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Jhum Cultivation And Sustainable Development: An Interdisciplinary Study In The Hill Districts Of Manipur

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Abstract: The strain on land has increased dramatically because of population growth, especially in developing nations. Jhum cultivation is a time-immemorial tradition that is still widely used in the hill districts of Manipur, where jhumians spend a lot of money on unreliable land usage. Due to population growth, the cycle of shifting that used to occur every 20 to 30 years in a specific location has been shortened to 2 to 5 years, which has worsened the environment, anthropogenic and geomorphologic problems. The aim and objective of the present study is to explore the causes, effects and affects of shifting cultivation in the study area. The major sources of data used in this research were primary data collected from four villages in the Manipur hill districts of Ukhrul, Chandel, Senapati, Tamenglong and Churachandpur. Secondary data are collected from several census publications compiled by the Directorate of Census Operations, Government of Manipur. Over the years, land in the hill tribal areas has changed, emphasising private property ownership more and more and thereby, the conventional slash-and-burn method of farming causes environmental disturbances and land degradation. **J**huming cultivation, though it is a primitive high rate of population growth, trash cycle is becoming shortened; the Jhum area and intensity are all increasing. It is destroying the forests and rich biodiversity and putting them in danger of being completely degraded due to the loss of top soil, fertility and vegetative cover, eventually turning them into a desolate wasteland.

Key word: Forest Fire, deforestation, erosion, sustainable, shifting cycle

I. INTRODUCTION

Manipur has a geographical area of 22,327 sq. km, which constitutes 0.7 percent of the total land surface of India. Ninety percent of the total geographical area of the state (20,089 sq. km) is cover by hills and the remaining area (2,238 sq. km) accounting for only one-tenth of the total area of the state is plain of lacustrine formation. According to 2011 census, the state is 28.56 lakhs registering a population density of 128 people per sq.km. Manipur means "land of gems" in Sanskrit. Agriculture and forestry are the two industries that drive its economy, but trade and cottage businesses are also significant. Imphal, which is in the state's centre, serves as the capital city. In the hill districts of Manipur, a primitive form of agriculture known as 'slash' and 'burn' or shifting cultivation has been widely practised by a number of ethnic and tribal populations. Shifting cultivation refers to the cropping fields, the agriculturist, or both, and denotes an aimless, haphazard, nomadic movement or an abrupt change in site (Conklin, 1957). Shifting cultivation is also referred to as "jhum," an Assamese word, "pam- lou" in Meitei, and "ahanglui" in Tangkhul. Jhum is being practised in hilly, hot, and humid areas where jhumians must clear land of either thick forests or overgrown grasses. The state has a total population of 28.56 lakh people, of which 40.88% are members of the Scheduled Tribes category in the districts, while jhum or shifting farming is commonly used in the hills (40.18%) of Manipur.

DATA BASE AND METHODOLOGY

The current study is intended to be conducted through in-depth field visits to the study's target, locations and interaction with the jhumians of Ukhrul, Churachandpur and Machi, Karongthel, Laibi, and Kwatha villages in the Chandel District. Relevant data used in the paper are collected from the secondary published census data published by the Directorate of Economics and Statistics Government of Manipur, Forest Survey of India (FSI), books and journals, e-books, published journals etc. A suitable tables, figures, and graphs also are employing to highlight the findings.

RESULTS AND DISCUSSION

Jhum cultivation is still prevalent in the hill areas of Manipur that contributes significantly to forest losses and is the main cause of land degradation. This paper presents the causes and consequences of shifting cultivation and its potential land use alternatives in the hill areas of the state. The results of the study show the traditional land practices exacerbated by poverty and associated with a lack of technical knowledge is the main cause for the continuation of unsustainable shifting cultivation. Population pressure, inadequate land for cultivation, low education levels, lack of policy and planning and implementation without local participation are all factors that influence farmers to continue shifting cultivation in the area. According to the estimates of paddy shown area (shifting cultivation) in hill districts of Manipur, particularly during 2004-05 and 2010-11, paddy shown areas under shifting show signs of increasing up to 2006-07 (Table-1) 75.48% in 2004-05; and 82.67% to 79.83% in 2006 and 2007 respectively. The estimated area of shifting cultivation in the state was gradually increased from 2004-2006 and a sudden change of narrow down from 2008 except in Senapati and Ukhrul Churachandpur District, the highest concentration of shifting cultivation (23.83%) of total cultivable land above the previous records of the state. Area under shifting cultivation has tremendously increased from all hill districts in 2004-05 except in Senapati district. This gradual decline of shifting cultivation in the districts of Senapati and Tamenglong of Manipur is because of its replacement by horticulture or other plantations. Orange, litchis, pineapple, banana as fruits and cardamom, ginger as condiments etc, are extensively introduce in the hill districts of Manipur.

