CHAPTER - II.
PHYSICAL SETTING AND ITS IMPACT

A. LOCATION AND SITUATION :-

Manipur is located between 23°51' N latitude to 25°41' N latitude and 93°02' E longitude to 94°47' E longitude in the extreme eastern parts of the country, bordering Burma for about 352 kms. in the east and south, Nagaland and Assam for about 502 kms. in the north and west. (Fig. No.1)

Almost being a land locked territory having only two land routes Imphal-Kohima-Dimapur Road(N.H. No.39) and Imphal-Cachar-Road, joining the adjoining states of Nagaland and Assam with runway of about 215 and 224 kms. respectively, and being a rectangular cup shaped state with valley in the centre, glittered with foaming water of Loktak Lake—the biggest fresh water lake in North East India—Manipur is a 'pretty place, more beautiful than many of the show places of the world'¹ It is rightly called a flower on lofty heights² due to its picturesque beauty.

B. BOUNDARY, AREA AND ADMINISTRATIVE SET UP :-

Manipur has a number of its own interstate and international boundary problems. Border dispute with her neighbouring states and foreign countries like Nagaland and Burma can be cited. Still the border between Manipur and Mizoram is not properly maintained and a lot of problems are created by immigrant people from chin hills through Mizoram.

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So, the most up-to-date reliable demarcation of the inter-state and international boundaries to settle the boundary disputes in view of this sensitive and strategically important hilly state of Manipur in North-Eastern India, is highly required.

Moreover, 29 sq.kms. of land area of Manipur is suddenly reduced from its actual total Geographical areas as found in Government's Statistical reports during 1981 census (i.e. 22,327 sq. kms.). Previously, it was 22,356 sq.kms. during 1971 census.

The state is almost bordered on all sides by hills, running into north-south parallel folds with altitudes varying from 850 metres to 3,000 metres above sea level.

These hills occupy over nine-tenths of its total area. The main valley of Manipur consisting of 9 percent or about 1,843 sq. kms. of its total geographic area (i.e. 22,327 sq.kms.) is situated in the Centre of the State.

Imphal is the capital city with an elevation of 790 metres above mean sea level and is having an area of about 908 sq.kms. (Here, Imphal east=429 sq.kms. and Imphal West= 479 sq.kms. including Municipality area i.e. 34,78 sq.kms.) The hills stretching from North to south in direction, rise over 3,000 metres above sea level, at some places in the northern part of the state. But the average elevation of the hills is between 1,500 to 1,800 metres. Both the hills and valley are sloping towards the south.
Recently, the state was divided into eight revenue districts (Fig. No. 2) in the year 1981.

Viz.

1. Imphal (area: 1295 sq.kms. including Jiribam with Pop. 556,146);  
2. Thoubal (area: 405 sq.kms with Pop. 231,761);  
3. Bishnupur (area: 530 sq.kms. with Pop. 141,150)  
4. Senapati (area: 3,271 sq.kms. with Pop. 155,421);  
5. Churachandpur (area: 4,570 sq.kms. with Pop. 134,776);  
6. Ukhrul (area: 4,544 sq.kms with Pop. 82,946)  
7. Tamenglong (area: 4,391 sq.kms. with Pop. 62,289) and  
8. Chandel (area: 3,313 sq.kms. with Pop. 56,444)  
9. Jiribam

Moreover, Imphal district was again sub-divided into two or four parts, Imphal East-I & Imphal East-II in Imphal East sub-division and Imphal West-I and Imphal West-II in Imphal West sub-division. Their headquarters are Porompat, Sawombung, Lamphelpat and Wangoi respectively. Two Tehsils are also added. They are Tulihal Tehsil in Imphal District covering 17 villages and Heirok Tehsil in Thoubal district, which covers about 19 villages and their head quarters are Tulihal & Heirok respectively.
C. STRUCTURE:

The entire state is a part and parcel of Purvanachal or Assam-Burma geological structure. The general surface structure of the region is the continuation of the Himalayan Mountain system starting from the North east syntax (i.e. Sadiya) near Namche Burma (7,756 m.).

In the north, this system is known as Patkai and its southward extensions of hills is known as Naga hills, Manipur hills, Lushai or Mizo hills, and Chin hills. Its extreme southward extension near Arakan coast in Burma is known as Arakan Yomas. The hills and mountains of the state are made up of sedimentary rocks but the valley is occupied by clays, sands, loams etc. The saucer like valley with a lake in the middle of the state is surrounded by a series of mountain chains running from north to south.

D. GEOLOGY:

There is a poor geological knowledge of the state as a detailed geological survey report is still awaited. However, the region is a component of the Trans-Himalayan geological formation from the sea of Tethys in the Archaean period, about one billion years ago. In the early pleistocene age or Quaternary period during cenozoic era, some 55 million years ago, the whole region was uplifted from the sea of Tethys to its present position.

It is more or less confirmed from the recent findings of the Geological survey of India published in A.B.P. dt.14-1-86.
According to this report the fauna found in this area are of the period between 80 and 30 million years ago. It was under a marine condition and is reported of a highly fossil infested horizon from near Tolloi, Manipur East District, Ukhrul and contains invertebrate fossils assemblage rich in Gastroed, Geologically known as Solariella. The region is still very much unstable and is one of the earthquake belts known as the 'Alpine-belt' which reaches Manipur state through the highland of Burma and Indonesia. These belts run parallel to the young folded mountains of the Alps of Southern Europe, the Himalayas of India, the highland of Burma and Indonesia.

As a result, it is criss-crossed by several faults and strikes, the most important among them are the Naga thrust, Haflong-Disang thrust and Dawki-Tear thrust. Out of these thrusts, the Haflong-Disang thrust is running parallel to the north-western ridges and separates Manipur from the rest of Assam, Meghalaya plateau, Kharsi and Jayantia hills.

Some geologists also believe that the Manipur central plain was formed as a result of a lake being filled up by the river-borne sediments. The present Loktak Lake, occupying the southern part of the valley, is said to be the remnant of the original lake that occupied the whole of the present central plain. But, it seems to be a fluvo-lacustrine origin with subsequent earthquakes.

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3. Amrita Bazar Partika, Tuesday, 14th Jan., 1986 page no. 7. (Reported by three prominent geologists led by Mr. Mishra, attached to the regional paleontological laboratory, North-Eastern-region.)
Moreover, most of the present day geological literature about the Manipur state is based on the findings of R.D. Oldham (1883) and according to him the succession of beds in Manipur is of cretaceous rocks, accompanied by serpentine rocks (intrusive) which are younger than cretaceous rocks and the associated sedimentary rocks which have been described as Axials. In Ukhrul limestones of cretaceous age can be well traced.

Again, according to the geologists of Burma oil Company 'the term axial were described for the rocks' which are older than Disang, probably cretaceous and the tertiary rocks in Manipur. They belong to two series viz. Disang and Barail. Disang series is almost confined to the north-eastern part (i.e., Ukhrul district) and to south-eastern part (i.e., Chandel district) of Manipur and Barail and Surma series lie in the north-western part (Senapati district) and the to south-western (Tamenglong and Churachandpur districts) of Manipur.

In the heart of these two series, a saucer like valley with a lake of thick alluvium deposits is located. (Fig. No.3).

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MANIPUR
GEOLOGICAL AND MINERAL MAP

SCALE:
8 4 0 4 8 12 MILES
8 4 0 4 8 12 16 20 24 KMS

E. OF GREENWICH (BASED UPON THE SURVEY OF INDIA MAP)

FIG. 3
E. MINERALS:

Due to the lack of proper geological survey, the knowledge of minerals in Manipur is very meagre. However, the Geological survey of India has undertaken systematic surveys in three districts of the state viz. Manipur East (Ukhrul), Manipur South (Churachandpur) and Tengnoupal (Chandel) district and discovered a good quality and quantity deposits of valuable minerals, such as salt, limestone, bogiron, Dark-ultra-basic rocks, Lignite, copper, Nickel etc. (Fig. No. 3).

Deposits of these valuable minerals are specially concentrated in the eastern half of the state, viz., Ukhrul, Chandel, Churachandpur, Tengnoupal, Moreh, Kangvai, Chakpikarong, Kakehing, Sugnu etc. The following are the lists of minerals, which are found in different parts of the state:-

1. SALT:

The state has brinesprings in different places of the Manipur East district and the Manipur central district such as Marlemphung, Luchai, Chalou, Karasom, Sikhong, Ningel, Chandrakhong, Phanjangkhong, Waikhong, Shajikhong, Bengi, Pechi, Moirangpren, Ithem, Monthou, Nungbrang etc.

Most of the springs are concentrated in the Thoubal (Thoubal District) river valley. The salinity of the springs, which are found at a depth of 20 to 45 ft. is believed to be either due to imperfect ground water drainage or due to local saline construction in the bedrock having very low salt content.
The quantity of common salt is very small and the springs are also too scattered over a wide area for profitable exploitation.

2. LIMESTONE:

Limestone is the only important mineral which is excavated locally (especially in Ukhrul district). Its production during 1956 was estimated at 75 tonnes. Limestone is mainly available in different parts of the East District viz., in Ukhrul areas, Hundung, Mata, Khanggoi, Lambui, Sokpao and Kasom. It is also available between 32/4 and 32/6 milestone on Imphal Moreh road, east of pallel, Toupokpi, Chakpi Karong etc. Besides, it is also found in isolated areas of Sugnu, Yaithibi, and Lamgangkhunou. The limestone contains less than 1 percent of magnesia and is therefore suitable for manufacture of cement. Only in Ukhrul areas, the total deposits of limestone has been estimated at 5.79 million tonnes at a depth of 105 metres. Besides, reserves of 0.26 million tonnes at Khanggoi and 1.88 million tonnes at Hundung are also estimated. But according to G.S.I. the total reserve of limestone in Manipur East District is 6.4 million tonnes and it can easily sustain a cement plant of modest capacity of 300 tonnes a day for about 45 years. The lime content in these deposits varies from 34 to 53 percent.

As mentioned above, all deposits occur within Ukhrul subdivision along the eastern range of hills flanking the Imphal valley, these deposits occur generally as lenticular beds within the
axial group of rocks of cretaceous age. According to the Government of India undertaking feasibility report for setting up 50 tonnes per day cement plant at Manipur, the present mini-cement factory of Ukhrul District is being set up and the following analysis of limestone available in Ukhrul and their estimated reserved are as given below:

(a) UKHRUL DEPOSITS:

The deposits is located on the eastern flank of the ridge located at the Southern part of Ukhrul town. The limestone forms a hill spur about a mile south-south-east of Ukhrul on the new Ukhrul Siroihii road. They are overlain by sandstones towards the top of the hill ridge. The beds are exposed over a strike length of nearly 400 metres in NW-SE direction along the flat slope of the hill ridge, above the road, but are obscured at places by debris of sandstone from the overlying sandstone. The limestones are well bedded and almost flat dipping, but at places the amount of dip varies from 5° to 7° towards West.

It was learnt from the site officers of G.S.I. to Ukhrul that 1.25 million tonnes of limestone has been deposited in this area.

The chemical analysis is as follows:

Ca o  44 - 47 %
Mg o  less than 1 %
Acid insolubles 13 - 15 %
The sandstone overburden is about 1: 1 by volume of limestone. The soil burden above the sandstone is also included in the volume of sandstone for the purpose of stripping.

It may be seen that the deposit at Ukhrul is very small and involves removal of sandstone over-burden estimated at 1.25 million tonnes. The removal of sandstone will involve mining including drilling, blasting and transport to the dumping yard. The cost of removal of over-burden will prohibitive. This cost will have to be added to the cost of limestone. Therefore, it is not proposed to utilize this limestone deposit for the proposed cement plant.

(b) HUNDUNG DEPOSIT:

Hundung deposit is situated 9 kms. south of Ukhrul deposit on the Ukhrul-Litan road, near village Hundung. Pink and grey coloured limestone forming a hill spur is exposed here. Boulders of limestone are seen scattered along the hill slope. The limestone is fine grained massive, highly jointed. No over-burden other than soil is expected in this deposit. It was learnt that the G.S.I. had to take up detailed drilling to prove the limestone deposit here. Based on surface investigations carried out so far, by G.S.I. experts have proved about one million of limestone of the following chemical composition:-

Ca o- 44 - 48%
Mg o- (less than 1 %)
Acid insolubles - 7 - 19 % but mostly 14 %.
(c) HUNDUNG SOUTH AND MORE DEPOSITS:

These two deposits are two small consisting of about half million tonnes only. These two deposits have been evaluated by surface investigation only. The G.S.I. has no proposal to drill in this area. As these are two small deposits, the cost of development would be prohibitive for regular mining.

In view of the above, the limestone deposit at Hundung which has almost no overburden other than soil is proposed to be exploited. The reserves of 1.0 million tonnes limestone, would be able to sustain a plant of 50 tonnes per day capacity for a period of about 40 years. However, it is essential to prove the limestone deposit both for its vertical and lateral variations in quality.

3. BOG - IRON:

Bog iron is distributed over a wide area near 'Lou-sipat'. The total quantity of iron is very small and is of low grade. Iron at Kakching and Chakpikarong are also worth mentioning.

4. DARK ULTRA-BASIC ROCKS:

Dark Ultra-basic rocks are exposed in the road cut of the Burma road near the 48th, 49th, and 64th milestone. These rocks probably extend to Moreh and beyond into Burma. Since Ultra-basic rocks are normally the host rocks for chromite, asbestos and talc, detailed prospecting of the area is necessary.
5. LIGNITE:

Lignite pockets are exposed on the bank of the nallah (drain) near Kangvai-Waiphei village in Turelco valley of Manipur south District about 51 kms. from Imphal and one from a metal road. Further investigation is necessary to determine the reserves. But according to G.S.I. report the total quantity of lignite has been estimated at 12,262 metric tonnes and this quality can be used in the manufacture of cement in the cement plant at Ukhrul.

6. COPPER:

The G.S.I. has found the availability of copper in the Tengnoupal district, Nickel bearing copper sulphate, chalcocite, chalcopyrite, chalcocite and metacite are occurred at Nungan and Kongal Thana. A small quantity of copper is also available at Kwatha, Humine, Ningthi (Maklongkhong) areas of Manipur East District bordering Burma.

7. NICKEL:

The G.S.I. in their geochemical and other methods has found metallic Nickel dispersed in the soil in fairly high concentration with the percentage of nickel varying upto 0.9 percent. Soil samples from the Moreh area containing weathered serpentinite rock also found the availability of nickel varying from 0.24 to 0.9 percent. Nickel associated with the serpentinite rock has been located at Nampesh and Kwatha areas of Manipur.
east district bordering Burma. The occurrences need further detailed investigation in view of their strategic importance.

8. OTHER MINERALS:

Deposits of soft stones appear to be substantial on the national highway No.39 near Burma. Asbestos deposits at Tengnoupal and Moreh area; Chromite deposits at Ukhrul, Chandel, Nepali-Basti of Tengnoupal; plastic deposits at Kangva(i.e. 2.57 million tonnes), Idocrase (Rare-stone) deposits at Chandel district; and serpentine rocks at Ukhrul etc. are worth mentioning.

So, the future of mineral development of Manipur lies in the discovery of large workable deposits of copper, nickel, Chromite, asbestos, Idocrase, Serpentine, plastic, gas, oil, gold and other precious stones.

