

Collection and Commercialization of Minor Forest Products in West Medinipur District of West Bengal

Sangjukta Das¹, Neelam Khare², Arindam Dey³ and Hemant Kumar⁴

Department of Forest Products and Utilisation, College of Forestry, SHUATS, Prayagraj 211 007, U.P., India

(Received 3 May, 2022; Accepted 22 June, 2022)

ABSTRACT

The collection and trading of non-wood forest products (NWFPs) is seen as a lucrative business. It is a significant means of improving the socio-economic situations of indigenous groups living in forest periphery areas, particularly in India. In order to assess collecting, marketization costs of different NTFPs, price-spread, marketing channels, marketing challenges, and prospects of NTFPs in boosting the income of forest fringe people, a study was undertaken in the Paschim Medinipur area of West Bengal. The study also emphasises the significance of comprehending the wide range of use values that should be attributed to forest lands. The current study was conducted using primary and secondary data, as well as a market survey, in twelve sample villages with a total of sixty households. The information was analysed using descriptive statistics such as frequency, percentage, and so on. In these villages in Paschim Medinipur district, there are about 15-20 NTFPs that are extensively found and commercialised. Dry fuel wood, sal leaf, mahua, and mushroom are the most often obtained NTFPs. Aside from that, medicinal herbs such as Kalmegh, Horitoki, and Bahera, among others, are picked and sold in the market. In this area, females are the primary NTFP collectors. Sal trees are the most valuable (UVSal = 3.5) among the species, while mushrooms and Kalmegh have the lowest use value (UVMushroom = 0.5, UVKalmegh = 0.5). When it comes to price-spread analysis, the highest price-spread ratio is for Sal leaves (13.78), followed by Kurchi seeds (7.0) and the smallest for mushrooms (0.25). NTFPs are mostly distributed through both informal and formal channels, with Mahua having the highest net income in terms of income generation among the NWFPs. The successful commercialization of MFPs in the current study area has the potential to raise local people's living standards.

Key words: NTFPs, Price-spread analysis, Use value, Marketing, Marketing channels

Introduction

Tribal people who live in forest areas have a long history of extracting forest resources for subsistence and/or commercial purposes. Non-wood forest products (NWFPs) are indispensable means for poverty alleviation in forest-dependent communities, as they contribute to food and nutrition security, employment, wellbeing, and long-term social develop-

ment. For an estimated 350 million people world-wide, the majority of whom dwell in developing countries, NWFPs are their key source of income, sustenance, nourishment, and healthcare (UND, 2004). In India, there are approximately 15,000 plant species, with nearly 3000 species (20%) producing NTFPs. For their own consumption and income, with over 50 million inhabitants in India rely on forest-based NTFPs. NTFP collection, which is a signifi-

(^{1&3} PG Research Scholar, ² Associate Prof. and Head, ⁴ Assistant Prof.)

cant source of income, varies from 5.4 to 55 percent depending on the state. In India's forest industry, NTFPs contribute \$2.7 billion in annual revenue. In India, NTFP collecting generates roughly 1062.7 million person days of work. The most infertile zone in India is the West Medinipur district of West Bengal, with significant denudation and erosion of the lateritic soil. The current study was carried out in the district to collect information on minor forest products (MFPs), including what is collected, who collects it, and how much it costs. Tropical dry deciduous woodland characterises the forest in this area. In terms of ecological, environmental, and socio-economic factors, the most prominent plant species in this forest section is Sal (*Shorea robusta*). The pricing of Minor forest products, the profile of FPC members, and the requirements of different market-consumers all have an influence on MFP collection in this district. In the West Medinipur district, the local markets for NTFPs still operate on a traditional manner. However, due to price volatility, the functioning of NTFP markets is erratic. An endeavour has been made in the Paschim Medinipur area for collection and marketing of NTFPs.

