

EXPLORATORY

Contribution of NTFPs towards Tribal Income and Employment Generation- A Study in Eastern Himalayan Region

Limasunep Ozukum¹, Sanjoy Das^{1*}, Amod Sharma¹, R. Nakhro¹, N.K. Patra² and Manoj Dutta³

¹Department of Agricultural Economics, School of Agricultural Sciences, Nagaland University, Medziphema Campus, Nagaland

²Department of Agricultural Extension, School of Agricultural Sciences, Nagaland University, Medziphema Campus, Nagaland

³Department of Soil and Water Conservation, School of Agricultural Sciences, Nagaland University, Medziphema Campus, Nagaland

*Corresponding author: sdas1973.sd@gmail.com (ORCID ID: 0009-0006-0171-8374)

Received: 21-12-2023

Revised: 24-02-2024

Accepted: 02-03-2024

ABSTRACT

NTFPs are considered as important source for food, energy, and other aspects of rural livelihood. Around 50 million people in India depend upon NTFPs for their subsistence and cash income. The proposed study was conducted in the Eastern Himalayan states of Meghalaya and Nagaland where two districts from each state were selected purposively i.e., East Khasi Hill and Ri-bhoi districts from Meghalaya and Mokokchung and Peren districts from Nagaland. A total of 250 respondents from twenty villages of 4 Rural Development blocks were selected proportionately based on the availability of number of households. Agriculture income dominated the share in the household income in both the states followed by income from NTFP. However, the major share of cash income among the households was from NTFP in the Eastern Himalayan Region. In case of non-cash income, agriculture contributed the highest followed by NTFP income. The contribution of NTFP to household income was largely from plant-based NTFPs followed by animal-based NTFP. Overall, of the total average of 280 employed days, agricultural activities constituted 44% followed by days involved in NTFP collection (26%). Female attributed more to the collection of plant-based NTFPs followed by fuel wood, while the male spent more time in the collection of animal-based NTFP followed by plant-based NTFPs. Independent factors like adult literacy, income from wage employment, and employment generated from NTFPs significantly influenced the income from NTFPs. Dependency ratio and employment from NTFPs were found significant and positively related to income from NTFPs suggesting that as the number of dependents increased in the households, they favoured going for NTFPs collection. For every one percent increase in dependency, income from NTFPs increased by ₹ 164.87, and for every one-man-day increase in employment from NTFPs, the NTFPs income increased by ₹ 368.73.

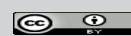
HIGHLIGHTS

- ① In the study area households collected quite a significant amount of NTFPs and as a result they earned a significant amount of cash income through selling of NTFPs.
- ② Female attributed more to the collection of plant based NTFPs while male spent more time in collection of animal based NTFPs.
- ③ Dependency ratio and employment from NTFPs were found significant and positively related to income from NTFP

Keywords: NTFPs, selling, adult literacy, Nagaland, East Khasi Hill

How to cite this article: Ozukum, L., Das, S., Sharma, A., Nakhro, R., Patra, N.K. and Dutta, M. (2024). Contribution of NTFPs towards Tribal Income and Employment Generation- A Study in Eastern Himalayan Region. *Econ. Aff.*, 69(01): 777-784.

Source of Support: None; **Conflict of Interest:** None



“NTFPs (Non Timber Forest Products) are vital to rural households in terms of their contribution to health, food, energy, and other aspects of rural welfare” (Suleiman *et al.* 2017 and Tugeme *et al.* 2019). Around 50 million people in India depend upon NTFPs for their subsistence and cash income (Talukdar *et al.* 2021). The main motivation for collecting NTFPs is economic gain: both men and women collect minor forest produce to sell it locally or abroad at markets or through intermediaries who transport these goods on behalf of producers/consumers/dealers (Jones *et al.* 2021).

In fiscal year 2020, Non-Timber Forest Products accounted for about 266 billion Indian rupees within the forest products sector in the Indian economy. This value was higher compared to that of fiscal year 2012. Furthermore, this variety of forest products contributed over 13 percent to the GVA of forest products in India that same year (Keelery, 2023).

