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Short Communication

Value-additional potential of non-timber and agricultural forest products in improving the economic security of vulnerable tribal population of Kerala

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Abstract

Non-timber and agricultural forest products have a high-value potential and provide a source of income for Kerala's particularly vulnerable tribal community. A thematic approach and a secondary data analysis were carried out in this study to understand the issues involved in the collection and selling of non-timber and agricultural forest products by the particularly vulnerable tribal population of Kerala. The collection and sale of non-timber and agricultural forest produces are seen as an important tool for improving the socio-economic conditions of Kerala's tribes. This study revealed that they are unaware of the major non-timber & agricultural forest produces that can help them to earn more money. Their efforts are frequently concentrated on products with low market demand. In addition, there is a significant price difference between the collection price and the market price of these products as well as the factors influencing the collection and sale of non-timber and agricultural forest products that affect Kerala's particularly vulnerable tribal population, were also highlighted.

Keywords: Low-value realization, Non-timber and agricultural forest products, Price disparities, Thematic analysis

Particularly vulnerable tribal groups (PVTGs), also known as Primitive tribes in the past, rely significantly on forest and agricultural products for existence. The particularly vulnerable tribal groups in Kerala sell the collected non-timber and agricultural produce through Sangam tribal co-operative societies and Vanasree eco shops by the Kerala forest department. These traditional tribes mostly depend on the tribal cooperative societies under the SC/ST Federation of Kerala to sell their produce. So this study mainly focused on the Sangam societies in the particularly vulnerable tribal locations of Kerala. Although the tribes spend a significant amount of time inside the forest collecting produces, they are not compensated fairly. The difference between the collection price, which is given to the tribes, and the selling price is enormous. The sale of non-timber forest products (NTFP) is the primary source of income for indigenous communities living in forest areas. Tribes have yet to be educated about the product's worth. Their efforts are focused incorrectly on a product that does not offer the best possible returns. It's critical to figure out which products they should produce and collect more of based on market demand, as this allows them to earn more money. So by observing the cost price and market price, this study also aims to analyze the value and additional potential the price can reach. In light of the potential for exploitation of tribals, a study on the problems involved in the collection and sales of non-timber forest produce, as well as uncovering the value and additional potential of major NTFPs and their impact on the tribals of Kerala, becomes

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necessary. There were three stages in this study. Primary data were gathered to see if tribal people are satisfied with the value they get from non-timber forest products (NTFPs) and agricultural produce, as well as to learn about their level of awareness of products that can help them earn more money. We interviewed the particularly vulnerable tribes of Waynad and Trissur with the help of a semi-structured interview schedule. The data was manually transcribed and interpreted using thematic coding and analysis. We've also given the issues a rank order based on the participant's responses to the issues, to see how important they are. In the second part of the study, Kerala State SC/ST Development Co-operative Ltd's sales quantity and revenue records were used as secondary data. The information on commonly traded non-timber and agricultural forest products was gathered from data collected in Kerala's two major tribal areas (Thrissur and Kalpetta). In the last phase of this study, we collected data on market prices for these important products, and the price differential (market vs. collection) was analyzed for possible value addition and degree of exploitation.

Studies have shown in the literature how non-timber and agricultural forest products can help people who depend on forests by providing revenue and enhancing their quality of life. (Britto et al., (2003)) studied that the collection of non-timber forest products from the reserved forest is on the increase, as there is growing exploitation from the ever-expanding tribal population. In their article " The potential for using non-timber forest products to develop the Brazilian Bioeconomy. The study "The contribution of non-timber forest products to rural household income and the effects of market participation says that all these forest products have an important role in generating income for rural households. (Zenebe B. Gebreegziabher et al.,2021). Exploring the potential of non-timber forest products for poverty reduction and forest conservation in India" (Priya Shyamsundar et al.,2019) examines the potential of NTFPs for poverty reduction and forest conservation in India, using case studies from four states. Overall, these studies highlight the potential of NTFPs for generating income and improving livelihoods, while also pointing to the challenges and constraints that need to be addressed to ensure sustainable and equitable outcomes for forest-dependent communities. Overall, the relevance of Non-timber and agricultural forest products in Kerala is generally highlighted by these studies, not only as a source of income for the rural residents but also for their ecological and conservation value. The growth of Kerala's forest ecosystems and the welfare of its inhabitants can be supported by the responsible management and conservation of these products. The significance of non-food crops for rural livelihood Non-timber and agricultural forest products are harvested for both subsistence and commercial purposes, either regularly or as a last resort in emergencies. They help to secure people's livelihoods, especially in rural areas. These products may also be culturally significant and valuable (Shackleton 2004). Furthermore, according to (Shillington (2002), many international development agendas promote these products as tools for long-term development. These non-timber and agricultural forest products are therefore viewed as a possible means of enhancing the livelihood strategies of the forest-dependent communities, especially the traditional tribal communities.

