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Attitude of tribal farmers towards forest based livelihood practices in Shahdol district of Madhya Pradesh

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Abstract

Forest-based tribal livelihoods are a crucial aspect of biodiversity conservation and sustainable development, as they highlight the importance of indigenous knowledge and sustainable use of natural resources. Forest products play a significant role in the livelihood of tribal communities, who often have a deep connection to and dependency on the forests for their survival. Forests provide a wide array of resources that meet their basic needs, such as food, shelter, medicine, and income generation opportunities. In Madhya Pradesh, a significant percentage of tribal communities depend on forests for their livelihoods. According to a report by the Ministry of Tribal Affairs, about 75% of the tribal population in Madhya Pradesh is directly or indirectly dependent on forests. Forest contributes 1.7% of GDP of the country. Thus, the present investigation was conducted in six villages of two blocks each namely, Burhar and Sohagpur of Shahdol district, Madhya Pradesh to analyse the attitude of tribal farmers towards forest based livelihood practices. The data were collected with the help of well structured interview schedule from 105 farmers. Findings of the study revealed that age, gender, education, annual income from forest practices, annual income, land holding, occupation, economic motivation, adoption of forest based livelihood practices, knowledge about forest based livelihood practices, market orientation, utilization of forest resources, social participation, cosmopolitanism were significantly and positively related with attitude of tribal farmers towards forest based livelihood practices. Majority of the tribal farmers 60.00 percent were found to have had favourable attitude towards forest based livelihood practices.

Keywords: Attitude, forest based livelihood practices, tribal farmers

Introduction

The term tribe refers to a group of families who were bound together by the kinship, usually descending from common mythical or legendary ancestor, living in a contiguous region (Srivani *et al.*, 2022a) ^[8]. They are an integral part of social fabric and accounts for 8.2 percent of total population (Srivani *et al.*, 2022b) ^[10]. With a population of 72.60 million, Madhya Pradesh is the sixth-most populous state in the country. Out of the total population in India, about 72.40 percent live in rural areas and living in and around forest areas (Rajan *et al.*, 2015) ^[4]. An estimated 275 million poor people accounting for 27 percent in India and about 75.00 percent in Madhya Pradesh respectively of the total population depend on forest resources for their livelihood and the means of survival in rural India. Over 50 percent of forest revenue and 70 percent of export income are collected from non-timber forest produces. Around 20-40 percent of the tribal annual income derived from the minor forest produce (MFPs), on which they spend major portion of their time (Srivani *et al.*, 2022a) ^[8].

In the entire globe, there are around 200 million tribal people, which accounts for four percent of the total global population (Srivani *et al.*, 2022c) ^[9]. These tribes comprise nearly 22 percent of the worlds indigenous people and 7.7 percent of India's population. Some of these tribes in India are the most primitive societies in the world depending completely on the forest for their survival (Singh *et al.*, 2022) ^[7]. Tribal population are scattered all over the hilly and forest regions of the country, majority of them inhabitants in Central India, high concentration of tribal's live in Madhya Pradesh, Chattisgarh, Orissa, Andhra Pradesh, Jharkhand (Rajan *et al.*, 2015) ^[4]. They are engaged in a diverse range of productive activities both agricultural and non-agricultural which bring streams of income to rural youth who engage in it and thus constitutes their income generating activities (Bennell, 2010) ^[2]. They have significant contribution to the local and national economy by being participated in income generating activities such as vegetable production, nursery establishment, livestock and poultry rising,

cottage industry and small business etc (Rajan *et al.*, 2015) [4]. Tribal peoples meet their basic needs like fuel wood, fodder and small timber that are important for them and their livestock (Keerthana *et al.*, 2019) [3]. Appropriate counselling, motivation, training and encouragement would certainly prove to be successful in moulding them as useful citizens, which would benefit the village enormously (Rana *et al.*, 2018) [6].

Attitude is defined as the degree of positive or negative effect associated with some psychological object and is a very important component of behaviour as it plays a significant role in forming the overt and covert behaviour of a tribal farmer (Rajan *et al.*, 2020) [5]. Livelihoods are the means by which households obtain and maintain access to the resources (physical, natural, financial, human and social) necessary to ensure their immediate and long-term survival, increase their capabilities and assets to withstand stresses and shocks and to manage risks which threaten their well-being. The livelihood promotion through forest resources is economically effective, ecologically sound and socially equitable (Keerthana *et al.*, 2019) [3]. Forest is the second largest land use in India after agriculture covering 21.05% of the total geographical area of the country (Anonymous, 2011) [1]. Forests are important renewable natural resources generating livelihood requirements for more than 25 percent of the world's population. The livelihoods contribution of forest resources to the tribal communities is of immeasurable value (Keerthana *et al.*, 2019) [3]. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Rules, 2007, Government of India, Ministry of Tribal Affairs permitted tribal people to exercise their rights over forest resources for livelihoods and subsistence (Keerthana *et al.*, 2019) [3]. Therefore, it can be said that the need of the hour is to change the attitude of farmers towards forest based livelihood practices and in turn increase its adoption so that they could sustain their livelihoods in a better way.

