



Forest Dependency and Resource Management Strategies among Tribal Populations in Jangalmahal: A Case Study

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Abstract

A "means of living" is what the word "livelihood" in the dictionary denotes. The term "livelihood" in development theory describes how people earn a living. Rather than unemployment, underemployment is the primary issue facing rural areas, and underemployment and unemployment are highly prevalent among the economically disadvantaged groups. Looking at the third world countries, it seems that one of the main sources of income is the forest resources. The resources found in forests provide locals in forested areas with a variety of goods including food, medicine, building materials, and fuel wood. The tribal groups residing in the forest edge villages rely on the forest in three different ways for their subsistence. The present case study investigates the complex interplay between resource management techniques and forest dependency among tribal groups residing in Jangalmahal. Dense forests cover the Jangalmahal region, which is home to a number of indigenous tribes whose lives are closely linked to the local natural resources. The study uses a thorough methodology to examine the socioeconomic, cultural, and environmental facets of the complex phenomenon of forest reliance. The research illuminates the various ways that tribal societies depend on forests for economic activity, traditional customs, and sustenance through an ethnographic study, questionnaires, and interviews. The study also looks into how resource management techniques are changing.

Keywords: Forest, Dependency, Management Strategies, Tribal Populations, Jangalmahal

1. INTRODUCTION

The location of Jangalmahal, which is known for its thick woods and abundant wildlife, is at the center of a dynamic interaction between tribal tribes and the surrounding environment. This case study explores the complex interplay between resource management practices and forest dependency among the several indigenous communities that call this ecologically significant region home. In addition to providing these populations with food, the forests of Jangalmahal are also important from a cultural and socioeconomic standpoint. Developing sustainable resource management policies requires an awareness of the tactics used by these tribal communities in light of shifting socioeconomic dynamics and environmental concerns. This study attempts to clarify the nuances of how these communities depend on trees for their traditional behaviors and means of subsistence through a multifaceted investigation that includes surveys, interviews, and anthropological research. In addition, it looks at the adaptive resource management plans that the tribal communities have created in order to strike a careful balance between providing for their needs and protecting Jangalmahal's ecological integrity. This research adds a localized perspective to the growing global discourse on sustainable development, highlighting the significance of incorporating indigenous knowledge and practices into modern resource management frameworks to promote peaceful coexistence between tribal populations and their forested landscapes.

1.1 Jangalmahal: An Introduction to a Forested Haven

Tucked away in the enthralling Jangalmahal landscapes is an area of great ecological significance, with a wealth of wildlife and deep forests. The purpose of this introduction is to give a thorough description of Jangalmahal, emphasizing its distinctive features and laying the groundwork for a thorough investigation of the complex interactions that exist between the tribal communities and their forest surroundings.

❖ Overview of Geography:

Jangalmahal is located in [give location specifics], and it is known for its expansive, immaculate forests that have long supported a wide variety of flora and wildlife.





Hills, rivers, and a variety of ecosystems are among the geographical elements that add to the area's unique natural beauty.

❖ **Tribal Groups:**

Many tribal communities, each with its own unique cultural heritage, customs, and way of life, inhabit the area.

These indigenous communities have forged strong relationships with the forests, which have shaped their identities and socioeconomic systems.

❖ Ecological Importance:

The forests of Jangalmahal are important habitats for many different plant and animal species, making them more than just picturesque scenery.

Beyond biodiversity, the ecological significance includes things like soil health, climate regulation, and water conservation.

❖ Tribal Populations' Dependency on the Forest:

The forests in Jangalmahal are vital to the livelihoods of the tribal inhabitants because they offer resources needed for both economic and dietary needs.

Because of this reliance on the forests, there is a special kind of coexistence where the welfare of the natural environment and the communities themselves are connected.

1.2 Forest Dependency's Significance: Socioeconomic and Cultural Aspects

The indigenous communities that live in Jangalmahal are strongly impacted by forest dependency on a socio-economic and cultural level, making it more significant than just an economic factor. From a socio-economic perspective, these communities rely heavily on the forests, which not only supply the necessary supplies for everyday survival but also stimulate economic activity. The tribes' economic environment is shaped by the resources they extract from these woods, which include timber, non-timber forest products, and medicinal plants. Furthermore, the trees have a significant impact on crop productivity and patterns in conventional agricultural techniques. Because of this socioeconomic dependence, human populations and the environment are encouraged to coexist in a delicate balance. Sustainable resource extraction methods are frequently influenced by generations of indigenous knowledge.

