Chapter I : Introduction
1.1 Nature and Meaning of the Problem

In developing countries, like India, agriculture is the very backbone of the dominant sector of the economy. The majority of the working population (more than 70% in India) is engaged in farming, and a number of farmers are not able to meet even their own consumption requirements for food-grains except in a few regions where green revolution occurred and matured. The working population engaged in agriculture generates nearly half of the national income. Moreover, among the agricultural products, foodgrains occupy a predominant position in terms of their share both in total output and area under cultivation (55% and 81% respectively in India).

The population of the developing countries has been rising very rapidly. The explosive growth of population has adversely affected the growth of the economy. Even though the gross domestic product has grown quite substantially, population growth has reduced the growth of per capita income to a nominal level. The developing economies are predominantly agrarian in nature; the secondary and tertiary sectors have not grown adequately. Consequently, the pressure of numbers is exerted, most of the time, on land. Naturally, ever-increasing numbers tend to get absorbed in agriculture which has created problems of disguised unemployment, low labour productivity, unfavourable land-man ratio and the fragmentation and sub-division of holdings.
Modern developmental processes have been found to be historically associated with the growth of manufacturing industries. Hence, it is often suggested that, in the highly populated areas where pressure on agriculture and primary production happens to be high, industrialisation provides the key to lift the economy out of its shoe-strings. Then the heavy and basic industries are considered to be the king-pin of the growth process. The argument is that if the secondary sectors experience significant development, there will be transfer of surplus labour from agriculture to industries. The transfer of surplus labour from agriculture to industries has been assumed not only to promote economic development, but has also been expected to solve the perennial problem of full or partial unemployment in rural India. However, as agriculture occupies a predominant position in the rural economy, this sector and other allied sectors have to play a crucial role in the process of employment generation. Generally, leading and the new sectors of the economy develop more rapidly than the rest of the economy. But still the new job opportunities may be rendered inadequate by rapid population growth and a mismatch between the skill available and those in demand.

But as an economy moves from lower to higher stages of economic development, the level of income of a country/region increases and the proportion of its labour force engaged in agriculture and related activities is expected to fall relative to the proportion of work force engaged in
industries. At higher stages of growth, there occurs a
shift from agriculture to industries and then from
industries to trade and services. But the hypothesis of
transfer of the surplus labour from agriculture to the
secondary and tertiary sectors assumes implicitly that it
will remove the constraints to economic development, such
as the scarcity of capital, trained manpower and wage-goods
including foodgrains in the development process itself. Of
these, the supply of wage-goods in general and foodgrains
in particular may be considered to be the greatest stumbling
block in the developmental process. This constraint derives
its seriousness from the fact that the foodgrains constitute one
of the most urgent necessities of life of the majority of
the people. Therefore, if the endogenous supply falls short
of requirements, either of the following alternatives have
to be adopted: (1) allow the population to die of starvation,
which is neither human nor plausible in a democratic country
like India, or (2) make the short-falls good by necessary
imports from abroad, which diverts precious foreign exchange
from the developmental activities. Then the absorption of
labour in non-primary sectors of the economy is limited by the
supply of foodgrains. The fluctuations and inadequacy in
supplies destabilises the foodgrain prices which generates
inflationary pressure in the economy. Price stability
will then hardly be compatible with development.

Thus, economic development pre-supposes the availabili-
ty of sufficient amount of foodgrains. From the point of
In the developing countries, both the major part of the investible resources and the basic goods and raw materials have to come from agriculture for the sustaining of development in the long run. In fact, economic development requires an increase in per capita production of the farm sector in order to provide the surplus to feed workers engaged in the non-farm sectors and also to meet the requirements of agro-raw-materials. Thus, farm sector can make a positive contribution to economic development by raising output, and hence, the marketed surplus of foodgrains. In addition, the increased marketed surplus will increase real as well as money incomes of the farmers; and increased amount of cash in the hands of the farmers will result in an enhanced demand for the manufacturers. Thus, the growth pattern will reinforce the sectoral growth. This will further result in an inter-sectoral trade and the consequent commercialisation of agriculture, especially the sub-sector of foodgrains. Irrespective of the physical form of the surplus, the main feature of commercialisation is, basically, that a growing amount of surplus output has to be marketed.
The marketed surplus and its concommitant commercialisation will help not only in increasing production but will also have important effects on distribution pattern, bringing about major changes in the production relations in agriculture with an emphasis on ready market for the labourers.

