

Project on Environmental Studies

Topic : Thum or Shifting Cultivation in
Mokokchung Village

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Agriculture of Nagaland

Nagaland, a North Eastern State of India located between $25^{\circ}62''$ - $27^{\circ}42''$ N latitude and $93^{\circ}20''$ - $95^{\circ}15''$ E falls under the Eastern Himalayan Biodiversity hot-spot of the world. With an area of 16,579 sq km it has a total population of 1,980,602 (2011 census).

Agriculture is the main economic activity that engages about 73% of the total population of Nagaland. Among the various types of agricultural practices shifting cultivation is the most common. Nagas have managed the mountainous land through shifting cultivation, which is rain fed and sustains the agro-bioresources. Traditionally the Nagas have always enjoyed authority over their land and its resources since time immemorial. Shifting cultivation also known as Jhum, Suidden or Slash and Burn constitute about 59% of the annual total net cultivated area in the state. The shifting cultivation in Nagaland is described as an agricultural system where a farming community slashes secondary forests on a predetermined location, burn the slash and cultivates the land for a limited number of years. It is the principal agricultural practice in Nagaland. However, it is most prevalent in Zunheboto, Wokha, Mokokchung, Tuensang and Mon.

Shifting Cultivation

Shifting cultivation is an agricultural practice found in hilly and mountainous areas. It is the practice of shifting from one plot to another after the fertility of the soil is exhausted. It is called slash-and-burn cultivation because it implies the clearing of vegetation in the plot selected by cutting down trees and other vegetation and then burning them before sowing the seeds. Another term used for this type of cultivation is Swidden farming because only simple tools are used in cultivation. In North East India, it is known as Jhumming or Jhum cultivation.

Shifting cultivation is an important agricultural practice because it supports a large number of persons in Nagaland. It is estimated that about 75% of cultivated land is under shifting cultivation. In the operation of shifting cultivation, the following sequences are normally observed:

- 1) The selection of site
- 2) Clearing of the site of all vegetation usually during winter.
- 3) Drying and burning of vegetation which may take about a month
- 4) Preparation of the plot for sowing

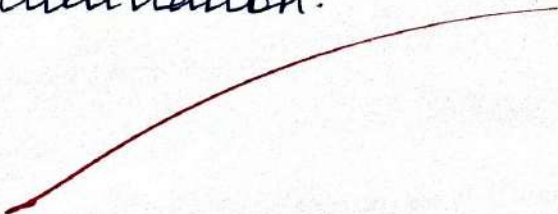
- 5) Dribbling or making small holes in the soil for the seeds.
- 6) Sowing the seeds after the onset of the monsoon or rains.
- 7) Weeding at regular intervals.
- 8) Harvesting and storing of produce.

The basic aim of shifting cultivation is to meet the demand for food for the household. Therefore, food grains like rice, maize, millets, vegetables and other edible leaves are grown. Some foods for domestic animals like pigs are also grown. Besides some cash crops like chillies, ginger, potato and cotton are also grown. The method of multiple or mixed cropping is usually followed, though sometimes single crops are raised in some patches.