Recently, some signs of gas and oil deposits were discovered in the valley areas and it calls for detail survey.

F. SURFACE CONFIGURATION:

According to surface configuration, the state can be divided into two major regions. They are as given below:

(a) THE VALLEY REGION AND
(b) THE HILLY REGION.
(a) THE VALLEY REGION:

This region comprises an area of 1,843 sq.kms. and where 900 metres contour is taken as the outer limit. It is roughly an oval shaped running about 57 kms. from north to south and at least 32 kms. east-west. It has an elevation of about 746 metres to 850 metres above mean sea level.

This is a flat basin surrounded by hills and the valley extends right up to the foot of these hill-ranges, where the slopes change with an inclination from north to south (Fig. No.4).

The most prominent features on the valley as well as on the lake area are the formation of small mounds like hills or residual hillocks with an altitude of about 500 ft. above the surrounding plains.

The Imphal river passes through the valley from north to south.

(b) THE HILLY REGION:

The hilly region of Manipur occupies a large portion of the state, with an area of 20,571 sq.kms. It has an elevation of about 900 metres to 3000 metres above M.S.L. (Fig. No.4).

The surrounding hilly region of Manipur is having a series of parallel young folded ranges. These young folded ranges are the branches of eastern Himalayas (i.e., from its eastern
syntaxes near sadya mountain region in Assam connects with Patkai, Naga, Lushai, Barail and Arakan Yoma ranges). Out of these ranges, Lushai ranges exhibit a typical alternate arrangement of parallel ridges and valleys. All the highest peaks of Manipur State are having a general height of below 10,000 ft. or 3000 metres above M.S.L.

As we proceed towards Manipur North, following the National highway No.39 (Imphal-Dimapur Road), sudden rising of slope from Karong will be exhibited. The highest point of the State lies at Mount Isangyi (2,994.5 metres) at the extreme north, close to Mao area of Manipur. The lowest part of the state is found at Sugnu (Manipur south) i.e., 746 metres above M.S.L.

G. SOILS:

Intensive research on soils and knowledge of edaphic are highly required but the works done in this regard are very poor.

However, the soils of this region can be divided into two portions:

They are (a) VALLEY SOILS AND
(b) MOUNTAIN OR HILL SOILS.
(a) VALLEY SOILS:

The valley soils are mainly composed by sands, clays, silts etc. of fluvio-lacustrine origin and ferruginous red soil in the foot hill region. Alluvial soils also occurs at both sides of the rivers banks in the valley areas. Clayey soil predominates the valley and is very fertile. It contains more humus. Virgin soils like clayey loam, dark clayey soils and boggy type of soils are found in patches here and there in the low lying valley.

Bog soils are specially found in the reclaimed swampy areas of the valley and the percentage of humus content in such soils is very high and in some cases, it burns like charcoal (specially in Lamphel-pat areas, near Imphal town, which have high nitrogenous content). Paddy cultivation is suitable in such soils. Ferruginous red soils near the foot-hill areas are poor in lime, potash and iron-oxide and are also uniformly low in phosphorous content and good for paddy and a few other varieties of crops which can be raised with irrigation. Due to the gradual and regular silting of soil from the surrounding hills, the soil covers in the valley is very thick and rich in organic content. According to geological survey of India, the thickness of soils in the valley ranges from about 350 ft. to 500 ft. They are rich in plant food but a little acidic with higher moisture retaining capacity. Soils found on the foot hills are specially loams, sandy loams mixed with pebbles, gravels and sand etc.
(b) MOUNTAIN OR HILL SOILS:

The soil cover of the mountains and hills is very thin as compared with the valley soils. It's thickness varies from a few inches to a few feet. It changes from place to place. Red soils predominate the hilly areas but sandy soils, reddish loam, laterites etc. are also visible. Laterite soils are mostly concentrated in the Tengnoupal areas. These soils are light in texture and have loose structure and are highly porous. The mountain and hill soils have about 1 to 3 percent of organic carbon and are suitable for paddy cultivation and plantation crops after contour bunding, terracing etc. But heavy rainfall, prevalence of steep slopes, Jhum cultivation etc. cause soil erosion and soil leaching, specially in hill areas.

These are an alarming problems of the farmers of hill areas. As we know, the state has mixed tropical and temperate evergreen forest with sub-tropical moist deciduous forest, and in these forests, the soils contains more humus from the falling leaves during the shedding seasons.

H. DRAINAGE AND OTHER WATER BODIES:

The two most important rivers of Manipur are, the Imphal river and the Barak river.

The Imphal river drains all the eastern half of Manipur including the central plain through Chindwin river into the Irrawaddy drainage system of Burma, and the western half of the state
is drained by Barak river through Dhansiri river into the Brahmaputra-Ganga drainage system.

The main rivers, draining into the Chindwin-Irrawadi system include the Imphal river and its tributaries.

Imphal river originates from the hills north Kangpokpi. It runs from north to south. The important tributaries of Imphal river are Iril, Thoubal, Kongba, Chakpi, Khuga rivers etc. Iril rises from northern part of Manipur near Mao-Maram and it joins Imphal river at Lilong. Thoubal river rises from the hilly region of Huimi (Ukhrul-District) and it joins with Imphal river at Mayang Imphal.

Kongba rises from Kongba Maru and it meets with Imphal river at Kongba Meilombi. Another chakpi river rises from south east hilly region of Manipur and it joins with Imphal river at Sugnu. Khuga river also originates from hilly region of Manipur south (Thinghat hills) and falls into Imphal river at Ithai, to the south of Loktak Lake.

Moreover, some of the other important rivers viz. Nambul, Naga, Nambol, Sekmai, Thongjaolok etc. act like inlets of the Loktak Lake. Nambul river has originated from Kangchupkhul and Nambol river has originated from north west of Imphal and they meet at Yanggoi-Karong near Samurou(Bishnupur district) and finally drop into the Loktak Lake.
Naga river rises from Langol hills and meets Nambul at the heart of Imphal town. Sekmai & Thongjaolok river originate from the nearby hills and finally falls into Loktak Lake.

As we know, the bed of the Imphal river is a bit lower than the water level of the Loktak Lake; specially in the south-eastern portion of the lake. Thus the excess water of the Loktak Lake is drained through its outlets (i.e. Kortak, Ithal etc) into Imphal river and finally it falls into Irrawaddy river of Burma.

As mentioned above, the Barak river drains the western half of the state. It rises from northern ranges of the state and follows a south-westerly course. When it reaches Tipaimukh, it joins with Tipai river, which comes quite opposite to it from Mizoram running northward direction. At Jirighat it is joined by the Jiri river and from there it turns toward the west and after passing through Cachar and Sylhet plains, it meets with Brahmaputra in Bangladesh.

The most important tributaries of Barak river are Jiri, Tipai, Makhru and Irang.

Besides these two major drainage systems, there are a large number of small size east flowing rivers near Indo-Burma Border. They are draining the eastern hilly region of Manipur. The most important among them is 'Yu-river', which flows through Kabaw valley. It is the tributary of Chindwin river of Burma. Some important sub-tributaries of Yu-river are, Tuyangbi, Taret, Lokchan, Lalim Lok, Thuidam etc.
Chingal river and Chamu river drain the northern part of the Ukhrul region and finally they join with the Chindwin river of Burma. Thus, Chindwin river, which joins all these east flowing rivers of Manipur, finally falls into Irrawaddy river and reaches the Andaman Sea of Indian Ocean (Fig. No. 5).

I. CLIMATE:

The state is under the influence of sub-tropical monsoon climate as it is just near the Tropic of Cancer (23° 4' N. Lat).

But, the state has tropical to temperate climate depending upon elevation. Rainfall varies from 110 cm. to 350 cm. and average annual rainfall is about 207.77 cm. Rainfall starts from mid-April and continues upto October. Temperature varies from 0°C to 40°C. (Vide appendix No. 1).

Further, the whole year can be divided into four seasons. They are (1) Winter (December to February), (2) Pre-monsoon (March & April), (3) Monsoon (May to September) and (4) Retreating Monsoon (October & November). Rainfall is mainly during May to September, when the state is under the influence of south-west monsoon and it determines the success or failure of crops (Fig. No. 6).

According to Koeppen's classification of world's climatic division, the state (Manipur) falls in the climatic group of 'Cwa' (i.e. subtropical monsoon, Mild winter, dry winter, hot summer).
MANIPUR
RAINFALL AND TEMPERATURE GRAPH
IN 1983 REPORT.

INDEX
RAINFALL IN MM
TEMPERATURE IN OC
MAX.

SCALE:
8 4 0 4 8 12 MILES
0 4 8 12 16 20 24 KMS.

E. OF GREENWISH
BASED UPON THE SURVEY OF INDIA

FIG. 6
By observing the relief, temperature, rainfall and natural vegetation of the region, it can be divided into the following Meso climatic regions:

(a) Sub-tropical monsoonal rain forest climate, (Wet and hot summer, dry winter) and

(b) Sub-tropical monsoonal highland temperate climate (Wet and mild summer, dry and cold winter).

(a) SUB-TROPICAL MONSOONAL RAIN FOREST CLIMATE:

It covers the valley areas as well as low lying foot hill regions where sub-tropical forest and tropical semi-evergreen forests predominantly occur. Bamboos are largely grown there. In this area, large number of swamps as well as arable lands are also located.

It is marked by tropical climate with hot and wet summer. But the valley is not too hot due to its high elevation above the sea level and prevailing cold air flowing from its surrounding high hills, except in the rainless sunny days. Usually nights are tolerable with the air current down the valley which results fog formation during the early morning hours, specially in winter seasons. The wetest and the hottest months are July and August and the driest and the coldest months are December and January.

The highest temperature goes above 34°C in the months of July and August, the lowest goes down to below freezing point in the months of December and January, specially in the early mornings.
So, dews, fogs and mists are visible in plenty during these months. The average annual rainfall in the Valley is about 100 cms.

(b) SUB-TROPICAL MONSOONAL HIGHLAND TEMPERATE CLIMATE:

It covers all the highland areas of the surrounding hills, such as northern hilly portions; eastern hilly portions; western hilly portions and southern hilly portions of the Manipur state, where tropical moist deciduous trees with secondary growth as well as subtropical pine forests are predominantly found in a large quantities.

It is also marked by temperate climate with mild-wet summer and cold winter due to its high elevation from the neighbouring plain areas as well as its thick vegetation covers. The average annual rainfall in the hilly areas of Manipur is about 200 cms. and the maximum temperature is about 30°C in the month of July.

J. VEGETATION:

As mentioned above, 90 percent of the state is hilly and under humid-climatic condition. Thus it has a vast area of forests covering as much as 15,154 sq.kms., constituting 60 percent of the total geographical area of the state as against the 20 percent of the country as a whole.

The region is very rich in various types of flora like different varieties of orchids, bamboo and other varieties of trees. It ranges from tropical evergreen to temperate evergreen with tropical moist deciduous and dry temperate coniferous trees of sub-
tropical forest.

The classification of forests & trees are shown in tables below:

\textbf{TABLE - 1 (A)}

\begin{center}
\begin{tabular}{|l|c|c|}
\hline
Class of Vegetation & Area(Aq.km.) & Percentage. \\
\hline
1. Tree forests & 11,738.00* & 77.45 \\
2. Bamboo forests & 3,268.43 & 21.58 \\
3. Grassy Blanks & 146.56 & 0.97 \\
\hline
Total & 15,152.99 & 100.00 \\
\hline
\end{tabular}
\end{center}

* This fig. excludes 1.94 sq.km. of dereserved forests.


\textbf{TABLE - 1 (B)}

\begin{center}
\begin{tabular}{|l|c|c|}
\hline
Class of Forests & Area(Sq.km.) & Percentage. \\
\hline
1. Wet temperate forests & 1,451.01 & 9.57 \\
2. Coniferous forests & 2,442.77 & 16.12 \\
3. Wet hill forests & 6,590.59 & 43.49 \\
4. Semi-Evergreen forests & 644.89 & 4.25 \\
5. Teak Gurjan Forests & 610.69 & 4.03 \\
6. Bamboo forests & 3,268.43 & 21.57 \\
7. Grassy Blanks & 146.56 & 0.97 \\
\hline
Grand Total : & 15,154.94 & 100.00 \\
\end{tabular}
\end{center}

(67.87% to its total geographical area).

The most important trees are Sahi (Castanopsis-indica); Tera (Salmalia Malabarica); Heinou (Mangifera indica); Taiyen (Cedrela-toona); Uyang (Quercus genera); Heirukokthong (Artocarpus Hiruta); Tumitla (Cinnamomum Ceceodephne); Uningthou (Phoecha-Hensiana); Uchan (Pinuslongifolia); Usoi (Schimawallichii); Chingshu (Tectona grandis); Agar (Aquilaria-agallocha); Mekruk (Canarium) etc. These woods are used for furniture, pillar and electric posts, match box, perfume and Incense, firewood etc.

Moreover, the state has a large amount of Shahi-Kuhli and Uyung (Oak-Ta’sar) botanically grouped under 'Quercus-Genera'. These trees are grown in nature in the entire state, particularly the foot-hills. It is estimated that there are about 2 lakh acres of Oak plants in the state. Varieties of Bambooos and Canes are also found in the state, specially from the South and Western parts. Bamboos of Barak and Jiri region of western part of Manipur, are worth mentioning (Fig. No. 7).

Thus, the forest of Manipur, fall under the following four broad zones, viz.

1. The Burma border Forest (Mainly of Teak and Oak);
2. Ukhrul forest (Mainly of pine, mixed with oak and Chestnut);
3. Forests overlooking the valley (Oak, pine, chestnut etc.) and
4. The Jiri-Barak drainage forests to the west of the valley (mainly Bamboos and Canes).
1. THE BURMA BORDER FOREST:

These forests are situated along the Burma international boundary in the extreme eastern part of Manipur. The forests are composed of teak grown on alluvial banks of small streams run down from Manipur into Yu-river. There is pulpable timber in the region. It has an area of about 900 sq.kms. and has a good teak, oak and evergreen forests including Bamboo. Agar is also available in this forest.

2. NORTH EAST (UKHRUL) FORESTS:

These forests are situated around Ukhrul district and it scattered all over the hills and consists of Khasi-pine mixed with Oak and Chestnut. It covers an area of more than 1,400 sq. kms. and is found in different altitudes varying from 4,000 ft. to 8,000 ft. above sea level.

The area is also very rich in good pine, Oak and mixed evergreen forests. The pulpable timbers are also found there.

3. FOREST OVERLOOKING THE MANIPUR VALLEY:

These forests are found in the transitional zone between hill and valley. They are scattered all over the foot-hill areas as well as in the low hill areas of the valley. These forests in and around the Imphal valley are found in altitudes varying from 2,600 ft. to 8,000 ft. above sea level.
Oak is an important trees in low altitudes, whereas, mixed evergreen forests predominate in the high altitudes of these forests.

The forests along the foot hills consist of varieties of species. The most important is the species of Oak (Quercus-spp) mixed with chestnut (Castanopsis-spp). Towards the south of the valley, there is Khasi-pine (Pinus-insularies) mixed with Oak. Most of the isolated hillocks and some of the foot hills are covered with the forests of Oak and chestnut which are useful as firewood, electric posts and for sericulture.

