Chapter IV

THE PRIMARY SECTOR

Introductory

To contribute to the understanding of the economic problems of the State, we have to look into the existing structure of its economy. For this purpose, a study of the different sectors of the economy is the most convenient way. But to take a sectoral view of an economy, certain structural parameters that characterise it will have to be found out. Most important among these structural parameters are the distribution of the working force between occupations, relative productivity of different sectors and inter-sectoral inequality. But in view of the data gap, we propose to make a study of only some major characteristics and aspects of the three distinct sectors, namely, the Primary, the Secondary and the Tertiary sectors of the economy of the State and where possible, to assess the possibilities relevant to the development of each. This chapter deals with the Primary sector. The chapter is divided into two sections - Section (A) and Section (B). Since the system of Jhuming or shifting cultivation is so widely practised in the State, it is proposed to discuss thoroughly and separately, the economies of the system in Section (B).

Section (A)

Agriculture and Allied Sectors

The Primary sector of an economy includes agriculture, animal husbandry and ancillary activities, forestry and fishery.
Clark's definition of the three sectors include these items under the Primary sector. Similarly, the Central Statistical Organisation of India includes the same items under the Primary sector for the estimation of the national income of the country.

**Agriculture**

**Predominance of Agriculture:**

Despite being rich in forest and mineral resource endowments, Meghalaya is primarily an agricultural State as any other State in the country. As a matter of fact, agriculture is the mainstay of the newly born State's economy. It is the source of supply of rice, the staple food of its population. The predominance of agriculture is clearly borne out by the fact that more than 85 per cent of the population of the State live in rural areas and depend on agriculture for their livelihood. Again more than 78 per cent of the total working force constitutes those who are engaged in agriculture as against the All-India figure of about 70 per cent according to the 1971 Census. But taking the actual cultivators only, the percentage is much higher in the State than the All-India figure - being 69.13 per cent as against the All-India figure of 43.54 per cent. This shows, as we have already observed in a previous chapter, that the occupational pattern of the State is predominantly agricultural. From the State income estimates for 1973-74 so far made since the creation of the new

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2. See Table 2.16 of Chapter II above.
State, it is abundantly clear that the contribution of agriculture and allied activities to the State net domestic product is the highest, being 64.50 per cent. Agriculture alone contributes 62.89 per cent to the total net income of the State. The performance of the agricultural sector must, therefore, implicitly determine the overall performance of the economy of the State.

Potentialities and Certain Constraints on Agricultural Development:

Rainfall, as we have already seen, is generally heavy in the State - the average rainfall being 2000 to 5000 millimetres. The soil is mostly red loam and is generally acidic in nature, comparatively rich in organic matter and nitrogen but poor in phosphorus and medium in potash content. The climate is sub-tropical at medium altitude with a tropical influence in the low altitude of the south and western parts of the State, whereas temperate climate prevails in the Central Upland region.

The diversity of the soil types, variation of altitudes and climatic conditions, provide ample scope for growing a variety of agricultural crops ranging from cereals to fruits - temperate to tropical. But in spite of these potentialities, the State suffers from a combination of adverse features which are either non-existent or not so pronounced in the rest of the country. The practice of shifting cultivation (locally termed Jhum or Jhuming) and the prevalence of the customary tribal laws governing the land


4. The economics of *Jhuming* is discussed in Section (B) of this chapter.
tenure system over wide areas, are prominent among them. The land tenure systems in the State are being discussed in detail later in this chapter.

Other important features which put great constraints on the agricultural development of the State are that the valley lands in between the hills are generally narrow preventing large scale adoption of mechanised cultivation or irrigation projects. Transport and communication are also scanty. Similarly marketing facilities are wanting. The problems are more severe in the southern border areas of the State where free trade with East Bengal (later East Pakistan and now Bangladesh) was disrupted since Independence. All this calls for the building up of infra-structure necessary for the creation of a strong and stable agricultural base that will set in motion the process of balanced growth in the field of agriculture in the State.

Landholding and Farms:

Excepting the plains portion of northern Garo Hills, other areas of the State have not been cadastrally surveyed. Accurate and up-to-date record to show the size of landholding per family is, therefore, absent. The Department of Economics and Statistics of the Government of Assam conducted socio-economic surveys in Garo Hills and in the Khasi and Jaintia Hills from time to time up to 1970 under the Random Sampling Method. The discussion in this and the following few sections is based on the findings of
these surveys.\(^5\)

The Assam State Surveys had given a special definition to the term "Holding". The term usually means the land over which the individual or family has a permanent and heritable right of occupancy with the right to transfer the land. But owing to the peculiar land tenure system prevailing in most parts of Meghalaya, an account of which is being given later in this chapter, the term "Holding" was used in such a manner as to comprise all the land over which the individual or family has got permanent and heritable right of occupancy with or without the right to transfer the land.

On the basis of the above definition, the Assam State Surveys had estimated the total number of holdings in the rural areas of the State at 1.39 lakhs covering an area of 2.18 lakhs hectares.\(^6\) The figures correspond closely with the number of farms which stands at 1.28 lakhs covering an area of 1.90 lakhs. This is because each land held by a family is operated by that family itself with or without employment of labour. Only a few families holding land do not possess farms - their land being utilised either for non-agricultural purpose or being left fallow or rented out to others. The people of the State very rarely take up tenancy under a landholder.

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5. The following reports have been made available:


6. See Table 7 of Appendix 'A'
The figures of the All-India Agricultural Census for 1970-71 as revealed in Table 4.1 below, also correspond closely with those of the Assam State Surveys. In the All-India Census, the total number of operational holdings comes to 1.49 lakhs covering an area of 2.52 lakhs hectares. According to the Assam State Surveys, the landless families in the rural areas of Meghalaya constitute only 1.1 per cent of all families. However, on the basis of the All-India Agricultural Census for 1970-71, if we take that one operational holding belongs to a rural household constituting about 1.77 lakhs in the State in the 1971-Census, it may be deduced that more than 86 per cent of the rural families has got land while the remaining 14 per cent is landless. Again, if we consider that a good number of urban families also holds lands as absentee landlords, the percentage of landless families would increase much more than 14 per cent.

Table 4.1

<table>
<thead>
<tr>
<th>Size/Class (in Hectares)</th>
<th>Number of Holdings</th>
<th>Area of Holdings (in Hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 0.5</td>
<td>21,000</td>
<td>8,302</td>
</tr>
<tr>
<td>0.5 - 1.0</td>
<td>34,100</td>
<td>29,401</td>
</tr>
<tr>
<td>1.0 - 2.0</td>
<td>51,750</td>
<td>78,583</td>
</tr>
<tr>
<td>2.0 - 3.0</td>
<td>27,250</td>
<td>67,346</td>
</tr>
<tr>
<td>3.0 - 4.0</td>
<td>8,850</td>
<td>30,906</td>
</tr>
<tr>
<td>4.0 - 5.0</td>
<td>4,150</td>
<td>18,272</td>
</tr>
<tr>
<td>5.0 - 10.0</td>
<td>2,350</td>
<td>16,764</td>
</tr>
<tr>
<td>10.0 - 20.0</td>
<td>250</td>
<td>3,197</td>
</tr>
<tr>
<td>20.0 - 30.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>30.0 - 40.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>40.0 - 50.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>50.0 and Above</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: All India Report on Agricultural Census, 1970-71, Ministry of Agriculture and Irrigation, Government of India
Now considering two hectares (5 acres) as the basic economic holding per family, more than 71 per cent of the families, according to the Assam State Surveys, have less than an economic holding. This is also the finding of the All-India Agricultural Census. According to the Assam State Surveys, the average size of holding per family is 1.6 hectares, while that of farm is 1.5 hectares.8

It is a fact that cultivation in the State is, by and large, undertaken on a domestic scale for subsistence only. In other words, agriculture in Meghalaya is subsistence-oriented. A major part of the yield is thus shelved for consumption within the household. Thus, although a way of life, agriculture is yet to take root as a viable business proposition among the farmers of the State. It is of great interest to find that there is no holding in the State with the size beyond 20 hectares as in the case of other States of even the North East India.9

Fragmentation of holdings:

Most of the holdings are scattered in small fragments surrounded by lands occupied by others or by fallow or waste lands. This fragmentation is not due to population pressure and partition of family holdings, as in other parts of the country, but is largely

7. The holding of 5 acres is the basic minimum necessary for a cultivator’s family in the neighbouring State of Assam to employ its productive capacity almost the whole year round. See P.C. Goswami, The Economic Development of Assam, (1965), pp. 49-50

8. See Table 7 and Table 8 of Appendix 'A'

9. See Table 9 of Appendix 'A'
due to the non-availability of suitable cultivable land in large compact blocks. But fragmentation in the two regions of the State, namely, Khasi Hills and Jaintia Hills does not appear to pose a problem since 44.6 per cent and 35.3 per cent of the holdings in these two regions respectively have no fragments as the Table 4.2 given in the next page would reveal. But fragmentation in Garo Hills is very high where only 3.45 per cent of the holdings have no fragments. Because of the peculiar land system in most parts of the State, the concentration of landownership in a few hands did not develop. In the plains of the Garo Hills also concentration of land ownership could not develop because of the ryotwari system of land tenure prevailing there.

The cultivation in the State being mainly shifting, the problems of fragmentation have practically no effect on the agricultural operations for the reason that the cultivators do not have any permanent rights on land.

Rural Indebtedness:

As rural indebtedness is a problem that should be taken note of, we have, therefore, attempted to find out its extent in the rural areas of the State. Table 4.3 (in page 178) indicates the extent of rural indebtedness in the State. It may be seen from the table that 25 per cent of the rural families in the State are indebted. The average number of loan per indebted family works out to 1.14. This means that most of the indebted families are found with only one loan. Again the average amount of loan outstanding per family works out to about Rs. 135.
### Table 4.2

**Extent of Fragmentation of Holdings in Meghalaya**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Holdings</td>
<td>Percentage</td>
<td>Number of Holdings</td>
<td>Percentage</td>
</tr>
<tr>
<td>1</td>
<td>27,600</td>
<td>44.8</td>
<td>8,610</td>
<td>55.3</td>
</tr>
<tr>
<td>2</td>
<td>12,650</td>
<td>20.5</td>
<td>3,280</td>
<td>21.0</td>
</tr>
<tr>
<td>3</td>
<td>15,110</td>
<td>21.3</td>
<td>1,640</td>
<td>10.6</td>
</tr>
<tr>
<td>4</td>
<td>7,150</td>
<td>11.6</td>
<td>1,230</td>
<td>7.9</td>
</tr>
<tr>
<td>5</td>
<td>1,150</td>
<td>1.8</td>
<td>620</td>
<td>5.2</td>
</tr>
<tr>
<td>6 and above</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total:</td>
<td>61,640</td>
<td>100.0</td>
<td>15,580</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Source:**
### Table 4.3

#### The Extent of Rural Indebtedness in Meghalaya

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total Number of families</td>
<td>62,350</td>
<td>15,990</td>
<td>61,028</td>
<td>1,39,348</td>
</tr>
<tr>
<td>2. Total Number of indebted families</td>
<td>17,850</td>
<td>2,400</td>
<td>15,137</td>
<td>34,787</td>
</tr>
<tr>
<td>3. Percentage of indebted families to total number of families</td>
<td>27.68</td>
<td>31.01</td>
<td>34.20</td>
<td>24.96</td>
</tr>
<tr>
<td>4. Total number of Loans</td>
<td>17,480</td>
<td>3,200</td>
<td>19,016</td>
<td>39,696</td>
</tr>
<tr>
<td>5. Number of loans per indebted family</td>
<td>1.01</td>
<td>1.33</td>
<td>1.26</td>
<td>1.14</td>
</tr>
<tr>
<td>6. Amount of loan outstanding (in Rs.)</td>
<td>27,91,310</td>
<td>4,12,000</td>
<td>14,80,096</td>
<td>46,85,406</td>
</tr>
<tr>
<td>7. Average amount of loan outstanding per family (in Rs.)</td>
<td>44.78</td>
<td>23.77</td>
<td>24.25</td>
<td>33.61</td>
</tr>
<tr>
<td>8. Average amount of loan outstanding per indebted family (in Rs.)</td>
<td>161.82</td>
<td>171.66</td>
<td>97.78</td>
<td>154.63</td>
</tr>
</tbody>
</table>

**Source:**
Again, the All-India Debt and Investment Survey made till the end of 1971 by the R.B.I. has revealed that, on the basis of assets, the Meghalaya farmer is the poorest in India. His assets were valued at Rs. 6017. Except for Orissa and Tamil Nadu, the report of the Survey shows that the farmers in the eastern region are the poorest. According to the report, the assets of the farmers of these States are: Assam, Rs. 7035; Meghalaya, Rs. 6017; Tripura, Rs. 6475; Manipur, Rs. 7296; West Bengal, Rs. 7350; Orissa, Rs. 6025; and Tamil Nadu, Rs. 6821.\(^\text{10}\)

The liabilities of the Meghalaya farmer are, however, considered by the All-India Survey to be the lowest being estimated at Rs. 15. The non-availability of credit in the rural areas of the State has a limiting influence on the extent of indebtedness. Given the credit facilities, the rural indebtedness may increase further. Similarly, the growth of population, stagnation in agricultural development and productivity, and limitation of employment opportunities will lead to greater indebtedness.

The Assam State Surveys show that more than 65 per cent of the number of loans accounting for more than 50 per cent of the loan amount were taken for family maintenance.\(^\text{11}\) It was found that the agriculturists usually take loans during the lean months for short periods for the maintenance of their family. These loans are generally repaid just after the harvest season. This is the reason for such a higher proportion of loans taken for the said

\(^{10}\) Reserve Bank of India, All-India Debt and Investment Survey, (1971-72)

\(^{11}\) See Table 10 of Appendix 'A'
purposes. Loans taken for the agricultural purpose account for 24.2 per cent of the total number of loans as against 6.4 per cent for trade and commerce, 2.7 per cent for house construction, and 0.9 per cent for industry.

The Surveys also reveal that the largest number of loans (65.4 per cent) accounting for 38.5 per cent of the loan amount was provided by friends, relatives or neighbours. Considering the amount, it appears that the highest proportion (39.9 per cent) of the loan amount is taken from money-lenders. About 13 per cent of the total number of loans sharing about 18 per cent of the total amount was provided by the Government. During the time the Surveys were undertaken, the institutional credit was practically non-existent. A very distressing revelation is the insignificant part played by the cooperative societies. Though friends and relatives are important sources of loans in the rural areas of the State, yet money-lenders provide the highest proportion of the loan amount.

Rural Household Income and Expenditure:

A little more than 50 per cent of the income of a rural family in Khasi Hills, about 63 per cent in Jaintia Hills and about 72 per cent in Garo Hills comes from the agricultural produce. Service, profession, and wages together account for 17 to 35 per cent of the annual income of the rural family in Meghalaya. Other sources have very little importance. Thus, apart from agriculture, there are very few income-generating

12. See Table 11 of Appendix 'A'
13. See Table 12 of Appendix 'A'
activities in the villages. The rural families are unable to find employment in rural areas in non-agricultural work.

The per capita net annual income of the rural people is Rs. 196 in Khasi Hills, Rs. 175 in Jaintia Hills and Rs. 176 in Garo Hills. This is far below the average per capita income for all-India which was Rs. 247 immediately after Independence.14

The frequency distribution of families by income group is presented in Table 4.4. It may be seen therefrom that the highest proportion of families in Khasi Hills was concentrated in the income group Rs. 1000-2000. But in Garo Hills, the highest proportion is found in the income group Rs. 500-750 while in Jaintia Hills, in the income group of Rs. 750-1000. It may further be seen from the table 4.4 that about 90 per cent of the families in both the Khasi Hills and the Jaintia Hills have an annual income of less than Rs. 2000. In the Garo Hills the percentage of those having a salary of less than Rs. 2000 is 95 per cent.

