SHifting cultivation in nagaland: Prospects and Challenges

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Abstract
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. It is an integral part of the Nagas as their socio-culture is closely associated with different activities of this agricultural practice. The Naga tribes are known for living in a mutual relationship with their natural environment. Traditional knowledge of maintaining soil fertility, warding off pests, preventing soil erosion, preserving food grains and seeds, seed selection and environmental management has played a vital role in sustaining the shifting cultivation and surrounding environment. But with population growth and influence of modernization such as introduction of monoculture and exotic species, the traditional shifting cultivation is facing various challenges.

Keywords: Nagaland, Shifting Cultivation, Livelihood, Agro-biodiversity.

Introduction
Nagaland, a North Eastern state of India located (between 25° 62’–27° 42’ N latitude and 93° 20’–95° 15’ E) falls under the Easter Himalayan Biodiversity Hotspot of the world. With an area of 16,579 square kilometres it has a total population of 1,980,602 (2011 census). It is bordered by Myanmar on the east; and by Arunachal Pradesh, Assam and Manipur on the north, west and south, respectively. Apart from a few hundred sq km. of plains in Dimapur district and in the foothill zones, the entire state is covered with mountain ranges varying in height from 600 m to 3000m. Nagas have managed the mountainous land through shifting cultivation, which is rain fed and sustains the agro-bioresource. Traditionally, the Nagas have always enjoyed authority over their land and its resources since time immemorial. The state has the highest average size of holding due to the highest proportion of area and number of holdings above 10 ha (Deb, 2006). It involves a close relationship between the societies on the one hand, and cultural advancement, resource planning and carrying capacity of the land, on the other. Under agriculture, the major utilisation of land has been based on the physical and social milieu of the state. Shifting cultivation also known as Jhum, Swidden or Slash and Burn Constitutes about 59% of the annual total net cultivated area in the state. Jhoom land for crop cultivation is burned in the late February and march, followed by sowing of rice (major crop) in the month of April and early May. Weeding is done thrice and the crop is harvested in the month of late September and October. Mixed cropping is the normal form of sowing in Jhum field. Farmers have been gradually changing their cropping pattern over the years adapting to family needs and market availability. However, in many villages drastic change from traditional to commercial crops are taking place as a result of the initiatives and efforts taken by the Government. In totality, the farming community has responded to the changing consumption patterns by diversifying its production portfolio towards high-value food commodities. However, with modernisation decision making in the management of land is getting more influenced by external factors...
whereby land under subsistence croplands decreases with the consequent increase in land under cash crops for sale in the markets. According to state land records, the total area under agriculture in a given year accounts to 2,22,787 ha, which is 13.44% of the total land area. The net area under Jhum cultivation in the year 1985–86 in the state was 99,345 ha, which decreased to 78,000 ha (1995–96) and increased from 86,000 ha (2000–01) to 93,000 ha in 2010–11.

PROSPECTS

Shifting cultivation is an integral part of the Nagas, as their socio-culture is closely associated with different activities of the agricultural practices. The traditional way of shifting cultivation is community participation where traditional knowledge is disseminated for the continuity of culture and managing the resources. The Jhum cultivators don't use any chemical pesticides or fertilizers nor weedicides. The Jhumias of Nagaland have rich traditional knowledge of keeping the pest away, increasing soil fertility, storage of food grains and seeds. The only weedicide used is salt, which, however is discouraged by the village chiefs and councils because of its deleterious effect. Hence, the producer of the Jhum cultivation is organic. But getting certificate for organic agriculture is difficult since Jhum entails cutting down of forests. Out of the 7,22,464 ha total cultivated area, only 3000 ha of land is under certified organic farming benefiting 3,575 farmers growing crops like maize, soybean, french bean, ginger, large cardamom, passion fruit and chilli (Rukuosietuo Kuotsuo et al., 2014). Agro forestry is gaining popularity among the shifting cultivators in Nagaland. Planting of fruits and timber yielding trees in the Jhum areas is a kind of new trend among the farmers. This not only helps in improving the livelihood of the farmers but also protects the environment of the fallow land. Alder (*Alnus nepalensis*) has been planted in the Jhum fields as it grows quickly and helps in land recovery. It fixes nitrogen, and therefore increases the yield of the jhum crops. Angami, Chakesang, Chang, Konyak and Yimchungur tribes practice Alder based agro-forestry at large. Fallow lands are the traditional means of in situ conservation of mushrooms, herbs, tubers and leafy vegetables, which has supplemented the household food requirement. The rise in demand for these wild vegetables and plants has led to cultivation to meet the local market demands, which have also sustained the resources as well as boost their economic condition. For instance some villages in Mokokchung district have started cultivating *Clerodendrum cordatum*, *Zanthoxylum* sp., *Gnetum gnemon* etc. After harvesting the summer crops the land is left barren which lies waste for the rest of the year. So as to make use the land throughout the year the cultivators have started cultivating winter crops such as cabbage, potato, peas, mustard, carrot etc. They have also adopted sowing and harvesting of certain beans twice a year, one in summer and other in winter. These crops not only help them to sustain during winter but, also help them in improving their livelihood because of their economic viability. The farmers in Jhum system practice mixed cropping, cultivating 20–40 varieties of crops. Some of the common crops are rice, maize, pumpkin, colocasia, chilli, sesame, millet, cucumber, tomato, ginger, bottle gourd, bitter gourd and different varieties of legumes. Varieties of rice are cultivated in a single Jhum field. Mixed cropping is also practiced according to the suitability of the hilly terrain conditions. It balances the nitrogen demand of the crops non-legume crops as they help in fixing nitrogen in the soil, also act as an assurance of crops in case of failure of some crops.

CHALLENGES

Shifting cultivation as an agriculture system that has always been labelled as 'a thing of the past' with not much scope for growth and development. With the introduction of money culture, farmers are willing to completely trade their abundant agro-biodiversity for a few commercial crops. Field interview supports this transition, with the present generation risking their land venturing into new agriculture system and other various money earning activities. The agro
biodiversity now faces severe degradation in the whole of Naga society with more rapid erosion in the villages near to the urban and semi-urban villages. There is loss as well as permanent extinction of traditional seeds whereby new seeds are suppressing and taking over the traditional seeds. There is a lack of support and encouragement from the government for the development of traditional shifting cultivation if not to convert it to new commercial mono crop land. And though many villages suitable for commercial crops are producing enough yet the lack of storage facility and market network limits their produce. Labour system in agriculture has also drastically changed with man getting more involved and occupied in other economic activities. It is only the women who are devoted to the shifting cultivation practices. This has weakened the community participation practice in the cultivation. Besides, the use of hired labour and the common salt for weed control are not healthy in terms of the long-term productivity of the land. This challenges the very nature of traditional cultivation where Nagas have always maintained land sustainability organically. With modernisation, man's aspiration has changed, it has created a scenario of land getting fragmented and drawn more towards commercial development of the land resource. Unequal distribution of wealth and opportunity also affects the ability to develop, use and profit from the new technologies that increase efficiency from land management. Only a handful and mostly the elite have the access to the financial assistance and thus the disparity becomes more glaring. Thus, shifting cultivation is in a crucial stage which is venturing into new crops and technology with uncertainty of sustainability for livelihood and environment. In order to face the challenges, there is a need for more integration of the age old traditional knowledge and modern techniques in different developmental planning and decision making with the focus on the enhancement of agro-biodiversity and the improvement on the livelihood of the farmers.

REFERENCES


