

## Non-Timber Forest Products for Livelihood Security of Tribal Communities: A Case Study in Paschim Medinipur District, West Bengal

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**ABSTRACT** Paschim Medinipur district of West Bengal, in India is the most infertile zone with extreme denudation and erosion of the lateritic soil. Lands are mostly rain-fed with very little irrigation. The present study with geo-botanical approach has been conducted in the district to collect data on non-timber forest products (NTFPs) to include information on what is collected, who collects it, quantities and uses. In study area the only crop is a single paddy harvest, thus products from the forest play a significant role in the livelihood of local people, particularly the tribal communities. The study shows the importance of understanding the diversity of use values which should be assigned to forest lands. A full understanding of the complexity of forest usage by local tribal communities leads to a need to change management strategies for these areas. This study looks at local use of non-timber forest products gathered from these degraded forest areas. It highlights the importance of understanding how tribal communities use forests, and the need to broaden the objectives of management of these forests to include a multiplicity of objectives and products with geo-botanical approach.

### INTRODUCTION

The broad term “non-timber forest resources” (NTFR) or “non-timber forest products” (NTFP) refers to natural resources collected from forests apart from sawn timber. Chamberlain et al. (1998) provides a definition: non-timber forest products are plants, parts of plants, fungi, and other biological materials which are harvested from within and on the edges of natural, manipulated or disturbed forests. NTFP may include fungi, moss, lichen, herbs, vines, shrubs, or trees. Forest is an important renewable, natural resource, which greatly influences the socio-economic development in any rural community (Ghosal 2011). Evidently, it plays a leading role in enhancing the quality of environment by influencing the life supporting system. Forests are also intrinsically linked with our culture and civilization (Jana 2008). They also provides timber as raw materials for various industries like pulp and paper, news print, board, furniture items packing materials, matches, sports goods etc. The important forest products derived from different species are lac, fibers, floss, medicines

etc. The tribal people often procure their food (tuber, root, leave, fruit, meat from birds and other animals, and medicines) from the forest in which they live.

In industrialized countries, NTFR use is often viewed as a marginal activity, though in reality the trade of these products provides significant economic benefits to many rural households and communities (Chamberlain et al. 2000 ; Zutshi 1994). NTFRs are in daily use throughout the tropics, commonly providing resources crucial to people where no other social security is provided by the state. In a typical African country, only one person in ten has a formal job (Wickens 1991) and economically important species provide a source of informal source of income. Edible wild foods (fruits, wild vegetables, fungi, bush meat and insects) commonly provide dietary supplements (Cunningham and Davis 1997). Fuel wood or charcoal, not electricity or oil is the major source of household energy (Leach and Mearns 1988).

Forests provide significant social and economic benefits at all level, especially in developing countries. Economics of people living in forest finger has traditionally been dominated by subsistence agriculture. However, non-timber

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forest products (NTFPs) play vital role among the tribal people and provide a source of income and substance living (Peters et al. 1989; Hegde et al. 1996). NTFPs like fuel-wood, medicinal plants, wild edible vegetables, house building materials etc. are an integral part of day-to-day livelihood activities, especially for tribal people (Sarmah et al. 2006). Non-timber forest products (NTFPs) or non-wood forest products (NWF-Ps) have been considered as minor forest products in many countries. Production and consumption of NTFPs have never appeared as resources of great economics and ecological importance at macro level, but contribute a minor share to the national economy in comparison to commercial timber. However, at micro level, tribal people living in and around forests for centuries have recognized NTFPs as important forests resources. Non-timber forest products refer to all biological materials other than timber, which are collected from natural forests for human use. A study was conducted by Chaudhury (1986) who recorded over 500 plants as being significantly used by the tribals as food, dyes, tannins, drugs, narcotic, drinks, housing instruments, weapons, fibers and medicine etc. NTFPs may provide local job opportunity to two million people every year and contribute significantly to rural economy as more than half of the products are consumed by the tribals living in and around the forest area to meet their basic needs (Jana 2008; Rout et al. 2010). Thus, the non-timber forest products play a significant role in the livelihood of forest dwellers, communities living in the vicinity of the forest, as well as people at large in the immediate surrounding areas.

