Shifting Cultivation – Cultural Tradition of Primitive Tribal People & its Ecological Impact, Special Emphasis on India

Mrinal Saha,
Assistant Teacher, New Bongaon High School

&

Mahua Bardhan,
Assistant Professor, Netaji Satabarshiki Mahavidyalaya

Abstract:
Shifting cultivation is a form traditional activity in the tribal people throughout the world. It is considered to be the most ancient system of agriculture dating back to the lower Neolithic period. So it is an ideal instance of transformation of human life and struggling scenario throughout the past. The earliest written accounts of forest destruction in Southern Europe begin around 1000 BC in the histories of Homer, Thucydides and Plato and in Strabo’s Geography. Though, many tribes in India, Indonesia, Malaysia, Thailand, Sri Lanka, Cambodia, Brazil, Peru, Chile, Poland, Hungary, Austria, Estonia, Latvia, Lithuania etc. are still engaged more or less in shifting cultivation. Naturally, environmental issues are highly connected to the system. This paper is trying to explore some traditional aspects of the shifting cultivation and the tribes also. Different types of secondary data are used to inculcate and innovate the features.

Introduction:
Shifting cultivation is an agricultural system in which plots of land are cultivated temporarily, then abandoned and allowed to revert to their natural vegetation 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. Of these cultivators, many 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. It is also known as field forest rotation agriculture.

One land-clearing system of shifting agriculture is the slash-and-burn method, which leaves only stumps and large trees in the field after the standing vegetation has been cut down and burned, its ashes enriching the soil. Cultivation of the earth after clearing is usually accomplished by hoe or digging stick and not by plough. Many occasion the hilly slopes cut down, like a small piece of plot, which is known as terrace culture.
Objective:

1. To assess the present condition of the shifting cultivation.
2. To analyse the scenario of deforestation in the hilly region.
3. To find out the regional disparity in shifting cultivated areas in the countries.
4. To delineate the intensity of soil erosion, landslide and ecological devastation.
5. To estimate the economic growth and dependency of tribal population over years.
6. To explore the mystery of surviving nature of shifting cultivation throughout the past.
7. To evaluate the interaction between agriculture and tradition of human being.
8. To identify the changing approaches of the shifting cultivation.

Methodology:

This paper is based on secondary data collected from different sites, journals, magazines and books in different time period and information collected from national reports and statistical techniques have been applied based on the data to estimate the changing pattern throughout the past. The study is also highlight experiences of the authors visiting in the North – Eastern India, Dandakaranya plateau (Part of Odisha, Andhra and Chhattisgarh) and the Nilgiri (Part of Tamil Nadu and Karnataka) of India, which helps the paper more authentic.

Techniques of Shifting Cultivation:

Generally the agricultural activities regarding to shifting cultivation is done on a cooperative basis on the principles of reciprocity. The land ownership is known as, in some places ‘Bagada Chasa’ or ‘Barun’, irrespective of economic status has a few patches of swiddens in the hill slopes yielding mainly millets (jowar, bajra, ragi, maize), pulses, cassava, potato etc. Due to the increasing of
population, the cultivating cycle has shrunk from 12 – 18 years to 4 – 6 years. Over time, fields are cultivated for a relatively short time, and allowed to recover, or are fallowed, for a relatively long time.

Eventually a previously cultivated field will be cleared of the natural vegetation and planted in crops again. Fields in established and stable shifting cultivation systems are cultivated and fallowed cyclically. This type of farming is called ‘jhumming’ in the north – eastern part of India. Among the tribes (Toda, Maria, Gond, Mismi, Angami, Saora, Bonda, Didady, Kondh, Koya etc.) the swiddens are owned individually and are mortgaged whenever needed cultivation, starts with the work of treefelling and bush cleaning in the month of November – December. Thereafter, these are allowed to dry up in situ for at least three months. In the month of March they are set on fire and in April they sow in the land by dropping the seeds in the nibbled holes made in rows. After the germination of red grams they sow all other seeds such as small and large millets (kangu, jena, ganga etc.). As soon as the seeds are sown, they do the hoeing so that the soil get mixed up with ash covering seeds. The work of weeding is taken up in June by the women only. Continuing six months from August to January both men and women guard the crops to save against the ravage of wild animals by erecting temporary huts. Generally every two years they plant turmeric, ginger, garlic etc. in part of the swiddens. The grain and seeds are preserved in storing baskets. Alternatively the plot at one site is cultivated in cyclic rotation for three consecutive years and thereafter abandoned for 10 – 12 years also.

**Economic Aspects:**

Total volume of crop production is very meagre than any sort of commercial farming (like intensive or extensive farming). Yet this system is still running among 11 communities in Odisha, 5 communities in Andhra Pradesh, 6 communities in Chhattisgarh, 3 communities in the Nilgiri mountain, around 15 communities in the north – eastern part of India, and among many communities in Indonesia, Malaysia, Thailand, Cambodia, Brazil etc. All these tribes have a very poor economic status. They are always living in the below poverty line (BPL). It is estimated that the approximate yield of corn including the creeper grains is 4 puttis (240 KGs.)/acre, whereas it comes to 8–10 puttis (480–600 KGs.)/acre in case of low land in the plains (H.K. Ghosh, 1999). The key reason of their economic backwardness is high dependency rate on shifting cultivation. The inhabitants are still at the subsistence level, where every person and the family can only produce bare demand (mainly food) for its direct consumption (hungry also). It is also noticed that, the per capita income (GDP) of the tribes are so negligible than the persons, who are engaged in other economic activities, other than shifting cultivation.