Research Methodology

Study Region

The intended investigation was carried out in the Paschim Medinipur district's Garhbeta-I block. It is 41 metres above sea level and is located at 22°52'N 87°22'E. The Garhbeta I Block covers 358.23 km². Garhbeta is the Block's headquarters. There are twelve Gram Panchayats in the block (Kadra Uttarbil, Sandhipur, Baramura, Shyamnagar, Dhadika, Agra, Benachapra, Amkopa, Amlagora, Garanga, Garhbeta, and Kharkushma). Five houses (n = 5) from each of the 12 GPs were chosen at random for the study. As part of the study, sixty households (N = 60) were polled. For the sample selection, a basic random sampling procedure was used.

Data Collection and Analysis

Both qualitative and quantitative data were used in this investigation. The research is based on two different types of data: primary and secondary. The current study's primary data were gathered by using the help of local inhabitants in selected houses. A pre-tested questionnaire survey and semi-structured interview as well as direct observation during the study area's field survey were taken in the summer of 2021-22. Secondary data was gathered from

the District Forest Office (DFO) of Paschim Medinipur District's Goaltore Range Head Office. The monetary value of each NTFP was determined through a market survey. The main seasonal markets in the Goaltore Forest Range are in Pingboni. The price spread and collector's share were studied using descriptive statistics such as percentages, frequencies, and so on. The price spread was calculated to determine how much of the final price went to main collectors. The variation between the amount paid by the ultimate consumer and the amount earned by the primary collectors is termed as the price spread..

Price spread of NTFP = (Market price – Collector's price) / Collector's price

Field observations and expert opinion were used to determine the benefits and uses of various species. To analyse the use value of various species, Phillips (1993) devised the following statistic:

$$UV_{i,s} = \sum U_{i,s} / N_{i,s}$$

$UV_{i,s}$ denotes the use-value (UV) assigned to a certain species (s) by a single informant (i). This value is determined by adding all of the uses specified by the informant in each event ($U_{i,s}$) and dividing by the total number of events in which the informant provided species information ($N_{i,s}$). The more the use value, the greater the demand for that specific NTFP (Parihari and Chatterjee 2015).

Results and Discussion

Based on where they live, the villagers are classified into three groups. A minimal proportion of households are located within the forest, few are located on the forest's outskirts, and some are located outside the forest. Taking all of the homes into account, it was discovered that 51% of the villagers were directly reliant on NTFPs from the local forest. This excessive reliance on forests could be attributable to the research area's infertile, barren soil with very little agricultural activity.

Village location and NTFP collection

The Rural communities and their reliance on NTFPs have a direct positive relationship. The number of people who rely on NTFPs increases as we move from communities outskirts the forest to villages inside the forest. The findings demonstrate that, on average, 52 percent, 58 percent, and 67 percent of