Table 1
Manipur: Change in distribution of jhum area in hill districts(1991-92 and 2001-2002)

District	Total Area ('000 ha)	Jhum Area in (000 ha)		% to total jhum area		Growth in %
		1991-92	**2001-02**	**1991-92**	**2001-02**	**1991-2002**
Senapati	327.1	2.73	2.74	11.24	6.45	+ 0.37
Tamenglong	439.1	8.26	10.49	34.00	24.70	+ 27.00
Churachandpu	457.0	4.90	10.55	20.17	24.84	+ 115.31
Chandel	331.3	3.22	6.53	13.26	15.38	+ 102.79
Ukhrul	454.4	5.18	12.16	21.33	28.63	+ 134.75
Total	2008.9	24.29	42.47	100.00	100.00	+ 74.85

Source: Government of Manipur 2007, Report on crop-estimation **survey,** Dept, of Economics and Statistics, Imphal

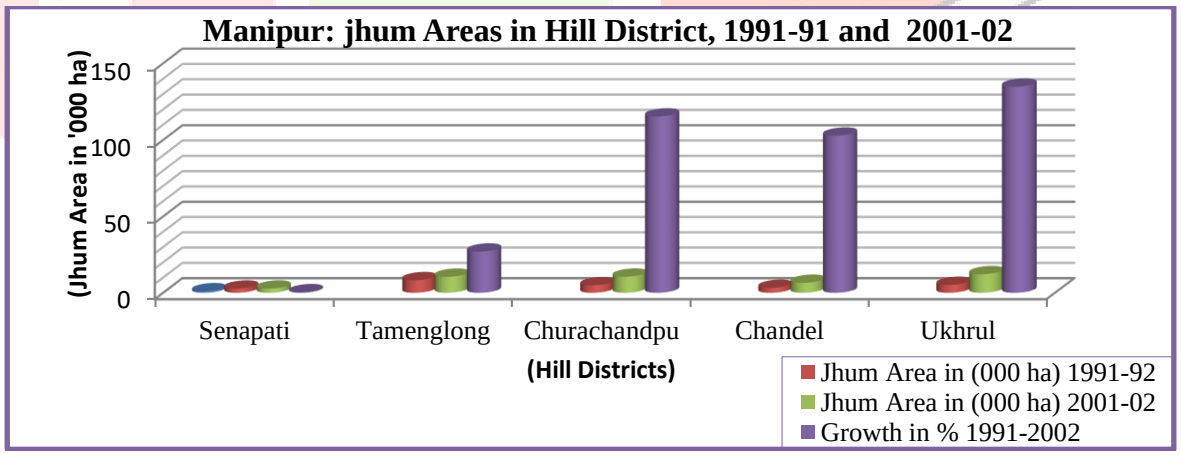

Fig:1

Table-1 indicated that in Manipur, Churachandpur occupies the highest shifting area of land covered 457.0 ha (22.74%) and Ukhrul occupies 454.5 ha of land (22.61%) of the state. Among the hill districts of the state, Senapati occupied 327.1 ha of shifting cultivation land (16.3%) of jhum areas in the hill districts.