In the present investigation the main impacts of harvesting non-timber forest resources and the causes for their unsustainable harvesting are studied. Based on major findings, the value of NTFPs in terms of household and livelihood security as well as commercial importance for the tribal communities in the Paschim Medinipur (that is, Jangalmahal craft) district of West Bengal, is reported.

### The Study Area

The entire district of Paschim Medinipur in the state of West Bengal, India forms the study area of the present investigation which is located between 21° 46'3 N and 22° 57'3 N between 86°

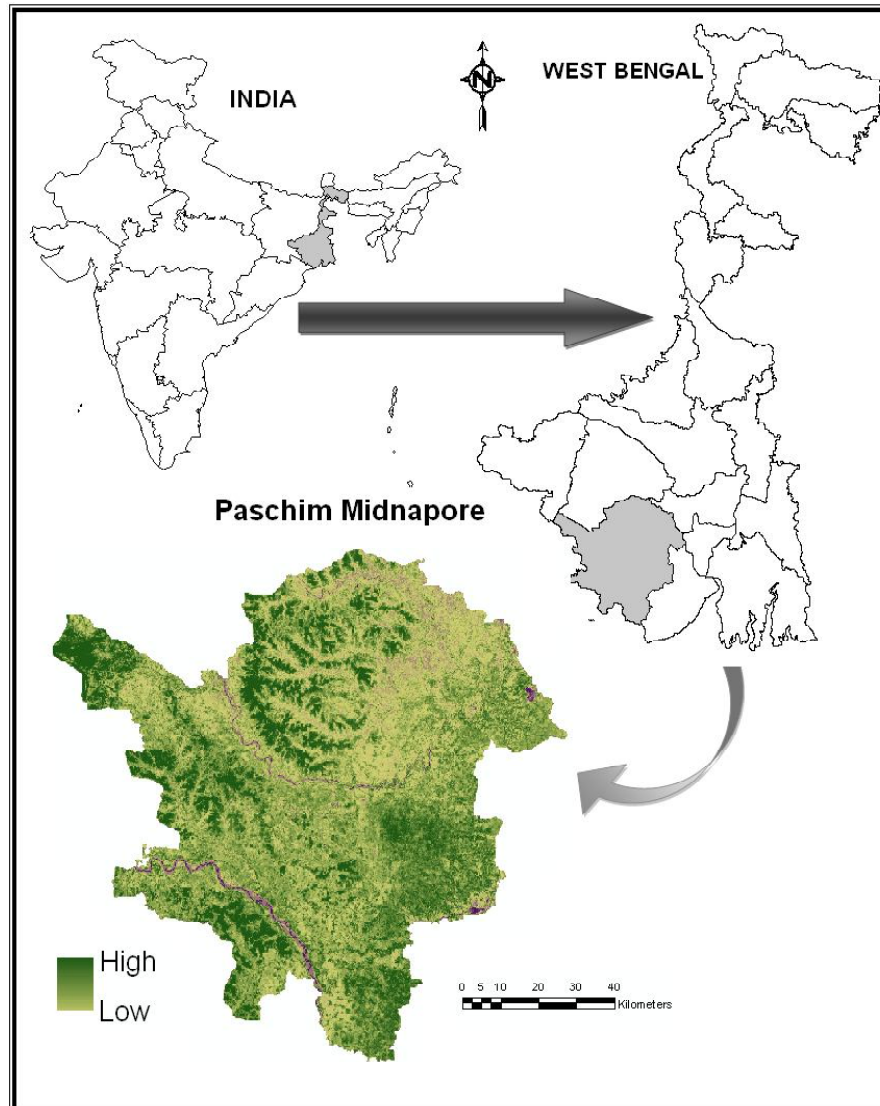
33' E and 87° 44'3 E (Fig.1). The district is bounded on the north by Bankura and Purulia districts of West Bengal, both east and south by Purba Midnapore district of west Bengal and Balasore district of Orissa state and on the west by Mayurbhanj district of Orissa and Singhbhum districts of Jharkhand state. The total geographical area of Paschim Medinipur district is 9081.13 sq km. The total forest area comprises of about 171894.89 hectares. About 18.39% of the district is covered with forest. About 32.88% of its families are living below the poverty line (BPL). Most are Schedule Caste (SC), Schedule Tribe (ST) communities and other backward classes (OBC). They largely depend on these forest resources for their food and livelihood.

