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Sustainable Tribal Livelihood Generation Through Tribal Cooperatives and the Effective Use of Minor Forest Products in Jharkhand

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Abstract

A significant part of India's tribal community, which forms 11.3% of its rural demographic, relies heavily on Minor Forest Products (MFPs) for their livelihood. Reports indicate that around 100 million people are engaged in the collection and trade of MFPs, supporting nearly 275 million rural Indians, many of whom are tribal. Despite these natural resources, tribal groups in India face substantial socio-economic challenges, lagging behind in access to essential services such as healthcare, education, and financial opportunities. This gap is where Tribal co-operatives can make a significant impact, focusing on poverty reduction, environmental sustainability, and community development by creating sustainable business models that address unmet societal needs. Jharkhand, known as the "land of forests," is among the top three Indian states with a high tribal population, where approximately 60% depend on forest resources for their sustenance. Diverse MFPs like tamarind mainly enrich the state's economy. Yet, the full economic potential of these resources is underutilized due to limited market access and inadequate livelihood opportunities for tribal populations.

The present study, titled " Sustainable Tribal livelihood generation through tribal cooperatives and the effective use of minor forest products in Jharkhand," examines how forming cooperatives can not only increase villagers' incomes by producing higher-value products but also strengthen communities and promote sustainable economic development. Educating tribes on available government schemes could significantly enhance their livelihoods and contribute to India's economic growth.

Keywords: Tribal, Tribal co-operatives, Minor Forest Products, Sustainable livelihoods, Paikaris.

Introduction

Tribals are often defined and perceived through convenient lenses for outsiders or non-tribal entities. Unlike high-caste Hindus, tribal communities lack traditional occupational hierarchies such as traders, blacksmiths, carpenters, and sweepers. Instead, they are frequently categorised simply as peasants, fishermen, woodcutters, agricultural labourers, and wage earners. Tribals are among the earliest settlers in the country, and they have historically inhabited hills and forests for centuries.

The intriguing thing about many tribal people is that they don't only rely on farming. A large portion of their economy is derived from the stuff they gather from the forest. The tribes utilise a variety of resources from the forest to generate income. These resources are reasonably priced, easily gathered throughout the year, and provide the local tribal people with a steady stream of revenue. Chaudhuri and Roy (2017)

Jhar (forest) and Khand (land) are the two words that make up its name, Jharkhand. Jharkhand is also referred to as the "land of forests" as a result. Originally, the southern half of Bihar, Jharkhand ("The land of forest") was established in eastern India on November 15, 2000. The states of Odisha to the south, West Bengal to the east, Uttar Pradesh to the northwest, Bihar to the north, and Chhattisgarh to the west all border the state. It is 79,714 km² in size (30,778 sq. miles). The 32 tribes that call the Indian state of Jharkhand home are known as the Jharkhand tribes. In terms of area, Jharkhand, ranks 15th, and in terms of people, it ranks 14th. Government of Jharkhand (2019)

The forests in Jharkhand boast both biological and geophysical diversity. Varying altitudes and rainfall patterns give rise to diverse forest types and species. Many of these species hold economic significance for the local population, particularly the tribal communities, who collect leaves, bark, gums, roots, flowers, fruits, and sometimes entire plants.

Forests are vital sources of income for millions of tribal people and forest dwellers, playing a crucial role in their sustenance. These communities rely on forests for essential needs such as food, fodder, medicines, and recreational purposes. Approximately 29% of Jharkhand's area is covered by forests, exceeding the national average of 23%. Jharkhand contributes 3.4% of the country's total forest cover and ranks 10th among all states.

Forests have historically contributed around 1.3% of Jharkhand's Gross State Domestic Product (GSDP), although this figure has declined since 2001-02. Despite this, forests remain a significant source of livelihood for nearly 2 million impoverished and tribal individuals in Jharkhand. Notably, the state's poverty ratio was 44% in 2000, surpassing the national average of 26%.

Table 1 Forest cover of Jharkhand as per 2021

Forest Cover Of Jharkhand		
Class	Area (Km Square)	% of GA
Very Dense Forest	2,601.05	3.26
Mod. Dense Forest	9,688.91	12.16
Open Forest	11,431.18	14.34
Total	23,721.14	29.76
Scrub	584.20	0.73

Source: ISFR - 2021 by FSI

Rural poverty in Jharkhand is the highest among all states, standing at 49%. Within this demographic, approximately 75% of those living in poverty reside either inside or on the fringes of forested areas. These forests are critical to their survival, especially during lean seasons, as they provide the primary means of livelihood. The most impoverished rural residents rely heavily on gathering wood and other minor forest products, which they often sell in urban areas at low prices due to economic desperation.

A significant portion of the population depends entirely on the forest during periods of unemployment, with many collecting forest products primarily for personal use. While contributing to 4 to 7 per cent of employment, the forestry sector exhibits low productivity, especially in timber production per unit. In Tribal Sub-Plan (TSP) districts, where tribal communities form the majority, the forest remains a vital source of livelihood. Even in other districts with significant tribal populations, the forest is crucial to their economic sustenance.

