Indian Forester, **151** (7) : 611-621, 2025
DOI: 10.36808/if/2025/v151i7/170712

ISSN: 0019-4816
eISSN: 2321-094X

Struggles in Leveraging and Commercializing Non-Timber Forest Products for Sustainable Livelihoods: A Study of the Baiga and Gond Tribal Communities in Balaghat District, Madhya Pradesh

Forests are Non-Timber Forest Products (NTFPs), such as fruits, nuts, medicinal plants, and resins, play a significant role in the livelihoods of forest-dependent communities. This study examines the socioeconomic dynamics and challenges faced by the Baiga and Gond tribes in Madhya Pradesh, India, with a focus on NTFP commercialization. The study was conducted in ten villages within the Bhimlat Block of Balaghat District. The research utilized qualitative methods, including in-depth interviews, focus group discussions, and participatory approaches. A total of 168 respondents, comprising both Baiga and Gond tribes, were surveyed. The findings highlight that 88% of the Baiga population relies heavily on NTFPs. The study reveals that while NTFPs are integral to the local economy, commercialization efforts are impeded by poor market conditions, low pricing, postharvest losses, and access restrictions in protected areas. The regression analysis examining income through NTFPs in relation to gender, education, and age reveals significant disparities and insights. Modern interventions, such as government housing schemes, often fail to align with the cultural needs of the Baiga and Gond tribes, underscoring the need for culturally informed approaches. NGOs and forest departments address these challenges by improving market access, supporting quality maintenance, and providing institutional support. However, a comprehensive strategy is essential, incorporating better market infrastructure, preserving traditional knowledge, and integrating gender equity and education. Enhancing NTFP commercialization through these multifaceted interventions will promote socioeconomic resilience and ecological sustainability in forest-dependent communities.

Key words: Non-timber forest products, Baiga, Sustainable livelihoods, NTFP commercialization, Socioeconomic development, Traditional knowledge.

88% of the Baiga population relies heavily on NTFPs, which are integral to the local economy, yet commercialization efforts are impeded by poor market conditions, low pricing, post-harvest losses and access restrictions in protected areas.

Introduction

Non-Timber Forest Products (NTFPs) are goods of biological origin other than timber from natural, modified or managed forested landscapes. They include fruits and nuts, vegetables, medicinal plants, gums and resins, essences, bamboo, rattans and palms; fibers and flosses; and grasses, leaves, seeds, mushrooms, honey and lac. NTFPs can also be referred to as all the resources or products that may be extracted from the forest ecosystem and utilized within the household or are marketed or have social, cultural or religious significance (Costanza *et al*., 1997; Pandey *et al*., 2016). NTFPs constitute an important source of livelihood for millions of people from forest fringe communities across the world. In India, NTFPs are associated with the socioeconomic and cultural life of forest-dependent communities inhabiting diverse ecological and geo-climatic conditions throughout the country (Pandey *et al*., 2016; FAO and UNEP, 2020; Derebe and Alemu, 2023).

Communities living in close vicinity of forests are particularly dependent on their livelihoods and food security, such as timber, fuel wood, food resources, medicines and other extracts, many of which have

AJOY KUMAR BHATTACHARYA*[1], ANJALI[2], ANUP PRAKASH UPADHYAY[2] AND CVRS VIJAY KUMAR[2]

**Email: ajoykb@gmail.com*

Received December, 2024
Accepted June, 2025

[1]Retired IFS Officer, Chairman - IDO.
[2]Indian Institute of Forest Management, Bhopal (Madhya Pradesh).

not been replaced by modern cultivation options (FAO, 2002; Khan *et al*., 2020). Past studies on NTFPs have focused on three perspectives: first, NTFPs as a commodity with a focus on rural incomes and markets; secondly, as an expression of traditional knowledge or as a livelihood option for rural household needs; and thirdly, as a key component of sustainable forest management and conservation strategies. These perspectives promote forest products as valuable commodities and essential tools that can promote the conservation of forests (Pandey *et al*., 2016).

In Madhya Pradesh, the Baiga and Gond tribes, which reside in the Baihar, Bisra, and Paraswada blocks of the Balaghat district, have profound connection to the forests they inhabit. The Baiga and Gond tribes are ethnic communities in Central India, including Madhya Pradesh, Chhattisgarh, Uttar Pradesh and Jharkhand (Baghel and Patil, 2022). NTFPs play a significant role in the livelihoods of Baiga and Gond tribes living in and around forest areas of Balaghat. The NTFPs are collected and utilized by local communities for subsistence, income generation, and cultural purposes. Some of the major NTFPs other than bamboo contribute to local livelihoods in the Balaghat district areas are Mahua flower obtained from the Mahua tree (*Madhuca longifolia*), Mahua seeds, Tendu (*Diospyros melanoxylon*) leaves, also known as Indian beedi leaves, Sarai (*Shorea robusta*) fruit and Pattal, a plate made from Mahul (*Bauhinia vahlii)* leaves. This study provides valuable insights into the socioeconomic challenges faced by the Baiga tribe and suggests measures to enhance their livelihoods through better resource management and policy support (Uma, 2024).

Objectives

The study documented the socioeconomic profile of Baiga and Gond respondents and examined the extent to which their livelihoods are dependent on NTFP-based activities. Further, the study aimed to analyze the key challenges faced by these communities in promoting sustainable livelihoods and entrepreneurial ventures based on NTFPs, as perceived by the respondents themselves. The study also made attempt to establish the linkages between income generated through NTFPs and various socioeconomic variables, thereby highlighting the critical role of NTFPs in supporting and sustaining the livelihoods of forest-dependent tribal communities.

Material and Methods

The study was conducted in the Baihar Tehsil of Balaghat during April to June of 2024. The district Balaghat is affluent in forest wealth, with 52% of the area covered with forest. Balaghat District is divided into 10 Tehsils, 438 Panchayats, and 1287 Villages (FAO, 2002; Khan *et al*., 2020). The study relied predominantly on qualitative data to provide in-depth insights and a comprehensive understanding of the research objectives. Through interviews, focus group discussions, and participatory methods, this study captures detailed perspectives and rich qualitative data to highlight the key findings and implications of the study. A total of ten villages located near the forest were selected for survey from Bhimlat Panchayat. Great care was taken to choose only those villages, where largely the tribal population of the Baiga and Gond tribe resides. The names of the villages / tolas chosen for the study are Baherakhar, Bandhatola, Basinkhar, Baigatola, Bhimalat, Balgaon, Baihar, Birsa, Chircharanpur, and Samnapur. Systematic random sampling was used to ensure a representative selection of participants. A total of 168 individuals, a mix of Gond and Baiga tribes, were interviewed for this study. Community members were involved at all stages of the documentation process during fieldwork to capture the respondents' perspective, and they were well aware of the purpose of the study.