### MATERIAL AND METHODS

The data of the present study were collected by questionnaires survey, interviewing and directly observation during the field survey of the study area in the session of 2010-2011. Total 120 tribal household surveys were conducted by random sample of forest marginal villages of the experimental area. During the seasonal collection, local tribals including males, females and children collected the non-timber forest products (NTFPs) for livelihood substance. Since the collection season is spread over the whole year for different items; the Minor Forest Products (MFPs) collection activities provide employment to the local tribes almost throughout the year. Secondary information was collected from District Forest Office (DFO), Paschim Medinipur District. The analysis of the study was carried out of livelihood substance of tribal communities in participation of NTFPs in economic activities.

### RESULTS AND DISCUSSION

Results of this study showed that the local tribal communities manage the forests by using a large number of NTFPs. Different NTFPs were used by local people, of which 113 derived from plant species and 76 from animal and bird species; of the 113 plant resources, 27 were used for commercial purposes, 39 were consumed at home as food, 47 used for medicinal purposes (both livestock and human). Considerable seasonal variation was noted in the availability of NTFPs. The most important commercial NTFPs were *sal*



**Fig.1. The vegetation map of the study area**

leaves, *sal* seeds, *kendu* leaves, *mahua* flowers and seeds, mushrooms, tubers etc. The present work was followed by the more detailed study to examine which households use these NTFPs, the results of which are discussed as follows.

#### **Forest as Source of Food and Livelihoods**

The poor household pursued diverse sources of livelihood wage labour being the lifeline of the study village with separate domain of liveli-

hood related activities for women and men. Those done by women included making of *sal* leaf plates, growing homestead vegetables, making puffed rice, backyard poultry, selling eggs, bamboo crafts, weaving mats etc. (Fig. 4). Traditionally forests used to be a major source of livelihood but it is no longer so. In this category the most common livelihood was trading in timber, which is no more possible, at least legally. Now, the most common activity is collection and sale of non-timber forest products such as col-

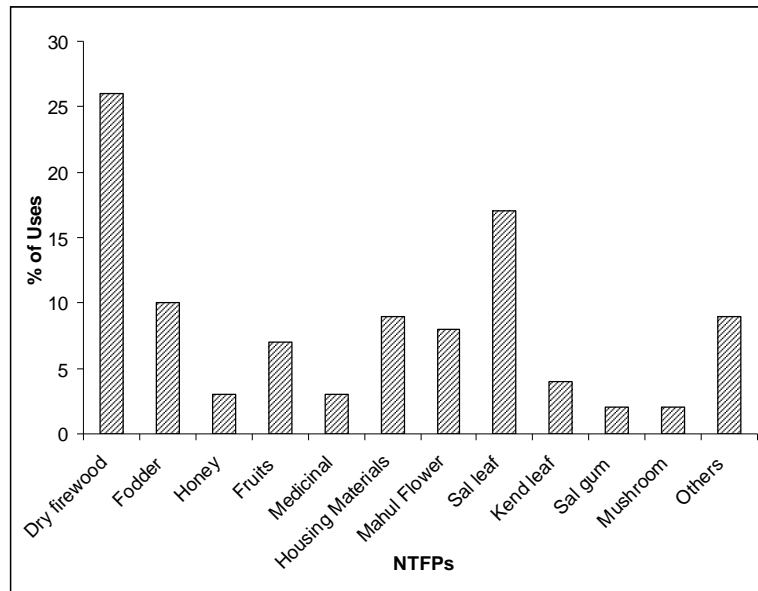


Fig.2. NTFPs used for livelihood sustains at household level

lection of fuel wood, *kendu* and *sal* leaves, collection of *Gethi kanda*, *Bendo sag* (leafy vegetable) and bamboo. In the study villages they collected dead leaves to make mats, which they sold in the market (Fig. 2). The poor households earned by selling fuel wood, *kendu* leaves, *sal* leaves, bamboo etc. In addition, roots and edible leaves were collected from the forest, which were consumed by the poor households. Many village participants felt that there was need of training to process and items from forest product, such as bamboo and dead leaves. Since the forest area was being depleting and reducing in size, they suggested planting of more trees in the forest.