Forests are renewable natural resources that are critical components of the terrestrial ecological system

currently facing intense biotic pressure. They support human life and provide habitats for millions of life forms. Given their importance, there is a pressing need for scientific management to ensure their sustainability (Jhamfcofed | Ranchi | Jharkhand, 2024).

MINOR FOREST PRODUCTS

All the forest products produced without wood are called Minor Forest Produce (Tribal Co-operative Marketing Development Federation of India, 2022). One of the many Indian states with thick woods is Jharkhand, where the different plant and geological features of these woods are abundant. At 3.4% of the nation's total forest cover, Jharkhand is ranked 10th out of all the states. Valuable non-wood forest products like tamarind (Imli), van tulsi, harra, mahua flowers, and tendu leaves can be found in the woods of Jharkhand. JHAMFCOFED (2024). While Jharkhand State boasts various Minor Forest Produce (MFP), this research primarily concentrates on MFP tamarind.

Tamarind

While hybrid types are grown in southern India, the majority of tamarind trees are found in the wild. A tamarind tree takes roughly 13–14 years to reach full maturity, although there is a strong market for them, particularly in international locations like the Middle East. In order to lower moisture content, tamarind fruits can remain on the tree for up to six months after they are ripen in the early summer. Usually, the pods are harvested between March 1st and April 15th by pulling them off the stalk. The gathered fruits are allowed to dry in a sterile area before being processed right away. Fruits gathered after April 15th should be refrigerated to provide the optimum pulp. Sun drying is essential. The best pricing requires deseeding, which takes two days. (JHAMFCOFED (2024)).

Table 2: Annual Tamarind Production in India and Jharkhand (Metric Tons)

Location	Annual tamarind production(MT)
India (total)	200,000
Jharkhand	50,000

Source: (*Jhamfcofed | Ranchi | Jharkhand*, 2024), https://trifed.tribal.gov.in/non/timber/msp-mfp

Table 3: Details of stock of tamarind MFP in Ranchi district

DETAILS OF STOCK					
S.No.	**District/ Storage Point**	**Name Of Minor Forest Produce**	**Lot No.**	**Quantity In Quintals**	**Harvesting Season**
1.	Ramraj Cold Storage, Ranchi, Jharkhand	Raw Tamarind	1	5000 (Approx.)	2022
2.	Ramraj Cold Storage, Ranchi, Jharkhand	Deseeded Tamarind	2	60 (Approx.)	2022

Source: JHAMFCOFED, 2022

SIGNIFICANCE OF THE STUDY

There is intricate relationship between tribal communities in India, with a specific focus on Jharkhand and their reliance on forests and non-timber forest products (NTFPs) for sustenance. Highlighting the socio-economic challenges faced by these communities, including poverty and limited access to education and healthcare, the research underscores the crucial role of NTFPs like tamarind, forest fruits, and medicinal plants in supporting tribal households.

Moreover, the study delve into the emerging concept of tribal cooperatives as a promising solution to address these challenges. It emphasises the potential of tribal cooperatives in fostering sustainable development, economic empowerment, and positive social impact among tribal populations. Advocating for inclusive policies, heightened awareness, and sustainable development initiatives, the research aims to show that the Tribal cooperatives enhance the overall socio-economic conditions of tribal communities.

Additionally, the studies shed light on the specific obstacles faced by tribal, proposing practical interventions such as skill development, infrastructure enhancement, and the promotion of alternative livelihood options. By offering these insights, the research contributes to a holistic understanding of the socio-economic landscape of tribal communities in India, presenting avenues for positive change through tribal cooperatives, sustainable forest management, and inclusive development strategies that uplift tribal livelihoods and well-being.

This research addresses the socio-economic challenges faced by tribal communities in Jharkhand, with a specific focus on harnessing the untapped potential of tamarind as a minor forest produce (MFP). Unlike previous studies that primarily explored the challenges and opportunities of tribal livelihoods, this research explores strategies to raise awareness among tribal people for the efficient processing of minor forest products with respect to tamarind. By promoting sustainable practices and value addition, the research seeks to optimize returns for tribal producers, contributing to the economic empowerment of marginalized communities. Additionally, the study explores the broader potential of tribal cooperatives as a transformative force for tribal communities, aligning with constitutional principles of equality and social justice. The unique aspect lies in its practical approach towards sustainable livelihoods by making them aware of incorporating processing techniques and direct market linkages to enhance the economic prospects of tribal in the region.

OBJECTIVES

- To assess how local tribal communities utilize tamarind (MFP) as a source of income.
- To study government policies related to tamarind MFP, emphasizing their potential for contributing to sustainable livelihoods among local tribal people.
- To investigate the socio-economic impact of sustainable livelihood strategies in tribal areas, focusing on income generation and employment opportunities.
- To explore strategies to raise awareness among tribal to form cooperatives for efficient processing of secondary MFP products with respect to tamarind.