Thus, the theory of economic development embodied in some of the 'dual economy' models deriving from the seminal contribution of Arthur Lewis (1954-56) suggests that the extraction of agricultural surplus, i.e. the transfer of real resources from agriculture to industry, constitutes the necessary condition for development of underdeveloped societies. Evidently, in the Ranis-Fei extension of the Lewis Model, the transfer of real resources from agriculture to industry, defined as an export-surplus of the farmers, is seen as a sine-qua-non of economic development.

The question of marketed surplus and its role is, therefore, intimately linked up with the commercialisation of agriculture in general and the foodgrains sector in particular. The extent of dependence of the farmers upon the market may be viewed in terms of any one of the following aspects: (1) market dependence for selling, (2) market dependence for consumption. Many times, the cultivator is required to purchase his own requirements for foodgrains from the market. For meeting the pressing needs for cash, poorer farmers may have to sell their produce immediately after the harvesting is over and later they themselves have to purchase their food requirements from the market at higher prices, (3) the role of
non-market transactions, such as payments and receipts in kind and (4) dependence on the market for obtaining agricultural inputs.

As for the first aspect we have had a brief explanation. Dependence of the farmers on the market to meet their consumption requirements of foodgrains is, in a sense, the counterpart of the various aspects of the problem of the marketed surplus. It indicates the extent of commercialisation in economic relations.\(^5\)

Marketed surplus and commercialisation of the production and consumption of foodgrains are, therefore, the inseparable aspects of economic development. Marketable surplus is a function of the lifting of the agrarian economy out of the morass of subsistence farming which, in its turn, hinges upon technological transformation. Introduction of new technology has many short-run and long-run implications for the entire economy, and for the agriculture in particular.\(^4\) In most of the stagnant societies, the application of known improved technology often leads to a substantial and quick increase in the production of foodgrains and other agricultural crops.\(^5\) After certain minimum infrastructure facilities have been developed, the introduction of new technology can lead to the exploitation of the unexploited potential which can produce the requisite surplus with relatively low investment and within a comparatively short period of time. Once the ground is prepared for the introduction of such techniques, an ever-expanding horizon is
opened up. Thus, technological change, marketed surplus and commercialisation of foodgrains and other agricultural products are positively correlated and can act as an accelerating factor of economic development.

There is also a direct relationship between the type of cultivation and the nature and level of economic development. In India in general, and in the North-Eastern Hill Areas in particular, it has become fashionable in academic and policy discussions to suggest settled cultivation as an alternative to jhum cultivation, and it is supposed to lie at the base of agricultural development. As much harm can be done to developmental efforts on account of policies based on unfounded beliefs, it is necessary to investigate as to whether this view is scientifically sound. As such, a study of the relative requirements of labour and investment expenditure as well as the productivity of labour and capital, cropping pattern, marketable surplus and the extent of commercialization in the settled and jhum cultivation will be of great help in evolving a suitable policy frame for agricultural development and a system of procurement for ensuring food security and public distribution. Only a detailed study can reveal the magnitude of the marketed surplus that can be expected at different levels of output of different crops.

In order to study all these aspects together in a comparative framework, it is essential to have a general equilibrium system for analysing the behavioural propensity
of the tribal jhumias especially with respect to commercialization of foodgrains, sales, consumption, stocking and their investment behaviour. Only in such a framework, scientifically correct and economically meaningful analysis of the marketed surplus of foodgrains at different levels of development and different types of technique can be carried out.