Food absorbs more than 71 per cent of the total expenditure of a rural family.15 It is a typical poor man's budget in which far more than two-thirds of the expenditure is consumed by food alone leaving only small proportions to be spent on clothing, medical treatment, education, and in the satisfaction of the cultural and recreational needs. Out of the expenditure on food items, the expenditure on cereals alone accounts for more than 46 per cent. The major proportion of family expenditure on cereals and consequently on food items with proportionately small

15. See Table 13 of Appendix 'A'
### Table 4.4

**Distribution of Families by Income Group (In Rupees)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Family</td>
<td>Average Gross income per family</td>
<td>Number of Family</td>
<td>Average Gross income per family</td>
</tr>
<tr>
<td>Below Rs.100</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>100 - 250</td>
<td>2,070</td>
<td>195.56</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>250- 500</td>
<td>3,910</td>
<td>347.63</td>
<td>1,230</td>
<td>250.00</td>
</tr>
<tr>
<td>500 - 750</td>
<td>8,050</td>
<td>555.05</td>
<td>2,050</td>
<td>500.00</td>
</tr>
<tr>
<td>750 - 1000</td>
<td>17,710</td>
<td>807.22</td>
<td>6,970</td>
<td>756.00</td>
</tr>
<tr>
<td>1000 - 2000</td>
<td>24,380</td>
<td>1,233.34</td>
<td>4,100</td>
<td>1,206.12</td>
</tr>
<tr>
<td>2000 - 3000</td>
<td>4,600</td>
<td>2,139.80</td>
<td>1,230</td>
<td>2,547.80</td>
</tr>
<tr>
<td>3000 - 4000</td>
<td>1,150</td>
<td>3,334.80</td>
<td>410</td>
<td>3,150.00</td>
</tr>
<tr>
<td>4000 and above</td>
<td>460</td>
<td>5,307.00</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>62,330</strong></td>
<td><strong>1,070.37</strong></td>
<td><strong>13,990</strong></td>
<td><strong>993.81</strong></td>
</tr>
</tbody>
</table>

*Source: Reports on Socio-Economic Surveys (Department of Economics & Statistics, Assam)*
Expenditure on clothing, education and treatment of diseases depicts a low standard of living of an average rural family in the State.

The proportion of family expenditure on food and non-food items in all the three regions follows more or less the same pattern except the expenditure on fuel and lighting. The family expenditure on these items is comparatively low in Garo Hills.

Table 4.5 below shows the average family budget of a rural family in the regions:

<table>
<thead>
<tr>
<th>Table 4.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Budget of a Rural Family (In Rs.)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>A. PER FAMILY:</td>
</tr>
<tr>
<td>(1) Average Gross Income</td>
</tr>
<tr>
<td>Less Net Outlays</td>
</tr>
<tr>
<td>(11) Net Income</td>
</tr>
<tr>
<td>Less Expenditure</td>
</tr>
<tr>
<td>Deficit Per Family</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>B. PER CAPITA:</td>
</tr>
<tr>
<td>Net Income</td>
</tr>
<tr>
<td>Expenditure</td>
</tr>
<tr>
<td>Deficit Per Capita</td>
</tr>
</tbody>
</table>

Source: Reports on Socio-Economic Survey (Department of Economics and Statistics, Assam)

The income and expenditure figures as shown above indicate that the average budget of a rural family in each of all the three regions of the State is a deficit one. The deficit is made up by
borrowings.

The net income of a rural family is found out by deducting the net outlays from the gross income of the family. The total outlay in Garo Hills is comparatively very low. This raises doubt as to the accuracy of the figure. As the people in Garo Hills and Khasi Hills mostly adhere to the same primitive type of cultivation, the variation in outlays in the two regions cannot be too wide. There is also a tendency among the rural people to show higher expenditure and lower income in the hope of receiving grants-in-aid from the Government. Such a tendency prevails in the plains mousas of Garo Hills and Jaintia Hills for another reason, namely, for fear of paying higher rates of land revenue. In view of this, the figures of income and expenditure as revealed in Table 4.5 can be taken as a rough estimate to show the low standard of living of the rural people rather than as an accurate portrayal of the situation. Conditions may not have improved much since the surveys were conducted, because of the increase of population in the meantime, though at a lower rate, and a very slow-increase in the agricultural output.

Farming System and Land Utilisation:

The system of shifting cultivation locally known as Jhuming, continues to prevail in Khasi Hills and in the Hill mousas of Garo Hills although permanent cultivation has been introduced on a large scale in the flat lands in small river valleys. About 75 per cent of the cultivable land16 or 41 per cent

of the net sown area, is under shifting cultivation, while 42
der cent of the tribal population of the State is dependent
upon this system of farming. In Jaintia Hills and the plains
mountains of Garo Hills, sedentary cultivation has taken root among
the people as a viable agricultural practice. The Jaintias are
skilled wet cultivators since time immemorial. The economics of
Jhuming will be analysed in Section (B) of this chapter.

Where wet cultivation is practised, every level and semi-
level patch of land has been converted into beautiful terraces
irrigated by indigenous system of irrigation channels which
involve much skill in survey and construction bringing water from
long distances. Bullocks and human labour are the scarce of
power used in agriculture. Thus the all-India pattern appears to
be in vogue where wet cultivation is practised. Bone meal and
cowdung were very popularly used in the past. Now-a-days modern
fertilizers and pesticides are also being introduced. The use
of modern fertilizers has increased by more than 46 per cent from
1975-76 to 1976-77 as revealed in Table 4.6 given in the next page.

Table 14 of Appendix 'A' gives the areas of land in the
State according to its utilization. It appears therefrom that
the net area sown is only 7.7 per cent of the total area of the
State. It has already been stated that 41 per cent of the net
sown area is under shifting or Jhum cultivation. The area under
"Cultivable waste land" (379 thousand hectares) is very high
indeed. It is more than double of the net area sown. The

17. Government of Meghalaya, Agriculture in Meghalaya, (1977)
18. Draft Fifth Five-Year Plan, op.cit., p. 9
Table 4.6

Consumption of Fertilizers and Pesticides in Meghalaya

<table>
<thead>
<tr>
<th>Fertilizers and Pesticides</th>
<th>In thousand tonnes</th>
<th>1975-76</th>
<th>1976-77</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fertilizers:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Nitrogenous (in terms of 'N')</td>
<td>..</td>
<td>0.90</td>
<td>1.25</td>
</tr>
<tr>
<td>(2) Phosphatic (in terms of ( \text{P}_2\text{O}_5 ))</td>
<td>..</td>
<td>0.45</td>
<td>0.55</td>
</tr>
<tr>
<td>(3) Potassic (in terms of ( \text{K}_2\text{O} ))</td>
<td>..</td>
<td>0.05</td>
<td>0.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>..</td>
<td>1.40</td>
<td>2.05</td>
</tr>
<tr>
<td><strong>Pesticides</strong></td>
<td>..</td>
<td>0.02</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Source: Agriculture in Meghalaya (1977), op.cit.

existence of "fallow land" is also almost double of the net area sown. Adding the two, the proportion of "cultivable waste land" is very high, being almost four times of the total net area sown.

Thus, there is scope for extending cultivation into new areas. Facilities ought to be extended to bring new areas under cultivation to increase the agricultural production in this food-deficit State.

The "area sown more than once" and the "net area irrigated" (28 thousand and 11 thousand hectares respectively) are very small - being 16.5 per cent and 4.5 per cent respectively of the total net area sown. Thus a great part of the total area cultivated remained vacant for most part of the year. There is thus much scope for the expansion of the "areas sown more than once" by ensuring irrigation and other facilities.
Principal Crops and their Productivity

The main agricultural products of Meghalaya are rice, maize, wheat, millets, pulses, potato, cotton, jute, ginger, and oil-seeds. The total area under the various food crops in the State is estimated at about 1.26 lakh hectares and the total production of foodgrains during 1976-77 has been estimated at 1.42 lakh tonnes as revealed in Table 15 of Appendix 'A'.

The various food crops grown in the State are as follows:

(i) Rice: Rice is the staple food of the people of Meghalaya. The total area under rice cultivation in 1976-77 is estimated at 1.06 lakh hectares and the output at 1.26 lakh tonnes. Rice is grown throughout the State ranging from the plain areas bordering Assam and Bangladesh to high altitude regions up to 1800 metres. The varieties grown, therefore, vary widely for different altitudes and climatic regions. The high yielding varieties are found to have grown successfully in low altitudes only up to about 700 metres and are getting popular among the farmers. For altitudes ranging from 700 and above improved varieties selected locally are found to give much higher yield. On the hill slopes, a variety of hard-stemmed rice (hill paddy) is successfully grown. Approximately 30 to 40 per cent of rice cultivation is under Shum system. While in Garo Hills both autumn and winter rice is grown, in Khasi Hills and Jaintia Hills, only autumn rice is grown.

(ii) Maize: Maize is the next important cereal crop of the State grown in approximately 15,000 hectares of land with an

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See also, Agriculture in Meghalaya (1977), pp 2-6
output of about 11,000 tonnes in 1976-77. Some of the composite varieties like Vijoy and Kisan are found to grow well in medium to lower altitudes while at higher altitudes, selected local varieties are found to grow better than the available hybrids or composites. In many localities, it is grown as a mixed crop, which results in low average yield.

(iii) Wheat: Wheat is a new crop of the State. In about 1650 hectares of land mainly confined to the plain areas of Garo Hills, high yielding varieties of wheat mostly Somalika, are grown. Experiments have indicated that wheat can also be grown successfully in higher altitude up to 1200 metres. More areas are, therefore, being brought under wheat cultivation.

(iv) Millets: Millet is still a minor cereal in the State, grown in about 2000 hectares of land. Improved varieties of millets are being introduced.

(v) Pulses: Pulses are also a minor crop in the State, mostly grown in the plain areas of Garo Hills. It has been found that various pulses, like soyabean, can be grown successfully at different altitudes.

The various cash crops grown in the State are the following:

Potato: Potato is the major cash crop in the high altitude of the State especially in the Central Upland of Khasi Hills. Potatoes were introduced by David Soot in the early part of the last century. The cultivation of potato in Khasi Hills proved very successful right from the time it was introduced.²⁰ The yield

²⁰ P.C. Goswami, op.cit, p.73.
per acre is very high (about 65 maunds in summer and 25 maunds in winter), and of excellent quality.

The area and output under potato, rice and maize cultivation are shown in Table 4.7 below:

<table>
<thead>
<tr>
<th>Table 4.7</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Production of Rice, Maize and Potato</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Crops</th>
<th>1974-75</th>
<th>1975-76</th>
<th>1976-77</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area in Hectare</td>
<td>Output in tonnes</td>
<td>Area in Hectare</td>
</tr>
<tr>
<td>Rice:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Autumn</td>
<td>31,200</td>
<td>24,305</td>
<td>33,500</td>
</tr>
<tr>
<td>(b) Winter</td>
<td>67,440</td>
<td>79,444</td>
<td>68,994</td>
</tr>
<tr>
<td>(c) Spring</td>
<td>1,500</td>
<td>3,000</td>
<td>1,850</td>
</tr>
<tr>
<td>Total Rice:</td>
<td>1,00,140</td>
<td>1,06,749</td>
<td>104,344</td>
</tr>
</tbody>
</table>

2. Maize .. 18,000 12,600 16,184 11,324 15,676 10,973
3. Potato .. 16,917 74,178 17,980 73,800 17,580 80,760

Source: Agriculture in Meghalaya (1977)

(ii) Jute and Mesta: Jute and mesta are two minor cash crops grown mainly in Garo Hills. Improved varieties have been gradually introduced and production is likely to increase substantially in future.

(iii) Cotton: is another cash crop grown in Garo Hills only. The variety grown so far is short staple variety. Long and medium staples have been tried. But it is believed that cultivation of the local short staple variety should continue as such short staple cotton has a special market abroad. Moreover, the long staple cotton may not be suitable under the climatic conditions prevailing
in the State.

(iv) Ginger and Turmeric: are other important cash crops grown all over the State. Introduction of less fibrous varieties of ginger has been taken up. Turmeric is grown commercially in Jaintia Hills and the produce is known to be one of the best qualities in the country.

(v) Oilseeds: Among the oil-seeds, mustard is important which can be grown throughout the State in low altitudes. Sesamum is also grown to a little extent.

(vi) Tapioca: is another important crop of the State which is used as a subsidiary food and utilised by the people when rice is scarce. It can also be used as an animal-feed. There is a great scope for expanding the cultivation of this crop if an industry based on tapioca is established.

(vii) Areca nut and Pan-leaf: are other important cash crops grown in the southern borders of the State. Besides local consumption, a considerable quantity is exported outside the State.

(viii) Black Pepper: is also grown in the southern borders. It has a great scope for further expansion. High yielding varieties like Paniyur-I has been recently introduced and are being multiplied.

Production of cereals so far is mainly for the local needs while cash crops have been produced for export outside the State also. Crops of commercial importance so far include ginger and turmeric, oil-seeds, arecanuts and pan-leaf, jute, black pepper, sugarcane, cotton, potato and vegetables. The last two
items are the most important. Potato has a very good market in the neighbouring areas and occupies a special place in the economy of Meghalaya. 21

There is ample scope for the improvement in potato cultivation in the Central Upland region. The recent introduction of double cropping of potato with paddy in suitable slopes in this region has clearly shown promising results. The temperature and soil condition of Meghalaya have provided good cardinal base for the increase of potato production. Under the prevailing conditions the potato crop can be raised up to 3 to 4 times a year. Such a situation is unparalleled anywhere in the country. 22

The rate of productivity in Meghalaya compares favourably well with the all-India averages. In the case of wheat also which is a new crop in the State, the rate of productivity appears to be comparable with the all-India average. Thus there is an advantage in growing wheat also in the State. Table 4.8 below shows the productivity rates in respect of three commodities in India and in the State:

Table 4.8

<table>
<thead>
<tr>
<th>Commodity</th>
<th>India 1974-75</th>
<th>India 1975-76</th>
<th>Meghalaya 1974-75</th>
<th>Meghalaya 1975-76</th>
<th>Meghalaya 1976-77</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice (Paddy)</td>
<td>1045</td>
<td>1246</td>
<td>1066</td>
<td>1144</td>
<td>1190</td>
</tr>
<tr>
<td>Wheat</td>
<td>1338</td>
<td>1409</td>
<td>1333</td>
<td>1800</td>
<td>1850</td>
</tr>
<tr>
<td>Maize</td>
<td>948</td>
<td>1173</td>
<td>700</td>
<td>678</td>
<td>690</td>
</tr>
</tbody>
</table>

Source: (1) Indian Agriculture in Brief, 1968 and 1971
(2) Agriculture in Meghalaya, 1977


22. Ibid.
Land productivity is dependent upon the quality of the soil, extent of irrigation facilities available, favourable natural factors like rainfall, climate, etc. It is also dependent on the extent of government effort in improving agricultural inputs and infra-structure. Differences in natural endowments can be narrowed by human effort but it is not possible to completely eliminate them. Moreover, a mountainous State like Meghalaya is bound to differ in agricultural productivity from the all-India pattern.

Horticulture:

The soil and climatic conditions of the State are suitable for growing different types of fruits ranging from tropical to temperate and in different altitudes. The main horticultural crops are citrus fruits - predominantly orange known as Khasi Mandarin, pineapples, both of Kew and Queen variety, banana of innumerable varieties and of which the improved ones are Cavendish, (both dwarf and robusta) Malbhog and Cheniobanap. Fruits such as lichi, guava, mango, jackfruit are also grown in abundance in the lower altitudes. Temperate fruits like pears, plum, peaches are grown in the higher altitudes. Different varieties of apple have also been introduced in some selected areas.

