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Contribution of non-timber forest produces (NTFPs) in the socio-economic development of forest dwellers in Odisha

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Abstract

This paper presents a study carried out in eight districts of Southern Odisha during September 2015 - June 2016 in phases with a structured questionnaire. The information were collected through PRA method on different parameters of study, analysed and recorded. The genders and family size with different land holdings of respondents have a greater role and varied significantly. Agriculture provided maximum of 116 days of engagement covering 32% mandays in a year and contributed maximum amount of Rs. 14356 (37%) followed by NTFP sector with an average of 112 days of engagement with 31% mandays contributing Rs. 12374 (32%). The farm labor sector and other sector generated 12% and 11% mandays, respectively. The average income of households in the study area was Rs. 38,765. However, 29% of respondents were in the category of Rs. 24, 000- 36, 000 and 7% of respondents were in the category of > 60, 000 income groups. Average expenditure in the study area was Rs. 36, 813 with net saving of 5% per annum. 21 major NTFPs were found to be available largely during the months of February to May followed by October to January and the least was from July to September. As per expert views, the NTFPs can play a major role in livelihood option as well as economic development of forest dwellers.

Keywords: NTFPs, forest dwellers, mandays, genders, socio-economic, Odisha

Introduction

Non-timber forest produces (NTFPs), also known as special, non-wood, minor, alternative and secondary forest produces, are useful substances, materials and/or commodities obtained from forests which do not require harvesting or logging of trees. They include fruits and nuts, vegetables, medicinal plants, resins, essences and a range of barks and fibres such as bamboo, rattans and a host of other palms and grasses. NTFPs are used and managed in complex socio-economic and ecological environments. In traditional forest communities, many NTFPs may be used for subsistence while others are the main or only source of income. Some NTFPs have significant cultural value, as totems, incense and other ritual items. Others have important medicinal value and contribute to the community's health and well-being. However, widespread over-exploitation and destruction of NTFPs in many places affect the local biodiversity, leaving the people without an important source of income. Commercial NTFPs can be of considerable value to poor people, it is important to recognize the constraints that exist outside the mere collecting and harvesting of NTFPs. The contribution of non-timber forest products (NTFPs) to the forestry sector in most countries is significant, and studies are showing that they have been undervalued in the past. In India, NTFPs provide about 40 percent of total official forest revenues and 55 percent of forest-based employment. Nearly 500 million people living in and around forests in India rely on NTFPs as a critical component for their sustenance (World Resources Institute, 1990) [13]. In Madhya Pradesh, the NTFPs which are primarily collected by tribal women (i.e. members of local indigenous groups) are worth more than Rs 21 billion (US\$ 700 million) annually (World watch Institute, 1991) [14]. Based on a study of ten forest protection committees under the Joint Forest Management programme, it was found that the income from NTFPs ranges from Rs 234 to Rs 5569 (US \$8-\$186) per hectare per year with a mean of Rs 2299 (US \$79) (Malhotra *et al.*, 1991) [15]. Export earnings from NTFPs on an average account for about 60 to 70 percent of total export earnings from forest products and this proportion has been rising. Moreover, there is considerable scope for increasing exports further by exploiting untapped resources as the current production of most NTFPs is estimated to be about 60 percent of the potential production. In the case of non-edible fibres and flowers, production is only 7 and 12 percent, respectively, of the potential production (Gupta *et al.*, 1982) [3]. In addition to subsistence and income-generating potential, NTFPs also provide food security to large low-income group of populations, their cattle and

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other domestic animals, particularly during droughts or famines (FAO, 1989) [1].

NTFPs contribute a substantial amount of revenue to Odisha. The state government of Odisha is carrying out procurement and trade of different NTFPs through Odisha Forest Development Corporation (OFDC). Odisha is the third largest producer of Kendu leaves next to Madhya Pradesh and Chhattisgarh. The annual production of Kendu i.e., Bidi Leaves in Odisha is around 4.5 to 5 lakhs quintal, which is about 20% of the country's annual production. Average selling price of Kendu leaf varies between Rs. 30 to Rs. 80 per kg depending on grades. Besides, the annual production potential of Bamboo in Odisha is estimated to be around 4.0 lakh metric tonnes. However the demand for paper mill is around 2.5 lakh metric tonnes and rest goes towards meeting the requirement of rural artisan, house hold materials etc. The selling price of bamboo fixed by the Government during last few years has varied between Rs. 1500 to 1700 per metric tonne. In the year 2003-04, OFDC sold 16018.97 unit of bamboo which generated Rs. 230.51 lakhs revenue and Paid Rs. 109.25 lakhs royalty to state Govt. In the year 2004- 05, OFDC procured 1820.788 metric tonnes of Sal seed and earned 74.95 lakhs revenue. As Odisha, particularly the Southern districts of Odisha are full of NTFPs considered as backward area with a good tribal population there is a strong need to develop their socio-economic condition conducting different scientific surveys, considering their views, constraints, supply chain and expert suggestion. Basing on this background, an attempt was taken to study the importance of NTFPs in the improvement of socio-economic status of forest dwellers in southern Odisha.