Nearly 5.4 million people in Meghalaya and Nagaland are directly/indirectly economically dependent on NTFPs (Kaushik and Banik, 2020). This is due to their high value and demand as food, medicine, chemical, and cultural products (Tiwari, 2000).

The total geographical area of the Northeast region of India is 255,088 km² comprising of 7.7% of the total geographical area of the country (NEDFi, 2015). The region is rich source of floral and faunal diversity along with high ethnic diversity of over 200 distinct ethnic groups. Traditionally, most of the communities in this region are dependent on forest products, especially Non-Timber Forest Products (NTFPs), which play a significant role in maintaining and providing rural livelihood. Nagaland and Meghalaya are two distinct states of the northeast region with forests covering almost 78% of the total geographical area (NEDFi, 2015). The Govt. of Meghalaya declared 64 private and community lands/forests into Community Reserves (Section 36 C of the Wild Life (Protection) Act, 1972) which do not comprise within a National Park or Wildlife Sanctuary, to increase the area under protected networks for protecting flora, fauna and traditional or cultural conservation values and practices. The total area under community reserves in Meghalaya is 6293.38 ha out of that East Khasi hills and Ri-bhoi district comprises 1044.83 ha and 575.46 ha respectively (GoM, 2021). Nagaland in

terms of forest canopy density has an area of 1,279 sq. km. under very dense forest, 4, 587 sq. km. under moderately dense forest and 6, 623 sq. km. under open forest (ISFR, 2017). As much as 60–94 percent of the tribal population in the North-East region is dependent on the forest for subsistence (Dattagupta and Gupta, 2016).

METHODOLOGY

The proposed study was conducted in the Eastern Himalayan states of Meghalaya and Nagaland and research design was of exploratory type and the type of data collected were panel data with a purposive sampling technique. Meghalaya and Nagaland were selected purposively for conducting the proposed study for their rich biodiversity especially in the southern part of Meghalaya as the area forms a part of the Indo-Burma Global Biodiversity hot spot (Myers, 1988). Two districts from each state were selected purposively i.e., East Khasi Hill and Ri-bhoi districts from Meghalaya and Mokokchung and Peren districts from Nagaland were selected based on the availability of NTFPs and their uniqueness in forest area. One block from each district was selected purposively based on villages involved in NTFP collection. For Meghalaya, Umsning block was chosen from Ri-bhoi district and from East Khasi Hills, Khatarshnong Laitkrohblock was selected. Similarly, in Nagaland, Mangkolemba block was selected from Mokokchung district and Peren block was selected from Peren district. Five villages from each block in each of the two states were selected purposively based on the importance of NTFPs collection. This way the total number of villages selected was 20. From the 20 selected villages from 4 blocks and 4 districts, a total of 250 respondents were selected proportionately based on the availability of number of households.

Data on NTFPs collection and utilization along with some socio economic variables were collected from tribal households through personal interview with the respondents through a well-structured pre-tested interview (Mukherjee, 1993). The parameters included were NTFP type, plant part, species name, plant habit, seasonality, usage, collection per annum, consumption per annum, sale rate, sale per annum and income earned, time spent for collection, male/female participation etc. Monetary values of NTFPs were calculated as per their local market

rates. The annual household income consisted of various sources were also recorded. Simple descriptive statistics *viz.*, frequency (f), percentage (%), mean (x) and range were used for analysis of the data (Snedecor and Cochran, 1967).

Calculation of income of NTFP users' households

Annual income of a collector household was calculated by taking the sum of income from all sources available to household, *i.e.*

Household annual income = Σ (income from agriculture + Employment income + Business income + NTFP income). Information on forest income was obtained from NTFP users about the collection and sale of NTFPs.

NTFP income was worked out by summation of subsistence (non cash) and cash income from NTFPs. Cash income was calculated by multiplying the quantities of NTFPs sold at market prices. Subsistence income was obtained by multiplying quantities of NTFPs consumed by households with the market price of the product if traded or their substitutes if not traded. Agriculture income consisted of income from the cultivation of crops and rearing of animals for both home consumption and selling. Income from employment and business was based on the monthly earnings of NTFP users from salaried jobs and businesses. All the above was expressed in annual values.