Results and Discussion

General profile of the respondent

The graph (Fig. 1) shows, from the survey data of 168 respondents across 10 hamlets, that Baihar (26), Bandhatola (20), Chircharanpur (18), and Bhimalat (16) had the highest participation; Samnapur (15), Baigatola (14), Pandrapani (14), and Bhasinkhar (12) had moderate participation; and Birsa (5) had the lowest participation. The survey effectively covered a range of villages with varying degrees of participation, providing a broad understanding of the contributions of NTFPs across different areas. The bar chart (Fig. 2) shows that the majority of the respondents are from the Baiga tribe (85.1%), whereas a smaller portion are from the Gond tribe (14.9%). The pie chart (Fig. 3) shows that 52% of the surveyed population is female, indicating a nearly equal representation of both genders in the survey. The pie chart (Fig. 4) shows that the majority of the surveyed population (61%) is illiterate. The high rate of illiteracy is linked to various socioeconomic factors, such as poverty, lack of educational facilities, and cultural barriers. Only 39% of the population is literate. Compared with illiterate individuals, minority individuals may have better access to opportunities and resources.

The pie chart (Fig. 5) indicates that the percentage of NTFP collectors is 88% of the surveyed people. The survey results indicate that a vast majority of the respondents, 148 out of 168 people, are NTFP collectors. The graph (Fig. 6) shows that the income range with the highest frequency is 5,000-15,000/annum, with 50 people falling into this category. This suggests that a significant portion of the surveyed population has a relatively low annual income. A total of 38.7% fall in the middle-income category, while approximately 11.3% have an annual income above 65,000. Figure 7 shows that 42% have NTFPs contributing 25% or less to their income, and 58% have NTFPs contributing more than 25% to their income. This

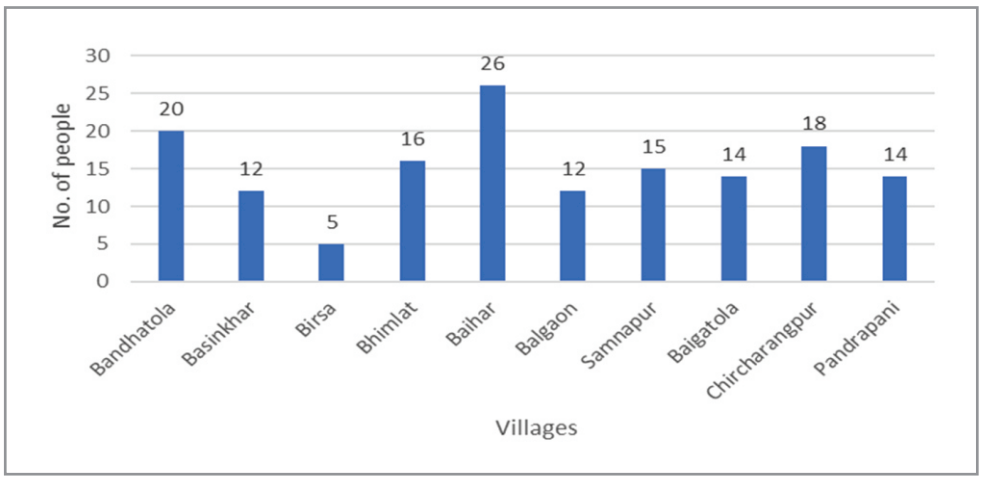

Fig. 1: Respondents distribution as per village (n=168)

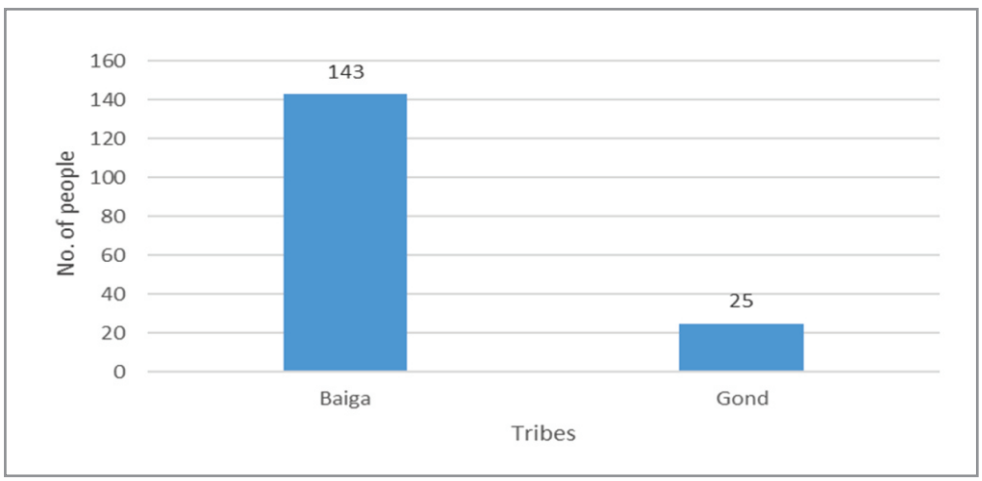

Fig. 2: Respondents distribution as per Tribe (n=168)