This research was divided into three phases. Primary data were collected to determine whether tribal people are satisfied with the value they derived from the non-timber forest products (NTFPs) & the agricultural produces, and also to understand their level of awareness of the produce that can contribute more income to them. Kattunaikans tribes from Waynand and the Kadar tribes from the Thrissur district were interviewed with the help of a semi-structured interview schedule. We used the purposive sampling method in this study. The sample size was 30 tribes from the Kadar & Kattunaikkar tribal community. 16 of whom were females between the ages of 18 and 60 and 14 of whom were males between the ages of 18 and 70.

This age group is significant because it is the age group that is most engaged in the collection & agricultural activities. To understand the relevance of the issues we have also given a rank order based on the participant's responses to the issues. The data was manually transcribed before being interpreted using thematic coding and analysis. The thematic analysis involves six steps getting familiarized with the data, generating initial codes, identifying themes, Reviewing themes, Defining and naming the themes, and finally reporting the findings (Braun & Clarke,2006).

In the second phase of the study, secondary data is used to analyze the major problems identified in the first part of the study. We have used secondary data from the Kerala State SC/ST Development Co-operative Ltd.'s sales quantity and revenue records. The data collected from the two major tribal areas in Kerala (Thrissur and Kalpetta) was analyzed to gather information on commonly traded non-timber & agricultural forest products.The value of major forest produces contributors was determined using Pareto's cause and effect principle. The Pareto principle states that for many outcomes, roughly 80% of consequences come from 20% of causes. Finally, in the last phase of this study, to understand the price disparity (market price vs. Collection price) was investigated for value addition potential and degree of exploitation.

In the first part of the study, The thematic analysis resulted in the development of a theme: Widening Perspective of Income.

During the interviews, the majority of participants expressed a broad belief that a good income from non-timber and agricultural forest produces can help them overcome their financial insecurities. During the interviews, participants expressed their concerns.

For instance, Badichi, a kattunaikkar tribal woman of Wynand said :
We go to the forest to collect produce...we spend many days inside the forest looking for produce..... It's very hard to collect produce from the forest..we are taking so much effort. Still, we do not receive a fair price when we sell it... Our main source of income is from non-timber forest produce & our agricultural produces .... We also put in a lot of effort to protect agricultural produce from wild animals... Also, we are not getting any money even to buy seeds for cultivation. Our wages are not been covered in this price... we are not happy with the price we get… our life could have been better if we got a fair price for our produce.

In another case of Kali, a Kadar tribal shared her concern:
We don't know the price of the produce that we collect& produce ... We collect the produce that is available in the forest… we only know the price that we get when we sell… we are not aware of the outside market price of our produces… we are depending more on forest produces& agricultural produce for our livelihood... if we get a good price for our produce can improve our livelihood.

In another instance, Rajan a Kattunaikkar tribal man told his concerns:
We have to walk through the forest to sell our produce which is a very hectic task… During rainy seasons the forest is slippery and we have to carry the produce on our shoulders if we want to sell the produce. So whatever price they offer we accept it. We never ask for more price because we are scared if we ask for more price sometimes, they don't take our produces which again put us in trouble…

(Pandey et al., 2016) observed that millions of people in forest fringe communities around the world rely on non-timber forest products (NTFPs) for a living. In India, NTFPs are linked to the socioeconomic and cultural lives of forest-dependent communities that live in a variety of ecological and geo-climatic situations across the country. PVTGs are people who rely entirely on forest and agricultural produce for their livelihood. Even though they put a lot of time and effort into