The identity and customs of the tribal communities are intricately linked to the forests of Jangalmahal from a cultural perspective. The region's rich diversity of plants and animals has symbolic meaning that affects customs, holidays, and belief systems. The survival of indigenous cultural heritage is inextricably tied to the preservation of the forests, which are stores of ancestral wisdom. These communities' understanding of their own roles as land stewards and their interactions with the environment are shaped by traditional ecological knowledge that has been passed down through the centuries. These communities' cultural fabric is strengthened by the frequent expression of the spiritual connection to the forests through ceremonies, rituals, and folklore.

1.3 Research Objectives



ADVANCED SCIENCE INDEX

1) To learn more about the means of subsistence for the underprivileged rural residents of tribal communities residing in and around the Jangal Mahal region forest.

2) To assess how the indigenous communities in the targeted area use forest resources.

2. REVIEW OF LITERATURE

In their fascinating study, Banik and Mukhopadhyay (2020) explore the field of community-based tourism using a model-based strategic planning method. The report provides a thorough analysis of the development tactics used, with an emphasis on the Ayodhya Hills in West Bengal, India. Through the deft integration of theoretical frameworks and real-world applications, the writers give readers a thorough grasp of the benefits and problems related to community-based tourism. The use of case studies deepens the story and makes it easier for the reader to understand the complexities of putting strategic planning into practice in the setting of Ayodhya Hills. In addition to adding to the body of knowledge on tourist



development, the study is a useful tool for practitioners and policymakers who are looking to learn more about sustainable community-based tourism.

In her study from 2022, Basu delves at the fascinating relationship that develops over a ten-year period between West Bengal's political politics and healthcare policies. By deftly navigating through the intricate interactions, the author clarifies how political choices affect healthcare results. The study's temporal breadth, which spans the years 2011–2021, enhances the analysis by adding a historical component. The book offers an insightful analysis of the relationship between public health and government. This work is not only academically rigorous but also pertinent to policymakers and citizens due to Basu's nuanced approach to analysing the electoral reasons underlying healthcare legislation. It makes a valuable addition to the growing conversation about the complex interplay between politics and public health.

Bhunia's (2022) investigation of forest management in colonial Jangalmahal and its effects on tribal lifestyles offers a distinctive viewpoint on the historical processes influencing interactions between humans and the **WORLD**. Within the framework of imperial politics, the author presents an engaging story that blends spiritual and political insights with historical research. The book's emphasis on tribal livelihoods gives the conversation about environmental history an important new angle. Bhunia's careful analysis of the colonial-era policies gives readers a sophisticated picture of the long-term effects on regional communities. Scholars, researchers, and anybody else curious about the complex relationships among political choices, environmental regulations, and human welfare will find great value in this work.

In West Bengal's tropical sal woods, Biswas and Banerjee (2022) advance knowledge of ecosystem services with an emphasis on how they sustain indigenous lives. The Journal of Tropical Forest Science published this research, which is a great attempt to close the knowledge gap between ecological science and socioeconomic realities. The writers carefully evaluate ecosystem services, providing a thorough understanding of the sal forest's value to nearby communities. The study gains depth from the integration of ecological appraisal with consequences for livelihood. This work contributes to scientific understanding while also being an invaluable tool for conservation practitioners and politicians looking for long-term solutions that take into account ecological and human factors.

With a focus on West Bengal's Purulia District, Chatterjee and Malakar (2022) conduct a timely investigation of social vulnerability and gender-related development policies in the post-COVID-19 environment. This theoretical study, which was published in the Asian Journal of Advanced Research and Reports, addresses the socio-economic effects of the pandemic and places special emphasis on the needs of vulnerable groups. Policymakers and researchers can benefit greatly from the authors' nuanced understanding of the intersectionality of gender dynamics and social vulnerability. The study's theoretical framework deepens it and advances current debates about post-pandemic recovery tactics. This study makes a significant and perceptive addition to the growing body of knowledge regarding gender-sensitive development strategies and social resilience.