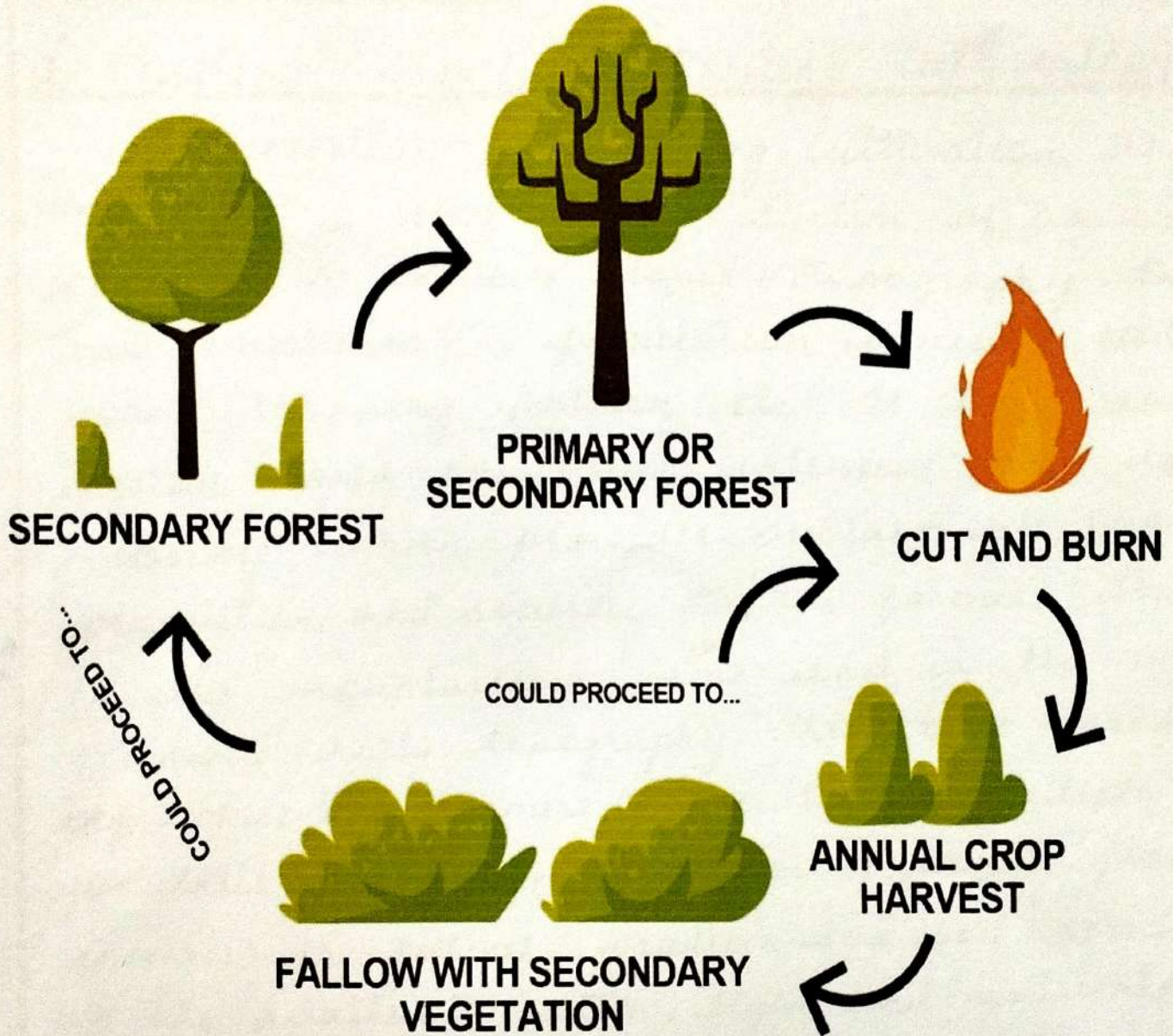
Shifting cultivation is usually associated with some kind of communal ownership or communal jurisdiction on different types of land. Plots for Thum cultivation are generally assigned to a household by the clan or the village. Leaders or elders may get the best plots. In some Tribes, a household may get the same plot in the Thum cycle, but in other Tribes such continuity is not observed.

The calendar of various agricultural activities in shifting cultivation is closely linked to religious beliefs and practices. In a special way, religious festivals are linked to the different stages of the agricultural cycle. From the said above, it can be seen that shifting cultivation is ~~the~~ much more than a type of agricultural practice for raising food or cash crops. In fact, it is closely interwoven with social organisation and culture. Therefore, it is not merely a way of growing food or securing the means of livelihood, but in fact is a way of life.

Shifting cultivation is often seen as a destructive form of ecology in general and forests in particular. It is also viewed as an economically wasteful and socially conservative. Therefore, it is felt that shifting cultivation should be stopped and replaced by some type of permanent cultivation.



