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Practice of Shifting Cultivation and its Implications in the Hill Districts of Manipur, North-East India

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Abstract

This paper highlights the practices of shifting cultivation and its implications in North-East India with special references to Manipur hill districts. Agriculture is the main and single largest source of livelihood in the state. About 70 percent of the total population is engaged in agriculture and allied activities. The Manipur Hill region comprises five districts, viz. Chandel, Churachandpur, Senapati, Tamenglong, and Ukhrul. It has a total population of 6, 51,156 which represents 35.45 percent of the state's total population. The hill districts occupy about 90 percent (20089 sq. km) of the total area of the state. The data about the area under shifting cultivation is not the same as it varies from year to year. Out of the total net shown area shifting cultivation covers 46%. Rice is the main staple food crop in this region. Shifting cultivation has both problems and prospects and impact on the forest and landscape in the environment. The average fallow period is 7-8 years as per the data collected through key informant interviews from the study area.

Keywords*:* Shifting Cultivation, Socio-Economic, Traditional, Agriculture

Background of the Study: The present study encompasses the shifting cultivation practices within the five hill districts of Manipur (Senapati, Churachandpur, Ukhrul, Tamenglong, and Chandel districts). The hill districts are mainly occupied by the tribal people which comprise approximately 90 percent (20089 sq. km) of the total geographical area of the state, accounting for a population figure of 1,217,744 as per the last population Census (2011), which translates into 42.8% of the total population of the state. The state has a 352 km long international border with Myanmar to the southeast and a 502 km long border with the adjacent states of Nagaland on the north, Cachar District of Assam on the west and Chin Hills (Myanmar) and Mizoram on the south and south-west and Surma Tract and upper Chindwin of Myanmar on the east. This study examines the effect of shifting cultivation and the length of the fallow period on soil quality index (SQI). The study relies mostly upon the collection of secondary data and review of existing research. Field observation of some shifting cultivation in five hill districts of Manipur was conducted, which enhanced the interpretation of data. It is worth noting that the hilly terrain of the state Manipur is an ancestral settlement of the tribal communities since immemorial and they have been engaging in this shifting cultivation for their main source of living.

Introduction

Shifting cultivation is also known as *'jhum'* cultivation in Northeast India. This is a traditional way of

cultivation which refers to 'slash and burn' agriculture, mainly practiced by tribal communities or highlanders in many parts of the world. It is highly diverse in its land use system. It has been evolving since 10,000. BC in a wide range of distinct socio-economic and ecological conditions. Shifting cultivation spreads from mountain to lowland ecosystems and from tropical forest to grasslands (Spencer, 1966). It also involves slashing down of trees and bushes over the forest areas, drying and burning, and sowing of host crops including paddy before the onset of monsoon. This is the most complex and multifaceted form of agriculture consists of cyclic in nature, under which selection of fields, clearing them by cutting , expose to heat for drying for a few months, and further burning for the cultivation of cereals is carried out. Selecting of *jhum* areas or plotting of the field generally takes place during December and January every year. The period of successive cropping and following differs from region to region. It is based on the size of the arable land in the region. In the past mostly the gestation period or *jhum* cycles were recorded to be long, and ranged from 20- 30 years. However, the *jhum* cycles have been reduced progressively due to the fast growth of the population in different parts of the world. However, in the present days, it is found that the period of *jhum* cycle practiced by the farmers declines to 4-5 years on average in the hilly regions.

Vishwambhar Prasad Sati and P. Rinawma in their writing of 'Practices of shifting cultivation and its implication' state that shifting cultivation is mostly prevalent in tropical countries. It is largely practiced in the central countries of South America, Central African countries, and Southeast Asian rainforest countries. As per the report (IFAD, IDRC, CIFAD, ICRAF & IIRR, 2001) about 300 to 500 million people were engaged in shifting cultivation during 1980s. In India, some regions are found significantly engaged in shifting cultivation. It is mostly practiced in the south- Kerala, Andhra Pradesh, and Karnataka; in the east- Orissa, and northeast- Sikkim, Meghalaya, Assam, Arunachal Pradesh, Nagaland, Manipur Mizoram and Tripura (Deb, 2013). Therefore, about 5 million tribal families in India are practicing this system of cultivation in various parts of the entire country and the total estimated area under the shifting cultivation in the north-eastern states of India is 1.9 million ha, which is 87% of the total shifting cultivation area in the country (Sapathy *et al.*, 2003).