Table 1. Overall perception about the Non-Timber&Agricultural Forest produces by the respondentTribals (N= 30)

	Kadar tribes	Kattunaikkar tribes	Total tribes interviewed 30	Percentage %	Ranking
Not getting a good price	15	15	30	100	1
Not aware of the price outside	12	16	28	93.33	2
Afraid of being rejected	17	10	27	90	3
Not aware of major produces	18	8	26	86.67	4

growing and collecting the produce, they do not receive any financial benefits. These traditional tribal groups are unhappy with the price they receive for their produces, as evidenced by the examples given above. They toil and struggle to collect and cultivate the produce, but their efforts go unnoticed. The non-timber forest products (NTFPs) can help tribal communities overcome poverty by providing income and thus improving their quality of life. (Falconer, J. 1996) Participants expressed their concerns about receiving low prices for their goods. The PVTGS claimed that they have no idea what the outside market price is for their produce and that they never try to bargain for it because they are afraid of being rejected. They also have no idea what the outside market price is for these products. These traditional tribes are also unaware of the major non-timber& agricultural forest produces that provide them with additional income.

The rank order of the qualitative data collected with the help of the semi-structured interview schedule is shown in the table above. The table clearly shows that all of the respondents believe they are not getting a fair price for their produce. Twenty-six respondents stated that they are unaware of the major crops and thus are unable to concentrate on growing and collecting them. 28 participants stated that they are unaware of outside market prices and accept the price they are given, which is one of the reasons for their financial insecurity. 27 participants are afraid of being rejected if they ask for a higher price for their produces. As a result, they tend to accept the price they are offered. The rankings were determined by the number of people who responded to the same issue. The higher the rank, the greater the number of people who responded to the same problem, and the lower the rank, the fewer people who responded to the issue.

Examining the price's further potential by observing the cost and market price.

Simple statistical tools, such as growth rates, and percentage changes in absolute and relative values (yearly), were used to evaluate the NTFPs identified. Because the list of non-timber& agricultural forest produces is so long, the Pareto principle was used to identify the most important products that contribute to value. Broomgrass, Cheenikka, Cheruvazhuthana, Raw Honey, Karinkurinji, Kattupadavalam, Kurunthotti, Moovila,orila kattumulakinthandu are the major contributors identified from the Thrissur district. Kalpasam, Cheenikka, Chundapacha, Raw Honey, and Kurunthotti are among the major NTFPs sourced in Wayanad. The Figs. 1&4 shows their value contribution to the total value for the year 2018-19.

Kerala State SC/ST Development Co-operative Ltd facilitates the trade of approximately 48 non-timber forest products (NTFPs) which include agricultural forest products. Ten of the forest produces account for 84.49 per cent of the total value distributed to tribal members, with the remaining 40 accounting for 15.51 per cent. When arranged in ascending/

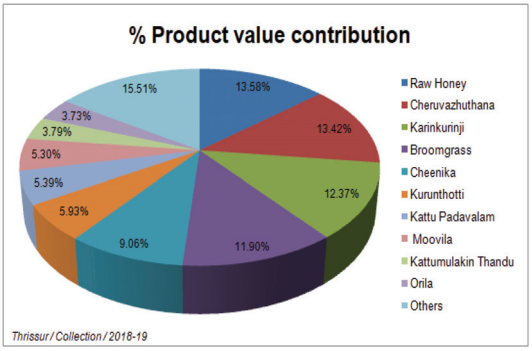

Figure 1. Product value contribution of Thrissur district

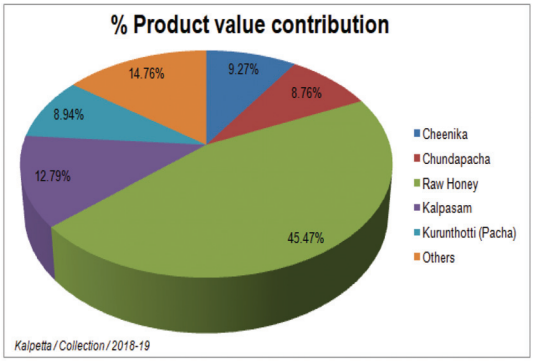

Figure 2. Percentage of product value contribution of Kalpatta,Wayanad district

descending order of revenue generated for the tribal population, the range of income/value each of these products provides is mostly consistent for the Thrissur region, with no two products showing huge differences when arranged in ascending/descending order of revenue generated for the tribal population. The revenue range provided by these major contributors is approximately 10% of the total revenue of INR 16,07,354 for FY 2018-19.

