

Comparative Analysis of Personal and Socio-economic Characteristics of Non- Timber Forest Produce (NTFP) collectors and non- collectors of Jammu Region of J&K

ABSTRACT

Aims: Non-wood forest produce refers to all forest produce other than wood, such as leaves, fruits, and nuts, while wood forest produce refers to timber, herbs, and firewood. The people living in the vicinity of the forest collect the NTFPs for their livelihood sustainability as an off- farm income for them. Personal and socio- economic characters (gender, age, education level, social participation, farm implement possession, land holding, type of family, marital status) of NTFP collectors differ from the non collectors.

Study design: Explorative study design was employed

Place and Duration of Study: The present study was conducted in Jammu region between July 2017 to November 2019.

Methodology: Multistage sampling plan was followed for drawl of ultimate sampling units. The East circle from Jammu region was purposively selected as it covers all the three agro- climatic zones namely Subtropical, Intermediate and Temperate, thus it represents the whole Jammu division. The available NTFP collectors were contacted with the snow ball sampling procedure, a total sample size of 150 collectors and 150 non- collectors were selected through snow ball sampling procedure.

Results: Major findings indicate that there was significant difference between the NTFP collectors and non- collectors in case of socio-personal variables of age, farming experience, type of house, number of MGNERGA card holders, type of ration card, formal education, literacy rate and sex ratio. The NTFP collectors and non- collectors were matching on size of average operational land holding. The households having members in government service were more in non- collectors' families whereas households having members as labor were more in households of NTFP collectors.

Conclusion: It is concluded on the basis of the findings that majority of the NTFP collectors were belongs to young age, had kaccha house, had priority household ration card whereas majority of non- collectors were fall under middle age category, had pacca house, had non- priority household ration card.

Keywords: Socio- economic, livelihood, Non- Timber Forest Produce, Farming experience, Literacy rate.

1. INTRODUCTION

Forests are essential for maintaining ecological, biological, and environmental balance, as well as playing a particular role in the socio-economic well-being of people in India Quang, (2006). Since many generations, man and forest have had a tight relationship. Forests have the ability to improve people's lives by supplementing income and acting as safety nets. (Angelesen and Wunder, 2003). Because forests are critical to the long-term viability of life on earth, people have rightfully set aside one-third of the natural terrestrial plant cover. All item provided by a forest bequest is referred to as Forest Produce. Forest products are divided into two categories: wood and non-wood based items. Non-wood forest

produce refers to all forest produce other than wood, such as leaves, fruits, and nuts, while wood forest produce refers to timber, herbs, and firewood. Because of the fuzzy lines between wood and non-timber products, non-timber forest products (NTFPs) have proven difficult to classify. India is the seventh largest country in the world though it owns 1.8% of the global forests on the 2.5% of the global land area. In India, it was reported that 706,820 sq km (23.83%) of the area is under forests (World Bank indicator, 2016). Jammu and Kashmir (J&K) state is having 20,230 sq km of the forest area which is around 20 percent of its geographical area. In Jammu region, Kashmir region and Ladakh region it was reported to be 12000 sq km, 8128 sq km and 36 sq km respectively (DES, 2013-14). Some important non- timber forest products (NTFP) available in J&K are *SaussuriaCostus(Falc)* Lipsch (Kuth), *Berberislyceum* Royle (Rasount), *Viola canescence* (Bunafsha), wild apricot, *Dioscoreadeltoidea* (Kins), *Aloe vera* Tourn. Ex Linn.(Aloe), *Morchellaesculenta* L. (Gucchi) etc. The people living in the vicinity of the forest collect the NTFPs for their livelihood sustainability as an off- farm income for them. It has already been reported in different studies that characteristics of farming community play a crucial role in adoption of different recommended production technologies. It has already been reported in different studies that personal and socio- economic characters (gender, age, education level, social participation, farm implement possession, land holding, type of family, marital status) of NTFP collectors significantly differ from the non collectors (Minj and Quli 2000, McElwee 2008, Rodrigez 2009, Bullock et al 2013, Raufu et al 2012 and Sharma 2015). Keeping this point of view the present study entitled “Comparative Analysis of Personal and Socio-economic Characteristics of Non- Timber Forest Produce (NTFP) collectors and non- collectors of Jammu Region of J&K” was undertaken.