REVIEW OF LITERATURE

(Dey, Kumar and Das, 2022), in the study titled "Significance of Non-Timber Forest Products (NTFPs) to the Tribal Wealth of Ranchi District, Jharkhand", highlight the critical role that NTFPs play in sustaining livelihoods, income, and sustenance in tribal areas. The study explores the kinds of non-timber forest products (NTFPs) that tribal households gather in Ranchi district, Jharkhand, India. It focuses on the

Angara and Namkum blocks and reveals goods like fuelwood, karanj, neem, and others as important sources of revenue. Even though NTFPs are economically significant, their commerce and collection are frequently marginalised. In order to support tribal communities that depend on NTFPs, the study promotes understanding and resolving the difficulties these communities experience, focusing on integrated approaches and sustainable management techniques. Overall, the research calls for a greater understanding and appreciation of the economic relevance of NTFPs, highlighting their vital socio-economic function in tribal families.

In a study titled "Sustaining the Non-Timber Forest Products (NTFPs) Based Rural Livelihoods of Tribals in Jharkhand: Issues and Challenges", (Verma and Paul, 2019) highlight the vital connection that exists between tribal populations and woods, especially in the Gumla area of Jharkhand, India. Tribal people have relied heavily on forests for food, shelter, and nontimber forest products (NTFPs), generating revenue. NTFPs, such as mahua, saal leaves, and tamarind, are important sources of income and nutrition for tribal households. The report emphasises these communities' socio-economic difficulties, such as poor literacy rates and reliance on NTFPs, because there aren't many other options. By recognising their rights to forest resources and territory, the Forest Rights Act (FRA) of 2006 seeks to empower those who live in forests. Effective implementation is still difficult, though. High levels of cultural variation among the tribal populations of Oraon, Kherwar, Mahli, Bhokta, Lohra, and Asur are characteristic of the study region, the Gumla district. The study emphasises how NTFPs promote cultural behaviours, economic growth, and food security. It also lists difficulties like infrastructure deficiencies, governmental restrictions, and the influence of the Naxalite movement. The recommendations for sustainable forest management policy include bolstering local organisations, encouraging NTFP processing and commercialization, and carrying out additional research. The study's findings highlight the necessity of comprehensive strategies to improve tribal people's socio-economic standing while protecting forest ecosystems.

(Bharathi, Govindarajan and Reddy, 2021), in the study titled "Tribal entrepreneurship development: a synoptic view", highlighted the disparate circumstances in different places while focusing on the Indian tribal situation. With a population percentage of 8.6%, Scheduled Tribes (STs) have historically been disadvantaged and were awarded Reservation Status in order to have political representation. Tribal areas still lack development despite government efforts. The Ministry of Tribal Affairs launched the study, which examines service delivery and resource allocation and emphasises the necessity of a focused strategy. It describes numerous plans and initiatives for the welfare of tribes. It highlights the issues that tribal business owners encounter, such as limited funding, shifting regulations, a lack of technical expertise, and difficulty with marketing. Opportunities in the fields of agriculture, herbal products, tourism, handicrafts, and forest goods are also identified by the study. The report makes recommendations for starting businesses and provides incentives such as investment subsidies, land cost rebates, stamp duty refunds, and electricity cost reimbursement in order to encourage tribal entrepreneurship. The significance of resolving issues and fostering an atmosphere that supports tribal entrepreneurs—including skill development, infrastructural upgrades, and policies that are supportive—is emphasised in the article's conclusion.

(Islam, Rai and Quli, 2014), in the study titled "Manpower Potential, Employment Status and Forest Based Livelihood Opportunities among Tribal Communities of Jharkhand, India", focuses on finding a solution to the urgent problem of unemployment among the tribal populations in Ranchi district's Bundu block. It is believed that unemployment is a serious issue that contributes to a number of socio-economic issues, including low living standards, migration, and poverty. Despite being a significant employer, agriculture

can only address some problems on its own. The report emphasises how increasing employment and income in rural India could be achieved through the forestry industry as a substitute. Tribal groups are expected to benefit from forest-based livelihood initiatives such as agroforestry, energy plantations, wood plantations, silk production, and bamboo planting. The study underlines that in order to carry out these interventions successfully and long-term, funding, institutional structures, training, and policy support are all essential. The study emphasises that funding, institutional structures, training, and policy support are necessary to carry out these interventions successfully and long term. The study emphasises how crucial it is to diversify sources of income to enhance the socio-economic standing of tribal communities and accomplish general socio-economic growth.

In a study titled "The Role of Non-Timber Forest Products (NTFPs) in Tribal Economy of Jharkhand, India", (Islam and Quli, 2017) emphasise the importance of non-timber forest products (NTFPs) to the tribal communities' way of life in the Ranchi district, Jharkhand, India's Bundu block. NTFPs, which include things like fruits, firewood, and medicinal plants, are essential to the survival of rural communities because they provide jobs, food, and cultural significance. The study highlights the economic contribution of nontimber forest products (NTFPs) to tribal households by emphasising their use in traditional practices, cottage businesses, and food supplies. The results show that NTFPs make up a sizable portion of household income, with cottage enterprises, including lac cultivation and saal leaf plate manufacturing, serving as important sources. The study emphasises how critical it is to comprehend and protect NTFPs to support sustainable livelihoods, reduce poverty, and protect the environment in tribal areas.

