

A STUDY OF NATURE OF SHIFTING CULTIVATION AT AMBEGOAN, PUNE DIST. MAHARASHTRA

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ABSTRACT

Shifting cultivation is an agricultural system in which a person uses a piece of land, only to abandon or alter the initial use a short time later. This system often involves clearing of a piece of land followed by several years of wood harvesting or farming until the soil loses fertility. Jhuming is widely practiced food production system. It has been criticized on ecological and socio-economic grounds. Large scale burning of forest, destruction of natural habitats and the consequent reduction of species of fauna and flora are some of the conspicuous results of jhuming. It is often said to be damaging the environment.

KEYWORDS: *Shifting Cultivation, Eco-System, Soil-Quality*

INTRODUCTION

Shifting cultivation is an agricultural system in which plot of land are cultivated temporarily, then abandoned while post-disturbance fallow vegetation is allowed to freely grow while the cultivator moves on to another plot. Shifting cultivation is an agricultural system in which plot of land are cultivated temporarily, then abandoned while post-disturbance fallow vegetation is allowed to freely grow while the cultivator moves on to another plot. The period of cultivation is usually terminated when the soil shows signs of exhaustion or, more commonly, when the field is overrun by weeds. The length of time that a field is cultivated is usually shorter than the period over which the land is allowed to regenerate by lying fallow. This technique is often used in LEDCs (Less Economically Developed Countries) or LICs (Low Income Countries). In some areas, cultivators use a practice of slash-and-burn as one element of their farming cycle. Others employ land clearing without any burning, and some cultivators are purely migratory and do not use any cyclical method on a given plot. Sometimes no slashing at all is needed where regrowth is purely of grasses, an outcome not uncommon when soils are near exhaustion and need to lie fallow. In shifting agriculture, after two or three years of producing vegetable and grain crops on cleared land, the migrants abandon it for another plot. Land is often cleared by slash-and-burn methods—trees, bushes and forests are cleared by slashing, and the remaining vegetation is burnt. The ashes add potash to the soil. Then the seeds are sown after the rains. The connection between loss of forest and trees on bio-diversity and other natural resources such as land, air and water has been well established. Mainstream thinking is that the existing hill farming system called jhuming, practiced by various hill tribes in the region are primarily responsible for the loss of forest cover. Slash and burn agriculture also referred to as shifting or bush fallow agriculture or jhuming is to be damaging the environment (Conklin, 1961; Cramb, 1989; Tobing in 1991)

Jhuming has a disastrous impact on the ecology of the area. The burning of dried wood results in loss of precious biomass and release of many harmful gases. The cutting down of lush green forests results in loss of forest cover which leads to land degradation and increase in the sediment load of rivers which is responsible for siltation of reservoirs. Leaching, erosion and loss of fertility of soil takes place rapidly. Land water system which is the basic life supporting factor and a prime mover of socio-economic development has already fallen into the clutches of the law of diminishing returns with reduction of productivity vis-à-vis in puts and gross physical degradation of the system.

The longer a field is cropped, the greater the loss of soil organic matter, cation-exchange-capacity and in nitrogen and phosphorus, the greater the increase in acidity, the more likely soil porosity and infiltration capacity is reduced and the greater the loss of seeds of naturally occurring plant species from soil seed banks. In a stable shifting cultivation system, the fallow is long enough for the natural vegetation to recover to the state that it was in before it was cleared, and for the soil to recover to the condition it was in before cropping began. During fallow periods soil temperatures are lower, wind and water erosion is much reduced, nutrient cycling becomes closed again, nutrients are extracted from the subsoil, soil fauna decreases, acidity is reduced, soil structure, texture and moisture characteristics improve and seed banks are replenished.

