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Role of Non-timber Forest Products (NTFPs) in the Development of Particularly Vulnerable Tribal Groups (PVTGs) in Odisha

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Abstract: As per the 2011 census, tribes constitute 8.6 per cent of the total population in India. Odisha stands out, with 23 per cent of its population being tribal, and it has the distinction of having the highest number of Particularly Vulnerable Tribal Groups (PVTGs) in the country, totaling 13. The Government of India established the PVTG classification to facilitate improvements in the conditions of communities that exhibit low development indicators. To provide a comprehensive socio-economic analysis of these PVTGs, field data were collected on various aspects such as Household composition, Age Group, Sex- category, and non-timber forest produces (NTFPs) for subsistence and livelihoods of PVTG. This research is grounded in primary data gathered through brief interviews and participatory rural appraisal (PRA) techniques conducted with households belonging to the PVTGs.

Keywords: Particularly Vulnerable Tribal Groups (PVTGs), Non-timber forest produces (NTFPs), Kutia Kondhas, Juangas, Didayi

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Introduction

The tribal population of India, according to the 2011 census, stands at 10.43 crore, which constitutes 8.6 per cent of the total population. Among this tribal population, a significant majority of 89.97 per cent reside in rural areas. In comparison, a smaller portion of 10.03 per cent lives in urban areas, as documented in the "Statistical Profile of S.T.s 2013" (P.1). Within this broader tribal population, there exists a subset known as Particularly Vulnerable Tribal Groups (PVTGs), which were formerly referred to as Primitive Tribal Groups (PTGs). These groups are characterized by their pre-agricultural technology, stagnant or declining population trends, deficient levels of

literacy, and a subsistence-based economy. Recognizing the dire need for conservation and development among these most impoverished Scheduled Tribe (S.T.) communities, the Government of India first identified certain groups in 1975-76 and later in 1993, designating them as PVTGs. These groups represent the most vulnerable segments of the population, facing severe challenges such as hunger, starvation, malnutrition, and poor health, necessitating the implementation of specialized programs for their development and well-being. Odisha stands out for its rich cultural diversity, hosting 62 tribes, including 13 primitive tribal groups (PVTGs), scattered across its diverse landscape. Nestled amidst the Eastern Ghats, these ancient tribes have adapted over generations, contributing to the state's ethnic tapestry. Alongside states like Madhya Pradesh, Chhattisgarh, and Maharashtra, Odisha holds a significant portion of India's tribal population. The classification of PVTGs by the Government of India aims to uplift communities with the lowest development indicators. Odisha, with 13 PVTGs, leads the country in this classification, encompassing tribes such as the Birhor, Bondo, Dongria-Khond, and Kutia Kondh, among others.

Brief Profile of Study Regions

One such PVTG, the Didayi, resides predominantly in the Malkangiri district's Kudumuluguma and Khairiput blocks. Known for their economic hardships and minimal educational opportunities, the Didayi employ traditional methods to subsist amidst ecological challenges. Establishing the Didayi Development Agency in 1986 underscores governmental efforts to enhance their livelihoods through targeted micro-projects. Over the decades, the Didayi population has grown, reflecting demographic changes and ongoing developmental initiatives. Similarly, the Kutia Kondhas, another PVTG subgroup in Kandhamal district, face severe socio-economic challenges exacerbated by food insecurity and inadequate healthcare access. Their reliance on non-timber forest produce underscores their deep connection to local ecosystems, though diminishing resources threaten their traditional way of life. Governmental interventions, facilitated by agencies like the KutiaKondha Development Agency, aim to mitigate these challenges through infrastructural development and educational support. In the Keonjhar district, the Juangas, known for their skilled craftsmanship and reliance on forest resources, confront similar hardships due to dwindling natural reserves and external pressures on their lands. The Juanga Development Agency, established in 1978, endeavours to address their unique needs through targeted welfare schemes, aiming to improve their socio-economic status and preserve their cultural heritage amidst modernization pressures.