4. JIRI BARAK DRAINAGE FORESTS:

These forests are confined to narrow belts along the Barak river and its tributaries, such as Jirí-river, Tuivai river, Irang river, Leimatak river, Makru river and their sub-streams.

It covers an area of about 5,800 sq.kms and out of this, it have a very rich bamboo forests in about 2,590 sq.kms. and tree forests in about 1,300 sq.kms. respectively.

The remaining areas are occupied by the tropical moist-semi-evergreen and evergreen forests.

There are more bamboo forests than tree forests in the Barak drainage, and the main species is Mulibamboo (Melacanna bambusoides), which makes excellent paper.
The other timber species of this forest are cham (Arto-
carpus-chaplasha); Nahar (Mesua ferra); Bonsum (Phoebe haines-
iana); Champa (Michelia champacca); Haiblock (Terminalia myrio-
carpa); Wang (Gmelina-arboresal); and Gondmoi (Cinnamomum ceci-
doda-phne). Agar, dalchini and canes are also available in the-
se forests in considerable quantities.

As mentioned above, out of the total forests of the st-
ate (i.e., 15,154 sq.kms. in the year 1982-83), the reserved fo-
rests cover an area of 1,377 sq.kms and protected and unclassed fo-
rests cover an area of 4,171 sq.kms and 9,606 sq.kms. respec-
tively. Moreover, out of this total forest area of the state, 7,
387 sq.kms. is dedicated to timber production and 7,767 sq.kms.
is covered by other forests. In short, the forests cover 67.87
p.c. to its total geographical area and it is a bit higher than
that of all India level (i.e., 23%).

But, many areas have already became barren over the ye-
ars due to deforestation (viz., Jhum cultivation, heavy pressure
on land by immigrant people for fuel and Timber extraction etc.).

The important forest products of the state are timber,
fuel, round-woods as major products, and animals, cane, bamboo,
grass, incense and perfume, medical herbs, Dalchini (Cinnamon) and
orchid as minor products. Besides the forest products, there are
many rare species of orchid, animals and birds.
Cinnamon grows over a wide area in the forest of Manipur west district, Chandel district and in the forests along the Burma Border it has a bright future. The forest revenue of the state during the year 1982-83 is given below in Table 2.

**Table 2: Out-turn and Value of Major and Minor Forest Products**

<table>
<thead>
<tr>
<th>Item</th>
<th>1982-83</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Major product.</strong></td>
<td></td>
</tr>
<tr>
<td>(a) Timber</td>
<td></td>
</tr>
<tr>
<td>(i) Quantity</td>
<td>-</td>
</tr>
<tr>
<td>(ii) Value</td>
<td>864.5</td>
</tr>
<tr>
<td>(b) Fuel</td>
<td></td>
</tr>
<tr>
<td>(i) Quantity</td>
<td>-</td>
</tr>
<tr>
<td>(ii) Value</td>
<td>502.0</td>
</tr>
<tr>
<td>(c) Round Wood</td>
<td></td>
</tr>
<tr>
<td>(i) Quantity</td>
<td>-</td>
</tr>
<tr>
<td>(ii) Value</td>
<td>1,311.4</td>
</tr>
<tr>
<td>Total Value:</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2,677.9</td>
</tr>
<tr>
<td><strong>B. Minor products</strong></td>
<td></td>
</tr>
<tr>
<td>(i) Animal product</td>
<td></td>
</tr>
<tr>
<td>(Value)</td>
<td>N.A.</td>
</tr>
<tr>
<td>(ii) Bamboo &amp; Cane</td>
<td></td>
</tr>
<tr>
<td>(Value)</td>
<td>123.7</td>
</tr>
<tr>
<td>(iii) Food &amp; Graining</td>
<td></td>
</tr>
<tr>
<td>(Value)</td>
<td>N.A.</td>
</tr>
<tr>
<td>(iv) Grass other than fooder</td>
<td></td>
</tr>
<tr>
<td>(Value)</td>
<td>15.9</td>
</tr>
<tr>
<td>(v) Incense &amp; perfum</td>
<td></td>
</tr>
<tr>
<td>(Value)</td>
<td>N.A.</td>
</tr>
<tr>
<td>(vi) Others (Value)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,948.4*</td>
</tr>
<tr>
<td><strong>Total Value:</strong></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2,087.9</td>
</tr>
</tbody>
</table>

Total of Major & Minor (Value) = 4,765.8

N.A. = Not available
* = This includes value of Agarwood, Dalchini & smilax

Source: Statistical Handbook of Manipur, 1985, PP.72-73. Published by Directorate of Economics & Statistics, Govt. of Manipur.
The fourth plan laid emphasis on measures to provide a strong foundation (adequate infrastructure needed for a well sustained exploitation of forest resources).

On the whole, targets were achieved except in respect of Scheme like consolidation (Reservation of forest and Intensification of forest management). Out of the total approved outlay of Rs. 32.20 lakhs, the expenditure was Rs. 35.45 lakhs during the fourth plan period.

During the fifth plan, the main objectives was the raising of the area under economic plantation from the existing 1% to 2% of the reserved forests and increasing the area of reserved forests from 6% to over 7% of the total area.

During sixth plan, the main objective was the planning in forestry under the programme of Intensive silvicultural research in forestry through demonstration and extension centres in respect of production and social forestry.

During the 7th plan (1985-90), the total approved outlay in forestry in different heads was Rs. 1441.00 lakhs (Forestry and wild life) and for soil conservation (Forest) the total approved outlay was 385 lakhs of rupees.
K. ANIMALS:

As mentioned above, the flora and fauna of the state is very rich, specially in fauna life, we can divide it into two categories i.e. wild animals and domesticated animals. Various types of wild life were found in Manipur and still some rare species of fauna can be traced in the region with special mention of 'Shangai-deer' (a brow-antlered deer), one of the rarest deer in the world.

Domesticated animals include both livestock and poultry. Cattle, Buffaloes, Sheep, Goat, Horse, Ponies, Pig, Mithun, Dog, Cat etc. are the important animals of livestock in Manipur. In the state, the most common items of poultry are Desi, improved fowls (i.e. Cock, hen, chicken etc.); and Ducks (Ducks, Drakes, Duckling etc.).

Animal husbandry plays a very important role in the field of agriculture and the economy of the state. According to the last livestock census conducted in 1977-78, there were 36,23,436 livestock animals (including poultry) as against 15,47,154 livestock (including poultry) during 1972 census. So, it has been tremendously increasing during this short period of 6 years.

Out of the total livestock animals excluding poultry, (27,45,244 poultry) in the state, the number of Cattle and Pigs were 5,33,269 and 1,76,090 respectively, which constitute 87.5%.
Cattle and buffaloes together were 6,27,585 and the number of
Cattle and buffaloes per cultivating household was about 4(four)
in 1977-78. Local bullocks are small-sized and the Cows have low
yield of milk.

Out of 181 thousand cows of over three years old, 44 thousand cows were dry. Of the total 533 thousand cattle in 1977-
78 census, 199 thousand heads were males of above 3 years, 181
thousand heads were females of over 3 years and 153 thousand heads
were young stock.

Of the total 94 thousand buffaloes(1977-78), 35 thousand were males of over 3 years; 32 thousand were females of over
3 years and 27 thousand were young stock.

The low yield of livestock products was responsible for
a low monthly per capita consumption of milk and meat estimated
at 0.48 kg. and 0.20 kg. respectively in 1970-71.

The reasons for inferior quality of livestock are inferior
breed, insufficient or defective feeding and epidemics includ-
ing other diseases.

6 Source : Economic Review, 1975-76 page 20, Govt. of Manipur.
But, the state has favourable conditions for development of livestock in the hill areas, where a large number of pigs are presently found.

Pigs and Poultry are important item of food among the weaker sections of the society. But, in general cattle, buffaloes and pigs are important livestock of the state.

Cattle and buffaloes provide active role in the wet cultivation and there has been an impressive growth rate of 74.8 percent for cattle and 173.1 percent for poultry during the last cen-sal period.

Recently ponies (Local breed) and Mithun development schemes are tried to implement in the state.

In 1982-83, the number of Veterinary hospital was 41, and Veterinary dispensaries was 76, as against only 8 hospitals and 37 dispensaries in 1969-70, resulting in better facilities for the livestock population in the state.

Moreover, the number of village served per Veterinary institution is 17 (1982-83, provisional). The sixth and seventh plans laid stress on the strengthening of the existing machinery by expansion of existing units and opening up of a few others.
'Cattle development and animal health' and 'disease control' have been two programmes that have received importance along with modest development of poultry and piggery during the recent past.

As mentioned above, in spite of large cattle population (almost one for every 4 persons) in the state, there has been an acute shortage of milk and protein foods, mainly because of the low productivity of the local breed. As a result, the seventh plan concentrated more on supply of milk in the Imphal area and intensification of milk supply potential in rural areas and milkshed areas.

So, in the 7th plan (1985-90), total approved outlay in dairy development has been Rupees 80 lakhs. Out of this, for expansion of Imphal Milk supply Scheme was Rs.20 lakhs, for rural dairy centre and opening reconstituted milk plan was Rs.27.75 lakhs and for organisation of Dairy Co-operative Societies and expansion and assistance was Rs.26.00 lakhs. The expenditure on strengthening of dairy development Department was Rs.6 lakhs and on dairy Education (New) was Rs.0.25 lakhs. Total approved outlay of the 7th plan(1985-90) periods in the Veterinary and animal husbandry and Dairy was Rs.610.00 lakhs. Recently, one veterinary council has been established in the state. It is the first of its kind in north-eastern region and the seventh veterinary council of India.
L. FISHERY:

Fisheries occupy an important place in the economy of Manipur for two reasons; firstly there is abundance of natural resources for fish catch and secondly, more than 75 percent of the population consume fish. Therefore, there is a considerable local demand of fish.

Fish is an important food item for the people of the state and it is also the main source of protein for about 57 percent of the population who do not generally take meat.

But taking of meat is no more a social taboo among the new generation and for them chicken have become the only substitutes for fish.

Still, fishing is an important occupation of the rural population, specially for those who live in and around the Loktak and other smaller lakes, swamps and rivers in the Manipur valley.

It is also an important subsidiary occupation of the rural folks. But, there is scarcity of fish in the state. The main reason for this is the reduction of fish spawning and breeding areas. As due to reclamation of extensive swamps and marshy lands for cultivation and indiscriminate catching of fish. Practically, there is no restriction in catching fish when they are very young and also during the spawning period.
So, the total requirement of fish is not to be met with the through indigenous production and, therefore, for every year large quantities of fish are being imported from outside the state.

Imported dry fish, out of fresh and tinned fish have a high demand in the state. At the rate of 200 gm. per head per day of fish, the demand for consumption in 1980-81 was about 8,000(MT) tonnes while the state's production was around 3,000 tonnes only. During 1981-82 Census, the total number of fish farm were 9(nine) and production of fish was 3,450 tonnes and total revenue was of Rupees 2 lakhs only.

Efforts are being made for self-sufficiency in fish in the annual plan periods by setting up district Fishery organisations in all the districts of the state.

During the fifth five year plan period, efforts were made to increase the production of fish particularly in private sectors.

The production of fish reached a record of three thousand tonnes by the end of 1979-80, while number of fingerlings distributed to private farms and ponds were 3.75 millions.

During the seventh five year plan period, the approved outlay in fisheries department on different heads had been Rs. 465 lakhs.
These heads include, strengthening of supervisory and executive staff; Demonstration of integrated composite fish farming and Aquaculture potentialities; Establishment of experimental fish farms; development of local indigenous fishes; development of cage culture; fisheries extension scheme; propagation of fisheries education, Research and Survey; fish preservation; Marketing and Transport; Development of fisheries; utilisation; Economics and Nutrition; Preservation and Development of natural fishes; development of reservoir, riverine and canal fisheries; Fisheries special component scheme, establishment of FFDAs; assistance of pisciculturists; Indian major carp and exotic fish seed production etc. in the continuing scheme of fisheries.

The new scheme of fisheries, includes, development of shell and crustacean fisheries; establishment of public health fish farm; establishment of fish Aquarium and Museum; establishment of fish feed plant; production of improved craft and gear; Development of cold water fisheries; Establishment of fisheries estate and establishment of Manipur fisheries corporation.

Not only the above programmes, but also other programmes like IRDP, take up necessary actions for the development of fisheries in rural areas of the state. For this purpose, a sum of Rupees 104 lakhs was approved during the year 1985-90.
CHAPTER-III.

ECONOMIC AND CULTURAL SETTING AND THEIR IMPACT ON INDUSTRIALIZATION:

PRESENT LAND USE PATTERN AND UTILIZATION

A. AGRICULTURE:

1. TYPE AND ECONOMY:

Agriculture is the main occupation of the people of Manipur. Out of the total working force of the state, about 71 percent is engaged in agriculture. This indicates the agrarian economy of the people.

Agriculture is greatly controlled by the factors of physical and cultural environment; such as climate, soil, topography, socio-economic conditions etc. It's contributions to the state Domestic product (SDP) was about 57.05 p.c. in 1980-81, at current prices and the ups and down of SDP is greatly influenced by agricultural sector, Agriculture with its allied services such as forestry and fishing together is 59.97 p.c. (Vide appendix No.II) This means that the economy is not diversified. Moreover, a good agricultural year always shows a positive growth of S.D.P. If there were drought during some year, then S.D.P. was also severely affected.

Moreover, small holdings of less than 1 hectare (or 1-vari) by the majority and poor economic condition of the masses make many constraints for the upliftment of Agriculture.
Mechanisation of agricultural practices such as implementation of bigger type of tractors, machines etc. Faces problems due to small holding of agricultural lands. In some cases only a countable number of the population possesses about 20 hectares of agricultural land. But they may not be agriculturists and their lands may not be located at a particular place in a compact way surrounded by high and small bunds. Another acute problem is the high fragmentation of land among the households. Although, law provides for prevention of fragmentation of holdings.

The agricultural force being unorganised and unskilled, is a serious handicap to the mechanisation and modernisation of agricultural practices in the state. The per capita of the state is also one of the lowest (i.e. Rs.1085) as against the all India average of Rs.1536 in 1980-81 at current prices. Besides these handicaps there are other agricultural constraints too, such as difficulties in transport and communication, lack of irrigation and fertilizers; Banking facilities; marketing facilities; agro-based industries; co-operatives, and maladministration etc.

According to village papers, the total area of the valley is 1,58,340 hectares (out of 2,23,000 hectares, according to surveyor general of India, 1977-78) and out of this total area, 26,914 hectares of land is not available for cultivation and 1,003 hectares is occupied by forest such as Keibul Lamjao reed forest, south of Loktak Lake and other small gruves located here and there in the valley. Other cultivable land excluding current fallows ac...
accounts for 28,696 hectares. The total area of fallow land is 1,851 hectares i.e. 1.13% and in case of India, it is 7.5 p.c. of the total geographical areas. (Vide appendix No. III & Fig.8)

Moreover, out of the total cropped area i.e. 2,25 hectares during the year 1982-83, net area sown and area sown more than once are 2,15,000 hectares and 10,000 hectares respectively. More, out of the total geographical area (i.e. 22,327 sq.kms), the area covered by forest is 15,154 sq.kms. 2,25,000 hectares of cultivable land is under total cropped area.

