SOCIO-ECONOMIC AND AGRONOMICAL CONSTRAINTS OF JHUMIAS IN SHIFTING CULTIVATION

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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. Shifting cultivation, which is still prevalent in the uplands of north eastern, India. The popular prejudices against shifting cultivation are conflated with other negative attributes ascribed to indigenous peoples throughout the region: that they are backward, primitive, a hindrance to national progress, disloyal to and a security problem for the state etc. The department of forest, Govt. of Tripura, found that 27,278 families (1, 36000 persons) were dependent on Jhum cultivation (2007). A study was conducted on 60 Jhumia families randomly selected from two villages under the Dhumbur Nagar R.D block of Dhalai district, Tripura. To find out the socio-economic and agronomical constraints of Jhumias in shifting cultivation in Tripura, 16 independent and one dependent variable were selected for the study. Data were collected by personal interview method in the month of October and November 2014. For analysis of the data, ranking and coefficient of correlation was followed. It was found that lack of availability of land was first rank followed by lack of soil fertility, distant location of land, lack of adequate credit were in highest rank, followed by very limited govt. subsidy on production inputs, lack of efficient marketing facility at village level, lack of knowledge on balanced fertilizer application, lack of knowledge of IPM/INM, low profit from sale of vegetable crop and lack of adequate remunerative price for output were found be associated with shifting cultivation and socio-economic and agronomical constraints such as family size, number of family member involved, land size, selection of crop, methods of sowing and timely harvest were found to be negatively significant with shifting cultivation.

Keywords: Jhumias, primitive, shifting cultivation, socio-economic.

INTRODUCTION:

Shifting cultivation systems encompass a remarkably diverse range of land use practices developed and changed over time by farmers in various social, ecological, economic, and

political settings. Shifting cultivation systems are generally productive, make efficient use of resources, and have supported large populations. It is recognized that shifting cultivation is key to the livelihoods of many ethnic, indigenous and tribal groups in the tropical and sub-tropical highlands of Asia and Africa as well as Latin America. It is also one of the most complex and multifaceted forms of traditional agro forestry practice in the world reflecting a robust traditional ecological knowledge. It has evolved as a traditional practice and is an institutionalized resource management mechanism ensuring ecological security and food security thus providing a social safety net for local communities (Andersen *et al.*, 2008).Shifting cultivation is described as "an economy" of which main characteristics are rotation of fields rather than crops; clearing by means of fire, absence of draught animals and manuring, use of human labour only, employment of dibbling stick or hoe; short period of soil occupancy alternating with long fallow periods (Satapathyetal,2003). Tripura is the third smallest state of India with 10, 492 Sq. km. area. Jhum cultivation is deeply integrated into the social, cultural, and economic life style of many tribal groups that constitute about 31% of the total population of Tripura, India. In 2007, the Forest Department completed the first-ever census of hardcore shifting cultivators (Jhumias) and found 27, 278 families, comprising about 136, 000 people, dependent on Jhum (Anonymous, 2007).Most shifting cultivators remain subsistence producers of upland rice, but commercial production of other crops is expanding in areas with adequate infrastructure and market access. In most places, the fallow periods have become critically short during the past 20-30 years; the main causes being population increase government restrictions, and competing land-use objectives, as well as the concentration of people around urban centers and in areas with road and river access. This pressure on land has led to soil degradation, the proliferation of weeds and pests, lower yields and a greater demand for weeding. Many shifting cultivators are therefore experiencing increasing poverty and uncertain prospects, and are among the most disadvantaged groups in Laos. Few farmers would opt for shifting cultivation if alternatives were available, and where this is the case farmers have readily modified their land-use. Today, shifting cultivation is largely based on the cyclical use of young secondary vegetation, although limited encroachment in older forest still takes place in isolated areas. However, over the years, shifting cultivation has considerably reduced the forest area to the detriment of timber resources and natural habitats. Where shifting cultivation is intense, accelerated erosion and changes in the water discharge may impair water resources for irrigation, hydropower and domestic use. At present about 15,000 hectares of area is under Jhum cultivation in Tripura. Major crops in Jhum includes Paddy, maize, pulses (arhar, local beans), vegetables (ash gourd, pumpkin, cucumber, sweet gourd, leafy vegetables), fruit crops (orange, banana, guava, mango, papaya, watermelon) etc. The practice of Jhum is not, merely exercise by the tribals for their sustenance, but a traditional method of earning a livelihood, a traditional farming system that uses local product and techniques, has roots in the past, has evolved to their present stage as a result of the interaction of the cultural and environmental condition of the region and is deeply embedded in the trial psyche (Gupta, 2005).

METHODOLOGY:

The study was conducted at Dhumbur Nagar R.D block of Dhalai District of Tripura. The purposive as well as simple random techniques were adopted for the study. The district, block and villages were purposively selected for the study. Under the Dhumbur Nagar block two villages namely Awsini Roaja para and Ananda Mohan Roaja para, were selected. A total of sixty respondents have been selected by random sampling method. The data were collected in the month of October and November 2014 by personal interview method with the help of interview schedule. The independent variables were age(x_1), education level(x_2), family size(x_3),number of family member involved(x_4), family type (x_5), land size (x_6), selection of crop (x_7), seed treatment (x_8), seed rate (x_9), application of additional plant nutrients (x_{10}), time of sowing (x_{11}), methods of sowing (x_{12}), timely harvest (x_{13}), irrigation (x_{14}), mass media contact (x_{15}), income (x_{16}) and the dependent constraints in shifting cultivation.