Role of NTFPs for Tribal Development

Non-timber forest products (NTFPs) encompass diverse natural resources extracted from forests, excluding timber. According to Chamberlain et al. (1998), these products include plants, fungi, and other biological materials gathered from natural or disturbed forest environments. Essential for subsistence and livelihoods, especially among tribal communities, NTFPs range from medicinal plants and wild edibles to house-building materials and fuel wood. They are crucial to daily life and economic activities, bridging traditional practices with contemporary needs. At least one-fourth of the world's impoverished population relies either partially or entirely on non-timber forest products (NTFPs) for sustenance and as a crucial source of income (World Bank, 2002). In tribal regions, where agricultural production often falls short of meeting community needs (Saxena, 1995), NTFPs are vital in filling the gaps and providing essential livelihood resources. For forest-dwelling tribes, who have historically inhabited these regions in harmony with nature, NTFPs constitute a lifeline (Tripathy 2012a, 2015). They provide essential food, medicine, and income resources, supporting livelihoods during lean periods (Peters et al., 1989; Mallik, 2000). The collection and utilization of these products not only sustain tribal economies but also foster a symbiotic relationship between communities and their forest environments, ensuring both ecological conservation and socio-economic development (Ghosal, 2011; Dash, 2000; Tripathy, 2012, 2019a, 2019b). Once marginalized as products for people experiencing poverty compared to timber, they now provide essential social and economic security worldwide, offering food supplements, traditional medicines, and income generation opportunities (Pandey et al., 2016). However, ecological degradation, unpredictable rainfall patterns, and recurrent droughts in these areas have exacerbated food insecurity, prompting increased migration and occasional starvation among tribal communities (Tripathy, 2019a). Despite traditionally relying on NTFP collection for subsistence, the dwindling forest cover and reduced density of forest resources in recent decades have significantly diminished the availability of these minor forest products (MFPs), commonly known as NTFPs or Non-wood Forest Produces (NWFPs).

Review of Literature

The literature surrounding the role of Non-Timber Forest Products (NTFPs) in developing tribal communities provides a rich tapestry of insights, highlighting both their significance and areas for further exploration.

Mahapatra (1987) highlighted that NTFPs constituted 37.87 percent of tribal household incomes in 1978, illustrating their crucial economic role.

Saxena (2003) emphasized that timber collection remains vital for subsistence and income among rural poor and tribal populations, particularly during lean agricultural seasons when alternative income sources are scarce due to poverty, low literacy rates, and inadequate market access.

IBRAD (2007) conducted a nationwide study on Joint Forest Management (JFM) communities. The study revealed that NTFPs often provide more significant benefits than timber-sharing arrangements, but it underscored the need for improved value addition and marketing strategies.

Rout et al. (2010) highlighted the indispensable role of NTFPs in meeting subsistence needs and enhancing economic stability among local communities in the Mayurbhanj District, Odisha, through their ethno-botanical resources.

Ahenkan and Boon (2011) noted that despite extensive literature on NTFPs, confusion persists due to varied definitions and interpretations, hindering effective policy formulation and implementation.

Choudhury et al. (2011) and Singh et al. (2011) emphasized under JFM, NTFPs significantly supplement tribal incomes when properly managed and marketed, with the potential for substantial economic gains through entrepreneurship.

Franco (2012) documented challenges in Koraput district, Odisha, where intermediaries exploit tribes by undervaluing forest products, limiting their income and market access.

Shit and Pati (2012) studied Paschim Medinipur District, West Bengal, highlighting NTFPs' critical role in sustaining livelihoods, particularly in areas with limited agricultural productivity.

Mallik (2013) and Chandramolly and Islam (2015) explored participatory forest management and local dependency on NTFPs for fuel, fodder, and timber, illustrating their dual role in economic sustenance and biodiversity conservation.

Sarangi (2015) discussed the Forest Rights Act, emphasizing its potential to secure livelihoods by formally recognizing tribal rights over NTFPs in protected areas.

Dash (2016) highlighted exploitation and income disparities in Keonjhar District, Odisha, where tribal populations rely heavily on NTFPs for subsistence but face challenges in accessing fair markets and credit.

Das (2016) echoed similar findings in Simlipal National Park, highlighting NTFPs' centrality to tribal livelihoods and advocating for equitable market access.

