

SHIFTING CULTIVATION AND POLICIES OF SUSTAINABLE DEVELOPMENT: A MEANINGLESS OBSESSION

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Nowadays the issue of food in/security has been a serious concern for the global community. There are some communities like the primitive tribal groups who do not have even the basic amenities for their survival. Shifting cultivation, variously known as rotational bush-fallow agriculture, swidden cultivation or slash-and-burn cultivation is an ancient form of agriculture still practiced in many parts of India including the Central region. On the one hand, the government has enacted strict forest and land laws to curb shifting cultivation, which is based on the ideas of one school of natural and behavioural scientist, who believe that this primitive form of agriculture results in serious environmental problems. Accordingly, the developmental efforts for the tribal groups have been prepared with a vision of "sustainability". The only strategy is to pursue the practitioners for other forms of livelihood. On the other hand, among the shifting cultivators like Bonda and Kutia Kondhs in Orissa, it was observed from the site selection, cutting, burning and cropping that it is an ingenious system of organic multiple cropping which is well adapted to local conditions in moist forest and hill tracts, where the monetary and energetic output-input ratios is higher than other form of agriculture. The efforts of the government, both central and state government for the development of the primitive tribal groups who are practicing shifting cultivation is wrong both in policy as well as in social-philosophical-humane level. Using both primary as well as secondary data this paper is an attempt to get a picture of the meaning and applicability of the word 'Sustainable Development' for the shifting cultivator primitive tribal groups in Orissa.

Keywords : Cropping Pattern, Multiple Cropping.

INTRODUCTION

Shifting cultivation, a primitive system of agriculture, the first step in transition from food gathering and hunting to food production is nearly 9000 years old agricultural practice and believed to have started during Neolithic period. It is prevalent not only in India but in other countries of Asia, Africa, South America and Australia. This is extensively practised by the tribals throughout the tropical and subtropical region. Conventionally, shifting cultivation has been interpreted as an inefficient (economically) and destructive (ecologically) form of agriculture (Izikowitz, 1951; Schlippe, 1951 and Freeman, 1955). Since the British period of ruling, the shifting cultivators have been a target for the government, environmentalists, anthropologists and surely the policy makers, how to stop or if possible to give an alternative livelihood to the practitioners of this so called "unethical", "anti-environmental", "anti-developmental", "anti-social" primitive form of agriculture. More recently, shifting cultivation is viewed as an inflexible static system (institutionally) ill-suited for adapting to changes brought about by modernity. This latter view, as illustrated in World Bank (1992), holds that it slows agricultural production and causes ecological degradation. In the recent studies and policies, almost all the questions and issues raised revolve around two major issues; firstly, Population, productivity and deforestation and secondly, development projects and displacement of the tribal groups practicing shifting cultivation. It is also proved that Shifting cultivation and poverty has a vice versa relationship.

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Under the most recent policies of the Ministry of Agriculture and Forestry, four targets are identified for a sustainable livelihood among the practitioners of shifting cultivation. These are (i) Ensuring food security, ii) Commercialization of agricultural productions, (iii) Shifting cultivation stabilization for poverty reduction, and (iv) Sustainable forest management (Dash, 2006). On the other hand, anthropological and sociological interpretations have seen this agricultural practice as a tradition and basic for the livelihood of a community. The practitioners have the better understanding of the environment than others and thus, nothing to do with environmental issues associated with it (Pelzer, 1945; Simoons, 1958; Wettess, 1960; Concklin, 1954; Leach, 1959; Anderson, 1975). Therefore, it is essential to examine whether shifting cultivation is a destructive, inefficient and inflexible static system of agriculture.

Table 1
Shifting Cultivation in Different States of India

| State | Tribal Families (Million) | Total Area (Million hectare) |
|-------------------|---------------------------|------------------------------|
| Andhra Pradesh | 0.11 | 0.15 |
| Arunachal Pradesh | 0.43 | 0.21 |
| Assam | 0.31 | 0.31 |
| Bihar | 0.23 | 0.19 |
| Madhya Pradesh | 0.19 | 0.38 |
| Manipur | 0.36 | 0.26 |
| Meghalaya | 0.61 | 0.47 |
| Mizoram | 0.40 | 0.19 |
| Nagaland | 0.19 | 0.12 |
| Orissa | 2.00 | 1.60 |
| Tripura | 0.19 | 0.49 |
| Total | 5.02 | 4.37 |

Source : Shifting cultivation in India, ICAR

SHIFTING CULTIVATION: MEANING AND EXTENT

As different from settled cultivation, shifting cultivation involves traditionally established conventionality and rituals. The shifting cultivation is generally practiced in the following sequence: 1. Selecting a forest patch and clearing the vegetation normally in December and January, 2. Burning of the vegetation (without stumps and roots) in February and March, 3. Sowing of seeds, by dibbling, generally of cereals, vegetables and oil seeds in April–May, 4. Continuing cultivation for a few years, 5. Abandoning the cultivated site and shifting to other forest sites and Returning to the former site, and once again practice shifting cultivation on it. In India, Shifting cultivation has been a traditional cultivation practice in hilly terrains, especially amongst the tribal communities. About 5.0 million tribal families are practising this system on 4.37 million hectare of land covering 11 states (table-01).