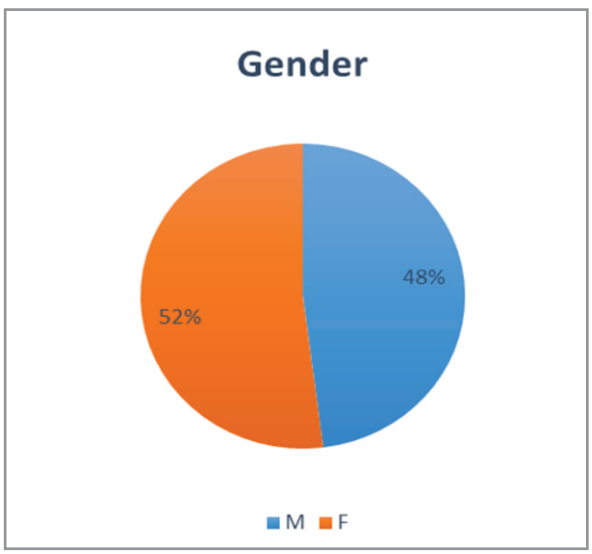

Fig. 3: Male Female ratio of the respondents (n=168)

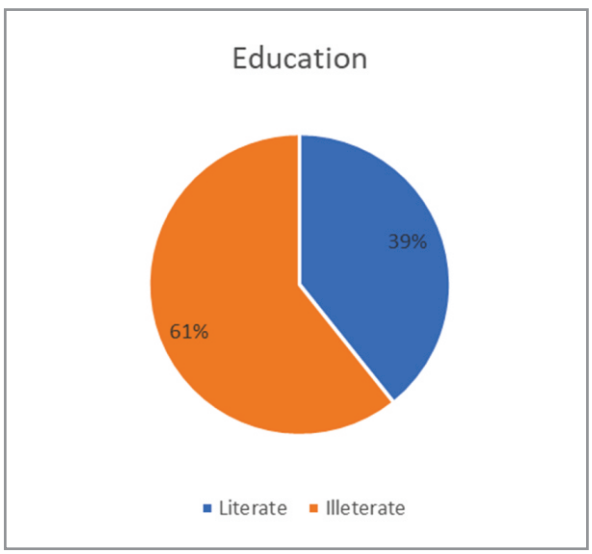

Fig. 4: Education level of the respondents (n=168)

suggests that for a significant portion of the respondents, the NTFP forms a relatively minor part of their overall income. Approximately 98 people indicated that NTFPs contribute more than 25% of their income. This shows that for a larger portion of the respondents, the NTFPs constitute a substantial component of their income. Overall, the data indicate that NTFPs constitute a significant source of income for the majority of respondents. More than half of the respondents rely on NTFPs for more than a quarter of their income, suggesting that any improvements in the commercialization and market conditions of the NTFPs will have a meaningful impact on their livelihoods. The contribution of the NTFPs becomes critical during the lean season, especially the rainy season, when the areas become inaccessible and movements are restricted. The contribution of NTFPs to the total food intake of the Baiga community was 70% during the lean season.

The graph (Fig. 8) shows that agriculture and MNREGA (the Mahatma Gandhi National Rural Employment Guarantee Act) are the primary employment sectors for the majority of the population. A significant portion of the surveyed population is occupied as housewives, indicating that a considerable number of nonworking individuals contribute to household management. The reliance on agriculture and MNREGA suggests a rural setting with limited access to diverse employment opportunities. Diverse but small group occupations include agriculture, HCL (Hindustan Copper Limited) mining, MNREGA, handicrafts, security guards, teachers, *Vaidya (herbal doctors),* Housewife, Jewelry, and work in Nursery.

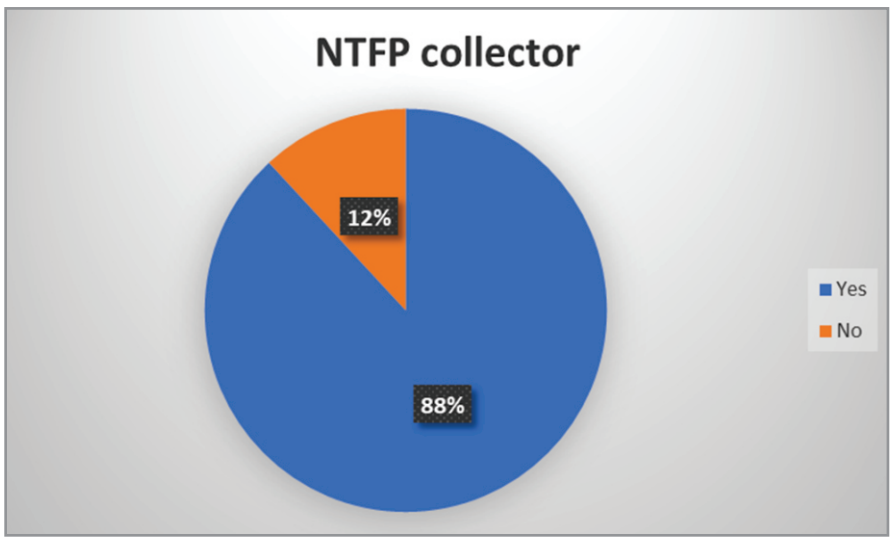

Fig. 5: Distribution of respondents as NTFP collectors and non-collectors (n=168)

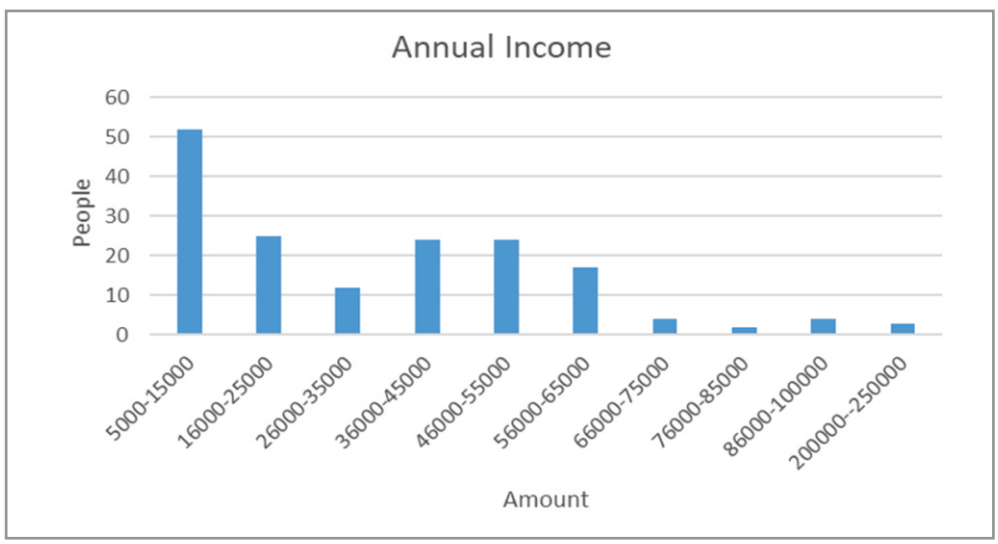

Fig. 6: Annual income distribution of respondents (n=168)