Determining the factors affecting income from Non-Timber Forest Products (NTFPs) through multiple linear regression

To analyze the factors affecting the income derived from Non-Timber Forest Products (NTFPs) among sampled households, a multiple linear regression model was utilized. In this model, the income generated from NTFPs, the dependent variable, was examined in relation to several independent variables including family size, adult literacy rate, dependency ratio, income from agriculture, income from allied activities, income from wage employment, and employment related to NTFPs. The model equation is expressed as follows:

$$y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \dots + \beta_p X_{ip} + \epsilon$$

Here, y_i denotes the income derived from NTFPs for the i^{th} household, X_{ip} denotes the j^{th} independent variable for the i^{th} household, $\beta_0, \beta_1, \beta_2, \beta_3, \dots, \beta_p$ are the coefficients to be estimated, and ϵ represents the error term.

RESULTS AND DISCUSSION

Structure of household incomes and its distribution

Table 1 shows the structure of annual incomes and their distribution from the study area. In Meghalaya, total annual income per household recorded as ₹ 175907. And out of that the major

Table 1: Distribution of total income in the selected states

Source	Meghalaya				Nagaland				Overall			
	Cash income	Non-cash income	Total income	S.D of Total Income	Cash income	Non-cash income	Total income	S.D of Total Income	Cash income	Non-cash income	Total income	S.D of Total Income
NTFPs	36597 (45)	37699 (40)	74296 (42)	21968	65639 (44)	12504 (25)	78143 (39)	29249	51118 (44)	25102 (35)	76220 (41)	35823
Agriculture	21866 (27)	57367 (60)	79233 (45)	30764	49663 (33)	36952 (75)	86615 (44)	32513	35765 (31)	47160 (65)	82925 (44)	41462
Wage	15027 (19)	—	15027 (9)	8089	27527 (19)	—	27527 (14)	39224	21277 (19)	—	21277 (11)	10639
Allied activities	7351 (9)	—	7351 (4)	4277	6262 (4)	—	6262 (3)	10490	6807 (6)	—	6807 (4)	3403
Total	80841 (100)	95066 (100)	175907 (100)	91272	149091 (100)	49456 (100)	198547 (100)	11477	114967 (100)	72262 (100)	187229 (100)	93614

Note: Figures in parentheses indicate the per cent to total.

share in the household income was contributed by agriculture (45%), followed by NTFP (42%), wage (9%) and allied activities (4%). Similarly, in Nagaland state annual income per household recorded as ₹ 198547 and out of that the income from agriculture (44%) had a major share in the household income followed by NTFP (39%), wage (14%) and allied activities (3%). Agriculture income dominated the share in the household income in both states contributing about 44% of the total household income followed by income from NTFP (41%), income from wages (11%), and income from allied activities (4%). However, the major share of cash income among the households was from NTFP (44%) in the Eastern Himalayan Region. It indicates that in the study area, households collected quite a significant amount of NTFPs and as a result, they earned a significant amount of income through selling of NTFPs, which is called Cash income. In case of non-cash income (i.e. value of materials consumed at home), agriculture contributed the highest followed by NTFP income (Fig. 1(a), 1(b), 1 (c). Tynsong *et al.* (2012) in Southern Meghalaya also reported that the contribution of NTFPs to the local people cash income was highest in the case of poor families (9.89%), followed by middle-income families (3%) and least in higher income families (1%). Income from NTFP collection has the second largest share with 22% followed by crop production at 15%, labour at 9%, and livestock at 8%, reported by Chiphang *et al.* (2020) in a study conducted at Ri-bhoi district of Meghalaya. Longkumer *et al.* (2020) also reported the contribution of non-timber forest products in annual income in Mokokchung District of Nagaland where NTFPs contributed 30% of their total income.