In Orissa, Shifting cultivation is an age-old practice, which is locally known as the *podu* cultivation. About 5298 sq. kms. area annually is under this primitive agriculture practice in Orissa. Shifting cultivation is prevalent in Kalahandi, Koraput, Kandhamal and other southern and western districts, covering 119 blocks. The tribal communities, viz. *Kondha*, *Kutia Kondha*, *Dongaria Kondha*, *Lanjia Sauras*, *Paraja*, *Godaba*, *Koya*, *Didayi*, *Bonda*, *Juanga* and *Pauri Bhuyan*, *Peranga* and *Erenga Kolha* are involved in this practice. Many festivals and other such rituals revolve around the *podu* fields, because the tribals view *podu* cultivation not just as a means of their livelihood, but as a way of life. Orissa is estimated to have the highest amount of land under shifting cultivation among the states of India (Table-02).

Table 2
Estimates of Area Under Shifting Cultivation in Orissa

| Source of Information | Estimates of area under shifting cultivation in Orissa |
|----------------------------------|---|
| FSI, 1999 | 5,29,800 hectares under active shifting cultivation in the year of Survey |
| N. Pattnaik, 1993 | 37,00,000 hectares of shifting cultivation area |
| A Decade of Forestry, GOO, 1995 | 2649000 hectares of shifting cultivation |
| Forest Enquiry Report, GOO, 1959 | 3072000 hectares of shifting cultivation approximately |

Estimates of the area under shifting cultivation in Orissa range from 5298 sq. km. to 37,000 sq. km. (Table 2). That these areas were traditionally under shifting cultivation is clear from a number of reports from the colonial period. Even the Forest Enquiry Committee Report of 1959 mentioned those 12,000 sq. miles (almost 30,720 sq. km.) of land in Orissa was under shifting cultivation. Almost all tribal communities in Orissa practice shifting cultivation. Forest Enquiry Report, GOO, 1959 says that 30, 72,000 hectares of land is under shifting cultivation.

Policies to Check Shifting Cultivation in Orissa

In Orissa, keeping in view of the extent of the area and population affected by shifting cultivation, the State Government has attempted to tackle the problem by controlling or nationalizing the practice. The colonization programme was introduced during the sixties in the problem areas to divert the primitive tribes to settled agriculture by providing cultivable land, necessary inputs and residential accommodation. During the first four plans, a number of colonies have been established in the tribal areas. However, in most of the areas the scheme has not achieved the desired results. Besides the colonization scheme, the programme of rational land use on watershed basis has been taken up by the State Government through Soil Conservation Department. The programmes included the following : (a) Providing land to the tribals who was willing to give up cultivation on steep slopes. (b) Plantation of economic species useful for tribal community. (c) Introduction of conservation farming to allow tribal people to obtain higher production from crop land. (d) Utilization of steep slopes for production of timber. Under the above scheme a suitable watershed in the shifting cultivation area is selected and rational land use programme is executed on the existing catchment. A schematic land classification of watershed management units together with land use programmes was recommended for watershed areas for rationalization of shifting cultivation. The above programme was first started in selected catchments of Koraput district on pilot basis and then it was extended to other problem areas in Phulbani, Kalahandi and Keonjhar districts. However, these programmes were inadequate in view of the vast population

and the area affected by shifting cultivation. In June 1987, Ministry of Agriculture, Government of India, floated a pilot scheme for control of shifting cultivation. It has two fold objectives i.e. restoring ecological balance in the hill areas and improving socio-economic conditions of tribal *podu* practicing families by weaning them away from *podu* cultivation with 100% Central Assistance. Besides, the ICAR and the World Bank have recommended for several strategies to reduce shifting cultivation. These are: (a) to promote forestry on upper reaches with silvi-pasture development. (b) to break middle slope length for annual or perennial fruit trees and inter-crop, and (c) to put lower slopes under agricultural crops. As an alternative to shifting cultivation, SALT 1, SALT 2 and SALT 3 are to be demonstrated on pilot basis.

Sustainability of the Practice of Shifting Cultivation

The shifting cultivation is considered devastative and dis-advantageous as it not only causes harm to the ecosystem but also exerts negative impact on economy. Some of the evil effects of such cultivation are; it helps the springs to dry up, results in soil erosion, destroys valuable timber, responsible for causing very heavy floods, and silting the tanks and fields and damage to crops.