Location Map of Study Area

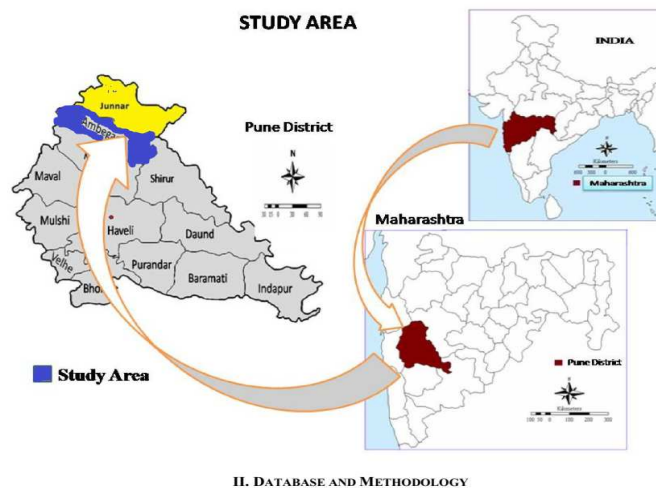


Figure 1

About Study Area

Ambegaon taluka is a taluka in Shirur subdivision of Pune district of state of Maharashtra in India. Geographical Coordinates of the study area is: 19°2'5"N 73°50'11"E. Slash and burn agriculture is found in Ambegaon mostly at hilly and foothill regions. Three to five year cyclic cropping pattern in shifting cultivation mostly seen in this taluka. After every three years tribal communities change their agriculture field.

OBJECTIVES OF THE STUDY

- To know the nature of Shifting Cultivation.
- To know the effect of jhuming on Flora, Fauna and Soil quality.

DATA BASE AND METHODOLOGY

The study is based mainly on primary and secondary sources of data which were collected through field surveys, survey of selected villages. Field work and field observation done during 2017-18 and 2018-19.

Loss of Flora

The flora of an area depends on the total environmental conditions of that area. It is common knowledge that disturbance of any one factor has its influence on the other like effect on vegetation as well as flora. The vegetation of region is the overall composition of dominant species and an account of the general physiognomy of the plant growth the flora is an enumeration of all plants occurring in an area, usually without a commentary on dominance of individual species. Shifting cultivation influences both vegetation and flora.

Loss of Fauna

Wildlife in the natural situation constitutes the most important component of the ecosystem which participates effectively in the energy flow and bio economical cycling. Animal-plant and animal-animal can only participate in this unique process when its habitat and niche has preserved. The problems which crop up for the wild life to jhuming can be divided into two categories: Direct and indirect with jhuming

The Direct Problems Which Are Associated With Jhuming In Relation To Wildlife May Be,

- Loss of habitat continuity which affects the wild animals, mainly leopard and other smaller mammals.
- Loss of top canopy occurs due to jhuming and this affects the behaviour of langurs and gibbons. It also reduces the territorial area of species. Food exploration areas are reduced.
- In an exposed land due to jhuming the predator has more chance of being exposed against the prey. The result in loss of energy.
- The leopards capture prey from a hideout with distinct posture which is likely to be affected by jhuming.
- The jhum site cannot be reclaimed and restored to wildlife, when the jhumians stop jhuming as that particular side. In fact restoration requires many more years.

Indirect Jhum Affects

- The ecological balance which brings imbalance in the hydrological cycle.
- Soil erosion reduces the soil fertility.

Soil Nutrient Survey in Sample Villages

In the field survey we are collecting four random samples and analyze its nutrients N, P, K. Above table indicates the results in Asane, Nanavate, Phatan, Kondhaval village. It is clearly show that at first year in the soil at Asane there are medium range of nitrogen, phosphorus and potassium but same location in the second year nutrients are decreasing in same cropping pattern i.e. nachni. There are same results seen in Nanavate, Phatan, Kondhaval village. In results of above table contains nutrients quality in the soil will decrease in every next year in same cropping pattern.

Table 1

| S. No | Village | Location | Elevation in Meter | Nutrient Level Range in ppm | | | | | |
|-------|-----------|--------------------------|--------------------|-----------------------------|----|-----|--------------|----|----|
| | | | | YEAR 2017-18 | | | YEAR 2018-19 | | |
| | | | | N | P | K | N | P | K |
| 1 | Asane | 19°09'33"N to 73°39'34"E | 1007 | 26 | 21 | 89 | 14 | 24 | 73 |
| 2 | Nanavate | 19°08'56"N to 73°38'04"E | 966 | 28 | 42 | 85 | 22 | 32 | 79 |
| 3 | Phatan | 19°08'26"N to 73°36'33"E | 754 | 36 | 66 | 120 | 31 | 51 | 90 |
| 4 | Kondhaval | 19°06'33"N to 73°33'20"E | 902 | 28 | 23 | 65 | 22 | 24 | 55 |

CONCLUSIONS

The study reveals that jhuming is that leading to forest degradation and ultimately to the loss of valuable flora and fauna. It has an adverse impact on the bio-diversity of this hilly region. Rapid deforestation for jhuming has resulted in habitat destruction coupled with indiscriminate hunting of birds and animals. jhuming effects on the soil quality of land.

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