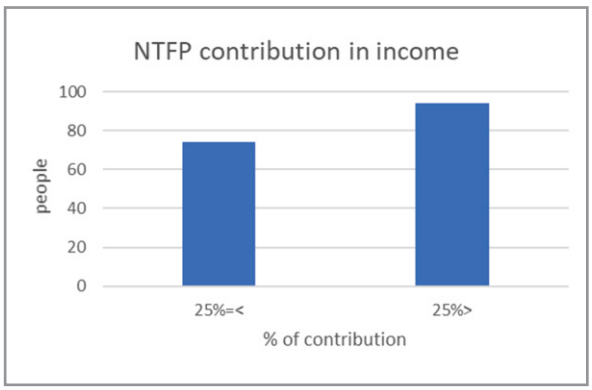

Fig. 7: NTFP contribution in income of the respondents (n=168)

Tribal culture is a living world heritage that is too precious to be lost. The Baigas are the most primitive forest tribe of the district. Traditional knowledge plays an important role in maintaining that harmony. The pie chart (Fig. 9) shows the results of a survey of 168 people about their possession of traditional knowledge. Fifty-five percent of the respondents said that they had some traditional knowledge. Thirty percent of the respondents said they had no traditional knowledge. Fifteen percent of the respondents did not answer the question or said they did not know. On the basis of this, it appears that a slight majority of the people surveyed have some traditional knowledge, whereas a significant portion of the population does not. This is due to a variety of factors, such as a lack of transfer of knowledge, demographic changes, Western lifestyle attraction, restrictions by forest departments to enter into forests for resources, and increasing Kanha fencing leading to strict regulation and penalties on illegal entries (Table 1).

It was observed in the field that Baigas pray and obtain permission from the forest goddess or *Van Devi* before they use its produce. Before entering the forest, Baiga rubs the leaves of Bhirra/Ghiria (Indian *Satinwood—Chloroxylon swietenia)* on their skin to repel insects. They do not have temples or gods; instead, they revere the Saja tree as "*Bada Dev*" because it stores large amounts of water in its bark, which they use to drink from. These characteristics make them special, namely, the cult of magic, shifting cultivation (*Bewar*) and traditional medicine systems (Tiwari, 2019). The tribals in Balaghat have expertise in medicine, and the priests are of particular importance. Tribals in Balaghat living in forests have carried out shifting, slash and burn cultivation for thousands of years without any influence or competition from other

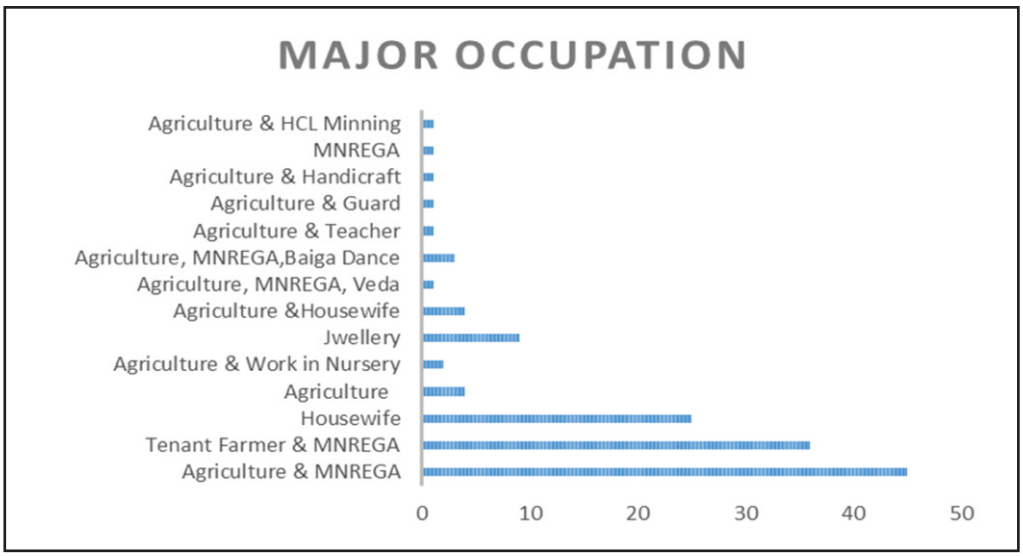

Fig. 8: Major Occupation distribution of respondents (n=168)

Table 1: Reasons for gaps in traditional knowledge transfer (N=168, multiple response ranking)

S No	Reasons as stated by Respondents	Frequency	%	Rank
1.	Lack of knowledge transfer	68	40.40	I
2.	Focus shift	59	35.11	II
3.	Detachment from forests	55	32.70	III
4.	Forest access restrictions	54	32.14	IV
5.	Youth disinterest	46	27.30	V
6.	Negligence and Demographic changes	43	25.59	VI
7.	Literacy and awareness	38	22.61	VII

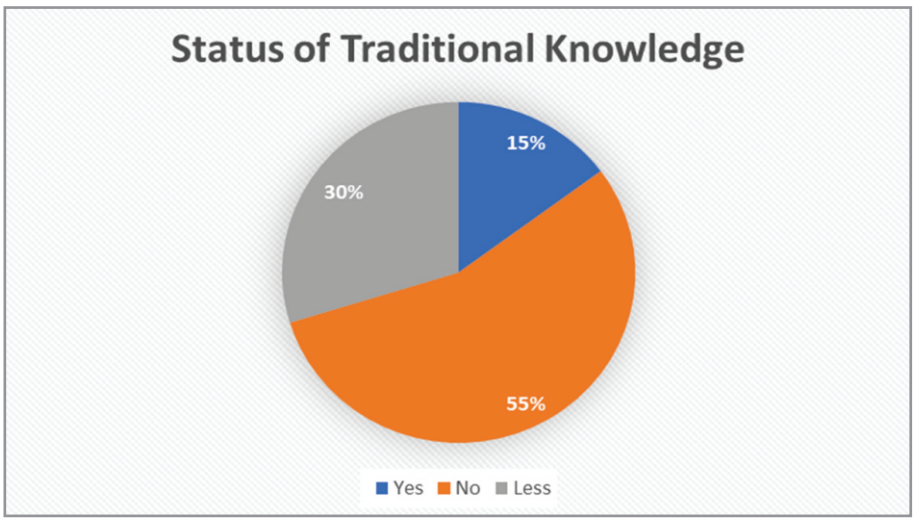

Fig. 9: Status of Traditional knowledge (n=168)