II. CROPPING AND JHUM CYCLE

The rapid increase of tribal population in the hill districts of Manipur, reached 3.41% in the 2011 Census, has put significant pressure on the availability of land. In the past, shifting/ jhum was a cycle of cultivation that lasted 20 to 25 years. However, because of ever-increasing population, deforestation caused by the need for more food, shifting cycles now typically last 5 to 10 years and occasionally as little as 3 years, which has a negative impact on eco-restoration, the ecological process of forests, and geomorphology. The typical cropping period in Jhum extends from two to three years and varies from location to place. When there was little land pressure due to a small population and a long Jhum cycle, which can last up to 20or 30 years. Jhum was once considered as a productive farming technique. However, in the village of Lungphu, Phungyar Phaisat sub-division of Ukhrul district in Manipur, India, the field is only cultivated for a year before being left fallow.

Table-2.
Hill Districts under Rice by different varieties of Seeds used in Manipur, 2004-2010
(Area in '000 hectares)

District/State	Area under Rice type of Shifting /Jhum cultivation						
Manipur	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
Senapati	24.11	29.81	25.20	23.82	23.79	17.45	16.83
Tamenglong	8.52	9.58	9.52	8.85	9.37	11.18	9.32
Churachandpur	21.04	20.37	23.19	19.72	20.43	22.33	23.83
Chandel	8.23	7.54	8.52	7.89	7.74	8.34	8.04
Ukhrul	13.58	15.37	13.40	l2.09	13.39	13.53	14.76
Hill Total	75.48	52.67	79.83	72.37	74.72	72.82	72.78

Source: Directorate of Economics & Statistics, Government of Manipur, 2013

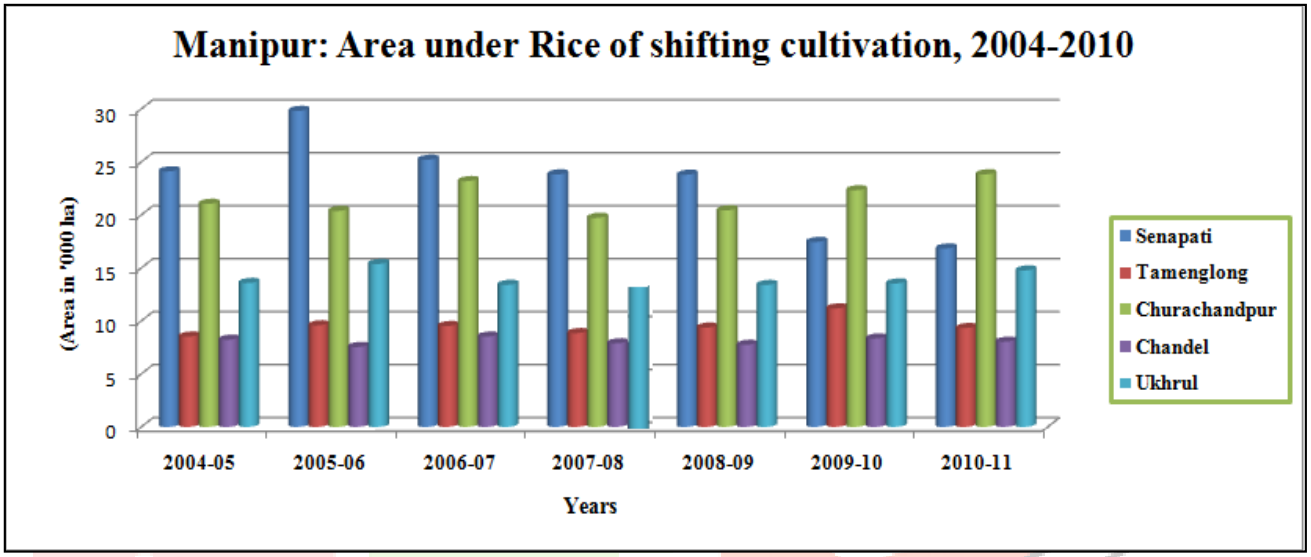

Fig:2

There is no crop rotation because the farmers in this village just cultivate one Jhum field for a single year with paddy as the main crop. They leave the existing site the following year and move to another Jhum site. Thus, there is no question about crop rotation. Because the natural vegetation regenerates quickly, the amount of soil lost during a single cropping season is fairly little. Soil erosion is stopped by it. Within this 15-year Jhum cycle, the soil that was lost during a single farming year may readily be recovered. Alder Trees (Alnus Nepalensis), which grow naturally in the hills surrounding this settlement, are another means of preserving the soil's natural qualities. With the usage of alder trees, the soil receives the same amount of nutrients back in 4 to 5 years as it would in a 15 to 20-year Jhum cycle (Ramakrishnan P.S, 1992).