(Kumar Singh and Quli, 2011), in the study titled "Economic Valuation of Non-Timber Forest Products Contribution in Tribal Livelihood in West Singhbhum District of Jharkhand", examined the intimate connection between tribal communities and forests, highlighting the extent to which tribal people rely on forests for their subsistence. In Jharkhand, the study examines 50 villages in the West Singhbhum district to assess the financial impact of Nontimber Forest Products (NTFPs) on tribal communities' means of subsistence. Mahua Flower, Mahua Seed, Chironji Seed, Tamarind, Saal Leaves, and Lac are the six main NTFPs that are investigated. The results demonstrate how important NTFPs are to maintain a tribal way of life by giving communities food and revenue.

On the other hand, problems, including ignorance of the value chain, deceptive marketing techniques, and others, are mentioned. In order to increase the returns from NTFP sales, the study recommends the necessity for various marketing methods, storage facilities, value-adding technologies, capital provision, and scientific expertise. Sustainable livelihoods are threatened by population growth and declining forest productivity, even though non-timber forest products (NTFPs) are economically significant. The study comes to the conclusion that although NTFPs significantly improve tribal livelihoods financially, improving the entire economic situation for collectors requires addressing problems like opportunity costs and middleman exploitation. The study emphasises how crucial it is to have efficient networks for training and extension involving a range of stakeholders to maximise NTFP profitability for tribal people.

In a study titled "The dependence of tribal livelihoods on forest fruits in rural Jharkhand, India" , (Islam, et al., 2020) have emphasised the value of forest fruits to the diet, well-being, and way of life of the indigenous populations in the Bundu block of Jharkhand, India's Ranchi area. Forest fruits are important because they lower the risk of disease, supply vital nutrients, and act as a safety net for rural populations in times of food scarcity. The study included thirty-one forest fruits and emphasised their many applications, such as eating them as ripe fruit, pickles, veggies, oilseeds, and more. For tribal households, these fruits are a major source of cash income, sustenance, work prospects, and food security. The study

focused on the importance of forest fruits for household income and livelihoods, emphasising their economic worth. The results highlight the necessity of sustainable forest management and conservation to guarantee forest fruits' availability and their advantages to Jharkhand's tribal populations.

In "Sustainable and Inclusive Strategies for Tribal Development in Jharkhand," (Raj and Priya, 2023) focus on the difficulties that Jharkhand's Indigenous groups face, highlighting the necessity of inclusive and sustainable development plans. It highlights important issues such as marginalisation, property ownership disputes, and insufficient access to healthcare and education. The study examines the body of literature, emphasising issues such as historical marginalisation, the value of land and a means of subsistence, infrastructure, healthcare, education, and inclusive government. Assessing present issues, comprehending cultural settings, suggesting sustainable living options, and promoting the active involvement of tribal populations in development initiatives are some of the goals. Socio-economic position, historical context, the effects of policies, and difficulties in accessing services, jobs, healthcare, and education are all explored in the research questions. The research methodology is all-inclusive and includes factors linked to socio-economic, environmental, and cultural issues, as well as data gathering and analysis. The study presents a mathematical model for resource allocation optimisation and provides encouraging outcomes from the application of sustainable solutions. Topics, including fair distribution, sustainable development of the environment, community involvement, a comprehensive strategy, policy, governance, and long-term impact evaluation, are discussed. In order to address the lack of capital and promote economic growth in tribal areas, the study also looks at how economic ideas like the Big Push theory and Keynesian principles might be applied. The promotion of traditional crafts, technological adoption, infrastructure improvement, skill development, and microfinance are among the recommendations. The report concludes by highlighting the need for cooperative efforts for holistic development with the goal of enhancing the economic and cultural standing of Jharkhand's tribal populations.

(Gupta, 2023), in the study titled “Tribal entrepreneurship, in the forested hinterland of Jharkhand. A solution for LWE region", emphasizes the unique relationship between scheduled tribes in India, particularly in Jharkhand, and their age-old sustainable practices linked to nature. Despite being the largest native community in Jharkhand, tribal populations face challenges like low literacy and high poverty rates. The paper explores the emerging focus on rural entrepreneurship as a means of sustainable development for tribal communities, citing examples like the Tamarind Economy in the Garhwa district. It critiques conventional large-scale models, highlighting the importance of micro-scale models, acknowledging the role of middlemen, and promoting inclusive, sustainable development. The study underscores the need to respect and integrate tribal wisdom, cultural practices, and traditional knowledge in innovative models for the economic upliftment of tribal populations.

(Panday et al., 2016), in the study titled "Non-Timber Forest Products (NTFPs) for Sustained Livelihood: Challenges and Strategies", highlight how important it is for Non- Timber Forest Products (NTFPs) to sustain the livelihoods of millions of people around the world. NTFPs, which include things like fruits, fibres, medicinal plants, and more, are essential for many people's access to food, shelter, healthcare, and money, especially in poor nations. Even while NTFPs create jobs and greatly increase household income, they frequently receive little consideration in budgets and development programmes. The article addresses topics like sustainability, monitoring, post-harvest technology, and marketing systems while outlining obstacles and solutions for the sustainable management of non-timber forest products (NTFPs).

The study emphasizes the necessity of supportive policies, market access, and community empowerment to maximise the potential of NTFPs and ensure they aid in the fight against poverty and the preservation of biodiversity. It also emphasizes how NTFPs have the potential to benefit livelihoods and environmental sustainability.

