panchayats and the Sarpanches are from different villages. There also limitations to the number of FPCs each Beat Officer can effectively give personal attention to; it also found that local people's regular small timber needs had been completely ignored; government agencies continue to monopolise the sale of NTFPs, though some FPCs have started demanding the right to collect and sell these; none of the state orders provides any punitive powers to the FPCs - although this theoretical powerlessness does not in practice stop them from effectively apprehending culprits, generally, the Government Orders concerned do not give the FPCs enough leeway to evolve in a flexible manner.

**111 Rao Y.S., Marilyn W. Hoskins, Napoleon T. Vergara and Charles P. Castro (ed.). Undated. Community Forestry: Lessons from Case Studies in Asia and the Pacific Region. RAPA of the Food and Agriculture Organisation of the United Nations, Bangkok, Thailand and Environment and Policy Institute, East-West Centre, Hawaii, U.S.A.**

This book is an outcome of FAO/SIDA's Forestry for Local Community Development Programme (ELCDP) funded Workshop in Bangkok during August, 1985. It is a compilation of 13 case-studies presented from different countries, including India, on community forestry. It concludes that the major benefits of the activities should go back to individuals or groups in the participating communities. The idea of local management and control over tree and forest resources has also been considered important. The description of a variety of community forestry activities in different countries is given. Other aspects included are the minimum length of project implementation to provide valid observations; the amount of available data required; training and reference materials; etc. The importance of social issues is stressed in the book: if the trees do not address local needs, and institutional arrangements do not allow farmers to benefit in ways they value, the projects would not work.

**112 RCNAEB. 1994. People's Participation in Forestry - Joint Forest Management, Agriculture Finance Corporation Ltd., New Delhi.**

This report is based on a study which attempts an assessment of the status of implementation of the JFM resolution of the Government of India in the states of Uttar Pradesh, Rajasthan and Haryana. Though only the Government of Rajasthan has so far issued two state resolutions as a follow up of the GOI resolution, the movement has been started in one form or the other in all the three states. The report

brings out the magnitude of the problem and suggests administrative and other measures required to cope with the same. It also provides general guidelines for the preparation of Joint Management Plans for degraded forests and common property source lands.

**113** **Robinson, J. G. 1993. The limits to caring: sustainable living and loss of biodiversity. Conservation Biology 7(1): 20-28.**

*Caring for the Earth* represents current, middle-of-the-road thinking on the relationship between conservation and development. This IUCN/UNEP/WWF document embraces a purely utilitarian perspective: it considers the conservation and development of natural resources to be the same process. In this analysis the author argues that the goal of creating a sustainable society, as defined in *Caring for the Earth*, is an unattainable utopia, and that the mechanisms proposed to attain this goal will lead irrevocably to the loss of biological diversity. The author considers the history of the concept of sustainable development, and then documents the constraints on the sustainable use of natural resources. Sustainable use only occurs when both human needs are met and the losses of biodiversity and environmental degradation are acceptable. These conditions are not always met when natural resources are used and the fundamental conditions between resource potential and human needs are considered. The author concludes by emphasizing that while sustainable use is a powerful approach to conservation, it is not the only one, and the conservation of many species and biological communities also requires a preservationist approach.

**114** **Roy S.B. 1994. Bilateral Matching Institution: An Illustration in Forest Conservation (Working Paper No. 22). IBRAD, Calcutta.**

No human society is imaginable without institutions, and in every society some individuals are authorised to assume the responsibilities for supervising the observance of the norms, values and institutions. Gradually they become the governors and the restore governed [re-write!]. With the passage of time, the values, norms and procedures of the former develop into bureaucratic institutions. Simultaneously, the values and procedures of the latter crystallise into social institutions. The two sets of institutions diverge sometimes over how to achieve similar ends, resulting in conflicts. Conflicts are found between the bureaucratic institution of the forest department and forest committees in India and elsewhere. The author finds a solution to such conflicts in the strategy of what he terms bilateral matching institutions. A few instances presented in the paper show that this matching is a process based on equality between the followers of two institutions and their mutual appreciation of each others' goals and problems.

**115** **Roy S.B. and Mitali Chatterjee. 1994. Joint Forest Management - A Training Manual. Inter India Publications, New Delhi.**

This manual contains the essentials for training the members of the forest department. The manual makes clear that Joint Forest Management is a multidisciplinary endeavour which needs the services of anthropologists, sociologists, foresters, environmentalists, etc. It records a number of case-studies in places as distant as Maharashtra, Tamil Nadu, West Bengal and Bihar, focusing on how the planners went about micro-planning to initiate the new concept.

**116** **Roy, S.B., Raktima Mukherjee and Mitali Chatterjee. 1992. Endogenous Development in Participatory Forest Management. In: Journal of Indian Anthropol. Soc., 27: 48-55.**

Based on a number of case-studies, this paper shows how people can be involved in participatory forest management

programmes through endogenous development. It also makes very clear that just by providing fuel to the community will not take the programme closer to them. Rather, people should be involved at all levels of the process, define their own needs and participate in the decision-making process.

**117** **Roy, S.B., Raktima Mukherjee and Mitali Chatterjee. Undated. Endogenous Development, Gender Role in Participatory Forest Management, ( Technical Paper No. 3). Indian Institute of Bio-Social Research and Development (IBRAD), Calcutta.**

The paper argues, with the help of case studies in Nilgiri, Tamilnadu, that, through endogenous development, people can be involved in Participatory Forest Management programmes. It also makes clear that it is not sufficient to provide fuel for the community to take the programme closer to people. If people take the initiative, participate in the programme as a part of their own need and culture, and are empowered as decision makers, it will socially institutionalise the programme. Unless the traditions of the community and its institutions respond to the changing environment, the transformation of society for accepting new norms is not possible. The case-studies reveal clearly what factors prevented women from getting involved in forestry programmes, even when fuel was provided for them.

**118** **Saigal, Sushil (ed.). 1993. Proceedings of the Orientation Workshop of AP Officers of Forest and Animal Husbandry Department, Government of Andhra Pradesh. Society for Promotion of Wastelands Development (SPWD), New Delhi.**

This report is based on a two-day orientation workshop organised by SPWD in Hyderabad on October 21-22, 1992. It gives information about the A.P. JFM resolution, certain problems faced by the participants of the workshop, including the experiences of field visits taken by the participants in different parts of the country, particularly in West Bengal. The following subjects have been discussed : Review of the Andhra Pradesh JFM order, preparation of operational guidelines for implementing JFM, institutional changes required for JFM and interface of different departments and organisations with social forestry divisions.

**119** **Saigal, Sushil, Mineesh Gulati, Ramesh Chakravorty and Varalakshmi. 1993. Joint Forest Management - Orientation Workshop for Field Officers of Andhra Pradesh. Society for Promotion of Wastelands Development, New Delhi.**

This report was prepared during March 11-16, 1993. Several portions of this booklet are based on material obtained from 'How to communicate effectively with grass-roots women', published by Society for Participatory Research in Asia, New Delhi and 'The Community's tool box', published by the Food and Agriculture Organisation of the United Nations. In the 'introduction' part of the report, it gives information about JFM - what and why, and its evolution. It gives information about the process of organising village communities into FPCs. Planning for JFM and Monitoring aspects are also been discussed in depth, along with sketches. Monitoring and evaluation systems have been proposed. As a whole, the document gives a general background to the system.

**120** **Sargent, Caroline et al. 1994. Incentives for the Sustainable Management of the Tropical High Forest in Ghana. In: Commonwealth Forestry Review 73(3).**

In this paper, a coherent set of incentives for better forest management in Ghana is described. These incentives balance demand and supply-side issues, and are aimed at the forest user and manager. The sharing of rights or benefits and the assumption of responsibility are considered to pro-



vide the fundamental incentive which will encourage management of the resource in a biologically sustainable, socially equitable and economically effective way. This is realised as joint forest management at the District level. Building of capacity for all partners involved provides additional incentive. Fiscal, financial and other incentives can be used to reinforce the framework of shared rights and responsibilities: financial incentives can be directed to protect or promote particular species groups or to introduce preferred systems of biological management. They are essential in cases where complete protection of a species or site is required, since protection can incur costs without giving rise to any financial benefit.