Rao and Rao (2017) advocated governmental intervention to protect tribal interests by ensuring fair trade practices and direct procurement of NTFPs.

Jena (2019) focused on the economic contributions of NTFPs in Similipal forest, Odisha, revealing their pivotal role in household incomes and recommending improved market infrastructure.

Talukdar et al. (2021) assessed NTFPs' economic importance in Patharia Hills Reserve Forest, Northeast India, highlighting local perceptions and governmental strategies for their conservation. Despite these studies, there remains a gap in understanding NTFP dynamics in specific PVTG tribal-dominated areas like Koraput, Keonjhar and Kondhmal Districts of Odisha, underlining the need for further research to inform policy and practice.

Objectives

The study aims to achieve the following objectives:

- Analyze and interpret primary data to establish the socio-economic profile of sample households in a Particularly Vulnerable Tribal Groups (PVTGs) study village.
- Assess Non-Timber Forest Products (NTFPs) socio-economic contributions to the PVTG community in selected tribal villages in Odisha.
- Recommend policy frameworks to resolve existing challenges and enhance support mechanisms for tribal communities.

Methodology

The target population for this study is specifically confined to three Particularly Vulnerable Tribal Groups (PVTGs): the Didayi Development Agency (DDA) of Kudumulgumma block in Malkangiri district, the Juanga Development Agency (JDA) of Banspal block in Keonjhar district, and the Kutia Kondha Development Agency (KKDA) of Tumudibandh block in Kandhamal district. The study relies heavily on primary sources of data, which were gathered through brief interviews with members of the PVTGs, as well as through participatory rural appraisal (PRA) techniques, ensuring comprehensive coverage of the three districts-Malkangiri, Kandhamal, and Keonjhar. To facilitate the data collection process, a list of project beneficiaries was obtained from the respective development agencies in each identified district, which served as the basis for selecting households for participation in the study. From this list of beneficiaries, 305 households were selected using a simple random sampling method. This sampling process included

households from six villages associated with each development agency, ensuring a representative sample across the targeted regions. The study was conducted at different intervals during March 2022.

Household Composition of Didayi, Kutia Kandha and Juanga

Household composition is clarified in terms of average family size and average number of male and female members in the family. **Table- 1** reveals that, on average, there are about 4.3 members consisting of 2.2 male members and 2.0 female members per household considering all the communities.

Table 1: Number of Members per Household

PVTG Category	*Number of Sample households*	*Number of Household persons*			*Number of persons / Household*		
		Males	*Females*	*Total*	*Males*	*Females*	*Total*
KutiaKandha	100	216	200	416	2.2	2.0	4.2
Juanga	100	216	183	399	2.2	1.8	4.0
Didayi	105	252	239	491	2.4	2.3	4.7
Total	305	684	622	1306	2.2	2.0	4.3

However, the household size is slightly higher in the Didayi community than in the Kutia Kandha and Juanga communities. The average household size among the Kutia Kandha, Juang and Didayi communities is 4.2, 4.0 and 4.7 members, respectively. Compared to female members, there is a slightly higher incidence of male members in all the PVTG categories covered in the study.

Age Group and Sex Category

Age group-wise sex ratio among the PVTG households is analyzed in **Table 2**. The sex ratio calculated by the number of female members compared to 1000 male members provides the overall sex ratio of 909. Compared to the overall sex ratio of all PVTG categories, it is found to be better among Kutia Kandha and Didayi households but found to be lower among the Juanga households. Census data from 2011 also suggests that the Kandhamal and Malkangiri districts have a better sex ratio than the Keonjhar districts. Inter-age group variations in the sex ratio are noticed among all the PVTG households. The sex ratio in the age group of 0-6 years of Kutia Kandha, Juanga and Didayi households is found at 1353, 833 and 1000, respectively. This further implies that some degree of family planning has

already occurred among the Juang community, which has yet to happen in the other two communities. Compared to the overall sex ratio, the child sex ratio (0-6 years) for all the communities is presented in the chart given below. Overall, the mean age of the PVTG households is found to be at a much lower side, at 27.0. The mean age of Didayi households was found to be lower than the overall mean age of PVTG households. Except for the Juang community, for the other two communities, the mean age of females stands lower compared to the same for males. The discussion suggests that for some reason or other, there is higher mortality among the PVTG households, and the situation is further worse among the Didayi households.