2. METHODOLOGY

The present study was conducted in Jammu region. Multistage sampling plan was followed for drawl of ultimate sampling units. The East circle from Jammu region was purposively selected as it covers all the three agro- climatic zones namely Subtropical, Intermediate and Temperate, thus it represents the whole Jammu division. East forest circle comprises of seven forest divisions, out of these three forest divisions; Basholi, Ramnagar and Udhampur were selected by employing random selection procedure without replacement. From each randomly selected forest division, one forest range having maximum NTFP availability were selected. The collectors and non collectors were the ultimate sampling units. The available collectors were contacted with the snow ball sampling procedure, from the each selected beat 50 collectors and 50 non- collectors were selected, thereby making a total sample size of 150 collectors and 150 non- collectors. Data were collected from the sampled respondent on the pre-tested interview schedule by contacting personally on their fields or at their homes. Analysis of collected data was performed using SPSS 16.0 (statistical package for social sciences) software.

3. RESULTS AND DISCUSSION

The data presented in the table 1 reveals that average age of collectors was 40.58 years. Whereas in case of non- collectors, the average age was 48.19 years. The difference in the mean age of the collectors and non-collectors was significant ($t= 4.231$, $p=0.001$). The average farming experience of collectors was 22.62 years. However in case of non- collectors, the average farming experience was 27.80 years. The difference in the average farming experience of collectors and non-collectors was significant ($t= 3.603$, $p= 0.001$). The average NTFP collection experience of collectors was 17.19 years. Regarding type of house, table showed that 75 per cent of collectors had kacha house followed by 25 per cent which had semi- kacha house while none of them had pacca house. In case of non- collectors overall 41 per cent were having kacha house followed by 35 and 24 per cent were having semi- kacha and pacca house respectively. There was a significant difference in collectors and non- collectors in case of kacha house ($t= 4.871$, $p= 0.001$) and pacca house ($t= 5.222$, $p= 0.001$). In case of collectors, overall 67 per cent had kisan credit card whereas 60 per cent of non- collectors had kisan credit card. There was no significant difference in collectors and non- collectors in case of kisan credit card. Therefore, two growers were matching on this parameter. With regards to ration card, 71 per cent of collectors had PHH ration card while 29 per cent had NPHH ration card. In case of non- collectors 51 per cent had PHH ration card while 49 per cent had NPHH ration card. The difference in collectors and non- collectors in case of type of ration card was significant ($t= 2.899$, $p= 0.004$). There was no significant difference in collectors and non- collectors in case of mobile connectivity ($t= 0.38$, $p= 0.704$) whereas there was significant difference in case of smartphone holders ($t= 2.003$, $p= 0.040$).

Table 1: Descriptive statistics regarding socio personal status of the respondent

Parameter	Collectors (n= 150)	Non- collectors (n= 150)	Differenc e (%age)	Statistics (p-value)
Mean age (years)	40.58±12.14	48.19±14.62	7.61	$t= 4.231^*$ (0.001)
Age group ¹ (% farmers)				
18-36 years	41	25	16	$z= 2.406^*$ (0.020)
36-54 years	49	45	4	$z= 0.567$ (0.568)
54-86 years	10	30	10	$z= 1.633$ (0.103)
Average farming experience (years)	22.62±11.38	27.80±14.22	5.18	$t= 3.603^{**}$ (0.001)
Average NTFP collection experience	17.19±7.53	--		
Type of house (% farmers)				
Kacha	75	41	34	$z= 4.871^{**}$ (0.001)
Semi-Pacca	25	35	10	$z= 1.543$ (0.123)
Pacca	0	24	24	$z= 5.222^{**}$ (0.001)
Kisan Credit Card holders (% farmers)	67	60	7	$z= 1.028$ (0.303)
MGNERGA card holders (% farmers)	95	75	20	$z= 3.961^{**}$ (0.001)
Soil Health Card holders (% farmers)	1	0	1	
Toilet	97	99	2	$z= 1.010$ (0.312)
Ration Card holders (% farmers)				

PHH	71	51	20	z= 2.899** (0.004)
NPHH	29	49		
Excluded	0	0		
Telephone connectivity (% farmers)				
Mobile connection	97	96	1	z= 0.385 (0.704)
Smartphone	13	24	11	z= 2.003* (0.040)

¹Categorization was done through Singh Cube root method

*Significant at $p \leq 0.05$, **Significant at $p \leq 0.01$

Regarding education (Table 2), there was a significant difference in the literacy rate of families of collectors than non collectors. This might be due to the fact that NTFP collection activity is labour intensive activity and thus the collectors less focus on education. However, literacy index varied from 2.35 to 1.82 among both the categories, with an overall index of 1.89. This highlighted the fact that literacy rate was higher, however the level of education was poor as indicated by low literacy index. These results are in confirmation with the results obtained by Sharma (2015).