**121 Sarin, Madhu. 1993. From Conflict to Collaboration: Local Institutions in Joint Forest Management (Working Paper No. 14). National Support Group for Joint Forest Management. Society for Promotion of Wastelands Development. New Delhi and Ford Foundation, New Delhi.**

This paper examines some of the major issues related to local institutions which will need to be addressed to effectively translate the goals of JFM into practice. Part I examines some of the guiding principles on which democratic and effective local institutions need to be based to undertake the resource management tasks expected of them. Part II deals with the complexity of existing forest people relationships. Part III examines the internal structure and functioning of participatory local organisations capable of performing the role expected of them in JFM. The importance of the leadership's representativeness, transparency and accountability in decision making and commitment to principles of equity for the sustainability of autonomous local organisations is highlighted. Part IV deals in depth with the organisational functions of local institutions, concentrating on operational rules and procedures necessary to ensure the proper functioning of local institutions. The paper emphasizes the participatory process of nurturing and empowering diverse and autonomous local institutions. This process must become an integral part of implementing JFM, in contrast to the tendency among forest bureaucracies to command people's participation through top-down directives and executive fiat. The author has relied heavily on her personal learning during 13 years of involvement with the Haryana Forest Department's JFM programme.

**122 Sarin, Madhu. Undated. Regenerating India's Forests - Reconciling Gender Equity with Joint Forest Management. University of Florida and Tata Energy Research Institute, New Delhi.**

This paper looks at how JFM in its present phase is dealing with the least addressed issue of gender equity. It notes a continuing invisibility of women in State JFM resolutions. As a consequence, current implementation methods tend not to take gender differences into account. Therefore it is feared that JFM may transfer the Forest Department's traditional policy role against the predominantly women gatherers of forest produce to male members of their households. Women might then be seen as 'offenders' within their own homes. After a brief overview of the national context and the current patterns in both self-initiated forest protection and state promoted JFM, the paper examines the evident gender differentiated impact of such community forest protection at the field level. Due to the total absence of any empirical data on the differential impact of JFM by gender, this section of the paper relies primarily on case-studies and information gathered during field visits. The last section of the paper suggests how policy commitments to promoting women's equal participation can be better translated into practice through structuring women's sepa-

**123 Sarin, Madhu, and Renu Khanna. 1993. 'Women organise for wasteland development: a case study of SARTHI in Gujarat'. In: Andrea Singh and Neera Burra [eds], Women and Wasteland Development in India. New Delhi/London: Sage, pp. 129-170.**

The NGO called SARTHI (Social Action with Rural and Tribal Inhabitants of India) has been working with women Panchmahals since the 1987 drought; collective women's action has been effective so far, but the ambiguous legal status of wasteland is problematic for development programmes; men see plantation as a means of earning easy wages without any accountability for work output; male opposition has been expressed as suspicion that the NGO is trying to take away both land and trees from the men.

**124 Scoones, I., M. Melnyk, Pretty J. N. 1992. The Hidden Harvest: Wild Foods and Agricultural Systems. A Literature Review and Annotated Bibliography. International Institute for Environment and Development, Swedish International Development Authority, World Wide Fund for Nature International, published by the Sustainable Agricultural Programme, London.**

This bibliography comprises 971 annotated references. They have been selected to provide an indication of the range of research carried out on wild foods in agricultural systems, highlighting key themes of policy interest. It is organised into a number of thematic sections which are: wild foods in agricultural systems, swidden agriculture and foraging in forest areas, pastoral systems, wildlife utilisation, food security, nutritional significance, tenure and institutional implications, and socially differentiated use and economic valuation.

**125 Scott, Christopher and J.R. Gupta. Undated. Sustainable Forest Management, Forest Resource Conservation and Development Plan: Shivalik Hills (Working paper No. 6). Ford Foundation, New Delhi.**

This paper details the vegetative and physical conservation strategies that will aid forest resource regeneration in a forest beat in the Shivalik Hills. It comprises the technical aspects of forest micro-planning that the Haryana Forest Department intends to implement on a beat basis throughout the Shivaliks. Although it makes reference to the institutional and social decision-making process that results in comprehensive forest management, this plan is intended primarily to present options for field implementation in Dhamala beat (Surajpur block, Pinjore Range, Haryana) which may be considered a representative beat in terms of various forest conditions and its use patterns. It is comprised of a forest resource inventory for Dhamala, a map indicating prioritization of forest areas for treatment, and text covering a variety of vegetative and physical conservation techniques and their site suitability. In this paper, primary emphasis is given to the propagation of certain vegetative species rather than physical structures, which require significantly higher investment. An example of the species emphasised is bhabbar (*Eulaliopsis binata*) which results in financial returns to villagers organised in Hill Resource Management Societies and the Haryana Forest Department. Water harvesting through the construction of earthen or masonry dams is explored. However, given the current paucity of funds, such an approach is not considered to be widely replicable.

**126 Sethna, Armin and Anil Shah. Undated. Influencing Wasteland Development Policy. The Aga Khan Rural Support Programme (AKRSP), Ahmedabad.**

This paper describes how AKRSP, an NGO supporting income generation by the rural poor through improved land and water management in Gujarat, attempted over last

three years, in loose coalition with two other NGOs, to change government procedures which were impeding local participation in wasteland development. The process of influencing government described in this paper included extensive correspondence; meetings with central state and local officials; the development of workable afforestation programmes; the setting up at village level of a people's organization for forest protection, and the process of maintaining effective links with departmental officials and staff at the local level. It was characterised by periods of official silence or indifference; periods of unofficial empathy and encouragement; and finally a level of understanding and agreement.

**127 Seva, Mandir. Undated. Information about Joint Forestry Management, Seva Mandir, Udaipur.**

This is a pictorial monograph giving information about various aspects of JPFM, such as what is JFM? What kind of forest land can we work on? What are the responsibilities of the villagers? What are the rights of the villagers? What is the membership system to F.P. Committees?

**128 Shah, Tushaar. 1989. Case study - Collective Action on Village Commons: Community Fodder Farms in Kheda District, Gujarat. Institute of Rural Management, Anand, India.**

This paper presents four case-studies of local collective efforts to improve the management of the gauchers (village grazing lands) in the Kheda District of Gujarat by establishing community fodder farms - two successes and two failures. The successful experiments were well managed and resulted in manifold increases in the biomass output per acre. They altered the relationship between the resource and the user by introducing a pay-to-use system, thereby eliminating common property externality that affected the rest of the gauchers. Both are economically viable even while selling green fodder at subsidised prices. The cases of failure had little in common: one failed due to lack of effective demand and initiative from the community; the other failed primarily due to a corrupt leader. The report suggests that the pay-to-use system creates conditions that mimic a market system and reduce the cost of exclusion. Also offered is a tentative hypothesis on the role of leadership in collective action.

**129 Shankar, Manish & Vineet Rai. 1994. Exploring People-Forest-Industry Linkages in Rayagada District of Orissa. Indian Institute of Forest Management, Bhopal.**

This report is based on a project (study) of organisational training - the second component of post-graduate diploma in forestry management for the Society for Promotion of Wastelands Development, New Delhi. This study has been conducted in the Muniguda block of Rayagada District in the state of Orissa. An attempt has been made to explore the linkages that exist between the people and the forests, and to study how strong these linkages are and how they have been changing over time. Recent changes in the environment include the interest shown by the forest-based industries, and endeavours have been made to study the ways in which the intervention by industry has affected the aforesaid linkages. The study gives a general idea of how the work of other development agencies has affected/ is affecting the aforesaid linkages. In a nutshell, the study provides an insight into how the people subsist, the problems faced in the area, and the scope for improvement in the development of the area.

**130 Sharma, Narendra P. [ed.]. 1992. Managing the World's Forests: Looking for Balance Between Conservation and Development. Washington, D.C.: World Bank.**

A 605-page textbook covering both technical and political/social aspects, in 19 chapters; generally a comprehensive introductory text, but with few detailed case-studies.

Especially interesting articles are: Gillis, Malcolm, 'Forest concession management and revenue policies'; Mercer, D. Evan and John Soussan, 'Fuelwood problems and solutions'; Cernea, Michael 'Sociological framework: policy, environment, and the social sectors for tree planting'; Palmer, John and Timothy J. Synnou 'Natural Forests'; Nair, P.K.R. 'Agroforestry systems design: an ecozone approach'; Arnold, J.E.M. 'Production of forest products in agricultural and common land systems: economic and policy issues'; Brooks, Kenneth, Hans Gregersen *et al.* 'Watershed management: a key to sustainability.'