It is also worth mentioning that the practices of shifting cultivation can be categorised into two ways. 1) Confining to the field for 2-3 years and shifting it when the land fertility declines. This system of cultivation is practiced mostly in the foothills of the mountain or terrain topography. 2) Shifting the cultivation by the following years. In this case the farmers use to cultivate the field where it is plotted and assigned for him to cultivate and shifted to the other place as per the decision taken by the chief or the chairman of the village. This type of cultivation happen where there is enough and extensive vegetation land for cultivation in the region. Shifting cultivation takes place in an earmarked forest area for cultivation, and then the forest is cleared by slashing trees and bushes using traditional tools like swords axes, etc. The felled trees are exposed to the heat for months to dry and then burned completely to enhance the soil fertility. After that they continue to collect the leftover debris in the field and heap up and burn it, ultimately, they sow the crops in the field.

Shifting Cultivation as A Major Source of Livelihood

Shifting cultivation and its allied activities practiced by different tribal communities in the world is an ever-changing economic activity inherent to them. The history of shifting cultivation in the northeastern region of India is as old as human civilization in the region. It is the primitive practice of cultivation across the hilly terrains of the region (Borthakhur, 1992). In NEI, shifting cultivation occupies about

85% area out of the total cultivated land (Singh and Singh, 1992). Singh and Ramakrishnan (1982) observed that shifting cultivators comprise 82 percent of the rural main workers and few urban main workers. Geographically the state of Manipur can be categorized into two groups: valley region and the hill region. The hilly indigenous terrain slope is occupied by three major tribal groups' namely Kukis and Nagas. Observing the occupational history of these tribal groups in Manipur it is quite pitiful as for long time back they have been practicing shifting cultivation as their main sources of livelihood. This activity has been practiced irrespective of male and female, old and young, and even children sometimes join the workforce among the tribal communities in this region. This is because people find no other way to make their economy apart from shifting cultivation. It is also the only activity carried out in the hill region to support children to pursue their higher education as well.

In Manipur, 1.13 percent of the total geographical area (22327 km^2) grew rice under shifting cultivation in 1992- 93. This has increased to 1.78 in 2000-01 and 2.04 in 2005-06. It clearly shows that the practice of shifting cultivation in hilly regions is increasing constantly. So, the growth of population in the hilly districts induces to extend of the cultivation area year by year and the land becomes intensive and limited. As such, preserving the forest areas in this region becomes difficult for the highlanders. Besides this unemployment problem is also another factor continuing this work culture. The situation is compelled to continue unless and until they introduce new ways to change their traditional system of farming to afford their survival.

'JHUM' Cultivation and Its Ecological Implication

The growth of population in the developing countries like India has tremendous pressure on land is considerable. It extends the crop's land slowly to produce more food quantity. It has become significantly responsible for reducing the forest area and grassland. In other words, the implication of shifting cultivation on the ecology has long been a serious concern for scientists, scholars, economists, and anthropologists. Deforestation caused by shifting cultivation is often viewed as one of the most important environmental problems of Southeast Asia (FAO, 1995). Based on the data given in FAO and other sources it is estimated that every year approximately 1.9-3.6x10^6 ha of land of primary close forest, 3.4-40x 10^6 ha of land of secondary close forests, and 6.9-21.9 x10^6 ha of land of secondary open forests are being lost due to shifting cultivation (Detwiter and Hall,1988). According to the reports of FSI and NRSA, on average the *jhum* increased from 46.49% (1991-92) to 69% (2001-02) in the state. Based on shifting cultivation it is apprehended that out of the total geographical area of the northeastern region 25.5 million hectares are under *Jhum* of which 17 percent are under use at any given time (Remote Sensing Application Centre, 1995). And due to *jhum*ing cultivation, the loss of forest cover in Manipur was 60.3 hectares. The main districts which are largely affected by *jhum* are Senapati, Churachandpur, Ukhrul, Tamenglong, and Chandel districts. Tamenglong district represents the dismal picture with 98.6% being accounted for by the *Jhum*s areas, whereas in Ukhrul it is estimated about 83.86% as *Jhum* areas (ENVIS center: Manipur Status of Environment and related issues). As far as the shifting cultivation is concern the state Manipur has 2.05 lakh ha of land in the hill area. Out of which 0.64 lakh ha of land is a cultivated area. While in the valleys, out of the total land area 1.84 lakh ha of land, 0.87 ha are under rice cultivation (N. Ram Singh, 1995). In Manipur, the area under *Jhum* cultivation is roughly half of the permanent cultivation area which supports 34% of the state population. The highest percentage is recorded in Tamenglong and Churachandpur districts which accounts to 45% of the total area under *Jhum* cultivation in the state and the lowest in Senapati district. The erosion grade of the first

year *jhum* cultivation is 14.6 tonnes ha per year and the second year eroded was 170.2 tonnes whereas abandoned *Jhum* eroded 30.2 tonnes ha per year was estimated (Source: NBSS Publication 86, soil of India series, Nagpur). Based on these characteristics and situations one can easily feature the negative impact of land degradation which will ultimately cause a complete depletion of resources shortly.

