

SIGNIFICANCE OF NON-WOOD FOREST PRODUCTS FOR ENHANCING INCOME OF TRIBAL PEOPLE OF BASTAR

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Abstract

The central Indian tribal belt is endowed with rich natural resource base with thick natural vegetation, biodiversity and the diverse tribal culture. Notwithstanding the rich natural resources and despite being catchments of some major river systems of India, the region ranks low on all development parameters compared to the rest of the country. The present study was conducted in the tribal area of Bastar in Chhattisgarh state of India. Livelihood systems in this region is complex, primarily dependent on agriculture (including allied activities-livestock, poultry, fishery, etc.) forest, agricultural labour and village artisans. The tribal population is among the poorest, most vulnerable and exploited groups in the state. The tribal economy in the state is primarily subsistence oriented and based upon a combination of agriculture, forestry and wage labour. Food and Agriculture Organization of the United Nations (FAO) and Ministry of Agriculture and Farmers Welfare, Government of India, it was agreed that a wide variety of forest products made up a large proportion of the daily diet of rural families. These edible Non-Wood Forest Produces have been recorded so far including edible shoots and other vegetables, fruits, tubers, mushrooms, small water animals, wildlife etc. The diversity of the NWFPs consumed reflects the agricultural biodiversity of the rural landscape in Bastar region of India. Nutrition and health are fundamental pillars of human development across the entire life-span. The potential role of non wood forest produce in improving nutrition and health and reduction of poverty has been recognized in recent years. NTFPs continue to be an important source of household food security, nutrition, health and livelihoods.

The recorded forest area in the State is 59,772km², which is 44.21% of the geographical area. Reserved, Protected and Unclassed Forests constitute 43.13%, 40.21% and 16.65% of the total forest area respectively (State Forest Report). Bastar has mostly Tropical Sal deciduous Forest with Mixed Forests as well. The main species of trees are Sal, Mahua, Imali, Tendu, Amla, Harra, Bahera, Chironji, etc. Bastar is the land of tribes and about 70% tribal population of Bastar comprises of tribals, which is 26% of the total population of Chhattisgarh. This paper presents a dependency for forest foods and food, nutrition and livelihoods linked to forest resource in Bastar region of Chhattisgarh state in India.

Keywords: Edible; Non Wood Forest Products; Food Security; Livelihood, etc.

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1. Introduction

Forests provide significant social and economic benefits at all levels, especially in developing countries. Economics of people living in forest finger have traditionally been dominated by subsistence agriculture. However, non-timber forest products (NTFPs) play vital role among the tribal people and provide a source of income and subsistence living (Peters *et al.*, 1989; Hegde *et al.*, 1996). NTFPs like fuel-wood, medicinal plants, wild edible vegetables, house building materials etc. are integral part of day-to-day livelihood activities especially for tribal people (Sarmah, 2006). Since the early 1990s the role of NTFPs for sustainable forest use and poverty alleviation has received increased attention (Peters *et al.*, 1989). The socio-economic importance and the value of NTFPs in the economics of tropical countries are now well recognized (Gupta and Gularis, 1982; FAO, 1995). In almost all tropical countries, the collection of NTFPs is a major economic activity (Chopra, 1993; Sharma, 1995; Ambrose, 2003) and about 500 million people living in or near forests being depended upon them for meeting their livelihood needs (Alexander *et al.*, 2002).

Evolution of human life and culture has directly or indirectly been associated and influenced by the surrounding environment. The primitive people acquired the knowledge of economic and medicinal properties of many plants by trial and error methods. Consequently, they became the storehouse of knowledge of many useful plants including non-wood forest products. The use of non-wood forest products (NWFPs) is as old as human civilization and was the main source of food, fodder, fibre, medicine, cosmetics, etc. The present day agricultural and horticultural plants were also derived from these wild stocks from forest areas. During the course of history, some 12,000 plants have been used for food but only about 2,000 have been domesticated and only about 150 commercially cultivated, presently about 30 species provide 90 % world's food supply (IUCN, 2007). The Bastar forests have great floral and faunal wealth. As such, these areas are the main storehouse of wide varieties of non-wood forest products, which are valuable beyond measure especially for the economy

of the rural people and forest resident communities have derived sustenance from forests mainly through harvesting, selling and use of the NWFPs.