The southern slopes of the State have great potential for horticultural and plantation crops. In fact, before the Partition of the country in 1947, the southern region was very prosperous and its people enjoyed a flourishing business with the people of East Bengal (now Bangladesh). Horticulture of the Khasis had attained a high degree of specialisation already by 1928. In that year, their gardens were credited with supplying "almost the whole
of Bengal" with oranges. But fruit cultivation in the region has deteriorated due to the set-back in the marketing of the produce faced since the partition in 1947.

Agricultural Development and the State:

The State Department of Agriculture has been implementing various planned schemes for the development of agriculture in the State. The schemes include (a) Research and Education, and Investigation into various crops, pests and plant diseases; (b) Training and Demonstrations; (c) Soil testing and Land use survey; (d) Supply of high yielding seeds, implements and fertilizers; (e) Horticulture; (f) Agricultural Marketing, Storage and Warehousing; (g) Minor Irrigation. The Department maintains one Upgraded Gram Sevak Training Centre at Upper Shillong which provides a two-year course for fresh students to be appointed as Gram Sevaks or Agricultural demonstrators. It also gives one year in-service training to the Gram Sevaks, or Field Assistants or Agricultural Demonstrators. Besides, training in Applied Nutrition Farmers' Training and other special short-term courses are also imparted in the Centre. Training is being imparted to the farmers of Jaintia Hills and Garo Hills in the Institutes located at Jowai and at Tura.

There is no agricultural college in the State. To meet the demand for qualified personnel, students are being deputed

each year to various institutions and universities in the country for undergraduate and post-graduate courses in Agriculture. A station of the Indian Council for Agricultural Research is located in Shillong. Major research work is being undertaken by this organisation. The Agriculture Department has also set up three Research Stations in Shillong, Tura, and Jowai.

Since the year 1974-75, the Department discontinued the grant of subsidy to the farmers for minor irrigation and instead irrigation projects are being taken up departmentally. The irrigation projects of the State have been mapped out and irrigation projects are being taken up in a phased manner. Till the end of 1976-77, Flow and Lift Irrigation Schemes to cover 5000 hectares have been completed. In addition, 250 tube wells have been sunk to irrigate another 5,000 hectares.

A fleet of Bulldozers, Tractors, Power tillers, and other machinery are being maintained in each district for land reclamation and mechanised cultivation. An engineering workshop is also set up in each of the three regions for proper maintenance and minor repairs of the agricultural machinery. The machinery are hired out to the farmers at a subsidised rates shown in the Table 4.9 given in the next page.

The Indigenous Land Systems

Before we deal with Animal Husbandry, Fishery and Forestry, we feel we should discuss here the land tenure systems now prevailing in the State. The normal type of land system with the individual right on land and obligation to pay land revenue to the Government on the basis of the area one owns, is absent in
### Table 4.9

<table>
<thead>
<tr>
<th>Machinery</th>
<th>For Agricultural purposes</th>
<th>For Non-agricultural Purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bulldozer for heavy dosing work</td>
<td>Rs. 38 per hour</td>
<td>Rs. 114 per hour</td>
</tr>
<tr>
<td>2. Bulldozer for light dosing work</td>
<td>Rs. 24 per hour</td>
<td>Rs. 78 per hour</td>
</tr>
<tr>
<td>3. Tractors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Ploughing</td>
<td>Rs. 28 per acre</td>
<td>...</td>
</tr>
<tr>
<td>(11) Harrowing</td>
<td>Rs. 28 per acre</td>
<td>...</td>
</tr>
</tbody>
</table>

Source: *Agriculture in Meghalaya*, 1977

Most parts of the State except in the plains meunas of Gare Hills and in parts of Jaintia Hills. In Khasi Hills, in the hill meunas of Gare Hills and in the high lands of Jaintia Hills where permanent cultivation cannot be made, unrestricted individual rights in land are unknown.

Thus, the systems of land administration obtaining in the three regions of the State, namely, Khasi Hills, Jaintia Hills, and Gare Hills differ on material points. Intra-regional differences are also there. The distinct systems of land tenure in the three regions before the inauguration of the Indian Constitution in 1950 are now separately discussed.

**In the Khasi Hills**

According to the customary law, the land in Khasi Hills belongs to the people and the levy or imposition of land tax or revenue is unknown. Two main categories of land tenure are
recognised, namely, "Ri Raid" and "Ri Kytli". Gordon called them "Public Lands" and "Private Lands." But we prefer to call them "Communal Lands" and "Clan Lands".

(a) Ri Raid and Communal Ownership:

The ownership as well as the management and control of Ri Raid or communal lands vest in the community concerned. The community may be (i) a village, for the village Raid lands; (ii) a Raid, or group of villages constituting the Raid for the Raid lands of that Raid; or (iii) an alaka itself, for the Raid lands of the alaka. A Durbar or a Council is constituted in each of the cases for making decisions on behalf of the community.

Any individual member of the village, Raid, or alaka who wants a piece of land to cultivate or build upon goes to the head of the village, or of the Raid or to the Chief, as the case may be, for obtaining such piece of land. The land so allocated by the head or chief gives that individual a possession title and confers on him power of use without payment of any revenue or rent for the land. No document or patta was ever issued to any landholder according to the customary law of land tenure.

No person can, therefore, have proprietary, heritable, or transferable right over the Raid land. The right of use and

25. A Raid is constituted by a group of villages.
26. An alaka is constituted by one or more than one Raid. The whole of Khasi Hills consisted of territories under the traditional administrators known variously as Bytogs, Lyngdohs, Birkars, and Wahadars. The term "alaka" is therefore used in this section to denote these territories and the term "chief" is used to denote their rulers.
occupancy reverts to the community when a person ceases to occupy or use the land for a period of three years successfully. Heritable and transferable rights over such lands can, however, accrue when the occupant has constructed permanent building or has made permanent cultivation on the land. But even in the cases of this nature, a person loses his rights if he completely abandons the land over such a period as the durbar concerned deems long enough and such land reverts to the Ri Raid.

Some forest lands within the Ri Raid of a village are reserved for religious purposes or for the purpose of providing firewood or timbers for the personal needs of the members of the village. Again, some pieces of lands within the Ri Raid are also set apart for the exclusive use of the ruling chief and his clan. Ri Raid thus comprises different kinds of lands known by the same or different names in different olakas.

The following restrictions are imposed on the Ri Raid:

(1) No one person can hold land within the Ri Raid in excess of what he can personally work on. (2) A Khasi who is not a member of the village, Raid, or olaka cannot occupy any Raid land of that village, Raid, or olaka unless he submits himself to the jurisdiction of the village, or Raid, or olaka and is accepted and recognised as its members. (3) The head of the village, or Raid, or even the chief has no authority whatsoever to allow a non-Khasi the right of use and occupancy within the Ri Raid. It is only the olaka durbar (Durbar Hima) which is competent to grant or not to grant such right. 27

(b) **Ri Kynti and Clan Ownership**:

**Ri Kynti** are lands set apart for certain clans upon whom were bestowed the proprietary, heritable and transferable rights over such lands. They are the ancestral property of the clan. Hence Gordon called them "private lands". But the management and control over these lands (except self-acquired lands) vest in the Durbar Kur (Clan Council) constituting the adult males of the clan as a whole. In such a case, **Ri Kynti** is also known as **Ri Kur**. The person who has acquired land, has full control over it. But such self-acquired land becomes ancestral land when it passes to the children of the person and its control then vests in the Durbar Kur. It may be noted that a chief has no power to interfere with the rights over **Ri Kynti**.

**Ri Kynti** may be divided among the different branches constituting the clan, and **Ri Kynti** of a branch may also be divided among the families constituting the branch. In that event, it is the Durbar Kur of the branch and the Durbar Kur of the family which are responsible for the management and control of their respective **Ri Kynti**. Again, a family may apportion its **Ri Kynti** among its individual members, if its Durbar Kur so decides.

It is the Durbar Kur again which manages and controls the disposal of the **Ri Kynti** under their respective charges by way of sale, transfer, lease or otherwise. According to the Khari custom, sales made by the **Ri Kynti** owners were always outright sales. No document or patta was ever issued to the purchaser nor any revenue or tax was ever levied on the land sold. A **Ri Kynti** owner can, however, levy from a person who takes land on lease but the system was not very much practised in the past and even
now in the interior areas of Khasi Hills.

Ri Kynti have different names by which one piece of
Ri Kynti is properly distinguished from another according to the
circumstances under which it was acquired or according to the
nature of the rights a clan has to the land. Again, some Ri Kynti
may be jointly held and managed by more than one clan. Such
Ri Kynti is known as Ri Song. Ri Kynti of a clan or family which
has become extinct is called Ri Japduh and such lands escheat to
an elaka where it is situated and becomes a Ri Raid.

As it is in the case of Ri Raid, no person can hold land
within the Ri Kynti in excess of what he can personally work on.
Similarly, as in the case of Ri Raid, the Ri Kynti owners cannot
part with their lands in any manner whatsoever to a non-Khasi
without the sanction of the elaka durbar.28

(c) Government Lands and the Patta System:

A third category of land known as "Government lands" came
into existence in Khasi Hills when these hills came under the
control of the British in 1869. The Khasi Hills used to comprise
the territories which, before the commencement of the Constitution
of India in 1950, were known as the Khasi States.29 These
territories were ruled by semi-independent native chiefs generally
known as Syings, in Subsidiary Alliance with the British Government.
There were 25 States of which 16 were Syingship, the chiefs of 3
were known as Lyngdohs, another 3 as Sirdars, a Confederacy known

28. Ibid., p. 27
29. The two words "State" and "elaka", are, therefore, being used
interchangeably in this Section.
as the Shillim Confederacy, under elected officers called Waphadars.

During the British period, the Khali States or alaha were allowed internal autonomy subject to the general control of the British Government. But the election of Khali chiefs had been subject to ratification by the British Government and the new chief was required, on investiture, to confirm secession to the paramount power all the minerals, elephants, forests, and other natural products of his alaha on the condition of receiving half the profits accruing from these resources. The people did not, however, pay any revenue to the British Government.

Despite the subsidiary alliance, the British selected 31 villages over which they exercised direct control. The villages were subsequently called the British villages wherein the Government was the proprietor of the soil, the cultivators paying a house tax of Rs. 2 per house except when specially exempted. The British Government later transferred their headquarters from Mongkol to Saitaschpen, being one of their directly administered villages. The British Government treated these villages as their own occupied territories where they abolished the customary land system of the Khals.

But in 1866, the headquarters of the British Government was finally transferred to Shillong which was not a British village. However, they were given lands in and around the town by the Myllinem Chief with the advice and consent of his ministers and elders of

30. The 31 British villages were – (1) Byrong, (2) Jyrngam
(3) Laithreoh, (4) Laithymhet, (5) Laktading, (6) Harbinu,
(7) Mrubeh Warkhar, (8) Nawulub, (9) Nawmai Nongthymmai
(10) Nartang Sohshyllung, (11) Mynnmy, (12) Myryden, (13) Monglai,
(14) Mongjiu, (15) Mongkoh, (16) Monglang, (17) Menglait,
(18) Nonglyngkien, (19) Mongdeb, (20) Mengriangri, (21) Mengriat,
his slaka. The land was actually taken on lease from the owners of Ri Kyni to whom the British Government paid land rent. The heirs of these owners continue to receive the rent to this day. The British treated all these lands as Government lands and settled it on periodic lease with the various people levying land revenue on them. The Government rules were made applicable to these lands.

The British later got some Raid lands also around Shillong from the Mylliem chief by way of purchase which they similarly treated as Government lands. After independence, the then Assam Government made still more addition to the existing Government lands by compulsorily acquiring some other areas in Shillong.

The British made the chiefs and owners of Ri Kyni wise. The chiefs started issuing leases and pattas for lands within Ri Raid to the landholders and levy land tax on them. Similarly, the owners of Ri Kyni also started issuing leases and pattas to the Khasis and non-Khasis levying land tax on them. Gradually the owners of Ri Kyni have even imposed what they call a "Salami" or a key money on the resales or transfer of lands by lease-holders or patta-holders to others. This has been now looked down upon as an anti-social and more than that, as an anti-customary act.

In the Jaintia Hills -

Before the annexation of Jaintia Hills as a British territory, it was apparent that all lands in these hills were

treated as belonging to the Raja (King) of Jaintia and were known as Raj lands.\textsuperscript{31} But they were not apparently treated as his personal property. The Raja must have held the lands on behalf of the people as he was looked upon as no more than a symbol of their unity.\textsuperscript{32} This is proved by the fact that once the Raja allowed an individual a piece of land for cultivation or for any other purpose, such land became the private property of that individual who had to pay no land rent or revenue for the land. Each village as a whole, had, however, to pay an annual revenue to the Raja on behalf of all its inhabitants, in the form of one he-goat.

After the annexation of the Jaintia Hills and the deposition of the Jaintia Raja, the British Government claimed rights to all lands as successors to the Jaintia Kings. The whole of Jaintia Hills was treated as a Government land. The British, however, recognised all the lands granted to the individuals by the Raja of Jaintia. They treated all these lands as "private lands" and the owners could, at will, transfer their lands from time to time by mortgage, sale or otherwise. The flat bali or irrigated paddy lands are known as "Bumal" bali lands and are not assessed to revenue till today. Any other flat land subsequently settled by the British with any individual for bali or paddy cultivation was assessed to revenue. But in regard to the high lands, no land tax was to be paid. The people were

\textsuperscript{31} Report of the United Khasi-Jaintia Autonomous District Commission in the matter of creation of a new Autonomous District for the Jowai Subdivision (1964), pp. 18-19

\textsuperscript{32} B. Pakhu, "The Socio-Political System of the Jaintia Tribe of Assam: An Analysis of Continuity and Change", in Dr K.S. Singh (ed.), Tribal Situation in India, Vol. 13 (Simla, 1972)
allowed to cultivate as much high land as they could on payment of a house tax. It was decided by the British Government that those who resorted to shifting cultivation would not be permitted any permanent occupation of high lands.

The British also recognised all "service lands" as well as "village Raja lands" allotted by the Raja. Service lands were allotted free of rent to the Dellois and Pattars who assisted the Raja in the administration of the Kingdom. Again, sacred groves and places were set apart in each village for purposes of worship. The occupants of these lands, if any, used to pay rent to the Dellois or Lyangdehs or priests. The lands were also not assessed to revenue.

At first, the British did not also make any change in the indigenous revenue system under which each village had to pay annually one be-goat to the former Raja of Jaintia. This was continued to be paid to the British. In 1859, a survey of Raj lands was made, but though the lands were measured, no attempt was made by the Government to tax them until 1887. Steps were commenced by the British to bring the lands in Jaintia Hills under a proper system of settlement. The Dellois were made the commission agents for the collection of house tax and land revenue. Their position was like the mouzas of the plains district of Assam so far as the collection of land revenue was concerned. The Raj bali lands in Jaintia Hills have been surveyed from time to time but no up-to-date maps have been prepared.

In the Garo Hills -

The Garo Hills consist of the plains mouzas and the hills mouzas. There are four mouzas in the hills which form the Central
Upland of the Garo region. In the plains area surrounding the Central Upland on the north, west and the south, there are six mauzas. These were the areas from which the Bengal zamindars used to exact tributes through the local chiefs.\footnote{M.C. Goswami and D.N. Majumdar, \textit{Social Institutions of the Garo of Meghalaya}, (Calcutta, 1972), p. 68} After the British occupation, land revenue was levied in the plains mauzas. The land was cadastrally surveyed and the normal type of \textit{prshvar} land system was introduced under which the holders of land are directly responsible for payment of the land revenue to the mauzas. The holders possess the permanent and heritable right along with the right for transfer of possession.