SHIFTING CULTIVATION CYCLE



Positive and Negative aspects of Shifting Cultivation

a) Positive Aspects of Shifting Cultivation:

The existence of shifting cultivation in the tropic is a very diverse system of agriculture practiced in various slopes, topography, tools and implements, population density, ecological zones, cropping pattern, etc. It is a farming system based on labor intensive and low subsidy which provides sustainable food production and security to the farmers living in the mountainous areas and in the most extensive hilly topography. There exists mixed cropping where the farmers can cultivate multiple crops for their sustenance. This type of farming provides increase in output, produce less soil erosion, uses up the available water, light and nutrients. Shifting cultivation is most widely practiced in hilly rural areas having less advancements and infrastructure so people practice it using traditional method of cultivation ~~avoiding~~ chemical fertilizers, pesticides and advanced tool, so there is less damage of environment and also benefits the health. In this practice population concentration is not too high and the fallow period is long enough to regain its fertility. This system of agriculture is ecologically sound and meets a lot of human needs with immense efficiency.

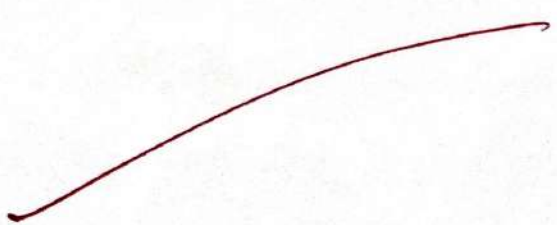
b) Negative Aspects of Shifting Cultivation:

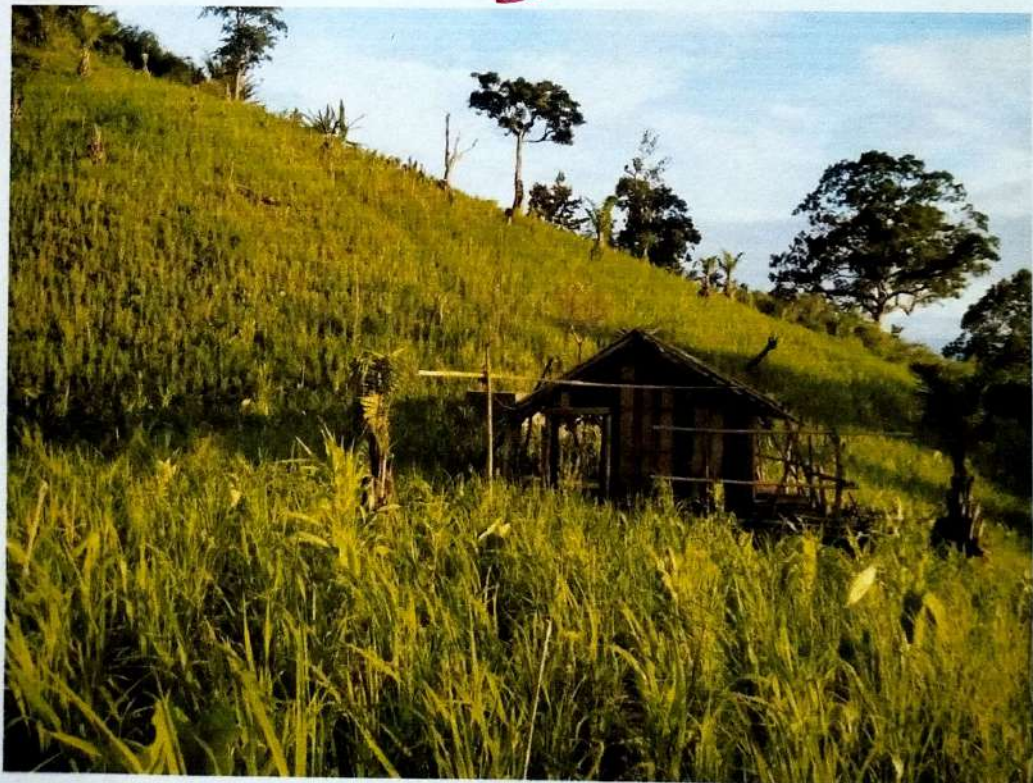
In present years there are increasing indicators of the impact of shifting cultivation for depleting forest on the environment such as loss of biodiversity, change of climate, degradation of watershed, deforestation. It is a very diverse land use system. Because of the growing population pressure, uncultivated periods are significantly decreased and the methods degrades resulting in soil erosion and decline of soil fertility and its productivity. Forest plays a vital role in preserving the biodiversity and providing ecological services like reducing soil erosion and improving water-flow. But due to the shifting agricultural practices it results in felling of vegetation and burning speeds up the course of the impact of global warming as a direct effect. Continuous felling of trees for fuel and firewood with forest burning has given rise to the problem of increase in temperature and shortage of water.