Indian residents (Katulkar and Singh, 2022). The Baigas do not plough land because they say it would be a sin to scratch their mother earth, and they could never ask their mother to produce food from the same patch of earth time and time again. The Baiga tribe practice shifting cultivation, called *'bewar' or 'dahiya*'. *Gunia (Vaidya*) deals largely with the magical-religious cure of diseases and the prescription of herbal drugs (Baghel and Patil, 2022). They still use magico-religious practices at number of occasions, such as the growth of crops, marriage, death, injury from wild animals, venereal diseases and protection from ill omens (Tiwari, 2019; Patil and Jha, 2024).

Their food consists of millet that grows on its own in patches of land. *Sikiya* (traditional Baiga folk dance and music form) is used to make rice and roti called *'ghas ki roti'* by the Baigas. Baigas also eat different kinds of mushrooms and other wild foods, including leafy green vegetables and fruits. Mahua is another important source of Baiga's food and drink. Traditionally, Baiga houses are self-constructed using local materials such as mud, bamboo, wood, and handmade tiles, reflecting the ethos of tribal housing. These materials are biodegradable, with rectangular shapes, thatched roofs, and rammed earth floors covered with a cow dung layer. However, as reported by the respondents, that Pradhan Mantri Gramin (rural) Housing Yojana does not meet the social and cultural needs of the Baiga community. The government may provide shelter, yet Baigas understanding is different and is more aligned with the concept of a habitat, which is more of a holistic way of dwelling in space and the environment (Tiwari, 2019).

Reasons for gaps in traditional knowledge transfer

Lack of Knowledge Transfer: Forefathers did not pass down their knowledge to the next generation.

Focus Shift: People became distracted by the pursuit of higher-earning jobs rather than preserving traditional knowledge.

Detachment from Forests: Rehabilitation away from forests led to the abandonment of traditional practices that were deeply rooted in forest life.

Forest Access Restrictions: Baiga faced restrictions on access to forest areas in comparison to earlier times, which prevented it from accessing forest products. This restriction has led to illegal forest entries and conflicts with forest departments, further eroding traditional practices.

Youth Disinterest: Younger generations are more attracted to city life, social media, and Western influences, showing little interest in learning traditional practices.

Negligence and Demographic Changes: Negligence and demographic changes have contributed to the fading of traditions.

Literacy and Awareness: There is a gap in literacy and awareness, which has hindered the preservation of traditional knowledge.

The yield of NTFPs in forests can be unpredictable and inconsistent. However, Van Dhan centers located near these villages are working to provide year-round livelihoods and transform NTFPs into sustainable food options. Their efforts aim to stabilize and enhance the availability and reliability of these resources for the community. The pie chart (Fig. 10) shows the consumption of NTFPs or NTFP-based products by 168 people surveyed. Eighteen percent of the respondents said that they consumed NTFPs or NTFP-based products. Eighty-two percent of the respondents said that they consume NTFPs or NTFP-based products. A significant majority (82%) of the surveyed population consumes NTFPs or NTFP-based products. These

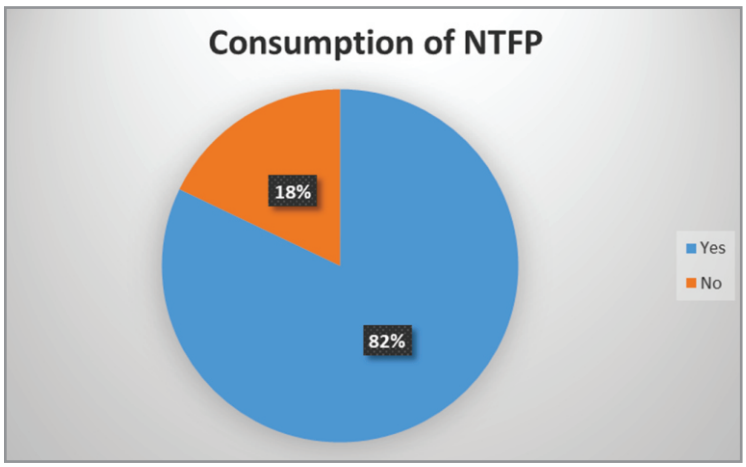

Fig. 10: Consumption of NTFPs (n=168)

findings indicate that these products are an important part of their daily life and consumption habits. The high consumption rate suggests the potential importance of the NTFP in terms of nutrition, traditional practices, or economic activities within the community.

Challenges faced by the Baiga Tribe in promoting sustainable livelihoods and entrepreneurial opportunities

The MSP (Table 2) of different NTFPs as stated by local forest officials is reproduced below. The same has been confirmed by the local people.

There are numerous challenges stated by respondents regarding NTFPs supporting sustainable livelihoods and entrepreneurship. Challenges, as stated by the respondents, were grouped into various categories and are presented in Fig. 11. Approximately 78% of the respondents identified poor market conditions as a barrier to the commercialization of NTFPs. This finding indicates that market access and market dynamics are significant issues for those involved in NTFP activities. Approximately 68% of the respondents pointed to low prices as a barrier. This suggests that the economic returns for the NTFP are not sufficient. 42% of the respondents indicated that maintaining quality is a barrier. This highlights the challenges in ensuring consistent quality standards, which could affect marketability and consumer trust. Approximately 50% of the respondents viewed postharvest loss as a significant barrier. This reflects issues in storage, processing, and transportation that lead to significant waste and reduce the overall profitability of NTFP ventures. 76% of the respondents identified the inactivity or inefficiency of the Forest Department or Van Dhan Yojana initiatives as barriers. This indicates a need for more robust government or institutional support to facilitate NTFP commercia-lization. The high percentage of responses for poor market conditions and low pricing indicates that economic and market factors are the most critical barriers. Post harvest losses highlight the need for better infrastructure and training in postharvest management. Quality maintenance issues highlight the need for training and support in best practices for harvesting and processing to ensure product quality.