In the hills mauzas, the customary land laws still prevail. According to their customary laws, the Garos have different classes of lands by which they distinguish one piece of land from another according to the nature of the right one has to the land or according to the time when his forefathers came into possession of the land. For example, there were the akbing land; \textit{a'gata} or an assigned land; \textit{a'millam} or the land of the sword; and \textit{uha} land or the house-tax paying land. But subsequently all these different distinctions disappeared and all lands became akbing lands.\footnote{Milton S. Sangma, \textit{Development of Political and Social Institutions in the Garo Hills}, (unpublished thesis of the Gauhati University, 1973) pp. 292-311} During the British period there were only two broad categories of land in the hills mauzas of Garo Hills, namely, (1) the akbing land, and (2) the Government land.

The Akbing land:

This is a large piece of land held by a moshong or clan under the custody of the head of the moshong called Nkma. A
Nokma is the husband of the heiress of an akbing land. His position is equivalent to a village chieftain or headman. The akbing land used to be divided among the mahari or a smaller group of closely related kins within the machong. Every member of the mahari has the right to have a plot or two for cultivation without payment of land revenue. Heritable and transferable rights can accrue if the member takes up permanent abode in the land with his family and keep the land under permanent cultivation. In this case a house-tax has to be paid annually but no tax is paid for the land. Such land is called the ruwmia land or the house-tax paying land. If the family ceases to cultivate it or move away from the land or stop paying the house tax, the land immediately reverts to the akbing. A Garo stranger coming from one akbing to live and occupy land in another akbing may be allowed by the nokma of the latter akbing on payment of a nokma fee known as a'wil.

The Government Land:

All lands which did not fall within an akbing were treated as Government lands by the British. They were rent-paying lands. Some of them were kept as Government forest reserves. Any other part of the Government lands could be settled with the private individuals on payment of land revenue. These in possession of such lands could dispose of them at will. Flat lands in small river valleys were opened up for permanent cultivation and settled with individuals and land revenue was levied.

35. Ibid.
The Present Position of Land Tenure:

From a purely legal point of view, the land in Meghalaya is now vested in the Autonomous District Councils of the respective regions under the Indian Constitution. Under the Sixth Schedule to the Constitution, the District Council concerned has the power to make laws with respect to the allotment, occupation, or use, or the setting apart of land for the purpose of agriculture or grazing or for residential or other non-agricultural purposes or for any other purposes likely to promote the interest of the inhabitants of any village or town. The same Schedule empowers the District Council to assess and collect revenue in respect of all lands. The Council can also levy and collect taxes on lands and buildings and tells on persons resident within its jurisdiction.

In exercise of the above constitutional powers, the erstwhile United Khasi-Jaintia Hills District Council made a Regulation in 1953 in respect of assessment and collection of land revenue. The enforcement of the Regulation has been easy in Jaintia Hills where payment of revenue to the State has been in vogue since the times of the Jaintia Kings. The Jaintias do not consider taxation as a stigma. They were paying it to their Raja and the British to provide their former rulers and now their own popularly elected Autonomous District Council, with necessary finance for the development of their District and their own

36. Paragraphs 3 and 8 of the Sixth Schedule to the Constitution of India.

37. The United Khasi-Jaintia Hills District (Land Revenue) Regulation, 1953 (Regulation No. 3 of 1953)
welfare. But so far, the Regulation could not be enforced effectively in Khasi Hills.

The Garo Hills District Council also made a Regulation in 1954 under which a nekum of an akbing land is to be recognised by the District Council. An Act was also passed to regulate the payment of a'wil or fee by the stranger or the Garo coming from one akbing for settling and occupying lands in another akbing.

On the whole, primary form of communal ownership is still the land system in the whole of Khasi Hills, in the Hills mougas of Garo Hills, and in some pockets of Jaintia Hills where Jhum cultivation exists. The indigenous system is thus conducive to Jhuming. The system has also some important merits. It ensures continuity of cultivation. Therefore, in practice, the system permits individual right to possession of land and such right reverts to the community only when a person ceases to occupy or use the land. Another important merit of the system is that it ensures social justice in that a person cannot hold land in excess of what he can personally work on. But the system cannot foster the required incentive to further improvement of the land. Again in the absence of a legal title to land, the cultivator fails to get bank credit facilities for the improvement and expansion of agriculture.

The fact that lands under private and communal ownership are outside the Government's control, has created many problems. On the other hand, the Autonomous District Councils themselves which have the power to make laws for the management of land and forests in their respective jurisdictions, cannot effectively exercise their

38. The Garo Hills Autonomous District (Land Revenue) Regulations, 1954

power over the native chiefs and village headmen. To remove this anomalous situation, suitable amendment of the Sixth Schedule to the Constitution needs be effected so as to confer an absolute power upon the State Government to over-ride the District Council regulations as well as the customary power and rights of chiefs and village headmen concerning administration of land and forests. The Land Reforms Commission appointed in 1972-73 to study the land system in Khasi Hills had recommended the urgent need for proper cadastral survey of lands in the State and the preparation of records of rights. Barring 394 villages in the plains portion of Garo Hills, all the villages in the whole State have not yet been cadastrally surveyed. It is necessary to confer a legal status on the land owners to enable them to obtain bank credit facilities for the improvement and expansion of agriculture. To undertake uniform land reforms measures throughout the State and to implement the recommendations of the Land Reforms Commission, Government should have the ever-riding power to regulate the land system in the whole State so that the Government investment in land reform measures can be properly utilised. The Plan budget allocation for land reforms measures during the Fourth and Fifth Plans are indicated in Table 4.10 below:

Table 4.10
Plan Outlay for Land Reforms during the Fourth and Fifth Five Year Plans

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outlay</td>
<td>Expenditure</td>
<td>Outlay</td>
</tr>
<tr>
<td></td>
<td>9.00</td>
<td>9.30</td>
<td>42.00</td>
</tr>
</tbody>
</table>

*Expenditure for 1977-78 is anticipated.


An outlay of Rs. 25 lakhs has been provided for the year 1978-79. The total outlay of Rs. 42 lakhs during the Fifth Plan represents
an increase of almost 5 times over the total outlay of 9 lakhs during the Fifth Plan.

Animal Husbandry

Animal husbandry is practised by the people of Meghalaya on a domestic scale as a subsidiary occupation. Stall feeding and scientific method of rearing livestock are seldom resorted to. The animals are usually sheltered in the backyard and let out to graze in the open. The State has organised several intensive development programmes to induce the people to rearing livestock on a wider scale and on a scientific footing.

The evergreen vegetation and climatic condition of the State are helpful to the development of dairy farming and industry. But the resources of the State have not yet been fully exploited due to various infra-structural and institutional problems. The livestock population in Meghalaya according to the Census taken in 1972 is given in the Table 4.11 below:

<table>
<thead>
<tr>
<th>Species</th>
<th>Khasi Hills</th>
<th>Garo Hills</th>
<th>Jaintia Hills</th>
<th>Total</th>
<th>(+) Increase (-) Decrease over 1966</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cattle</td>
<td>221550</td>
<td>179964</td>
<td>67211</td>
<td>467725</td>
<td>+ 15.77%</td>
</tr>
<tr>
<td>2. Buffaloes</td>
<td>12133</td>
<td>32908</td>
<td>1078</td>
<td>46021</td>
<td>+ 21.04%</td>
</tr>
<tr>
<td>3. Horses</td>
<td>4634</td>
<td>202</td>
<td>189</td>
<td>5025</td>
<td>- 46.58%</td>
</tr>
<tr>
<td>4. Sheep</td>
<td>17037</td>
<td>1195</td>
<td>187</td>
<td>18379</td>
<td>- 11.70%</td>
</tr>
<tr>
<td>5. Goats</td>
<td>53760</td>
<td>29442</td>
<td>12739</td>
<td>95941</td>
<td>- 3.17%</td>
</tr>
<tr>
<td>6. Pigs</td>
<td>75908</td>
<td>36131</td>
<td>14496</td>
<td>126535</td>
<td>+ 14.37%</td>
</tr>
<tr>
<td>7. Poultry-Fowl</td>
<td>404580</td>
<td>419915</td>
<td>111757</td>
<td>932192</td>
<td>+ 3.42%</td>
</tr>
<tr>
<td></td>
<td>Ducks: 6209</td>
<td>32540</td>
<td>4391</td>
<td>43180</td>
<td></td>
</tr>
</tbody>
</table>

Source: Directorate of Animal Husbandry & Veterinary Department, Meghalaya
The increase in cattle, buffalo, pig and poultry population in six years' time is very slow while there is considerable fall in horse, sheep and goat population. The fall in horse population was so great as to affect rural transport, but with the opening of meterable roads, this may not be felt. The fall in sheep and goat population has affected already the supply of mutton to the defence forces stationed in and around Shillong. The State is now depending on other States for the supply of sheep and goats.

Dairy Farming and Industry:

Organised dairy unit in the private sector is not found anywhere in the State. Dairies on a large scale are unlikely to develop in the private hands in the near future because of lack of expertise among the local population and absence of cattle food supply. Milk supply business is now almost the monopoly of the people of the Nepalese origin who are settled in various parts of the State. It has been found that there are about 800 Nepalese "Khutis" in Garo Hills alone with cows and buffaloes varying from 50 to 200 in each Khuti.

Milk produced in Garo Hills and Khasi Hills is being sold to Guwahati and other places in Assam by private traders. The State Chilling Plant at Umshing in Khasi Hills is also supplying milk to Guwahati. Town Milk Supply Schemes are being operated by the State to supply milk to the towns of Shillong, Tura and Jewai. For Shillong, milk is procured from Upper Shillong Farm while for Tura and Jewai milk is collected from the Nepalese Khutis in the nearby villages.

Meghalaya possesses the highest number of high-yielding cross-bred stock in India. The State is sitting on a gold mine in
respect of milk and milk products. The cross-bred dairy cattle of Shillong which have developed during the last five decades or so by the import of Ayrshire and Friesian bulls have earned a name in the All-India and Regional Livestock Shows by winning a number of trophies and other prizes. This has opened a new vista to the development of dairy cattle in the State. A large number of buyers from the neighbouring States are rushing to Shillong for procurement of milk cows. Because of its resistance to the tropical diseases, this cross-bred herd numbering about 12,000 found in Shillong and the Submontane region of Khasi Hills, is a pride of the country. It has saved a large amount of valuable foreign exchange to the national exchequer. The natural increase of this cross-bred stock is very slow. This can be stepped up with modern knowledge of artificial insemination. An ordinary cow of this breed yields 8 to 10 litres of milk per day, while a better managed stock can yield 15 to 20 litres a day. Presently the daily production of milk from this herd alone is estimated at 30,000 litres bringing a return of Rs. 1.1 crores annually.

The State has organised an intensive Cattle Development Programme with a number of stockmen centres. This programme has its semen collection centre at the century-old Upper Shillong Government Livestock Farm. The cross-breeding programme is expected to receive a fillip from the Indo-Danish Project that is now functioning in the same farm. The Indo-Danish Project is aiming at providing for a foundation stock for the production of bulls of high genetic potential for cross-breeding purposes in the State. Cross-breeding with Jersey, Holstein, and Haryana varieties

besides Ayrshire and Friesian is being done in the Upper Shillong Farm. The State has also two Key Village Blocks for cattle development in Jaintia Hills and in Garo Hills.

Steps have to be taken to ensure that the cross-bred herd is well-maintained and that cross-bred bulls and heifers are supplied to the farmers on specific terms and conditions for further multiplication. It is advisable that concentration should be on intensive cross-breeding of cattle owned by the farmers in the rural areas under the Intensive Cattle Development Programme and the Key Village Blocks by providing all inputs and services for cattle developments, milk production and marketing in these areas.

The processing and marketing of milk could not be organised properly for want of communications in rural areas where most of the cattle are kept on grazing. Hence most of the milk produced in the inaccessible areas are converted into cream, cheese or butter resulting into heavy wastage. The sale of milk is more remunerative than the sale of its by-products.

Livestock Products:

There is a shortage of supply of livestock products in the State like milk, meat and eggs. The targets of production fixed at the national level for the State during the Fifth Five-Year Plan are indicated in Table 9.19 given in the next page. The actual requirement for the year 1978-79 has been estimated at 1,00,400 tonnes of milk, 36,100 tonnes of meat and 40,200 million eggs. Thus there would be a big gap between the expected production and the actual requirement of these three products in
1979-79 as revealed in above table. At the current level of production, the per capita availability in the State is only 126 grams of milk per day, 46 grams of meat per day, and 20 eggs per year. The requirement for a balanced diet are 250 grams of milk, 90 grams of meat, and one egg per head per day. Thus the availability of milk and meat is only half of the requirement and that of egg is negligible in spite of the high development potential of dairy farming and industry in the State. The nutritional requirement of the people of the State is linked up with the livestock development as most of them are non-vegetarian depending on the supply of animal protein. Beef, pork and chicken are their favourite meat food. The cattle population in the State is not, however, adequate to meet the demand for beef. Fortunately, owing to the ban on cow slaughter in the neighbouring States, cattle can be procured easily for slaughter in Meghalaya. To make adequate supply of cattle for slaughter, beef cattle rearing has to be encouraged in a ranch system.

Table 4.12
Target of Production of Livestock Products (1974-79)

<table>
<thead>
<tr>
<th>Years</th>
<th>Milk (in '000 tonnes)</th>
<th>Meat (in '000 tonnes)</th>
<th>Eggs (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974-75</td>
<td>44.00</td>
<td>16.20</td>
<td>20.80</td>
</tr>
<tr>
<td>1975-76</td>
<td>46.00</td>
<td>16.40</td>
<td>22.60</td>
</tr>
<tr>
<td>1976-77</td>
<td>48.00</td>
<td>16.80</td>
<td>24.40</td>
</tr>
<tr>
<td>1977-78</td>
<td>50.25</td>
<td>17.40</td>
<td>26.20</td>
</tr>
<tr>
<td>1978-79</td>
<td>52.50</td>
<td>18.40</td>
<td>33.25</td>
</tr>
</tbody>
</table>

Source: Ibid.
Pig rearing is very popular with the people of Meghalaya. But they have a preference for black breeds of pigs because of the quality of the pork. Foraging habits of local pigs make rearing of local pigs easily and economically maintainable. However, introduction of hybrid vigour through grading with exotic strain like Saddleback and Berkshire is essential for the development of piggery in the State. The State has 6 (six) Government pig farms and one intensive Piggery Development Block. But very little work has so far been undertaken for the development of pigs owned by the rural people.

Poultry farming is also popular with the people of Meghalaya. In the last few years, poultry farming has made considerable progress due to the introduction of the exotic breeds like Rhode Island Red and White Leghorn. Improved or cross-bred are now found in most parts of the State. Commercial farmers have since introduced hybrid strains like Hyline, Arbor Acres and Babcock for production of table eggs. Hybrid birds can lay 250 to 300 eggs while pure Rhode Island Red and White Leghorn lay only 180 eggs annually. Local hens can lay only 60 eggs while graded birds can lay 100 eggs annually. For chicken meat, local poultry are preferred to exotic varieties. There are 7 Government Poultry farms, one Central Hatchery and one intensive Poultry production Centre in the State. The Poultry Farm at Umshing in Khasi Hills is one of the oldest farms and facilities there have been expanded to have a flock strength of 5000 layers. This is the only farm having facilities for incubation of eggs and a hatchery.