Statistical analysis

For analysis of data Coefficient of correlation and ranking.

RESULTS AND DISCUSSION:

Data in the Table1 shows that 86.42% of the Jhumia perceived lack of availability of land as major constraints in Jhum followed by lack of soil fertility (82.57%). As there are lack of availability of land due to increase in population density, farmers cannot leave the land under fallow period for more number of years which eventually will affect the soil fertility and thus it also affects productivity. Distant location of land is another constraint. The reason is that farmer has to shift from one hill area to another hill area for searching of new fertile land, so they may not get hills which are nearer to their house. Lack of knowledge on balanced fertilizer application and lack of knowledge on pest and diseases are also constraints because of the poor educaion and their low to medium cosmoploliteness. Wild animal threat is also another constraint because Jhum field used to be in forest areas. Lack of adequate credit, lack of support from agriculture department, distance location of market etc. are also few more constraints faced by the tribal people in Jhum cultivation. Rahman *et al.* (2012) reported that traditional land practices exacerbated by poverty and associated with a lack of technical knowledge is the main cause for the continuation of unsustainable shifting cultivation. Population pressure, inadequate land for cultivation, low education levels, policy planning and implementation without local participation are all factors that influence farmers" decision to continue shifting cultivation. Intensive land management through agro-forestry is a promising alternative that can sustainably manage the remaining forest resources. If adopted, such systems potentially provide good economic returns, and may significantly reduce rural poverty.

Data in Table. 2 shows that-**Family size:** It was found to be negatively correlated and significant with constraints in shifting cultivation. It was found that if the family size of the Jhumia families is large then the constraints are less as compare to small family size. Family size motivates the head of the family to search a fertile land even though it is at distant location. Jayale and Nachane (1995) reported that farmer's family size have significant positive relationship with sustainability of orchard plantation.

Number of families member involved: In Jhuming operation starting from selection of land, cutting, burning and cleaning Jhum land, sowing of crop and finally harvesting. It was found that Number of families' member involved is negatively correlated with shifting cultivation, as more members reduces the work pressure and increase the production level of Jhum cultivation.

Land size: It plays an important role in jhum cultivation because large land size result more plant population compare to small land size but due to unavailability of jhum leads farmers sometimes faces problems. It was found that land size is positively correlated with yield. Chandregowda (1996) reported that farm size, innovativeness have positive and significant relationship with sustainability of rice farming.

Selection of crops: refers to different crops to be grown in Jhum land in a fallow period. It was found to be positively correlated with the constraints of shifting cultivation. Poor selection of crop leads to difficulties in weed management and loss in crop yield.

Timely sowing of crop: Jhum cultivation is mainly dependent upon monsoon that is why it is very important to sow crop seeds in right time. It was found that timely sowing of crop seeds leads to good yield whereas late or very early sowing of crop result in poor germination and yield loss.

Method of sowing: In jhum cultivation, farmers mainly adopt two types of sowing methods such as broadcasting and dibbling of seeds depending upon labour availability and time. It was found to be negatively correlated with yield of jhum and the result revealed that dibbling of seeds result good germination and plant population and ultimately provides good yield and income to farmers.

CONCLUSION:

The study was under taken with the help of 60 respondents to ascertain socio-economic and agronomical constraints of Jhumias in shifting cultivation. The result revealed that lack of availability of land, lack of soil fertility, distant location of land, lack of adequate credit were in highest rank, followed by very limited govt. subsidy on production inputs, lack of efficient marketing facility at village level, lack of knowledge on balanced fertilizer application, lack of

knowledge of IPM/INM, low profit from sale of vegetable crop and lack of adequate remunerative price for output were main constraints of Jhumias in shifting cultivation.

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Table1. Constraints faced by the Jhumias (n=60)

Statement	Percentage	Rank
Lack of availability of land	76.12	I
Lack of soil fertility	78.27	II
Distant location of land	59.10	III
Lack of adequate credit	54.60	IV
Very limited Govt. subsidy on production inputs	53.44	V
Lack of efficient marketing facility at village level	51.39	VI
Lack of knowledge on balanced fertilizer application	48.68	VII
Lack of Knowledge of IPM/INM	46.11	VIII
Low profit from sale of vegetable crop	29.14	IX
Lack of adequate remunerative price for output	27.02	X

Table 2. Co-efficient of correlation between independent variables and constraints

Variables	Constraints
Family size(x_3)	-0.282*
No. of family member involved(X_4)	-0.372**
Land size (X_6)	-0.398**
Selection of crop (X_7)	0.356**
Time of sowing	0.325**

Methods of sowing (X_{12})	-0.260*
Timely harvest (X_{13})	-0.291*

**1% level of significance

*5% level of significance