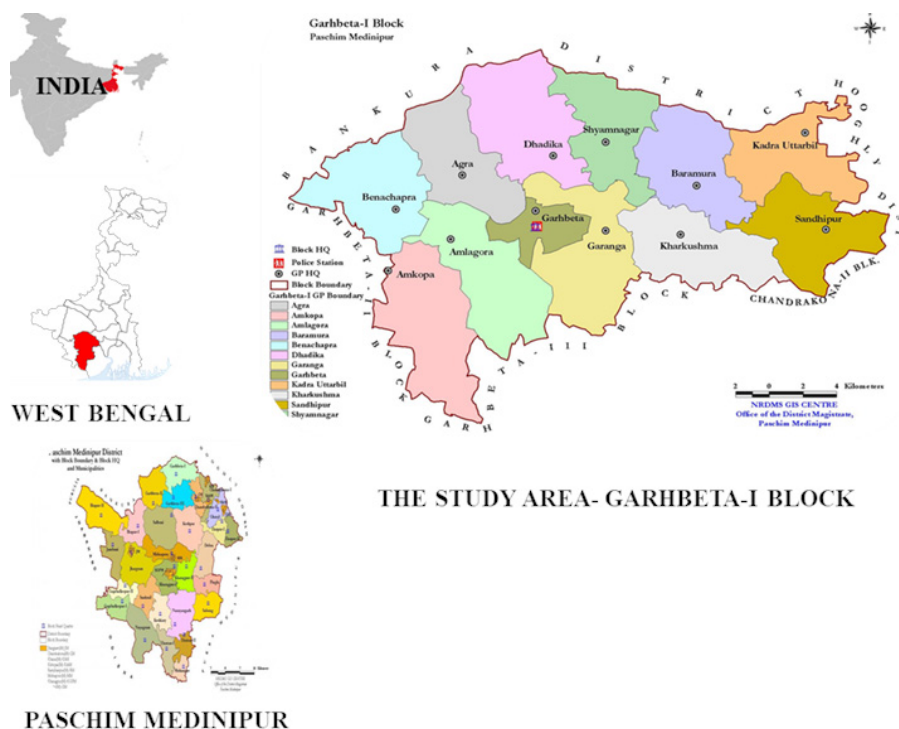


Fig. 1. Shows the location of the Garbata-I block in the West Medinipur district of India, as well as the case study villages.

villagers are reliant on NTFPs found outside the forest, in the fringe region, and inside the forest, respectively (Figure 2). Villages inside the forest have a substantially larger percentage of households engaging in NTFP collection than villages on the outskirts and outside the forest.

Collection of NTFPs and gender

For those who live inside the forest, it is evident that the villagers' reliance on NTFPs is high. However, we needed to know whether this reliance is gender

agnostic or gender specific. Females are the primary NTFP collectors, according to research. Females account for around 59 percent, 63 percent, and 67 percent of NTFP collectors in the forest, fringe region, and outside forest, respectively (Figure 3). When we shift their residence from outside to inside the forest, the number of male collectors increases. Only about 2% of children living outside the forest region join their male counterparts in collecting NTFPs. Males who dwell in the wild venture far into the woods to obtain mostly dry materials.

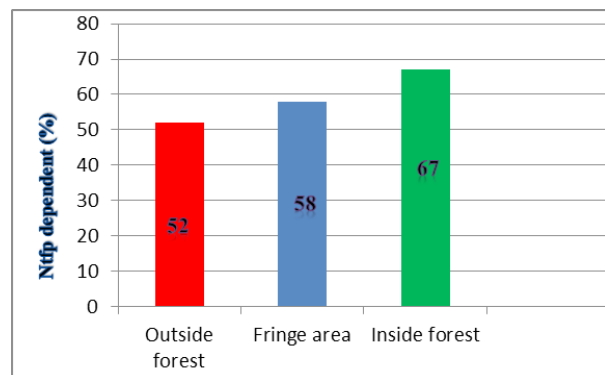


Fig. 2. The impact of village location on residents' reliance on NTFPs.

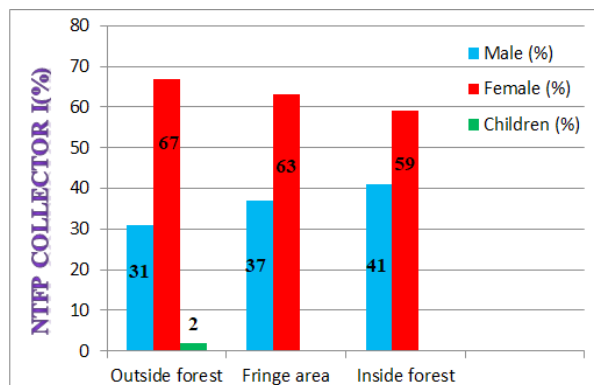


Fig. 3. Gender involvements in the collection of NTFPs

[illegible]

Table 2. Monetary values of various NWFPs

Sl No.	Produce Name	Parts used	Commercial importance	Monetary value	Collection Months
1.	Sal leaf	leaf	yes	INR 500/1000 plates	9
2.	Sal seed	Seed	yes	INR 15 /kg	3
3.	Gulancha	Stem	yes	INR 20/kg	7
4.	Kalmegh	Leaf, whole	yes	INR 30/kg	3
5.	Brahmi	Leaf, fruit	yes	INR 10 -15/kg	5
6.	Bahara	Whole plant	yes	INR 16/kg	5
7.	Horitoki	plant	yes	INR 25/kg	2
8.	Arjun Bark	bark	yes	INR 20/kg	12
9.	Curry (Kurchi)	Seed, bark	yes	INR 200/kg	4
10.	Berela	Bark, root, flower	yes	INR 15/kg	2
11.	Sharpagandha	root	yes	INR 25/kg	3
12.	Rahitak	bark	yes	INR 20/kg	3
13.	Fuel wood	woods	yes	INR 10/kg	12
14.	Kendu	leaf	yes	INR 30-40 /bundle	3
15.	Mushroom (<i>Kurkure Chhatu</i>)	whole	yes	INR 150 /kg	3
16.	Mahua	Bark, flower	yes	INR 15 -20 /kg	2
17.	Amlaki	Fresh latex	yes	INR 30/kg	3

*All prices are in Indian rupees (INR) and were obtained through a primary market survey (2021).

