

RURAL DEVELOPMENT FORESTRY NETWORK

FROM THE FIELD
Shorter Contributions from Networkers

K C Malhotra, Debal Deb, M Dutta, T S Vasulu, G Yadav and M Adhikari
M K McCall and M M Skutch
Daniel J Franklin

AUTHOR NOTES

The authors are all members of or are affiliated to the Indian Institute of Bio-social Research and Development. For more information about this study or the work of the Institute contact: IBRAD, 3A Hindusthan Road, Calcutta 700 029, India.

Role of Non-Timber Forest Produce in Village Economies in South West Bengal, India.

K.C. Malhotra, Debal Deb, M.Dutta, T.S. Vasulu, G. Yadav and M.Adhikari

INTRODUCTION

In the highly degraded and resource poor region of south-west Bengal, local-level management of sal forests has been encouraged by the Forest Department. This study look at local use of non-timber forest products gathered from these degraded sal areas. It highlights the importance of understanding how local people use forests, and the need to broaden the objectives of management of these forests to include a multiplicity of objectives and products.

LOCAL PEOPLE AND THE FOREST RESOURCE

Until the 1930s, vast areas of south west Bengal harboured luxuriant forest of **sal** (*Shorea robusta*). The area was brought under British rule by about 1800. The British through the zamindars (local landlords) exploited the **sal** coppice on rotations varying from less than 5 years to 15 years. By the 1940s much of the tract was badly denuded, and with the enactment of the the Estate Acquisition Act in 1953 all forest areas formerly held by the zamindars were taken over by the Forest Department in 1955. By the 1960s, continued pressure on forests, particularly for fuel and fodder, had rendered the entire forest area, about 11% of the total geographical area in south-west Bengal, to degraded **sal** bushes.

The conventional measures pursued by the Forest Department were found to be inadequate to protect the young regenerating **sal**, resulting in poor regeneration, and poor relations between local people who were dependent on the forests and the Forest Department staff (Palit, 1990).

In 1972, Dr AK Banerjee, the then Divisonal Forest Officer, Midnapore, initiated the now well known socio-economic experiment in a cluster of 11 villages in Arabari Block. This was the first time in West Bengal, and perhaps in the whole country, that local people were involved as partners in the management of forests. The overwhelming success of the Arabari project encouraged the Forest Department to extend the Joint Management of Forest Lands (JFML) in other areas by establishing Forest Protection Committees with local people. Now, nearly 47% of the entire forest lands and a large proportion of the entire **sal** coppice in the three south-west districts are being jointly managed by Forest Department and local communities.

SAL FORESTS AND NON-TIMBER FOREST PRODUCTS

The local communities managing these forests are heavily dependent on the rich biodiversity that is available in the sal forest. A recent study (Malhotra et al, 1990a & b) of 42 forest protection committees in Jamboni range in Midnapore district showed that the local communities used a large number of NTFPs:

- ! 189 different NTFPs are used by local people, of which 113 are derived from plant species and 76 from animal and bird species;
- ! of the 113 plant resources, 27 are used for commercial purposes, 39 are consumed at home as food, 47 are used for medicinal purposes (both livestock and human);
- ! considerable seasonal variation was noted in the availability of NTFPs
- ! the most important commercial NTFPs are **sal** leaves, **sal** seeds, **kendu** leaves, **mahua** flower and seeds, mushrooms, tubers and tassar silk;

This study was followed by a more detailed study to look at which households use these NTFPs, the results of which are discussed in the following sections.

A survey was conducted in one range in west Midnapore division to collect data on NTFPs, to include information on what is collected, who collects it, quantities and uses. Only those species occurring in the wild were considered. Although information was collected on fodder and fuel species, this data is not included in the following discussion. The survey teams included the village medicine-men who were usually familiar with the wild flora in the forest. Each species was identified by its local name and specimens collected for the herbarium. Animal species hunted were also identified and recorded.

West Midnapore division is the most infertile zone of the state with extreme denudation and erosion of the lateritic soil. Lands are mostly rainfed with very little irrigation. In the study area the only crop is a single paddy harvest, thus products from the forest play an even more significant role in the livelihoods of local people than in less marginal environments where an array of agricultural products help to maintain the household economy.