Methodology

In the present study descriptive research design was used and the study was carried out purposively in Shahdol district of Madhya Pradesh state during 2022-23. The district comprises of five blocks out of which two blocks *i.e.*, Burhar and Sohagpur block were selected on basis of highest number of tribal farmers. From the selected two blocks, three villages from each block were selected on the basis of highest number of tribal farmers residing in the villages. From the selected villages, tribal farmers were selected on the basis of proportionate random sampling method with 1% of total tribal farmers. Thus, the total sample size comprised of 105 tribal farmers for the study. The primary data was collected with the help of an interview schedule which was prepared based on the objectives of the study while taking independent variables into consideration. The statistical analysis was done by using mean, standard deviation, percentage, frequency, correlation coefficient and regression analysis.

Results and Discussion

Table 1: Distribution of tribal farmers according to their attitude towards forest based livelihood practices

S. No.	Category	Frequency	Percentage
1	Unfavourable	19	18.09
2	Favourable	63	60.00
3	More favourable	23	21.91
	Total	105	100.00

Table 1, the majority of the tribal farmers 60.00 percent had favourable attitude followed by 21.91 percent and 18.09 percent had more favourable and unfavourable attitude towards forest based livelihood practices respectively. As a consequence of study, majority of the tribal farmers had a favourable attitude towards forest based livelihood practices.

Table 2: Distribution of tribal farmers according to their responses for attitude towards forest based livelihood practices

S. No.	Practices	Attitude									
		Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
		f	%	f	%	F	%	f	%	F	%
1.	Forestry helps people to become self-reliant in terms of fuel fodder, timber and other Non Timber Forest Produces	18	17.14	50	47.62	17	16.19	11	10.47	9	8.57
2.	Forestry operations give employment and income opportunities to the people at their door steps	8	7.61	51	48.57	31	29.52	11	10.47	4	3.81
3.	Forestry reduces exodus of rural people to urban areas for their livelihood	10	9.52	23	21.90	31	29.52	24	22.86	17	16.19
4.	People can improve their socio-economic conditions by adopting the forestry enterprises	16	15.24	32	30.48	22	20.95	21	20.00	14	13.34
5.	Supply of raw materials for forest based cottage industries and handicrafts is sufficient in the area	7	6.67	15	14.28	32	30.47	38	36.19	13	12.38
6.	Practice of forestry has helped in amelioration of the microclimate of the area	20	19.05	34	32.38	33	31.42	11	10.47	7	6.67
7.	Forestry practices assures maintenance of ecological balance	10	9.52	28	26.67	29	27.62	24	22.86	14	13.34
8.	The forests and forestry in the area is successful in meeting social, cultural, religious and recreational needs of the people	6	5.71	11	10.47	26	24.76	40	38.09	22	20.95
9.	Adoption of forestry helps in soil and water conservation	22	20.95	44	41.90	28	26.67	7	6.67	4	3.81
10.	Due to forestry, the human nutrition and health is improved by increasing quality and diversity of food in the area	17	16.19	30	28.57	35	33.34	14	13.34	9	8.57

In table 2, attitude towards forest based livelihood practices among tribal farmers was measured on ten components. Maximum number of tribal farmers 20.95% show attitude of strongly agree towards 'forestry helps in soil and water conservation' followed by 'practice of forestry has helped in amelioration of the microclimate of the area' by 5.71% tribal farmers, 'forestry helps people to become self-reliant in terms of fuel fodder, timber and other Non Timber Forest Produces'

by 17.14% tribal farmers. Maximum number of tribal farmers 48.57% show attitude of agree towards 'forestry operations give employment and income opportunities to the people at their door steps' followed by 'forestry helps people to become self-reliant in terms of fuel fodder, timber and other Non Timber Forest Produces' by 47.62% of tribal farmers, 'adoption of forestry helps in soil and water conservation' by 41.90% of tribal

farmers.

Maximum number of tribal farmers 33.34% show attitude of undecided towards 'due to forestry, the human nutrition and health is improved by increasing quality and diversity of food in the area' followed by 'practice of forestry has helped in amelioration of the microclimate of the area' by 31.42% of tribal farmers, 'supply of raw materials for forest based cottage industries and handicrafts is sufficient in the area' by 30.47% of tribal farmers.