Though forests, trees and NTFPs to a large extent provided livelihood to local poor/communities in the study villages, the major constraint faced in pursuing these livelihoods was the oppression of the poor by the “forest workers” who often prohibited and prevented villagers from collecting fuel wood. More than 80% of the villagers in the study villages were directly dependent on NTFPs from local forest while others make indirectly use, that is, many household brought forest product such as fuel wood, mushroom and other items when required. On enquiring whether mixed forests were better, the local people especially the women said that

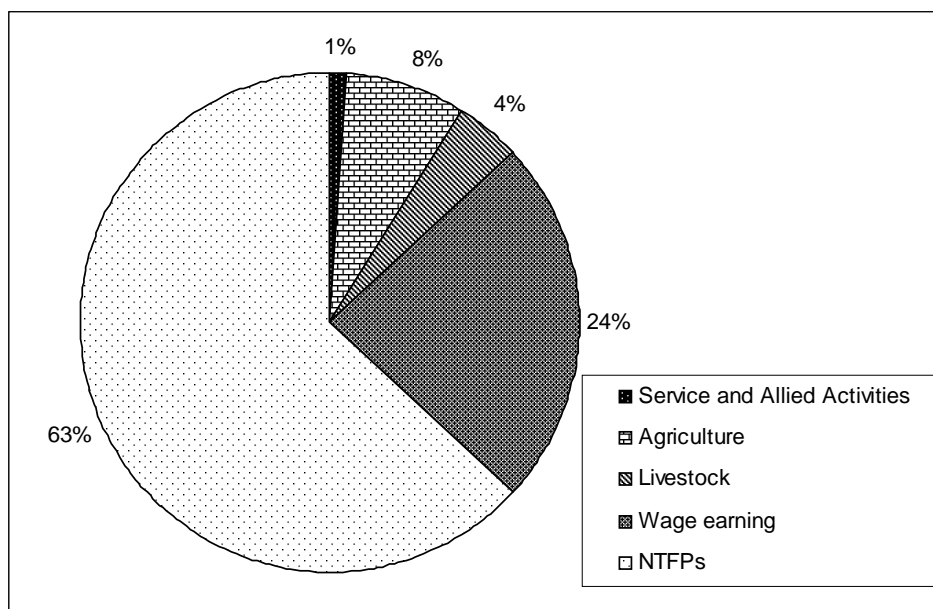
mixed forest made for better support for they help in pursuing diverse resources of livelihood. Of 120 respondents, 20% reported that medical treatment of disease is done using forest medicinal plants. However, the first-aid is invariably performed using forest medicinal plants for the inhabitants of the forest vicinity (Fig.5).

#### Seasonal Collection of NTFPs

Majority of the species are available in the forest during the month of April to December. And generally tribal women were involved along with their children for the collection of NTFPs from the forest. *Sal* leaves, particularly for the plate making, are collected almost throughout the year (Table 1). However, the peak season is September to November. During the rainy season, although *sal* leaves are available in the forest, they are rarely collected because people are engaged in paddy cultivation. Similarly, firewood is collected round the year, but it is available in plenty after winter. Collection of mushroom is restricted to late monsoon period, that is, the months of June to September. Tubers are also collected at the same time (Table 1). *Kendu* leaf collection is restricted one or two months after spring. *Babai* grass is cultivated and harvested after the monsoon season. Farmers harvest *sa-*