If we deduct these two areas from the total geographical area, less than one-third of land area is available for settlement purpose. In every ten years, the average increase of population is about 3 lakhs and the density of population is very high, specially in the valley areas (i.e. more than 500 persons per sq. km) but, it is lower (i.e. about 64 persons per sq.km) in the hill areas of the state.

So, per capita cultivable land has been decreasing day by day, specially in the valley areas of the state. The average land holding in the valley area is below 1 hectare. At present, in the state, both a little advanced type of agriculture (specially in the valley areas) and primitive type of agriculture (specially in the hill areas) are still prevailing.

The main types of agricultural practices in Manipur are:-
(i) Permanent cultivation (mostly in the valley areas) and,
(ii) Semi-permanent or temporary type of cultivation (mostly in the hill areas).
LAND UTILISATION IN MANIPUR
FOR VALLEY AREA ONLY (IN HECTARES).
AGRICULTURAL YEAR - 1977-78

INDEX

FOREST
BARREN & UNCULTURABLE WASTE.
LAND PUT TO NON-AGRICULTURAL USES.
OTHER CULTURABLE WASTE
PERMANENT PASTURE AND OTHER GRAZING LAND
LAND UNDER MISC. TREES, CROPS, & GROVES NOT
INCLUDED IN NET AREA SOWN.
CURRENT FALLows.
OTHER FALLows.
NET AREA SOWN
AREA SOWN MORE THAN ONCE

FIG. 8
(1) PERMANENT CULTIVATION:

Permanent cultivation is mostly concentrated in the valley areas, where rice, a khhir crop, is mainly grown. Some of the terrace farms in the hill areas are also treated as permanent. During the early parts of monsoon i.e., in April and May, the main agricultural operation such as rice cultivation starts. Rice is the staple food crop of Manipur. The traditional agricultural implements such as yoke; smooth and toothed harrow; cow-drawn sledge; spade; longdao; sickle; triple paddy wooden thresher; paddy-spoon and fan; threshing mat; bamboo's basket etc. are worth mentioning.

But, now-a-days advanced type of agricultural implements including power tillers, sprayers etc. are also widely used by the progressive farmers. Still, agriculture mostly depends upon the seasonal rainfall. Therefore, the result is quite uncertain and single cropping is the common feature of agriculture in the state. Rice is mostly cultivated in all the fields.

Some double cropping areas are found in the state only where some kind of irrigation facilities are available.

SOME PROBLEMS FACED BY FARMERS:

Moreover, some problems are also being faced by the local farmers. They are:

(a) The high yielding varieties are not insects or pests resistant;
(b) It's (specially high yield varieties of paddy) low demands with low prices;
(c) High fragmentation and low holding of agricultural lands.
(d) Unorganised farmers and tenancy.
(e) Poor and unskilled farmers.
(f) Difficulty in traditional ploughing of hard clayey soils of the valley areas for Rabi-crops.
(g) Inadequate facilities of Irrigation; supply of chemicals fertilizers; improved seeds; machines and tools; lack of proper fencing and grazing grounds etc.

Not only the above facts, but there are also other factors which often pull down the agricultural advancement of the state as a whole. Moreover, some of its defects are the customs and habits of the farmers. They(farmers) always depend upon the activities of the neighbouring farmers and they also believe that the high yielding varieties of paddy or imported rice are tasteless.

Moreover, in the wet areas (swampy lands), harvesting of dwarf crops (specially high yielding imported varieties of paddy) with short durations, is very risky and some of the costly chemical fertilizers are not suitable to them.
They believe that it (chemical fertilizers) neutralises the soil and starts petrification. But, still some farmers are using a little amount of chemical fertilizers and insecticides. Some progressive farmers are regularly using chemical fertilizers and insecticides such as Nitrogenous fertilizers (Urea); phosphatic fertilizers; potassic fertilizers and BHC. (vide appendix No. IV) During the year 1984-85, distribution of chemical fertilizers in Manipur was 3.20 thousand tonnes of nitrogenous fertilizers (Value; Rs. 139.97 lakhs) and 0.50 thousand tonnes of phosphatic fertilizers (value, Rs. 29.94 lakhs) and 0.06 thousand tonnes of potassic fertilizers (value, Rs. 1.05 lakhs).

Moreover, during the year 1984-85, the consumption of chemical fertilizers per hectares of gross area sown was 12.21 kgs. of Nitrogenous fertilizers and 1.91 kgs. of phosphatic fertilizers and 0.23 kgs. of potassic fertilizers respectively. Some farmers are also using these chemical fertilizers and insecticides without knowing its care and dosage. So, they need a thorough knowledge of it.

Garbages and cow dungs of compost manuring are also widely used by the traditional farmers. Green manuring is also quite common to them. But, some farmers never used any kind of fertilizers
because they believe that the soils of their fields are quite rich and if the soils proved to be poor, they have no intentions to correct it. Because, they are too poor and illiterate. In short, they expected more yields without much agricultural imputs. In some cases, the application of fertilizers to the local variety of paddy (long straw type) makes them bending and finally it causes them fall down to the ground. So, it is required to test the soil and to know the doses of fertilizers to be given to a particular crop.

PRODUCTION AND CULTIVATION OF CROPS :

A. RICE :

As mentioned above, cultivation in the swampy areas requires the local variety of paddy such as 'Taothabi' and 'Moirangphou'. Taothabi is planted in the water-sluggish areas and Moirangphou (a late reaping variety of paddy), is more convenient to be planted near the foot hills or in the middle of the vast paddy fields.

The early reaping local varieties of paddy like Tumai, Sangsangba etc. are also planted near the foot hill areas. Taothabi is sown in the month of March or April before rain starts and it will grow up as the water level rises during rainy days. The farmers never apply any form of manure in such swamp-farming. Moreover, these local varieties of paddy are somewhat free from insects and diseases. It is more tasty and costly also.
But, they yield per acre often fluctuates from one field to another. Out of the high yielding cross-breed (local and outsider) varieties, K.D., Punshi, Phouoibi, China 988, Norin 18, RM 8, Prasad, Ratna etc. are very common to the local farmers.

Generally, rice cultivation is practised under two methods. They are 'Lingba' (transplantation method) and 'Phughul' and 'Pamphel' (non-transplantation methods). Out of these two methods of cultivations, the transplantation method (Japanese method) is widely practised by the farmers.

Nowadays, double cropping, mixed cropping etc. are also practised in the irrigated land by some progressive farmers of the state. Recently, I.C.A.R. has developed a high yielding variety of rice known as TRC 246C10. It has been found adapted to the climatic conditions of north-eastern region and it can produce an average yield of over 6 tonnes per hectare in 115 days. During the year 1984-85, the total area under rice cultivation in the valley (i.e., Imphal, Bishnupur and Thoubal) was 106.09 thousand hectares and the resultant yield was 228.56 thousand tonnes.

But, the total area and production of rice in the state as a whole during the same year 1984-85 (provisional) were 167.41 thousand hectares and 332.99 thousand tonnes respectively.
TABLE - 3

AREA AND PRODUCTION OF RICE IN MANIPUR BY DISTRICTS FOR THE YEAR 1983-84 & 1984-85 (PROVISIONAL)

RICE

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of District</th>
<th>Area(in '000 hect.) 1983-84</th>
<th>Production(in'000 tonnes) 1983-84</th>
<th>1984-85</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Senapati</td>
<td>17.68</td>
<td>22.94</td>
<td>27.17</td>
</tr>
<tr>
<td>2.</td>
<td>Tamenglong</td>
<td>6.10</td>
<td>9.14</td>
<td>5.28</td>
</tr>
<tr>
<td>4.</td>
<td>Ukhrul</td>
<td>13.16</td>
<td>12.82</td>
<td>21.37</td>
</tr>
<tr>
<td>5.</td>
<td>Chandel</td>
<td>8.73</td>
<td>7.16</td>
<td>10.88</td>
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<td>6.</td>
<td>Imphal</td>
<td>54.90</td>
<td>48.22</td>
<td>88.08</td>
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<tr>
<td>7.</td>
<td>Bishnupur</td>
<td>20.84</td>
<td>17.52</td>
<td>41.42</td>
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<tr>
<td>8.</td>
<td>Thoubal</td>
<td>30.52</td>
<td>40.35</td>
<td>47.82</td>
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<tr>
<td>9.</td>
<td>Manipur State</td>
<td>161.22</td>
<td>167.41</td>
<td>255.13</td>
</tr>
</tbody>
</table>

B. MAIZE:

Maize is the next important crop after Rice. It is vastly cultivated both in hills and in valley areas. During the year 1984-85 (Provisional), the total area under Maize cultivation in the valley (i.e., Imphal, Bishnupur and Thoubal) was 0.74 thousand hectares and its yield was 1.44 thousand tonnes. But, the area and production under Maize of the state, during the year 1984-85 (P) were 5.44 thousand hectares and 12.19 thousand tonnes respectively.

Maize is an important cash crop of Manipur. A large amount of Maize are also exported outside the state.

TABLE - 4

AREA AND PRODUCTION OF MAIZE IN MANIPUR BY DISTRICTS FOR THE YEAR 1983-84 & 1984-85 (PROVISIONAL)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of District</th>
<th>Area(in '000 hect.)</th>
<th>Production (in '000 tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Senapati</td>
<td>0.95</td>
<td>2.09</td>
</tr>
<tr>
<td>2.</td>
<td>Tamenglong</td>
<td>0.15</td>
<td>0.29</td>
</tr>
<tr>
<td>3.</td>
<td>Churachandpur</td>
<td>1.36</td>
<td>2.24</td>
</tr>
<tr>
<td>4.</td>
<td>Ukhrul</td>
<td>1.54</td>
<td>4.51</td>
</tr>
<tr>
<td>5.</td>
<td>Chandel</td>
<td>0.04</td>
<td>0.04</td>
</tr>
<tr>
<td>6.</td>
<td>Imphal</td>
<td>0.52</td>
<td>1.00</td>
</tr>
<tr>
<td>7.</td>
<td>Bishnupur</td>
<td>0.04</td>
<td>0.10</td>
</tr>
<tr>
<td>8.</td>
<td>Thoubal</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>9.</td>
<td>Manipur State</td>
<td>4.68</td>
<td>10.36</td>
</tr>
</tbody>
</table>

N.A. Not Available.
G. WHEAT:

Wheat is cultivated as a Rabi crop in the state. The area and production of wheat during the year 1984-85 is not available in statistical handbooks, but the area and production of wheat during the year 1972-79 was 0.10 thousand hectares and 0.10 thousand tonnes respectively. Wheat is generally grown in patches here and there in the valley area of the state as a Rabi crop. The identification of wheat belt is very difficult in the state due to unavailability of reliable data. So, the cultivation of wheat in the state, is almost negligible.

<table>
<thead>
<tr>
<th>Year</th>
<th>Area</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972-73</td>
<td>0.27</td>
<td>0.20</td>
</tr>
<tr>
<td>1973-74</td>
<td>0.12</td>
<td>0.08</td>
</tr>
<tr>
<td>1974-75</td>
<td>0.38</td>
<td>0.52</td>
</tr>
<tr>
<td>1975-76</td>
<td>0.53</td>
<td>0.76</td>
</tr>
<tr>
<td>1976-77</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>1977-78</td>
<td>1.89</td>
<td>1.78</td>
</tr>
<tr>
<td>1978-79</td>
<td>0.10</td>
<td>0.10</td>
</tr>
</tbody>
</table>

N.B. Figures not available upto 1984-85
Source: Statistical Handbook of Manipur. 1985, P.65, Govt. of Manipur.

Moreover, the area and production of other crops are also not readily available in the statistical reports.
D. TYPES OF CROPS:

There are two types of crops sown in Manipur. They are:

(a) Kharif crops of Summer season and
(b) Rabi crops of Winter season which are usually sown in the months of April or May and October or November respectively.

(a) KHARIF CROPS:

Principal crops of kharif are Rice, Maize, Pulses and vegetables (i.e. Gourd, Pumkin, Karrol, Sebot, dasgus, ladyfinger, Chillies, Hawai-thampak, Hawai-Asangbi, Koli-hawai, Sagol-hawai, Chak-hawai, Hawai-Mairongbi, Uri-hawai, Soya-bean, Tobacco, Yendem, Pankhok, Analba or Jute, Sugarcane, Yaingang, Brinjal, Ginger, Onion, Betal leaf, Tomatoes, Groundnuts etc.

(b) RABI CROPS:

The main crops of Rabi are wheat, potatoes, pulses(viz, Hawai-amubi, peas, etc.); Spices (viz, garlic, clove, phadigom, pakhon etc.) oilseeds (mustard, Thoiding Amuba, Thoiding Angouba, etc.) and other various vegetables (i.e Cabbage, Cauliflower, potato, beet, Turnip, Turmeric, Onion, carrot, Radish, Colocacia, tapioca, sweet-potatoes and other root crops).
(ii) SEMI-PERMANENT OR TEMPORARY TYPE OF CULTIVATION:

This form of cultivation is found both in the valley as well as in the hill areas of the state. In the valley, swamp farming or shallow-water farming in the water sluggish area etc. are good examples of semi-permanent type of cultivation.

In the hill areas, Jhum-cultivation is an example of semi-permanent or temporary type of cultivation. Too much fertilizers are not required in case of swamp or shallow water farming and a water resistance variety of paddy i.e., 'Taothabi' is planted in such areas. It is an early sowing (Before rain comes) and late reap variety (Due to rising of water level) of paddy. So, it depends upon the water levels of the cultivated areas.

In the hill areas, Jhuming, Terrace farming; contour cropping etc. are practised according to the nature of soils, slope or gradient etc.

According to the chief conservator of forest, the present 'Jhumland' in Manipur is about 1,800 sq. kms. About 900 sq. kms. of virgin land is burnt down every year for the extension of new Jhum land. Officially, it is also estimated that about 65,000 hec. of land are brought under Jhum cultivation every year.¹

¹. Sixth five year plan (1980-85) and annual plan (1981-82) Vol. II state planning Deptt., Govt. of Manipur Oct. '81 P.No. 48.
The cycle of Jhum is changed from place to place or from one area to another area. Previously, a Jhumia used to return at the same plot of land after resting a duration of about 30 to 40 years. But, with the increase of population, these time intervals are totally changed.

The general duration of Jhum-cycle usually takes about 5 to 7 years and in some cases, it may be more than this (i.e., 6 to 8 years). But, in the hill areas of Manipur specially in south district, the duration of Jhum is about 3 to 5 years in every 21 sq.kms. of its area. It is due to high density of population (specially by the immigrant-Kuki-Chin-group).

Again, at Senapati district, the duration of Jhum cycle is 7 years in every 30 sq.kms and every year above 600 sq.kms of new jhum lands are also extended. It is also due to the high density of population and according to 1981 census, the density of population in Senapati district is 48 persons per sq.km. (specially by the Nepalese and Kuki group). Moreover, Churachandpur district is also the 'heaviest place for Jhum-cultivation'. Because, next to Senapati district, its density of population is 29 persons per sq.km (1981-Census).

About 3 lakhs tribal population is engaged in age-old practice of Jhum-cultivation. In every 5 membered tribal family required Jhum land is about one hectare.
So, they are extending their jhum land in the new virgin land without any consent. But, we know, jhum-cultivation disturbs the ecological balance and it is also not profitable to the farmers.