**131 Shepherd, Gill. 1989. Joint Forest Resource Management in India: Legal constraints and opportunities relevant to the proposed Forestry and Environment project in the Western Ghats. Report prepared for the ODA. London: Overseas Development Corporation.**

In hill and forest fringe areas, common property resources (CPRs) are still substantial; in the hills, large areas (e.g. one ha per family) are available to meet needs for green mulch and fodder; despite increased commercialisation, extraction of CPR products could still be fringe; CPR management originally covered most of the area; here, minor forest products are used as a source of income rather than as inputs to agriculture - meeting as much as 50% of subsistence food needs as well as leaves, flowers, medicinal herbs, honey, bamboo etc for sale. The appendix by N.C. Saxena provides a critique of the National Forestry Policy (NFP) and Forest Conservation Act.

**132 Shepherd, Gill. 1991. The Communal management of forests in the semi-arid and sub-humid regions of Africa: past practice and prospects for the future. In: Development Policy Review. June 1991, pp. 151-176.**

This review of research on indigenous forest management practices argues that landowners are the most successful managers; looks at various mechanisms of ownership - herding lineage, sedentary kinship groups, the household head, and the creation of tenure through labour; also looks at various indigenous woodland management techniques - long and short fallow systems, reservation, sacred groves and religious sanction, and management of the individual tree; presents case-studies of four projects that have attempted to involve locals in forest management. The transfer of political and economic authority from indigenous managers to the state over the last thirty years suggests that future management by locals should focus on the creation of tree resources on the farm, management by area, and ownership of resources.

**133 Shiraz, Vira. 1993. Joint forest management and nomadic groups - the potential for conflict: a baseline study from the Himalayan region of Uttar Pradesh and Himachal Pradesh. New Delhi: SPWD mimeo.**

The nomads may be removed by FD at any time: in recent years the animals of both nomadic groups and settled populations have increased, leading to conflicts between both groups. Rotational closing of pastures is needed; apple orchards have been planted on prime pasture land, by bribing forest officers; in UP grazing covers 83% of forest lands; collected case-studies on Gujjars of HP and UP, Gaddis of HP (semi-nomadic practising agriculture; for part of the year) Bhotias of Garhwal and Kumaon (nomadic, trading with Tibet); in the past, villagers used to give Gaddis and Gujjars free fodder in exchange for manure and milk; but in the Chamba area now, because of overgrazing and deforestation, villages have started planting fodder trees and demarcating areas near villages for regeneration, trying to prevent pastoralists from passing through their land; incorporation of pastoralists' needs into

JFM agreements requires attention to rights over resources, permits, and forest and pasture management.

**134 Shiva, Vandana, V.M. Meher Homji and N.D. Jayal. 1992. Forest Resources Crisis and Management. Natraj Publications, Dehradun.**

Tropical forests have become a major area of conflict between north and south in recent years. The north is increasingly demanding global control over third world forest resources as carbon sinks and lungs of the earth. This book shows how northern governments, corporations and aid agencies have played a major role in forest destruction, and how this destruction has affected the environment and lives of forest dwellers.

**135 SIDA, Indian Institute of Forest Management and ISO/Swedforest. 1991. People's Participation in Forest Resource Management: papers presented at the national seminar on people's participation in forest resource management, IIFM, Bhopal.**

The report is based on a national seminar on people's participation in Forest Resource Management held at Bhubaneshwar during January 21-23, 1991. This embodies the edited version of 19 papers presented at the seminar which, along with the recommendations will be helpful in deciding the strategies for people's participation in forest resources management in India and other developing countries. It also reflects the idea regarding involvement of people, organisational structure, sharing of benefits, extension, etc. in the field of social forestry.

**136 Singh, Bijay Kumar. 1992. Models for implementing community forestry and the concept of user groups: the case of Nepal. ODI Rural Development Forestry Network Paper 14d.**

This paper follows the classification of community forestry models put forward by D. Palin (Management of Development Forestry: A Comparative Study of Public Forestry Administration in the Asia-Pacific Region. Report GCT/RAS 46 (SWE), FAO, 1980); types include Super Management (adopted in early attempts at community forestry in Nepal, when nursery plantation work was funded by government, all management decisions taken by District Forest Office, and local people simply hired to implement the programme); Support Service (private planting component, DFOs distributed seedlings free of charge to local people; has become very popular in the Terai); NGO Supported (NGO acts as catalyst by supplying seedlings and technical assistance, local groups make all decisions); Partnership (contract between DFO and forest user groups for management, development and utilisation of a forest area to fulfil the forestry needs of user group members; government provides land, technical knowledge and financial assistance, locals identify their own user groups and form a committee); Leasehold Contract (contract between government and leaseholder - either an individual, a community, an institution, or a private enterprise; government provides land on lease, as well as technical knowledge, leaseholder pays fee; at present, leases are for 25 years; leaseholders are allowed to sell tree products according to their own wishes, and can form their own organisation; not popular in Nepal and government given it a low priority); in Nepal, unlike other parts of Asia, contracts between User Groups and government are not limited by a set time frame, and there is no sharing of benefits with government, though UGs have the right to manage forest and use produce, but not the right to tenure - they can't sell or mortgage the land; mentions the Manapathi system whereby villagers are locally appointed to act as forest guards, and paid in cereals - the measuring unit being a manapathi; poor people are often appointed; this

payment system is also used for messengers, barbers, and blacksmiths in Nepal; lists of main features lacking in user group forestry in Nepal: no legal provision for UG associations which could seek markets for their products, agroforestry potential and short-term rather than long-term benefits, small-scale soil erosion, technological development of fodder tree species, and no programme for rural-based forestry industries. The problems encountered in UG forestry in Nepal include unclear concept and philosophy, especially by young FD field staff, failure to apply knowledge from social science systematically, and the use of outdated methods to train field staff. Old attitudes of forestry professionals die hard and many are reluctant to change roles from policing to extensionist/advisory roles. The roles of different organisational strata within FD and Ministry are unclear, there is a low sense of accountability, and financial regulations of government are not oriented to support development but to control activities.

**137 Singh, Bakhshish, Sham Sunder Arora and J.R. Gupta. 1993. Management of Bamboo Forest under Joint Participatory Forest Management in Haryana Shivaliks (Joint Forest Management Series No. 6). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report is based on a study undertaken in Badgodam forests, which represent the bamboo areas being managed under JPFM to assess the existing stock and regeneration status, etc. of the bamboo crop. The results of the study show that the area has about 850 bamboo clumps/ha with about 11 bamboos per clump and producing about three new culms per clump, each year. Against the present level of supply of 330 bamboos/ha/year to 27 bhanjda (local bamboo artisan community) families from 73.6 ha of the bamboo forest, the area is producing 2550 new culms/ha/year, which can more than suffice to sustain the current level of supply of bamboos to the bhanjda community. It also attempts to analyse the various attributes of the crop, such as level of congestion in clumps, distribution of bamboo clumps in different age and diameter classes, and the overall condition of the crop.

**138 Singh, Bakhshish, J.R. Gupta and Sham Sunder Arora. 1993. Effect of Juvenile Grass Cutting on Fibre Yield of Bhabbar and Hay Yield of Fodder Grasses in Shivalik Hills of Haryana. (Joint Forest Management series No. 8). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report examines the effects of clipping juvenile foliage (in July, August, September) on the yield of mature fibre of bhabbar grass and hay production of fodder grasses (in November). The results show that clipping of young grasses for fodder during the active growth period of July to September is harmful for the overall vigour, basal cover, clump size and biomass production. Therefore it recommends that the harvesting of grasses for fodder should be avoided during their active period of growth in July-August.

**139 Singh, Samar and Arvind Khare. 1993. People's participation in forest management. Commonwealth Forestry Review 72(4): 279-283.**

This is a simple and short overview, with special reference to India and Nepal. Three current trends are the shift from state to individual and collective local control, the devolution of management functions to locals, and the changing role of government agencies. Worldwide, FDs prefer 'the beneficiary approach' with individual tenure, and measurable physical targets. It gives a reminder that although the National Forest Policy, the GOI circular 1990, and the State government orders 'form the overall legal and policy

framework facilitating peoples' participation in the management of forests', none of these three is a legal enactment and they 'are not enforceable in a court of law. They provide the basis for access, enjoin locals to protect forest, and assure them a certain part of produce from the forest they protect. FPCs have generally provided successfully so far, but some FDs still retain the right to cancel committees and to punish offenders. This will have to change, before participatory forest management becomes a functional reality. Long-term policies especially for providing security of tenure, will have to change, and even "silviculture" responding to community needs will have to evolve. Lessons for the future include: the need for serious political commitment, clear policy guidelines, institutional arrangements for collective assertion of rights, conflict resolution and implementation of self-abnegation rules; land tenure and access rights need special attention; reorientation and attitudinal changes are required, not only in FDs, but also in communities.