Pattern of income by types of NTFPs collected

Table 2 shows the pattern of NTFP income by types of NTFP collected across the two states. The NTFPs collected were identified as plant-based, animal-based, housing material, and fuel wood. In Meghalaya, the total household income from the collection of NTFP was about ₹ 74297 where the majority was from housing material (33%) followed by plant-based (26%), fuel wood (21%) and animal-based (20%). The total income from NTFP in Nagaland was ₹ 78142 where income from animal-based NTFP constituted the major share of 34 percent followed by plant-based NTFP (31%), fuel wood (24%), and housing material (11%). Overall, the contribution of NTFP to household income derived was largely from plant-based NTFP contributing to about (29%) of the NTFP income followed by animal-based NTFP (27%), fuel wood (23%), and housing material (22%) Tynsong *et al.* (2012) in southern Meghalaya viewed that the contribution of NTFP to household income was largely from plant-based NTFP contributing to about (52%) of the NTFP income followed by animal-based NTFP (46%), and housing material (2%). Non cash income (value of NTFPs consumed at home) found more in Meghalaya in comparison to cash income (income earned from selling of NTFPs) whereas in Nagaland, cash income from NTFPs found much more than the non-cash income from NTFPs. And in overall situation, cash income collected from NTFPs found more than the non-cash income. (Fig 2(a), 2(b), 2(c)). Cash income (income earned from selling of NTFPs) found less in comparison to non-cash income (value of NTFPs consumed at home) in Meghalaya, whereas in Nagaland, cash income from NTFPs found much more than the non-cash income

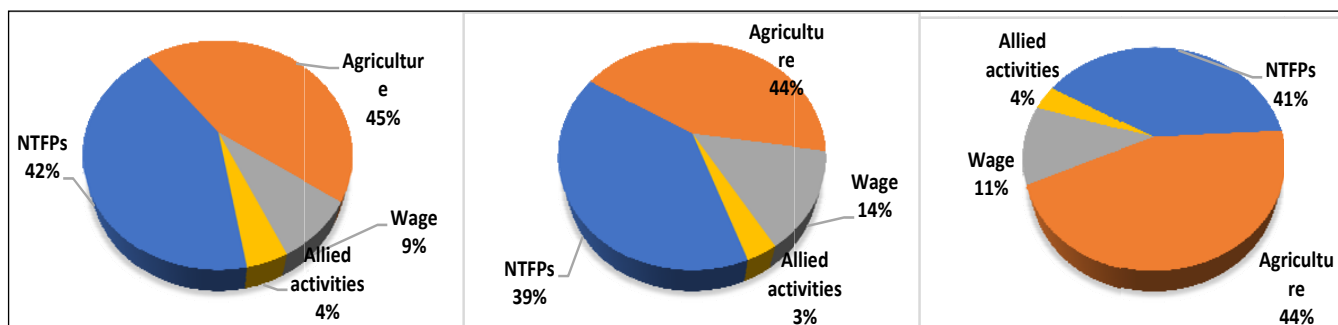


Fig. 1 (a): Share of household income components in Meghalaya state

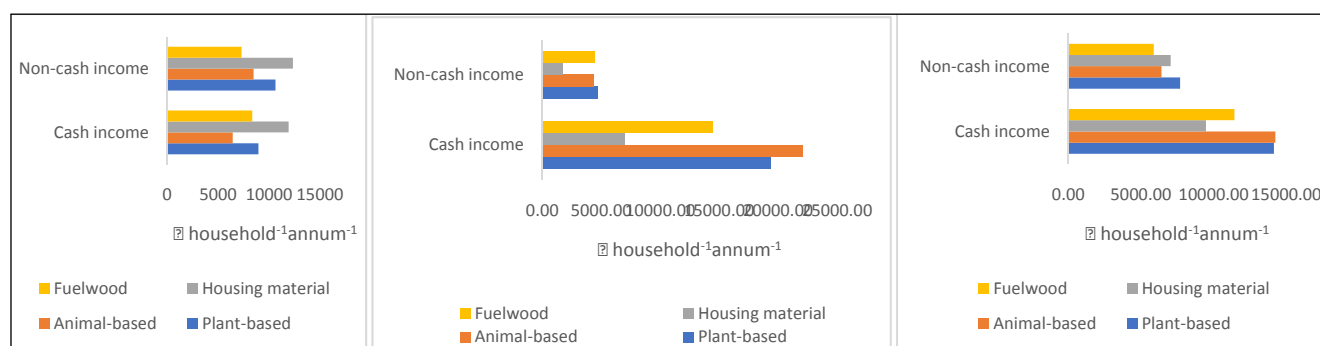
Fig. 1 (b): Share of household income components in Nagaland state