Table No. 1 shows the annual area under cultivation and the fallow period in a year obtained in the North–Eastern region, and the minimum area covered at one-time cultivation as well as the total number of families engaged in this activity so far.

Table 1: Shifting Cultivation in the NE Region

State	Annual area under shifting cultivation (sq. km)	Fallow period (in years)	Minimum area under shifting cultivation one time or other (sq. km)	No. of families practicing shifting cultivation
Arunachal Pradesh	700	3-10	2100	54000
Assam	696	2-10	1392	58000
Manipur	900	4-7	3600	7000
Meghalaya	530	5-7	2650	52290
Mizoram	630	3-4	1890	50000
Nagaland	190	5-8	1913	116046
Tripura	223	5-9	1115	43000
TOTAL	3869(1.5 per cent)		14660(5.7 per cent)	443336

Source: RTFSC (1983) Basic statistics of NER, 2002, Government of India, North-Eastern Secretariat, Shillong. P.42

Here, we could observe that the average fallow period to regulate the shifting cultivation in the state Manipur has the maximum of seven year only. Earlier the average minimum fallow period was about 20 years in the entire north-eastern states of India. But the situation changed in this regard as shown in Table 1. Experts from various disciplines also opined that the fast degradation of forest cover areas adversely affects the ecological balance which ultimately leads to change of the forest into a barren land. This could happen because the total number of families engaged in this shifting cultivation was 443336 as per the 2002 statistical report of north east region, government of India. On top of that it is obvious that the increasing rate of population plays another big role in expanding the land in a big volume in this region. People are less aware and far from being apart or abstain from this traditional way of cultivation. As such the slow decline of natural resources in this region and probably a complete replenishment of resources may be predictable if it continues to practice this culture of cultivation.

Table: 2 Wasteland Categories of Five Hill Districts in Manipur, 2003

Name of District	Wasteland category	Area in Sq.km	Percentage
Chandel	1. Land scrub	1290.6	38.9
	2. Shifting cultivation	679.1	20.50
	3. Shifting cultivation current	287.5	8.68
	Total	**2257.2**	**68.13**

Churachandpur	1. Land scrub	689	-
	2. Shifting cultivation	1345	29.43
	3. Shifting cultivation current	493	10.79
	Total	**2527.61**	**55.31**
Ukhrul	1. Land scrub	2319	51.03
	2. Shifting cultivation	989.6	21.78
	3. Shifting cultivation current	172.6	3.80
	Total	**3481.1**	**3.80**
Tamenglong	1. Land scrub	1827.17	2.55
	2. Shifting cultivation	324.80	7.40
	3. Shifting cultivation current	113.1	2.58
	Total	**2265.6**	**12.53**
Senapati	1. Land scrub	1600.35	48.93
	2. Shifting cultivation	313.87	9.60
	3. Shifting cultivation current	57.32	1.52
	Total	**1965.54**	**60.09**

(Source: State Environment Report Manipur, 2003)

Table No. 2 shows the five districts of Manipur wasteland category. As per the State Environment Report Manipur, 2003, the scrub wasteland in Chandel district was found at 2257.2 Sq.km and 38.9 percent and, shifting cultivation constituted 29.18 percent. So, the aggregate land wasted in the district is 68.13 which is one the worst among the districts of Manipur. Here, the percentage of Land scrub is very high compared to other districts. This has become one of the prime sources to disturb the normal cycle of ecological balance in the atmosphere. Unless a necessary step is taken to recover the exploited field the problem seems to continue in the future.

In terms of wasting the land through shifting cultivation, Churachandpur district plays a big role as shifting cultivation alone wastes about 40.22 percent of the land. However, the percentage of scrubland was found zero in this district.

In the Ukhrul district, it could be noticed that a very high percentage of land scrub which constitutes 51.03 percent while the total shifting cultivation area is found to be 24.58 percent. Tamenglong districts accounted for the least percentage of land degradation. Based on this data we can understand that the people of the district are very aware of the importance of preserving the vegetated forest and the significance of the relation between the environment and human beings on the earth. Concerning the situation of Senapati district it reverses from other districts as it made the highest percentage of land Scrub of 48.93 percent which can induce a severe natural disaster like a landslide, mudflow, and earth flow in the area. At the same time cultivation system found in this region is very small per cent with 11.12 only.