Maximum number of tribal farmers 38.09% show attitude of disagree towards 'the forests and forestry in the area is successful in meeting social, cultural, religious and recreational needs of the people' followed by 'supply of raw

materials for forest based cottage industries and handicrafts is sufficient in the area' by 36.19% of tribal farmers, 'forestry reduces exodus of rural people to urban areas for their livelihood' by 22.85% of tribal farmers.

Maximum number of tribal farmers 20.95% show attitude of strongly disagree towards 'the forests and forestry in the area is successful in meeting social, cultural, religious and recreational needs of the people' followed by 'forestry reduces exodus of rural people to urban areas for their livelihood' by 16.19% of tribal farmers, 'people can improve their socio-economic conditions by adopting the forestry enterprises' by 13.34% of tribal farmers.

Table 3: Correlation and multiple regression analysis of profile characteristics of tribal farmers with their attitude towards forest based livelihood practices

Variables	Correlation coefficient (r)	Regression coefficients (b)	Standard error of 'b'	t Stat
Age (X ₁)	0.002*	-0.049	0.052	-0.944
Gender(X ₂)	0.063*	0.093	1.081	0.086
Education(X ₃)	0.105*	0.130	0.265	0.491
Income from forest practices (X ₄)	0.027*	-4.313E-05	6.59E-05	-0.654
Annual income (X ₅)	0.039*	-1.519E-06	7.74E-06	-0.196
Land holding (X ₆)	0.125*	0.233	0.791	0.295
Occupation (X ₇)	0.025*	0.079	0.324	0.243
Economic motivation (X ₈)	0.415*	0.658	0.158	4.165
Adoption of forest based livelihood practices (X ₉)	0.377*	0.568	0.177	3.201
Knowledge about forest based livelihood practices (X ₁₀)	0.362*	0.338	0.136	2.475
Market orientation (X ₁₁)	0.181*	0.215	0.202	1.064
Utilization of forest resources (X ₁₂)	0.073*	0.017	0.179	0.099
Social participation (X ₁₃)	0.166*	0.921	0.777	1.185
Cosmopolitaness (X ₁₄)	0.041*	-0.409	0.303	-1.351

*Significant at 0.05 level of probability

Correlation and multiple regression analysis

The coefficient of correlation (r) was worked out to ascertain the relationship between the attitude towards forest based livelihood practices and profile characteristics of the tribal farmers (table 3). All the fourteen characteristics of the tribal farmers viz., age (0.039), gender (0.063), education (0.105), income from forest practices (0.027), annual income (0.039), land holding (0.125), occupation (0.025), economic motivation (0.415), adoption of forest based livelihood practices (0.377), knowledge about forest based livelihood practices (0.362), market orientation (0.181), utilisation of forest resources (0.073), social participation (0.166), cosmopolitaness (0.041) had exhibited positive and significant correlation with attitude towards forest based livelihood practices at 0.05 level of probability which indicates that a unit increase in one variable may leads to increase in other variable and vice versa.

The multiple regression analysis was executed to explain the relative contribution of profile characteristics of the tribal farmers on their attitude towards forest based livelihood practices (table 3). The coefficient of determination (R²) worked out to be 0.384 which imply that all the profile characteristics of the tribal farmers put together had contributed to 38.49% variation on their attitude towards forest based livelihood practices. The analysis of 't' value of

regression coefficient indicated that out of fourteen profile characteristics of the tribal farmers, economic motivation (t = 4.165), adoption of forest based livelihood practices (t = 3.201) and knowledge about forest based livelihood practices (t = 2.475) had significant contribution in influencing their attitude towards forest based livelihood practices.

The multiple regression analysis leads to conclude that economic motivation of the tribal farmers had the maximum contribution on the attitude towards forest based livelihood practices followed by their adoption and knowledge regarding it respectively and it turned out to be potential predictor in explaining the variation in the attitude of tribal farmers towards forest based livelihood practices. The economic motivation of the tribal farmers has direct influences on their present necessities and future expectations, possible achievement, socio-personal, economic, psychological and communicational soundness, household food and livelihood security. The multiple regression equation fitted for attitude of tribal farmers towards forest based livelihood practices written as:

$$Y = 8.542 - 0.049 X_1 + 0.093 X_2 + 0.130 X_3 - 0.000043 X_4 - 0.0000015 X_5 + 0.233 X_6 + 0.079 X_7 + 0.658 X_8 + 0.568 X_9 + 0.338 X_{10} + 0.215 X_{11} + 0.017 X_{12} + 0.921 X_{13} - 0.409 X_{14}$$