From the past experience of the North-Eastern Hill Areas, especially in Mizoram, it is commonly believed that jhum is much more labour-intensive than the settled cultivation. This is a hypothesis which needs testing by scientific procedure. Similarly, initial investment for converting the jhum land into the settled lots requires high doses of investment, which, most of the farmers are not in a position to afford, and the only way of converting hill cultivation into settled cultivation is through terracing.13

An advantage of terracing is that the modern inputs, like fertilizers and water, etc. may also be used to raise per worker and per hectare productivities. This may also help in diversifying the cropping pattern. Currently, only paddy and maize are raised in settled cultivation the cropping pattern of the jhum cultivating is varied and highly diversified. Because of the predominance of the jhum cultivation at present, most of the marketed surplus of foodgrains comes from the jhumias. But the absence of authentic data makes it difficult to determine whether per worker or per hectare output of foodgrains in the jhum cultivation is
significantly different from those of the settled cultivation. However, it has been found from practical experience of some farmers that the terraced cultivation, if provided with enough fertilizers and water supply, could make remarkable difference in output. In addition, the settled cultivation will lead to the preservation of the forest resources. Therefore, the settled cultivation, if it can be successfully practised, will not only result in agricultural development, but will also increase the supply of forest resources which constitute one of the most important raw-materials needed for the development of cottage and small-scale industries. This will also contribute to the environmental preservation.

1.2 Objectives

The main objective of the study are:

1) To analyse the relative advantages and disadvantages of the settled and jhum cultivation.

2) To determine the relative levels of output and the marketed surplus of foodgrains in the jhum and settled cultivation.

3) To analyse the returns to scale and the returns to individual factors in the production processes of the two modes of cultivation.

1.3 Hypothesis

On the basis of the problematic situation and the objectives of the study, the following hypothesis are
formulated as first approximation and for testing them empirically:

1) Average family size of holding in jhum is larger than that of settled cultivation.

2) Family size and holding size are highly related and, therefore, average size of holding in jhum is larger than that of the settled cultivation.

3) Settled/Terrace cultivation absorbs greater quantities of labour than jhum.

4) Marketed surplus per hectare is higher in the settled than that of the jhum cultivation, and

5) The average productivity of land and labour are higher in the settled than the jhum cultivation.

1.4 Sampling Design and Methodology

For purpose of verifying the above hypothesis, we have generated data by means of field surveys. The data have been gathered by means of the Stratified Sampling. The first set of control factors used for purposes of stratification have been jhum and settled cultivation. Within each of these stratum, the villages have been further stratified according to two control factors: (a) distance from the road, and (b) population size.

It is a well-known fact that the nature and extent of resource endowment is a major factor of population density. Generally, a region which is richly endowed with natural resources, e.g. fertility of land, water supply, etc., tends
to attract more population than other areas. The population size is related to the right combination of human and natural resources for economic development. As against this, the area deficient in natural resources may provide greater motivation to human agents to overcome these difficulties. It is also true that the population pressure imparts an impetus to intensify efforts for rapid development. All these forces pull the developmental process in the same positive direction. Therefore, population size may be taken as the proxy of forces that may affect developmental activities favourably or unfavourably.

Similarly, the distance from the road acts as the positively stimulating factor for development. Roadside villages are generally opened up by the development of transport and communication facilities which facilitate the generation of pressure of modern development. The occupations also become more diverse. Opening up of these areas by the development of transports and communications tend to make agriculture much more commercialised and developed than the agriculture of other areas.

On this view, one could expect that most of the remote villages will be sparsely populated, and the villages near the road-side to be more densely populated. The nature and the level of socio-economic development is likely to be more satisfactory in the areas near the road-side than those which are remote. However, such trends have been disturbed in Mizoram where the villages have been regrouped and reorganised from the security viewpoint in the wake of
insurgency during the years 1966-68. The result is that we find big villages not only near the roadside but also in remote areas. Therefore, population size may not be as decisive a factor of development in these areas as it happens to be elsewhere; and it may or may not reflect the level and nature of socio-economic development in accordance with the natural resource endowments. This fact may not allow the developmental activities to be co-terminus with the population size alone in case of Mizoram even though the two control factors, taken together, may have a great bearing on the nature and the extent of socio-economic developments that has taken place in the rural areas of Mizoram. Another important feature of the rural areas of Mizoram which the present investigation observes is that there are numerous villages which practise purely jhum cultivation, while there are hardly any village which practise purely settled cultivation of any one type. What we find is that even if the settled cultivation is adopted in some rural areas, a number of households continue to practise jhum cultivation. We may define such areas as areas of mixed cultivation. Therefore, what we find is the mixed pattern of cultivation being prevalent in these villages of Mizoram. In view of this, the first control factor of stratification becomes jhum vrs. mixed cultivation. According to these control factors we prepared different sub-clusters of villages within each stratum according to the first control factor. Three sub-clusters of villages according to each of the two control factors are prepared. The cluster of villages according to
the population size have been as follows:

1) Cluster of villages with high population,
2) cluster of medium size villages, and
3) cluster of small size villages.