III. IMPACTS OF JHUMING

Over the past 20 years, the State has seen significant environmental degradations because of a number of anthropogenic factors, such as widespread Jhuming in mountainous and some valley areas. It is obvious that jhuming and deforestation are contributing to a number of natural disasters, including the frequent occurrence of mudslides and landslides in the hills of Manipur, which is impeding transportation and posing major health hazards to the state's population in both the hills and valley. However, the public due to a lack of awareness does not feel the impacts of Jhum cultivation seriously. Deforestation being short cycle of jhum cultivation- flash floods, mudslides, soil deterioration, and the loss of fertile top soil become a yearly occurrence once the rainy season starts. According to ecologists and environmentalists, jhum is economically unviable and ecologically unsustainable (Shah, 2005). Nevertheless, jhum or shifting cultivation in the hill areas of the state, particularly to the tribal peoples, it is a burning question to stop the system in the sake of soil degradation, ecological and environmentally unsustainable. Permanent

Photo-1. Rescue operations underway after a massive landslide hit the Tupul railway construction camp in Noney distric of Manipur, Thursday, June 30, 2022. **(PTI)**

cultivation is generally practice in the valley districts while terrace cultivation is practice in some pockets in the hill areas where shifting or jhuming cultivation is widely adopted. Mudslide, landslide and soil erosion are frequently occurred in the hills where shifting or jhum cultivation areas in Manipur. Recently, on the evening of June 30, 2022, a massive landslide took place in the Noney district of the Indian state of Manipur close to the Tupul Railway construction site (Photo-1 & 2). Three people were still missing and 58 people were killed. Eighteen people suffered from severe injuries. Among the deceased were 29 civilians and 29 members of the 107 Battalion of the Territorial Army (Photo-1).

The Northeast Frontier Railway (NFR) is implementing as part of the Act East policy, which, seeks to establish a connection with ASEAN nations. This massive landslide has never been an incident of this size in Manipur that had such a profound impact on so many people's lives. It was a result of deforestation and cutting trees along the Tupul Railway construction in the hill districts. Experts claimed that this landslide was due to heavy rainfall in the area. While mentioning a Manipur University report, Rajesh says that Manipur falls in the High Seismic Zone V, and hence, the micro seismicity is active besides a large earthquake of 2016, which is near the recent landslide area.

IV. CONTROLLING SHIFTING CULTIVATION TECHNIQUES:

This form of agriculture did not endanger the ecological stability and soil degradation of the forested hill areas as long as the rotation of shifting was 15 or more. The following are some of the methods used to control shifting cultivation:

1. Offering the villagers employment opportunities, income-generating opportunities, and alternative means of subsistence
2. Establishing terrace cultivation or forestry cooperative on jhum lands for controlling soil erosion
3. Persuading the farmers to adopt horticulture, floriculture, and sericulture
4. Offering mass awareness programmes to the tribal jhumians to help them comprehend shifting cultivation
5. A Jhum Cultivation Regulation Policy to be made in view of the widespread degradation of forest cover in the hills
6. A firm policy be made on the ground to persuade the hill people to give up the practise or to incorporate sustainable practises into this traditional practise, which is causing land degradation and soil erosion
7. Expansion of sustainable agricultural, beekeeping and horticultural practises in the hilly regions

V. CONCLUSION:

Jhum cultivation in the hill districts of Manipur is the primary sources of income. As the increase of population, the tenure of jhum period in earlier was 30-40 years and now a days it has been decreased to 2-3 years and some areas of chandel and churachandpur districts jhum cycle is found only one year ,which has a negative impact on eco-restoration, the ecological process of forests, and geomorphology in the hill ecosystem. Resources impacted by jhum growing practises in the state should be developed more sustainably and environmentally through the collaboration of village residents, volunteer organisations, stakeholders, and authorities from all related departments. The fact is that these folks undoubtedly practise the outdated and traditional technique of agriculture because of their socioeconomic situation.

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