2. Materials and Methods

The present study was carried out in the eight southern districts of Odisha namely, Gajapati, Ganjam, Kalahandi, Kandhamal, Koraput, Malkangiri, Nabarangapur and Rayagada during September 2015 - June 2016 on the basis of availability of enormous NTFPs as a major option of livelihood, sites represents southern Odisha and high cooperation of primary collectors for reliable data collection. The survey schedule was carefully designed ascertaining all the factors associated with the economics of various components by the pretesting of Forest department officials and PRI members of respected localities. In this investigation, one formula was used to locate the study area i.e. 1state* 8 Districts * 1 Block* 2 Village and 10 respondents from two villages of one block were selected randomly for sampling. The survey data were collected by using three main methods like direct observation, interviewing respondents and record kept by respondents. After completion of field survey data from all the interview schedules were coded, compiled, tabulated and analyzed in accordance with the objective of study The observations were recorded on family size, land holding, employment in various sectors, category of NTFP plants in homesteads, collection of different NTFPs and their availability, processing, home consumption and selling of different NTFPs, total annual income and expenditure and comparative economics.

3. Results and Discussion

i. Gender of respondents

The data pertaining to the gender of respondents showed a critical gap between number of male and female respondents.

Much of this is attributed to the suppressing nature of women at the village level as well as their lesser role in participation in the decision making processes both at family and society as a whole. Research evidences suggest that in the rural socio-cultural dynamics, women are rarely allowed to interact with unknown people mostly researchers, academia, govt. officials and NGO workers to better share their problems and requirements. The present investigation found that women are living under the same situation and socio-culturally discriminated in almost all sample villages covered during the study. Out of 160 respondents, only 14 percent were women. The distribution of women respondents were also varied significantly across villages with villages where there were women federations mostly SHGs and VSSs reported maximum participation of women in the survey and interaction process. The SHGs were found very active and successful in looking after the NTFP business in their respective villages. Hasalkar *et al.*, (2014) [4] reported that role of women is vital in NTFP collection, processing, storage and marketing. It was found that women are mostly engaged in these above processes relating NTFP business in almost all sample villages. However, they are discriminated from fair and equitable participation in decision making processes and social exposure.

ii. Age of respondents

In this present investigation, it was found that the highest numbers (36%) of respondents belong to age group of 30-40 followed by 24% of respondents in the age group of 40-50, 21% of respondents in the age group of > 50 and 19% of respondents belong to 20-30 age group.

It was further revealed that 55% of respondents were in the age group of 20-40 and 45% of respondents were in the age group of more than 40, though there was not much variation as the whole family members were involved in the process of NTFP business. Though NTFP is not providing livelihood support to the tribals for whole year, it provides substantial livelihood support to the tribals for different seasons of the year. The higher belongingness of respondents to the age group of 20-40 may be due to the involvement of tribals in major household activities and in collection of NTFPs from the early age. In the study area it was observed that from the age of 10 the tribal children were involved in the NTFP collection and with other activities. This may be the most vital reason for their involvement in the decision making process. In case of tribals 20-40 years is the crucial age for doing all sorts of activities and for decision making also. However, the age group of more than 40 is the crucial one and invariable took part in decision making.

iii. Family size

It was found in Table 1 that 58% of respondents had medium sized family, 38% had small families and 4% of respondents had large families. It was revealed that highest percentage of small and medium families constituting total of 96% may be due to the early marriages that is predominant in tribals. After their marriage they live independently forming a nuclear family. Similar trends were also observed by Prakash (2003) [9] and Gubbi (2008) [2]. This nucleus nature is the major formation of small families among tribals. However, formation of nuclear family depends on level of education and employment (Parvathamma, 2004) [7].