Goat rearing is also found popular in the State on a domestic scale, while sheep rearing is not popular because of
heavy rainfalls. The local varieties of goats and sheep are reared widely in the southern foothills and in the north western submontane regions of Khasi Hills. Goats and sheep are allowed to graze in the open often in mixed flocks. There is one Government Sheep Farm and one Sheep Extension Unit in the State.

The veterinary care, cultivation of fodder and establishment of feed mill are being provided and encouraged by the State. There is only one Veterinary Hospital located at Shillong. A number of Veterinary Dispensaries and Veterinary Aid Centres have been established in the State. But feed and fodder development is very important as livestock development largely depends on it.

Income from Livestock:

The value of cattle wealth in Meghalaya has been estimated at Rs. 15.30 crores while the value of milk, beef, hides, bones, dung, and other animal by-products produced in the State has been estimated at Rs. 10 crores annually. The contribution from other species of livestock like horse, sheep, goats, pigs and poultry is estimated at Rs. 5 crores annually. This income has been derived annually from livestock and poultry industry even in its primitive stage of development. The income can still be increased considerably if the required infra-structure facilities can be built up for the development of modern livestock industry. 41

But the first official estimates of the State Income for 1973-74 has not reflected separately the income derived from animal husbandry. We have observed earlier that the people of the State

are mainly non-vegetarian depending on the supply of animal protein. Thus it is natural to expect that animal husbandry would occupy an important place in her economy. The estimates indicated above would show that the income generated by livestock is fairly large and its contribution to the State income might be next only to agriculture in importance.

**Fishery**

Fish is one of the popular items in the diet of the people of the State who are very fond of dried fish. Before independence, Sylhet was an unfailing source of supply of dried fish to the region now forming Meghalaya. But with the closure of trade with Sylhet, the people of Meghalaya have been deprived of a good source of supply of fish. The internal production of fish is not sufficient to cope with the demand. This is because fishery as a commercial proposition has not developed in the State. Catching of fish is mostly taken up for home consumption, and occasionally the surplus fish is sold in the weekly markets.

The hill streams and rivers are the important sources of supply of hill trouts and masheers. But the fish population in these streams and rivers is dwindling alarmingly because of the indiscriminate blasting and poisoning of the streams by poachers. Many rivers in their lower courses near Bangladesh in the South and Assam borders in the north serve as the best natural fisheries. These are owned and leased out by the District Councils in their respective jurisdictions.

There is limited scope for the development of beel or river fisheries in the State. This calls for development of fisheries by the State Government in many different types of water
areas - rivers, lakes, ponds, dams, and artificial impoundments. The varieties of fish found in the plains do not also thrive well due to high altitudes. Mirror carps which can thrive well in the high altitudes have to be introduced along with the local fish. There are now 4 Government fish farms - two each in Khasi Hills and Garo Hills. The construction of flexible sausage dams for creating artificial pools in some rivers has been taken up by the State Government. This suggests that taking over of natural pools in rivers and posting of river guards thereof would be a much better economic proposition than the construction of artificial pools. The Government also provides subsidies to encourage the construction of private fishery ponds wherever possible. Fish production in Meghalaya up to March, 1976 was estimated at 7000 tonnes only.42 The State income derived from fishery during 1973-74 has been estimated at Rs. 5 lakhs contributing 0.08 per cent of the State net income for the year. The contribution of fishery to the State income is thus negligible.

Forestry

We have made a survey of the forest resources of Meghalaya in Chapter I. We now propose to study the problems of forestry as an industry and a source of income.

We have seen that after taking into account the area under the private forests, the total forest area in the State has exceeded the national minimum of 33.3 per cent of the total geographic area of the State as fixed by the Forest Policy of the Government of India. Out of the total forest area in the State the Government

reserve forests consists of 806.86 sq. km. only. As Meghalaya is a hilly region, the forest cover should have been increased to 60 per cent so that forestry can play an important role in her economy.

**Forest Conservation and Agriculture:**

In the hilly areas of the State, agriculture cannot prosper at the cost of forests. The conservation and proper management of forests in the hilly areas is necessary not only for the production of the much-needed forest products but also for the proper development of agriculture. Forests protect the hill sides and the agricultural fields on them, ensure perpetual flow of water in streams and rivers for irrigation and electric power generation, mitigate the rigours of climate and thus help in increasing agricultural production and in maintaining the ecological balances. Agriculture in the hills cannot produce sufficient fodder for cattle as the holdings are generally very small and forest areas are, therefore, required to meet the fodder requirement. The dependence of farmers on forest areas for fodder supplies makes agriculture in the hills dependent on forests. In Himachal Pradesh, a hilly State like Meghalaya, 50 per cent of the fodder requirement of its cattle population is met from forest areas. The supply of sufficient quantity of fuelwood from forests is also very necessary as the use of cowdung as fuel is not being practised by the people of Meghalaya. The fuelwood collected from the forests yields on burning substantial quantities of ash which can be used as manure. The forestry operations can also supplement the income of farmers which enable them to purchase the necessary inputs for agriculture.

In Himachal Pradesh, it is estimated that about Rs. 6 crores to Rs. 7 crores are spent annually on different forestry operations
and the money is earned by the local farmers in the form of wages. A substantial portion of these earnings is utilised for providing different inputs for agriculture like fertilizers, pesticides, improved seeds, etc. which help increase the agricultural production in that State. Agriculture in the hilly areas of Meghalaya also cannot prosper in the absence of a proper conservation and scientific management of forests. But the budget allocation of Rs. 88 lakhs in the Fourth Plan and Rs. 1.98 crores in the Fifth Plan for the development of forests in the State are too meagre to be able to give a substantial support to the local farmers.

Contribution to the State Revenue and Income:

Forests now contribute only about 10 per cent of the revenue of the State. This is not in line with the great potential of forests in the State. The earnings from forest products during the years from 1971-72 to 1973-74 is shown in Table 4.13 below:

<table>
<thead>
<tr>
<th>Periods</th>
<th>Earnings (in lakhs)</th>
<th>Percentage increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971-72</td>
<td>Rs. 17.27</td>
<td>..</td>
</tr>
<tr>
<td>1972-73</td>
<td>Rs. 24.89</td>
<td>50.5</td>
</tr>
<tr>
<td>1973-74</td>
<td>Rs. 29.72</td>
<td>16.2</td>
</tr>
</tbody>
</table>

Source: Annual Administration Report, Conservator of Forest, Meghalaya

43. R.V. Singh, "Forest Conservation is necessary for the Development of Agriculture in Hills" in The Indian Forester, Vol.100, No.6 (Dehra Dun, July, 1974)
44. See Table 4.14 below
45. Draft Fifth Five Year Plan, Government of Meghalaya, p. 89
We have seen that even in the case of the national average, the gross revenue from Indian productive forests is only Rs. 21.50 per hectare. As regards the State income derived from forestry, it has been estimated that Rs. 1.00 crore was derived from this sector during 1973-74. The contribution works out to 1.53 per cent of the State net income for the year.

**Production Forestry and Social Forestry:**

The National Commission on Agriculture, 1976 had also dealt with the development of forestry as a factor in agricultural progress and as a source of raw materials for industry, exports, as well as for sustaining the ecological balance in nature and for providing employment opportunities to large sections of tribal and other population living in these areas. In its report, the Commission redefined the objectives of forestry management in the context of rational development and utilization of forestry resources in India in future. It recommended a changeover from the present conservation-oriented forestry to a more dynamic programme of production or man-made forestry - forestry which aims at producing wood for industrial or household use. This implies the conversion of mixed forests into plantation forest. Replacement of mixed forests by planting with economic species will increase the value manifold.

The Commission had also stressed on the social aspects of forestry and had, therefore, recommended the development of Social Forestry which should aim at creating protection and recreation benefits for the community. It felt that social

46. See page 48 above.
forestry should also include the activities concerned with growing and meeting the firewood needs of the community in future. The objectives of social forestry, therefore, consist of the following:

(i) fuelwood supply to the rural areas and replacement of cowdung;
(ii) small timber supply;
(iii) fodder supply;
(iv) protection of agricultural fields against wind; and
(v) recreational needs.

In Meghalaya, the use of cowdung as fuel is not in vogue. Hence the development of social forestry in the State for fuelwood supply is a basic requirement to meet the economic needs of the community. The National Commission felt that the improvement of incomes of the rural people would not be enough by itself to ensure supply of a minimum quantum of essential goods. A national effort is needed for production and for meeting their minimum needs for fuelwood, rural housing, etc. Social forestry as conceived by the Commission will, therefore, bring greater objectivity to this national effort.47

The Problems:

There has been considerable deforestation in the State due to the wide practice of Jhuming or shifting cultivation by the indigenous inhabitants and the uncontrolled grazing by the Nepali immigrants. Both the clearing of forests for shifting cultivation and uncontrolled grazing have caused great denudation of forests. It has also caused acute scarcity of firewood not

47. National Commission on Agriculture, Interim Reports on Production Forestry - Man-made Forestry (1975), and on Social Forestry (1975)
only in the towns but also in the villages and even those in the forest areas. Moreover, the forest areas under private and communal ownership are outside the Government's control.

The State Government should have the power to over-ride the District Council regulations and the customary power of the native chiefs and village headmen concerning administration of forests so that a new commercial approach to forestry development can be built up. The forestry sector in the State has got great potential both in regard to production and employment. The State should be able not only to raise the per hectare production but also create much more employment for skilled as well as unskilled hands. A properly planned development of forests will also give a substantial support to the economy of the State and its population. Moreover, we have found that a large number of industries based on raw materials from the forests can be established. This will have a sustaining impact on employment in the secondary and tertiary sectors of the economy.

The Forest Development Corporation of the State is expected to bring about the integration between forestry and forest industries sectors. The two sectors possess a number of economic characteristics which would enable them to act as an important base for economic growth. By properly integrating them, excellent means to alleviate the problems of underemployment could be provided in the rural areas of the State. This further implies control of forest industries by the Government. Meanwhile, in the absence of industries within the State, the raw materials can be sold to Assam and elsewhere in the North East India where the forest-based industries are not working to their full capacity for want of adequate raw materials. 48

48. See Chapter I above.

49. Draft Fifth Five-Year Plan, op.cit., p. 84
As regards the indiscriminate destruction of forest resources through the practice of jhum cultivation and uncontrolled grazing by the Nepali graziers, there is no better solution than passing of an appropriate legislation for checking them along with the encouragement for adopting sedentary system of cultivation and stall feeding of cattle.

Agriculture and Its Allied Activities and the State Plan:

Table 4.14 below shows the plan budget allocation for the development of Agriculture and its allied sectors in the Fourth and the Fifth Five Year Plans of the State. The allocation excludes the provisions channelised through the cooperative sector. The percentage share of agriculture and its allied sectors is higher in the Fourth Plan than its share in the Fifth Plan. In the Fourth Plan allocation, the share of agriculture works out to 25 per cent of the total outlay of Rs. 3800 lakhs for the entire Fourth Plan while in the Fifth Plan, its share was reduced to 23.44 per cent of the total outlay of Rs. 8933 lakhs for the entire Fifth Plan. As against the total allocation of Rs. 2072 lakhs shown in the table for the development of agriculture and its allied sectors in the Fifth Plan, the expenditure for the first 4 years together with the outlay of Rs. 605 lakhs for 1978-79 amount to Rs. 2118.94 lakhs. This would exceed the approved outlay for the Fifth Plan by about Rs. 47 lakhs if the entire outlay for 1978-79 is spent.50

50. It was decided by the Planning Commission to bring the Fifth Plan to an end a year in advance, i.e., by March 31, 1978 instead of March 31, 1979 and a new medium term Plan of five years from 1978-79 to 1982-83 would be launched from April, 1978. The Annual Plan for 1978-79 is, therefore, the first Annual Plan of the medium term Plan newly introduced in the country under the methodology of a "rolling plan".
### Table 4.14

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Outlay</td>
<td>Expenditure</td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>1. Agriculture</td>
<td>280</td>
<td>279.23</td>
</tr>
<tr>
<td>2. Storage and Warehousing</td>
<td>10</td>
<td>6.73</td>
</tr>
<tr>
<td>3. Land Reforms</td>
<td>9</td>
<td>9.30</td>
</tr>
<tr>
<td>4. Minor Irrigation</td>
<td>111</td>
<td>91.65</td>
</tr>
<tr>
<td>5. Soil and Water Conservation</td>
<td>118</td>
<td>124.72</td>
</tr>
<tr>
<td>6. Medium Irrigation and Flood Control</td>
<td>16</td>
<td>5.03</td>
</tr>
<tr>
<td>7. Animal Husbandry</td>
<td>112</td>
<td>105.97</td>
</tr>
<tr>
<td>8. Dairying Development</td>
<td>38</td>
<td>23.41</td>
</tr>
<tr>
<td>9. Fisheries</td>
<td>20</td>
<td>19.61</td>
</tr>
<tr>
<td>10. Forest</td>
<td>88</td>
<td>95.56</td>
</tr>
<tr>
<td>11. Community Development</td>
<td>118</td>
<td>115.28</td>
</tr>
<tr>
<td>12. Rural Works Programme</td>
<td>30</td>
<td>26.89</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>950</td>
<td>900.78</td>
</tr>
</tbody>
</table>

*Expenditure figures for 1977-78 are anticipated.

**Source:** Review of the Implementation of Development Schemes and Programmes for 1974-75 and for 1975-79, Government of Meghalaya

**Contribution of Primary Sector to the State Income:**

The first official estimate of the State income of Meghalaya done so far for the year 1973-74 at current prices has shown that the Primary Sector contributed Rs. 42.39 crores to the net State Domestic Product (NSDP) at factor costs which amounted to a total of Rs. 65.41 crores. The contribution of the primary
sector accounted for 65.11 per cent of the State income in 1973-74. Agriculture alone contributed 62.89 per cent. The estimate thus reflects the predominance of agriculture and the meagerness of other activities in the economy of the State.

Section (B)

The Economics of Jhuming

Introduction

Jhuming is an age-old method of crop husbandry practiced by the people of Meghalaya. It is a shifting form of agriculture and hence Jhuming is a local term for shifting cultivation. It is widely practiced in the State and it has been estimated about 3 lakhs of its people are dependent on Jhuming for their livelihood. This shows about 42 per cent of the people of the State are practicing shifting cultivation. In this section, we propose to study the economic problems of Jhuming in Meghalaya in the perspective of an all-India and the world background of the system.

The Extent of Shifting Cultivation

Jhuming or shifting cultivation is not peculiar to Meghalaya alone. The system is widely practiced in the hill areas of the whole of North Eastern region of India and in some other parts of the country. It has also a global dimension. The system still survives over a considerable portion of the world. It was estimated in 1957 by the F.A.O. that 200 million people scattered over 56 million square kilometres of the world are dependent on
the system. They formed a little under 10 per cent of the world's population, and were spread over more than 30 per cent of its exploitable soils. The tropical rainy regions with a mean temperature of about 18.5°C and a minimum rainfall of 24 inches per year have been found to be favourable for shifting cultivation. Even within this region, it is confined to the sparsely populated areas. Outside the tropics, the system is practised only in parts of Korea in temperate Asia. According to Clark and Haswell, the system prevailed in Europe up to 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.