Fig. 1 (c): Share of household income components for overall

Table 2: Pattern of NTFP income by types of NTFPs collected (₹ household⁻¹ annum⁻¹)

NTFP	Meghalaya			Nagaland			Overall		
	Cash income	Non-cash income	Total income	Cash income	Non-cash income	Total income	Cash income	Non-cash income	Total income
Plant-based	8941 (25)	10623 (27)	19564 (26)	19334 (31)	4731 (31)	24065 (31)	14137 (29)	7677 (28)	21814 (29)
Animal-based	6414 (18)	8465 (22)	14879 (20)	22062 (35)	4325 (28)	26387 (34)	14238 (29)	6395 (24)	20633 (27)
Housing material	11913 (33)	12331 (32)	24244 (33)	7004 (11)	1736 (11)	8740 (11)	9458 (19)	7034 (26)	16492 (22)
Fuelwood	8329 (24)	7280 (19)	15610 (21)	14498 (23)	4452 (29)	18950 (24)	11414 (23)	5866 (22)	17280 (22)
Total	35597 (100)	38699 (100)	74297 (100)	62898 (100)	15244 (100)	78142 (100)	49247 (100)	26972 (100)	76219 (100)

Note: Figures in parentheses indicate per cent to total.

**Fig. 2 (a):** Income from different NTFP components of Meghalaya**Fig. 2 (b):** Income from different NTFP components of Nagaland**Fig. 2 (c):** Income from different NTFP components in overall situation

from NTFPs. In Meghalaya, NTFPs used as housing material contributed more towards both cash and non-cash income followed by income from plant-based NTFPs. Longkumer *et al.* (2020) reported from Mokokchung district of Nagaland that fuel wood contributed the maximum under non-cash income (i.e. ₹ 6826 per household) (50%) while plant based NTFP contributed more to the cash income i.e., 49% of the total annual income from NTFP.

Generation of annual employment among the rural households

Table 3 shows the generation of annual employment by the households of the study area expressed in mandays household⁻¹ annum⁻¹. In Meghalaya, on an average about 257 employed days were generated by one household, the major share was employed in agricultural activities accounting to 117 mandays constituting about 46 percent of the total employed days, followed by collection of

NTFP (61 mandays), wage (43 mandays) and allied activities (36 mandays). A similar pattern was also observed in Nagaland where on an average 305 employed days were generated in a year, most of the respondents were engaged in agricultural activities accounting to 132 mandays and constituting about 43 percent of the total employed days followed by days employed in the collection of NTFP (84 mandays), wage (57 mandays) and allied activities (32 mandays). Overall, of the total average of 280 employed days, agricultural activities constituted 44 percent followed by days involved in NTFP collection (26%), wage activities (18%), and allied activities (12%). (Fig 3(a), 3(b), 3(c)). However, Longkumer, *et al.* (2020) reported from Mokokchung district of Nagaland that wage earners generated the highest employment among the households (34%) followed by NTFPs (29%) and agriculture (23), yet NTFPs created a significant number of man days in the study area.

Table 3: Per household Composition of annual employment in the study area (mandays year⁻¹)

Sl. No.	Source	Meghalaya	Nagaland	Overall
1	NTFPs	61 (24)	84 (28)	72 (26)
2	Agriculture	117 (46)	132 (43)	124 (44)
3	Wage	43 (17)	57 (19)	50 (18)
4	Allied Activities	36 (13)	32 (10)	34 (12)
	Total	257 (100)	305 (100)	280 (100)