Table 1: Family sizes of respondents in survey area of southern Odisha

Category	Small (upto-4)		Medium (5-8)		Large (> 8)	
	R	%	R	%	R	%
Districts						
Gajapati	8	40	11	55	1	5
Ganjam	9	45	10	50	1	5
Kalahandi	9	45	11	55	0	0
Kandhamal	3	15	15	75	2	10
Koraput	9	45	11	55	0	0
Malkangiri	5	25	14	70	1	5
Nabarangapur	12	60	6	30	2	10
Rayagada	6	30	14	70	0	0
Total	61	38	92	58	7	4

R = Number of respondents

iv. Land holding

A perusal of data in Table 2 reveals that the average land holding of respondents in the study area ranged 0- 12.14 ha with an average of 1.05 ha and standard deviation of 1.26 ha. It was evident that 32% of respondents were in small farmers category having 0.5- 1 ha. land and 2% of respondents were in Large farmers category having > 4 ha. land. The average landholding of the study area is comparatively higher due to the presence of large farmers in Kandhamal district who are in the possession of forest lands.

Analysing the district data it was found that Rayagada district had highest (55%) number of marginal farmers and Kandhamal district had no marginal farmers. In Kalahandi and Koraput district, maximum numbers of respondents (50%) were small farmers whereas, in Kandhamal district recorded 15% of small farmers. In case of small medium category farmers, Gajapati recorded highest (40%) and

Kalahandi, Kandhamal, Malkangiri; Nabarangapur consecutively recorded lowest (20%). In medium farmer category Kandhamal came highest (45%) whereas Kalahandi, Koraput, Nabarangapur and Rayagada had no medium farmers. Viewing the large farmer category only Kandhamal district had 20% large farmers and in rest of the districts no large farmers were recorded.

From the table it was evident that 32% of respondents were in the category of small farmers having a maximum land holdings of 0.5- 1.0 ha. It was observed in the study area that maximum villages are under the proximity of forest with possession of forest lands, the percentage of landless and marginal farmers were low. The presence of large farmers was only of 2%. This may be due to the poverty of respondents to buy agriculture land and due to the reduction of occupied land by distribution in Forest Right Act (FRA), 2006.

Table 2: Land holding of respondents in survey area of southern Odisha

Category	Marginal up to 0.5 ha		Small>0.5- 1.0 ha		Small medium >1- 2.0ha		Medium >2.0- 4.0 ha		Large>4.0 ha		Mean	Range	SD
	R	%	R	%	R	%	R	%	R	%			
Districts											--	--	--
Gajapati	5	25	4	20	8	40	3	15	0	0	1.09	0.20 – 2.42	0.61
Ganjam	7	35	5	25	7	35	1	5	0	0	0.88	0 – 2.02	0.52
Kalahandi	6	30	10	50	4	20	0	0	0	0	0.70	0.20-1.41	0.31
Kandhamal	0	0	3	15	4	20	9	45	4	20	2.87	0.80-12.14	2.73
Koraput	4	20	10	50	5	25	1	5	0	0	0.89	0.10-2.42	0.50
Malkangiri	7	35	9	45	4	20	0	0	0	0	0.66	0.10-1.21	0.34
Nabarangapur	10	50	6	30	4	20	0	0	0	0	0.48	0-1.82	0.51
Rayagada	11	55	4	20	5	25	0	0	0	0	0.61	0-1.82	0.51
Total	50	31	51	32	41	26	14	9	4	2	1.05	0-12.14	1.26

v. Employment details

From the study area it was observed that agriculture provides maximum of 116 days of engagement covering 32% mandays in a year with a standard deviation of 18 mandays. NTFP sector provides an average of 112 days of engagement covering 31% mandays next to agriculture. From farm labour sector and other sector 12% and 11% mandays were generated. In the year a total of 14% mandays remained jobless.

Though agriculture provides highest contribution most of the respondents practising agriculture to meet their household requirement the respondents sold agricultural products hardly. The contribution from NTFP sector provides a considerable size of employment i.e., 112 (31%) mandays of employment. Agriculture sector provides food security to respondents while NTFP sector provides food security as well as economic security to the tribals. As such NTFP sector should be given more priority to enhance the socio-economic condition of forest dwellers. In the study area it was observed that there was ample scope to mitigate the 55 (14%) days of unemployment if proper storage facilities for NTFPs are

created. It was found to sell the produce by the NTFP collectors directly in the market without proper storage and processing. Through organising training, workshops on various use, processing and value addition of NTFPs better marketing channels could have been created. Considering the case of farm labour and other sector the respondents got 43 (12%) and 40 (11%) of employment, respectively. This may be due to the small size of landholding and the inaccessibility of outsiders to their locality.

