

PRACTICING *JHUM* IN MANIPUR: IS IT ECOLOGICALLY SOUND AND ECONOMICALLY VIABLE?

Md. Baharuddin Shah¹, P. Lienzapau Gangte²

^{1,2} Post-Graduate Department of Geography, G. P. Women's College, Imphal – 795001 (INDIA)

*Email (Corresponding Author): starbahar@gmail.com

Abstract - *Jhuming* occupies first and foremost stage in the socio-economic life of the hill people. Lungphu village of Kamjong district, Manipur, being a tribal village with extensive hilly terrain inhabited by Tangkhul Naga, practice *Jhum* as their way of life. Although *Jhum* has caused extensive damage to the natural environment, ecological sound *Jhum* is sustainable because it does not depend upon extra inputs like fertilizers, pesticides and irrigation. This paper examines the nature and pattern of *Jhum* within which there is a sense of sustainability based on productivity and carrying capacity of the soil.

Key Words: *Jhum*, environment, degradation, sustainable, agro-ecosystems.

1. INTRODUCTION

The concept of sustainability was initiated in 1987 by the United Nations World Commission on Environment and Development (WCED) to the forefront of Global development concerns, reasoning that if development is the goal of all nations, then it must be carried out in a sustainable fashion. However, despite widespread understanding that sustainability must be one of the primary criteria of development, current development policies frequently fail to integrate this factor into the decision-making process (Daly, 1991).

Slash and burn agriculture (sometimes referred to as shifting or swidden agriculture) is sometimes described as non-sustainable (Cramb, 1989; Tobing, 1991) and is the primary cause of tropical deforestation (World Resource Institute, 1990). Certainly, slash and burn farming may be associated with poor crop yields and rapid soil degradation (El Moursi, 1984; Christanty, 1986). Not surprisingly, development programmes generally promote continuous cropping systems in lieu of slash and burn. Furthermore, many developing nations have mounted institutional campaigns condemning all forms of slash and burn agriculture (Dove, 1984; Cramb, 1989; Shengji et al, 1990; Myers, 1992).

In contrast, a growing community of scholars and development experts now argue that some slash and burn agro-ecosystems are sustainable under conditions of low landuse pressure and there is a role for slash and burn agriculture in development (Grandstaff, 1980; Dove, 1983; Okingbo, 1984; Pimental and Heichel, 1991).

Study Area

Lungphu village of Kamjong district (earlier Ukhrul district), Manipur has been selected as the area of study. This village is located in Phungyar-Phaisat Tribal Development Block in Kamjong district. It is about 50 kms away from Imphal, the capital city of Manipur. This village is situated at the peak of eastern range of Manipur hills in north-south Purvanchal at an altitude ranging between 1,500 – 2,000 metres above mean sea level. Litan is the nearest market centre from Lungphu village. It is about 15 kms and the villagers go by walk to avail the marketing or medical facilities. It takes more than 3 hours to go from Litan to Lungphu village by foot because of its steep hilly terrain and kuccha road. Another kuccha road links this village with Imphal-Ukhrul highway which is also around 15 kms long upto Lambui Check Post. The author visited this village by walk from Litan and came back to Lambui to conduct spot survey. The tribes inhabiting the village are Tangkhul Naga who is characterized by their laborious, courageous, sincerity and hospitality. Agriculture mainly *Jhum* is the mainstay of the people. Some people also have other types of occupation like business in small scale. There is no good education facility in the village, still the villagers are mostly educated and some of them are highly educated, pursued their education in several places of the country. Tribal unity and understanding among themselves is their weapon.

Data Base and Methodology

This work is based on primary data collected through questionnaire interviews and field observations. Experienced villagers were taken as respondents because of their knowledge. The questionnaire was made in such a way that the ratio among the input-output, man-land ratio etc. could be collected.

Discussions

One year cropping and abandoning the area for 15 years is arguable as ecologically sound farming system in *Jhum*. Population and availability of land are the two main elements which determines this soundness. Some unique features of *Jhum* in the village which are rare in other parts of the *Jhuming* world have been discussed.

Land Tenure

Usually in *Jhum* cultivation throughout the world, the land belongs to the village authority or the village community as a whole. No individual right exists and when the land is allotted to the individual families by the village headman either by lottery system or else, individual family could farm on his/her share of land.

In contrast, both village community and individual families have separate rights in the *Jhum* fields in this village. The land of *Jhum* belongs to individual farmer and he could do any changes in his field by his own decision. He has to practice *Jhum* at the same field where he did before *Jhum* cycle. But one could not go for *Jhum* to any separate field from the site where the whole community carried out *Jhum*. This is the right of the whole community under the leadership of the village headman to choose a particular site for *Jhum* in a particular year. In every selected site, each family has their permanent *Jhum* field. So families are bound to practice *Jhum* in their own fields at the same selected site.