In India, shifting cultivation has been practised in the hilly and forested tracts of Orissa, Bihar, Madhya Pradesh, Andhra Pradesh, Tamil Nadu, Maharashtra, Karnataka, and Kerala besides the North-Eastern States and Union Territories. According to the Dhebar Commission Report, 1962, about 26 lakhs persons in India were dependent on shifting cultivation, half of whom are in the North-Eastern region. By 1973, the number of persons depending

52. P.H. Nye and D.J. Greenland, The Soil Under Shifting Cultivation (1965)
55. P. Gourou, op.cit.
56. Report of the Scheduled Areas and Scheduled Tribes Commission, Vol. I, (Government of India, New Delhi, 1967); See also Table 16 in Appendix 'A'
on shifting cultivation increased to about 17 lakhs in the North Eastern region. Many of the tribes in other parts of India, excepting those in Orissa, have already taken up permanent cultivation and thus shifting cultivation does not pose any grave problem in these parts of the country. In the North Eastern region of India, Tripura has already brought the system under control. A decade ago, Jhuming used to pose a formidable problem to the State. But with the implementation of the Settlement and Colonisation Schemes, the problem has partially been solved. The extent of shifting cultivation in North East India is given in Table 4.15 below:

Table 4.15
Extent of Shifting Cultivation in North East India

<table>
<thead>
<tr>
<th>States/Union Territories</th>
<th>Area under Jhuming (in Hectares)</th>
<th>Total population dependent on Jhuming (in '000)</th>
<th>Percentage of total population dependent on Jhuming to total population (1971)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Arunachal Pradesh</td>
<td>92,000</td>
<td>270</td>
<td>57.69</td>
</tr>
<tr>
<td>2. Assam (Hill Districts)</td>
<td>69,000</td>
<td>403</td>
<td>0.48</td>
</tr>
<tr>
<td>3. Manipur</td>
<td>60,000</td>
<td>300</td>
<td>27.95</td>
</tr>
<tr>
<td>4. Meghalaya</td>
<td>76,000</td>
<td>350</td>
<td>34.58</td>
</tr>
<tr>
<td>5. Mizoram</td>
<td>61,000</td>
<td>260</td>
<td>80.74</td>
</tr>
<tr>
<td>6. Nagaland</td>
<td>73,000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7. Tripura</td>
<td>22,000</td>
<td>100</td>
<td>6.42</td>
</tr>
</tbody>
</table>

Source: (1) Report of the National Commission on Agriculture, 1976, Part IX

(2) North Eastern Affairs, Annual, 1975

It appears from the above table, that with the exception of Arunachal Pradesh, Meghalaya has the largest area under jhuming, with about 35 per cent of its total population depending on this system. But according to the State's Plan documents, at least 42 per cent of the total population of the State depends on jhuming utilising approximately 41 per cent of the net sown area. 58

The Evolution of Agriculture

The system of shifting cultivation or jhuming is regarded as a distinct stage in the evolution of agriculture. It is believed to be the first stage in the purposeful use of the soil for crop production. It was the transitional stage from hunting and food gathering to settled cultivation. 59 Even now, hunting and gathering still remain as important subsidiary occupations of the shifting cultivators. It is believed to have originated 9000 years ago during the Neolithic period between 15000 and 3000 B.C. At the beginning, it was practised both in the valley and in the hills. Agriculture in the valleys have made progress through successive stages with the improvement of tools and implements, use of power and machines to replace human labour. But the agricultural development in the hilly tracts has been slow and tardy as jhuming finds a favourable geo-physical setting to survive.

It is a fact that an early man was following a nomadic life constantly moving from one place to another in search of

58. Government of Meghalaya, Draft Fifth Five Year Plan, Vol. II, and Agriculture in Meghalaya
food and protection. But gradually, the irregularity of natural supplies and the desire for a settled life led man to establish a more permanent relation with nature. This initiated a process of human control over the vegetable and animal world. The domestication of plants and animals had thus begun.

With the domestication of plants, agriculture came into being. This is a great discovery of the early man to fight against the uncertainties of gathering food from nature's stock. It is believed to be a feminine discovery. While man went out for hunting and collecting, the women might have reared plants that sprouted out of the seeds thrown carelessly. Subsequently, the idea of deliberate sowing of seeds might have occurred to the early man.  

As the first step, it is probable that there was no preparation of soil as the early man had no tool to turn the sod or to dig. Thus, the spongy, alluvial river beds, liable to seasonal flooding, were ideal for growing the crops after the water had receded. But the pressure of population might have prompted the early man to look for more land suitable for cultivation. The discovery of fire came to his rescue. Fire began to play the role which the receding river water used to do. Certain areas were brought under cultivation through the "slash-and-burn" process. Thus shifting cultivation with the use of fire spread beyond the river banks.  

**Definition of Shifting Cultivation**

Shifting cultivation or *jhuming* consists of the cutting out of all forest growth in a selected area on hill slopes and

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60. Ibid.
61. Ibid., pp. 10-12
ridges, setting fire to it, then raising crops in the area for one to two years, after which the area is abandoned in favour of a fresh one. In other words, cultivation is shifted to the new fields after one or two cropings in the old fields. Hence the name "shifting cultivation" is given to the practice of cultivation under the system of Jhuming.

The old fields are thus left to lie fallow for a number of years. In the past the period of fallow was as long as 30 to 40 years or so before the old field is resumed for cultivation. Now, with the increase of population, the cycle has been reduced to 6 to 10 years in most cases. Among the Khosis, the period of fallow is between four and five years, while among the Garos, it is for seven years or so. Thus Conklin defines "shifting cultivation" minimally as any continuing agricultural system in which impermanent clearings are cropped for shorter periods in years than they are fallowed. 62

The F.A.O. has otherwise defined shifting cultivation as "the custom of cultivating clearings scattered in the reservoir of natural vegetation (forest and grass woodland) and of abandoning them as soon as the soil is exhausted, and this includes the custom of shifting homesteads in order to follow the cultivator's search for new fertile lands." 63 But in Meghalaya, the tribes do not generally shift their residence along with their fields. Though the above definition of the F.A.O. has given a fair description of the system, others described it as "an

economy of which the main characteristics are rotation of fields rather than of crops; clearing by means of fire; absence of draught animals and manuring; use of human labour only; employment of dibble sticks or hoes; short periods of soil occupancy alternating with long fallow periods.  

A very graphic description of *Jhuming* is the one given in the Report of the Scheduled Castes and Scheduled Tribes Commission, 1960-61. The Report writes thus, "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. The cultivators then shift to other clearings and then the cycle continues in rotation."

**Different Stages in *Jhuming***

From the foregoing discussion of the definition of *Jhuming*, certain important features of the system as well as the different stages in its operation can be established. In this section, we enumerate as follows the different stages which are invariably followed in the practice of *Jhuming*:

1. Selection of the forested area on a hill slope.
2. Preparation of the ground by felling of trees.
3. Allowing or waiting for the debris to dry up.
4. Burning of the dried debris into ashes.
5. Clearing of the half-burnt logs and debris.

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64. C. Clark and N. Havel, *op. cit.*, p. 35

(6) Planting crops on ash-covered soil by dibbling and/or sowing of seeds.

(7) Weeding process.

(8) Watching and protecting the crops from wild birds and animals.

(9) Harvesting

(10) Thrashing and storing.

(11) Fallowing.

Merry-making and religious ceremonies are also held at certain stages in the process of Jhuming. Mention may be made of the worship and sacrifice just before sowing the seeds, merry-making like bull-fight just after sowing the seeds, and the festivals observed after the harvest. A number of festivals are connected with Jhuming among the Garens and, with the observance of the Vangala dance, the Jhum year among the Garens closes.

Selection and allotment of a site is the first stage in the operation of Jhuming. This system of cultivation is always associated with the communal or clan ownership of land. In Gare Hills, the allotment of land to each person or family is made by the Nokma within the Akbing land. New such selection and allotment of land for Jhuming is, however, restricted according to the provisions of the Gare Hills District (Jhum) Regulation, 1954 which prohibits the use of certain types of lands for Jhum cultivation. In Khasi Hills, any individual member of the village, Raid, or clan, who wants a piece of land for Jhuming goes to the head of the village, or of the Raid or to the chief, as the case may be, for obtaining such piece of land. In most cases, the

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66. See Land System in Gare Hills at pp. 203-05 above.
67. See Land System in Khasi Hills at pp. 195-201 above.
village headman is consulted in the selection of sites. The District Councils in Khasi Hills and in Jaintia Hills do not have any law to regulate Jhmu cultivation in the two Districts.

After the site has been selected, the next step is to clear the jungle by felling the trees and lepping off the undergrowth using simple tools like axe and dao. This is done from the month of December to the middle of February every year. The fallen trees and bushes are then allowed to dry up in the sun for one to three months' time. By the middle of March or before the onset of the rains, dried forest debris must be set on fire.

In the next stage, the field is prepared for cultivation by clearing the half-burnt logs and other unburnt debris. The area now becomes ready for sowing. But a shower or two would be helpful for the ashes to settle down. The Jhmu field is never ploughed.

The sowing of seeds is done by putting the seeds in the holes or by being broadcast. A mixture of seeds of several crops are put into the holes dug with the help of a digging stick or knives. The most remarkable feature of Jhmu is that almost all the varieties of cereals and vegetables are grown in one Jhmu field, which is not possible in the case of wet cultivation. This is one of the reasons as to why the tribes of Meghalaya still cling to this method of food production.

Weeding is the most strenuous and labour-consuming part of Jhmu. It is a continuous process. At least four to five weedings are necessary, otherwise the undergrowth may use up the lion's share of water in the soil. In most cases, the fields are weeded three times only although it is essential to complete
five weedicings to ensure better yield. The burning helps prevent the rapid growth of the weeds. This is another reason which leads to the continuance, in the State. The weeding is generally the duty of womenfolk.

Watching and protecting the crops from wild animals and birds are also important parts in Jhuming. For this purpose, watch-houses are built on a raised platform or on the branches of a tree. In Gare Hills watch-houses are generally built on the branches of a tree and are locally known as "stang." One person from a family has to be engaged in the watch-house till the harvest time.

Although sowing of all the crops is done almost simultaneously, yet harvesting takes place as and when crop is ripe. Harvesting of different crops in the Jhum field continues from the third month (i.e., June) to December. It is found that weeding (other than the first one) and harvesting go on side by side. In the morning, members of the family go to the field for weeding and in the evening they return home with a basketful load of matured products on their back.

Harvesting of paddy in certain villages in Gare Hills is a time-consuming process because the practice is to pluck the grains from the paddy stalk by hand. But in most parts of the State, sickle is used to cut the paddy stalks which are tied into sheaves for threshing. But when reaping is done by plucking the grains by hand, threshing is not necessary. After the harvest, the Jhum cultivators used to dispose of parts of some of the products. The paddy is preserved safely. The cultivators used to construct a granary at a safer place and at a sufficient
distance from the residence to prevent it from catching fire that may accidentally occur in the residence.

After the harvest, the cycle of activities is completed for the first year field. A new plot is selected for cultivation for the next year. The field used for a year may be left to lie fallow or cultivated with one or two special crops. Occasionally some residual crops are collected from the abandoned fields.

The Characteristics of Jhuming

From the foregoing discussion, certain important characteristic features of Jhuming emerge. The features are universally found in all cases of shifting cultivation practised everywhere in the world. In Meghalaya also the same features are conspicuous. We will now describe these features in this section.

of Rotation of Fields:

The rotation of fields rather than of crops is the most important feature of Jhuming. The nature of the hill slopes, vegetation, soil and land-man ratio have a direct bearing on the practice of Jhuming, particularly when the system of terracing and other soil conservation measures, use of manures and fertilizers are unknown to the cultivators so as to enable them to till the land on slopes in a tropical climate. Thus the system of following is by far the best method for recouping and maintaining soil fertility under such circumstances. But the period of such following for the recuperation of soil fertility should be long enough for the adequate amount of organic matter to be deposited in the soil.
Use of Fire:

The clearing of forest vegetation without the use of fire as the clearing agent is impossible for the Jhum cultivators whose tool is merely a daco (cutlass) or an axe. The cultivators are greatly helped by fire in the arduous task of clearing the field. But the use of fire has some evil effects. The fire destroys all weeds and weed seeds. The ash supplies potash and makes the otherwise hard surface friable and spongy. But it destroys the organic matter in the form of timber, firewood, and leaf-manure. The burning has an adverse effect on soil as most of the organic carbon, nitrogen, and sulphur contained in the vegetation and litter are lost to the soil. It has been estimated that "between 600 to 900 lbs. of nitrogen per acre go up in smoke; the potash is reduced to a very soluble form of carbonate which is leached away by the first showers; and the humus and bacteria are destroyed." Despite the great evils, Jhuming is not possible without the help of fire.

Human Labour as the Sole Input:

*Jhuming* is the most labour-intensive form of farming. There is non-employment of draught animals, plough or machinery. Whatever little capital used in the form of simple hand tools has a direct link with the supply of labour. In the earlier days, no tool worth the name except the digging stick, was used for sewing or harvesting.

Use of Simple Tools:

The digging sticks used for planting seeds is undoubtedly the crudest agricultural tool used by man. It is nothing but a branch of a tree pointed at the one or both the ends. Besides the digging sticks, other implements are hoe, ax, and bee.

Shifting of Homestead:

In the early phase of shifting cultivation, shifting of villages or individual households might have been the regular practice. When the period of rotation was long, forests were vigorous and fields were at a distance from the immediate settlement, the cultivators were living a nomadic or semi-nomadic life in search of a virgin and fertile land. Later, when the village location has become permanent, Jhum cultivators used to emigrate temporarily to the fields because a continuous watch of the crops is necessary.

Factors in Favour of Jhuming

The communal system of landownership is a contributory factor of Jhuming. That is why this system of farming still persists in Khasi Hills and in the hill meadows of Garo Hills. But where permanent cultivation is followed, permanent vested interest is established in a given piece of land as in the Jaintia Hills and the plains meadows of Garo Hills.

The traditional custom and culture also play an important role in retaining the system of jhuming. Goswami had noticed that even the Christian Garos are still observing ceremonies and
festivals associated with Jhuming. The people of the State are still following their customary law of inheritance which passes through the women. But the most important factor which makes the Jhum cultivators cling to this age-old method of food production is the possibility of a mixed cropping pattern. The basic aim of a Jhum cultivator is to meet his own need all the year round. The mixed cropping can provide him with almost all items of daily requirement of food grains and vegetables, and can supplement the shortage of one crop by another crop. He produces some surplus for sale in order to meet his expenditure in the purchase of some essential commodities like salt, sugar, tea, etc. not produced by him.

Another important factor is that Jhuming requires very little capital. When land and human labour are available, cultivation is possible. But in permanent wet cultivation, at least a pair of bullocks, irrigation facility, and manual labour are essentially necessary.

**Evils of Jhuming**

There are divergent views about the system. There are those who maintain that the system should not be disturbed. Shivaraman observed in 1957 that, "it is a mistake to assume that shifting cultivation in itself is unscientific land-use. Actually, it is a practical approach to certain inherent difficulties in preparing a proper seed-bed in steep slopes where any disturbance of the surface by hoeing or ploughing will result in washing away

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of the fertile top soil." But yet he suggested that effort should be made to improve the fertility of the Jhumed land. Also Chaturvedi and Uppal wrote that the notion that shifting cultivation is responsible, in the main, for large-scale soil erosion needs to be effectively dispelled. But they did not deny that "the soil does get washed away" when it is under agricultural crops.

There are still others who recommended regulation, and not abolition, of shifting cultivation. This view is tenable only if the period of fallow is long enough as it was between 30 to 40 years in the past when the population was low. With the increase in population, the cycle has been reduced to 4 years in most areas of the State. This short interval is not sufficient for the regeneration of the soil and the people have to Jhum larger areas at a time resulting into further reduction of the cycle.