In the Kalpetta region, there were a total of 27 Non-timber & agricultural forest produce relevant to tribal income in FY 2018-19, with 5 contributors supporting the supplier/tribes' revenue the most. The total tribal revenue from forest produces in the Kalpetta area was 85.24 per cent due to these major non-timber & agricultural produces. This is based on the assumption that Kerala State SC/ST Development Co-operative Ltd received the entire quantity of products collected. Further more, when compared to similar data from the nearby Thrissur region, the collected data for this region shows some significant differences. During FY 2018-19, a single product, Raw Honey, accounted for 45.47 per cent of total tribal revenue in this region. Furthermore, when compared to the tribal population of the other region, the indigenous population of this area was able to generate 38 percent more revenue from NTFPs, which is nearly identical to the difference in 2017-18, which was 32 per cent.

Examining the cost price (collection price) and market price to discover the additional value potential.

Primary data was gathered from retail markets to determine the value-additional potential of prices, and the results are shown below. The price at which they were collected and the retail price, respectively, are referred to as cost and market price.

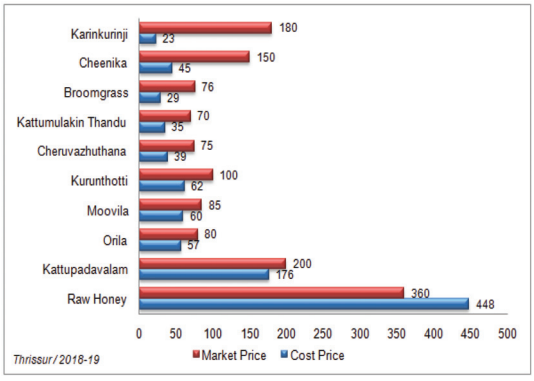

Figure 3. The disparity between collection price and market price (Thrissur district)

Table 2. Cost price (collection price), market price & sales price comparison to identify the extent of exploitation. (Thrissur district)

Item	Cost price	Market price	Sales price comparison %- 'A'class products	Extend of exploitation- 'A' class products
Raw honey	448	360	124.44%	-24.44%
Kattupadavalam	176	200	88.00%	12.00%
Orila	57	80	71.25%	28.75%
Moovila	60	85	70.59%	29.41%
Kurunthotti	62	100	62.00%	38.00%
Cheruvazhuthana	39	75	52.00%	48.00%
Kattumulakinthandu	35	70	50.00%	50.00%
Broom grass	29	76	38.16%	61.84%
Cheenika	45	150	30.00%	70.00%
Karimkurinji	23	180	12.78%	87.22%

Karimkurinji appears to be the product that has been most exploited by middlemen, with an 87.22 per cent exploitation rate. Raw honey, on the other hand, is collected at a higher cost than the market price, which is only 81.4% of the cost. On its way to the customer, Kattupadavalam is the least exploited. The remaining seven products are subject to exploitation in the range of 28.75 per cent to 70 per cent of their market price.

Products with the greatest potential for high-value addition: Karinkurinji, Cheenika, and Broom appear to be the products with the most potential for high-value addition. In the case of Karinkurinji, there is evidence of 87.22% exploitation. Broomgrass has a 61.84 per cent potential for value addition, while Cheenikka has a 70% potential for value addition. These are the most important items to pay attention to. Kattumulakin Thandu, Cheruvazhuthana, and Kuruthotti are examples of possible value additional products with medium exploitation rates. Kattumulakin Thandu has a 50% potential increase in value. Cheruvazhuthana has a value addition potential of 48 per cent, while Kuruthotti has a value addition potential of 38 per cent.