Cropping Period and *Jhum* Cycle

Usually in *Jhum*, cropping period varies from place to place and it ranges between 2 to 3 years. But in Lungphu village, the cropping period is of one year only and then the field is abandoned. In this village, there is no crop rotation because the farmers cultivate a particular *Jhum* field for single year only with paddy as the main crop. Then they leave the place and move to another *Jhum* site in the next year. So, there is no question of crop rotation.

In one year cropping, the amount of soil lost is very less because the natural vegetation regenerates quickly. This controls soil erosion. In the cropping year also, villagers do not use big tools which may disturb the soil structure. They use small tools and implements like small spade for dibbling which do not lead to maximum soil loss.

In earlier times, *Jhum* was regarded as good farming system when there was no heavy pressure on land as the population was low and consequently the *Jhum* cycle was a long one say 30 or 40 years and above. The production managed the survival of early men easily. Now, due to extreme population pressure on land, the *Jhum* cycle decreased and it became only 3-4 years in many parts of the world though the figure differs from area to area.

In Lungphu village, 15 years *Jhum* cycle still exists which is very rare in other villages of north east India. The soil lost in one year cropping could easily recuperate within this 15 years *Jhum* cycle. Besides, availability of Alder Tree (*Alnus Nepalensis*) in the hills of this village is also a natural way to store and conserve the soil properties. With the use of alder tree, the same quantity of nutrients are returned to the soil in 4 to 5 years as would happen in 15 to 20 years *Jhum* cycle (Ramakrishnan, 1992). The soils become more fertile after mixing it with the ashes of the burnt alder twigs and leaves.

Man - Land Ratio

As far as man-land ratio is concerned, it is interesting to note that the figures pertaining to land and production are not very accurate. Unit system generally used for measuring of area of land like acres and hectares is not used in tribal villages. The author with the help of experienced *Jhumias* had to determine the area of the land on the basis of production.

Preferably mustard oil *Tin* is used for measuring productions. This *Tin* has a capacity of 15 kgs of paddy which gives 7 kgs of rice after grinding. So approximately in one sangam (local land unit system used which is roughly equal to 0.62 acre), *Jhumias* sowed upto two *Tins* of paddy to get a production of more or less 70 *Tins* of paddy. Thus, if an area in which more or less one *Tin* of paddy is sown and nearly 70 *Tins* of paddy is produced which is equivalent to 1,050 kgs of paddy, the area is considered to be equal to one sangam. Different crops have different production figures and rice being the most important one which occupies 90-95 per cent of the total available land is under consideration.

Labour-Production Ratio

Work force (persons working in *Jhum*) and total earning of different sampled households in Rs. from *Jhum* land was taken into consideration to know the labour-production ratio. During the field survey *Jhumias* reported that they cultivated mainly paddy and some other food and cash crops in little amount. The production of paddy is approximately 70 *Tins* per sangam which is equal to 7 kgs of rice per *Tin* after grinding. The average cost of one kg. of rice is Rs. 30. If it is further calculated at this rate, it works out as follows,

$$1 \text{ Tin of paddy} = 7 \text{ kgs of rice}$$

$$1 \text{ sangam} = 70 \text{ Tins of paddy} = 490 \text{ kgs of rice}$$

Cost of rice will be $490 \times 30 = \text{Rs. } 14,700$ from one sangam. The amount of production of other crops cannot be done because accurate production figures are not known. Respondents reported that upto Rs. 5000 is earned from these crops by each family who practice *Jhum*.

CONCLUSIONS

The study reveals that there is no alarming condition in the food security of this village in the near future. Villagers could sustain easily within the *Jhum* with little support from other types of activities. One could safely say that *Jhum* is subsistence farming which does not support any type of modern advance life style and living standard but it could safely manage to support the lives of the villagers. On the other hand, a complete switch over from *Jhum* is neither possible nor advisable in view of the terrain, fear of changes in tribal dietary habits and any other viable alternative with immediate effect.

Thus there is a need to relook into the whole problem with positive attitude and it is very much in need to bring into notice that on-farm studies of different localities rather than literature survey should be done to know the real structure

of *Jhum*. *Jhum* is a dynamic process and not at all static. *Jhum* of one area may not be same with the *Jhum* of another location. So, the solution suggested by scientists to bring *Jhum* ecologically sustainable and economically viable based on the *Jhum* of a particular location may not be applicable in another locality where *Jhum* is practiced in different nature. Blaming of *Jhum* is not at all a solution.

Jhumias should replace their food crops by cash crops like tea or coffee, irrigated rice atleast in little amount of land to support their one year survival. If the cash crops are getting mature enough once and start harvesting, farmers will get more and more money to colour their life. Integrated livestock farming is also one way which is applicable in the village and production of this will boost up their standard of living.