3. RESEARCH METHODOLOGY

3.1 Selection of Study Area

The Bankura district's Sarenga block was selected due to its distinct characteristics and importance as a component of the "Jangal Mahal," a wooded area in South-Western West Bengal. For the indigenous populace in particular, this region represents the complex relationship that exists between communities and forests. Understanding Sarenga provides insights into the opportunities and difficulties of using forest resources sustainably. Understanding the dynamics of livelihoods reliant on forests and conservation problems within the distinct socio-economic setting of the South-Western region of West Bengal is of greater significance.



3.2 Sampling Method

Purposive sampling was used in the study to focus on the Sarenga block in the Bankura district, which was selected due to its heavy reliance on forest resources. Priority was given to finding impoverished tribal people among the 100 respondents who were chosen, acknowledging their vulnerability and dependence on trees for subsistence. Because household heads play a crucial role in decision-making, they were selected as the main respondents in order to ensure a thorough and targeted understanding of the utilization of forest resources and community dynamics. This method improves the study's data collection's depth and relevancy.

3.3 Data Collection Instruments

Two surveys were employed to gather information. The first concentrated on comprehending the impact of community sources of livelihood as well as the function and importance of forest products in maintaining rural livelihoods. The purpose of the second questionnaire was to collect data on the major forest-based economic activities. The significance of forest products, the impact on community livelihoods, and the identification of key economic activities were all covered by both sets of questions. This all-encompassing method offered a full understanding of the intricate interactions that exist between populations that depend on forests, their economic pursuits, and the sustainable use of those resources.

3.4 Sampling Size and Distribution

It was reasonable to choose 100 respondents in order to attain statistical significance while taking into account real-world limitations. The heterogeneity and characteristics of the population were taken into consideration when determining the sample size. The Sarenga block was geographically distributed to guarantee a representative spread, which improved the study's capacity to extrapolate findings to a larger population and offered insights into the ways in which different people depend on forest resources for their livelihoods.

3.5 Data Collection Process

The surveys were distributed in person by skilled researchers in the Bankura district's Sarenga block. A predetermined time period was used to collect the data, striking a balance between practical considerations and thoroughness. The challenges that some respondents faced were time limits, language problems, and logistical challenges when travelling to remote places. During the data gathering process, tactics such as local assistance and community participation were used to improve collaboration and get beyond these obstacles.

3.6 Data Analysis

To ensure accessibility and clarity, data was presented using basic mathematical tools like averages and percentages. The accuracy and legitimacy of the data that was gathered were prioritized in the computations, which were based on respondent returns. In keeping with the study's emphasis on applicability and ease of use in evaluating the data gathered from the questionnaires, no sophisticated statistical techniques nor specialized software were used.

4. DATA ANALYSIS AND INTERPRETATIONS

4.1 Sourcing of Employment from Activities Based in Forests

The household economics of forest fringe dwellers who reside in the dry-deciduous forests of Purulia, Bankura, and West Midnapur districts of West Bengal, India, is significantly influenced by Non-Timber Forest Products (NTFPs). For their livelihoods, people living on the edge of the forest regularly gather forest products due to the absence of industrial and agricultural land. To make a little more cash, they also produce some goods with value added. Comparatively speaking, it is simpler to determine the monetary value of NTFPs that are sold locally or through middlemen. Though it is never properly quantified, the items that are typically collected for household use also have a monetary worth. Since the output of NTFPs varies from year to year, it is exceedingly difficult to obtain accurate information from forest people about which commodity each home collects annually. Based on these products' significance, accessibility, and quantity, a relative value can be computed. As was already noted in the preceding paragraphs, direct employment, self-employment, and secondary

employment are the main sources of income for the tribal communities living in the forests. Here, we are required to address them in the paragraphs that follow.

