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Z Khuvung

Ph.D. Scholar, Department of
Extension Education, AAU,
Jorhat, Assam, India

P Mishra

Professor and Head, Department
of Extension Education, AAU,
Jorhat, Assam, India

Attitude of farmers towards shifting cultivation in selected districts of Nagaland state

Z Khuvung and P Mishra

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Abstract

Shifting cultivation, also known as Jhum (slash and burn), is an old-age cultivation practice that has been practiced by the indigenous people of the hilly states of the north-eastern part of India since time immemorial. Jhum cultivation is now thought to be a natural exploitative system where the land and natural resources are not managed optimally. It is also one of the primary contributors to deforestation and inefficient land use with low productivity and return on investment, according to Gupta, 2005. An attempt was made to measure the attitude of farmers towards shifting cultivation in selected districts of Nagaland state with a sample size of 120 respondents. The Khuhly and Mishra (2016) scale was used for measuring farmers' attitudes towards shifting cultivation. The respondents were interviewed personally with the help of structured interview schedule. The majority (63.7%) of respondents had a moderately favourable attitude towards shifting cultivation, while 20% of them had a highly favourable attitude and 16.33 % had a low favourable attitude towards shifting cultivation, according to the findings.

Keywords: Attitude, Jhum, shifting cultivation, slash and burn

Introduction

Nagaland, a state in northeastern India, has a total land area of 16,579 square kilometres (6,401 square miles) and a population of 1,978,502 (Directorate of Census Operations). It is bordered by Manipur in the south, Myanmar in the east, Arunachal Pradesh in the north, and Assam in the west. It is located between 26.6 and 27.4 degrees North Latitude and 98 and 96 degrees East Longitude. With an altitude range of 300 msl to 3000 msl, Nagaland's agro-climatic conditions range from sub-tropical to temperate. Nearly 70% of the people in Nagaland depends on agriculture, making it an agriculturally-dependent region. Nagaland's main agricultural products include rice, maize, legumes, oilseeds, potatoes, and ginger. The primary land use pattern is shifting cultivation, or Jhum in the local language. This traditional process entails clearing a patch of forest using the slash and burn method, cultivating it for two to three years, leaving it fallow for eight to twenty years to regain fertility, and then moving to a new patch of land. The Jhum area accounts for roughly 72% of the overall cultivable area in Nagaland. Shifting agriculture is thought to have existed as far back as the Neolithic era, or roughly 7000 BC (Borthakur, 1982) ^[1]. Shifting cultivation has been perceived as unproductive, unsustainable, and causing damage to the environment, which has greatly influenced various stakeholders and policymakers to fully eradicate it. But on the contrary, shifting cultivation has been perceived as productive and sustainable by the practicing jhum farmers, through which they have been able to sustain their lives for generations. The attitude of the farmers towards certain practices is crucial in determining their adoption behaviour and provides a basis for the formulation of innovative, sustainable practices. Khuhly (2016) ^[3, 4], in a study on the adoption of organic farming practices and its impact on organic farmers, found a significant negative relationship between attitude towards shifting cultivation and adoption, and almost half (47.69%) of the farmers had a moderately favourable attitude towards shifting cultivation. In this paper, an attempt is made to find out the attitude of farmers towards shifting cultivation in selected districts of Nagaland state.

Methodology

The study was carried out in the state of Nagaland, which has a total of twelve administrative districts. Three districts practicing shifting cultivation were purposively selected for the study. A multistage purposive random sampling design was employed to select a total of 120 respondents for the study. The data were collected personally by the researcher through the personal interview technique by administering a structured schedule.

Corresponding Author:

Z Khuvung

Ph.D. Scholar, Department of
Extension Education, AAU,
Jorhat, Assam, India

The data collected in the study were coded, classified, tabulated, and analysed in order to obtain precise and meaningful results. Various statistical methods, viz., mean, frequency, percentage, co-efficient of variance, and standard deviation, were used based on the objectives of the study to analyse the data.

Attitude of farmers towards shifting cultivation

Attitude is the degree of positive or negative effect associated with some psychological object. Thurstone defined a psychological object as any symbol, phrase, slogan, idea, person, or organisation that may provoke either a favourable or negative reaction in individuals. In this study, attitude was defined as the extent to which farmers felt positively or negatively about modifying their methods of farming. The Khuhly and Mishra (2016) [3, 4] scale was used to measure farmers’ attitudes towards shifting cultivation. There are 20 statements on the scale. The responses were scored from strongly agree to strongly disagree on a five-point scale, with

scores of 5, 4, 3, 2, and 1 for affirmative statements and vice versa for negative comments. The attitude score of each respondent was calculated by summing the scores obtained on all the items. The attitude score on this scale ranged from 20 to 100, with the highest score indicating that the respondent had a more favourable attitude towards shifting cultivation and vice versa. Based on the mean and standard deviation of the scores obtained, categorization was done as follows:

Category	Range
Least favourable (\bar{X} -SD)	<61.69
Moderately favourable ($\bar{X} \pm$ SD)	61.69-70.35
Highly favourable (Above \bar{X} +SD)	>70.35

The Mean Percentage Score for each statement was calculated, and ranking was done for each statement based on the calculated MPS.