**Note: Values in the parentheses represent percentage.*

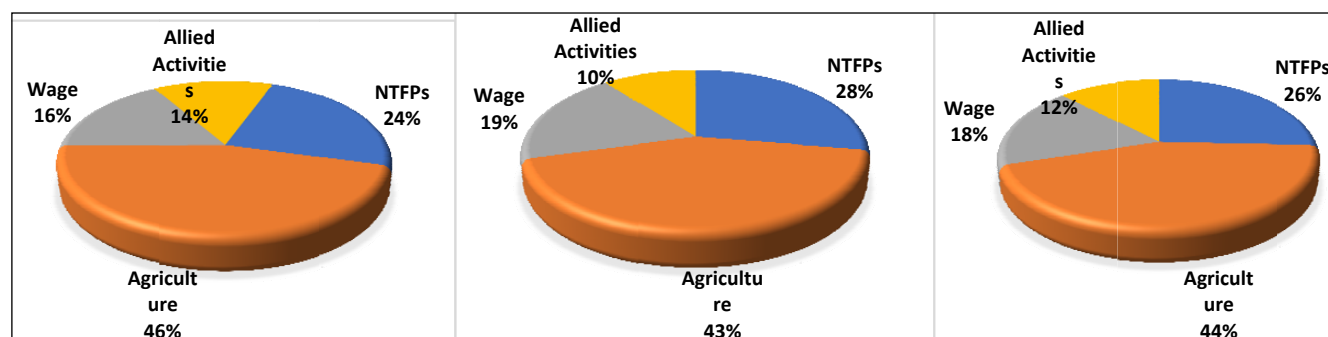


Fig. 3 (a): Composition of employment days generated from different activities from households in Meghalaya

Fig. 3 (b): Composition of employment days generated from different activities from households in Nagaland

Fig. 3 (c): Composition of employment days generated from different activities from overall

Gender-wise collection of NTFPs by rural households

Table 4 shows the gender-wise collection of NTFPs by rural households expressed in mandays annum⁻¹. In Meghalaya, the total average days spent by men in collecting was 28 while the average days spent by women was 32. Women's activity was largely articulated in the collection of fuel woods (34%) followed by plant-based NTFPs (31%) while the male spent more time in the collection of animal-based NTFPs (45%) followed by fuel wood (25%). A similar trend was also observed in Nagaland where the female spent the majority of the time in the collection of plant-based NTFPs (36%) followed by fuel wood (28%), while the male activity was perceived in the collection of animal-based NTFPs (49%) followed by plant-based NTFPs (23%). The difference in the mandays between the two genders could not be ascertained statistically in both the study area. Overall, the female attributed more to the collection of plant-based NTFPs (34%) followed by fuel wood (30%) while the male spent more time in the collection of animal-based NTFP (48%) followed by plant-based NTFPs (23%) (Fig. 4). In totality, maximum number of mandays were engaged for collection of animals based NTFPs (34%) followed by plant based NTFPs (29%) and

fuel wood (26%). (Fig. 4(a), 4(b), 4(c)). Padvi (2017) revealed a similar trend in western Satpura of Nandurbar district, Pune where women spent more time in collection of NTFPs (40%) than men (34%). However, men's hefty involvement in the collection of NTFP was observed in the studies of Longkumer *et al.* (2020) in the Mokokchung district of Nagaland where total average days spent by men for collection of NTFPs were 80 days against 37 days only by women, for collection of NTFPs in a year.

Factors Influencing NTFP Income

Table 5 shows the various factors influencing NTFP income using multiple linear regression. Independent factors like the dependency ratio and employment generated from NTFPs positively influenced the income from NTFP collected in Nagaland. For every one percent increase in the dependency ratio led to an increase of ₹ 233 in the income from NTFPs and with an increase of one percent in the man-days generated from NTFPs led to an increase in the income from NTFPs by an amount of ₹ 118. In Meghalaya, only employment generated from NTFPs had a positive and significant influence on the income from NTFPs. Overall, independent factors like adult literacy, income from wage employment, and employment

Table 4: Gender-wise collection of NTFPs by rural households (Mandays year⁻¹)