With the increase in population, more stress on land has increased with a shorter cycle of turn. The profitable capacity of restoring soil fertility is no longer sufficient because of the short uncul-
 tivated periods therefore there is decline in crop productivity. The main reason following the persistence of this system of agriculture is in its compatibility with the physical setting.

Mokokchung Village

Mokokchung village is located Ongpangkong circle of Mokokchung district in Nagaland having a geo-coordinate of $26^{\circ}19'35.18''$ N latitude and $94^{\circ}31'54.43''$ E longitude. It has a population of 5,338 with 1,119 total number of household according to the population census of 2011. The village is adjacent to Mokokchung town having an altitude of about 1350 metres above sea level. The site comes under Tropical climate and also receives enough rainfall annually that supports the prevalence of the shifting cultivation.





Shifting Cultivation in Mokokchung Village

Mokokchung is a village located in Mokokchung District of Nagaland where the people of the rural communities are mostly dependent on environment for their livelihood. The area has a hilly terrain where shifting cultivation which is an age-old practice, is deeply embedded within the people. About 68% of the inhabitants in the village practice shifting cultivation. The cutting of trees and burning are carried on during the winter in November till February and sowing begins from March to April according to the best favourable weather. They celebrate a festival on May first week every year called as Moatsu festival which is observed right after the sowing is done to express gratitude to the God for helping the crops to grow while, harvesting is done on August and September.

The land belong mostly to the individual, clan or community and inherited land while there is no land owned by the Government which is at a disadvantage side

Because the lands are more vulnerable as there is no implementation for the policies of sustainable land use or for protection. Apart from agriculturists people are engaged in public and private sector and small scale business while most of them are still dependent on their manual labour, handicrafts, with shifting cultivation.

According to the farmers in the village the shifting cycle has drastically decreased in the past few years as many of the farmers are of the opinion that it is related with the population pressure on the land since the inhabited ~~p~~ land is being packed with roads and settlements with decreasing agricultural land which leads to the short fallow period and the land doesn't get enough time to regenerate its fertility.

The main crop grown in the area is rice. The vegetables they mostly grow is cucumber, maize, ginger and pulses. They find shifting cultivation to be ~~very~~ beneficial than other agricultural activities for their sustenance because it provides their basic needs where they do not need to modify the soil by using artificial fertilizers or pesticides. They get enough annual rainfall where irrigation is not very

necessary to grow their crops. Mixed crop farming is also implemented by the locals so that along with the main crop which they also get the benefits of growing other crops and plantations in the remaining fallow areas after sowing rice.

The implementation of modern techniques is less in the area. The people prefer to continue with the use of traditional methods which is cheaper and simple since they are more used to it. They also do not have to wait for the land to gain its nutrients nor modify it with different techniques.