**Typology:**

There is a specific reason behind the negative thinking about the shifting cultivation that, it refers to any spatially and temporally cyclical agricultural system that involves clearing of land with the help of fire (generally known as slash and burn) and followed by phases of cultivation and fallow periods (Trupp et el., 1997). The following tables show the principal arguments made with context to different sort of shifting cultivation summarized by Sunderline (1997) and a framework for discussion based on some data and field survey report drawn by Fujisaka and Escobar (1997) respectively.

<table>
<thead>
<tr>
<th>Types</th>
<th>Characteristics</th>
</tr>
</thead>
</table>
| 1. Long fallow shifting cultivation | i. Long fallow rotational  
   ii. Traditional  
   iii. Mainly subsistence crops  
   iv. Mainly self – generated capital  
   v. Far from urban areas |
| 2. Short fallow shifting cultivation | i. Short fallow rotation  
   ii. Semi traditional  
   iii. Mixed subsistence and cash crops |
3. Forest pioneer farming

i. No rotation
ii. Modern
iii. Mainly cash crops
iv. Generally outside capital
v. Close to urban areas


Classification of ‘slash and burn’ systems by distinguishing variables:

<table>
<thead>
<tr>
<th>Class</th>
<th>Initial vegetative cover</th>
<th>Resource users</th>
<th>Final vegetative cover</th>
<th>Length of fallow</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Primary forest</td>
<td>Indigenous</td>
<td>Secondary regrowth</td>
<td>Long</td>
<td></td>
</tr>
<tr>
<td>2. Primary forest</td>
<td>Settlers</td>
<td>Natural regrowth</td>
<td>Fields abandoned</td>
<td></td>
</tr>
<tr>
<td>3. Primary and secondary forest</td>
<td>Indigenous</td>
<td>Natural Regeneration</td>
<td>Medium to long</td>
<td></td>
</tr>
<tr>
<td>4. Secondary forest</td>
<td>Indigenous communities</td>
<td>Natural Regeneration</td>
<td>Medium to long</td>
<td></td>
</tr>
<tr>
<td>5. Secondary forest</td>
<td>Colonist</td>
<td>Natural Regeneration</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>6. Primary and secondary forest</td>
<td>Mostly indigenous communities</td>
<td>Agro-forest</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>7. Secondary forest</td>
<td>Government Sponsored Colonist</td>
<td>Plantation crops</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>8. Secondary forest</td>
<td>Mostly settlers and ranchers</td>
<td>Pasture</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>9. Grassland</td>
<td>Indigenous and settlers</td>
<td>Natural Regeneration and pasture</td>
<td>variable</td>
<td></td>
</tr>
<tr>
<td>10. NA</td>
<td>NA</td>
<td>Available</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>


In shifting cultivation, a clearing is made in the forest, usually on the slopes of hills. After the trees have been cut, they are burnt to provide ashes. The seeds are then scattered in the area, and left to be irrigated by the rain.

Plate No. 4  Source: Wikipedia, the free encyclopedia
Ecological impact:

There are so many difficulties and evils found in shifting cultivation. It is considered devastative and harmful as it not only causes ruin, but also exerts negative impact on economy. So the level is uncountable. The estimated rate of deforestation in Southeast Asia in 1990 was 34,000 km² per year (Potter, 1993). In Indonesia alone it was estimated 13,100 km² per year were being lost, 3,680 km² per year from Sumatra and 3,770 km² from Kalimantan, of which 1,440 km² were due to the fires of 1982 to 1983. Since those estimates were made huge fires have ravaged Indonesian forests during the 1997 to 1998 El Niño associated drought.

Some of the dangerous effects can be specified, like –

- Shifting cultivation can reduce the rate of precipitation.
- It helps to increase soil erosion.
- It destroys most valuable timber, beverage, food.
- It is responsible for causing heavy floods and landslides.
- It is the cause silting of the dam, reservoir, fields and damage to crops.
- It creates imbalance in the formation of natural flora and fauna.
- It is one of the significant cause of low agricultural productivity, which is related to hunger and malnutrition.
- Shifting cultivation is highly responsible to slow down the economic development.

Previous Attempts to check the practice:

Shifting cultivation is a burning problem for the society and ecology. In view of the area and population affected by this culture, different state governments and union government have attempted to tackle the problem. The colonization programme was introduced during the sixties in the affected areas to divert the primitive tribes to be settled by the permanent agriculture system by providing cultivable land, necessary equipment, seeds, manures, water supplying, residential accommodation and monetary help also. During the first four fifth year plans a number of colonies have been set up in tribal areas. Also consciousness growing campaign was introduced in high rate. Besides these, the rational land use on watershed basis programme has been taken by the government (soil and water resource department). Unfortunately no one scheme was touch its ultimate goal.

Recommendations and Suggestions:

It can be acknowledged that, in spite of all attempts the shifting cultivation is still very much alive in the tribal society. May be, there are some ray of hope that, after taking some measurement, the problem can be highly reduced,

i. Providing land to the tribal, who is willing to give up shifting cultivation.
ii. Plantation farming (fruits, spices, tea, coffee, rubber etc.) can be useful for the tribes.
iii. Introducing the conservation farming to allow tribal people to gain more production from crop land.
iv. Introduction of silvi-culture and inter-culture.
v. To break middle slope length for annual or perennial fruit trees.
vi. The lower slopes will be put under agricultural crops.
vii. The watershed management system can be highly effective.
viii. The rain water harvesting procedure could be introduced.
ix. To spread up the proper education system immediately.
x. To arrangement some agricultural training programmes within the locality.

References:


5. Guha, Uma & others (1968), The Didayi: A Forgotten Tribe of Orissa, Govt. of India Publication Branch, New Delhi.