THE NATURE OF THE RESOURCE

A forest houses a large variety of organisms, and the species richness and complexity of the forest biomass are much higher than any other terrestrial system (Briand and Cohen, 1987). Even highly perturbed and degraded forests such as those in this study have been found to be rich in biodiversity.

A flora of 70 species were found to be regularly gathered in large quantities from regenerating **sal** forests by the majority of villagers. Another 52 species were recorded to be either rarely occurring in the forests, gathered occasionally, or collected mostly by people practising indigenous medicine. One climber species, **Pyna lata**, is collected by painters for use in paint preparation. The major proportion of these 52 occasionally gathered species is constituted by herbaceous plants (44%) whilst that of the 70 regularly used species consists of trees (48.6%). No fungal species were used for medicinal purposes, and one parasitic plant, **aloklata** (*Coscuta reflexa*) was reported to be used in indigenous medicine. In addition to the plant species, 2 insect species are regularly harvested and some 26 avian species (including migratory birds), one reptile, and 4 mammalian species are seasonally hunted by the tribals.

The populations of these animals have drastically declined due to the enormous shrinkage in forest habitat. The study showed that villagers used over 72% of the total floral and faunal species richness found in sal forests. Oral histories also indicated that previous generations had depended on the forests to an even greater extent for sustenance of their livelihoods. However, as forest area has shrunk so the quantity and variety of products available from the forest has also declined.

Altogether 11 different parts of the main 70 species were used. These are: leaves, flowers, fruits, seeds, twigs, stems, pods, roots, tubers, barks and exudates, and the complete plant in some cases. Leaves are used for fodder, food, medicine and household items. Flowers are commonly used for ritual and ornamental purposes, and also consumed as a food. Fruits are commonly used as a dietary supplement, and in some cases used for veterinary drugs. Seeds are used as food, or for making oil for domestic consumption or for lubrication. Pods of tamarind are a common food item. Stems of all timber species are used for furniture and fencing material. Roots of many plants are collected for medicinal purposes, and tubers consumed as food. Bark and exudates have several purposes including medicinal. The bark of *asta* provides fibres which are used to make ropes. Mushrooms are consumed whole after cooking. The entire above ground vegetative structure of wild climbers are consumed as a vegetable in the summer.

Food

Only those items collected in large amounts for subsistence were considered. Leafy vegetables like **kuroi** and **ban-pui** constituted an important item of diet in summer. Mushrooms and tubers also are collected in large quantities by both adults and children. The **sal** leaf used for smoking **chutahs** and the **bakhar** root used for fermenting liquors were also evaluated as food items. Kendu leaf collected for making **bidi** (local cigarettes) was the easiest to quantify because of the discrete numbers of bundles for sale. The nutritional importance of collected wild fruits was not assessed, however it was noted that wild fruits do provide an important snack food for children.

Fibre and Structural Materials

The only fibre-yielding NTFP of value was cocoons of silk worm, collected in small numbers in the spring. For making household or agricultural implements, **sal** coppice shoots and stems of *euclayptus* are used. However, the lack of raw material, absence of control over resources, and the availability of non-indigenous materials in the market have resulted in a decay in local woodcrafts.

Leaves of **parashi** (*Cleistanthes collinus*) are gathered for use as an agricultural pesticide. The leaves are applied in large quantities immediately prior to cultivation in the monsoon.

Household Articles

Sal leaves are widely collected for making leaf plates and cups which are used both with the home and sold to **sal** plate factories. **Kharang** grasses are collected for making brooms, and

wild date leaves for weaving mats.

The study showed the importance of different NTFPs to the households in each study village. In terms of availability and use by the villagers, **sal** leaves are the most important item that is processed by households and contribute 99% of all processed biomass flow. **Palui** leaf and **kharang** grass contribute only a small proportion to the overall flow.

Kendu leaves constitute the largest proportion of gathered food items (49%), followed by mushrooms (27%), mahua flowers and fruits (17%), dioscorid tubers (5.5%) and leafy vegetables (1.5%), which are collected over a very brief monsoon period.

In areas where local people do not have access to sal forests only plantations, they travel to **sal** forest distant from their village to collect the necessary forest products.

PATTERNS OF NTFP COLLECTION

Harvesting of NTFP collection is usually suspended during the monsoon when people are fully engaged in agricultural activities. Women constitute the major gatherers of forest products - particularly fuelwood and fodder and other items for domestic consumption, while medicinal plants are usually collected by a few elder men. Some men gather **sal** leaves and fodder. Most women also take their children to the forest to collect tubers, brushwood, **sal** and **kendu** leaves.