Economic Importance of Various NWFPs

The cost of NWFPs is determined by product demand and supply, as well as marketability opportunities. Many collectors sell their items at local markets or through local brokers. Table 2 highlights the items' availability, monetary value, commercial relevance, and utilisation, which is based on strategies for participatory assessment.

Marketing Channels of NTFPs in the Study Area

In this research area, there are three major types of market chains (Figure 5). Some culinary products, such as vegetables and green products were sold directly by collectors (*Channel-2*). Similarly, primary collectors sell dry items such as Mahua and Shatamuli at local markets and nearby district mar-

kets and few of these items are distributed in metropolitan markets by agents after processing. LAMPS or members of the JFM Committee sell sal seeds and

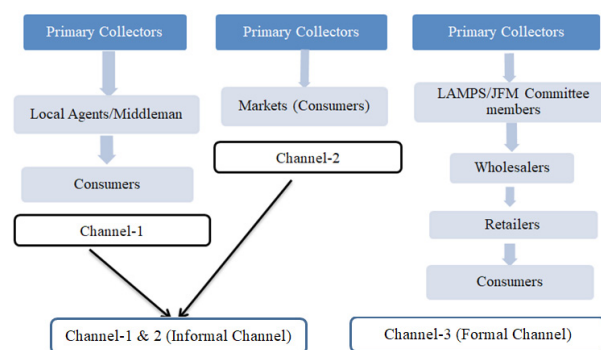


Fig. 5. Different Marketing Channels of NWFPs in the study area

Table 3. Marketization costs of different NTFPs in the study area

Local name	Average quantity sold	Monetary value (INR)	Gross return INR	Distance for marketization (km)	Transport cost (INR)	Labour man days	Cost of labour ² (INR)	Net return (INR)
Sal leaf	20 bundle	INR 500/1000 plates	10,000	5	20	25	6700	3200
Kendu	150 bundle	IRR 40/bundle	6000	15	20	15	4020	1680
Mahua	3 qt	INR 20/kg	6000	10	10	10	2680	3220
Amlaki	60 kg	INR 30/kg	1800	15	20	5	1340	160
Brahmi	65 kg	INR 15/kg	975	5	10	2	536	389

All figures are in Indian rupees (INR) and are taken during questionnaire surveys (2021).

^aThe cost of labour is computed using a daily earnings of INR 268.

Table 4. Collector's Price, Agent's Price and Market Price and price spread analysis for various NTFPs

Name of the produce	Collector's Price (pre-processing) (Rs./Kg)	Agent's Price (Further Manual Processing) (Rs./Kg)	Market Price (Rs./Kg)	Price-spread (Ratio)
Sal leaves	35/bundle	300/ bundle	500/bundle	13.28
Kalmegh	5	25	30	5.0
Gulancha	3	15	18	5.0
Berela	8	15	20	1.5
Bahera	3	8	14	3.7
Horitoki	8	12	60	6.5
Rahitak	10	15	40	3.0
Kurchi seed	20	120	160	7.0
Firewood	6-10	20	10	0.6
Mushroom	8-10	20	10	0.25
Dried amlaki	110	180	180	0.63

Figures in Photo plates**Plate 1**

Fig. 1-2. Women Plucking green Sal leaves; **Fig. 3.** Collected Sal leaves in sacks; **Fig. 4.** Sal leaves stitching for disposable plates; **Fig. 5.** Disposable plates; **Fig. 6.** Women collecting Mahua seeds; **Fig. 7.** Sal (*Shorea robusta*) seeds; **Fig. 8.** Visiting Head office Goaltore Range. [All the photographs/figures were taken from field of Garhbeta-I Block, Paschim Medinipur, W.B. by author.]