Therefore, more profit earner occupations like, animal husbandry, silviculture, Horticulture, terrace cultivations programmes etc. should be taken up and tree cropping harvest should be done instead of jhum-cultivation. Thus, it can resist deforestation caused by jhum cultivation. So, it is required that the tribal people must be made understand the draw back of this method of cultivation as well as there are also required to be distributed their daily consumer goods through some government's fair-price shops at a reasonable price. Recently Manipur Government is also trying to rehabilitate about 70,000 people, who are engaged in jhum cultivation. Moreover, under the control of shifting cultivation schemes, some more villages at the hill areas of Manipur, are also benefited.

As we know, the yield per acre under the jhum or shifting cultivation is generally poor. So, one has to shift to another place and accordingly fresh jungle is to be cleared. The agricultural implements under this type of cultivation are also very simple. Dao, spade etc. are used instead of plough or power tillers. Jhum has several drawbacks. First of all, it depends upon the seasonal rainfall and secondly, the top soils are constantly removed by rainfall and thirdly it is cultivated on steep slopes in the absence of natural vegetation due to mass burning.
Lastly, a cultivator has to work throughout the year and constant weeding is essential and after two or three years of cultivation, the jhum field gets overgrown with weeds of composite nature and thus it becomes infertile and unsuitable.

Again, construction of terraces on the steep slope as well as on the loose soils of these hills are very risky. So, afforestation on the upper portion and horticulture in the middle portion and agriculture at the lower portion of a hilly slope may be well suggested. Moreover, the menace of soil erosion has to be checked by intensive programmes such as afforestation, contour-bunding, contour-cropping, terracing; level furrowing, pit digging etc.

Terracing, Contouring, bunding, furrowing etc. also require a large amount of manures due to soil erosion in these areas. To prevent soil erosion bunds and terraces are constructed on the gentle slopes and sometimes trees are also planted on such bunds. Digging of pits are useful for absorbing the excess water and thus to check the soil erosion.

Such pits and bunds are also acting as a water reservoirs, and it also facilitate the irrigation system. The sowing seasons are a bit earlier in the hills than that of the valley. But, in case of some crops, it is bit later than that of the valley. Rice and maize are the most important kharif crops of the hill areas. Early varieties of paddy are generally grown in the hill areas.
The important crops under jhum cultivation are paddy, maize, millets, cotton; ginger; chillies, Umorok (a kind of hot chillies), potatoes, Bamboo soothe, Sweet potatoes, pumkin, soyabean; rootcrops, pulses, spices, and other varieties of vegetable and fruits.

Horticulture (specially fruits production) is also a main occupation of the hill people, because it is one of the most important cash crops. During the sixth five year plan, the development works of the existing nine progeny orchard-cum-Nurseries located at Ukhrul, Churachandpur, Thanlon, Timsong, Tamenglong, Tengnoupal, Imphal (Mantripukhri), Thwai-Mahadeva and Jiribam had been done. The important fruits of these farms are apple, pine-apple, walnut, papaya, mango, orange, lime, apricot, lemon, guava, peach, banana, plum; pear, pome-granate, arecanut, Jackfruit, coconut, cashewnut; chestnut, watermelon, thabi, chinhar, Amla etc.

Recently, a regional progeny orchard, Maram and regional potato seed farm, Mao and Mushroom cultivation (a research cum-training scheme) and development of floriculture (two orchidariums, one for each temperate zone and subtropical zone were set up at Ukhrul and Churachandpur) are set up by the Govt. of Manipur. Moreover, a high yielding variety of groundnut (known as 'Jalgao' of Maharashtra) is proved success after a repeated trial by scientist of Indian council for agricultural research (ICAR), Shillong. It contains 35% oil, and can be cultivated with rice in the hill areas of the state. Recently, coconut field day was observed at Jiribam and about 4,000 saplings of coconut were planted there.
The Govt. of Manipur decided to set up the Manipur plantation crops corporation limited and get registered under the companies Act, 1955 on the 19th day of March, 1981 at shillong bearing its number as 1872 of 1980-81. This scheme will be implemented by the Directorate staff of horticulture and soil conservation. The main function of the corporation would be to promote setting up of tea and coffee estates for solving unemployment problem and to wean away the shifting cultivation and to settle them in cultivation of plantation crops like tea, coffee, Rubber etc. Out of these crops, tea has a bright future to solve the unemployment and economic problems in the state.

2. CROP ROTATION:

The crop rotation of the state, may give us some knowledge of agricultural advancement in the region. Manipur has a very low intensity of cropping, as it is clear from the following table:

**TABLE - 6**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cropping Intensity</th>
<th>P.C. of Cultivated area to total area</th>
<th>Net area sown per capita (Hect.)</th>
<th>P.C. of areas sown more than once to net area sown</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81</td>
<td>104.76</td>
<td>9.41</td>
<td>0.15</td>
<td>4.76</td>
</tr>
<tr>
<td>1981-82</td>
<td>105.71</td>
<td>9.41</td>
<td>0.14</td>
<td>5.71</td>
</tr>
<tr>
<td>1982-83</td>
<td>104.65</td>
<td>9.63</td>
<td>0.14</td>
<td>4.65</td>
</tr>
<tr>
<td>1983-84</td>
<td>123.81</td>
<td>9.41</td>
<td>0.14</td>
<td>23.81</td>
</tr>
<tr>
<td>1984-85</td>
<td>124.76</td>
<td>9.41</td>
<td>0.13</td>
<td>24.76</td>
</tr>
</tbody>
</table>

As mentioned above, the total geographical area of the valley, according to village paper is 1,58,340 hectares and it is 2,23,000 hectares according to surveyor general of India.

Again, during the year 1982-83, the total cropped area is 2,25,000 hectares and the net area sown and area sown more than once are 2,15,000 hectares and 10,000 hectares respectively. Moreover, the percentage of cultivated area to the total geographical area during the year 1984-85 (census) is about 9.41 p.c. and the per capita cultivable land is also very low (i.e. below 1 hectare) and the net area sown per capita is 0.13 hectare (according to 1984-85 census) and percentage of areas sown more than once to net area sown is 24.76 (1984-85 census). Another unique feature of the state is that the cropping pattern is almost same in all parts of the state and rice is the only mono-crop of the state.

It is also the staple food of the people. In Manipur the crop rotation during Kharif season is among paddy cultivation. In such cases, an early variety of paddy like Kumbi & Tumai (a local variety), China 938 & 1039, Norin 18, Pusa-13 (high yielding variety) etc. are planted. The sowing season of these early indigenous variety of paddy is during the month of March or early April. After harvesting this early paddy, the late variety of paddy like Moirangphou, PhoureI etc. are planted in the month of June or July. Recently some high yielding variety of paddy (both early and late harvesting varieties) of double cropping is also introduced in some irrigated areas.
Generally, Rabi crops (like, wheat, pulses, oilseeds etc.) are not cultivated in vast paddy fields except in some 'Engkhol lou' (enclosed paddy field or kitchen garden). So, vast agricultural fields are lying idle during winter seasons. Now-a-days, some progressive farmers are cultivating their land for Rabi crops. The important crops of rabi in the state are potatoes, mustard, cabbage, cauliflower etc. wheat is also cultivated to a limited area but it is not significant. In short, the age old cropping pattern of the state is not yet changed (i.e. monocropping of rice).

3. CROP ZONE:

By looking the area and production of rice and Maize in all the districts of Manipur, we can divide it into two significant crop belts, they are:

(1) Rice belt and

(2) Maize belt.

The rice belt falls in the entire region of the valley (specially, Imphal, Thoubal and Bishnupur districts). But some rice is also grown in the hill districts of the state. The Maize belt in Manipur falls specially in the hill districts (viz, Senapati, Churachandpur and Ukhrul).

Moreover, another important agricultural belt of the state is fruit and vegetable belt, which generally covers all the hill districts of the state.
(specially at Tengnoupal, Tamenglong and Ukhrul). But, plenty of fruit and vegetable are also grown in the valley region of the state. Wheat is also grown in patches here and there in the valley as Rabi crops.

Still, cropping pattern is not modified and old system of paddy cultivation is going on. Now-a-days, some agencies are trying to modify the cropping pattern in the state and some important cash crops are planted at some specific areas in the valley as well as in the hills. Out of these cash crops, Sugar cane, tea, coffee, Rubber etc. can be mentioned. Sugar-cane is cultivated specially in Thoubal district and in some other areas of the valley. Whereas, tea, coffee, Rubber etc. are planted in the hill districts (Churachandpur, Tamenglong, Jiri etc.) of Manipur. Other crops like wheat, oilseed, pulses are almost negligible. Moreover, the areas and production of wheat and other crops are not well marked.

Thus, as mentioned above, the majority of the total cropped area in the state is under rice and maize cultivation. The following table shows the area, production and yield of rice and maize in the state as a whole from 1980-81 to 1984-85. (Table No.7).
### TABLE - 7

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (in '000 hect.)</th>
<th>Production (in '000 tonne)</th>
<th>Yield rate (in '000 per hect.)</th>
<th>Area (in '000 hect.)</th>
<th>Production per hect. (in '000 tonne)</th>
<th>Yield Rate (kgs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81</td>
<td>188.55</td>
<td>273.04</td>
<td>1448</td>
<td>9.91</td>
<td>17.78</td>
<td>1794</td>
</tr>
<tr>
<td>1981-82</td>
<td>168.30</td>
<td>253.14</td>
<td>1504</td>
<td>5.59</td>
<td>9.16</td>
<td>1639</td>
</tr>
<tr>
<td>1982-83</td>
<td>158.49</td>
<td>219.47</td>
<td>1383</td>
<td>5.28</td>
<td>9.05</td>
<td>1081</td>
</tr>
<tr>
<td>1983-84</td>
<td>161.22</td>
<td>255.18</td>
<td>1583</td>
<td>4.68</td>
<td>10.36</td>
<td>2214</td>
</tr>
<tr>
<td>1984-85</td>
<td>167.41</td>
<td>332.99</td>
<td>1989(P)</td>
<td>5.44</td>
<td>12.19</td>
<td>2241</td>
</tr>
</tbody>
</table>

*P*(Provisional) Source: Directorate of Eco. & Statistics, Govt. of Manipur and Statistical Handbook of Manipur P.65 & P.290 (1985)

The yield rate per hectare during the year 1984-85 is 1989(P) kgs. for rice and 2241 kgs. for Maize. But, the consumption of chemical fertilizers per hectare of gross area sown is 14.35 kgs. (i.e. Nitrogenous, 12.21 kgs.; Phosphatic 1.91 kgs.; potassic 0.23 kg. respectively).
**TABLE - 8**

Consumption of chemical fertilizers per hectare of gross area sown (kg.)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Nitrogenous</td>
<td>34.59</td>
<td>12.84</td>
<td>15.07</td>
<td>13.46</td>
<td>12.21</td>
</tr>
<tr>
<td>(ii) Phosphatic</td>
<td>9.86</td>
<td>1.85</td>
<td>2.57</td>
<td>3.04</td>
<td>1.91</td>
</tr>
<tr>
<td>(iii) Potassic</td>
<td>1.64</td>
<td>0.32</td>
<td>0.21</td>
<td>0.31</td>
<td>0.23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>46.09</td>
<td>15.00</td>
<td>17.88</td>
<td>16.81</td>
<td>14.35</td>
</tr>
</tbody>
</table>

Source: Statistical Handbook of Manipur 1985, P.290.

The consumption of chemical fertilizers per hectare is decreasing and the yield rate per hectare is also not properly increased. According to 1984-85 census, the number of tractors per thousand hectares of net area sown is 0.88. From the above figures and analysis, it is very clear that the cropping pattern in the state is not yet changed and traditional mono-cropping pattern (i.e., Rice) is still prevailing in the majority of the areas of the state.

Moreover, out of the total cropped area (i.e., 2,25,000 hectares) Rice covers 1,67,410 hectares (i.e., 74%) and maize covers 5,440 hectares (i.e., 2%). The remaining 52,150 hectares (i.e., 24%) is covered by other crops.
4. PATTERN OF LAND OWNERSHIP AND LAND CEILING:

In Manipur, generally cultivation is carried on over small sized holdings. The number of households having operational holdings of 10 acres and above is quite negligible. In this connection, it may be worth while to note the results obtained from the national sample survey, 26th round (1971-72) 'State sample' only. The results are given jointly for valley and hills as given in the table below:

**TABLE - 9**

ESTIMATED HOUSEHOLDS AND AREA OPERATED IN PERCENTAGES IN SIZE OF OPERATIONAL HOLDINGS.

<table>
<thead>
<tr>
<th>Size class of household operational holdings (acres)</th>
<th>Percentage of households in</th>
<th>Percentage of areas operated in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Valley</td>
<td>Hills</td>
</tr>
<tr>
<td>1.00 - 1.24</td>
<td>0.81</td>
<td>4.95</td>
</tr>
<tr>
<td>1.25 - 2.49</td>
<td>31.91</td>
<td>27.18</td>
</tr>
<tr>
<td>2.50 - 4.09</td>
<td>28.51</td>
<td>35.02</td>
</tr>
<tr>
<td>5.00 - 7.49</td>
<td>7.94</td>
<td>11.20</td>
</tr>
<tr>
<td>7.50 - 9.99</td>
<td>2.15</td>
<td>1.65</td>
</tr>
<tr>
<td>10.00 - 12.49</td>
<td>0.28</td>
<td>0.71</td>
</tr>
<tr>
<td>12.50 - 14.99</td>
<td>0.10</td>
<td>Nil</td>
</tr>
<tr>
<td>15.00 - 19.99</td>
<td>0.10</td>
<td>Nil</td>
</tr>
<tr>
<td>20.00 &amp; Above</td>
<td>0.00</td>
<td>Nil</td>
</tr>
<tr>
<td>All Classes</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

It is clearly seen from the above table that by 1971-72 nearly 10% of rural households have no operational holdings in the valley area, whereas about 7.5% of households in the hill areas, are operating no land. In the valley areas, all the operational holdings are less than 20 acres. But, in the hill areas, the model operational size of holdings lay in the size class of 2.50 to 4.99 acres. In this size class of operational holdings, more than 35% of households in the hills are found operating the land and also this size class has more than 44% of the total land. About 36% of the operated land in valley areas are in the operational holding size group of 1.25-7.49 acres and more than 88% of the total land in the hills are in the operational holding size of 1.25-7.49 acres. Whereas about 68% of the households in the valley area are operating land in holding size group of 1.25-7.49 acres and again, in the hill areas more than 73% of the households are found operating land in holding size group of 1.25-7.49 acres.

Moreover, in valley areas about 0.5% of the households have the operational holdings of 10 acres and above. But, in hill areas, there is no household operating land above 12.49 acres of land.

Previously, Manipur state Darbar (1925) resolved to prohibit the acquisition of more than 10 hectares (10 pari) of agricultural land per individual except with the permission of the Darbar.
But, the most recent act of Manipur land revenue and land reforms act A.D. 1960 (Act. 33 of A.D. 1960) was enacted by the Parliament and received the assent of the President of India on 13th September 1960, substituted the old system. This act is extended to the whole of Manipur valley except the hill areas. But, in the hill areas of the state, the hill-house-tax (i.e. Rs. 3 per house) is prevailing.