Table 2: Rate list of NTFP as suggested by the forest department and confirmed by respondents

S No	NTFP	Source/Tree species	MSP (Rs/kg)	S No	NTFP	Source/Tree species	MSP (Rs/kg)
1.	Chironji	*Buchanania cochinchinensis*	130	**14.**	Kalmegh	*Andrographis paniculata*	35
2.	Kusum Lac	*Schleichera oleosa*	275	**15.**	Neem Beej	*Azadirachta indica*	30
3.	Honey	*Apis mellifera*	225	**16.**	Belguda	*Aegle marmelos*	30
4.	Palas Lac	*Butea monosperma*	200	**17.**	Apamarg plant	*Achyranthes aspera*	28
5.	Aaonla	*Phyllanthus emblica*	52	**18.**	Bahera	*Terminalia bellirica*	25
6.	Jamun seed	*Syzygium cumini*	42	**19.**	Makoy	*Solanum nigrum*	24
7.	Karanj Beej	*Pongamia pinnata*	40	**20.**	Van tulsi leaves	*Ocimum tenuiflorum*	22
8.	Giloy	*Tinospora cordifolia*	40	**21.**	Konch seed	*Mucuna pruriens*	21
9.	Dhavai Flower	*Woodfordia Fruticosa*	37	**22.**	Sal seed	*Shorea robusta*	20
10.	Mahua Gulli	*Madhuca longifolia*	35	**23.**	Harra	*Terminalia chebula,*	20
11.	Mahua Flower	*Madhuca longifolia*	35	**24.**	Chakoda Beej	*Senna (Cassia) tora*	20
12.	Nagar motha	*Cyperus rotundus*	35	**25.**	Amaltas	*Cassia fistula*	13
13.	Anant mool	*Hemidesmus indicus*	35	**26.**	Bhilwa	*Semecarpus anacardium*	09

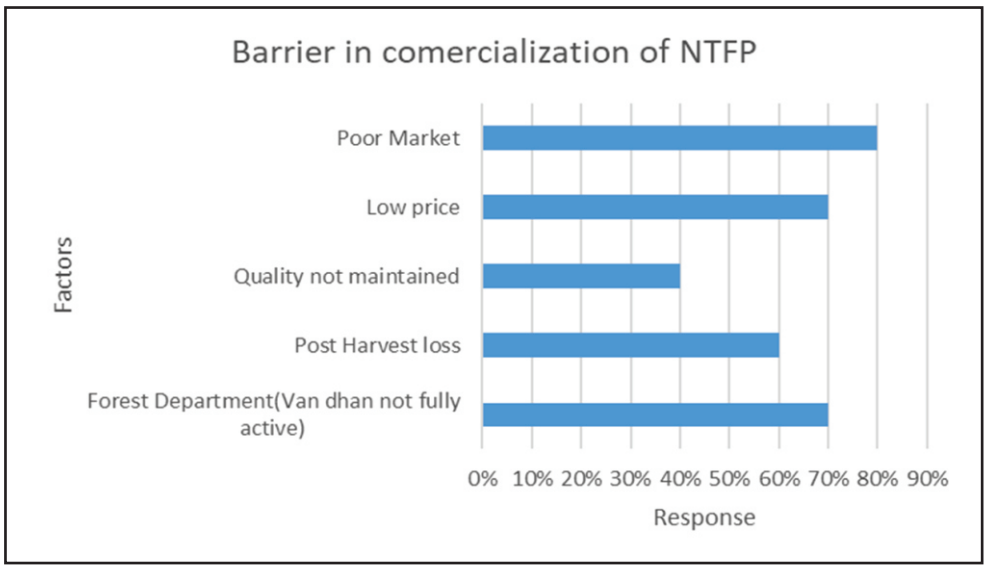

Fig. 11: Barriers as perceived by the Respondents in commercialization of NTFPs (n=168)

Based on data and general response of the respondents, the key barriers linked with NTFPs are subject to but not confined to lack of availability (scaling), high costs, limited market access, consumer taste preferences, and decreasing awareness of health benefits. In addition, during the focus group discussion, various other factors, which act as barriers not only for sustainable livelihoods based on NTFPs but also for the commercialization of NTFPs or the development of small-scale enterprises based on NTFPs, were also stated. These include:

Access restrictions

The expansion of fenced areas in Kanha National Park makes it difficult for locals to access forest products. Security guards enforce strict regulations, at times including penalties such as fines, imprisonment for illegal entry into forest areas.

Economic and social factors

Owing to the limited availability of NTFPs, many have shifted to cultivating other crops on their own or leased lands. NTFPs cultivation requires significant labor, which is a major deterrent for many pursuing NTFPs as major livelihood sources. In addition, traditional cultivation methods are known only to forefathers who have not passed this knowledge to younger generations appropriately, causing a very large information gap in the identification, harvesting and utilization of NTFPs. Baiga community youth adults revealed during discussion that engaging in NTFP cultivation is often associated with lower social status and poverty, further discouraging participation.

Generational and social shifts

The new generation is not interested in learning or continuing NTFP cultivation due to the high labor demands and the stigma of lower status. Young adults are increasingly moving to cities in search of better-paying jobs with less physical labor. Social media and urban allures are diverting the interest of the younger generation away from traditional vernacular practices. There is a noticeable gap between traditional knowledge of NTFPs and modern practices. The indigenous knowledge of the Baiga and Gond community was inherently tied to their daily activities and forest life. When tribal were rehabilitated away from forests, these practices began to disappear. Therefore, the commercialization of NTFPs faces numerous barriers, ranging from access issues and economic challenges to

Table 3: Regression analysis between age and income through the NTFP

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2147.231	981.897		2.187	0.030	208.615	4085.848
	Age	52.421	29.520	0.137	1.776	0.078	-5.861	110.704
[a]Dependent Variable: Income through NTFP								

***Adj. The R-Square is .013

social and generational shifts.