The farmers are of the opinion that sustainable cultivation is important and it should be attained by taking measures. About 62% of the people prefer crop rotation for sustainable agriculture because various crops bring different nutrients and minerals to the soil for its fertility and productivity. While 38% of people are of the opinion that using fertilizers is the best method to bring productivity in the land. Most of the people are not aware of any governmental or NGO policy to support less practice of shifting cultivation. There are less or no governmental aids and subsidies for

the farmers and 79.4% of the farmers responded that they were not benefited by the government programs and aids in which they are aware of.

Impacting Environment - Positively or Negatively

According to the data collected, 71% of the farmers agree to the environmental impact of shifting cultivation, the reason being negatively affected by deforestation, population pressure, demand on fire-wood, etc. It has also been found out that the productivity of the crops has decreased due to the unsuitable soil of land, as there is decrease in the cycle of them that leads to the shorter time for soil to regenerate its soil fertility.

Deforestation: One of the main causes of today's problem is deforestation. Shifting Cultivation has often been blamed for loss of forest cover and forest degradation because the land is being abandoned after few years of cultivation to regain its productivity naturally. There are many effects of shifting with large scale deforestation which give rise to undesirable ecological imbalances.

Population Pressure: With the track of time, different undesirable effect occurs due to shif-

ling cultivation one of the main causes claimed to increase the short fallow cycle is also due to population increase. The Mokokchung district overall has witnessed population growth due to immigrants and natural birth, leading the district to more demand of land for settlement and other resources which ultimately affects the surrounding natural vegetation of the village.

Policy Analysis

The Indian Government has implemented a policy of non-interference in the local self-government of the people of Nagaland at the village level to conserve their ethos, culture and governance structure marking the importance of Thum land management regulated by the Village Council.

Policy on National level of Thum Cultivation

- a) National Agro-Forestry Policy (2014): aimed to promote plantation of trees for efficient nutrient cycle, to meet sustainable agriculture, incorporated with crop and livestock for more productivity, employment and livelihood of the people.
- b) North East Forest Policy (2002) - The policy was recommended to increase focus on the people to wear away with the shifting cultivation.

c) National Forest Policy (1988) - It gives importance to the environmental stability instead of exploiting economic gain from the forest resources, to conserve the heritage and preserving huge natural fauna and flora.

Policy on State level of Thum Cultivation

a) Nagaland State Action Plan for climate change

The policy aims to promote agro forestry to intensify Thum in a limited area to provide enough productivity while conserving soil with sustainability.

b) Nagaland Agricultural Produce Marketing

(development and Regulation) Act (2005): An Agricultural Produce Market Committee (APMC) is established to regulate, develop and to protect the interest of farmers and to ensure malpractice in the marketing system of agricultural produce in the state. An organic agricultural produce in the market would be put made to put an aid in the Thum cultivation.

Conclusion

Shifting cultivation is an age-old traditional agriculture which is practice in most part of the rural area and the people are sustained by it. People are aware that this practice is impacting negatively on environment like loss of biodiversity, soil erosion and change in productivity by short fallow cycle etc, but it is not so easy for them to do away or stop this cultivation since it has been a cultural tradition for them and they are depended on it. The best way they can do is to use the land sustainably by using advance techniques to accumulate soil productivity and lengthen the period of Thum cycle.

Some suggestions for improving Shifting Cultivation:

- ① Proper land used based on land capabilities
- ② Terracing should be introduced wherever possible even if there is shifting cultivation. Terrace and contour bounding reduce soil erosion.
- ③ Cropping pattern should be improved.
- ④ Productivity should be improved through the use of better tools, use of manures and fertilisers, weed and pest control measures.
- ⑤ Various alternatives to shifting cultivation should be promoted.

References

- (a) Visakhonii Hibo, kedilezo kikhi, Alphonsus D'Souza: Sociology: Structure of Indian Society & Social change in India, Nagaland; Nagaland Institute of Development Studies; Sixth Edition, 2017.
- (b) Nagaland Board of School Education; Nagaland, 4th Edition, 2013.
- (c) <https://www.researchgate.net>
Impact of Shifting cultivation on environment
- (d) ~~<http://gbpinedennis.nic.in>~~