(Kerketta, 2023), in the study titled "Analysing the Commercial Viability of Tamarind (The Minor Forest Produce) for the Tribal in Jharkhand", focuses on how sustainable tribal livelihood can help meet societal demands, especially in the Indian state of Jharkhand. With an emphasis on tamarind production in particular, it draws attention to the socio-economic difficulties that the tribal community faces and highlights their reliance on non-timber forest products (NTFPs) for subsistence. The study evaluates the tamarind value chain and its economic feasibility in Jharkhand, considering factors including market dynamics, collection techniques, and the absence of value addition. The results highlight the necessity of government assistance, market development, and awareness campaigns, among other measures, to increase the income share of tamarind collectors. The study highlights the potential for good economic and social effects through creative business models in the field of tribal cooperatives and links the larger context of tribal cooperatives to sustainable development goals.

The present study, titled " Sustainable Tribal livelihood generation through Tribal cooperatives and the effective use of minor forest products in Jharkhand," examines the formation of tribal cooperatives for collecting and selling tamarind a Minor Forest Produce (MFP), by local tribal communities. This research explores how tamarind serves as a source of income and delves into the variety of secondary products that can be derived from it. The study identifies the drivers and barriers associated with these activities, focusing on the challenges faced by the community in the production of secondary tamarind products. Feedback from selected stakeholders has been solicited to understand these challenges and to gather suggestions for improving tamarind collection, processing, and marketing. Additionally, assesses the impact of government policies on the socio-economic conditions of the tribal communities engaged in the MFP sector in the selected villages, aiming to offer insights into how these policies can better support the livelihoods of these tribal communities.

METHODOLOGY

The research study used both primary and secondary data sources in Chora and Chama villages in the Ranchi district of Jharkhand. Primary data collection involved conducting personal interviews and administering well-structured questionnaires. The participants included three key stakeholder groups: village heads, officials from the Forest Department, and local villagers.

The interview schedule was designed to gather information on several topics, including livelihood activities related to Minor Forest Produce (MFP), specifically tamarind, market transactions of these products, the tribal community's mindset towards adopting changes for achieving broader community development goals through the formation of cooperatives, and their awareness of government policies.

Secondary data was sourced from a variety of materials, including academic literature, official websites, government regulations, notifications, and TRIFED study materials.

LOCALE OF THE STUDY

The study was conducted in two villages, Chora and Chama, located in Ranchi District, Jharkhand. Jharkhand, renowned for its extensive forest cover and diverse flora, plays a significant role in India's Minor Forest Produce (MFP) sector. The state is known for various MFPs, including mahua, saal seeds,

and tamarind, focusing on tamarind for this study. Chora village is situated 20 km away from the Sub-District Headquarters, Chanho, and 45 km from the District Headquarters, Ranchi.

SAMPLING

Stakeholders for the study

For the study, the stakeholders selected included local villagers, their respective village heads (mukhiyas), and officials from the Forest Department. These stakeholders were chosen from both Chora and Chama villages in the Ranchi district. Their details are as follows:

Local villagers - The local villagers residing in Chama and Chora villages were integral to this study, as their insights provided a crucial understanding of their livelihood practices related to tamarind as a Minor Forest Product (MFP). The aim was to learn about their collection methods, sales processes, pricing strategies, and any processing they undertake. Additionally, to gauge their awareness and utilization of government policies concerning MFPs. Understanding the barriers they face in processing and selling tamarind. Given that the primary goal of forming tribal cooperatives is to uplift marginalized tribal communities by enhancing their livelihoods and income sources, grasping the perspective of these villagers who are direct beneficiaries was fundamental to the study.

Village Head/ Mukhiya – Village heads were important parts to this study as they possess a wealth of knowledge about their communities. They provided crucial insights into various aspects, including the demographic profile of the village and the extent of villagers' benefits from government schemes. Additionally, they shared valuable information about the techniques used by villagers for deseeding tamarind, the setting of market prices, and the quantity and timing of tamarind collections. Moreover, village heads offered insight into the difficulties the villages face in the production of secondary tamarind products. Their comprehensive understanding of village dynamics and the procedures involved in collecting Minor Forest Produce (MFP) from the forest made their input indispensable for assessing both the current state and potential improvements in the utilization of tamarind MFP.

Forest Department - Forest department officials were essential to our study due to their expertise in advanced machinery for processing secondary products from tamarind MFP. They provided valuable insights into the challenges faced by local villagers in this process, as well as knowledge about storage methods, marketing strategies, and collection procedures. Their understanding of all available MFPs in their jurisdictions, including the quantity collected, timing of collections, and transportation procedures, was invaluable. While our research focused on tamarind, their input was crucial for identifying and addressing barriers faced by local villagers in processing and marketing tamarind products. By seeking their suggestions, we can offer effective solutions to enhance the utilization of tamarind and improve the livelihoods of tribal communities. Their perspective as representatives of the forest department provided essential insights into optimizing the management and utilization of tamarind.