Linkages among income through the NTFP and socioeconomic variables

The standardized coefficient (Beta) for Age is 0.137, showing that age has a relatively modest effect on income. The Sig. value for Age is 0.078, which is above the conventional threshold of 0.05. This suggests that there is no significant relationship effect between age and income through the NTFP. The correlation coefficient between income through the NTFP and age is 0.137. This indicates a weak positive correlation between the two variables.

Correlations			
		Income through NTFP	Age
Income through NTFP	Pearson correlation	1	0.137
	Sig. (2-tailed)		0.078
	N	168.0	168.000

The coefficient for Education is 1583.050. This finding indicates that an increase in education level results in an increase in income from NTFPs of 1583.050 units, on average. Education and income through the NTFPs are weakly correlated (r= 0.222) and significant at the 5% level, and the p value is 0.004. This suggests that education has a significant positive effect on income through the NTFP. The value of the adjusted R square is 0.044. The 95% confidence interval for education is between 517.115 and 2648.985.

Correlations			
		Income through NTFP	Education
Income through NTFP	Pearson correlation	1	.222**
	Sig. (2-tailed)		.004
	N	168	168
**. Correlation is significant at the 0.01 level (2-tailed).			

Average yearly income of females through the NTFP = 5677.778—3578.927 = 2398.851

This suggests that on average, the income through the NTFP for women is ¹ 3578.927 less than that for men. The point-biserial correlation between income through the NTFP and gender is natively correlated (-0.512, sig=.000) (Table 6). The value of the adjusted R square is 0.258.

The regression analysis examining income through NTFPs in relation to gender, education, and age reveals significant disparities and insights (Table 3, 4 and 5). Gender is a critical factor, with females earning substantially less than males do, as indicated by the strong negative correlation. This highlights a notable gender gap in NTFP-based livelihoods. Education shows a positive correlation with income, suggesting

Table 4: Regression analysis between education and income through the NTFP

Coefficients[a]								
Model		Unstandardized coefficients		Standardized coefficients	t value	Sig.	95.0% Confidence interval for B	
		B	Std. error	Beta			Lower bound	Upper bound
1	(Constant)	3193.069	340.947		9.365	0.000	2519.917	3866.222
	Education	1583.050	539.889	0.222	2.932	0.004	517.115	2648.985
[a]Dependent Variable: Income through NTFP								

***Adj R Square is .044

Table 5: Regression analysis between gender and income through the NTFP

Coefficients[a]								
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	95.0% Confidence interval for B	
		B	Std. error	Beta			Lower bound	Upper bound
1	(Constant)	5677.778	335.405		16.928	0.000	5015.568	6339.988
	Gender	-3578.927	466.085	-0.512	-7.679	0.000	-4499.145	-2658.709
[a]Dependent Variable: Income through NTFP								

**Adj R Square is 0.258

Table 6: Correlation between income and gender

Correlations			
		Gender	Income through NTFP
Gender	Pearson Correlation	1	-0.512**
	Sig. (2-tailed)		0.000
	N	168	168.000
**Correlation is significant at the 0.01 level (2-tailed).			

that higher educational attainment is linked to increased earnings, albeit the effect is moderate. Age has a weak and statistically insignificant influence on income. These findings underscore the need for gender-sensitive policies and enhanced educational opportunities to address income disparities and promote equity in NTFP-based livelihoods.

Conclusion

The survey conducted across ten villages with 168 respondents highlights the socioeconomic dynamics and dependency on NTFPs in these communities. Income analysis reveals that the majority fall in lower- to middle-income brackets, with NTFPs contributions. Education levels are low, posing challenges for socioeconomic development. The gender distribution is nearly equal, but many women are categorized as housewives, suggesting potential gender-based disparities in employment opportunities. The primary employment sectors include agriculture and MGNREGA, indicating limited access to diverse job opportunities. This reliance on NTFPs highlights the importance of improving market conditions and the commercialization of NTFPs to increase livelihoods. The commercialization of NTFPs in the Baiga community is hindered by multiple barriers, including access restrictions in protected areas, social stigma, and generational shifts contribute to declining interest in NTFP-based livelihoods. However, NGOs such as the Integrated Development Organization, Corbett Foundation and Focus Earth Foundation, along with initiatives such as Van Dhan centers, are working to stabilize NTFP-based livelihoods and address challenges such as poor market conditions, low prices, and quality maintenance. To overcome these obstacles, a comprehensive approach involving better market access, institutional support, infrastructure development, and revitalization of traditional knowledge is essential. Integrating traditional knowledge preservation with modern interventions, alongside gender equity and education, is crucial for promoting socioeconomic resilience and ecological sustainability in forest-dependent communities.

सतत आजीविका हेतु लघु वनोपजों के उपयोग और व्यापारिकरण में संघर्ष : मध्य प्रदेश के बालाघाट जिले की बैगा और गोंड जनजातियों पर एक अध्ययन