4.2 Generation of Livelihood through Direct Employment

The Forest Department often accelerates direct employment in the study region by using casual laborers under its regular jurisdiction for forestry operations. The primary forest-based industries providing jobs and revenue for the populace include land preparation, plantation and nursery operations, development of soil and water conservation measures, tendu leaf gathering, and bamboo works. The majority of these jobs are contractual, with daily pay, and those involved in these forest-based activities are used to it because employment in these enterprises is seasonal.

Table 1: Creation of livelihoods through direct employment in forests (N=100)

Nature of Employment	Mean employment (Mandays/household/annum)	Wage rate(Rs.) Per manday	Mean Income ('/household/annum)
Direct employment	14.23	312.00	2951.30
Secondary employment	0.01	---	0.01

Insights into the kind of employment, mean employment in mandays per family annually, salary rates in rupees per manday, and the consequent mean income per household annually for both direct and secondary employment are offered by the statistics supplied. At 14.23 mandays per household annually on average, direct employment is the average number of days people work directly related to their principal source of income, which is forestry or agriculture. The corresponding wage rate of Rs. 312.00 per manday is the pay for each workday; this translates to an annual mean income per household of Rs. 2951.30. Conversely, there is little engagement in secondary employment, with a mean of 0.01 mandays per household annually and no set salary rate. As a result, the average income from side work is quite low—just 0.01—indicating that it makes up a very small portion of total household income. The aforementioned data offers a numerical representation of the economic terrain, highlighting the crucial role that direct employment plays in molding the average household income within the examined region.

4.3 Life Generation Through Individual Work

The benefits and drawbacks of creating a livelihood through NTFPS-based employment in the sample communities are listed in Table 2. A wealth of information about household gathering, usage, and sales of important non-food products, as well as the creation of jobs and revenue from these non-food products among the people studied, is provided here. However, it is quite challenging to obtain accurate information from forest people regarding the amount of each product that each household collects on an annual basis. Once more, estimating household income from data collected in a single session is quite difficult. A thorough conversation and simultaneous cross-checking are required to determine the precise amount of income. We have observed that the respondents have a common inclination to conceal their income out of concern that having too much money could lead to them being labelled as an APL household. On the other hand, in response to requests, they have attempted to simultaneously record additional expense items and amounts. Thus, the issue of both excessive and insufficient entrance frequently worries researchers. Here, we've made an effort to address these issues by regularly cross-checking all aspects of the revenue and expense items.

Table 2: creation of a living through self-employment based on NTFPs (N=100)

Sl. No .	NTFPs	No. of persons involved in	% to total respondents	No. of persons involved in	% to total respondents	Income (Rs.) per annum	Employment (Mandays/Annun)

		collection		marketing		m	
1	Sal leaf	62	67.06	20	31.44	17152	3125
2	Sal seed	20	18.21	15	16.25	16051	20
3	Fodder	76	91.40	20	12.36	50361	03010
4	Mahua flower	93	83.51	36	14.10	50142	89
5	Mahua seed	60	65.18	40	65.15	93625	15.89
6	Arjun Chhal/bar k	40	40.12	30	30.12	19251	20
7	Fuel wood	31	20.12	31	27.12	62365	1712.36
8	Ber	19	20.53	10	7.12	18251	10
9	Bamboo corn	15	16.35	12	4.36	62514	9.12
10	Tamarind	10	10.25	15	7.12	51411	13.52
11	Tendu fruit	20	33.25	35	25.63	52314	11.36
12	Bel	18	18.42	10	12.12	36250	30
13	Honey	10	10.53	10	10.11	20151	32.39
14	Toothbrush materials	81	82.11	11	9.23	41251	412
15	Kachnar flower	30	30.25	11	9.52	63251	23.11
16	Karanj seed	15	15.16	15	15.32	02158	7.12
17	Bahera	10	5.36	10	5.25	13621	4.12
18	Tendu leaf	50	51.11	20	20.12	18325	10.23