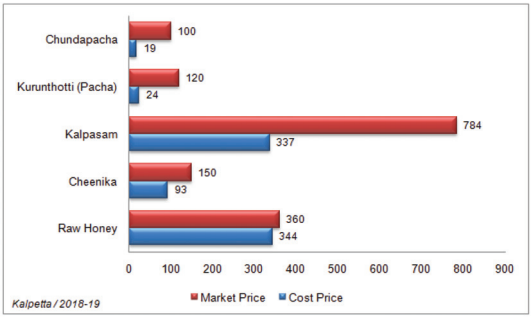

Figure 4. Disparity of collection price and price (Kalpatta,Wayanad District)

Low-Value Addition Products: Examples of low-value addition products include Orilla, Moovila, Kattupadavalam, and Raw Honey. Orila appears to have an exploitation rate of 28.75 per cent, Moovila appears to have an exploitation rate of 29.41 per cent, and Kattupadavalam appears to have an exploitation rate of 12 per cent. These have the smallest additional value potential when compared to other products on the market.

Chundapacha is the most exploited product in the Kalpetta region, with an 81 percent difference in value between cost and market price. The market price of raw honey is higher than the cost price in the Thrissur region, with a low variance of only 4.44 per cent of the market price. In 2018-19, the rest of the Kalpetta region's major NTFPs, namely Cheenika, Kalpasam, and Kurunthotti (Pacha), were subjected to exploitation ranging from 38 per cent to 80 per cent. Cheenika, which had a 70 per cent market price increase in Thrissur, only had a 38 per cent increase in Kalpetta. Furthermore, the natural form (Pacha) of Kurunthotti is more vulnerable to exploitation in Kalpetta, with an exploitation rate of 80% compared to 38% in the Thrissur region.

High-value-added product: In Kalpatta, Wayanad district, the most exploited products are chundapacha and kurunthotti. Chundapacha has an additional value potential of 81 per cent, while Kurunthotti has an additional value potential of 80 per cent. Kalpasam and Cheenika appear to be the medium value addition possible products in the Kalpatta region. Kalpasam is exploited to the tune of 57.02 per cent, while Cheenika is exploited to the tune of 30%.Raw honey is the least exploited product available as a low-value addition. When

Table 3. Cost price (collection price), market price & sales price comparison to identify the extent of exploitation.(Kalpatta,Wayanad district)

Item	Cost price	Market price	Sales price comparison%- 'A'Class Products	Extend of Exploitation 'A' Class Products
Raw honey	344	360	95.56%	4.44%
Cheenika	93	150	62.00%	38.00%
Kalpasam	337	784	42.98%	57.02%
Kurunthotti(pacha)	24	120	20.00%	80.00%
Chundapacha	19	100	19.00%	81.00%

compared to other products on the market, raw honey has a value addition potential of only 4.4 per cent.

To summarize, this study found that the ability of the particularly vulnerable tribal groups to extract greater value from non-timber and agricultural forest products is severely constrained due to a lack of knowledge about market conditions and prices. Their increased exposure to middleman exploitation is a direct result of the aforementioned. Their product access does not correspond to availability or revenue potential. Precincts set up by government officials have a regular impact on this. Products that add more value should be given more importance. All other products, except for raw honey, have a higher market price than the collection price. To facilitate food security, poverty reduction, and improved livelihoods, an appropriate policy framework is required for the sustainable collection, promotion, and sales of NTFPs, particularly for economically marginalized and forest-dependent communities. The current system is unjustifiable and exploitative. A comprehensive approach based on the value chain or Commodity Market Chain is recommended, with a focus on market identification, evaluation, and product prioritization. Tribes should be made aware of the importance of non-timber forest products regularly so that they can concentrate their efforts. They never bargain for a better price, and they are exploited by outsiders who buy the produce at a lower price and then sell it for a much higher price outside. If the tribes are successful in selling their produce through tribal co-operative societies and the forest eco shops, they will receive a good percentage of the profit. For this to happen, society & forest department eco shops must be able to sell the produce for a fair price outside. If they can develop effective marketing strategies and maintain positive relationships with the tribes, they will be able to generate more revenue from non-timber & agricultural forest produce which will directly benefit the tribes' financial well-being.

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