The forests of Orissa are mostly of deciduous type though the mangrove patches of coastal areas are a pride for the state. The forests are Sal-dominant in many areas, but miscellaneous forests and Teak forests are also found. During the last fifty years, the forest cover of Orissa has been drastically reduced. For instance, the forest area in 1962 was about 65868.9 sq. km. which was reduced to 57184 sq. km. in 1997 as per legal status though satellite pictures suggested a much lower figure i.e., 46941 sq. km.(30.1%) (Forest Survey of India, *State of Forest Report 1997*, p.29). In tribal districts 25760 sq. km. (1993) of forests were reduced to 25424 sq. km. in 1997 (*State of Forest report 1997*,p.61). Forests land and water not only support the sustenance of one another, but also support the existence of life on earth. It is through the balanced utilisation of these vital resources that man is able to lead a healthy and harmonious life. Among the various man-made factors/developments (like mining, industrial use, timber extraction, etc.) responsible for spoiling this harmonious relationship between natural resources and human life, shifting cultivation has been alleged to be a significant one. In its destructive role, it affects land, water and forests in the following ways; destruction of rich forest cover, degradation of land though soil erosion and decreasing the availability of floral, Waste which, due to the presence of a good forest cover, used to enrich the soil fertility and affecting the catchment areas of rivers and hill streams in a number of ways like decrease in rainfall and ground water level and increasing siltification and consequent burial of river channels due to soil erosion.

FAO (1982) defined deforestation as a complete cleaning of trees and their replacement by other use of the land ('alienation'). Many studies have contradicted with FAO that tribals/practitioners of shifting cultivation are not deforesting but they are part of conservation (Nye and Greenland, 1960; Sanchez, 1981). Cultivation on such hill sides without fertilizer inputs results in a progressive decline in soil fertility and thus justifies sustainability of land use in these areas (Janzen, 1973; Chin, 1985; Freeman, 1970 and Seavoy, 1973). It is also argued that researches about the impact of shifting cultivation on the forests often overlook the fact that shifting cultivators are more than just farmers; they are also carpenters, fisherman, hunters and gatherers (Fox-Worthy, 1922; Pringle, 1970; IDRC, 1980; Wons and Manokaran, 1985; Chin, 1985 and Gianno, 1986). Increase in population has been cited as a major cause of the sorry state of shifting cultivation and livelihood in many parts of the world. They feel that pressure in these areas will worsen with an increase in population (Altschuler, 1958; Bullard, 1960 and Cowgill, 1960). However, contrary to this popular belief, population increase is not always the

culprit for deforestation. A review of 70 different studies from around the world found that the impact of population increases on tropical hill side resources has actually been quite varied. Aerial photographs and ground surveys from hilly areas of Kenya, Nepal and Rwanda show that tree cover increased with population growth.

With reduction in *podu* cycle from 20–30 years to 3–5 years, the land under shifting cultivation loses its nutrients and the topsoil. With reduction in crop yield, the families start moving to other virgin areas. Frequent shifting from one land to the other has affected the ecology of these regions, declined the area under natural forest, caused fragmentation of habitat and disappearance of native species including invasion by exotic weeds. The area having *podu* cycle of 3 and 5 years is more vulnerable to weed invasion compared to *podu* cycle of 15–20 years. Reduction in the cycles of *podu* adversely affected the recovery of soil fertility, and the nutrient recycling by the ecosystem. Repeated short-cycle of *podu* has created forest-canopy gaps, which can be seen as thin forests from a distance. In shifting cultivation, once the fertility of the land is declined, it is abandoned and another area is selected for clearing and farming. The former area is reverted to forests and remained uncultivated for years together. Though the tribal agro-ecosystems are well satisfied in shifting cultivation and efficiency of shifting cultivation in terms of energy and economy is superior to that of settled agriculture provided it is done in 15–20 year cycle. *Podu* cultivation in short cycle has been detrimental to the ecosystem.

The flora and fauna have been affected variously due to loss of forests. The impacts of deforestation can be categorised as under: General: Invasive weeds have taken over some parts of the deforested areas. These weeds do not allow regeneration of forest crops. Similarly, mature timber trees have become scarce and wild life has been reduced drastically. Shifting cultivation and/or overexploitation has also reduced the availability of forest tubers, bamboo and *dabaghas* (*per. comm.*). Similarly, among the wild life bison and tiger etc. are almost out of sight and in villages. Species-specific: Impacts on individual species are due to two reasons: insecure livelihood and negligence of the Forest Department.