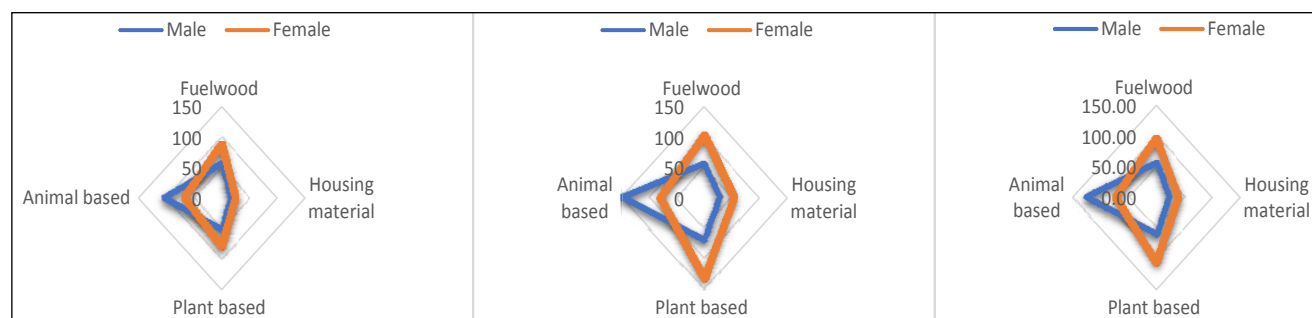
Sl. No.	Types of NTFPs	Meghalaya			Nagaland			Overall		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Fuel wood	7 (25)	11 (34)	18 (30)	7 (18)	13 (28)	20 (23)	7 (21)	12 (30)	19 (26)
2	Housing material	2 (7)	3 (10)	5 (8)	7 (10)	7 (15)	14 (12)	3 (8)	5 (13)	8 (11)
3	Plant-based	6 (23)	10 (30)	16 (27)	9 (23)	16 (36)	25 (30)	8 (23)	13 (34)	21 (29)
4	Animal-based	13 (45)	8 (26)	21 (35)	19 (49)	10 (22)	29 (34)	16 (47)	9 (23)	25 (34)
	Total	28 (100)	32 (100)	60 (100)	42 (100)	46 (100)	84 (100)	33 (100)	39 (100)	72 (100)

Note: Figures in parentheses indicate per cent to total.

Table 5: Factors influencing NTPF income using multiple linear regression

State	Constant	Size of Family	Adult Literacy	Dependency ratio	Income from Agri.	Income from Allied	Income from Wage employment	Employment from NTFPs	R ²	F-value
Nagaland	7252.12	149.67	0.93	232.53 (2.94)*	-78.20	-0.54	0.17	117.76 (4.04)*	0.64	22.29
Meghalaya	52713.66	79.77	-269.50	104.73	-96.87	-0.43	-0.23	134.43 (6.41)*	0.51	11.65
Overall	112465.50	-48.16	-0.18 (-0.46)*	164.87 (1.54)*	-0.12	-12.26	0.94	368.73* (5.74)	0.54	50.00

Note: Figures in the parentheses represents t-value; *Indicates significant at 0.05 level of significance.

**Fig. 4 (a):** Gender-wise distribution of mandays across various NTFP collected in Meghalaya**Fig. 4 (b):** Gender-wise distribution of mandays across various NTFP collected in Nagaland**Fig. 4 (c):** Gender-wise distribution of mandays across various NTFP collected overall

generated from NTFPs significantly influenced the income from NTFPs. Adult literacy had a negative impact on the income of NTFPs. For every one unit decrease in adult literacy led to a decrease in the income from NTFPs by an amount of ₹ 0.18 suggesting that the education level of NTFPs collectors can influence the NTFPs income, by which higher education levels leading to more income due to better understanding of market demands, price negotiations, and value addition (Tugeme *et al.* 2019). Dependency ratio and employment from NTFPs were found significant and positively related to income from NTFPs suggesting that as the number of dependents increased in the households, they favoured going for NTFPs collection. For

every one percent increase in dependency, income from NTFPs increased by ₹ 165, and for every one-man-day increase in employment from NTFPs, the NTFPs income increased by ₹ 369 (Longkumer *et al.* 2020).

CONCLUSION

NTFPs can be a major contributor to the economy of Meghalaya and Nagaland next to agriculture owing to their high value and demand as food, medicine, chemical, and cultural products. Agriculture income dominated the share in the household income in both the states, however the major share of cash income among the households was from NTFP in the Eastern Himalayan Region. It indicated that