Moreover, it (the Act. 33 of A.D. 1960) fixes a ceiling of 25 acres (10.12 hectares) for a family of five persons, with provision for additional five acres for each member in case the number of members exceed, subject to a maximum of 50 acres (20.23 hectares). It also provides for prevention of fragmentation of holdings. The act also empowers the administrator (Governor) to exempt the ceiling of 25 acres (10.12 hectares) in the case of special cultivation like sugar, tea, coffee etc. and the act has been extended to parts of Jiribam and Churachandpur where there are low lands on which low land rice is cultivated.

Majority of the land holders (specially in the valley) are below 1 hectare due to customary social law of fragmentation of holding. Although, there is a law not to allow the fragmentation of holding below 1 hectare. So, 1 hectare is the minimum limit of fragmentation of holding. But, nobody seems to care this vital parts of the law.
5. IRRIGATION AND ITS NEED FOR AGRICULTURE:

The progress of agriculture or green revolution in Manipur is in its infancy and it is largely dependent upon the rapid progress of the irrigational facilities in the state.

Irrigation facility assures the higher agricultural production and it is also an essential prerequisite for an advance type of cultivation. So, the main objective of irrigation is providing of assured irrigation facilities to the main kharif crops as well as early kharif and rabi-crops.

Double cropping started in Manipur in the year 1972. But the marked achievement in this field is being seen only in the recent years. As we know, without irrigation facilities, there is no scope for double or multiple cropping. Therefore, the double cropping areas of the state are almost concentrated in and around lakes or rivers or irrigated lands. According to irrigation and flood control department of Manipur, the targetted amount of irrigation by the end of 2000 A.D. will be 1,59,500 hectares annually with 45.5 million gallons per day of drinking water supply and 87 Megawatts of power.

Recently, some major and minor irrigation projects are taken up by the Govt. of Manipur. Minor irrigation and flood control department of Manipur has taken up some constructional works of dams, bunds, irrigation channel etc. in all the important rivers of the state.
Out of these works, some major irrigational projects such as Singda Dam, Thoubal Dam, Loktak lift irrigation, Imphal barrage at Samurou, Sekmai barrage at Kakching, Khoupum Dam, Khuga project, Ethai-barrage, Iril project etc. are worth mentioning.

(1) SINGDA DAM :

(A multi-purpose project)- Out of the Multipurpose irrigational projects, Singda Dam has three important components with hydro-electric generating power of 1/2 M.W. It has a 500 metres long and 60 metres high earthern dam. Its potential area for irrigation was 4,000 hectares in 1987-88. It will be supplying drinking water to the Imphal town.

(2) THOUBAL DAM :

(Multi-purpose projects):- Thoubal Dam was started in February 1982, and it will be irrigating 21,860 hectares of cultivable lands. Moreover, it may be supplying 10 million gallons per day of drinking water to Imphal town. It will be generating 7.5 M.W. of power. It has also three components.

(3) KHUGA PROJECT :

(Multi-purpose project) :- It may provide irrigation facilities to about 9,000 hectares of agricultural land with hydro-electrical facilities.
(4) LOKTAK LIFT IRRIGATION (MAJOR PROJECT):

There are about 109 distributional points and 3 canals (viz, the Imphal main canal, Imphal low canal and the Moirang low canal). The first phase of the project has already started and it is giving irrigation facilities to 7,000 hectares of land and the proposed irrigation potential is about 33,000 hectares.

(5) IMPHAL BARRAGE:

(A medium project):- It has irrigating capacity of about 6,000 hectares of nearby land. The areas irrigated by Imphal barrage cover Samurou, Wangoi, Mayang Imphal, Mutum-phibou and Iram Siphai etc. In these double cropping areas, 2,200 hectares of farmland out of 3,000 hectares of agricultural land, is to be irrigated by Imphal barrage alone.

(6) SEKMAI BARRAGE:

(A medium project):- Sekmai-barrage is going to provide irrigation facilities to about 8,000 hectares of nearby land.

(7) KHOUPEM DAM:

(A medium Project) :- It may provide irrigation facilities to 1,000 hectares of cultivable land.
(8) ETHAI-BARRAGE:

Out of the barrages, the Ethai-barrage alone aims to irrigate 60,000 acres of neighbouring lands.

(9) IRIL-PROJECT:

(New Scheme):—It may irrigate about 27,000 hectares of agricultural areas of Central district (Manipur).

Moreover, Chakpi project of Tengnoupal and Sugnu is proposed to the planning commission and its irrigation potential is about 7,000 hectares of nearby land.

In addition to these irrigational projects, Barak, Nambol barrage, Kangoi-Irphantam lift irrigation at Jiti, Thangalok at Sanakethel, Lcktak downstream at Leimatak etc. over various rivers of Manipur are also in progress and possibilities of harnessing the water resources of Manipur basin have been assessed. It is roughly estimated that the total irrigation potential would be about 1,62,000 hectares of cultivable land.

The physical targets and achievements in irrigation potential are 12.00('000 hectares in target) and 9.00('000 hectares in achievement) in case of major and medium irrigation during the year 1984-85 and 3.00('000 hect. in target) and 3.28('000 hect. in achievement) in case of minor irrigation (in 1984-85 census) respectively.2

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A regional irrigation project to harness the available inflow of Jiri river in and around Leingangpokpi at Jiribam has also been taken up under the sponsorship of the north-eastern council (NEC). The command area identified for the Manipur state, under this project is in the order of 2010 hectares. The project when fully implemented will benefit both Assam and Manipur substantially.

At present, irrigation is practising to a limited extent, but it is expected that after the completion of the above projects, most of the cropped land in the valley areas can be assured of irrigation facilities and double or even triple cropping will become possible. But, some of the projects like Khuga project, will partially affect some villages with the creation of storage. So, careful planning is necessary.

Thus, there is full scope for medium and minor irrigation in the state and the state is now entering a new era of agriculture with the introduction of many major and medium irrigation projects. Moreover, command area development Agency (CADA) is giving irrigation facilities to a small area of about 40 hectares just like minor irrigation. CADA is also going to work under irrigation Deptt.

At present barely 10% of the total cultivated area of Manipur is under irrigation as against 25% of all India average in this respect.

As mentioned above, the state is agriculturally predo-
mminent, but no sufficient data about irrigation for the hills
is available. In the valley, private canals (specially from
small hill streamlets springs, and ponds etc.) also irrigate
to some extent.

Moreover, pipeline irrigation to the remote areas (spe-
ially at the hill slopes) is also seen. Generally the rivers
of Manipur are rain fed. So during the rainy seasons, these ri-
vers and lakes are flooded and again, during the winter and dry
seasons, the water levels of these rivers fall down to a great
extent, sometimes touching their beds.

So, ring bunds are to be constructed at some points ar-
round Loktak lake to protect the damages caused by inundated wa-
ter from the lake. Moreover, digging of river beds and the Lok-
tak beds, checking of soil erosion and water pollution etc. are
highly needed in the landlock state like Manipur. The state has
not fully utilized and developed its well irrigation, tank irri-
gation, spring irrigation etc.

Of course some works have already been taken up during
the plan periods, specially the construction of ring bund, tanks,
sluice gate and culverts, canals, earthen dams, tube wells etc.
Even the impounded water can be lifted for irrigation purpases
by means of pump sets (electric or Diesel).
Recently, the G.S.I. has conducted exploratory tube wells in Manipur and some sites are explored under hollow tube well up to 60 metres. But, the target is to explore deeper tube wells up to 200 metres. Here, one point should be noted that in some explored sites, there were many cases of gases and water encountered.

Lack of irrigation facilities and uncertainty of rainfall caused by monsoon winds etc. are the chief factors for the drawback of double and triple cropping in the state.

6. AGRICULTURAL OUTPUT AND MARKETING:

Many factors such as the poor income of the people, low productivity, absence of large supply of industrial raw-material (specially in case of agricultural products); market facilities; handicaps of transport and communication (specially due to the difficult terrains), remoteness of the state, disturbed law and order situation; maladministration etc. have affected adversely the development of trade and commerce as a whole and specially in agricultural output and marketing of the state.

As we know, agricultural output is closely related with agricultural inputs. But these agricultural inputs are lacking in Manipur. As regards the state's Domestic products and their prices, revenue collection, export and import trade etc. we get a rough idea of state's agricultural growth.
As we know, agriculture is the main economy of the state. 71 p.c. of the total labour force is engaged in agriculture. Agricultural economy in the state is so important that the estimates of state domestic product fluctuate sharply from year to year according to the success or failure of crops which again depends almost entirely on the uncertainty of monsoon rainfall.

Next to rice, maize cultivation is the second largest crop, but compared to rice, it covers only 6 p.c. of the gross cropped area and grows mainly in the hills. But, in case of wheat, the area and production of wheat during 1978-79 was 0.10 thousand hectares and 0.10 thousand tonnes respectively.

The production of rice and maize are 332.99 thousand tonnes and 12.19 thousand tonnes respectively; in the year 1984-85. Their respective areas have been 167.41 thousand hectares and 5.44 thousand hectares during 1984-85.

The area and production of other crops are not readily available from the statistical handbooks. Wheat, potato, oilseed, pulses, tobacco, chillies, cabbage, cauliflower and other vegetables are grown throughout the state. Out of these crops, sugarcane, Maize, citrus fruits & vegetables are some of the cash crops of both the hill and valley areas of the state.
Some of the export and import items of the state, which have been obtained from the Deputy Commissioner (Marketing Intelligence) Manipur, during the year 1978-79 are given below:

<table>
<thead>
<tr>
<th>Commodity (in tonnes)</th>
<th>Year (1978-79)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Maize</td>
<td>4,900</td>
</tr>
<tr>
<td>2. Chillies</td>
<td>134</td>
</tr>
<tr>
<td>3. Cabbage (Vegetable)</td>
<td>149</td>
</tr>
<tr>
<td>4. Cauliflower</td>
<td>Not available</td>
</tr>
<tr>
<td>5. Gur</td>
<td>7</td>
</tr>
<tr>
<td>6. Dalchini</td>
<td>400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Year (1978-79)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rice</td>
<td>5,518</td>
</tr>
<tr>
<td>2. Wheat</td>
<td>667</td>
</tr>
<tr>
<td>3. Pulses</td>
<td>1,701</td>
</tr>
<tr>
<td>4. Mustard oil</td>
<td>292</td>
</tr>
<tr>
<td>5. Vegetable Ghee</td>
<td>638</td>
</tr>
<tr>
<td>6. Salt</td>
<td>3,177</td>
</tr>
<tr>
<td>7. Atta</td>
<td>1,988</td>
</tr>
<tr>
<td>8. Moida</td>
<td>1,276</td>
</tr>
<tr>
<td>9. Onion</td>
<td>1,456</td>
</tr>
</tbody>
</table>

Source: Economic Review, 1981-82 P.53
Published by Eco. & Stat. Deptt. Govt. of Manipur.
Maize takes a lion's share in the agricultural export items. But, Rice is again included in the import items. Because, the production of rice is not sufficient for her population and it also plays a great role in the stability of the economy of the state.

Manipur's Chamber of Commerce and other organisations are doing a great deal in the export and import trade business. Not only the above mentioned import items, but there are also some other agricultural products which are imported from other parts of India into the state. But the export items of the state are not in large number due to the unproductivity of the agricultural sector and its inadequate marketing facilities.

During 1979-80, the agricultural products marketed by the co-operative was of Rs.1.80 crore and its anticipated achievement was of Rs.2.00 crores during the year 1980-81. The number of marketing godowns constructed up to the end of 1980-81, was 6 (six) only.\(^4\)

Moreover, during the 7th five year plan outlays, a sum of Rs.9.50 lakhs was allocated for strengthening the co-op. Marketing.

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7. PROBLEMS AND PROSPECTS OF AGRICULTURE AND WAYS FOR ITS DEVELOPMENT:

A. PROBLEMS OF AGRICULTURE IN MANIPUR:

As the state is isolated from the rest of the country and even from its neighbouring states, due to poor transport and communication means, the problem of agricultural development of Manipur is more difficult than that of other states of the country.

The limited marketing arising from low levels of income of the people is another inhibiting factor which leads to low level of consumption. The substandard peasants do not produce much marketable surplus to purchase agriculture based inputs like fertilizers.

The fertilizer consumption per hectare of gross area sown has been 14.35 kgs., the yield rates per hectare of rice and maize have been 1,989 kgs. and 2,241 kgs, respectively in 1984-85. These are very low.

During the year 1984-85, the number of tractors per thousand hectares of net area sown was 0.88% of area sown more than once to net area sown was 24.76% of cultivated area to total area was 9.41% and the net area sown per capita was 0.13 hectare only.

At present, barely 10% of the total cultivated area of the state is under irrigation.

As mentioned above, cultivation is carried on over small sized holdings. The number of households having operational holding of 10 acres and above is negligible. Majority of the holding is below 1 hectare.

Unlike rice, the area and production of other crops may be fairly low and the reliable data for those crops are not available. In the circumstances, the surplus outputs are to be sold outside but transport bottleneck stands in the way, besides other factors. More than 90 percent of the area is hilly where cultivation is carried on a limited scale and traditional cropping is not changed.

As mentioned above, cultivation is almost mono-cropped, with rice accounting for 90 percent of agricultural produce and 86 percent of the total cultivated area. It is a staple food of the state and is grown in both hills and plain.

The economy of the hill people depending upon Jhum cultivation, has reached a critical point and no amount of decision making or publicity would help in dissuading the tribals from jhumming if the alternatives offered are not better. While trying to solve any problem, it should not happen that new ones should be completely of different nature.

B. PROSPECTS OF AGRICULTURAL DEVELOPMENT IN MANIPUR:

Agriculture plays a great role in the economy of the state and its contribution to the state Domestic product was about 57.05 p.c. (Here, out of the total net state Domestic product, i.e., Rs.15711.1 lakhs during 1980-81, at current prices, the agriculture including livestock shared about Rs.8963.6 lakhs) in 1980-81, Agricultural economy of the state is so important that the estimates of S.D.P. fluctuate sharply from year to year according to the success or failure of crops which again depends almost entirely on the seasonal rain-fall (i.e. Monsoon winds).

Recently, for the reduction of poverty and attainment of economic self-reliance in the state, all the plans were designed to provide infra-structures for stabilisation of the economy particularly in the agricultural sector.

There are schemes for control of jhumming cultivation and measures to supplement income of farmer by diversifying agricultural production, utilisation of natural resources through establishment of agro-based and forest-based industries; provision for wide avenues of employmnt opportunities, primarily to weaker sections of the society. Recently, there are programmes for insurance schemes for landless cultivators and crop-insurance schemes are also already existed or implemented.
Self-sufficiency in main food items and generation of employment opportunity are the two main objectives of the agricultural programme in the state. The programme envisages to increase production of food grain through introduction of high yielding varieties (HYV), distribution of fertilizers, measures for plant protection, agricultural education training, soil conservation etc. and also to diversify agricultural production and to exploit the immense potentialities for development of horticulture.

More emphasis is given to grow plantation crops like tea and coffee, setting up of farmers' service centres both for mechanisation and supply of essential inputs and services, Commercial production of mushroom by unemployed and under-employed persons, setting up of agro-based industries etc. for more employment opportunities. Measures are also being taken up to raise the quality of cattle, buffaloes, poultry, pig, and other animals. Another schemes for development of pisciculture have been taken up in the state's cultivable water area of 19,000 hectares.

