Chapter I

Introduction
1. a  Jhum or Shifting cultivation is a mode of cultivation prevalent in some parts of the world, mainly in the humid tropics of South East Asia, Africa and Latin America. In India it is mostly practised in the hilly areas of the North Eastern Region, Andhra Pradesh, Orissa and in some pockets of the states of Madhya Pradesh and Bihar. On the basis of archaeological data the origin of shifting cultivation could be traced back to the neolithic period dated to 7000 B.C. It represents a distinct stage in the economic and technological development of a society. According to the study of civilization and development, it is regarded as one of the earliest stages of development of agriculture in the evolution of human society.

According to C. Clark "any continuing agricultural system in which impermanent clearances are cropped for shorter period in years than than they are followed", constitutes shifting cultivation.

According to this practice, small patches of forest land are cleared by felling the trees and burning them. Then the area thus cleared is used for cultivation and plantation of crops. A plot of land is cultivated only for a certain period of time because with the cultivation of the same plot and in the absence of the use of artificial fertilizers, the
natural fertility of the soil tends to decline. So a plot having been cultivated for a specific time period is to be abandoned and a new and different plot of land has to be chosen for cultivation, letting the previous plot recoup its fertility naturally. Before long, however, the same problem of decline of fertility arises in the new plot and again the farmers are required to move to a different plot. This process is continued and a time comes when the farmers return to the original spot. This time gap between leaving of the first plot of land and coming back to it again is called the 'jhum cycle'. The length of this cycle depends on the land-man ratio. Thus, given the availability of the cultivable land, the size of the population at a given period of time determines the length of the jhum cycle. In jhum cultivation besides land, the major inputs are seeds, organic manure and manpower. Seed is obtained from the previous year's stock. Manure is generated in the compost pit within the village itself from the crop residues and animal dung, the by-products of agriculture and animal husbandry. At the village level, the upper limit of the supply of manpower is determined by the population size. Tools and implements used for various agricultural operations are very simple and primitive, which are made usually within the village itself and are owned individually.
The people working in jhum may not engage themselves in any other occupation. The food crops may be the main crops of jhum cultivation and the reason is that there is a belief that the food production is basically labour intensive, requiring large inputs of manpower and thus allowing little time for other activities. Shifting cultivation is known under different names in different areas in accordance with its mode of operation. In English it is named as slash and burn method of cultivation or long-fallow cultivation, swidden cultivation or shifting cultivation. In a U.N.E.S.C.O. publication, it has been observed that the terms shifting cultivation and slash and burn cultivation, while describing cultivation techniques, has acquired disparaging connotations. Instead, the term Swidden specifies a farming technology as well as a life-style based on a particular adaptation to forest and hilly environments. Hence the latter term is preferred. However as the term shifting cultivation is more widely known, the same will be used in this dissertation. Shifting cultivation has been defined as "... an agricultural system or economy which is characterised by rotation of fields rather than the rotation of crops by preliminary clearings such as fire, absence of draught animals and of manuring, use of human labour only, employment of the dibble stick or hoe, short periods of soil occupancy alternating with long fallow periods."
A graphic description of jhumming is given by the Dhebar Commission: "It consists of clearing the forest slopes, burning the fallen trees and bushes, and dibbling or broadcasting the seed in the ash-covered soil. The rest is left to nature ... The fertility of the soil is soon lost and some of it is washed away in the heavy rain. Cultivators then shift to other clearings and then the cycle continues in rotation."

One of the remarkable features of shifting cultivation is its universality. Primitive peoples evolving from the status of simple food gatherers responded to the challenge of the forests in the same way.

Shifting cultivation is done on the hill slopes which are not too steep. The altitude of such areas generally lies below 6,000 feet above the sea level. But there are instances of the Both people in northern Sikkim practising jhumming up to 10,000 feet.

In the operation of shifting cultivation the following stages are found to be invariably followed in all the areas:

1. Selection of the forested area for cultivation;
2. felling of trees and cutting down the bushes;
3. burning the dried forest into ashes;
4. clearing the area of the logs left unburnt;
5. dibbling and sowing seeds;
6. weeding;
7. watching and protecting the crops against wild animals and birds;
8. harvesting;
9. thrashing and storing; and
10. fallowing.

Besides the above operations, the jhumias observe some traditional and religious ceremonies with the operations. Particular mention may be made of the worship and sacrifice before sowing seeds and the festivals observed after harvesting is completed. This has made shifting cultivation a way of life of the people practising it. However, it is seen that the tribals converted to Christianity in the North East usually do not perform the above mentioned rituals.