Table 2: Age Group and Sex- category

Sl.	*PVTG Category*	*Age Group*	*Number of Household persons*			*Sex Ratio*
			Males	*Females*	*Total*	
1	Kutia Kandha	<6	17	23	40	1353
		6-15	46	40	86	870
		15-25	52	43	95	827
		25-40	48	48	96	1000
		40-60	44	39	83	886
		> 60	9	7	16	778
		Sub Total	216	200	416	926
		Mean Age	27.3	26.8	27.1	
		SD	16.8	16.4	16.6	
2	Juanga	<6	24	20	44	833
		6-15	48	33	81	688
		15-25	52	28	80	538
		25-40	40	42	82	1050
		40-60	43	44	87	1023
		> 60	9	16	25	1778
		Sub Total	216	183	399	847
		Mean Age	26.7	30.3	28.4	
		SD	17.6	18.7	18.2	
3	Didayi	<6	40	40	80	1000
		6-15	59	51	110	864
		15-25	45	52	97	1156
		25-40	51	44	95	863
		40-60	40	36	76	900
		> 60	17	16	33	941
		Sub Total	252	239	491	948
		Mean Age	26.3	25.7	25.9	
		SD	22.6	18.7	20.8	
	Overall		684	622	1306	909
	Mean age		26.8	27.4	27.0	
	SD		19.3	18.1	18.8	

A small percentage, less than 10% in Juanga and KutiaKandha and slightly over 10% in Didayi, still report being married before reaching 15 years of age, with only 3% of Didayi group members being married below this age.

Collection and Sales of MFP

MFP, under the FRA (Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, has been defined as "all non-timber forest products of plant origin including bamboo, brushwood, stumps, cane, tussar, cocoons, honey, wax, lac, tendu or kendu leaves, medicinal plants and herbs, roots, tubers and the like". The forest dwellers are legally empowered with the ownership and governance of the MFP through the PESA (Panchayat Extension to Scheduled Areas) Act, 1996, and the Forest Rights Act, 2006. The FRA, 2006, gives the "right of ownership, access to collect, use and dispose of minor forest produce which has been traditionally collected within or outside village boundaries".

Table 3: Season/Month-wise Distribution of NTFPs Collection and their Impact on Tribal Economy

Seasons	*Types of NTFPs*	*Economy*
January-March	Lac(resin), mahua flower and taramind	Over 70 million households in Odisha, Jharkhand, Madhya Pradesh, Chhattisgarh, Andhra Pradesh, and Telangana collect mahua flower, earning about Rs. 5000/- annually. About three million people are engaged in lac production
April-June	Tendu leaves, sal seeds, chironji	Approximately 30 million forest dependents rely on sal seeds, leaves, and resins. Tendu leaf collection provides employment to around 8 million tribes and forest dwellers for three months. Additionally, three million people are involved in processing and bidi making.
July - September	Chironji, mango, mahua fruits, silk cacoons, bamboo roots, Jamun fruit and seed	About 12 million people depend on the collection of chironji, mango, mahua fruits, bamboo, bamboo roots, Jamun fruit, and seeds. Around three lakh households are engaged in the production of silk cocoons through sericulture.
October-December	Kullu gum, Sal leaf plates, harida, medicine roots,	Approximately three million forest dwellers depend on the collection of Kullu gum, Sal leaf plates, harida, medicinal roots, etc.