Table 2: Educational status of respondents' household

Parameter	Collectors (n= 150)	Non- collector s (n= 150)	Differenc e	Statistics (p-value)
Mean education	6.07±3.66	7.33±4.29	1.26	t= 2.928** (0.003)
Education level (% respondents)				
Illiterate	19	18	1	z= 0.182 (0.857)
Below primary	7	1	6	z= 2.165* (0.030)
Primary	30	13	17	z= 2.926** (0.003)
Middle	26	34	8	z= 1.234 (0.218)
Matriculation	12	20	8	z= 1.543 (0.123)
10+2	5	7	2	z= 0.595 (0.548)
Graduation and above	1	7	6	z= 2.165* (0.030)
Literacy rate (%)	71.72	91.26	19.54	z= 3.460** (0.001)
Literacy Index	1.89(Primary)	2.63 (Middle)	0.74	

*Significant at $p \leq 0.05$, **Significant at $p \leq 0.01$

Majority of the respondents of collectors and non collectors had nuclear families. The reason for dominance of nuclear families might be the effect of declining family bonding and moving out in search of jobs. The results also revealed that majority of the respondents (47 per cent in case of collectors and 57 per cent in case of non- collectors) were having a family size of 2-6 members. The possible reason could be the dominance of nuclear family in the study area and due to increased awareness about the family planning (Table 3).

Table 3: Family composition of respondent's household

Parameter	Collector s (n= 150)	Non- collector s (n=	Differenc e	Statistics (p-value)
-----------	-------------------------	----------------------------	----------------	-------------------------

150)				
Family type (% households)				
Joint	40	30	10	$z = 1.480 (0.138)$
Nuclear	60	70		
Average family size (No.)	6.02 ± 2.03	5.55 ± 2.19	0.47	$t = 0.633 (0.527)$
Family Size (%respondents) ¹				
Small family (2-6 members)	47	57	10	$z = 1.415 (0.155)$
Medium family (7-9 members)	41	32	9	$z = 1.322 (0.187)$
Large family (10-13 members)	12	11	1	$z = 0.222 (0.826)$
Sex Ratio	784	829	45	$z = 2.547^* (0.012)$

¹Categorization was done through Singh Cube root method

*Significant at $p \leq 0.05$

With respect to farm size of both the groups the average land holding was 0.55 ha which is equal to erstwhile J&K state landholding i.e. 0.59 ha (Agriculture Census, 2015). Although the landholding was identical but the non collectors were having other sources of income also like government service, labour, private, etc. The main crops grown in the study area were wheat, maize and mustard to fulfill their household food consumption, and they sell only a small proportion of their agricultural produce (table 4).

Table 4: Distribution of respondents on the basis of their farm size

Parameter	Collector s (n= 150)	Non- collector s (n= 150)	Differenc e (%age)	Statistics (p-value)
Average operational farm size (ha)	0.55 ± 0.5 4	0.52 ± 0.3 8	0.03	$t = 0.658 (0.511)$
Owned	0.55 ± 0.5 4	0.52 ± 0.3 8	0.03	$t = 0.658 (0.511)$
Leased in	0	0	0	--
Leased out	0	0	0	--
Categorization of farm size (% farmers) ¹				
Marginal (<1 ha)	86	80	5	$z = 0.952 (0.342)$
Small (1-2 ha)	12	18	6	$z = 1.188 (0.234)$
Semi- medium (2-4 ha)	1	1	0	--
Medium (4-10 ha)	1	1	0	--
Large (>10 ha)	0	0	0	--
Average irrigated area (ha)	0.02 ± 0.0 8	0.05 ± 0.1 2	0.03	$t = 1.604 (0.109)$
Average unirrigated area (ha)	0.52 ± 0.5 3	0.46 ± 0.3 1	0.06	$t = 1.037 (0.301)$

¹Categorization of the farm size as per MOA (2011)

With regard to the occupational status (table Table 5) of the collectors eleven per cent were solely dependent on NTFP income for their livelihood. This study also revealed that only one per cent

households of the non- collectors had agriculture as sole source of income for the household which suggests that dependency upon agriculture as the only source of income is decreasing as reported by Peshin, *et al.* (2014) in Jammu (24%), Samba (38%), Kathua (33%) and Udhampur (10%) and Nanda, *et al.* (2019) found 7 percent. A debate has been going on in relation to the actual dependency of the farmers on agriculture as a source of livelihood. **Contrary to earlier Census Report of 2001, the Census Report of 2011 reported that out of the total population of India, proportion of workers in agriculture sector (cultivators and agricultural labours) declined by 3.6 percent from 58.2 per cent in 2001-02 to 54.6 per cent in 2011-12.** In addition to agriculture and NTFP collection 70 per cent of the collectors were labourers whereas only 28 per cent of the non- collectors were labourers. It was also revealed that 13 per cent of the non- collectors were involved in government service or retired from government service. Whereas, none of the collectors had served or serving in government service. This may be due to the continuation of ancestral traditional occupation of agriculture and NTFP collection and vice versa. Other factor being less scope of employment in service sector as their education level was not high to get employment.