So, during the seventh five year plan (1985-90), the financial outlays in different heads in agriculture are properly distributed and it gives some chances to push up the agricultural activities in the state. During the 7th plan period,

Some important schemes were taken up in the state (vide Appendix No. V), such as soil testing and fertilizers, plant protection & Quality control laboratory, seed testing laboratory, Farmer-Training programme, procurement and distribution of seeds, cotton and fibre crops development farm, Maize development farm, strengthening of foundation potato seed farm (Mas), High yielding varieties programme, oilseed, pulses, potato & sugarcane development programmes, Establishment of Agro-Industries corporation, cold storage & ware housing, Establishment of Manipur plantation crops corporation Ltd., Development of progeny orchard-cum-Nurseries, vegetable Development scheme, control of shifting cultivation, etc. (Fig. 9).

Recently, wasteland mapping project sponsored by National wasteland Development Board (NWDB) is also taken up by the Department of Science, Technology and environment, Govt. of Manipur.

By the centrally sponsored schemes like pulses and oil-seed development schemes, scheme on small and marginal farmers programmes, scheme on endemic areas (50:50) etc. the state may be benefitted. Thus, there is a full scope for her agricultural development in near future.
C. THE WAYS AND MEANS TO IMPROVE THE AGRICULTURE IN MANIPUR:

The following are some of the ways and means to improve the agricultural activities in the state as a whole.

(1) Government should be alert while distributing the necessary items like fertilizers, insecticides, seeds (HYV) etc. in proper time and place.

(2) More practical demonstrations in the field should be organised by agriculture Department.

(3) More technical helps with extension techniques to the farmers are always necessary. For doing this, dedicated services are always necessary.

(4) Along with this, the farmer training programme, farmer's co-operative movement etc. should be organised by the concerned authorities.

(5) More credit facilities, crop loans, grants, subsidies etc. should be available to the poor farmers. Rigidness of the terms and conditions of getting loans & financial assistance should be avoided. Lack of giving loan to the right person should be removed.

(6) The state Government should take more initiatives for the establishment of agro-based industries, cold storages, Godowns, etc.
(7) The state Government should create necessary infrastructures like inter-village roadways, marketing facilities, warehousing etc.

(8) The prices of all the agricultural products should be fixed at a reasonable rate by the state Government. Thus, protection from the middleman is always required.

(9) Soil testing Department should be strengthened. All types of soils both in hills & plain should be tested and surveyed. The findings should be known to the farmers. So that proper utilisation of costly fertilizers can be achieved.

(10) More lands should be brought under double cropping, triple cropping, multiple cropping etc. For doing this, common fencing should be erected and more areas should be brought under irrigation systems. Here, one point should be noted that the wasteland areas should be properly utilised and grazing grounds should be protected for their animals.

(11) Eradication of 'Jhum type of cultivation' should be taken up in war footing and rehabilitation programmes should be taken up in proper ways. In doing this, establishment of more fair-price shops & proper distribution system in the remote areas, are required. Horticulture, Fisheries and Forestry should be developed.
(12) More and more initiatives should be taken up by the state Government to implement some of the programme like "Green revolution", "White revolution", industrialization etc.

B. DEMOGRAPHIC ANALYSIS :

(1) THE PEOPLE - THEIR PHYSICAL AND CULTURAL TRAITS :

Majority of the population is Meetei including Naga groups (commonly known as Manipuri) in the valley, Meitei Manipuri-Muslim and other scheduled tribes and caste population are concentrated, while hills are peopled with scheduled tribes (both Naga and Kuki groups). The rest population is covered by (i.e., Indian and refugee) Bengali, Sikh, Jain & Bihari, Bangladeshi (Bengali-Muslim), Nepali etc. Anthropologically, Meetei (including Naga group) belongs to pro-mongoloid group of people. They are physically well built, sturdy, smooth skinned with prominent flattened nose varying from almost straight to flattened at the nostril and their eyes have a slight epicanthic fold and small. They have fair complexion ranging from brownish to yellow brown and dark black hair. They are generally short in height (i.e., 5'5" approx.) but a few tall persons are also visible.

The hills are generally inhabited by as many as 29 tribes. These may be broadly divided into Naga and Kuki (viz., the naga are Tangkhul, Kabui, Maring, Thangal, Mao-Maram etc. and the old Kuki which are treated as Naga are Anal, Koireng, Chothe, Kom, Monsang, Moyon etc. and the new Kuki are Aimol, Angami, Chiru, Gangte, Hmar,
Lamgong, Mizo, Lushai, Paite, Ralte, Sema, Simte, Salhete, Vai-
pheei, Zou, Thadou etc.).

The physical appearance among these tribes are almost the same. Moreover, the cultural aspects among these tribes are also of homogeneous nature.

The culture of Meetei is very rich. A Meetei possesses plenty of literatures of all subjects written by its own scripts known as 'Meetei-Mayek'. These literatures are called as Puyas (accepted and regarded by all). This tiny land was ruled by thousand kings from time immemorial. Thus, Anglo-Manipurri war of 1891 was fought by the successors of king Gambheer Singh. After the British rule (April 23, 1891-Oct. 15, 1949) it was finally controlled by the Indian Govt. at New Delhi. The merger agreement was signed by the appointed Maharajah Bodhachandra of Ma-
ipur at Shillong on Sept. 21. 1949 and the state was taken over by the Govt. of India on Oct 15,1949. But lastly, Manipur achieved a full fledged Indian state on 21st Jan. 1972, after remaining twenty two years as Union territory.

(2) THE GROWTH OF POPULATION:

The Government of Manipur did not make any attempt until 1881 to take a census of the population during the British period. The real census abstract of Manipur can be traced from the year 1901.
The population of Manipur started increasing after the restoration of law and order situation, after the Burmese war during 1819-1825. After seven years' devastation of Burmese war, the valley was overgrown with dense jungle's grass and slowly and steadily, settlement started after 1825.

When a census was actually taken in the valley in 1881, Imphal was found to have a population of 60,000 persons and the rest of the valley had another 60,000 people. The population of the hill was estimated in that year about 1,00,000 people. Thus, Manipur had a population of nearly 2,20,000 persons in the year 1881.

Now the state has population of 14,20,953 persons consisting 7,21,006 males and 6,99,947 females according to the 1981 census, living in 32 towns and 2059 villages. According to 1981 census, Manipur accounts for 0.21 percent of India's total population and it ranks twentieth among the states and Union territories of India by size of population and nineteenth by area-size. The following table gives a trend of population from 1901 to 1981 (both for India and Manipur state).

9. Capt. E.W. Dunn - Gazetteer of Manipur
   (Cal. Office of the Superintendent of Govt. printing, 1886).
TABLE - 11.

Trends of population and population growth (India & Manipur).

<table>
<thead>
<tr>
<th>Year</th>
<th>Population in lakhs</th>
<th>Population growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Manipur</td>
<td>All India</td>
</tr>
<tr>
<td>1901</td>
<td>2.8</td>
<td>2383.3</td>
</tr>
<tr>
<td>1911</td>
<td>3.5</td>
<td>2520.0</td>
</tr>
<tr>
<td>1921</td>
<td>3.8</td>
<td>2512.4</td>
</tr>
<tr>
<td>1931</td>
<td>4.5</td>
<td>2788.7</td>
</tr>
<tr>
<td>1941</td>
<td>5.1</td>
<td>3185.4</td>
</tr>
<tr>
<td>1951</td>
<td>5.6</td>
<td>3609.5</td>
</tr>
<tr>
<td>1961</td>
<td>7.8</td>
<td>4390.7</td>
</tr>
<tr>
<td>1971</td>
<td>10.7</td>
<td>5469.6</td>
</tr>
<tr>
<td>1981</td>
<td>14.2</td>
<td>6838.1</td>
</tr>
</tbody>
</table>


The decennial growth rate of Manipur (1971 to 1981) is 31.57 percent as compared with 24.43 percent for all India.

Birth and death rates per thousand population are 27.5 and 6.8 (1981-82). Moreover, the growth rate of population in the state is still higher due to the immigrants from outside the state viz. Nepalis graziers, Bangladesh refugee, Kuki-chin-Mizo groups, commercial people and labourers from other states of India and
Indian refugee from Burma etc. Population growth rate in Manipur has been higher than the all India average for the last 30 years. The population projection of Manipur prepared, on the basis of the estimates of population made by the standard methodology may be of the order of 18.55 lakhs and 24.40 lakhs in 1991 and 2001 respectively as shown in the table below:—(Fig.10)

**TABLE - 12.**

Estimates of population of Manipur (as in 1st March 1981)

<table>
<thead>
<tr>
<th>Year</th>
<th>Population (in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971 (Census)</td>
<td>10.73</td>
</tr>
<tr>
<td>1981</td>
<td>14.11</td>
</tr>
<tr>
<td>1991</td>
<td>18.55</td>
</tr>
<tr>
<td>2001</td>
<td>24.40</td>
</tr>
</tbody>
</table>


(3) DISTRIBUTION AND DENSITY OF POPULATION:

About two-third of the population concentrated in the plains which is about 10 percent of the total state's geographical area, whereas the remaining one-third of the population is found in the hilly areas, occupying 90 percent of the total state's area.
MANIPUR
GROWTH OF POPULATION
1901-2001
(AS ON 1ST MARCH 1991 BY AN EXPERT COMMITTEE
DIRECTOR OF CENSUS OPERATION, MANIPUR)

FIG. 10
But the overall density of population in Manipur is as low as 48 persons per sq. km. against all India average of 178 persons (excluding Jammu and Kashmir). In the valley the density of population comes to an average of 325 persons per sq. kms. as against 17 persons only in the hills.

In Imphal town (Municipality) area, the density of population is 5,3000 persons per sq. km. according to 1981 census report. (fig. 11).

The sex ratio of the state is 971 females per 1000 males and only in one decade, a population of 3,48,200 persons are suddenly increased according to 1981-census report, out of the total population (i.e., 14,20,953 in 1981); 1,045,493 persons lived in the rural areas whereas 375,460 persons constituted the urban population. In 1981, Rural population constitutes 73.56 percent of the total population whereas the urban population is 3,73,215 in 1981. In 1971 it was only 1,41,492 in 8 towns.

According to the 1981 census, the state had a density of population of about 64 persons per sq. km. (Table No.13)

TABLE - 13.

Districtwise Area, Pop. & density of pop. (1981-census)

<table>
<thead>
<tr>
<th>State/District</th>
<th>Area (in sq.km)</th>
<th>Pop.</th>
<th>Density (per sq.km)</th>
<th>No. of Villages (Provisional)</th>
<th>Inhabited</th>
<th>Uninhabited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valley</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Imphal</td>
<td>1,303 P</td>
<td>5,56,146</td>
<td>600 (approx)</td>
<td>377</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>2. Thoubal</td>
<td>405 *</td>
<td>2,31,781</td>
<td>572</td>
<td>105</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3. Bishnupur</td>
<td>530</td>
<td>1,41,150</td>
<td>266</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Senapati</td>
<td>3,271</td>
<td>1,55,421</td>
<td>48</td>
<td>473</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5. Churachandpur</td>
<td>4,570</td>
<td>1,34,776</td>
<td>29</td>
<td>401</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>6. Ukhrul</td>
<td>4,544</td>
<td>82,946</td>
<td>18</td>
<td>225</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>7. Tamenglong</td>
<td>4,391</td>
<td>62,289</td>
<td>14</td>
<td>190</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>8. Chandel</td>
<td>3,313 P</td>
<td>56,444</td>
<td>17</td>
<td>256</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Manipur</td>
<td>22,327</td>
<td>14,20,953</td>
<td>64</td>
<td>2,082</td>
<td>27</td>
<td></td>
</tr>
</tbody>
</table>

Source: Statistical handbook of Manipur, 1983, P.10
+ including Jiribam, with an area of 387 sq.km. and density of pop. is about 64 per sq.km.
* Statistical handbook of Manipur, 1980.
P= Provisional.
The population of urban area has shown a marked increased from 8.7% (1961) to 13.3% (1971) to 26.44% in 1981. Imphal, the state capital was the only town in 1961. As a matter of fact, urbanization in the state is a recent feature. In 1971, the total number of town was 8 with a population of 1,41,492 persons and now it has reached upto 32 towns with a population of 3,73,215 in 1981. (vide Appendix No. VI)

Urban population is almost concentrated in Imphal (Class I-town) having as much as 86% of the total urban population of the state in 1981.

(4) RELIGIOUS STRUCTURE:

The population of Manipur basin belongs to several religious groups. According to 1981 census (i.e., 14,20,953 people), there were 8,53,180 (60.40%) Hindus (mostly Manipuris); 4,21,702 (29.68%) Christians (mostly tribals i.e. Naga & Kuki); 99,327 (6.99%) Muslims (mostly Manipuri-Muslims); 975 (0.07%) Jain; 992 (0.07%) Sikhs; 473 (0.03%) Buddhists and 44,304 (3.12%) persuades and other religious groups.

According to 1971-census, Nepalis and Bengalis population were 26,495 and 12,935 persons respectively. But, they are included in Hindu population during 1981-census and they (i.e., Nepalis, Bengalis, Sikh, Jain etc.) constitute about 4.1 percent of the total population. (Table No.14).
TABLE 14
Population by religion in Manipur.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hindu</td>
<td>4,81,112</td>
<td>61.68</td>
<td>6,32,597</td>
<td>58.97</td>
<td>8,53,180</td>
<td>60.04</td>
<td>31.49</td>
<td>34.87</td>
</tr>
<tr>
<td>3. Christians</td>
<td>1,52,043</td>
<td>19.49</td>
<td>2,79,243</td>
<td>26.03</td>
<td>4,21,702</td>
<td>29.68</td>
<td>83.66</td>
<td>51.02</td>
</tr>
<tr>
<td>4. Sikhs</td>
<td>523</td>
<td>0.07</td>
<td>1,028</td>
<td>0.09</td>
<td>992</td>
<td>0.07</td>
<td>96.56</td>
<td>3.50</td>
</tr>
<tr>
<td>5. Jains</td>
<td>778</td>
<td>0.10</td>
<td>1,408</td>
<td>0.13</td>
<td>975</td>
<td>0.07</td>
<td>80.98</td>
<td>30.75</td>
</tr>
<tr>
<td>6. Buddhists</td>
<td>325</td>
<td>0.04</td>
<td>495</td>
<td>0.05</td>
<td>473</td>
<td>0.03</td>
<td>52.31</td>
<td>4.44</td>
</tr>
<tr>
<td>7. Other religious &amp; persuasions</td>
<td>x</td>
<td>x</td>
<td>83,167</td>
<td>7.75</td>
<td>35,420</td>
<td>2.50</td>
<td>x</td>
<td>57.33</td>
</tr>
<tr>
<td>8. Religion not stated</td>
<td>96,668</td>
<td>12.39</td>
<td>3,846</td>
<td>0.36</td>
<td>2,814</td>
<td>0.62</td>
<td>(-)</td>
<td>29.17</td>
</tr>
<tr>
<td>Total</td>
<td>7,80,037</td>
<td>100.00</td>
<td>10,72,753</td>
<td>100.00</td>
<td>14,20,953</td>
<td>100.00</td>
<td>37.53</td>
<td>32.46</td>
</tr>
</tbody>
</table>

Source: Statistical handbook of Manipur, 1985, pp. 22-23.
The majority of the population of the valley are Meeteis, commonly known as Manipuri, which constitute about 63.24% Tangkhul (5.36%); Kabui (4.78%); Thadou (4.12%); Nepalis (2.47%); Paite (2.32%); Hmar (2.12%); Mao (1.80%); Bengalis (1.40%); Kuki (1.34%); Vaiphei (1.09%); other (10.10%) including 6.6% Muslim to the total population by 1971.