Source: Author's own estimates from various sources

Table 3 provides a comprehensive overview of the seasonal and monthly distribution of NTFP collection and its profound impact on the tribal economy in India. According to estimates from the Ministry of Environment and Forests (M o E F C C), the Government of India, revenue generated from NTFPs in 2010–2011 amounted to approximately 20 billion rupees (Mishra et al., 2009). Since time immemorial, PVTG households have depended on the neighbourhood forest for collection and MFP sales. Various studies show that the contribution of MFP to household income varies between 10 to 70 per cent. About 25 to 50 per cent of forest dwellers depend on MFPs for food requirements. The type of MFPs collected and the proportion of PVTG households engaged in the collection of MFPs are shown in **Table 3**. It is observed that the PVTG households 24 types of MFPs from the nearby forest. More than 75 per cent of PVTG households collect firewood, and Siali leaves. Different types of berries, hill broom, tamarind and mohua flower, edible roots, mango, edible leaves, and rope-making fibres are collected by 20 to 50 per cent of the PVTG households. For the rest of the MFPs, there is less than 20 per cent household dependence. This can be observed from the chart given below.

The economics of MFP collection and sales are calculated based on the total sales proceeds obtained from different items by selling the marketable surplus after meeting their consumption requirements. On average, the annual sales proceeds obtained from MFPs by Kutiakandha, Juanga, and Didayi households are calculated at Rs. 2073.5, Rs. 2073.4, and Rs. 7835.3, respectively **(Table 5).**

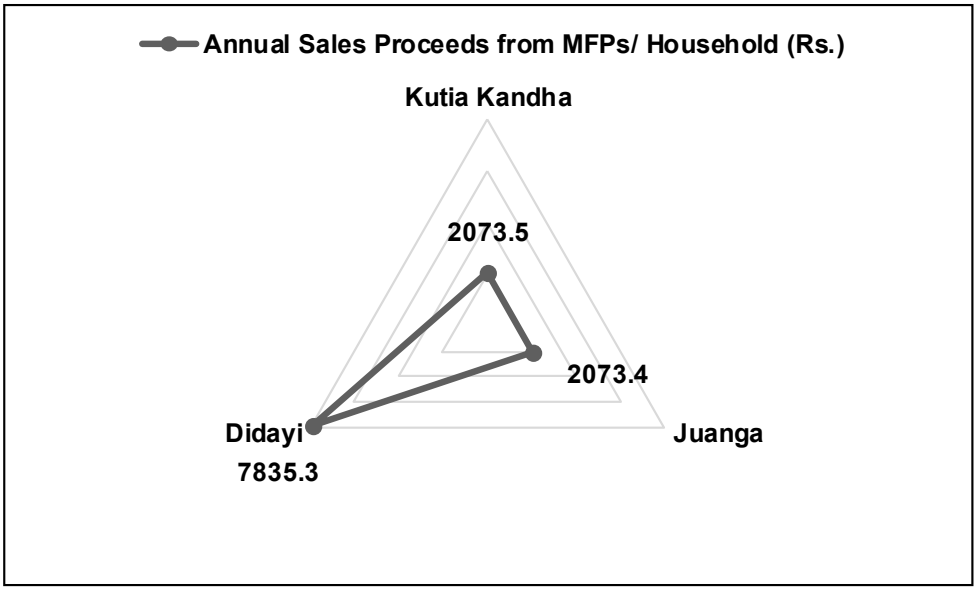

Table 4: NTFP Collection and Income Data by District and Village of PVTG Households

Sl.	*District*	*Villages*	*No. of sampled out households*	*No. of households engaged in NTFP collection and Sales*	*Annual Household Income/ Household (Rs.) from NTFP*
1	Kandhamal	Burlubaru	17.00	17	6873.53
		Deogada	17.00	15	2214.71
		Germeli	17.00	15	5105.88
		Guchuka	16.00	12	1481.25
		Gunuspa	17.00	15	4038.24
		Tidipadar	16.00	14	2643.75
		Sub Total	100.00	88	3759.50
2	Keonjhar	Ghungi	17.00	14	4844.12
		Gonasika	16.00	14	2641.88
		Kundehi	17.00	12	2922.94
		Talapada	17.00	15	3180.00
		Tangarpada	17.00	16	6858.82
		Toranipani	16.00	12	2743.75
		Sub Total	100.00	83	3888.70
3	Malkangiri	Bayapada	18.00	18	4120.56
		Chillipadar	17.00	17	4851.29
		Muduliguda	17.00	17	5082.94
		PurunaGumma	18.00	18	5092.17
		Suripada	17.00	17	5057.06
		Tumapadar	18.00	18	3985.00
		Sub Total	105.00	105	4689.63
		Total	305.00	276	4122.07