**140 Singh, Ramvir. 1991. Managing the Village Commons (Proceedings of the national workshop on managing common lands for sustainable development of our villages: a search for participatory management models). Indian Institute of Forest Management, Bhopal.**

This report focuses attention on contentious managerial and technical issues including sustainability of community-based management models; the efficiency and equity considerations in managing the resources; and allocation of roles and responsibilities amongst various actors. It contains 15 papers presented and recommendations made in the national workshop held at Bhubaneshwar in December 1991. The recommendations are related to the strategy of participatory forest management (PFM), including the role and responsibilities of Village Forest Protection Committees (VFPCs) and Forest Departments. They also discuss the roles and responsibilities of NGOs, the sustainability of community-based management models, sharing of benefits, extension creation of an executive body for managing the commons, management and maintenance of the village commons. Furthermore, the report includes some case-studies from different parts of the country relating to JFM.

**141 Singhal, Rekha. 1994. Gender Issues in Joint Forest Management: More Than a Trendy Issue: an experience in Madhya Pradesh. Indian Institute of Forest Management, Bhopal.**

The report is based on an evaluation of Paraswara Forest Protection Committee in District Jabalpur of Madhya Pradesh (Bilaspur Forest division). The study suggests the shift in preoccupation from gender to participation issues, participation both by the men and women. It also supports the conviction that equal participation by women is not a means to an end but an end in itself. The study concludes that there is an urgent need to shift the focus from women to the family, as the forest products are utilised at the family and not individual level.

**142 Singhal, Rekha. 1995. Gender Issues in Joint Forest Management: a Force Field Analysis. Indian Institute of Forest Management, Bhopal.**

This report deals with a Forest Protection Committee (FPC) named Tribank situated in the Joyapur range of Bankura, north forest division in West Bengal. It is observed that it was not the gender of the people which contributed to the successful functioning of the FPC, rather it was the approach of the individual towards the problem. It throws light on the role and significance of gender issues in JFM.

**143 Singhal, Rekha. 1995. Behavioural Factors in Institutional Effectiveness. Indian Institute of Forest Management, Bhopal.**

This report is based on a study conducted in the villages of

Balasauli and Fakirdange of Bankura South Forest Division in Bankura District of West Bengal. The primary objective is to identify certain determinants of institutional effectiveness in the forestry sector. Two FPCs (Institutions) have been selected to identify the factors determining their success. Members and non-members of FPCs in both the villages are included in the study. The results indicate that a number of factors determine the outcome or performance of the FPCs. Among them behavioural factors have emerged as the major indicator in the effective or ineffective functioning of such institutions, under the same conditions and institutions. Thus, the study attempts to answer the following questions: Who are the participants? How did they become FPC members? Why did they become FPC members? What are their rules and activities as a member? What are the perceived objectives of the FPC? What are the perceived problems and solutions? What is the perceived role of the forest department? What are their needs and motives?

**144 Singhal, Rekha. 1995. Joint Forest Management at Nilgarh, Madhya Pradesh. Indian Institute of Forest Management, Bhopal.**

This report is based on a study of Nilgarh Forest Protection Committee in the Vineka range of Obedullaganj in the forest division of Bhopal circle in the District of Raisen, Madhya Pradesh. It has a rich flora of tendu, bamboo, shisam, mahua, etc. The man-made resources are few in comparison to the natural resources. It gives some general information about the village setting, including its cultural, socio-economic aspects etc. A brief account of the formation of the Forest Protection Committee is also given in the report. It is concluded that the involvement and participation of the people of the village in the JFM programme indicates that the trust and confidence in the capabilities of the people and the approach made by an individual is important. The results suggest that in JFM it is not the registration of the FPC but the processes which are more important and determine its success. The report throws light on the factors that makes collective action successful. The results suggest a number of factors contribute to the collective behaviour, such as sociological, organisational (leadership), psychological (trust, awareness, attitude, expectation). It is important to note that these factors act as a foundation for the implementation of the JFM programme. This explains why and how Nilgarh FPC became successful in less than a year, and has become a model FPC for neighbouring villages.

**145 Skutsch, Margaret M. 1990. Social Forestry in Integrated Rural Development Planning - Sri Lanka (Field Document No. 24). Technology and Development Group, University of Twente Enschede, The Netherlands. Food and Agriculture Organisation of the United Nations, Bangkok.**

This paper describes first the setup of Integrated Rural Development Programmes (IRDPs) in Sri Lanka and then the types of social forestry encountered in six of them, where a total of 15 different social forestry designs were found. The achievements of these programmes are reviewed. The objectives of the study are to identify and review the different approaches and strategies used by different IRDPs in Sri Lanka in social forestry and agroforestry, to compare results and identify common problems, and to consider the special role of IRDPs in promoting social and agroforestry in an integrated framework.

**146 Smith, Alan. 1994. Incentives in Community Forestry Projects: a Help or a Hindrance? (Rural Development Forestry Network Paper No.17 C). Overseas Development Institute, London.**

The theme of this paper is whether we are deceiving ourselves about the nature of external incentives. Do they not

become in many cases subsidies which have to be maintained or else the new practices will be abandoned? If so, not only is there no sustainability, but do not the incentives risk fostering dependence and paternalism? If that is so, do they not work counter to the accepted social forestry goals of inducing greater grassroots participation and responsibility? These are the questions tackled in the paper. However, legal incentives (exploitation rights, exemption from taxes etc.) are not touched upon.

**147 SPS. 1991. Janaaranya - People's Participation in the Management of Natural Resources. Samaj Parivartan Samudaya, Dharwar.**

This booklet was published on the occasion of the common lands Jatha (procession) organised to highlight issues related to use and ownership of common lands. It contains the following documents: National Forest Policy and the National Policy on Common Property Land Resources. A draft paper, circular of the Government of India about involvement of village communities and voluntary agencies in the regeneration of degraded forest lands (1.6.90).

**148 Society for Promotion of Wastelands Development (SPWD). 1991. Working Together: State, People and Forests of Uttara Kannada. SPWD, New Delhi.**

This report puts forward a set of proposals to lay a proper foundation for the participatory management of available resources in the District. It is the outcome of a series of consultations with the people of Uttara Kannada, representatives of Zila Parishads and non-government agencies operating in that area. It contains detailed guidelines for management of forest resources and deals with ground realities of encroachments, fodder requirements for livestock, problems of rehabilitation, soppina betta lands and non-wood forest products and their marketing. It's recommendations have relevance for the country as a whole.

**149 SPWD. 1992. Joint Forest Management: Concepts and Opportunities. Proceedings of the National Workshop at Surajkund. Society for Promotion of Wastelands Development, New Delhi.**

This publication is of special relevance to the implementation of JFM in different parts of India. It consists of a number of case-studies from different states on the issue of Joint Forest Management. The proceedings cover different aspects of JFM, like participatory micro-planning, involvement of local communities, integration with working plans, benefit-sharing, coordination with other forestry programmes, marketing, integrating JFM into rural development, monitoring and evaluation, conflict resolution and management, gender issues, legal and technical issues, community institutions, the role of NGOs in JFM, and ecological issues, etc.

**150 Society for Promotion of Wastelands Development (SPWD). 1993. Workshop on Joint Forest Management, Bhubaneswar.**

This report is a compilation of papers presented in the workshop on JFM in Bhubaneswar during May 28-29, 1993. These papers are related to different aspects of JFM. The first paper which is compiled by Mineesh Gulati and Sushil Saigal, is a fact sheet on Orissa's forests. It is a background paper for the workshop. This is followed by 'Joint Forest Management in Orissa - some unresolved issues' by S. C. Mohanty; 'JFM in Orissa: Past, Present and Future' by L. K. Jagdev; 'The legal framework for Joint Forest Management' by R. A. Sharma; 'Joint Forest Management in Budhikhamari' by D. P. Singh; 'Joint Forest Management' by Col. G. Mishra; 'Five years of JFM...' by A. K. Patnaik; 'Comparative assessment of forest protection by communities' by Suvendu Pati, Ranjit Panda, Ajay Rai. Lastly it deals with the proceedings of

two workshops - one at Keonjhar on 5-6 February 1993 and a second at Bolangir and Sambalpur Districts in December 1992.

**151 SPWD. 1993. Joint Forest Management Update. Society for Promotion of Wastelands Development, New Delhi.**

This booklet is a compilation of circulars and resolutions issued by the Government of India, as well as 14 of the state governments on the Joint Forest Management programme and its implementation. It also contains a status report on the progress made by the new concept in various states. The 73rd Constitution Amendment Bill pertaining to Panchayati Raj institutions has also been included in the booklet.