SAMPLE SIZE

In this study, two villages in the Ranchi district, Chora and Chama, were selected to explore the use of tamarind, a commonly available Minor Forest Produce (MFP) throughout Jharkhand. The primary objective was to gather detailed information on the processing, marketing, and selling of tamarind products to assess their impact on the local economy and livelihoods. The total sample size taken was 106

In each of the selected villages, a total of 53 participants were chosen to provide a comprehensive overview of the tamarind-based activities. Of these, 50 local villagers from each village were interviewed to

understand how they utilize tamarind as a source of income. These discussions aimed to capture detailed insights into their daily practices, including the collection, processing, and selling of tamarind and its by-products.

Additionally, two government officials from each village were included in the study. Their perspectives were vital for understanding the existing government policies to support the tribal communities involved in the MFP sector. These officials provided information on how these policies are implemented at the local level and how they impact the villagers.

Furthermore, one village head (Mukhiya) from each village was interviewed to obtain a broader demographic profile of the villages. The village heads also provided crucial information on the local selling and marketing systems specific to tamarind products. They discussed common challenges the villagers faced during tamarind processing, such as technical difficulties, lack of adequate facilities, or market access issues.

ANALYSIS OF THE RESEARCH

Tamarind stands out from other forest products as it typically grows near households, not deep within the jungle. The tamarind collection season is from April to May in the Ranchi districts specified. Harvesting tamarind is a communal activity primarily involving male villagers who climb the trees and use sticks to dislodge the ripe pods from the branches. This process generally takes one to two days per tree. Details on the collection and sales processes are provided in Table 4.

Table 4: Harvesting time of Tamarind

Minor Forest Produce	Collection Season	Collection Days	Selling Rate of Raw Tamarind	Selling Rate of de-seeding Tamarind
Tamarind	April-May	31 Days	With seeds Tamarind 20-25 Rs/Kg	Without seeds, Tamarind 30-35 Rs/Kg

Table 4 highlights the collection and sale dynamics of tamarind, identified as a Minor Forest Produce (MFP). The tamarind harvesting season is specifically in April and May, with a total collection span of 31 days. During this period, local middlemen, known as paikaris, purchase tamarind directly from the tribal communities. The rate for raw tamarind, which includes the seeds, is between 20-25 Rs per kilogram. After de-seeding, the tamarind is classified as a secondary product and is sold by the paikaris for 30-35 Rs per kilogram in the local markets or mandis.

Once the tamarind pods are knocked down from the trees, they are collected from the ground by other family members and villagers. These pods are either sold directly by the villagers at local markets or picked up by middlemen who then sell them at larger markets, typically fetching a higher price. The researcher also investigates the involvement of local tribal villagers in the tamarind trade, specifically examining how many are engaged in deseeding the tamarind versus those selling it in its raw form. This data is comprehensively presented in Table 5, which highlights the roles and contributions of the villagers within the tamarind supply chain.

Table 5: Distribution of Tamarind Trading Activities Among Tribal Families in Chora and Chama Villages

	CHORA VILLAGE		CHAMA VILLAGE	
Total no. of tribal families	85 families		90 families	
MFP	Only Raw tamarind	Raw and De-seeding tamarind	Only Raw tamarind	Raw and De-seeding tamarind
Selling	70	15	85	5

The data presented in Table 5 reveals that most tribal families in both Chora and Chama villages are primarily engaged in selling raw tamarind, with only a small proportion involved in the labour-intensive task of deseeding the tamarind pods. This finding sheds light on the challenges faced by these communities in fully utilizing the potential value of tamarind as a marketable product.

Upon further investigation, it became evident that the limited involvement in deseeding tamarind is attributed to several factors. Firstly, villagers expressed that deseeding tamarind is a time-consuming process, requiring significant manual labour. Additionally, the absence of machinery in both villages further exacerbates the difficulty of this task, making it less economically viable for the families involved. As a result, many villagers opt to directly collect tamarind from the forest and sell it in its raw form in the market.

This preference for selling raw tamarind underscores the practical considerations and economic realities faced by these communities. Despite recognizing the potential value of deseeded tamarind, the lack of resources and the labour-intensive nature of the task present significant barriers to its widespread adoption. Consequently, villagers prioritize efficiency and immediate financial gains by opting for the simpler method of selling raw tamarind.

Tamarind collection is sometimes coordinated by contractors hired by middlemen. These contractors secure harvesting rights from tree owners and employ workers to gather the ripe tamarind. The collected tamarind is then sold by middlemen at local markets or town markets for better prices. Tamarind collectors and middlemen typically store the harvested pods in jute sacks, holding them until market days in neighbouring villages. At these local haat bazaars, they initially offer tamarind at prices between 20-25 Rs/Kg. As the tamarind progresses through different levels of the market chain, its price gradually increases at each node. This incremental pricing is depicted in Figure 1