Table 4: Model summary of multiple regression analysis

Model summary					
Model		R	R square	Adjusted R Square	Standard Error of estimate
Predictors (age, gender, education, annual income from forest practices, annual income, land holding, occupation, economic motivation, adoption of forest based livelihood practices, knowledge about forest based livelihood practices, market orientation, utilization of forest resources, social participation and cosmopolitanism of tribal farmers towards forest based livelihood practices.)		.620 ^a	0.384	0.289	4.357

Table 5: Anova

Model	df	Sum of square	Mean Square	F	Significance F
Regression	14	1069.58	76.399	4.024	2.31E-05
Residual	90	1708.64	18.984		
Total	104	2778.22			

The F stat value (4.024) showed that the analysis was significant at P = 0.05 and all the fourteen characteristics contributed significantly in the variation of attitude of the tribal farmers towards forest based livelihood practices. While standard error was of 4.357 which might be due to unexplained variation caused by the factors which were not included in the present study.

Relationship between characteristics of tribal farmers and their attitude towards forest based livelihood practices

It is observed that there was positive and significant relationship between age of tribal farmers and their attitude towards forest based livelihood practices, reason may be that the perceived energetic nature of the young people. It was concluded that there was positive and significant relationship between gender of tribal farmers and their attitude towards forest based livelihood practices because in the study area majority of male tribal farmers involved in forest practices and play greater role than women in commercial purposes. There was positive and significant relationship between education of tribal farmers and their attitude towards forest based livelihood practices, as education results in bringing desirable changes in human behaviour. There was positive and significant relationship between income from forest practices of tribal farmers and their attitude towards forest based livelihood practices, because they are more likely to have a higher level of knowledge and skills related to forest practices. The correlation coefficient between annual income of tribal farmers and their attitude towards forest based livelihood practices was positive and significant relationship, as tribals who have a positive attitude towards forests are more likely to have better access to these resources which can in turn increase their income. There was positive and significant relationship between land holding of tribal farmers and their attitude towards forest based livelihood practices might be due to majority of tribal farmers possess marginal size of land holding. Positive and significant relationship between occupation of tribal farmers and their attitude towards forest based livelihood practices was found because most of the tribal farmers are marginal farmers or possess no land and its seasonal nature compelled them to be dependent on forest resources for their livelihood.

It is inferred that there was positive and significant relationship between economic motivation of tribal farmers and their attitude towards forest based livelihood practices. Reason might be that the tribal farmers being in close proximity to forest and with majority belonged to medium economic motivation. There was positive and significant

relationship between their adoption and attitude towards forest based livelihood practices among tribal farmers means as the adoption of forest based livelihood practices increases, the attitude of tribal farmers towards forest based livelihood practices also increases. Among tribal farmers knowledge about forest based livelihood practices and their attitude was positive and significantly related, possible reason might be that formal schooling has been valued as means of increasing knowledge about forest technology and marketing of produce which lack in them. There was positive and significant relationship between market orientation of tribal farmers and their attitude towards forest based livelihood practices among tribal farmers because the poor market accessibility may limit the advantage of better forest resource availability. It is concluded that there was positive and significant relationship between utilization of forest resources by tribal farmers and their attitude towards forest based livelihood practices as forest resources are dominant contributor and an integral component of the natural capital for sustainable livelihood in the study area. Social participation of tribal farmers and their attitude towards forest based livelihood practices was positive and significantly related as it paves the way for sharing their views and experiences with other members of the organization, clarifying their doubts and getting opinion from different people and enriching their knowledge. There was positive and significant relationship between cosmopolitanism and their attitude towards forest based livelihood practices as in the study area majority of the tribal farmers often visit to nearest cities or town in connection with their enterprise or sell their forest produce.

Conclusion

It can be concluded from the study that 60.00 percent of the tribal farmers had favourable attitude towards forest based livelihood practices because of unsatisfactory knowledge regarding complex forestry practices, unscientific tree farming, widespread use of primitive indigenous techniques, ignorance towards modern technologies, poor extension contact and participation, problems in availability of quality input materials and tools and miserable financial status. Forest resources are significant contributors to the tribal economy. A substantial proportion of their annual income comes from the forestry sector. The tribal farmers, who are the major collector of forest produces, use the money derived from selling the forest products for meeting their family expenses, in meeting children education and health expenses. However, there seem to be few market opportunities in the studied area. Apart from it, the majority of the tribal farmers face challenges in forest-based livelihood due to a lack of technical guidance for value addition, and not having sufficient availability of forest products in their area. The seasonal calendar of forest resources supported how the tribal farmers depend on forest resources in their daily life and for economic gain. The contribution of NTFP in their life is irreplaceable and meet a

variety of their needs; including food, fodder, oil, fuelwood throughout the year.

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