**152 SPWD. 1993. State Level Workshop on Joint Forest Management. Society for Promotion of Wastelands Development, New Delhi.**

This report is based on a state level workshop on Joint Forest Management organised at Bhubaneswar during May 28-29, 1993. It discusses the key issues with regard to Joint Forest Management and the steps required to operationalise and institutionalise JFM on the basis of experience from field situations. An account of the workshop recommendations has also been given, relating to the amendment in the Government resolution, forest management, research administration and the activities of the forest department. The involvement of industries, to make the degraded forests lands productive, has also been mentioned.

**153 SPWD. 1994. Note on Participatory Rural Appraisal. Society for Promotion of Wastelands Development, New Delhi.**

This report has been prepared by the Society for Promotion of Wastelands Development for the participants of a workshop on Joint Forest Management held at Patnitop, J&K during May 19-21, 1994. It gives background information and some key principles relating to Participatory Rural Appraisal in forest areas for JFM. It gives information about methods and approaches relating to PRA, used by different people under different situations. Equity aspects, social mapping, focus groups, village meetings, management plans, and community proposals have been defined. The advantages of participatory mapping, along with the participatory mapping types and applications and sketch mapping of different areas and aspects have also been presented in the report. Seasonal calendars of forest product flows etc. are also given.

**154 SPWD/Ford Foundation. 1993. Joint Forest Management Field Methods Manual Vol. I: Diagnostic Tools for Supporting JFM Systems. New Delhi. Society for Promotion of Wastelands Development. Joint Forest Management Working Paper No 15.**

This is a very useful working manual with examples from various parts of India. It starts with an overview of contemporary issues in participatory forest management in India including: use of fuelwood at the level of the sub-continent (133 million tons per year); use of bamboos; the role of fire in the increase of grass productivity and tree germination. The manual then provides a table of management issues and ecological, institutional, and economic research questions (e.g. for headloading the ecological issues are growth rate/potential/impact, the institutional issues are user groups, control of access, rights, and incentives, and the economic issues are the amounts needed for subsistence and commerce, degree of economic dependence employment alternatives). It also gives guidelines on preparing community forestry research (identifying and developing a research team and user network; background research and selecting a research site; choosing a site where communities are already active or interested in

establishing forest management systems; well-defined collection areas and community of users needed for accurate quantification of use and dependency; working together; community-research team interactions). Guidelines are also given on Rapid Appraisal research methods and PRA for community/forest management profiling. Community profiling should involve collection of background information (census, livestock, land, religion/cast), community and forest history (historical transect, time-line, trend line), community forest values and perceptions (ecological, social, religious, economic values), spatial information (sketch map, product flow charge, land-use transect), temporal information (seasonal calendar, daily activity schedule), inventory and classification (species, gender-specific inventory, species use typology), and forest product ranking. It recommends 'process documentation' whereby researchers act as 'the eyes and the ears' of institutional change by attending village and FD meetings, holding in-depth interviews with staff and villagers to record the evolution of JFM systems. It provides a table on institutional management issues, research questions, and methods (macro-assessment, community assessment, FD and support group assessment); suggests drawing social systems diagrams on forest users, management, relations with FD, contractors, traders; suggests charting of time constraints, procedural and other constraints on FD staff-incentive and disincentive for JFM work, information flow-charts on the FD. The section on 'Using learning effectively' emphasises the importance of analysing and interpreting research findings for programme development; research must be available in the relevant form to the right people at the right time.

**155 SPWD/Ford Foundation. 1993. Joint Forest Management Field Methods Manual Vol. 2: Community Economy and Use Patterns: PRA Methods in South Gujarat. New Delhi: Society for Promotion of Wastelands Development. Joint Forest Management Working Paper No. 15.**

Another useful manual based on the Aga Khan Rural Support Programme (AKRSP) case-studies and a 5-day workshop. It discusses the reasons for promoting PRA methods; the composition of the research team, site selection, introductions to the community; forest history, community forest perceptions and attitudes; sketch maps, product flow-charts, transects, activity schedules and seasonal calendars; inventories, ranking, scoring FPs; product volume flows, labour, and capital costs; FP prices, processing and marketing; analyzing FD costs and benefits. It looks in detail at three village case-studies in Gujarat; PRA can help generate information on the socio-economic and ecological conditions prevailing in the research site prior to the collection of more quantitative biophysical and economic data; but they acknowledge that some kinds of more difficult and detailed economic data-gathering and analysis are too difficult for quick PRAs. It is important to have interdisciplinary teams, wherever possible, including perhaps a forester, a social scientist and an ecologist, and preferably including both men and women; recommends a mix of formal and informal approaches in PRA - informal is less disruptive but limits the team's ability to clarify their objectives, whereas 'The more formal approach encouraged many members of the community to gather and learn about the study'. The case-studies showed that there was an obvious need to schedule more time for group analysis and discussion following each field exercise; team members regretted that they had not spent any village overnights to supplement their more formal learning about the community, its practices and beliefs.

**156 SPWD and Forest & Environment Department, Bihar. 1994. Workshop on Joint Forest Management in Bihar, Ranchi. Society for Promotion of Wastelands Development, New Delhi.**

This booklet was prepared for the participants of a workshop on 'Joint Forest Management in Bihar' held in Ranchi during September 26-28, 1994. It gives information on the present status of Joint Forest Management in Bihar which is followed by 3 case-studies relating to Saraiya, Thakuragutu and Maheshpur village forest committees, in which the role of women in forest protection has been discussed. It gives some success and failure stories relating to JFM.

**157 Srivastava, J.P.L and R.N. Kaul. 1994. Greening of Common lands in the Aravallis, Aravalli Project. Forest Department, Government of Haryana, Gurgaon.**

This report deals with activities under the Aravalli project undertaken by the Haryana Forest Department. The report says that the results so far achieved are due to people's participation and support in greening common lands. The report indicates that the project activities have generated employment and income. This has led to amelioration of poverty conditions and has also contributed significantly towards winning the confidence of the people so essential to effective project implementation. Other benefits like substantially increased fodder production and income from the sale of grass seeds have begun to flow, which in turn have given the people a stake and consequent involvement in regenerating the village commons. Strategies for the involvement of communities have been presented, particularly in micro-planning, Mahila nurseries, grass seed collection, incentive, extension and monitoring and evaluation activities.

**158 Srivastava, J.P.L and R.N. Kaul. 1994. Joint Management of Common Lands: The Aravalli Experience. Aravalli Project, Forest Department, Government of Haryana.**

Common lands throughout India have long been degraded to mere wastelands through the open-access system which has developed. In the Aravallis this has changed to a sustained management system controlled by the villagers themselves. This report explains how this has been achieved. It describes the methods of working with the village people and the formation of village forest committees, in which women as well as men actively participate in decision-making. This is very relevant to other Indian states carrying out similar work. The innovative plan of management, the microplan, developed in partnership with each community, is not a rigid document like the traditional working plan so familiar to Indian foresters. It is a flexible plan which can be amended as the village forest committee gains experience. The publication documents the experience gained over the four year period (1991-92 and 1994-95) of vegetative rehabilitation of common lands in the Aravallis with people's participation and the various innovative measures that the project has introduced to ensure a meaningful participation of village communities in greening these otherwise difficult sites. A number of lessons learnt are discussed which may be of interest to those engaged elsewhere in projects related to JFM. Detailed examples are given of Participatory Rural Appraisal (PRA) and the compilation of a microplan.

**159 Stevens, Merrim E., Suree Bhumibhanon and Henry Wood. 1990. Research Policy for Community Forestry Asia Pacific Region: Proceedings of a Seminar (RECOFTC Report No. 5). The Regional Community Forestry Training Centre, Bangkok.**

This report is based on a seminar organised in Bangkok on Jan 8-11, 1990. It contains 36 research papers including 6

country papers relating to different aspects of forest management. On the basis of the discussions, five research priorities have been suggested: agroforestry and watershed management; natural forestry ecology and management; tree breeding and tree improvement; marketing; and policy and socio-economic research. It has been suggested that social and economic research should not be promoted as being a single science as implied when using the hyphenated term 'socio-economic'. Joint venture of managing forests has been advocated. According to the authors it may mean reorganisation of existing research structures, making it easier to respond to the issues of people's involvement in forestry programmes. The overall strategy is to promote a bottom-up input to regional and country forestry research programmes that reflects a partnership with the people and the communities with which they are associated.