Table 4 offers a detailed breakdown of the income generated from Non-Timber Forest Products (NTFP) by households in three districts: Kandhamal, Keonjhar, and Malkangiri. The table records data from specific villages within these districts, illustrating the number of households sampled, those engaged in NTFP collection and sales, and their corresponding annual income from NTFPs. In Kandhamal, all sampled households in Burlubaru engage in NTFP activities, earning an average income of Rs. 6873.53, the highest within the district. Conversely, Guchuka has a lower engagement rate and income (Rs. 1481.25). Overall, Kandhamal shows an average income of Rs. 3759.50. Keonjhar exhibits variability in NTFP income, with Tangarpada households earning Rs. 6858.82, significantly higher than the district's average of Rs. 3888.70. The engagement rate is high across villages, with most sampled households participating in NTFP activities. Malkangiri stands out with

consistent participation in NTFP collection across all villages, with each village having 100% engagement. The district averages the highest income from NTFPs at Rs. 4689.63, with villages like PurunaGumma and Suripada earning over Rs. 5000 annually per household. The data shows Malkangiri as the most productive district for NTFP income, followed by Keonjhar and Kandhamal. This highlights regional disparities in NTFP dependence and income potential, emphasizing the need for these districts' tailored economic and resource management strategies.

Table 5 provides insight into the number and percentage of households (HHS) collecting various Minor Forest Produce (MFP) among three Particularly Vulnerable Tribal Groups (PVTGs): KutiaKandha, Juanga, and Didayi. The table reveals notable differences in MFP collection activities across these groups. Firewood collection is nearly universal, with 99.3% of households participating, indicating its critical role in daily subsistence. Siali leaves and hill broom are also widely collected, particularly among the KutiaKandha and Juanga, suggesting their economic importance. However, certain MFPs show significant variability. For instance, the bamboo collection is limited to Didayi households (3.8%), while none of the KutiaKandha or Juanga households participate. This could reflect regional availability or cultural preferences. Similarly, the collection of edible leaves and roots is predominantly among Didayi households, with 56.2% and 61.0%, respectively, compared to negligible participation from Kutia Kandha.

Collecting commercially viable products like berries, mangoes, and jackfruit varies greatly. Berries are collected by a significant portion of Juanga households (84.0%) but much less by Didayi and KutiaKandha. Interestingly, honey and Jhuna collections are significant among KutiaKandha (21.0% and 32.0%, respectively) but only some among the other groups. The table highlights the absence of certain MFPs in specific groups, such as Juanga and Didayi's need for caster seed and tooth twig collection. This absence may suggest either environmental constraints or different subsistence strategies. The table highlights the diverse dependence on MFPs among PVTGs, shaped by ecological availability, cultural practices, and market access. Understanding these dynamics is crucial for formulating policies to support sustainable livelihoods and resource management among these vulnerable communities.

Table 6 outlines the economic aspects of Minor Forest Produce (MFP) collection among three PVTG (Particularly Vulnerable Tribal Groups) categories: KutiaKandha, Juanga, and Didayi. It reveals the annual quantity collected, self-consumed, marketable surplus, and sales proceeds for each MFP. The table highlights significant disparities in MFP collection and marketable surplus across the PVTG

categories. For instance, the Didayi have a notably high bamboo collection (2112.5 pieces), while KutiaKandha reports no bamboo collection. The Juanga and Didayi groups have substantial sales proceeds from bamboo, reflecting their higher market engagement than KutiaKandha. Hill brooms and firewood are significant for all groups, with Didayi earning the highest from hill broom sales (4544 units). Firewood also shows considerable marketable surplus and sales across all groups, indicating its critical role in their economies.