The tropical rainy regions, with approximately a mean temperature of at least 18.3°C and a minimum of 24 inches of rainfall per annum have been found to be favourable for shifting cultivation. Besides the tropical areas, the system of shifting cultivation is practised in parts of Korea in Temperate Asia. Clark and Haswell (1966 : 33) wrote that it persisted in Europe in the middle ages and was found in remote parts of Sweden until 1920. The Europeans in Brazil and the English settlers of the seventeenth century in Virginia of the U.S.A. practised shifting
cultivation till the middle of the last century (Gourou 1961: 25).

Shifting Cultivation in Meghalaya

Shifting cultivation is popularly known as "jhumming" or "jhum cultivation" in the North Eastern Region of India. But different tribes living in different areas of the region name it differently. Among the Khasis of the state of Meghalaya it is known as 'Lyngkha-lum' or 'shyrri'. As in the other states of the North East India, jhumming is the most popular way of cultivation in Meghalaya also. It is considered by some as a way of life of most of the rural people of Meghalaya. However, there was a time when agriculture was considered as a way of life for all the Indians.

The state of Meghalaya has a land surface of 22,500 sq. km. predominated by mountainous terrain with narrow valleys. It contains the agro-climatic conditions suitable for jhumming. However jhumming has great detrimental effects on the soil, vegetation and water resources of the state. Recognising this very important problem in the state, the Government took up schemes to control jhum and to rehabilitate the jhumias in other forms of agriculture or occupation. This was stated in '1974-75, and the physical achievements under the scheme for the period from 1974-75 upto 1986-87 are as follows:
<table>
<thead>
<tr>
<th>Scheme Description</th>
<th>From 1974-75</th>
<th>From 1981-82</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>From 1980-81</td>
<td>From 1986-87</td>
<td></td>
</tr>
<tr>
<td>1) Number of families benefitted</td>
<td>3449 Nos.</td>
<td>856 Nos.</td>
<td>4305 Nos.</td>
</tr>
<tr>
<td>2) Terracing</td>
<td>5044 hec.</td>
<td>821 hec.</td>
<td>5865 hec.</td>
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<tr>
<td>3) Reclamation</td>
<td>740 hec.</td>
<td>35 hec.</td>
<td>775 hec.</td>
</tr>
<tr>
<td>4) Afforestation</td>
<td>6657 hec.</td>
<td>-</td>
<td>6657 hec.</td>
</tr>
<tr>
<td>5) Irrigation</td>
<td>2615 hec.</td>
<td>1557 hec.</td>
<td>4172 hec.</td>
</tr>
<tr>
<td>6) Camps and Camp Equipments</td>
<td>195 Nos. + 4 units</td>
<td>88 Nos. + 34 units</td>
<td>321 Nos.</td>
</tr>
<tr>
<td>7) Drinking water</td>
<td>103 Nos. + 4 units</td>
<td>57 Nos.</td>
<td>164 Nos.</td>
</tr>
<tr>
<td>8) Dwelling houses</td>
<td>1665 Nos.</td>
<td>-</td>
<td>1665 Nos.</td>
</tr>
<tr>
<td>9) Link road</td>
<td>178.4 km.</td>
<td>119.48 km.</td>
<td>297.88 km.</td>
</tr>
</tbody>
</table>

Based on the performance of the schemes from 1974-75 to 1980-81, the number of families dependent on jhumming during the year 1974-75 has been estimated at 70,000 families, when the actual census figure of families dependent on jhum in 1981 is 51,720. Hence in 1974-75, about 35% of the total population was dependent on jhum. The percentage came down to about 20% in 1981. Thus there was a general decrease of about 15% in about 8 years time due to the efforts made by the Government of Meghalaya through the Soil Conservation Department of the State.

In 1986, total net area sown was 1,95,000 hectares. According to the 33rd round of national sample survey conducted...
in 1981 we find that 64,130 hectares of land was under shifting cultivation which thus accounted 32.88% of the total cultivated area. As against this, 53,272 hectares of land was under settled cultivation which accounted for 27.31% of the total net area sown. As against these two categories some households practised both jhum and settled cultivation and a total of 77,590 hectares of land was under semi jhum and semi permanent cultivation. Thus, the mixed farming accounted for 39.78% of the total net area sown. According to 1981 census total population of Meghalaya was 13,35,819 which consisted of 25,5,936 households.

Except the reserved forest areas and protected forest areas, which constitute 8.48% of the total forest area, the rest of the forest area classified as community forests or private forests are subjected to this practice of shifting cultivation. The length of the jhum cycle was as high as 18 to 20 years in the Khasi Hills in the past. But now as the population has increased considerably, the length of the cycle has been reduced to 3 to 5 years, and it has come down even to 2 to 3 years in some areas.