**160 TERI and Haryana Forest Department. 1993. Training Workshop on Joint/Participatory Forest Management for Block officers/Deputy Rangers of Haryana Forest Department. Tata Energy Research Institute, New Delhi.**

This report is based on a training workshop on Joint/Participatory Forest Management for block officers/deputy rangers of the Haryana forest department, organised by the Haryana forest department and Tata Energy Research Institute at forest complex Pinjore, Haryana, during October 11-16, 1993. It gives a description of the workshop, a profile of the participants and resource persons including field exercises made during the period of the training workshop programme. It summarises the lectures delivered by the resource persons during the training period. These lectures are related to various aspects of JFM including the forest resources of Shivaliks and the peoples' dependence on them; an overview of forest management; Joint Participatory Forest Management policy and rules; concepts and strategies for Joint Participatory Forest Management; Participatory Rural Appraisal; basis for Participatory Forest Management; micro-planning; society formation; monitoring; and group exercises - resource team. It includes 23 annexes, including 5 maps showing land use, soil erosion, forage condition, forest condition and a command area map of Nada village in Haryana where field exercises were taken by the participants of the training programme.

**161 TERI and Haryana Forest Department. 1993. Proceedings of State Level Workshop on Joint/Participatory Forest Management. Tata Energy Research Institute, New Delhi.**

This report is based on a state level workshop on Joint/Participatory Forest Management held in forest complex, Pinjore on March 24, 1993. A review of the progress of JPFM in Haryana has been presented. The need for expanding the programme to other areas and training for all partners has been stressed. The report includes four papers prepared by TERI, Haryana Forest Department, Hill Resource Management Society and Ford Foundation.

**162 TERI and Haryana Forest Department. 1994. Training Workshop on Joint Participatory Forest Management for Members of Management Committees of Hill Resource Management Societies. Tata Energy Research Institute, New Delhi.**

This report is based on a training workshop on Joint Participatory Forest Management for members of management committees of Hill Resource Management Societies organised by TERI and Haryana forest department in forest complex, Pinjore, Haryana during June 8-9, 1994. Views of the participants and resource persons, relating to

different aspects of HRMS and for better implementation of JFM are given and discussed in brief. As part of the training, field sessions also were taken in Tarlokpur village Dharamsala, and were included in the report, together with a map of Tarlokpur forest block. The resource persons also presented their main points in brief.

**163 Tiwari, D.D. 1994. Collective Protection Under Joint Forest Management: a Case Study of Bharuch District. National Workshop on Joint Forest Management (Aug. 25-26, 1994). Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad.**

This case-study is aimed at exploring the causes of successful protection in the Bharuch District. It is based on a survey of some 33 villages having a JFM programme. The salient features of JFM programme in the study area are discussed in the second section, followed by a review of models of collective action and forest common property resources in the third section. Some tentative hypotheses of collective protection are discussed in the fourth section. Econometric models of collective protection are developed and tested in the fifth section. The study throws light on the collective protection of jointly managed forest areas and tries to explain what makes collective protection successful. Based upon primary survey data, the study builds upon some hypotheses and tests them using an econometric approach. The results suggest that the following factors contribute to the success of collective protection: (i) size of membership of GUM/VKS; (ii) size of total illiterate population; (iii) size of expected economic benefits for JFM; (iv) numbers of visits by the coordinating agency; (v) years of interaction with the coordinated agency. The following features contribute negatively: (1) size of village; (2) unemployed graduates of the village; (3) livestock population of the village.

**164 Tiwari, D.D. 1994. Joint Forest Management at Soliya, Gujarat. National Workshop on Joint Forest Management, August 25-26, 1994. Centre for Management in Agriculture, Indian Institute of Management, Ahmedabad.**

This report is based on a study of Soliya village in Bharuch District in Gujarat. The major objectives are to study the institutional issues related to JFM in the village; to appraise the financial feasibility of the afforestation programme and to suggest alternative forest management strategies; and to study the patterns of income flows to community and forest departments under different income-sharing arrangements and the perceptions of people with regard to these arrangements. The study shows that the forest is an integral part of the people's life style in this village. JFM as a new institution provides an opportunity to regenerate degraded forests and to afforest new areas, fulfilling the people's various requirements such as fodder, fuelwood, water and other environmental needs. Economic benefits from the JFM programme have also been estimated. A financial analysis of different schemes has also been undertaken. The economics of benefit-sharing have been determined to the sustainability of JFM as an institution. The author is of the opinion that the people will sooner or later realise the economics of current benefit-sharing and will ask for a larger share.

**165 Tiwari, R.N. and O.A. Mascarenhas. 1983. Wasteland Development and Environmental Management Through Community Forestry. Natraj Publishers, Dehradun, India.**

In this book the authors develop the thesis that the goal of community forestry is to exploit the economic potential of the system - the natural as well as the human resource. It is based on actual observation of experiments in the field, in

particular in the village of Khakripora in Bihar. The authors set forth the techniques and principles for decision-making in planning and executing a multiple delivery project. An effort is made to understand the social dynamics of the resident community, to achieve simultaneously the twin goals of the rehabilitation of the weaker section and environmental conservation. It is only when the resident community is able to perceive individual as well as group stakes that the success of such a project will be assured. Decision-making parameters are analysed, and a bold and rather successful attempt is made to plan community forestry at the grassroots level. It presents several village studies in which the community forestry programmes are planned for implementation and evaluation.

**166** **Tiwari, B.K., R.P. Kapoor, S.K. Barik and R.S. Tripathi. 1992. Models for Regeneration of Degraded Forests through Participatory Management - Proceedings of the Training Programme held at Shillong during 4-5 June, 1992. Regional Centre, National Afforestation and Eco-development Board, North-Eastern Hill University, Shillong.**

This report is based on discussions held at Shillong during a training programme on Participatory Management. It includes the findings of integrated wastelands development projects implemented in the states of Meghalaya, Sikkim, West Bengal and Rajasthan.

**167** **Tiwari, B.K., K. K. Gaur and R.S. Tripathi. 1994. Participatory Forest Management in Tripura: People's Participation and Sharing of Benefits/Usufruct. Regional Centre, National Afforestation and Eco-development Board, North-Eastern Hill University, Shillong.**

This is a study conducted in the state of Tripura on Participatory Forest Management. The objective of the study is to review the rate and magnitude of success of the PFM programme in relation to the resolution of the Tripura Government. The main findings are that large-scale forest protection efforts by the members of Forest Protection and Regeneration Committees in Tripura present great potential for forest regeneration and sustainable management. Joint management of the forest resource by the forest department and the FPRCs is now emerging as a better alternative forest management system. Though in its infancy, the PFM programme in Tripura is moving towards equity and sustainability.

**168** **Tripathi, R.S., K.K. Gaur and B.K. Tiwari. 1993. People's Participation and Sharing of Benefits/Usufruct in Manipur. National Afforestation and Eco-development Board, North-Eastern Hill University, Shillong.**

This report is based on an evaluation study on Participatory Forest Management conducted in two districts, namely Thoubal and Senapati of Manipur. It aims to discover the impact of PFM on afforestation programmes in the state. The level of implementation of the National Forest Policy 1988 in the state of Manipur has also been studied.

**169** **UNDP. 1991. Conservation and Management of Intertidal forests in Vietnam. Economic and Social Commission for Asia and the Pacific - United Nations Development Programme, New York.**

This report has been prepared as a follow-up activity in line with the objectives of the DESCONAP (Desertification Control in Asia and the Pacific) project. It introduces the problem of mangrove forest degradation in Vietnam and applied technical and social measures adopted for their protection and expansion.

**170** **Varalakshmi, V. 1992. Economics of Bamboo Basket Making: a case study (Joint Forest Management Series No. 3). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report looks into various aspects of resource availability and utilisation, volume of basket production and employment generated, and the economics of the various sizes of baskets made. It also investigates the problems of marketing these baskets, the role of middlemen, and the net profits accruing to the Bhanjdas (the basket-making community in Haryana). Keeping in view the socio-economic structure of Bhanjdas, the likely options for the betterment of the lot of this forest community and sustaining the productivity of the forests are discussed.

**171** **Varalakshmi, V. 1993 Economics of Goat and Buffalo Rearing: a case-study from Haryana (Joint Forest Management series No. 4). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

In this report an attempt has been made to analyse and compare the economics of buffalo and goat rearing. It is based on a study of the village of Moginand in the Morni-Pinjore Forest Division in Haryana State. In this village Gujjars are the dominant community and, livestock rearing being the mainstay of their economy, the villagers depend a great deal on the surrounding forest, all the more so because individual land holdings are too small to supply enough fodder. The forest lands near the village have, therefore, been rendered barren. Families that own no land depend on goats, and the rest rear buffaloes and cows. The likely options for sustainable utilisation of the existing forest resources are discussed, in the context of the constraints the villagers face in changing from goat rearing to buffalo rearing.