Similarly, the villages have also been divided into three sub-clusters according to the distance from the road as follows:

1) long distance from the road,
2) moderate distance from the road, and
3) short distance from the road or road-side villages.

Thus, within each of the clusters, there would be six sub-clusters of villages.

Even though we have had some rough idea about the range of population size at different villages, yet we preferred to do this classification more accurately after obtaining information from the census data. According to the available information, the highest populated villages have about 1000 households approximately, while the lowest populated villages have about 15 to 25 households approximately. These two extremes provide us the range on the basis of which the cut-off points for the three different sub-clusters of villages according to population size have been decided. Of course some degree of arbitrariness has to be there in deciding the cut-off points. Same is true about distance from the road-side. According to the local practice, 0-5 kms. is considered to be workable or short-distance. Distance upto 15-30 kms from the road may be considered to be average or
moderate, while more than 30 kms. may be considered as long. These distances may be considered to be co-terminus with the categories of short, moderate and long, in terms of the time required to cover these respective distances. As the terrain is relatively more difficult than that in the plains, norms applicable to other regions may not be relevant. Real remote villages may be, however, as far away as 100-120 kms. from the roadside. If we had gone according to these strata, we would have to make a selection of at least one village from each of these clusters. It means that we should have selected six villages each from the two clusters that would be further sub-divided into three sub-clusters. But it was considered to be too costly in terms of time and other resources at the pilot stage of M.Phil dissertation.

In the pilot stage, we have, therefore, taken up only four villages from these clusters. In the first instance, we have chosen a remote small size village and the other village is also small but it is the nearest village to the roadside. Out of the other two villages one is moderate and the other is big in size. One is near to the road and other is a remote village. In order to carry out a comparative study of these two cases, we have tried our utmost to select as much similar villages as is practicable. The small size of the selected villages also facilitate an indepth study of the characteristics to be investigated. Each of the two selected villages have been further stratified according to the other two control factors - the holding size and the type of
cultivation practised. Thus, the cultivating households in each of the four selected villages in the pilot investigation have been further stratified according to the holding size and the type of cultivation practised.

Each cluster of households has been divided into three sub-groups according to per capita cultivated land. The primary sampling unit has been the household. In case of the two small villages selected in the sample from both the clusters, census method has been found to be practicable.

1.5 **Area Selected for the Study**

Aizawl District of Mizoram has constituted the domain of the survey. This area has been selected with a view to the following factors:

1) About two third of the total population of Mizoram is living in Aizawl District.

2) Most of the areas utilized for settled cultivation are located in Aizawl District.

3) The capital of the state, Aizawl, is the chief centre of marketing serviced by a number of primary market centres away from the capital. As the marketed surplus may, among other things, depend upon the marketing facilities, it will facilitate an indepth study of the surplus.

4) A study of this type has never been undertaken within this area, and the developmental efforts are simply based on impressions and beliefs which may have no scientific basis. This study would, therefore, throw light on the empirical validity of these impressions and beliefs.
1.6 **Chapterisation**

The study has been divided into eight chapters to facilitate a systematic presentation of the analysis as follows:

The first chapter introduces the nature and the meaning of the problem. Chapter II introduces the background of Mizoram economy. Chapter III reviews related studies undertaken by others for different states of India in general, and the different states of the north-eastern India in particular. Chapter IV examines the dominant features of the jhum and settled cultivation. Chapter V deals with the relative employment levels in the jhum and settled cultivation. Chapter VI deals with the estimation of the relative output levels in the two modes of cultivation. Chapter VI is a study of the relative share of jhum and settled cultivations in the marketed surplus of foodgrains. The last chapter concludes the major findings of the present study.