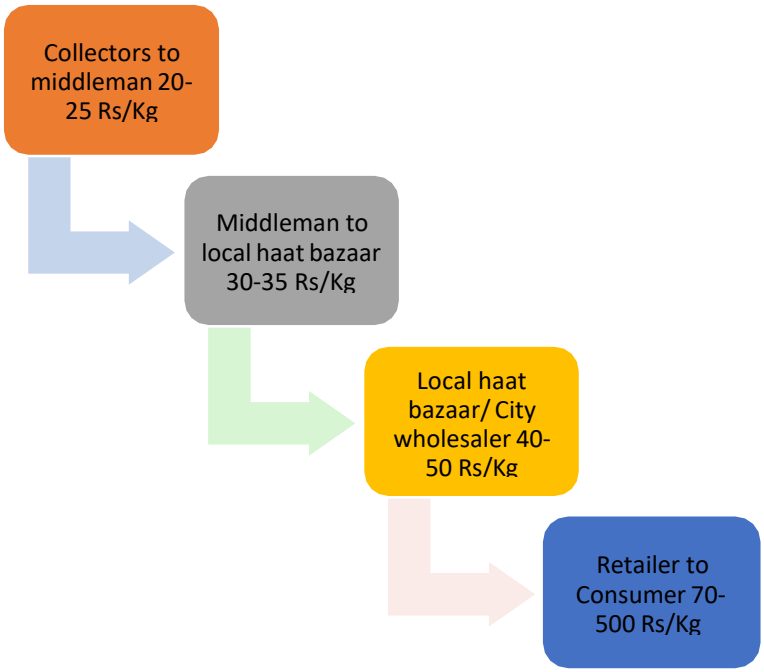

Fig 1: Value Chain of Tamarind

The market process of tamarind, as explained by the selected stakeholders in the study, is depicted in Figure. 2

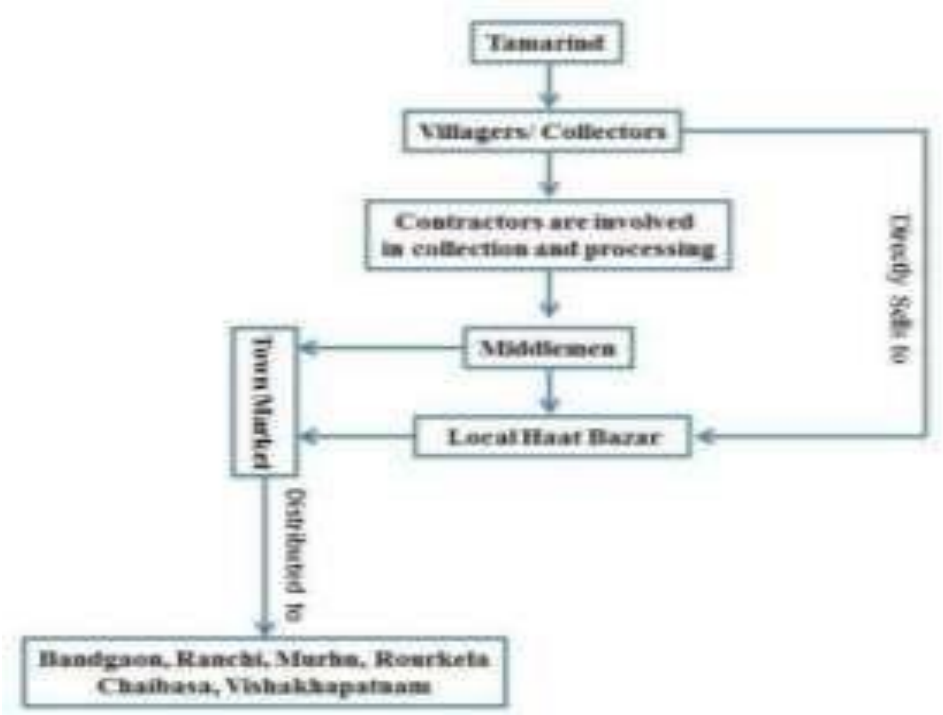

Fig 2: Market Process of Tamarind

Upon reaching the town market, tamarind becomes part of an extensive distribution network spanning various districts and states. This selling practice is not confined to specific villages but is widespread across all villages in the Ranchi district.

Remarkably, despite the extensive sale of tamarind, the researcher observed a notable absence of primary-level processing practices. Specifically, there is a lack of initiatives to de-seed tamarind before it enters the market chain. Consequently, villagers' tamarind, collected, stored, and transported by villagers undergo minimal processing before being sold.

This absence of value addition through processing is noteworthy. Typically, processes like de-seeding could enhance tamarind's quality and market value. However, the current system primarily relies on individual villagers who undertake the collection, storage, and transportation of tamarind without such enhancements.

As per insights from selected stakeholders, the researcher gained an understanding of the quantity of tamarind collected in the village and the earnings of local tribal individuals from this activity. It is presented in table 6

TABLE 6: COLLECTION AND EARNING OF TAMARIND

MFP(TAMARIND)	**Chora village**		**Chama village**	
Raw tamarind	Total no. of families is 85 Total Collection = 170 Tons (Average Collection 2 ton per family)	@ 20 Rs/Kg Total Earnings = Rs 3400 /month	Total no. of families 90 Total Collection = 180 Tons (Average Collection 2 ton per family)	@ 25 Rs/Kg Total Earnings = Rs 4500 /month
De-seeding tamarind	Total no. of families is 85 Total Collection = 170 Tons (Average Collection 2 ton per family)	@ 30Rs/Kg Total Earnings = Rs 5100 /month	Total no. of families 90 Total Collection = 180 Tons (Average Collection 2 ton per family)	@ 35 Rs/Kg Total Earnings = Rs 6300 /month

According to the data in table 6, local tribal families earn between Rs 3,400 and Rs 4,500 per season from collecting and selling raw tamarind in both villages. If they could undertake the additional step of de-seeding the tamarind, their earnings would increase to between Rs 5,100 and Rs 6,300. However, de-seeding represents only a basic form of processing. There are opportunities to create other secondary products from tamarind, such as chutney, candy, pickles, syrup and more, which could further enhance their income.