Thus the opposite view naturally maintains that Jhuming is ruinous and wasteful and advocates that it must be abandoned. According to them Jhuming can no longer provide sufficient food even at the subsistence level because circumstances have removed the only device by which Jhum yield was maintained earlier, namely, a very long period of rest of 30 to 40 years for the land. This

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71. M.S. Shivarman, Adviser to the Programme Administration of the Planning Commission quoted in F.K. Bhownik "Shifting Cultivation: A Plan for New Strategies" in Shifting Cultivation in North-East India, (North East India Council for Social Science Research, 1976, p. 8


73. For instance, S.N. Bhowd, former Inspector General of Forest, Government of India, and J.P. Mills, as quoted by F.K. Bhownik, op.cit.
is no longer possible and would not be possible in the future in view of the population increase. It is relevant to quote Dr Bor, the well-known forester and botanist, who observed thus:

"While it did little harm in the dim distant ages when the number of individuals was small and areas of forest large; it is very different tale when the cultivators live in stationary settlements and their numbers continue to increase.

"What one may call 'saturation point' has now been reached by most of the hill tribes and one of their most urgent problems is that of exhausted soil which must produce more at more frequent intervals. Some tribes solve this problem by having permanent fields which they can irrigate and others manure their fields." 74

Thus with the increase of population and diminishing soil fertility, larger areas per annum are being brought under this pernicious system of cultivation with the result that larger and larger areas are being rendered more and more infertile. The principal evil of Jhuming is the loss of soil fertility through the exposure of the soil through burning of the forest vegetation leading to continued erosion particularly during the monsoon showers. Owing to the removal of the tree canopy there is no obstruction to the mechanical force of the falling rain water which dislocates the soil. 75 It is the best, humus-bearing, well-aerated soil subject to the action of nitrifying bacteria and useful protozoal agencies that is thus washed out from the hills.

74. M.L. Bor, "The Relic Vegetation of the Shillong Plateau, Assam" in Indian Forest Record (New Series) 3(6), pp. 198-95
75. M.C. Jacob, The Forest Resources of Assam, (Assam Government, Shillong, 1940), p. 23
Another evil effect of Jhuming is the loss of the capacity to retain rain-water by the soil. The canopies of trees permit of slow dripping down of rain water to the forest floor. The litter of leaves and humus provided by the trees forms a mat through which water percolates very slowly. Similarly the minute rootlets of trees enmesh water and give it up only gradually. The tree canopy keeps the forest cool and thus capable of conserving moisture which it gives up only gradually. The moisture conserved by the forests at the headwaters of important streams is given up gradually during the summer months to those streams, thus maintaining the supply of water. The water supply is, therefore, endangered by the absence of tree cover which controls the run-off of water from the hill areas.  

Jhuming has also an evil effect on the vegetation and flora of an area. Rainfall causes leaching and acidity of soil to increase. The increased acidity, in turn, renders the soil unsuitable for plant growth and makes it further unstable and vulnerable to erosion. The humus which would have been created by the falling leaves is not available any more, thus adding to acidity. Such disturbances affect the flora of the lands where Jhuming is practised. The system has been passing through a critical period almost all over the world. In Asia, large areas of Philippines and Indonesia have been invaded by a eogen grass (Imperata Cylindrica and Saccharum Spontaneum) thus permanently

76. Ibid.

damaging the soil for the forest growth.\textsuperscript{78}

The F.A.O. has been taking active interest for more than a decade on the problems of shifting cultivation. It undertook a survey of the problem in 1968. Though the survey did not cover some of the very important countries of the world having shifting cultivation, yet it provides a very useful information on the nature and extent of the system in the world.\textsuperscript{79} One of the pieces of important information is with regard to the estimated value of timber lost on account of clearing and burning of forest for the purpose of Jhuming in a few countries of the world as revealed in Table 4.16 below:

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|}
\hline
\textbf{Countries} & \textbf{Estimated Total Value of timber lost} & \textbf{Annual Value per capita of shifting cultivator} & \textbf{Annual value of per hectare of forest cleared} \\
\hline
Burma & 31,500,000 & 12.26 & 17.81 \\
Fiji & 64,000 & 0.49 & 10.00 \\
Guyana & 2,000 & 0.66 & 10.00 \\
Sudan & 7,462,000 & 2.78 & 4.13 \\
Surinam & 10,600 & 0.33 & 0.61 \\
Guinea & 40,000,000 & - & 200.00 \\
Colombia & 50,000,000 & 106.67 & 106.67 \\
\hline
\textbf{Mean} & \textbf{-} & \textbf{24.98} & \textbf{54.14} \\
\hline
\end{tabular}
\end{table}

\textsuperscript{*The high mean is due to Colombia. Without this the mean would be 3.3. per capita of shifting cultivation.}


\textsuperscript{78} P.H. Nye and D.J. Greenland, \textit{The Soil under Shifting Cultivation}, (1969), p. 18

\textsuperscript{79} M. Saha (1970), \textit{op.cit.}, pp. 24-25
Writing on the evil effects of Jhuming in Garo Hills, C.R. Stoner has been quoted by Goswami as having noted in 1947 that "the greater part of the hills is completely deforested and are covered with great areas of bamboo jungle, grassland, and small shrubby vegetation ... eventually the greater part will in all probability be under thatch grass, useless for cultivation." 80 This applies to a major part of Khasi Hills also. The tree-less, bare-top hills around the Umiam Lake, the Laitkor area below the Shillong Peak and the Cherrapunjee region are the precursors of the dim prospects of other hill areas. In some steep slopes, the underlying rocks have been exposed over fairly large areas.

Jhuming, by its very nature, does not help in building up higher civilisation. The communities all over the world who are practising shifting cultivation have remained comparatively backward. Even the already existing civilisation based on such primitive practices of cultivation could disappear. According to Gourou, the Maya Civilisation which flourished in Central America in the sixth century A.D. declined due to the exhaustion of the soil consequent on the practice of shifting cultivation which they termed milpa. The high pressure of population led to the excessive shortening of the cycle of milpa. This caused such an utter exhaustion of soil fertility that the population which supported the cities and temples must have been compelled to scatter again. 81


The population of Meghalaya has been growing while the area available for Jhum cultivation has been dwindling gradually. A grave danger looms large both to the land and the people because Jhum cultivation without adequate fallow period damages the soil permanently. A famished people subsisting precariously on a primitive form of crop husbandry will also be a liability to a welfare State.

Carrying Capacity of Land under Jhum Cultivation

Jhuming can no longer support a growing population as the carrying capacity of the land where it is practised is quite low even at the most simple subsistence level of living. The studies made all over the world have shown that shifting cultivation, by its very nature, is not capable of maintaining a higher population density ever 10 persons per square kilometre. 62 This is because of two reasons. First, under the Jhum cultivation system, land, after one or two croppings is left to fallow for the recuperation of its lost fertility. This means that in a year, only a part of the cultivable land is used. For instance, if the period of fallow or Jhum cycle as is commonly called now, is 10 years and 50 per cent of the total land area is cultivable, it means only 5 per cent of the total area is brought under cultivation each year. Secondly, the recuperation of soil fertility depends on the period under forest fallow. The higher the Jhum cycle, the greater fertility would be regained. It, therefore, follows that the lower the Jhum cycle, the lower would be the productivity per unit area. This again, sets a limit to the density of population under shifting

82. N. Saha (1970), op.cit., p. 187
cultivation. In association with the cash crop cultivation, animal husbandry and subsidiary cottage industries, it can maintain a slightly higher population density of 15 persons per sq. km. at a tolerable standard of living. 83

Saha has shown that providing a minimum Jhum cycle of 15 years, the maximum density per sq. km. that can be supported at a minimum standard of living comes to only 4 persons in the conditions available in a typical Jhum village of Agalgri in Garo Hills of the State under study, 6 persons in the village of Munpui in the Union Territory of Misoram, and 9 persons in the Mikir village of Kanther Terang (Assam), provided, of course, that 50 per cent of the geographical land area is available for Jhuming. Taking the conditions of Munpui (Misoram) as the average for the entire hill areas of undivided Assam, and providing a Jhum cycle of 15 to 20 years, Saha estimated the carrying capacity in the undivided Assam to be 4-6 persons per sq. km. 84 The carrying capacity of 3-4 persons per sq. km. in the Garo village of Agalgri in the State under study, is the minimum of this average estimate calculated by Saha. In Table 4.17 in the next page are given the data on the land requirement per person per year assuming the yield of crops (in terms of paddy equivalent of production) obtained in the above three villages to remain constant for the same year.

In considering the carrying capacity of land it should be noted that 77 per cent of the total geographical area of the State of Meghalaya is either under forest or not available for cultivation and the population density in the State is 45. Thus

83. Ibid.
84. Ibid., p. 185
<table>
<thead>
<tr>
<th>Villages</th>
<th>Paddy equivalent of cereal requirement per person per year</th>
<th>Paddy equivalent of Non-food requirement per person per year</th>
<th>Paddy equivalent of total yield per hectare per year</th>
<th>Land requirement per person per year (Hectare)</th>
<th>Effective land requirement per person per year (Hectare)</th>
<th>Carrying capacity per square km. (Person)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kanther Terang (Nikir) 1965</td>
<td>3.29</td>
<td>3.29</td>
<td>6.58</td>
<td>17.33</td>
<td>0.38</td>
<td>5.70</td>
</tr>
<tr>
<td>Muaspui (Nizoram) 1964-65</td>
<td>3.29</td>
<td>3.29</td>
<td>6.58</td>
<td>12.15</td>
<td>0.54</td>
<td>8.10</td>
</tr>
<tr>
<td>Agalgrai (Garo-Meghalaya) 1968-69</td>
<td>3.29</td>
<td>3.29</td>
<td>6.58</td>
<td>7.53**</td>
<td>0.87</td>
<td>13.05</td>
</tr>
</tbody>
</table>

* 50 per cent of total consumption expenditure.

** Only first year Jhum.

Source: N. Saha (1970), *op.cit.* , p. 186
C.R. Stoner's remarks about the state of land in Garo Hills is alarming. He wrote, "I regard the state of land in the Garo Hills as most serious. The present state of affairs is such that a large area of the hills is faced with large scale famine within the present generation unless measures are started immediately to prevent it." 85

**Level of Production**

Being a subsistence-oriented agriculture, food production is the chief motive of the Jhum cultivators in Meghalaya as elsewhere. A few cash crops like cotton, chilli, sesame, ginger and taro are produced for exchange to meet the consumption needs of salt, dry-fish, tea and clothes. Again, Jhuming is a system of mixed cropping. The crops are so mixed in the field that it is difficult to apportion specific area to a particular crop. The modern idea about cropping pattern is not applicable to Jhuming.

From the data collected by the Agro-Economic Research Centre for North-East India, Jorhat from various villages in the hill areas of the region of N.E. India including Meghalaya, we can show the estimated production of crops per hectare under Jhuming in these villages as revealed in Table 4.16 in the next page. It is to be noted that the average productivity of paddy per hectare (along with other crops) is more than 8 quintals in all the villages surveyed. In Khasi and Khasi Hills and, Assam also, taking paddy and millets together, the productivity comes to about 9 quintals. Saha was of the view that productivity of paddy under Jhuming per unit area compares favourably with that produced under

85. P.C. Goswami (1968), *op.cit.*
### Table 4.18

Estimated Production of Crops (in mixture) per hectare of Jhum Cultivation (in quintals)

<table>
<thead>
<tr>
<th>Crops</th>
<th>Kanager Terang (Nikir Hills, Assam)</th>
<th>Banshidua (Garo Hills, Meghalaya)</th>
<th>Haunpul (Mizoram)</th>
<th>Kbonsa (Arumachal)</th>
<th>Pakam (Aramachal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>8.85</td>
<td>8.94</td>
<td>8.06</td>
<td>4.08</td>
<td>8.32</td>
</tr>
<tr>
<td>Maize</td>
<td>1.70</td>
<td>0.64</td>
<td>1.12</td>
<td>-</td>
<td>0.30</td>
</tr>
<tr>
<td>Millets</td>
<td>-</td>
<td>0.55</td>
<td>-</td>
<td>4.62</td>
<td>0.87</td>
</tr>
<tr>
<td>Cotton (Raw)</td>
<td>1.47</td>
<td>1.10</td>
<td>0.05</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Castor Seed</td>
<td>0.47</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sesamum</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.49</td>
</tr>
<tr>
<td>Mustard Seed</td>
<td>-</td>
<td>0.08</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Turmeric</td>
<td>-</td>
<td>0.31</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ginger</td>
<td>0.01</td>
<td>-</td>
<td>0.02</td>
<td>0.12</td>
<td>0.05</td>
</tr>
<tr>
<td>Taro</td>
<td>0.28</td>
<td>0.14</td>
<td>-</td>
<td>1.68</td>
<td>-</td>
</tr>
<tr>
<td>Yam</td>
<td>0.50</td>
<td>0.18</td>
<td>-</td>
<td>0.12</td>
<td>-</td>
</tr>
<tr>
<td>Black Gram</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Chilies (dry)</td>
<td>0.04</td>
<td>0.18</td>
<td>0.40</td>
<td>0.17</td>
<td>0.06</td>
</tr>
<tr>
<td>Tobacco</td>
<td>-</td>
<td>-</td>
<td>0.07</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cassava</td>
<td>-</td>
<td>0.57</td>
<td>-</td>
<td>0.60</td>
<td>-</td>
</tr>
</tbody>
</table>

Gross Value of Products (in Rs.)

- 693.35
- 607.87
- 654.87
- N.A.
- 746.25

Source: Village Surveys, A.E.R. Centre, Jorhat
settled farming in the traditional manner in the North-Eastern region - the average yield in the Assam valley being not more than 12 quintals. But the study made by the Agro-Economic Research Centre, Jorhat has revealed that the average yield of paddy is lower in Jhum cultivation than that in terrace cultivation recently introduced in Darengiri, a Jhum village, by the Government of Meghalaya. Table 4.19 shows the rate of production of paddy according to the different systems of cultivation in Darengiri, Garo Hills:

Table 4.19

<table>
<thead>
<tr>
<th>System of Cultivation</th>
<th>No. of Households</th>
<th>Paddy Production under Terrace Cultivation</th>
<th>Paddy Production under Jhuming</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Area (acres)</td>
<td>Output Yield (quintal)</td>
</tr>
<tr>
<td>1. Solely Jhuming</td>
<td>2</td>
<td>2.67</td>
<td>1.60</td>
</tr>
<tr>
<td>2. Solely Terracing</td>
<td>3</td>
<td>13.50</td>
<td>42.40</td>
</tr>
<tr>
<td>3. Jhuming &amp;</td>
<td>33</td>
<td>47.66</td>
<td>113.40</td>
</tr>
<tr>
<td>Terracing practised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>simultaneously</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(mixed cropping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in both systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Jhuming &amp;</td>
<td>7</td>
<td>7.33</td>
<td>24.80</td>
</tr>
<tr>
<td>Terracing practised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>simultaneously</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Raising paddy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>exclusively) in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>terrace land</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Agro-Economic Research Centre, Jorhat (1977), A Comparative Study of Crop Production under Shifting and Terrace Cultivation (A Case Study in Garo Hills, Meghalaya), (Mimeographed) p. 77

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86. Agro-Economic Research Centre, Jorhat (1977), A Comparative Study of Crop Production under Shifting and Terrace Cultivation (A case study in Garo Hills, Meghalaya) (Mimeographed), p. 77
The average yield per hectare of paddy in the first year of the newly introduced terrace cultivation in Darengiri was calculated by the I.C.A.R. Complex, Shillong at 23.25 quintals as against 19.21 quintals in the Agricultural Farm in Sangsangari which is in the neighbourhood of Darengiri. These two figures are much higher than the finding of the Agro-Economic Research Centre which is about 8.43 quintals per hectare (i.e. 5.58 quintals per acre) in the same area. Of course the data of the A.E.R.C. relates to the second year cultivation in the terrace field where paddy is exclusively raised. But where an identical mixture of crops is raised under both the systems, the A.E.R.C. has found that gross return per acre in terrace cultivation is slightly lower than that under shifting cultivation. While the gross return per acre in the terrace land is Rs. 401.53, that from Jhum land is Rs. 504.19. 87

A survey of Agalgri, a cluster of three Garo villages by Saha in 1968-69 gives an interesting picture. A Jhum field in Agalgri is cultivated for two consecutive years. In the first year, the field was cultivated with a mixture of crops and in the second year, it is sown only with an exclusive crop of paddy (in rare cases, with maize and millets). The production of crops, farm price and gross value of crops in Agalgri for the year 1968-69 are presented in Table 4.20 in the next page. In the first year field, paddy contributes about half the total gross value of the products per hectare. In the second year field the productivity of paddy per hectare remained almost at the same level as in the first year field as paddy is exclusively grown.