NTFPs

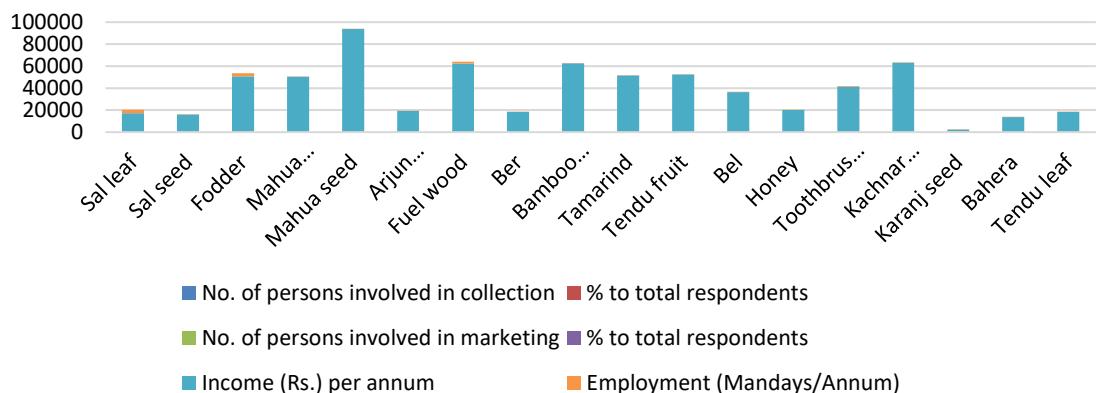


Figure 2: creation of a living through self-employment based on NTFPs (N=100)

The information supplied describes the respondents' engagement in the gathering and selling of different Non-Timber Forest Products (NTFPs), as well as the related job and income

information. With 67.06% of respondents engaged in its collection, sal leaf stands out as a notable non-timber product (NTFP) that contributes significantly to their annual revenue of Rs. 17,152. Mahua seed collection is particularly noteworthy, with 65.18% participation yielding a considerable annual income of Rs. 93,625. With 91.40% of respondents involved, the activity of collecting fodder has a high level of involvement and income, bringing in Rs. 50,361 yearly, demonstrating its significance in supporting livelihoods. The study area's complex reliance on forest resources is highlighted by the notable contributions of other NTFPs, such as Arjun Chhal/bark, Fuel wood, and Toothbrush materials, to income and employment. The data illuminates the complex interrelationships between the local population, their means of subsistence, and the forest ecology by offering a thorough overview of the diversity and economic significance of NTFPs.

4.4 Livelihood Generation Due to Employment Based in Forests

People who live in and around the forest region are directly employed as casual laborers by the forest department, as we have ~~Wikipedia~~ mentioned in the preceding paragraphs. The percentage of total forest income ~~derived from direct~~ employment is 3125.11 percent, as shown by Table 4 and Figure 2.

Table 3: Creating a living through jobs in forests (N=100)

Nature of Employment	Mean (Mandays/Household/Annum)	Employment	Mean Income (Rs./Household/Annum)
Direct Employment	14.52		3125.11
Secondary Employment	0.01	9 8 8 9 3 3 0 0 9	0.01
Self-Employment	72.14	2 2 8 8	5241.11

Nature of Employment

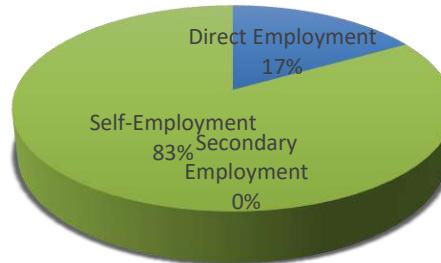


Figure 3: Creating a living through jobs in forests (N=100)

The information provided describes the type of work, the average number of mandays worked by a household annually, and the average annual income for direct, secondary, and self-employment categories. Households with direct employment work 14.52 mandays on average per year, bringing in an average salary of Rs. 3125.11. This illustrates how important it is for household livelihoods to be shaped by activities that are closely tied to the main source of income, like forestry or agriculture. On the other hand, secondary employment only contributes marginally to overall household wages, with a mean of 0.01 mandays per household annually, yielding a nominal income of 0.01. Among these, self-employment stands out as a significant contributor, accounting for 72.14 mandays on average per household per year and yielding an average income of Rs. 5241.11. This highlights the role that individual initiatives and entrepreneurial endeavours play in the economy and offers a more nuanced view of the various employment levels and sources that contribute to household incomes in the area under study.