अजय कुमार भट्टाचार्य, अंजलि, अनुप प्रकाश उपाध्याय और सीवीआरएस विजय कुमार

सारांश

वन सतत् विकास लक्ष्यों (SDGs) को प्राप्त करने के लिए अत्यंत महत्वपूर्ण हैं, क्योंकि वे मानव कल्याण और पारिस्थितिक स्थिरता के लिए आवश्यक वस्तुएं और सेवाएं प्रदान करते हैं। इनमें से, गैर-काष्ठ वन उत्पाद (NTFPs), जैसे फल, मेवे, औषधीय पौधे और रेजिन, वनों पर निर्भर समुदायों की आजीविका में महत्वपूर्ण भूमिका निभाते हैं। यह अध्ययन मध्य प्रदेश, भारत के बैगा जनजाति के सामाजिक-आर्थिक पहलुओं और NTFPs के व्यावसायीकरण से जुड़ी चुनौतियों का विश्लेषण करता है। यह अध्ययन बालाघाट जिले के भीमलाट ब्लॉक के दस गांवों में किया गया। शोध में गुणात्मक विधियों का उपयोग किया गया, जिसमें गहन साक्षात्कार, फोकस समूह चर्चा और सहभागी दृष्टिकोण शामिल थे। कुल 168 उत्तरदाताओं, जिनमें बैगा और गोंड जनजातियों के लोग शामिल थे, का सर्वेक्षण किया गया। परिणाम बताते हैं कि बैगा समुदाय का 88% हिस्सा NTFPs पर अत्यधिक निर्भर है, जिसमें अधिकांश लोग निम्न से मध्यम आय वर्ग में आते हैं। NTFPs और कृषि पर निर्भरता के बावजूद, समुदाय को शिक्षा के निम्न स्तर, सीमित नौकरी के अवसर और रोजगार में लैंगिक असमानता जैसी महत्वपूर्ण चुनौतियों का सामना करना पड़ता है। अध्ययन से पता चला कि NTFPs स्थानीय अर्थव्यवस्था के लिए महत्वपूर्ण हैं, लेकिन उनके व्यावसायीकरण के प्रयासों को खराब बाजार स्थितियों, कम मूल्य निर्धारण, कटाई के बाद होने वाले नुकसान और संरक्षित क्षेत्रों में पहुंच प्रतिबंधों के कारण बाधा पहुंचती है। लैंगिक, शैक्षिक और आयु-संबंधित आय असमानताओं के संबंध में NTFPs की आय का विश्लेषण करने वाले प्रतिगमन विश्लेषण ने महत्वपूर्ण अंतर्दृष्टि प्रदान की। लैंगिक असमानता एक महत्वपूर्ण कारक है, जहां महिलाएं पुरुषों की तुलना में काफी कम कमाती हैं, जैसा कि मजबूत नकारात्मक सहसंबंध से स्पष्ट है। सरकारी आवास योजनाओं जैसे आधुनिक हस्तक्षेप अक्सर बैगा जनजाति की सांस्कृतिक जरूरतों के साथ सामंजस्य स्थापित करने में विफल रहते हैं, जिससे सांस्कृतिक रूप से संवेदनशील दृष्टिकोण की आवश्यकता उजागर होती है। एनजीओ और वन विभाग इन चुनौतियों का समाधान बेहतर बाजार पहुंच, गुणवत्ता सुधार और संस्थागत समर्थन प्रदान करके कर रहे हैं। हालांकि, बेहतर बाजार अवसंरचना, पारंपरिक ज्ञान का संरक्षण और लैंगिक समानता और शिक्षा को शामिल करने वाली व्यापक रणनीति आवश्यक है। इन बहु-आयामी हस्तक्षेपों के माध्यम से NTFPs के व्यावसायीकरण को बढ़ावा देना, वनों पर निर्भर समुदायों में सामाजिक-आर्थिक लचीलापन और पारिस्थितिक स्थिरता सुनिश्चित करेगा।

References

Baghel Y.A. and Patil G. (2022). Achanakmar-Amarkantak Biosphere Reserve: Development and traditional knowledge of Baiga. *Indian J. Tradit. Knowl.*, **21**(3): 704–710.

Costanza R., d'Arge R., de Groot R., Farber S., Grasso M. and Hannon B. (1997). The value of the world's ecosystem services and natural capital. *Nature*, **387**: 253–260.

Derebe B. and Alemu A. (2023). Non-timber forest product types and its income contribution to rural households in the Horn of Africa: A systematic review. *For. Sci. Technol.*, **19**(3): 210–220. https://doi.org/10.1080/21580103.2023.2231963

FAO and UNEP (2020). *The State of the World's Forests 2020. In brief. Forests, biodiversity and people*. Rome. https://doi.org/10.4060/ca8985en

Food and Agriculture Organization (FAO) (2002). *Non-Wood Forest Products and Nutrition*. Food and Nutrition Division, FAO, Rome. https://www.fao.org/economic/nutrition/en/

Katulkar P.S. and Singh S. (2022). Impact of forest on socioeconomic development of tribals in Balaghat District. *Int. J. Trend Sci. Res. Dev.*, **6**(4): 743. https://www.ijtsrd.com/papers/ijtsrd50181

Khan M.I., Bisen S. and Mahajan G. (2020). Socioeconomic profile of vegetable growers under horticulture based module of Farmer FIRST project in Balaghat (M.P.), India. *Int. J. Curr. Microbiol. Appl. Sci.*, **9**(3): 3210–3220. https://doi.org/10.20546/ijcmas.2020.903.372

Pandey A.K., Tripathi Y.C. and Kumar A. (2016). Non-timber forest products (NTFPs) for sustained livelihood: Challenges and strategies. *Res. J. For.* https://doi.org/10.3923/rjf.2016

Patil A.K. and Jha K.K. (2024). Cultural and livelihood relationship between medicinal trees at-risk and indigenous people of Madhya Pradesh. *Ethnobot. Res. Appl.*, **28**(4): 1–35. https://doi.org/10.32859/era.28.4.1-35

Tiwari U., Patidar S.P. and Rahguvanshi B. (2020). Transformation in vernacular architecture of Baiga tribe of Central India. In: *Reframing the Vernacular: Politics, Semiotics, and Representation*, pp. 107–126. https://doi.org/10.1007/978-3-030-22448-6_10

Tiwari V.J. (2019). Ethnopharmacology of *Leonotis nepetaefolia* (L.) R. Br., Lamiaceae, used to cure jaundice and liver disorders by Baiga tribe of Mandla District of Madhya Pradesh. *Res. J. Pharmacogn. Phytochem.*, **11**(1): 1–7. https://doi.org/10.338116544

Uma Devi B.V. (2024). *Dependency on forest for livelihood and its impact on environment: A case study of Baiga tribe of Mandla District MP*. Sponsored by National Human Rights Commission, New Delhi. https://nhrc.nic.in/sites/default/files/CRS_dependency_forest_livelihood_baiga_tribe_mandla_MP_20042018.pdf

Acknowledgement

Authors would like to express their sincere thanks to the Integrated Development Organization and Director of the Indian Institute of Forest Management (IIFM), Bhopal, for providing invaluable opportunity to conduct this field study. The authors would also like to express thanks to Range Officer, Deputy Range Officer Baihar (East), and Range Officer Baihar (West) for their field support in data collection and to all the respondents of the Bhimlat block of Balaghat district for participating in lengthy interviews and focus group discussions and providing valuable insights.