**Table 1: Seasonal collection of NTFPs in Paschim Medinipur district**

S. No.	Name of NTFPs	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
1	Alu	√	√	√									√
2	Amla										√	√	
3	Ata									√	√	√	
4	Bel (fruit)		√	√									
5	Chalcol	√	√	√	√	√			√	√	√	√	√
6	Chhatu							√	√	√	√	√	
7	Dantakathi	√	√	√	√	√	√	√	√	√	√	√	√
8	Dudhi lata									√	√	√	
9	Dumur	√	√	√	√	√	√	√	√	√	√	√	√
10	Harida	√										√	√
11	Jam (fruit)						√	√					
12	Kalmegh leaf)							√	√	√			
13	Karanja												√
14	Kendu (fruit)			√	√								
15	Kendu leaf			√	√								
16	Kochila		√	√	√								
17	Kurkt	√	√	√	√	√	√	√	√	√	√	√	√
18	Kusuma						√	√					
27	Lodh (bark)	√	√	√									
19	Mahula Flower			√	√								
21	Mushroom						√	√	√	√			
20	Nimb		√	√									
22	Saga	√	√	√	√	√	√	√	√	√	√	√	√
23	Sal leaf	√			√	√	√			√	√	√	√
24	Sal seed				√	√	√						
25	Siali leaf	√			√	√	√			√	√	√	√
26	Tentuli		√	√									



**Fig. 3. Average income shares of household from difference activities**



Fig. 4. Sal leaf produced by forest villagers of Paschim Medinipur district



Fig. 5. Medicinal plants Iswarmul in Gurguripal forest of Paschim Medinipur district

*bai* grass once or twice from the same plots of land, in the same year, depending on the growth of the grass. Harvesting starts from late August and continues till the end of December. The villagers collect NTFPs not only from the protected forests, but also from the surrounding places in all the villages. For collection of firewood, the villagers leave early in the morning. Sometimes they are unable to collect sufficient quantities of firewood. As a result of that, they enter inside the deep forest covering long distance ranging from 3-5 km and return after collecting sufficient quantities of firewood at the end of the day.

Mushroom and tuber fruits of *bankundri* and steams of *banpui* are used as vegetables. Pului leaf is used for mat weaving. *Kalmegh*, *Satmul*, *Iswarmul*, *Anantamul* etc. are used as medicinal plants. Dudhilata stems are used for basket weaving. An early study in Jamboni range of the study area showed that a total of 214 species were collected from the regenerating forests (Malhotra et.al. 1991).

### Socio-economic Sustainability

The forest resources in the form of NTFPs play an important role in protecting the socio-economic and ecological safety net of the forest dwellers. The study reveals that almost all of the forest-dwellers depend on the forest products other than timber to varying degrees. It is also observed that 63% of forest-dwellers depend on the forest even for their cash income (Fig.3). It is the motivation of the people involved in a system that determines its social sustainability. The society of "Forest Protection Committees" (FPC) is made up of individuals, although decisions are taken by the society, the problems faced by the individuals are varied, who constitute this society including the women folk and the weaker sections- the silent groups. Social sustainability should also be recognised and the cultural structure of the society has to be preserved (Shit et al. 2010). In this respect substantial progress has been made in the district, where the tribal communities' spirit of identification with the forest ecosystem and their inherent love and respect for nature provide us with a solid base for sustaining the foundation for the FPC.

### CONCLUSION

From this investigation it may be concluded that the NTFP's play an important role in im-

proving the livelihoods as well as meeting the needs especially as food, medicine, poverty reduction etc. of the rural tribal communities particularly in the Paschim Medinipur district of West Bengal. Non-Timber Forest Products are integrated components of the forestry sector and have been widely recognized as potential resources for promoting sustainable livelihoods, conservation and capacitating development organizations. It plays a crucial role in the livelihoods for rural people, particularly for those dwelling in the forest and its vicinity. Thus, on the one hand, the systematic harvesting of NTFPs will increase employment opportunities among forest-dwellers and on another hand, it may also reduce their over dependence on timber collection which might be efficient to resolve the problem of dry-deciduous forest degradation. Sustainable collection, use and commercialization are the main drivers in the promotion of NTFP's for community development, poverty reduction and livelihood socio-economic improvement in the tribal communities.

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