**172** **Varalakshmi, V. 1993. Women as Partners in the Regeneration of Haryana Shivaliks (Joint Forest Management series No. 11). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report attempts to make a qualitative and quantitative assessment of the benefits accruing to womenfolk in the villages where the programme is operational, and while doing so it also assesses the level of involvement of women in the programme and whether the current level of involvement provides adequate room and opportunity for them to express and find solutions to their problems on an equal footing with the menfolk. It is concluded that the membership of women to the HRMS and its management committee, and attendance at the general meetings are necessary in order to assess women's participation in the programme.

**173** **Varalakshmi, V. 1994. A Dynamic Process of Institution Development in Lohgarh Village in Haryana (Joint Forest Management Series No. 14). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report is an analysis of the management systems that have evolved in Lohgarh village of Haryana in response to certain factors. It is important to note that systems which have evolved at the grassroots essentially due to the efforts and involvement of the villagers have a better chance of survival as compared to the systems developed due to external leadership. These systems are also seen to be highly flexible while systems imposed from the outside are less likely to evolve any further or sustain themselves. It concludes that the institution has been able to integrate the land, water, human and livestock subsystems in its programme, which is a holistic approach, an important factor for ensuring sustainability.

**174** **Varalakshmi, V., Rohini Vijn and Sham Sunder Arora. 1993. Constraints in the Implementation of Joint Participatory Forest Management Programme - Some Lessons from Haryana (Joint Forest Management Series No. 12). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

The Joint Participatory Forest Management approach is



based on Sukhomajri and Nada experiments in 1980-82, which were implemented by Chandigarh Central Soil and Water Conservation Research and Training Institute together with HFD; non-wood FPs were the main benefits to locals. TERI has conducted and coordinated research together with villagers and NGOs. A state-level Working Group is chaired by the PCCF, and acts as the advisory body on the whole project; divisional level WGs look at everyday programme operations, and solve problems that do not need policy changes. This tiered system 'bypasses the regular bureaucratic and top-down approach'; so too with research, there are tiers from local village meetings, popular training workshops to improve capabilities of villages and HFD staff; there is 'regular documentation of institutional process' at village level, with periodic analysis of specific issues; those relevant to policy are passed up to the WGs. The main failure has been non-functioning village societies for dam maintenance, catchment protection, and equitable irrigation distribution. All failed, mainly due to the inexperience of HFD staff; but also due to vagueness concerning the rights and responsibilities of users, and the lack of clear HFD policy on benefit-sharing with communities. A new emphasis on institutionalisation followed the GOH order in 1990; problems continued until 1992 - hence this study of 7 villages with non-functional village societies; but reasons given for failure in the table all concern technical problems - likewise the solutions offered - rather than organizational problems and solutions. HFD staff transfers are cited as a major problem; laws may need to be changed to enable village societies to fine offenders.

**175 Varalakshmi, V., Rohini Vijn and Sham Sunder Arora. 1993. Systems of Bhabbar Grass Lease Management in Haryana (Joint Forest Management Series No. 7). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

The Haryana Forest Department awards bhabbar leases to Ballarpur paper mill, Hill Resource Management Societies formed under the Joint Participatory Forest Management Programme, and to local contractors. There are significant variations in the way these lessees harvest bhabbar grass and channel it to its end use. Broadly, there are six different combinations of agents and channels through which bhabbar ultimately finds its end use. The report is based on a study which aims to follow closely these six management systems and to assess the economics of each. The flow of bhabbar grass from the lessee to the final consumers is also been traced, and the value addition at each level computed and compared.

**176 Varalakshmi, V. et al. 1993. Constraints in the Implementation of Joint Participatory Forest Management Programme - Some Lessons from Haryana. New Delhi: Haryana Forest Department and Tata Energy Research Institute. JFM Series 12.**

The Joint Participatory Forest Management approach for management of degraded forests in the Shivalik belt of Haryana aims at providing certain incentives to the local communities listing their interests to the regeneration and sustainable utilization of the forests. This report focuses on the various reasons as to why this particular approach has not been successful at some places compared to others. It is based on a study of six villages. It investigates the various strategies adopted for eliciting people's participation in the programme and the inadequacies in the present strategies in matters concerning a range of institutional, legal, economic, technical and ecological issues. Lastly it deals with the various problems and issues which need to be addressed for the furtherance of the programme in Haryana.

**177 Viegas, Philip, and Geeta Menon. 1993. 'Bringing government and people together: forest protection committee of West Bengal - role and participation of women' In: Andrea Singh and Neera Burra [eds], Women and Wasteland Development in India. New Delhi/London: Sage, pp. 171-210.**

Case-studies of 10 Forest Protection Committees (FPCs) under different conditions. The absence of formal representation for women is problematic; voluntary agencies were helpful in mobilising women; due to increasing raw material value of timber, there has been a gradual transfer of unclassed forest lands to the category old Reserve Forest - e.g. in Orissa and Madhya Pradesh; by 1990 there were 1300 FPCs in the three southern districts of Purulia, Midnapore, and Bankura - mainly sal forests. Recently there have been conscious efforts to involve women in these, although so far they have been almost exclusively managed by men; GOWB first gave FPCs official recognition in the 1989 Resolution, 15 years after the first ones were formed in Arabari; recognition gave them 25% of usufruct; 'If the most significant contribution of the Government Order were to be singled out, it would most certainly be the empowerment of the local people. In other words, it is the creation of an atmosphere most conducive to people's active participation in the joint management of forests through actively empowering them in the true spirit of democracy.' However, decentralising tendencies are offset by the centralising influence of the Executive Committee of the FPC, which has gram pradhans and/or gram panchayat members on it; there are major problems involved in tying the non-political structure of the FPC to the political structure of the panchayat samiti, through the imposition of the sabhapati and the gram pradhan as members of the Executive Committee which 'introduces an element of State control'. For women, the implication of this is that the FPC will become as male-dominated as local politics; each household can have only one member on the FPC - female membership ranges from 5% to 65%, although their active contribution to FPC work is much more than that of the male members. Finally, it criticises the total monopoly which LAMPS societies have on the marketing of NTFPs, which keeps prices very low and exploits the collectors - if sold through middlemen, most products would fetch a higher price.

**178 Vijn, Rohini, Sham Sunder Arora, and V. Varalakshmi. 1993. Pisciculture under Joint Participatory Forest Management Programme in Haryana (Joint Forest Management Series No. 10). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report is based on a study which aims to assess the social, technical and economic feasibility of pisciculture in villages under JPFM in Haryana, to be taken up as a community activity and also to be developed as an economic venture by interested communities. It concludes that pisciculture is found to have great potential in many villages under the Joint Participatory Forest Management Programme. Cost-benefit analysis techniques have also been used to show the economic returns under the scheme.

**179 Vijn, Rohini and Sham Sunder Arora. 1993. Economics of Rope Making under Participatory Forest Management (Joint Forest Management series No. 9). Haryana Forest Department and Tata Energy Research Institute, New Delhi.**

This report is based on a study undertaken in the village of Prempara, Haryana. Information was collected through interviews and discussions with the contractors etc. A cost-benefit analysis of the entire operation was done under the

systems of management. It looks into the economics of rope making by the Bhanjara community and the economic benefits accruing to them as a result of Joint Participatory Forest Management. The study also compares the economics of rope making by machine with that of making rope by hand, and analyses why the bhanjaras take to a certain option under a given set of conditions.

**180 VIKSAT. 1993. Joint Participatory Forest Management: An Implementation Manual. Nehru Foundation for Development. Thaltej Tekra, Ahmedabad.**

This contains the Government of Gujarat's policy regarding Joint Participatory Forest Management. Some ideas regarding training and micro-planning are also provided in this manual, which reflects the collective efforts of the state forest department, voluntary agencies and, most importantly, the communities protecting their forests.

**181 Vira, Bhaskar. 1992. Local Cooperation for the Care of Forests. St. John's College, University of Cambridge.**

This paper presents an analysis of community management of forest resources, using a social custom model of individual behaviour. Agents are sensitive to the reputation which follows from observing social rules, and suffer when they violate the norm. Cooperation may arise out of this process of interdependent decision-making. In particular, it is shown that partial cooperation may be a stable outcome if agents are heterogeneous. Superior cooperative outcomes may exist at the same time as less efficient modes of forest use with no (or less) cooperation. Sustaining cooperation may be more feasible in certain communities than in others. The paper suggests that collective action must be promoted in communities where conditions are more conducive to such behaviour. On the other hand, where social relations suggest that cooperation is less likely to succeed, it is necessary to devise alternative institutional arrangements which will promote the care of resources. Policy must reflect a sensitivity to the needs of local populations. This paper outlines some conditions under which community management of resources may be a feasible alternative. For policy makers, it is suggested that there is no universal formula which can guarantee the emergence of successful local institutions for commons management under all circumstances.