Moreover, alder-based *Jhum* which is already started in Khonoma village of Nagaland, may be the best applicable choice of this village. Alder (*Alnus Nepalensis*), a tree which is abundant in the hills of Kamjong district is much useful in many angles. This tree has root nodules which improves the soil fertility by fixing atmospheric nitrogen into the soil. It has the capacity to store, conserve and enrich the soil properties. It also enhances crop yields and reduces soil erosion. In this system four steps are to be taken up as:

- In the first year in *Jhum* plot, alder trees should be pollarded (cut off from the main trunk) till about waist height from the ground before or after the slash and burn operation. The cut off part could either be sell or used as firewood.
- Primary food crops and secondary cash crops should be grown as mixed farming in this burned field.
- The cropping operation may be repeated in the second year also.
- The field should be left fallow for atleast two to four years to allow the alder trees to grow for pollarding and cropping in the subsequent cycle.

This modified form of *Jhum* is presently the best applicable choice to bring this village ecologically sustainable and economically viable. But it is certain and true to say that Manipur was frequently visited by merchants, traders, pilgrims, invaders through the diverse hill routes existed in Manipur proving that wave of civilisation was flourished in this hilly state.

REFERENCES

1. Census of India, 2011. *Provisional Population Totals*, Paper 1 of 2011, Manipur Series 15, Directorate of Census Operations, Manipur.
2. Christanty. L., 1986. Shifting Cultivation and Tropical Soils: Patterns, Problems and Possible Improvements. In: G.G. Marten (Eds), *Traditional Agriculture in Southeast Asia*, Westview Press, Boulder, Co. pp. 226-240.
3. Cramb, R.A., 1989. Shifting Cultivation and Resource Degradation in Sarawak. Perception and Policies, *Borneo Res. Bull.*, 20 (1): 22-49.
4. Daly, H. E., 1991. *Steady-State Economics*, 2nd Edition, Island Press, Washington D. C., p. 297.
5. Devyle and Packer, 1974. Fire Ecology Conference and Fire and Land Management Symposium, No. 14, 1974: pp. 465-479.
6. Dove, M. R., 1983. Theories of Swidden Agriculture and the political economy of ignorance, *Agroforestry System*, pp. 85-99.
7. El Moursi, A.W.A., 1984. The Role of Higher Agricultural Education in the Improvement of Shifting Cultivation Farming System in Africa. In: A.H. Bunting and E. Bunting (Edited), *The Future of Shifting Cultivation in Africa and the Task of Universities*, Proc. Int. Workshop on Shifting Cultivation: Teaching and Research at the University Level, Ibadan, Nigeria, FAO, Rome, pp. 8-14.
8. Grandstaff, T. B., 1980. Shifting Cultivation in Northern Thailand: Possibilities for Development, *Resource System, Theory and Methodology*, Series 3, U.N. University, Tokyo, p. 44.
9. Myers, N., 1992. *The Primary Source: Tropical Forests and Our Future*, W. W. Norton, New York, p. 416.
10. Okingbo, B. N., 1984. Shifting cultivation in Tropical Africa: Definition and Description, In: A. H. Bunting and E. Bunting (Eds.), *The Future of Shifting Cultivation in Africa and the Task of Universities.*, Proc. Int. Workshop of shifting cultivation: Teaching and Research at the University Level, Ibadan, Nigeria, FAO, Rome, pp. 18-36.
11. Pimental, D. and Heichel, G. H., 1991. Energy Efficiency and sustainability of farming systems. In: R. Lal and F. J. Pierce (Eds.), *Soil Management for Sustainability*, Soil and Water Conservation Society, Ankeny, IA, pp. 113-133.
12. Ranjan, R. and Upadhyay, V. P., 1999. Ecological Problems due to shifting cultivation, *Current Science*, Vol. 77, No. 10.
13. Shah, B., 2004. *Manipur: Jhum and Eco-Degradation*, B. R. Pub. Corporation, Delhi.
14. Shengji, P.; Huijon, G. and Zhiling, D., 1990. *An Introduction to the study of Ethno-botany of*

15. Xishuangbanna, Procedure 4th International Conference on Thai Studies, 11-13 May, 1990, Kunming, Vol. 3, Institute of Southeast Asian Studies, Kunming, pp. 435-445.
16. Singh, A and Singh, M.D., 1978. Effects of various stages of Shifting Cultivation on soil Erosion from steep hill slopes, *Indian Forester*, 106 (2): 15-21.
17. Singh, A., 1978. Shifting Cultivation and Soil Erosion Problems in North Eastern hill Region. Paper presented at XVI Annual Convention of ISAE, IIT, Kharagpur.
18. Singh, A.L. and Shah, B., 2002. *Jhuming* Cultivation: A Deep-Rooted Environmental Concern, *The Geographical Observer*, Vol. 34, pp. 1-6.
19. Singh, A.L.; Shah, B.; Khan, N., 2003. *Jhuming* Cultivation: Root cause of land use/ land cover changes in Ukhrul District, Manipur, in "*The Geographer*", Vol.50, No.1. pp. 29-42.
20. Tobing, P.L., 1991. Old as the Hills, *Down to Earth*, Centre for Science and Environment, New Delhi, pp. 23-30.
21. WCED, 1987. *Our Common Future*, Oxford University Press, Oxford, p. 385.
22. WRI, 1990. *World Resources 1990-1991*; Oxford University Press, Oxford, p. 383. dent of Govt. Printing, Calcutta.