Kendu leaves (*Channel-3*). Medicinal items were promoted in urban areas through secondary aggregators or agents in the same way. However, if the locals process the NTFPs, they have a vast potential for generating revenue. Value addition strategies such as direct marketing of Sal leaf-plates, packaging of Amlaki, and extraction of Mahua oil have been practiced by several families in the research

region. Many commodities are sold in the market as raw materials at extremely low rates, but they have the potential to earn 2–3 times more after processing.

Marketing status and Marketization cost of different NTFPs

Pingboni is one of the most important markets of

NTFPs in the study area. The other important markets in the district of Paschim Medinipur are Amlagora, Chandrakona Road, Godapiasal and Salboni. Mainly Sal leaves, kendu leaves, medicinal plants like Kalmegh, amlaki, Horitoki, Bahera, Brahmi, Sarpagandha etc. are marketed in the study area. Disposable Sal plates and bowls are mainly exported to Kolkata, Burdwan and other outer states. Besides this, medicinal plants like Kalmegh, Bahera, Kurchi, Amlaki, Horitoki etc. are exported to Kolkata in pharmaceutical companies. The expenditures and outcomes associated with collecting and marketing NTFPs are included in their economic significance. The opportunity cost of labour is calculated using the mean number of man-days spent collecting NTFPs. The off-season payment rate (INR 268 /day, in accordance with the Goaltore range's head office) is used to calculate the labour cost. The opportunity wage rate in the research area is used to calculate the cost of time spent collecting NTFPs. Table 3 shows the expenses and outcomes of various NWFPs acquired during the collection season. Mahua has the most economic worth among them in terms of net profits.

Collector's Price, Agent's Price and Market Price and price spread-analysis

Villagers trade the majority items in marketplaces or through local agents who work as intermediaries or lender in the commercialization of MFPs, according to local collectors. The pricing discrepancies of several NTFPs were discovered via a market survey. The price spread for sal leaves, sal seed, Mahua, Horitoki, and Amlaki is wider than for other items. For various NTFP produces, collector's pricing, market price, and price-spread have been provided in Table 4. Due to their high market worth, the biggest price spread is computed for Sal leaves ($Ps = 13.28$), Kurchi seeds ($Ps = 7.0$), and Horitoki ($Ps = 6.5$). Mushrooms also have the lowest price spread ratio (0.25).

Major issues observed in the Paschim Medinipur District's NTFP Sector

During our current research of selected study locations in Paschim Medinipur district, we discovered the following issues. Elephant attacks during NWFP collection; a lack of market information, such as required cost, value, and availability; a lack of species-specific information, such as potentials for accessibility, dispersion, production, and regeneration;

overgrazing, degradation of forests, and unsustainable harvesting pose challenges to NWFPs, as does an inadequate infrastructure for storing the goods, quality enhancement, and sorting.

Conclusion

Non-wood Forest Products (NWFPs) are integral parts of the wood industry and have long been recognized as viable assets for fostering competence for advancement, conservation, and livelihood security. Females are the primary MFP collectors, and dry fuel wood is the most commonly gathered NWFP, followed by Sal leaf and mushroom. The most major controlling variables of NWFP collection include elephant attacks, a lack of market knowledge, and a low price for NWFPs. According to the market survey and price spread data, NWFPs offer a large capability for employment generation, particularly when secondary processing by local people is added. The use of Techniques for food processing, effective management, and domestication of NWFPs could lead to successful commercialization of NWFPs in the current study region. To develop the lifestyle of the tribal group, the price spread of the NWFP resources specified should be eliminated. Rather than selling raw materials, the main focus should be on increasing profits from NWFPs through processing and appropriate marketing. This study, on the other hand, can aid research into the collection and marketing of various MFPs, as well as collectors' marketing challenges.

Acknowledgement

The authors are thankful to Ranger Head Office Goaltore range for facilitating the field survey. The authors acknowledge their heartfelt indebtedness for the valuable cooperation of the Village Pradhans, respondents, Large Scale Multipurpose Cooperative Societies and all the Government officials in carrying out this research work. College of Forestry, SHUATS deserves a special applaud for giving the opportunity to make this work real.