**182 Wade, Robert. 1988. Village Republics: Economic Conditions for Collective Action in South India. Cambridge: Cambridge University Press.**

One of the most interesting books available on Common Property Resource (CPR) management, based on research (1977-82) into the local organisation of irrigation in Kurnool District of Andhra Pradesh. It addresses the general question of the circumstances under which people cooperate over natural resources for mutual benefit, achieving what they cannot do individually, i.e. how the 'tragedy of the commons' can be avoided. The book argues that villagers are often more effective at public resource management than they are given credit for by planners; local organisations for CPR management may be regarded as proto-states, in that they rely on a conjunction of contract and coercion. It rejects the 'sweeping pessimism' about voluntary organisations displayed in the Prisoner's Dilemma, Hardin's 'tragedy of the commons', and Olson's 'logic of collective action'. Irrigators' organisations respond to problems encountered at the 'tail end' of irrigation schemes; the arm of the State does not exercise enough force at the village level to be able to prevent the users from making their own arrangements - indeed, state officials outside the village barely know of the organization's existence. However, CPR organisations aren't unconnect-

ed with the state - in fact, among their important functions in rural India is to respond collectively to opportunities for bribing state officials to ensure preferential treatment not only in irrigation, but agricultural assistance, credit, veterinary services, electricity supply, village access roads, etc.

**183 Watts, Joe. 1994. Developments Towards Participatory Forest Management on Mount Cameroon. The Limbe Botanic Garden and Rain Forest Genetic Conservation Project 1988-1994. Rural Development Forestry Network: Network paper 17 d. Overseas Development Institute, London.**

The objectives of this paper are to discuss the historic and contemporary institutional aspects of land and natural resource use in the area, describe the approach taken by the Limbe project and outline its plans for the future. The Limbe Botanic Garden and Rain Forest Genetic Conservation Project has been working towards biodiversity conservation on Mount Cameroon. As the project has developed towards a more participatory approach to forest management it has tried to reconcile the outside ideas of biodiversity conservation with locally held aspirations for the forest.

**184 Wood, Henry and Williem H.H. Mellink. 1992. Sustainable and Effective Management Systems for Community Forestry. Proceedings of a Workshop (Jan. 15-17, 1992). RECOFTC. Bangkok.**

This report contains 18 papers relating to various aspects of Forestry Management systems in Australia, Bangladesh, Bhutan, China, India, Indonesia, Japan, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, U.S.A., and Vietnam. Excellent examples of community forestry management systems are discussed, as also are the roles of NGOs, local initiatives, and of women in forest management. Sustainability, effectiveness and equity aspects are emphasised and further discussions in the working groups, focusing on conditions and requirements for successful implementation, changes needed in policy and planning, and training requirements, are presented.

**185 Wild, R., A.B. Cunningham and Mutebi, J. 1995. People, parks and plant use: network to enhance the conservation of montane forests in Uganda, East Africa. In: Nature Conservation 4: The Role Of Networks. Ed. D. A. Saunders, J. L. Craig and E. M. Mattiske (pp. 112-121). Surrey Beatty & Sons, 1995.**

This paper outlines a process of developing and maintaining networks at the interface between conservation and development around Bwindi-Impenetrable National Park and Mgahinga Gorilla National Park, Uganda. Opposition to national park status among local people arose from negative effects of loss of access to wild plant resources, bee-keeping sites, pit-sawing, gold mining, water points, and concern about crop-raiding animals. A phased process of inventory and resources assessment, taking in the views of local people, resulted in zoning of multiple-use areas. Understanding social processes and resource harvesting through networks was critical to development of guidelines for resource use by local people from zones within the protected area. Community leaders and resource users were involved in negotiations to set guidelines for ecologically sustainable resource use.

**186 World Wide Fund for Nature-India and Society for Promotion of Wastelands Development. 1994. Participatory Forest Management in West Bengal: a Case Study. WWF-India and SPWD, New Delhi.**

This report attempts to look at various factors which led to the development of the PFM approach in the state of West Bengal and its various impacts - ecological, insti-

tutional and socio-economic. The study is based on secondary data available from different sources including the state forest department, NGOs etc. It is mentioned that land reform measures, the social forestry programme and usufruct-sharing with the people have led to the foundation of the successful implementation of a Participatory Forest Management Programme. Income from NTFPs and additional employment have also been considered as important factors for involvement of village communities in the programme. There is great stress on meeting people's needs from the forests and the concept of micro-planning. NGOs and academic/research institutions involved in the programme, are performing their roles in training, documentation, and information dissemination, which are important aspects for making any programme a success. It is concluded that people are not only enjoying greater flow of forest products but have also gained greater access, and control over their forest resources.

## 187 **Yadav, G. and S.B. Roy. 1994. Significance of Non-Timber Forest Products (NTFPs): Availability and Its Utilization Pattern in Rural Community of Midnapore, West Bengal. (Working Paper No. 24). IBRAD, Calcutta.**

This paper highlights the present vegetation status, forest resource availability, range of non-timber forest produces (NTFPs), and its collection and utilization pattern in rural households. It concludes that the people's participation holds good in the case of Midnapore, where community institutions of forest protection have contributed significantly to the improvement of the ecology, economy and forest resource-base. Local communities largely depend on the rich biodiversity available in the sal forests of Midnapore District. The forest serves as an important source of fuel, food, fodder, building materials and medicinal plants, and plays an important role in the social and economic sustenance of the commons. The forest history of the area emphasises the past versus present state of natural resources, which have now regenerated after people's involvement in forest conservation.

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Already published in this series:

1. Cunningham, A. B. 1993. *African medicinal plants: Setting priorities at the interface between conservation and primary healthcare*. (This publication is also available in Spanish.)
2. Cunningham, A. B. and Mbenkum, F.T. 1993. *Sustainability of harvesting Prunus africana bark in Cameroon: A medicinal plant in international trade*.
3. Aumeeruddy, Y. 1994. *Local representations and management of agroforests on the periphery of Kerinci Seblat National Park, Sumatra, Indonesia*. (This publication is also available in French and Spanish.)
4. Cunningham, A. B. 1996. *People, park and plant use: Recommendations for multiple-use zones and development alternatives around Bwindi Impenetrable National Park, Uganda*. (This publication is also available in French.)
5. Wild, R. and Mutebi, J. 1996. *Conservation through community use of plant resources. Establishing collaborative management at Bwindi Impenetrable and Mgahinga Gorilla National Parks, Uganda*. (This publication is also available in French.)
6. Höft, M., Barik, S.K. & Lykke, A.M. 1999. *Quantitative ethnobotany. Applications of multivariate and statistical analyses in ethnobotany*.

## The People and Plants Initiative

was started in July 1992 by WWF, UNESCO and the Royal Botanic Gardens, Kew to promote the sustainable and equitable use of plant resources through providing support to ethnobotanists from developing countries.

The initiative stems from the recognition that people in rural communities often have detailed and profound knowledge of the properties and ecology of locally occurring plants, and rely on them for many of their foods, medicines, fuel, building materials and other products. However, much of this knowledge is being lost with the transformation of local ecosystems and local cultures. Over-harvesting of non cultivated plants is increasingly common, caused by loss of habitat, increase in local use and the growing demands of trade. Long-term conservation of plant resources and the knowledge associated with them is needed for the benefit of the local people and for their potential use to local communities in other places.

The diversity of traditional plant-resource management practices runs through a spectrum from "cultivation" through to gathering "wild" plants, all of which are included in the People and Plants approach.

Ethnobotanists can work together with local people to study and record the uses of plant resources, identify cases of over-harvesting of non-cultivated plants, find sustainable harvesting methods and investigate alternatives such as cultivation.

The People and Plants initiative is building support for ethnobotanists from developing countries who work with local people on issues related to the conservation of both plant resources and traditional ecological knowledge. Key participants organize participatory workshops, undertake discussion and advisory visits to field projects and provide literature on ethnobotany, traditional ecological knowledge and sustainable plant resource use. It is hoped that a network of ethnobotanists working on these issues in different countries and regions can be developed to exchange information, share experience and collaborate on field projects.

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