Noteworthy is the absence of collection and sales for several MFPs like caster seeds and tooth twigs among certain groups, suggesting either a lack of resource availability or market access. Honey collection is significant for KutiaKandha but absent for Juanga and Didayi, indicating potential regional differences in resource distribution or cultural practices. The table also shows the diverse range of MFPs collected by each group, reflecting their reliance on forest resources for subsistence and income. Sales proceeds are highest for Didayi (7835.3), suggesting better market integration or resource availability, whereas KutiaKandha and Juanga have similar, lower proceeds.

Concluding Remarks

Through participatory rural appraisal (PRA) techniques, it has been revealed that the benefits of development have not percolated to PVTGs but somewhat adversely affected their lifestyle, leading to the violation of human rights, miserable living standards of tribes, restricted community rights over natural resources and their forest resources, and finally, a tribal identity crisis. It has been observed that the indiscriminate exploitation of natural resources by the non-tribes who dominate the government machinery in the tribal area results in not only a threat to tribal survival but is also leading to depletion of resources in the tribal regions. Hence, the development schemes and programs must be people-centred, eco-friendly, and hand in hand with their culture to make a significant dent in the development process of the PVTGs.

The reviewed literature and the inferences drawn from the study portray NTFPs as integral to tribal livelihoods, offering economic stability, food security, and environmental sustainability. However, challenges such as market exploitation, inadequate infrastructure, and policy uncertainties persist, necessitating targeted interventions to enhance the equitable distribution of NTFP benefits and ensure their sustainable management for future generations. Providing microfinance to self-employed individuals, particularly women, can help PVTGs engage in farm-allied

Table 5: No of HHS Collecting MFP

Sl.	*Type of MFPs*	*Number of households collecting MFPs/ NTFPs*				*% of Households*			
		KutiaKandha	*Juanga*	*Didayi*	*Total*	*KutiaKandha*	*Juanga*	*Didayi*	*Total*
1	Bamboo	0	0	4	4	0.0	0.0	3.8	1.3
2	Hill broom	56	37	28	121	56.0	37.0	26.7	39.7
3	Caster seeds	5	0	0	5	5.0	0.0	0.0	1.6
4	Berries (Charkoli, ChunaKoli, kendu, date palm)	4	84	52	140	4.0	84.0	49.5	45.9
5	Tooth twig	0	1	0	1	0.0	1.0	0.0	0.3
6	Edible leaves	0	7	59	66	0.0	7.0	56.2	21.6
7	Edible roots	0	5	64	69	0.0	5.0	61.0	22.6
8	Fire wood	100	99	104	303	100.0	99.0	99.0	99.3
9	Timber	20	11	27	58	20.0	11.0	25.7	19.0
10	Mango	32	34	0	66	32.0	34.0	0.0	21.6
11	Jackfruit	1	24	0	25	1.0	24.0	0.0	8.2
12	Honey	21	2	0	23	21.0	2.0	0.0	7.5
13	Jhuna	32	2	0	34	32.0	2.0	0.0	11.1
14	Lakha	13	0	0	13	13.0	0.0	0.0	4.3
15	Siali Leaves (leaf Plate making)	88	82	71	241	88.0	82.0	67.6	79.0
16	Mahua flower	0	57	31	88	0.0	57.0	29.5	28.9
17	Guava	0	1	0	1	0.0	1.0	0.0	0.3
18	Mushroom	1	5	0	6	1.0	5.0	0.0	2.0
19	Salap	0	0	1	1	0.0	0.0	1.0	0.3
20	Sola (Solar)	0	0	3	3	0.0	0.0	2.9	1.0
21	Rope	0	8	53	61	0.0	8.0	50.5	20.0
22	Tola	0	12	29	41	0.0	12.0	27.6	13.4
23	Thatching grass	34	17	6	57	34.0	17.0	5.7	18.7
24	Tamarind	17	43	39	99	17.0	43.0	37.1	32.5