Many important non-wood forest products from Bastar are now commercially exploited for use all over India as well as the world and provide revenue for the state along with supporting livelihood of Bastar communities. For industrial use, commercial harvesting, some of the NWFPs like Tendu leaves, Mahua flower & seed, Sal seed, Imali fruit & seed, Gums & Resins, Amla fruit, Cocoon, Mahul patti, Kusum, bamboos shoots and medicinal plant parts, leaves, etc., have opened up new areas and opportunities for full or part-time employment of both men and women from rural communities of Bastar since last 100 years. This study was undertaken to identify the commercially important NWFPs collected and marketed by tribals communities of Bastar region for food, nutrition and upliftment of livelihood.

2. Research Method

Bastar region is located in the southern part of Chhattisgarh state and situated at a height of 2000 ft plateau from sea level. The borders of Bastar region are Maharashtra State in the north & west, in the south & east touch Orissa State. The beauty of Bastar region lies in its natural forest area and various types of tribals. The total forest area is more than 75 % of the total area of the region. The district has an average population of 1,411,644 as per the 2011 census. Of the total population 86 % are rural population in which more than 70 per cent are tribal people like Gond, Dandavi Maria, Bison Horn Maria, Muria Dorla, Dhruva, Bhatra and Halba Tribe, etc. The forest villages are placed in mountainous and highly sloped areas where agricultural activities have many limitations. This fact increases the usage of the forest resources and makes the life difficult in the forest villages.

The original data about the NTFPs was obtained from questionnaires applied to villages using face to face interviews method in the ten villages of five blocks *i.e.*, Jagdalpur, Darbha, Bastar, Bakawand and Tokapal in Bastar district and also from the local (Haat, Bazaar) market survey. The questionnaire comprised both close-ended and open-ended questions about food, treatment, usage reason, used plants, income, education, etc. The present study

was made to gather information about species with high demand, their status and uses in that area, so that a sight can be put for these valuable lives giving plant for their conservation and sustainable harvesting.

3. Results and Analysis

NWFPs play a significant role in rural economy through supply of goods and services for food security, health care, employment opportunities, etc. to a very large number of people. Moreover, in recent times, many medium and large scale industries have come up in our country which formulate medicines and cosmetics on traditional lines from plant parts, but by using modern technology and quality control. Similarly, the large international pharmaceutical companies are extracting alkaloids from plant parts for preparation of medicines. This new demand is generating considerable income at local and national levels. Non wood forest products available inside forest area of Bastar region can be classified under various groups in which some are very useful to the local population for meeting their subsistence consumption need while other is of commercial importance. The main commercial NWFPs in Bastar district depicted that, twenty two items from bamboo to Boda are collected by tribal community of Bastar (Table 1).

Table No.1 Income of Tribal Family by Different NWFPs In Bastar Region

S N	NWFPs	Income in Year per family (Average four members was involved for NWFPs collection)				
		Jagdapur	Darbha	Bastar	Bakawand	Tokapal
1	Bamboo	4000	3000	2200	6000	1400
	Mahua Flower	1800	2200	2700	3500	1800
2	Mahul	500	350	200	1200	350
3	Tora	450	1600	1500	350	800
4	Cocoon	500	4000	2500	1300	300
5	Resin	-	1500	800	1100	-

6	Tamarind	600	500	5000	4500	600
7	Karanja	250	150	100	250	-
8	Sal Seed	550	450	200	500	1400
9	Mango	500	-	100	750	-
10	Amachur	-	150	200	-	-
11	Amla	-	400	125	350	275
12	Kusum	150	100	-	150	-
13	Chiraunji	250	350	-	300	290
14	Bamboo Shoot	750	200	350	550	170
15	Boda	700	500	500	450	300
16	Tubers	250	300	200	100	50
17	Mushroom	300	200	100	250	-
18	Leaf vegetable	100	100	50	100	-
19	Tendu leaf	3000	2800	2400	3000	800
20	Charota seed	-	75	-	125	-
23	Others	450	500	850	1200	700
	Total	Rs. 15100/-	Rs.19425/-	Rs. 20075/-	Rs. 26025 /-	Rs.9235/-