Availability of NTFPs is not the only factor which determines their collection, different social and economic status are both important contributing factors in determining what is collected and by whom. On the whole, the communities whose livelihoods are most dependent on NTFPs are tribals. Caste communities also use NTFPs, but there are some significant differences between the two groups: only tribal groups use **mahua** flowers and **bakhar** roots to make an alcoholic drink, and also eat **karkut** ants.

There are seasonal restrictions on use of some NTFPs, notably **sal** and **karam** which have a high religious significance. Use of any part of the **sal** tree is considered improper until the worship of 'Salui' is over in March-April. Hunting begins only after the worship of 'Karam' which is a totemic deity of the tribals. Flowers of **siuli** (*Nyctanthes arbor-tristis*) are gathered by children for the Saraswati festival in the full moon of November, after which fruits of a few species such as *Zizyphus spp* are allowed to be collected and consumed. Thus despite the erosion of community management of forest use, religious sanctions still impose some restriction on the use of some species.

MANAGEMENT IMPLICATIONS FOR FORESTS IN MIDNAPORE

The study also highlighted the important differences between regenerating sal areas and plantations. As would be expected, species diversity in the sal areas was far greater than that found in the eucalyptus plantation areas established under a social forestry programme. In

terms of support to local livelihoods, the benefits from sal areas far exceed those gained from plantations. However, the true value of these sal forests to the local economy can only be demonstrated when account is taken of the whole array of products and services they provide.

Species diversity and abundance was found to vary with the nature and age of forests. In plantations, besides the eucalyptus species planted, a total of 11 other species were found to occur, as opposed to the over 200 species found in sal forests. It is commonly known by villagers that plantations are poor in species diversity, and in particular do not produce mushrooms or medicinal herbs.

In eucalyptus plantations it was found that local people frequently removed the eucalyptus for several reasons, but most importantly: to favour natural regeneration of other species more useful to their household economy; and to promote coppice regeneration of eucalyptus.

CONCLUSIONS

Previously traditional use of NTFPs had been extensively practised, however, rapid deforestation and escalating demand for fuelwood by the expanding population have channeled an increasingly large portion of the forest biomass into use as fuel. Consequently many of the traditional usages of forest species have disappeared. Bark of **asta** which was mainly used for rope making is now frequently only used for fuel. Similarly, **pyna lata**, a solvent used for paints, is now more likely to be used for fuel. However, NTFPs still play a significant role in the local economy of villagers in Midnapore and could, with careful management, continue to contribute to the economy of a highly marginal and fragile environment.

This study shows the importance of understanding the diversity of use values which should be assigned to forest lands. The conventional and over-simplified view of villagers using forests solely to provide fuelwood and fodder must be challenged in the light of the multiplicity of products that are provided by forests. A full understanding of the complexity of forest usage by local people leads also to a need to change management strategies for these areas. This has been recognised in West Bengal where the Forest Department in conjunction with NGOs and local people have begun to experiment with management of **sal** coppice which allows a full range of timber and non timber forest products to be produced.

ACKNOWLEDGEMENTS

Without the kind cooperation of the village people this study could not have been accomplished. We express our gratitude to Mr Bardhan Roy, PCCF, Mr S.Palit, Addl CCF, Mr S Roy, CF and Mr NC Bahaguna, DFO, West Midnapore Division for their generous help and encouragement. We are also grateful to all the forest officers at Jamboni range.

REFERENCES

Briand, F and **Cohen, J E**, (1987), 'Environmental Correlates of Food Chain Length', *Nature*,

238: 956-960.

Malhotra, K C, Chandra, S, Vasulu, T S, Majumdar, L and Kundu, S, (1990a), `Joint Management of Forest Lands in West Bengal: A Case Study of Jamboni Range in Midnapore District', IBRAD, Calcutta.

Malhotra, K C, Vasulu, T S, Yadav, G, Majumdar, L, Adhikari, M and Kundu, S, (1990b), `Joint Forest Management in West Bengal: Study of Non-Timber Forest Produce and FPC Structure and performance in Jamboni Range, Midnapore District', IBRAD, Calcutta