Table 6: Economics of MFP Collection

Sl No.	*Type of MFPs*	*Unit of measurement for the quantity*	*Annual quantity/ household by PVTG categories*											
			KutiaKandha				*Juanga*				*Didayi*			
			Collection	*Self-consumption*	*Marketable surplus*	*Sales Proceeds*	*Collection*	*Self-consumption*	*Marketable surplus*	*Sales Proceeds*	*Collection*	*Self-consumption*	*Marketable surplus*	*Sales Proceeds*
1	Bamboo	Pieces		0.0	0.0	0.0	47.0	16.5	30.6	1527.5	65.0	22.8	42.3	2112.5
2	Hill broom	Head Load	36.1	7.2	28.9	5776.0	11.3	2.3	9.0	1808.0	28.4	5.7	22.7	4544
3	Caster seeds	Kg	18.7	9.4	9.4	561.0		0.0	0.0	0.0		0.0	0.0	0
4	Berries (Charkoli, ChunaKoli, kendu, date palm)	Kg	2.4	0.6	1.8	175.2	2.6	0.7	1.9	189.8	12.7	3.4	9.3	927.1
5	Tooth twig	Head Load		0.0	0.0	0.0	12.0	1.2	10.8	1080.0		0.0	0.0	0.0
6	Edible leaves	Kg		0.0	0.0	0.0	3.3	1.7	1.7	33.0	14.3	7.2	7.2	143.0
7	Edible roots	Kg		0.0	0.0	0.0	8.7	4.4	4.4	108.8	17.1	8.6	8.6	213.8
8	Firewood	Head load	535.2	133.8	401.4	16056.0	686.9	171.7	515.2	20607.0	522.7	130.7	392.0	15681.0
9	Timber	Bicycle load	19.6	7.8	11.8	11760.0	27.3	10.9	16.4	16380.0	221.9	88.8	133.1	133140.0
10	Mango	Kg	10.2	5.1	5.1	102.0	16.6	8.3	8.3	166.0		0.0	0.0	0.0
11	Jackfruit	Pieces	10.0	5.0	5.0	200.0	21.0	10.5	10.5	420.0		0.0	0.0	0.0
12	Honey	Kg	10.7	0.5	10.2	2033.0		0.0	0.0	0.0		0.0	0.0	0.0
13	Jhuna	Kg	11.8	0.6	11.2	1121.0	4.3	0.2	4.1	408.5		0.0	0.0	0.0
14	Siali Leaves (leaf Plate making)	Head Load	22.9	0.9	22.0	3517.4	14.4	0.6	13.8	2211.8	47.6	1.9	45.7	7311.4
15	Lakha		14.8	0.0	14.8	2220.0		0.0	0.0	0.0		0.0	0.0	0.0
16	Mahua flower	Kg		0.0	0.0	0.0	7.6	0.9	6.7	200.6	16.1	1.9	14.2	425.0
17	Guava	Kg		0.0	0.0	0.0	8.0	6.4	1.6	38.4		0.0	0.0	0.0
18	Mushroom	Kg	6.0	0.6	5.4	432.0	5.5	0.6	5.0	396.0		0.0	0.0	0.0
19	Salap	Litre		0.0	0.0	0.0		0.0	0.0	0.0	200.0	56.0	144.0	1440.0
20	Sola (Solar)	Head Load		0.0	0.0	0.0		0.0	0.0	0.0	22.5	0.0	22.5	2250.0
21	Rope	Headload		0.0	0.0	0.0	5.0	0.3	4.8	1900.0	26.8	1.3	25.5	10184.0
22	Tola	Kg		0.0	0.0	0.0	0.4	0.1	0.3	8.4	20.5	5.1	15.4	430.5
23	Thatching grass	Head load	89.1	44.6	44.6	4455.0	16.5	8.3	8.3	825.0	58.7	29.4	29.4	2935.0
24	Tamarind	Kg	30.1	3.0	27.1	1354.5	32.3	3.2	29.1	1453.5	140.2	14.0	126.2	6309.0
	Sales proceeds from the sale of MFPs/ Household					2073.5				2073.4				7835.3

activities like processing, packaging, and marketing turmeric, ginger, pineapple, and lemon, and forest-based cottage industries such as broom making and leaf cup production. Cashew plantations, grafted mango trees, pineapples, bananas, lemons, and papayas are crucial for horticulture development to boost income for Didayi, Juanga, and Kutia Kondh tribes. NABARD should support these efforts through its WADI project to generate employment and income in these regions.

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