In present survey studies result was found maximum income (Rs. 26025/- family⁻¹ year⁻¹) grain the tribal community of Bakawand block followed by Bastar block (Rs. 20075/- family⁻¹ year⁻¹), Darbha block (Rs. 19425/- family⁻¹ year⁻¹), Jagdalpur block (Rs. 15100/- family⁻¹ year⁻¹) and minimum income (Rs. 9235/- family⁻¹ year⁻¹) was reported from the Tokapal block of Bastar district. The important NWFPs are Bamboo, Sal seed, Cocoon,

Mahul patti, Mahua flower & seed, Kusum seed, Sal leaves, lac, Tamarind and different types of other fruits, seed and flowers. It is noted that except a few, most of the NWFPs are common to all the block of Bastar. In the study sites the higher income (Rs. 6000/- family⁻¹ year⁻¹) was getting from the bamboo followed by Tamarind (Rs. 5000/- family⁻¹ year⁻¹), Cocoon (Rs. 4000/- family⁻¹ year⁻¹), Mahua flowers (Rs. 3500/- family⁻¹ year⁻¹), Tendu leafs (Rs. 3000/- family⁻¹ year⁻¹) and lowest income (Rs. 75/- family⁻¹ year⁻¹) was reported from the Charota seeds among all the five block of Bastar distinct. Guha, 1983 surveyed and reported Chhattisgarh, Bihar, Jharkhand, Orissa and Andhra Pradesh constitutes nearly 65 % tribal population of India and contribute about 70 % of NWFPs production.

Normally, the tribal women along with their children collect the NWFPs in different pockets of Bastar district. Therefore, literacy rate in tribal areas is very low. The quantity of NWFPs collected by tribal depends upon several factors. The economic status remains one of the important criteria. The very poor and poor tribal with small land holding collect maximum quantity of NWFPs *i.e.*, 47 % and 19 % respectively and sell a large quantity of the product in the market the medium collected only 11% and higher income group (3%) rarely depend upon NWFPs. Due to the lack of sufficient plain land in the district, most of the forest and hill dwellers do not depend upon agriculture as the chief source of livelihood. Tribal of Chhattisgarh in general and Bastar in particular use staple food and ingredients in traditional medicines and engage themselves in cash sale for earning their livelihood in economy where empowerment and under employment are high. Needs NWFPs supplement household agricultural production through essential nutritional inputs, medicine, fodder, mulch etc? Seasonality of forest food also help to reduce the shortages suffered during “hunger periods” specially the marginal and shifting cultivators and forest dwellers. NWFP related activities provide employment during slack period of agricultural cycle as well as buffer against risk and household emergencies. The NWFPs collections contribute to the economic benefits significantly in day to day to the tribal communities, where basic needs and livelihood earnings are significantly supported from collection and processing of these items. In Bastar Tendu leafs and Sal leafs & seed and Tamarind are the major source of income providing considerable employment to tribals during the lean period of agriculture. Hence, its role in augmenting economy of rural people in this area is major scope is good. Most of these

NWFPs are available for collection in particular season but they are utilized all the year round. *Terminalia bellirica* have many uses in treatment of diseases, the seed of this eaten by the local people for curing gastric problems and stomach disorders Tapan seal (2011). The fruits of this plant are used in piles, dropsy, leprosy, biliousness, dyspepsia and headache (Chopra *et al.*, 2006). The fruits of *Ziziphus mauritiana* used for candy making (Sankaran *et al.* 2006). A mixture of Jamun juice and mango juice in equal quantity is very good for quenching thirst for diabetic patients. The powdered seeds have reputation for being useful in the treatment of diabetes. The major unsaturated fatty acid found in Mahua (*Madhuca indica*) oil is linoleic acid, which has therapeutic use in reducing blood cholesterol thereby making it especially useful for heart patients. Oil obtained from *Madhuca indica* is also reported to be used as toilet soap, grease for machinery and candles.

The rates of NTFPs are highly fluctuating and there were no regulating agency, and hence, rate in these markets are govern by big traders. Thus there is need to conduct study on regular basis. The study has shown that traders play a pivotal role that enables gatherers to realize the value of the NTFPs in their environment, thereby increasing the incentive for forest conservation. Traders are often accused of exploiting gatherers. Some cooperative societies, including those of the forest department and tribal welfare department do sometimes assist the tribal folk in getting proper price for NTFPs, but more organized effort is suggested There is, however, a need to recognize that traders carry out many useful marketing functions and that they are the ones who have to bear most of the risk of difficult markets and costly transport. In general terms, these local haat bazaar or local markets are more profitable than markets of big cities, particularly in case of Char guthli, Amla, Mahua flowers, Imli fruits etc. Income for all the produces is highly variable from one produce to the next. The variation in income between these produces is a function of production levels as influenced by effort expended, collection procedure, products quality made and availability of NWFPs in the particular forests area **Charlie and Sheona** (2004).