Comparing the individual districts Koraput and Malkangiri districts got comparatively higher days of employment in NTFP sector which is more than one third of the total days of engagement. In the above two districts the contribution is comparatively higher due to the availability of diversified NTFPs, better institutionalisation of federations e.g., SHGs, VSSs, collective association of NTFP collectors. The improvement among the NTFP collectors may be due to the IGA (Income Generation Activities) which was carried out in previous years by OFSDP (Odisha Forestry Sector Development Project), a JICA (Japan International Co-operation Agency) funded project of forest department, Govt.

of Odisha. In the above districts OTELP (Odisha Tribal Empowerment and Livelihood Programme) is promoting NTFP business. The interests that were aroused among the tribals for NTFP business was due to the efforts of the above programmes. In the districts of Ganjam and Gajapati, the contribution of mandays from NTFP sector was comparatively lower due to the lesser availability of diversified NTFPs, little intervention of government or other organisations and availability of other options for livelihood. In a study Pervez (2002) [8] reported that NTFP sector in Dhading districts of Nepal generated maximum employment (60.72%) followed by agriculture (22.30%), allied activities (15.83%) and other sources (1.16%).

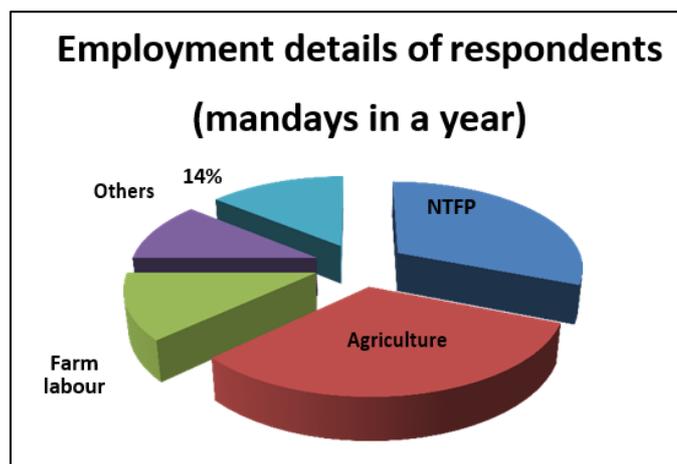


Fig 1: Employment details of respondents

vi. Total income of household/annum

The average income of households presented in Table 3 was found to be Rs.38,765 with a standard deviation of Rs. 15,155. In the study area maximum number of respondents (29%) observed in the category of Rs. 24,000-36,000 income groups and a minimum of 7% respondents found >60,000 income groups category. Comparing the data of individual districts, Nabarangapur district recorded highest amount of mean income of Rs. 44,258.00 and Gajapati district recorded the lowest mean income of Rs. 32,160. Viewing the delineation of respondents to different income groups maximum (40%) number of respondents in Gajapati and Koraput district fell in up to Rs. 24,000 income groups category, whereas, a minimum of 10% respondents of Nabarangapur district fell in the same group. In the Rs. 24,000-36,000 income groups a maximum of 35% of respondents of Gajapati and a minimum of 25% of respondents from Kandhamal, Malkangiri and Rayagada district were observed. In the income category of Rs. 36,000-48,000, 15% of respondents from Gajapati and Koraput and 30% of respondents from Malkangiri were seen. Maximum of 30% of respondents from Nabarangapur district and a minimum of 10% each from Ganjam and Gajapati found in the category of Rs. 48,000-60,000. In the group of Rs. >60,000, 15% of respondents from Kandhamal and no respondents from Gajapati and Koraput district were recorded.

The average income of households in the study area was found to be Rs. 38,765 with a standard deviation of Rs. 15,155. The study area was totally a tribal dominated patch; the majority of respondents were very poor and have less income as compared to other regions of the state. The income of most of the respondents was projected towards meeting their food requirements which may be one of the reasons for the lower income of respondents. However, in a study, Varadarajan

(1980)^[11] recorded a family income of INR. 2000 (14.89%); INR. 2001 to INR. 4000 (43.41%), INR. 6001 to INR. 8000 (8.51%), and INR. 8000 (12.34%) per annum in different income groups among the Kota tribal people of Niligiri district.

Table 4: Total income of households/annum in Southern districts of Odisha

Category	Upto 24000		>24,000-36000		>36000-48000		>48000-60000		>60000		Mean	SD
	R	%	R	%	R	%	R	%	R	%		
Districts											--	--
Gajapati	8	40	7	35	3	15	2	10	0	0	32160	11973
Ganjam	6	30	6	30	4	20	2	10	2	10	37093	16,701
Kalahandi	4	20	6	30	5	25	3	15	2	10	41870	15,523
Kandhamal	5	25	5	25	4	20	3	15	3	15	37253	16,888
Koraput	8	40	6	30	3	15	3	15	0	0	34387	13,130
Malkangiri	3	15	5	25	6	30	4	20	2	10	42029	13,177
Nabarangapur	2	10	6	30	5	25	6	30	1	5	44258	14,376
Rayagada	6	35	5	25	5	25	3	15	1	5	41074	17,052
Total	42	27	46	29	35	22	26	16	11	7	38765	15155