Strategies for Controlling Shifting Cultivation

Despite many difficulties in the process of shifting cultivation control in the north-eastern part of India the central Government had initiated the *Jhum* control programme in the seven five-year plan as per the recommendation of the task force on shifting cultivation (1983), a scheme of control of shifting cultivation was in operation during 1987-88 to 1990-91. The government of India also has launched a

watershed development project for shifting cultivation areas (WDPSC) of the North-Eastern region with a 100% grant to the state plan. The National Mission on Greening India too has proposed different activities for rehabilitation of shifting cultivation area (MoEF, 2010).

The North-Eastern Council (NEC) launched a pilot project during the fifth plan to settle the *jhuming* tribal families in farming. The project in Arunachal was completed in 1978-79 and the rest in 1983-84. These projects were evaluated by the Administrative Staff College of India, Hyderabad in 1988-89, selecting 300 (5.42 percent) households by random sampling out of 5537 beneficiary households. Some of the important findings included inadequate supply of land, irrigation and other assets to households; lack of inputs like fertilizer, credit and extension services to farmers. The report also found that even though the *jhum* cycle in the project area declined from 7-11 years in 1977-78 to 3 to 7 years1988-89 the *jhum* area remained the same, thereby defeating the very purpose of the project (K.K Sathapathy and B.K Sharma, 2003). Truly experts from various disciplines like scholars, and scientists of the concern are tirelessly probing to find a way to shift from this traditional way of cultivation to a better way by adopting new processes and technology by the *Jhum*ers as the forest is the soul and the main sources of livelihood of the people all over the world. It is also good to introduce Land resource management which will make shifting cultivation sustainable.

Table no.3 shows the plan of the North-Eastern Council of India for *jhum* control projects in the north-eastern state of India.

Table: 3 Jhum control projects under N.E.C

State	Project site	Project area(hectare)	Families settled (No)	Project cost (Rs. lakh)
Arunachal	Siang	1603	1613	123.30
Manipur	Iril	1379	1369	81.39
Meghalaya	Dhaleswari	1315	819	87.08
Mizoram	Dhaleswari Palak and Chandur	2082	1150	128.70
Nagaland	Mangleu	295	132	16.33
Tripura	Howrah	1118	594	61.75

(Source: Neog, 1997)

Discussion and Conclusions

The practice of shifting cultivation in the hill districts of Manipur is a deep concern because of its diverse effects. On the other hand, the indigenous people of the hill tribes in Manipur cannot be ignored because they have been accustomed to this practice of shifting cultivation for the past many generations. It is integrated to their culture and their entire life revolves around the *jhum* culture. It is a difficult task for them to seek alternative means of livelihood other than *jhum* cultivation in this region though it gives a negative impact to the environment. At the same time the growth of population also cannot be ignored as it is a major factor for expanding the cultivation area in a rapid pace.

Shifting cultivation has gradually been replaced by other more intensive forms of land cultivation. It is reported that horticulture cash crops, such as rubber, oil palm, cocoa, and coffee are extensively planted in limited areas by farmers in various parts of the world. For example, in the Sabah region of Malaysia, the farmers have introduced tree cash crops like Rubber and Coffee in their shifting cultivation land

(Miyakuni, 1999). Several organisations including non-governmental organisation in the world have made their sincere effort to minimize its ecological impact by introducing many policies and planning. Though shifting cultivation is the only major source of livelihood many problems are being faced by the farmers in various corners in times of need. Even the output of the field cannot give self-sufficiency to the family. The hill districts of Manipur faced immeasurable grievances in terms of economic development and in pursuing higher education. Therefore, it is advisable to introduce new methods, techniques and processes of cultivation to get maximum amount of production and meet their needs.

It is also learned that the hardships faced by these tribal groups in Manipur who still have no other means to sustain their life rather than shifting cultivation is immeasurable. It is far from joining the mainstream unless the opportunity is given to enrich their knowledge about the scientific way of cultivation. The introduction of cash crops like coffee and tea farming or other cash crops suited to the soil fertility in the region is quite essential to replace the shifting culture. Furthermore, the outlook and knowledge about the relationship between human beings and the environment is extremely a big concern to overcome the constant deforestation from shifting cultivation. Frequent shifting of cultivation area from one land to another has affected the landscape ecology. It also known that due to reduced fallow land cycle ecosystem has reduced considerably. This adverse affect of environment through shifting cultivation disturb the ecological balance and also mitigate the soil erosion which may lead to rapid earth flow and landslides in the region. On the other hand, the Government of India must assimilate the impact of deforestation and the environment to the people. All-round necessities to protect the forest should be legitimised strongly as some farmers use herbicide or insecticide in the field which may lead to permanent barrenness of land. Despite many difficulties, the commission should enforce the rules and guidelines to the field after making them aware of the impacts of deforestation. At the same time, campaigning and awareness programs to campaign job-oriented knowledge to innocent villagers is a much-needed task.

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