### Table 4.20
Production, Farm Price per Quintal and Gross Value of Crops (in mixture) in Agalgrl, Garo Hills for 1968-69

<table>
<thead>
<tr>
<th>Crops</th>
<th>Farm Price (Rs.)</th>
<th>First Year Field</th>
<th>Second Year Field</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity (Quintal)</td>
<td>Value (Rs.)</td>
<td>Quantity (Quintal)</td>
</tr>
<tr>
<td>Paddy</td>
<td>67.00</td>
<td>3.69</td>
<td>247.23</td>
</tr>
<tr>
<td>Millets</td>
<td>54.00</td>
<td>1.55</td>
<td>85.70</td>
</tr>
<tr>
<td>Maize</td>
<td>67.00</td>
<td>0.42</td>
<td>20.14</td>
</tr>
<tr>
<td>Cotton (Raw)</td>
<td>125.00</td>
<td>0.20</td>
<td>25.00</td>
</tr>
<tr>
<td>Cassava</td>
<td>50.00</td>
<td>0.42</td>
<td>21.00</td>
</tr>
<tr>
<td>Chillies (dry)</td>
<td>200.00</td>
<td>0.06</td>
<td>12.00</td>
</tr>
<tr>
<td>Sesame</td>
<td>100.00</td>
<td>0.07</td>
<td>7.00</td>
</tr>
<tr>
<td>Fruits &amp; Vegetable</td>
<td>50.00</td>
<td>1.62</td>
<td>81.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-</td>
<td>-</td>
<td>305.07</td>
</tr>
</tbody>
</table>

Source: Ibid.

Compared to the production under *Jhusing* in other villages surveyed by the Agro-Economic Research Centre, Jorhat, the level of productivity in Agalgrl is much lower both in physical and value terms.

Even if the productivity under *Jhusing* compares favourably well with the productivity in the case of paddy under settled farming, yet the defects of *Jhusing* remains in that the *Jhum* field can produce only once in several years depending on the *Jhum* cycle. On the contrary, under settled farming, the same field can be brought under multiple cropping with scientific management under irrigation, producing two or more crops per year. The production can then be raised from one hectare of land to about
70 quintals of paddy per annum. Thus in respect of the level of production, Jhuming suffers from many defects.

Level of Income

In the Table 4.18 above, the gross value of the products raised under Jhum cultivation in different villages in North East India including Meghalaya, is given. In estimating the level of income, it is to be remembered that in Jhuming, the land is free and capital investment is insignificant. The family labour and home-produced seeds are two important elements in the input structure of a Jhuming village. The data on the total inputs of man-day labour per hectare are available for three villages, namely, Kanther Terang, Mumpui and Agal gri. Keeping in view the very simple and traditional input structure in the Jhuming economy, the return per man-day labour of 8 hours a day, can be calculated. Table 4.21 below shows the return per man-day from Jhuming in the three villages:

Table 4.21
Return Per Man-day in Jhuming Villages

<table>
<thead>
<tr>
<th>Villages</th>
<th>Man days per hectare (Annual)</th>
<th>Gross Value of Products per hectare</th>
<th>Return per man-day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kanther Terang (1960)</td>
<td>219</td>
<td>Rs. 544.00</td>
<td>Rs. 2.48</td>
</tr>
<tr>
<td>Mumpui (1964-65)</td>
<td>276</td>
<td>Rs. 655.00</td>
<td>Rs. 2.45</td>
</tr>
<tr>
<td>Agal gri(1968-69)</td>
<td>257</td>
<td>Rs. 503.00</td>
<td>Rs. 2.00</td>
</tr>
</tbody>
</table>

Source: N. Saha (1976), op.cit.
It appears from the above table that the level of income from Jhuming is very low as compared to the prevailing wage rates. The income is the lowest in Agalgiri in Meghalaya, being Re. 1 per man-day. The low level of income under Jhuming is, however, supplemented by hunting, fishing, and gathering and other subsidiary occupations.

**Subsidiary Occupations and Jhuming**

The Jhum cultivation in Meghalaya as elsewhere was once a complete economic system with several subsidiary occupations as its necessary adjuncts. Each village was, more or less, self-sufficient in respect of food, clothes, implements and housing materials. But such a sheltered economy was possible only in the past. Traditionally, hunting, fishing and gathering from Nature's stock are important subsidiary sources of food. The collection of timber, cane, and bamboos for housebuilding and for making household tools and implements, remains an important source of income though such income cannot be accurately calculated. Besides, each household possesses a few domesticated animals and poultry birds. Generally, the Jhumis do not drink milk and thus cattle breeding and dairy do not have much place in the economy. Spinning and weaving are undertaken only by the women and they have now lost ground in favour of mill cloth.

The Jhum cultivation in Meghalaya has apparently lost its earlier advantage and most of the people in the State depending on it are feeling the pinch of their dwindling economy. Most of the Jhumias are now falling upon non-traditional occupations like salaried job in Government and semi-Government Offices and
employment as wage-labour. Under the pure Jhum economy, nobody offers labour for hire. But the present tendency of the Jhum cultivators is to adopt some non-traditional occupations. This is evident from the data in Table 4.22 showing the percentage contribution of different occupations in the three villages of the State:

Table 4.22
Percentage Contribution made by Different Occupations in the Village Income of the Three Villages in Meghalaya

<table>
<thead>
<tr>
<th>Sources of Income</th>
<th>Westkam (Khasi Hills) 1969</th>
<th>Banshidua (Garo Hills) 1963-64</th>
<th>Agalgar (Garo Hills) 1968-69</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Jhuming</td>
<td>17.5</td>
<td>22.4</td>
<td>57.3</td>
</tr>
<tr>
<td>2. Settled Farming</td>
<td>24.7</td>
<td>28.9</td>
<td>0.9</td>
</tr>
<tr>
<td>3. Horticulture</td>
<td>21.2</td>
<td>14.9</td>
<td>0.7</td>
</tr>
<tr>
<td>4. Agricultural Wages</td>
<td>9.6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5. Animal Husbandry and Poultry Farming</td>
<td>8.8</td>
<td>2.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Total: Agriculture</td>
<td>81.9</td>
<td>69.7</td>
<td>60.4</td>
</tr>
<tr>
<td>6. Extraction from Forests</td>
<td>5.1</td>
<td>5.1</td>
<td>-</td>
</tr>
<tr>
<td>7. Arts and Crafts</td>
<td>1.4</td>
<td>1.3</td>
<td>0.3</td>
</tr>
<tr>
<td>8. Trade &amp; Transport</td>
<td>-</td>
<td>6.9</td>
<td>-</td>
</tr>
<tr>
<td>9. Non-Agricultural Wages</td>
<td>4.7</td>
<td>5.6</td>
<td>30.4</td>
</tr>
<tr>
<td>10. Salary and Remittance</td>
<td>3.7</td>
<td>8.4</td>
<td>8.9</td>
</tr>
<tr>
<td>11. Miscellaneous</td>
<td>5.3</td>
<td>4.0</td>
<td>-</td>
</tr>
<tr>
<td>Total: Non-Agriculture</td>
<td>18.2</td>
<td>31.3</td>
<td>39.6</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

There is a variation in respect of the contribution of Jhuming to the total village income of the three villages in the State. It contributes more than 50 per cent of the total village income in Agal gri in Garo Hills. But in Banshidua in the same region, it contributes only 22.4 per cent while in Mawnum in Khasi Hills, it contributes still less being 17.5 per cent only. Mawnum, situated four and a half miles from Nongpeb, an important marketing centre on the Gauhati-Shillong Road, and Banshidua, a village near Phulbari, a growing urban centre on the Goalpara-Tura Road, appear to be no longer dependent on Jhuming and its associated occupations. The settled farming and horticulture contribute a bulk of the income in these two villages. The contribution of different occupations in the income of the Jhuming villages in other parts of North East India is given in Table 17 of the Appendix "A".

Steps to Control Jhuming

The evils of Jhuming were recognised by the Britishers immediately after coming into contact with the Gares, the Khasis and the Jaintias. David Scott who was responsible for the opening up of the hills now comprising Meghalaya, considered Jhuming as an unproductive system and endeavoured to introduce alternative technology and better seeds. He even tried to develop a farm in Garo Hills to popularise an alternative approach to agriculture. He introduced the cultivation of mulberry plants, potatoes, peaches and some vegetables both in Garo Hills and Khasi Hills. A few Bhutias were brought to teach the Gares their method of terracing the hills. The Gares were not inclined to the innovations and the untimely death of David Scott put an end to
the experiment. 68

There was no more attempt at replacing the age-old mode of production as the British authorities considered it not to injure the social and religious attachment of the people of the Jhum field. 69 After independence, the national government both at the Centre and the States concerned have tried in several ways to reduce or eliminate Jhuming in the country. The new State of Meghalaya has been signed with the problem. The State Government has, therefore, introduced the Jhum Control Scheme with the dual purpose of protecting the land and soil and of providing cultivable land to enable the farmers to adopt settled or permanent cultivation. During the years 1974-75 and 1975-76, altogether 1914 hectares of land were brought under terraces under the Jhum Control Scheme.

The Jhum Control Programme also involves the Regrouping of Villages in Garo Hills. This has been done by combining smaller hamlets into bigger units of 50 families at the minimum. The land prepared for permanent cultivation by the Government is handed over to the Nokma of the Akbing concerned for distributing it among his co-villagers at the rate of 2 hectares per family. The displaced families who are required to shift to the bigger unit have been granted a sum of Rs. 2000 per family towards the cost of construction of a house. Besides the construction of


69. Ibid.
terraces, the Government is providing other facilities also to the
Regrouped village like tilling of the land, irrigation, distribution
of seeds, manures and fertilizers, afforestation, drinking water
facilities, link roads, educational and medical facilities and
other amenities. During the two years mentioned above, 1346
families have been benefited under the Scheme in the State.90

The importance of the programme for the control of Jhuming
was realised since the new State came into being in 1970. But no
effective measure was taken up to tackle the problem until the
last year (1973-74) of the Fourth Plan when an amount of Rs. 11
lakhs was provided under the Soil Conservation Programme for a
pilot project for the study of the problems of Jhum cultivation in
an integrated manner.91 The seriousness of the problem of soil
erosion in this hilly State has prompted the State Government to
take several measures. The chief aim of the soil conservation
programme in the State was, in fact, to wean away the Jhum
cultivators from Jhuming to a settled type of cultivation. But it
has been only during the Fifth Plan that specific schemes for Jhum
control have been taken up and for which an outlay of Rs. 481.66
lakhs was earmarked. Table 4.83 in the next page gives the budget
allocation from year to year for the special scheme for Jhum
control during the Fifth Plan period along with the expenditure
for the first 4 years of the Plan. The table shows that the total
of all the Annual Plans during the Fifth Plan period including the
first Annual Plan (1978-79) of the new medium term Plan, is

90. Soil Conservation in Meghalaya, Department of Soil Conservation,
Government of Meghalaya

91. Review of the Implementation of Development Schemes and
Programmes for 1973-74, p. 17 (Government of Meghalaya, Finance
Department)
Table 4.23
Outlay and Expenditure for Special Scheme for Jhum Control during the Fifth Plan period

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Outlay</td>
<td></td>
<td>74.00</td>
<td>78.14</td>
<td>82.62</td>
<td>84.70</td>
<td>92.59</td>
<td>412.25</td>
</tr>
<tr>
<td>2. Expenditure</td>
<td></td>
<td>70.76</td>
<td>80.95</td>
<td>76.71</td>
<td>77.62*</td>
<td>-</td>
<td>306.02</td>
</tr>
</tbody>
</table>

*Anticipated


arrived at Rs. 412.25 lakhs although the approved total outlay for the five years is Rs. 421.66 lakhs. The actual outlay will be further reduced if the provision for 1978-79 is not fully utilised. The total outlay for the five years as shown in the above table represents about 20 per cent of the total outlay for the development of agriculture and its allied sectors.92

Prospects of Settled Farming

The defects of the communal land tenure system in Meghalaya do not prevent the adoption of the modern settled farming. The socio-economic surveys of jhumming areas done by the A.E.R. Centre, Jorhat have shown a tendency towards settled agriculture in some villages. Thus the transition to settled farming in the Khari village of Mawrthum and the Garo village of Banshidua has been possible in spite of the communal land tenure system that exists in the regions.

92. See Table 4.14 above.
The percentage contribution to income from Jhuming, Settled Farming and horticulture in Metrostates in 1969 are 17.5; 24.7 and 21.2 respectively; while in Ranshida in 1963-64 they are 22.4; 28.9 and 14.9 respectively.

The people of the State are not unreceptive to innovations, but adaptability is no doubt a slow process. Enjoying better transport and marketing facilities, many villages have already taken up settled cultivation. The economy of such villages has geared up with higher income from settled cultivation and horticulture. But in the interiors of the State where there are no such facilities, the conditions of Jhum cultivators have become precarious. The level of income in such areas has been dwindling. The Jhuming can no longer support a growing population. Given proper marketing and communication facilities by which the necessaries of life can be made available to them, the Jhum cultivators of the State can shift to other productive enterprises.

The lack of resources must be a deterrent factor which prevents the Jhum cultivators from undertaking settled agriculture. For the construction of terraces, adequate supply of land suitable for contour-bunding and terracing, and finance both for the initial construction and maintenance of terraces are important factors to be taken into account. For locating suitable land for the reclamation through drainage, contour-bunding and terracing, a cadastral survey of land is necessary. In this connection, Goswami has already suggested classification of land on the basis of land capability.

93. N. Saha (1970), op.cit., p. 179
94. See Table 18 of Appendix 'A'
The solution to the vexed problems posed by Jhuming will, therefore, take some more time. In the meanwhile, the economy of Jhuming will further deteriorate. Till the system is not completely replaced by better and alternative methods, steps should be taken to minimise its harmful effects through the suitable modification of cropping pattern, adequate care for soil conservation, use of fertilisers and manures, and cultivation of leguminous crops. The experiment with the alternative sources of fertilisers to substitute potash supplied through burning of forests, is called for. The introduction of a *tawangy* system will also go a long way in tackling the problems.

One suggestion for improvement in the agriculture and better utilisation of land in the Jhum areas of the State involves the following:

1. Conversion of mild slopes (up to 8 per cent) into bench terraces for growing field crops.
2. Growing of horticultural crops in moderate hill slopes (from 8 per cent to 30 per cent) by making half-moon terraces.
3. Utilisation of steep slopes (beyond 30 per cent) and hill tops for reserve forests.

The problems of Jhuming cannot be adequately tackled depending entirely upon farm sector. The non-farm sector has to be developed to divert a section of the population of the State.

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95. *Tawangy* system refers to a progressive form of shifting cultivation or agriculture.

from agriculture. The development of trade and transport, organisation of small and medium scale industries based on forest and mineral wealth will provide markets for the primary sector and employment opportunities to the underemployed rural population. In the ultimate analysis, the problems, in spite of many human and institutional factors associated with the system, are more connected with the question of technological change in agriculture and the provision of adequate infra-structure conducive to such a technological change.