Non- Timber Forest Product (NTFPs) contributes significant to the livelihood of Nigeria's fast growing population. It has gained global attention due to its contribution to the household economies and food security. Nweze and Igbokwe, (2000) asserted that about 80 percent of the population of developing countries use NTFPs to fill health and nutritional needs. He also asserted that women heavily depend on NTFPs in southern part of Nigeria. Another research

carried out by Bisong and Ajale (2001) also points to the fact that there is a heavy dependence on NTFPs in the western part of the country. Individuals in rural areas collect this product in large quantities and most cases daily because they are needed for the local people's livelihood, income, food and medicine (Wiersum, 1999). The importance of these forest products makes it imperative to employ a sustainable management mechanism for the rapidly depleted forest resources so as to maintain an uninterrupted supply of these resources for the future generation. Sustainable development implies development which while protecting the environment allows a type of economic activity that can be sustainable into the future with minimum damage to people or ecosystem (Goudie, 2000).

Poverty and backwardness characterize the tribal economy in India. India has about 84.32 million tribal population, consisting 8.20 per cent of country's total population (2001 census). In the context of socio-economic development, the tribal in India vary from one another, starting from primitive life style to modern way of living. The primitive tribal economy is intimately connected with forests. Non-Timber Forest Products (NTFPs) form the main stay of income and sustenance for many of these tribal communities (Rao, 1987; Gauraha, 1992; Chopra, 1993; Mallik, 2000). About 60 per cent of NTFPs is consumed by about 7 crore tribals in the country. NTFPs contribute about 10 to 40 per cent of the tribal household earnings (Shiva, 1993). The income from NTFPs and the extent of extraction will depend, among others, the factors like the state policy on forest access and land use, the forest type and the demand for NTFPs (Bautista, 1992).

In recent years, the demand for NTFPs has increased many folds. The increase in demand of NTFPs is met by the over exploitation of the stock of natural capital without corresponding to the sustainability of the ecosystem. The Government intervention, in this context, by legislation and other measures has alienated the forest dwellers for their rehabilitation. In the process of rehabilitation, the tribal not only face the problem of adaptation to monetized economy, but their dependence on NTFPs for income has increased and their access to forests declined. The efforts to rehabilitate the tribal met with limited success since many of them still continue to dwell in the interior forests and heavily depend on forest for their livelihood. For their successful rehabilitation, it is important to understand the nature and extent of households' dependence on NTFPs as a first step in planning for tribal development. The foregoing analysis clearly brings into focus the importance of NTFPs on the livelihood of the

different categories of the households. In general, NWFPs contributed more than one third of the total household income of the tribal. They also generate vital non-cash income, which is related to the intake of nutrients. Wage is however, the largest cash income earning activity. But the average income is below the poverty level. The tribal continue to depend upon NWFPs, as a fall back arrangement for income and employment, as they do not have other alternative source of employment. Therefore, a major effort is required to lift the income earning potential of these hapless inhabitants.

4. Conclusion

In this part of central India, nature and biodiversity is intact and is richly supplemented by the indigenous culture. Forestry plays an important role in life and livelihood of the local communities at Bastar region of Chhattisgarh state. Non wood forest produces play an important role in food and economic aspects of poor villagers and farmers. People cited some problems for non promotion of non wood forest produces and, low price, storage problems and value addition. Some of the value added products were found to be sold commercially in local markets however it is also found that the primary collectors are getting fewer prices than the middle man and market rates. Therefore there is need to encourage primary collector and also provide them technical know how to prepare better products.

It was also revealed that gender, family size, and distance are the factors affecting the collection of NWFPs in the area. The importance of non wood timber forest products (NWFPs) cannot be over emphasized in that it provides income and meet the food and nutritional as well as the health needs of the respondents. The policy recommendation from this study suggest that the government should embark on policies and reforms that will enhance the participatory approach to forest management so as to ensure its sustainability and continued supply of the fast depleting forest resources. This will enable the product to continue to meet the income and food needs of the people without jeopardizing the hope of future generations on enjoying this same provision of nature.

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