4.5 Forest Resources' Contribution to All Livelihoods

The study area's community members work in five main occupational categories in addition to jobs associated to forests, all of which add to the average household income. These jobs include farmers, who work both their own and rented land; agricultural workers; animal husbandry workers, who raise goats, chickens, cows, and other animals; and village merchants, who include part-time business owners who process goods like muri, among others. The preceding data shows the structure of annual household income produced from these various occupations in Table 4 and Figure 3. This graphic depiction highlights the diverse range of livelihoods in the community by offering a thorough overview of the income distribution across various occupations. The inclusion of a variety of vocations highlights the range of economic endeavors that the community members engage in, which helps to create a more comprehensive picture of their revenue streams outside of the forestry industry.

Table 4: Contribution of forest resources to the total livelihoods (N=100)

Occupation	Mean Employment (Mandays/Household/Annum)	Mean Income (Rs./Household/Annum)	Percentage to Total
Farming	121	13,025.32	44.82
Labour	181	9,212.02	32.12
Animal Husbandry	130	4,912.70	11.36
Forest Resources	91.25	8,712.42	36.30
Village Traders	312	3,925.0	8.12
Others	156	2,925.63	6.12

Occupation

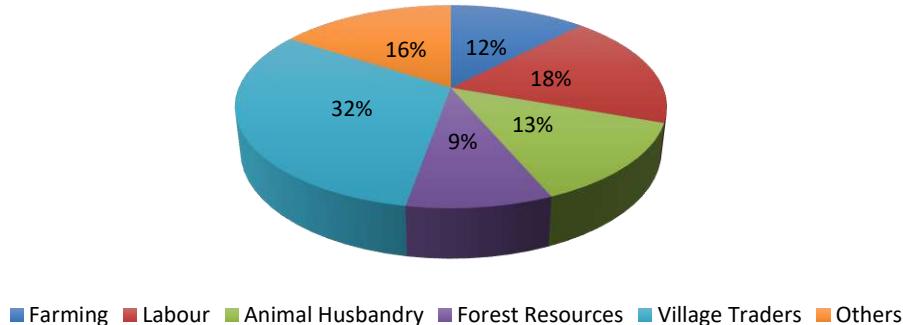


Figure 4: Contribution of forest resources to the total livelihoods (N=100)

The information given describes the average annual income per household, the mean employment in mandays per household, and the percentage contribution to the total income for each of the community's many occupations. With an average of 121 mandays per home annually, farming appears as the main source of employment and makes a considerable contribution to the household income of Rs. 13,025.32. With an average employment of 181 mandays, agricultural labour accounts for a sizable amount of household income, which is Rs. 9,212.02. Despite requiring fewer mandays (130), animal husbandry yet generates a significant mean income of Rs. 4,912.70. With an average employment of 91.25 mandays, forest resources are essential for generating Rs. 8,712.42 in revenue. While other miscellaneous activities employ 156 mandays and generate a mean revenue of Rs. 2,925.63, village traders employ 312 mandays and contribute a mean income of Rs. 3,925.0. The proportion of each occupation to total revenue highlights the significance of each one and illustrates the variety of economic endeavors the society engages in to make ends meet. This

thorough summary sheds light on the complex interactions between different professions that have shaped the community under study's economic environment

5. CONCLUSION

In conclusion, the case study on resource management techniques and reliance on forests among tribal tribes in Jangalmahal clarifies the complex relationships that exist between these habitats and their inhabitants. The results emphasize how heavily the tribal population depends on forest resources for their livelihoods, with direct jobs like gathering non-timber forest products (NTFPs) being essential. The diverse range of vocations in the community, such as farming, agricultural labor, animal husbandry, and village trading, emphasizes the various approaches taken by the people to maintain their standard of living. The report also highlights how crucial forest resources are to household earnings, as seen by the high average revenue from activities related to forests. Furthermore, the low proportion of village shopkeepers and other ancillary jobs points to the forest's crucial significance in the community's overall economic structure. **WIKIPEDIA** Examination of these results, it is clear that sustainable livelihoods reliant on forests require the implementation of efficient resource management practices. The long-term survival of the tribal population and the forest ecology in Jangalmahal depends on striking a balance between conservation efforts and the community's economic demands.

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