Findings and Discussions

Table 1: Attitude of farmers towards shifting cultivation

Sl. No.	Attitude Statements	MPS	Rank
1.	Shifting cultivation is simple and easy to practice	85.16	I
2.	Shifting cultivation provides great opportunity for a farmer to produce diversified products	83.83	II
3.	I will have problems in input resources, if I convert from shifting cultivation	83.66	III
4.	It is difficult to leave shifting cultivation as it is inbuilt in our traditions	83.33	IV
5.	People should be made aware about the environmental hazards of shifting cultivation	82.66	V
6.	Shifting cultivation is less expensive and I prefer it over the other system of farming	82.5	VI
7.	Shifting cultivation has been practiced from generations, so I will continue it	69	VII
8.	If I leave shifting cultivation, it will make a difference to the environment	64.66	VIII
9.	Shifting cultivation is of great benefit to the farmers	64.33	IX
10.	Shifting cultivation maintains soil fertility	59.16	X
11.	I believe shifting cultivation more as a way of life than as an economic activity	59	XI
12.	Shifting cultivation is effective in controlling weeds and disease causing organisms	58	XII
13.	Shifting cultivation involves more labor and time	57.33	XIII
14.	I would like to leave shifting cultivation even if price premiums are not available	57.33	XIII
15.	I am tired of shifting cultivation and would like to go for more integrated and systematic farming	57	XIV
16.	Shifting cultivation causes harm to the environment	57	XIV
17.	Shifting cultivation hinders sustainable agriculture	56.83	XV
18.	Recycling of nutrients cannot be achieved by shifting cultivation practices	55	XVI
19.	I am totally against shifting cultivation	54	XVII
20.	Changing from shifting cultivation is an exciting new challenge	50.66	XVIII

Table 2: Distribution of respondents based on their overall attitude towards shifting cultivation

Category	Range	Frequency	Percentage	Mean	SD	CV
Least favorable	<61.69	13	10.84	66.02	4.32	6.55
Moderate	61.69-70.35	92	76.66			
Highly favorable	>70.35	15	12.5			

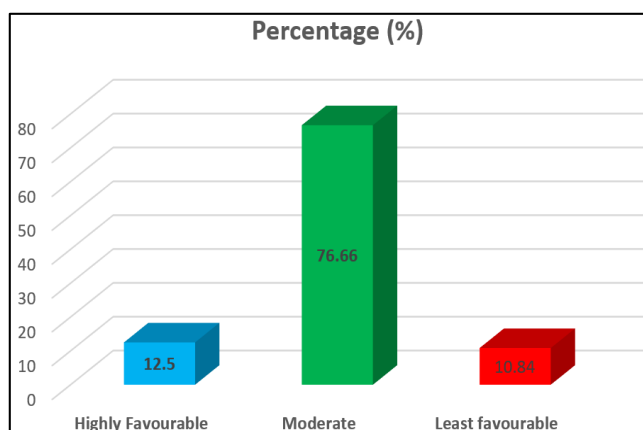


Fig 1: Distribution of respondents based on their attitude towards shifting cultivation

Table 2 and Figure 1 show that the majority (76.66%) of the respondents had a moderately favourable attitude towards shifting cultivation, followed by 12.5% having a highly favourable attitude towards shifting cultivation, and 10.84% of them having a lowly favourable attitude towards shifting cultivation. This finding is similar to that of Khuhly (2016) [3, 4]. Results indicated that most of the respondents had a moderately favourable attitude towards shifting cultivation since shifting cultivation has been the most common, easiest, and dominant means of cultivation practice followed in the study area since time immemorial, and the farmers were able to sustain their livelihood through this method. Over the past few years, the jhum cycle has been considerably reduced due to low productivity and excessive population growth. There have been many debates and concerns about the possible effects of shifting cultivation on natural biodiversity, and as such, there have been many interventions to totally eradicate the practice. Since this practice is deeply embedded in the cultures of the people, policymakers should adopt a more gradual, comprehensive, and sustainable strategy by integrating their indigenous practices with modern innovative techniques, keeping in mind the food security, way of life, and difficulties of the farmers. This will benefit the farmers while also preserving the natural resources and biodiversity. One such intervention is the Nagaland Environment Protection and Economic Development (NEPED) project, which has taken interventions mainly based upon the traditional knowledge and practices of the farmers, focusing on increasing soil fertility and productivity and improving the fallow management practices of the jhum farmers. To mention a few alternatives to sustainable practises: the Sloping Agricultural Land Technology (SALT) model, which can address the issue of shifting cultivation as it is a sustainable form of farming technology for hill agriculture mainly based upon settled farming; Integrated farming system approaches, which, when used effectively and efficiently, can help to maintain soil health and fertility, increase the rate of resource use efficiency by recycling different nutrients early, and maintain environmental pollution by using the by-products of one system as an input for another system; the alder (*Alnus nepalensis*)-based agricultural system, which is commonly employed in Kohima and Phek districts of Nagaland, is one of the successful and sustainable traditional farming techniques, whereby crops are grown alongside alder trees as an intercrop, which fixes nitrogen to the soil, enabling it to recover soil fertility more quickly than normal jhum.

Conclusion

Findings show that the majority of the respondents had a moderately favourable attitude towards shifting cultivation. Concerning authorities should make an effort to educate farmers and enhance their understanding of and proficiency in sustainable farming methods through in-depth trainings, demonstrations, and awareness programmes for sustainable farming. With a focus on enhancing agriculture's biodiversity and farmers' overall quality of life, more traditional knowledge and modern techniques need to be incorporated into various developmental planning and decision-making processes. Due to limitations in the sample size of the study, more in-depth similar studies can be undertaken in future to have a more comprehensive outlook on this area.

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