Based on insights gathered from selected stakeholders, it was revealed that the village heads of both villages mentioned the availability of government schemes such as Jandhan Yojana and others specifically aimed at the tribal community, particularly those involved in Minor Forest Produce (MFP) activities. However, awareness about these schemes among the people is limited, with only a few individuals being familiar with them.

The study also highlights the concept of community forestry, as explained by a stakeholder from the forest department. This entails the forests surrounding each village being the collective property of that village,

managed and cared for by the tribal residents themselves through Community Forestry Sabhas. Every village in the Ranchi district has its own community forestry, with the villagers having equal rights over it and a Community Forestry Sabha responsible for its maintenance.

Furthermore, the stakeholders mentioned various MFPs available in their jurisdictions, such as tamarind, mahua, saal seeds, and chironji. Strict regulations are enforced to ensure sustainable forest conservation, prohibiting tree cutting without permission. The responsibility for forest protection lies with the tribal villagers, with the Community Forestry Sabha serving as the governing body. Outsiders are restricted from entering the forest, and local communities collaborate with the forest department in decision-making processes through Gramin Van Sabhas. These sabhas, led by their respective heads, hold meetings with the forest department to oversee forest management activities. Tree numbering, indicated by yellow markings, is conducted to monitor tree status, and a designated department ensures the protection of trees and reports any unauthorized tree cutting to the government, with hefty penalties imposed for such violations.

Throughout this research, it was observed that in the Ranchi district, tamarind is commonly harvested individually by local tribal villagers. A prevalent issue identified was the difficulty in producing secondary tamarind products due to a lack of machinery, insufficient skills, and unawareness of government initiatives specifically designed to assist the tribal community with Minor Forest Produce (MFP). The government provides machinery to facilitate the production of secondary products from MFPs, including chutney, pickles, candy, and syrup.

Officials from the forest department informed the researcher that although machinery is indeed provided by the Ministry of Tribal Affairs and the state government, it is not distributed to individuals directly. Instead, it is available to cooperatives, necessitating that villagers organise themselves into cooperatives to access such resources. By establishing cooperatives, villagers can collectively process tamarind into higher-value products such as chutney, candy, and syrup. This collaboration could significantly enhance their income, surpassing what they currently earn from selling raw tamarind. This approach not only fosters community development in leveraging collective effort to improve livelihoods. The researcher's findings advocate for this model, proposing that through collective enterprise, substantial economic benefits can be realised, enriching the entire community.

CONCLUSION

The study examines the involvement of both men and women, predominantly between the ages of 20 and 60, in the collection of tamarind. The majority of collectors are small farmers. Tamarind collection is a common activity across some villages, where it is primarily sold in local haat bazaars. While villagers sell exclusively in these local markets, the contractors and middlemen have the advantage of accessing both local and town markets, thus broadening their sales outlets.

Tamarind pricing is highly volatile, largely determined by crop yield and market trends, with significant control exercised by major traders. This fluctuation in price is a challenge for local collectors, who often sell their produce at lower rates compared to market potential. The study highlights a lack of value addition in the tamarind selling process. Most of the tamarind collected is sold raw because the process of de-seeding, which could increase its market value, is both time-consuming and lacks the necessary machinery. As a result, raw tamarind fetches between 20-25 Rs/Kg, whereas de-seeded tamarind could sell for 30-35 Rs/Kg.

The barriers to value addition and higher profitability in the tamarind business include:

- Skill and Training Deficiencies: Local tribal collectors lack skills of making secondary products from MFPs due to a dearth of training.
- Market Knowledge and Access Issues: Approximately 75% of the tribal people involved in collection of tamarind, sell it through middlemen due to challenges in accessing broader markets. Factors like limited transportation, high transport costs, and unfair market practices restrict their options, leading to dependency on these middlemen who capture the larger share of profits.
- Limited Government and Cooperative Support: The study found a notable absence of government market support in several districts, forcing collectors to rely on fluctuating local market prices. Furthermore, cooperative ventures and initiatives like Van Dhan Vikas Kendras (VDVKs) are not providing sufficient support, leaving collectors with minimal profits.
- Awareness and Implementation of Support Schemes: There is lack of awareness regarding the schemes such as the Minimum Support Price (MSP) for tamarind.

Given these challenges, the study proposes the adoption of tribal cooperatives as a viable solution to enhance the livelihoods of tribal communities involved in the tamarind business. By establishing cooperatives, these communities can pool resources, share knowledge, and leverage collective bargaining power. This cooperative approach not only mitigates the disadvantages posed by middlemen but also facilitates the transition from selling raw tamarind to producing and marketing value-added products. Ultimately, this shift can lead to increased profits and a more equitable distribution of income within the tamarind value chain. This move towards tribal cooperatives and collective action are going to be a strategic approach to empower the tribal MFP collectors, enhancing their economic positions, and promoting sustainable livelihood in MFP business in Jharkhand.

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