The following may be the demerits of this phenomenon of reduced jhum cycles:

a) On a priori consideration, both production and productivity may tend to fall if yield raising inputs are not used.
b) Reduced jhum cycle represents the impact of increased population pressure on land that leads to worsening land-man ratio. The increasing scarcity of land may lead to more extensive exploitation of forest land for purposes of cultivation which will lead to increased deforestation leading to environmental problems and soil erosion.

c) It hampers investment in land improvement programmes. If any piece of land under cultivation is to be abandoned in due course, the cultivator cannot be motivated to undertake investment of land augmenting type. This will act as a stumbling block in agricultural development.

d) As land becomes scarer and scarer due to rapid population growth, agricultural unemployment both open and disguised emerges.

1. d Importance of Jhumming in the State of Meghalaya

Jhumming is a primitive mode of cultivation compared to that of the settled cultivation which is practised in most of the parts of the world. Some persons opine that jhumming is practised only in economically backward areas. A widespread view is that jhumming is the major cause of deforestation especially in the tribal hill areas. Deforestation in its turn leads to reduced rainfall thereby affecting the stable ecological balance.
Actually, one should consider two aspects of the problem:

a) social aspect and b) individual aspect.

From the social point of view, it is the social cost and benefit that counts. But for the individual's self interest is predominant. As far as social costs and benefits are concerned, jhumming may be considered harmful. But the individual farmer may find it attractive because this type of cultivation yields the food for his subsistence and day to day needs without much financial and capital investment. Besides land, family labour and seeds are the only other inputs in this type of cultivation. As this mode of cultivation is relatively labour intensive, it provides seemingly more opportunities for the absorption of the entire family labour even though the employment may in real terms be only partial, at least in certain cases. But it is satisfying to the subsistence farmers that there is no apparent unemployment. The fallacy here is that if five persons are doing the work of two, three can be released to enjoy leisure or to work elsewhere and thus earn an extra income for themselves and the household as a whole would decidedly be better-off if this is really the case.

The problem of jhum has been discussed ad infinitum in the context of the North-East and some studies on jhum have
also been conducted, but hardly any of these studies have analysed the problem rigorously in a scientific manner in so far as the economic aspects like productivity, employment and marketed surplus generated by this type of cultivation are concerned. We, therefore, propose to focus attention on the following questions:

a) Is the average productivity under jhum more than in settled cultivation?
b) Is the income per hectare from jhum more than that from the settled cultivation? It is probable that the income and productivity differentials of the two modes of cultivation are inconsistent provided that the low productivity mode of cultivation concentrates on the high value crops. In view of the fact that the conversion of jhum lands into permanent mode of cultivation generally needs immense investment both in terms of fixed and working capital, the earning differentials of the two modes of cultivation are of immense significance. The individual households may be induced and motivated to adopt settled cultivation only if the requisite investment involved in the conversion is warranted and justified by the returns. If the earning differentials are meagre, then the decision of the individual households to persist with the jhumming even when an alternative is available cannot be termed irrational on economic grounds howsoever harmful the jhumming may be ecologically or in terms of the social costs involved in
it. But this is precisely the question which has not been faced by the policy makers and the planners.

c) **Employment is another important aspect of the problem.** Does jhum require more labour per unit of cultivation than that required by the permanent cultivation?

The rural economy of Meghalaya is not diversified. The cultivation happens to be the single largest sector of the economy both in terms of output produced and employment generated. If the conversion of jhum lands into the settled mode of cultivation is likely to result in displacement of labour, the alternative will not be economically feasible unless alternative avenues of work with wage levels at least as high as one gets from jhum are made available. If the alternative mode of cultivation is less labour absorptive, either the cultivated area has to be increased commensurately or non-agricultural jobs will have to be created.

d) **One of the popular beliefs is that the jhumming is by and large a subsistence mode of cultivation.** If this view is correct, then the marketed surplus will not exist in jhum. Besides if the subsistence level of cultivation of jhum is due solely to the jhumming, then the settled cultivation, all other things being equal should be characterised by significantly high levels of marketed surplus. Hence the question whether jhum generates greater marketable surpluses than the permanent
cultivation becomes important.

Such aspects have not been touched by the different investigators so far. At least we do not know any study which has investigated these aspects of the problem in a meaningful way.

II. Objectives

For getting answers to the above questions, the following objectives are set for the proposed study:

(a) To make a comparative study of the given three aspects of the settled and shifting cultivation.
(b) To trace the socio-economic aspects of jhumming.

III. Hypotheses

The following hypotheses are proposed for testing in this study:

(a) The productivity under the jhum is lower than in the settled cultivation.
(b) The jhum cultivation is more labour-intensive and less capital-intensive than the settled cultivation.
(c) The jhum generates greater surplus than the permanent cultivation.