vii. Average income from different sources to total income

In the present study the respondents were found in Table 5 to obtain income from different sources e.g., NTFPs, Agriculture, Farm labour and other sources where Agriculture contributed to maximum amount to total income having mean value of Rs. 14356 (37%). Agriculture was the major source of livelihood for the respondents in the study area as most of the farmers rely on agriculture to meet their dietary needs. At the same time, the role of NTFPs was very important as it provided highest income next to agriculture. The selling of agricultural produces by the respondents were found to be very less as the cash income from NTFP sector is much higher due to low consumption of and selling of a good portion in the market. The contribution of NTFP sector could be much higher if necessary facilities were provided for value addition of NTFPs and marketing channel is created. During the investigation period it was recorded that NTFP sector provided mean income of Rs. 12374 which contributes 32% to the total income. In case of farm labour, it contributed an average income of Rs. 6478 (17%). In the study area the land holding is lesser for which each of the respondent are deployed for doing agriculture in their own lands. This may be the possible reason for less contribution from farm labour sector. In the study area the other sector contributed an average amount of Rs. 5683 (14%).

Table 5: Contribution of income from different sectors to total income per annum

Districts	NTFP (Rs.)	Agriculture (Rs.)	Farm labour (Rs.)	Others (Rs.)	Total (Rs.)
Gajapati	8630	15820	3940	3770	32160
Ganjam	9810	12460	7173	7650	37093
Kalahandi	13440	11530	9870	7030	41870
Kandhamal	11480	17320	5683	2770	37253
Koraput	16560	10657	4480	2690	34387
Malkangiri	14540	13960	7069	6460	42029
Nabarangapur	13150	18680	7260	5168	44258
Rayagada	11380	14420	6350	9924	42074
Mean	12,374	14,356	6,478	5,683	38,890
SD	2,573	2,804	1,853	2,553	4,2956

Comparing the data of individual districts, in case of NTFP Koraput recorded the highest income of about Rs. 16560 and Gajapati recorded the lowest income amounting to Rs. 8630 per annum. In case of agriculture Nabarangapur district

recorded highest average income of Rs. 18680 and Koraput recorded lowest income of Rs. 10657. Similarly, in case of farm labour sector the highest income of Rs. 9870 was observed in Kalahandi district and lowest income of Rs. 3940 was observed in Gajapati district. In case of income from other sectors, Rayagada district recorded the highest income of Rs. 9924 and Koraput district recorded the lowest income of Rs. 2690. Again, while comparing the individual districts in terms of NTFPs, Koraput, Malkangiri and Kalahandi district got comparatively higher income than other sector. This may be due to comparatively higher availability of diversified NTFPs, better institutionalisation of federations e.g., SHGs, VSSs, collectivisation of NTFP collectors. The improvement among the NTFP collectors may be due to the facilitation carried out by Govt. as well as NGO sectors for establishing NTFP sector as a sustainable livelihood system. In the district Ganjam and Gajapati, the contribution of income from NTFP sector was comparatively lower due to the lesser availability of diversified NTFPs, lesser intervention of government or other organisations and availability of other options for livelihood.

The study by Sekar *et al.*, (1996) ^[10] reported that in the Sathyamangalam Hill LAMP cooperative society, around 83% of the members were tribals who were actively involved in collection of minor forest products and earning on an average INR. 11,180 per annum by spending 8-10 hours in a day for the purpose.

Vidyarthi and Guptha (2002) ^[12] confirmed that NTFPs contributed significantly to the annual income of the households (86%). Besides the economic value of NTFPs, local communities were also enjoying several qualitative benefits from the forest such as medicinal, religious and aesthetic needs.

4. Conclusion

The findings of the present study indicate that genders of respondents have a greater role and varied significantly and highest number (36%) of respondents belongs to age group of 30-40 and the lowest number of respondents belongs to age class 20-30. The optimum family size of the study area was found to be medium (58%) whereas 38% of respondents had small families and 4% with large families and maximum respondents coming under small farmer category. The average income of households in the study area was Rs. 38,765 with the average expenditure of Rs. 36, 813. The total expenditure was 95% of the total income with net saving of only 5% per annum. NTFP is one of the important livelihood option in the southern parts of Odisha as it provided 31% engagement and 32% contribution to income helping in the socio-economic development of the tribals and the forest dwellers.

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