References

- Ahmed, M. U., Jana, S. K. and Roy, S. D. 2016. Marketing of Non-Timber Forest Products – A Study in Paschim Medinipur District in West Bengal, India. *Intercontinental Journal of Marketing Research Review*. 4: 330-337.

- Alex, A. and Vidyasagaran, K. 2016. The marketing of non-timber forest products in the Western Ghats region of Attappady in Kerala.
- Bauri, T., Palit, D. and Mukherjee, A. 2015. Livelihood Dependency of Rural People Utilizing Non-Timber Forest Product (Ntfps) In A Moist Deciduous Forest Zone, West Bengal, India. *International Journal of Advanced Research*. 3: 1030-1040.
- Belcher, B.M. 2005. Forest product markets, forests, and poverty reduction. *International Forestry Review*. 7(2): 82-89.
- Chatterjee, N.D. and Das, K. 2017. Rational resource management and the role of traditional Knowledge among the Santhal and the Bhumij Tribes of Binpur II Block, Paschim Medinipur. West Bengal, TTPP, p 43
- Dinda, S., Ghosh, S. and Chatterjee, N.D. 2020. Understanding the Commercialization Patterns of Nontimber Forest Products and their Contribution to the Enhancement of Tribal Livelihoods: *An Empirical Study from Paschim Medinipur District, India, Small-scale Forestry*. 19 : 371-397.
- Ghosal, Somnath, Jewitt, Sarah and Watkins, Charles 2009. Marketing of non-timber forest products produced in dry-deciduous forest of West Bengal, India, XIII World Forestry Congress, Buenos Aires, Argentina, and 18 – 23 October.
- Ghosh, S., Dinda, S., Das Chatterjee, N. and Das, K. 2018. Analysing risk factors for shrinkage and transformation of East Kolkata Wetland, India. *Spat Inf Res*. 26(6) : 661–677.
- Ghosh, S., Dinda, S. and Das Chatterjee, N. 2019. Fizzle and success of e-Governance in India: Priority-based analysis in Paschim Medinipur District. *J Govern Public Policy*. 8(2) : 65-84.
- Jana Sebak Kumar, Samit Datta Roy and Mumtaj-Uddin Ahmed, 2012. Household Dependence on Forest– A Case Study on Joint Forest Management in Rupnarayan Forest Division, Paschim Medinipur District, West Bengal, in R.K. Sen ed. *Forest Management and Sustainable Development, Deep and Deep Publication*.
- Jana Sebak Kumar, Wietze Lise and Mamtajuddin Ahmed 2014. Factors Affecting Participation in Joint Forest Management in the West Bengal State of India. *Journal of Forest Economics, Elsevier*. 20(4): 317-332.
- Kandari, L.S., Gharai, A.K., Negi, T. and Phondani, P.C. 2012. Ethnobotanical knowledge of Medicinal plants among scheduled tribes communities in Orissa, India. *For Res*. 1(1) : 1-5.
- Locke, C. 1999. Women's Representation and Roles in Gender Policy in Joint Forest Management in India. In: Jeffery, R. and Sundar, N. (Eds.) *A New Moral Economy for India's Forest - Discourses of Community and Participation*. Sage Publications, New Delhi.
- Mahapatra, A.K. and Tewari, D.D. 2005. Importance of non-timber forest products in the economic valuation of dry deciduous forests of India. *For Policy Econ*. 7(3) : 455-467.
- Mazumder, A. 2005. Regional Centre - National Afforestation and Eco-Development Board. Jadavpur University, Kolkata.
- Negi, Y. S. and Bhalla, P. 2002. Collection and marketing of important medicinal and aromatic plants in tribal areas of Himachal Pradesh. *Indian Forester*. 128 (6): p. 641-649.
- Parihari, S. and Chatterjee, N.D. 2015. Sharing of non-timber forest products by Indigenous tribal people: a case of Santhal Tribe of Bhadule Village, Paschim Medinipur, West Bengal. *Man Life J Inst Soc Res Appl Anthropol*. 39(1–2) : 83-94.