households collected quite a significant amount of NTFPs and as a result they earned a significant amount of cash income through selling of NTFPs. In case of non-cash income, agriculture contributed the highest followed by NTFP income. The contribution of NTFP to total household income was largely from plant-based NTFPs, followed by animal-based NTFP, fuel wood, and housing material. Overall, of the total average employed days, agricultural activities constituted the highest followed by days involved in NTFP collection. Female attributed more to the collection of plant-based NTFPs followed by fuel wood while the male spent more time in the collection of animal-based NTFP followed by plant-based NTFPs. Independent factors like adult literacy, income from wage employment, and employment generated from NTFPs significantly influenced the income from NTFPs. Dependency ratio and employment from NTFPs were found significant and positively related to income from NTFPs suggesting that as the number of dependents increased in the households, they favoured going for NTFPs collection. Thus, NTFPs can provide unparalleled opportunities and offer unique employment opportunities in many parts of the eastern Himalayan regions which are economically backward as compared to other regions depending on the extent and area of lands used for the extraction of natural resources.

ACKNOWLEDGEMENTS

Department of Agricultural Economics, School of Agricultural Sciences, Nagaland University, Medziphema Campus

REFERENCES

- Chiphang, S., Ram Singh, R. and Feroze, S.M. 2020. Study of Non-Timber Forest Products (NTFPS) in Meghalaya State of India: Methods for Empirical Analysis. *Econ. Aff.*, 65(1): 17-22.
- Dattagupta, S. and Gupta, A. 2016. Non-timber Forest Product (NTFP) in Northeast India: An Overview of Availability, Utilization, and Conservation. Bio-prospecting of Indigenous Bio resources of North-East India, pp. 311-322.
- GoM, 2021. Forest cover of Meghalaya. <http://www.megforest.gov.in/index.html>. Accessed on 11th February, 2024.
- ISFR. 2017. Forest Survey of India <https://fsi.nic.in/forest-report-2017>. Accessed on 15th April, 2023.
- Jones, E.T., McLain, R.J. and W. James. 2021. Nontimber Forest Products in the United States. Kansas Open Books, pp. 36.
- Kaushik, P.K. and Banik, S.N. 2020. Non-Timber Forest Products (NTFPS) for sustaining livelihood in north east of India. *Agriallus.*, 2(10).
- Keelery, S. 2023. Gross value added from non-timber forest products India FY 2012-2020 <https://www.statista.com/statistics/1083252/india-economic-contribution-of-non-timber-forest-products>. Accessed on 11th February, 2024.
- Longkumer, N., Das, S., Sahu, A.K., Patra, N.K., and Murry, N. 2020. Contribution of non-timber forest products towards rural income and employment in Mokokchung district of Nagaland. *Int. J. of Eco. and Environ. Sci.*, 2(2): 61-65.
- Myers, N. 1988. Tropical forests: much more than stocks of wood. *J. of Trop. Ecol.*, 4: 209-221.
- NEDFi 2015. North East India. <https://databank.nedfi.com/content/north-east-india>. Accessed on 15th April, 2023.
- Padvi A.T. 2017. Women's Role and Contribution to NTFPs Based Livelihood of Western Satpura in Nandurbar District. *Sch. Res. J. Interdiscip. Stud.*, (4): 36.
- Snedecor, G. and Cochran, W.G. 1967. Statistical Methods. Iowa State University. Press, Ames, Iowa, USA, 17-36.
- Suleiman, M.S., Wasonga, V.O., Mbau, J.S., Suleiman, A. and Elhadi, Y.A. 2017. Non-timber forest products and their contribution to households' income around Falgore Game Reserve in Kano, Nigeria. *Ecol. Process*, 6(23).
- Talukdar, N.R., Choudhury, P., Barbhuiya, R.A. and Singh, B. 2021. Importance of Non-Timber Forest Products (NTFPs) in rural livelihood: A study in Patharia Hills Reserve Forest, northeast India. *Trees For. and People*. (3): 100042.
- Tiwari, B. 2000. Non-Timber Forest Produce of North East India. *Int. J. Hum. Ecol.*, 11: 445-455.
- Tugume, P., Buyinza, M., and Kakudidi, E. 2019. NTFP markets: Actors and Income determinants, *J. of For.*, 6(1): 1-19.
- Tynsong, H., Tiwari, B.K. and Dkhar, M. 2012. Contribution of NTFPs to cash income of the War Khasi community of southern Meghalaya, North-East India. *For. Stud. China*, (14): 47-54.