Table 5: Occupational status of respondents

Parameter	Collectors (n=150)	Non-collectors (n=150)	Difference	Statistics (p-value)
Respondents solely dependent on NTFP income (% farmers)	11	--		
Respondents solely dependent on farming	0	16		
Respondents having other sources of income	89	84	5	z= 1.035 (0.303)
Retired for government service	0	6	6	z= 2.487* (0.013)
Government service	0	10	10	z= 3.244** (0.001)
Labour	71	28	42	z= 5.941** (0.001)
Private Shop	9	8	1	z= 0.254 (0.803)
	9	32	22	z= 3.889** (0.001)

*Significant at $p \leq 0.05$, **Significant at $p \leq 0.01$

4. CONCLUSION

It is concluded on the basis of the findings that majority of the NTFP collectors **were belongs** to young age, had kaccha house, had priority household ration card whereas majority of non- collectors **were fall** under middle age category, had pacca house, had non- priority household ration card. NTFP collectors studied **upto** sixth standard whereas non collectors **were studied upto** seventh standard. About one- fifth of the respondents in both the categories were illiterate. Also majority of the households **were lived** in nuclear type of families. Both the groups were found matching in case of landholding. About one- tenth of

the collectors **were solely** dependent on NTFP income. More than two- third of the collectors were labours.

REFERENCES

Agriculture Census. All India Report on Number and Area of Operational Holdings. Agriculture Census Division Department of Agriculture, Co-Operation and Farmers Welfare Ministry of Agriculture and Farmers Welfare Government of India. 2015.

Angelesen A, Wunder S. Exploring the forest- poverty link: Key concepts, issues and research implications. Center for International Forestry Research, Bogor, Indonesia Occasional Paper no. 40. 2003

Bullock R, Mithöfer D, Vihemäki H. Sustainable Agricultural Intensification: The Role of Cardamom Agroforestry in the East Usambaras, Tanzania: Invited paper presented at the 4th International Conference of the African Association of Agricultural Economists, September 22-25, 2013, Hammamet, Tunisia. 2003.

DES. Statistical Digest of Jammu and Kashmir. Directorate of Economics and Statistics, Government of Jammu and Kashmir. 2013-14.

McElwee PD. Forest environmental income in Vietnam: household socioeconomic factors influencing forest use. *Environment Conservation*, 2008;35:147–159.

Minj AV, Quali SMS. Impact of agro forestry on socioeconomic status of respondents. *Indian Forester*, 2000;126(7):788-791.

Nanda R, Peshin R, Singh AK, Sharma LK, Bagal YS. Factors affecting the non-farm diversification among farm households in Jammu and Kashmir. *Agricultural Economics Research Review*, 2019;32(1):125-132.

Peshin R, Sharma LK, Sharma R, Gupta V, Dwivedi SK, Nanda R. Impact of Government Intervention in Procurement of Wheat and Factors Affecting Wheat Productivity. State Agriculture Management and Extension Training Institute Jammu and Division of Agricultural Extension Education, SKUAST, Jammu, J&K, India. 2014.

Quang. Commercial collection of NTFPs and household living in or near the forests, *Science Direct*. 2006.

Raufu MO, Akinniran TN, Olawuyi SO, Akinpelu MO. Economic Analysis of Rural Women Income from Non-Timber Forest Products In Ife South Local Government Area of Osun State, Nigeria. *Global Journal of Science Frontier Research Agriculture and Biology*, 2012;12(1):23-32.

Rodriguez FZ. Socio - economic determinants of Non-Timber Forest Products Collection. A case study among indigenous people in Karnataka, India. Universitat Autònoma de Barcelona, Spain. 2007.

Sharma K. M.Sc Thesis. Non-Timber Forest Products and Livelihood Security: An Economic Study of High Hill Temperate Wet Zone Households of Himachal Pradesh. College of Forestry Dr Yashwant Singh Parmar University of Horticulture and Forestry, Nauni Solan - 173 230 (HP), India. 2015.

UNDER PEER REVIEW