Though shifting cultivation is considered as an evil agricultural practice, the cost-benefit analysis shows that the livelihood, food security and socio-cultural events of the concerned communities have a wider edge than the environmental issues associated with it. The word ‘sustainability’ is not merely rooted in the environmental management, but also on other issues of survival of a community. A sustainable development is one in which the resources are extracted but NOT exhausted. It manages economic growth to such a way as to do no irreparable damage to the environment. It is based upon the principle that given enough time nature is able to recycle its conservable resources. By balancing the economic requirements of a society with ecological concerns it seems too satisfy the needs of the people without endangering the prospects of the future generations. Thus, the word “SUSTAINABILITY” or “SUSTAINABLE GROWTH” has infiltrated discussions of long run economic policy in the last few years. Here, the developments in all sectors have been seen as a self-defeating process. Thus, people are in search of alternative development process. Sustainability is a key concept in the alternative development paradigm that has been advocated. Sustainable development is a development process that not only generates economic growth but also distributes its benefits equitably, that regenerates the environment rather than destroying it, that empowers people rather than materialising them. The basic principles of sustainability for promoting ecologically- sound agriculture, proposed and pursued by M.S. Swaminathan (1991:29–31) include (I) Land, (II) Water, (III) Energy, (IV) Nutrient supply, (V) Genetic diversity (VI) Pest management (VII) Post harvest systems (VIII) Systems approach and (IX) Location- specific research and development along with monitoring, equity in conservation

and no less pivotal and vitally significant areas of biodiversity, food and ecological security.

In a study by KCDS, Bhubaneswar (OTELP, 2007) in four districts; Kandhamal, Kalahandi, Koraput and Gajapati it found that each household takes about 0.68 ha. known as the *podu* of forest land under shifting cultivation which provides food security for 4-5 months (September- January).

Table 3
Area under Shifting Cultivation by Households (Ha)

| District | Area under shifting cultivation per Household | Type of crops grown |
|-----------|---|--|
| Gajapati | 0.52 | Milletts, pumpkin, pulses |
| Kalahandi | 0.47 | Milletts and pulses |
| Kandhamal | 0.60 | Milletts, pulses, turmeric, vegetables |
| Koraput | 0.55 | Milletts, pulses, pumpkin |

In a similar study by the authors among the Kutia Kondhs of Phulbani district in Orissa, it was observed from the official documents that alternate livelihood systems consistent with sustainable forest land use are promoted to reduce *Podu*. Give patta before anything else. Then help to intensify cultivation in a small portion of the shifting range. In addition, offer to lease or buy-back the patta thus facilitating a voluntary movement away from reduced fallow unsustainable shifting cultivation and also providing alternative sustenance (Biswal, 2009). However, it was found that around 80 percent of the land holding is under shifting cultivation, from which they produce 200 varieties of cereals and 30 varieties of pulses. Though it is their main source of livelihood, they are also dependent upon livestock, forest produces and Minor Forest Products (MFPs). According to Kutia Kondhs Development Authority (KKDA), 8435 sq. km. of land is under shifting cultivation which is around 23% of the total lands of this district. It is significant from the sustainable perspective is that the site selection is done after taking into consideration the soil fertility, distance from the villages, legality from the forest department and the availability of drinking water. During slashing, they could collect fruits of some indigenous forest plants, seeds of these fruits are eaten as nuts. Some flowers collected during this process are used in off seasons. Seeds of *sal trees* and brooms collected are sold in the market. There is no use of modern agricultural implements. The important agricultural implements used are plough, yoke, dibbling rods, web, tiny mattock, hoe and sickle. The hand weapons include axe, bow and arrow. After once or twice cultivating the land, the site is abandoned for natural vegetation. The fallow period/*Nellatu* is the gap between two successive clearing of forest followed by cultivation is maximum up to 7 years. However, in the past, fallowing was of long duration (up to 10 years).

CONCLUSION

Both the strategies; to reduce shifting cultivation and to achieve sustainability in the shifting cultivation tribal areas seems to be difficult as shifting cultivation has a vice versa relationship with socio-cultural, economic and temporal aspects of the communities. For example, poverty and livelihood is deeply rooted in this form of agriculture and without wiping out poverty it is difficult to imagine of sustainability. In Orissa, there are different projects developed to reduce shifting cultivation and to bring out sustainability. Because of the important impact of climate change on agricultural landscapes, and its recognized implications for food security, agricultural production and GDP, these projects are of great relevance to the first, second and third of these targets. 13 measures to achieve these targets have been identified, including improvement of land use planning and surveying methods, establishment of technical support at the village cluster level,

and capacity building. However, after seeing at this practice, it can be said that the philosophical and the practical view of life and livelihood hidden in the customs and traditions of the tribal groups practicing shifting cultivation have the strong justification over the modern laws of the so called civilized people. That, in its ideal nature shifting cultivation is a technique for the utilisation and development available/reclaimable land for cultivation under unfavourable geographical conditions. That, it is the 'civilised people' of the plains who have deprived the tribal of their resources and have forced them to search for an alternative place of sustenance in the hill-forests, thus leading to shifting cultivation.

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