Thus, the population of Manipur though very small is composed of different ethnic group and these communities follow different religion and speak different languages.

(5) THE SCHEDULED CASTES AND THE SCHEDULED TRIBES POPULATION OF MANIPUR STATE:

From socio-economic point of view, the scheduled caste and scheduled tribes population of the state may be said to be still very backward with subsistence economy. But, they constitute one-third of the total population of Manipur. Whereas the scheduled castes population constitute about 1.2 percent of the total population and can be classified as Lois, Vaithibis, Dhobi, Muchi, or Rabidas, Namudra patni, Sutradhar etc. (i.e., 17,753 people). They are found in isolated pockets of the valley of Manipur (viz. Imphal town area, Imphal west-7, 476 s/c pop; Imphal east-3, 652 s/c pop; Bishnupur and Moirang-213 s/c pop.; Thoubal & Kakching-780 s/c pop.; Jiribam 5,025 s/c pop. etc.).
Although some of them live in hill areas of Manipur (viz, Sadar hills of Senapati district 267 s/c pop.; Tamenglong district-7 s/c pop.; Churachandpur district-109 s/c pop.; Tengnoupal of Chandel district-171 s/c pop.; Chandel-2 s/c pop.; Chakpikarong of Chandel district-14 s/c pop.; Ukhrul district 33 s/c po. etc.), their concentration is very low at some hill areas of Mao-Maram of Senapati district (4 s/c pop. only); Tamenglong proper (6 s/c pop. only); Ukhrul (North, South & Central together is only 28 s/c pop.); where majority is of scheduled tribes. The scheduled tribes mostly predominate in the hill areas of Manipur, except some scheduled tribes in the valley areas.

The scheduled tribes population constitute about 27.3 percent to the total population of the state, according to 1981 census. (Fig. 12).

The literacy rates of scheduled caste and scheduled tribe on an average is 2.09% and 6% to the total literate persons of the state as a whole by 1971.

Again, according to 1981 census, the percentages of literate scheduled caste to the total scheduled caste population (1980-81) is 33.63%. But, the literacy rates of scheduled caste and tribe on an average are 24.13% and 30% respectively (1971-census) to the total scheduled caste and tribe population of all the sub-divisions of Manipur.
MANIPUR
PER CENT OF S/T & S/C POPULATION TO THE TOTAL POPULATION.
1981-CENSUS

INDEX

ALL MANIPUR IN P.C.
27-03
P.C. OF S/T POPULATION TO THE TOTAL POPULATION.
P.C. OF S/C POPULATION TO THE TOTAL POPULATION.

FIG. 12

SCALE
MILES
KMS.
Out of the total scheduled castes and scheduled tribes population in the state, about 55% (in case of scheduled castes) and 50% (in case of scheduled tribe) are as workers, of which about 71% are engaged in primary sector (viz. as a cultivator, agricultural labourer, in mining and quarrying, livestock, fishing, hunting, plantation, orchards and allied activities), about 13% in secondary sector (viz. at household industries, in manufacturings, in construction etc.) and the rest 16% in Tertiary sector (viz. in trade and commerce, in transport, storage and communication and in other services).

Here the most interesting fact is that, out of the total scheduled caste workers in all the sub-divisions of Manipur, about 70% are directly engaged as a cultivators, and about 11 percent at household industries, Thus, it shows their subsistence economy is based on agriculture.

About 81% of the scheduled tribes workers in all the sub-divisions of Manipur, are cultivators and about 7% are as household industrial workers. Thus, it shows that agriculture is their main occupation and household industry is their next important occupation. It is because the household industry fulfills the primary needs of every household. The percentage of agricultural labourers is very low (i.e. 47%) in case of scheduled tribe and about 18% in case of scheduled caste. Thus, in case of scheduled tribes the working force is much higher in primary sector and
very low in secondary & tertiary sector.

But, the increase in literacy rate among scheduled castes and tribes increased their number of workers in the secondary and Tertiary activities in all sub-division of Manipur and finally has led to a higher economic diversification among them during the recent decades.

(6) LITERACY RATE OF THE STATE:

Manipur's literacy has improved from 0.8% in 1901 to 32.9% in 1971 & 41.4% in 1981 which is higher than the all India average. Out of 3.35 lakhs of total number of literate persons in 1971, 2.78 lakhs are in rural and 0.75 lakhs in urban areas. It is further increased to 5.86 lakhs in 1981 and out of which 3.93 lakhs in rural and 1.93 lakhs in urban areas of the state. The number of females literates has increased from 1.04 lakhs from 1971 to 2.09 lakhs in 1981. Thus, an increase of 1.05 lakhs, is very encouraging feature.
<table>
<thead>
<tr>
<th>Year</th>
<th>Total Population</th>
<th>% of Literate</th>
<th>Male % of Literate</th>
<th>Female % of Literate</th>
<th>Male</th>
<th>Female</th>
<th>Male %</th>
<th>Female %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971</td>
<td>7,340,666</td>
<td>5.3</td>
<td>5.2</td>
<td>5.5</td>
<td>643</td>
<td>604</td>
<td>4.7</td>
<td>3.9</td>
</tr>
<tr>
<td>1972</td>
<td>6,980,866</td>
<td>5.6</td>
<td>5.5</td>
<td>5.7</td>
<td>632</td>
<td>593</td>
<td>5.0</td>
<td>4.1</td>
</tr>
<tr>
<td>1973</td>
<td>6,600,490</td>
<td>6.0</td>
<td>5.8</td>
<td>6.2</td>
<td>621</td>
<td>582</td>
<td>5.4</td>
<td>4.5</td>
</tr>
<tr>
<td>1974</td>
<td>6,274,333</td>
<td>6.3</td>
<td>6.1</td>
<td>6.5</td>
<td>610</td>
<td>571</td>
<td>5.9</td>
<td>4.8</td>
</tr>
<tr>
<td>1975</td>
<td>5,972,666</td>
<td>6.7</td>
<td>6.5</td>
<td>6.9</td>
<td>600</td>
<td>561</td>
<td>6.3</td>
<td>4.9</td>
</tr>
<tr>
<td>1976</td>
<td>5,692,365</td>
<td>7.1</td>
<td>6.9</td>
<td>7.3</td>
<td>590</td>
<td>551</td>
<td>6.8</td>
<td>5.0</td>
</tr>
<tr>
<td>1977</td>
<td>5,432,679</td>
<td>7.5</td>
<td>7.3</td>
<td>7.7</td>
<td>580</td>
<td>541</td>
<td>7.2</td>
<td>5.1</td>
</tr>
<tr>
<td>1978</td>
<td>5,197,068</td>
<td>7.9</td>
<td>7.7</td>
<td>8.0</td>
<td>570</td>
<td>531</td>
<td>7.6</td>
<td>5.2</td>
</tr>
<tr>
<td>1979</td>
<td>4,972,364</td>
<td>8.3</td>
<td>8.1</td>
<td>8.5</td>
<td>560</td>
<td>521</td>
<td>8.0</td>
<td>5.3</td>
</tr>
<tr>
<td>1980</td>
<td>4,766,674</td>
<td>8.7</td>
<td>8.5</td>
<td>8.9</td>
<td>550</td>
<td>511</td>
<td>7.9</td>
<td>5.4</td>
</tr>
<tr>
<td>1981</td>
<td>4,572,364</td>
<td>9.1</td>
<td>8.9</td>
<td>9.3</td>
<td>540</td>
<td>501</td>
<td>8.8</td>
<td>5.5</td>
</tr>
<tr>
<td>1982</td>
<td>4,397,068</td>
<td>9.5</td>
<td>9.3</td>
<td>9.7</td>
<td>530</td>
<td>491</td>
<td>8.7</td>
<td>5.6</td>
</tr>
<tr>
<td>1983</td>
<td>4,232,674</td>
<td>9.9</td>
<td>9.7</td>
<td>10.1</td>
<td>520</td>
<td>481</td>
<td>8.6</td>
<td>5.7</td>
</tr>
</tbody>
</table>

During 1981 census, the highest rate of literacy of 44.85 percent was recorded in Manipur south district and the next highest rate of 43.28 percent in the Manipur central district and the third one in Manipur East district (41.99%). The fourth, and fifth and sixth are in Manipur west (36.38%); Tengnoupal (34.23%) and Manipur North (31.03%) respectively. But Imphal municipality area has recorded 64.53% to its total population (i.e 1,56,622 literate persons) in 1981 (Fig. 13).

The Manipur west district which was the least literate district in 1971, has now occupied the fourth position and three districts (viz. Manipur South, Manipur Central and Manipur East) have recorded literacy rates above the state average in 1981.

The rate of male literacy is as high as 52.67 percent while rate of the female literacy is 30.05 percent. The percentage of literacy in urban and rural areas are 51.68 and 37.87 respectively. In the rural areas, the proportion of male literates is 48.83 percent while that of female literates is 26.61 percent, and in urban area, the proportion of male literates is as high as 63.35 percent against the corresponding figure of 39.63 for female literates.

In the districts of Manipur Central, Manipur south and Manipur East, where the literacy percentage is the highest, the proportion of male literates in the urban area is above 60 percent while in the rural area, it is above 45 percent.
The Manipur East district has obtained the highest female proportion of literacy of 56.19 percent in urban area.

Out of the total urban population, the percentage of education is very low (i.e., 0.39%) only whereas the rest is in general education by 1981 (Vide appendix No.VII).

Educational standard of the people, though fast improving is not high in technical or vocational education. For instance, majority of the students in 1981 is concentrated in Nursery to Middle/Jr. High/Senior Basic Schools, whereas High/Higher Secondary School and College for general education, it ranks second.

But, the number of scholars in college for professional and other vocational education is the least (3,340 persons only) vide table No.16 given below.

<table>
<thead>
<tr>
<th>Year</th>
<th>University</th>
<th>Colleges for General Edn.</th>
<th>Colleges for professional/other edn.</th>
<th>High/Higher Secondary schools.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M  F</td>
<td>M  F</td>
<td>M  F</td>
<td>M  F</td>
</tr>
<tr>
<td>1981-'82</td>
<td>388-264</td>
<td>15,002-8,477</td>
<td>2,045-720</td>
<td>47,820-34,354</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(999)(415)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1,001)(413)</td>
<td></td>
</tr>
<tr>
<td>1983-'84</td>
<td>600-379</td>
<td>15,774-10,463</td>
<td>2,394-946</td>
<td>55,583-39,188</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1,005)(422)</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>1982-83</td>
<td>1983-84</td>
<td>1984-85</td>
<td>1985-86</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>High School</td>
<td>21,639</td>
<td>22,872</td>
<td>22,370</td>
<td>21,639</td>
</tr>
<tr>
<td>Middle J.T.</td>
<td>10,071</td>
<td>10,532</td>
<td>10,289</td>
<td>10,071</td>
</tr>
<tr>
<td>Other Schools</td>
<td>6,465</td>
<td>6,890</td>
<td>6,576</td>
<td>6,465</td>
</tr>
<tr>
<td>Total</td>
<td>38,175</td>
<td>40,394</td>
<td>39,205</td>
<td>38,175</td>
</tr>
</tbody>
</table>

Schools in Different Institutions

MIDDLE J.T. | 5,150 |
High School | 21,639 |
Other Schools | 6,465 |
Total | 38,175 |
(7) ECONOMIC CLASSIFICATION OF POPULATION:

The quality of the working population may best be estimated from their level of educational standard. Starting from primary up to University level including technical and vocational education.

The education standard of the non-agricultural workers is low, and the agricultural workers are mostly illiterates. (Table No. 17).

**TABLE NO. 17.**

CLASSIFICATION OF TOTAL POPULATION AND WORKERS BY LEVEL OF EDUCATION 1971.

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Persons</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Agricultural</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>Illiterate</td>
<td>7,19,663</td>
<td>1,91,187</td>
</tr>
<tr>
<td>Literate (without educational level)</td>
<td>1,58,027</td>
<td>40,990</td>
</tr>
<tr>
<td>Primary</td>
<td>85,264</td>
<td>19,278</td>
</tr>
<tr>
<td>Middle</td>
<td>67,014</td>
<td>9,695</td>
</tr>
<tr>
<td>Matriculation or Higher secondary</td>
<td>32,267</td>
<td>2,664</td>
</tr>
<tr>
<td>Non-technical diploma or certificate, not equal to degree.</td>
<td>3,269</td>
<td>112</td>
</tr>
<tr>
<td>Technical, diploma or certificate not equal to degree.</td>
<td>405</td>
<td>36</td>
</tr>
<tr>
<td>Graduate &amp; Above</td>
<td>6,844</td>
<td>169</td>
</tr>
<tr>
<td>Total</td>
<td>10,72,753</td>
<td>2,64,331</td>
</tr>
</tbody>
</table>

Again, 1981 census, reveals that about 40.35% of the population are main workers (i.e., persons whose main activity is participation in any economically productive work by physical or mental activities).

In other words, 5,73,339 persons in 1981 were classed as main workers, out of which 3,31,242 were males and 2,42,097 females (i.e., 40.35% to the total population).

Moreover, cultivators (2,11,862 male and 1,52,759 females) in the main workers group possess 25.66%; Agricultural labourers including 10,961 male & 17,652 female, covers 2.01%; Household Industry (6,673 male & 43,822 female) cover 3.30%; and other workers (1,01,746 male and 22,864 female) cover 8.77% respectively.

The percentage distribution of marginal workers (6,200 male and 34,269 female) and non-workers (3,83,564 male and 4,23,581 female) in 1981 census to the total population are 2.85% and 56.80% respectively.
The following table shows the percentage of workers in each district.

**TABLE 18.**

Percentage of workers to total population (Manipur)

<table>
<thead>
<tr>
<th>Districts</th>
<th>1971-census</th>
<th>1981-census</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>(1) Manipur Central</td>
<td>43.75</td>
<td>14.81</td>
</tr>
<tr>
<td>(2) Manipur North</td>
<td>51.90</td>
<td>48.44</td>
</tr>
<tr>
<td>(3) Manipur South</td>
<td>44.93</td>
<td>28.98</td>
</tr>
<tr>
<td>(4) Manipur East</td>
<td>45.87</td>
<td>51.52</td>
</tr>
<tr>
<td>(5) Manipur West</td>
<td>49.56</td>
<td>49.00</td>
</tr>
<tr>
<td>(6) Tengnoupal</td>
<td>51.68</td>
<td>34.93</td>
</tr>
</tbody>
</table>

All Manipur       | 45.31      | 23.62      | 34.57  | 46.69 | 36.52  | 41.68  |

*Source: Economic Review 1981-82, P.13
Published by Directorate of Eco. & Stat., Govt. of Manipur.*
Manipur central district, which includes most of the Manipur valley, reports the lowest level of working population at 37.59% of the total workers of which 53.66% are engaged in agriculture activities.

This percentage varies from 81.76 to 90.60 in the other districts reflecting the highly subsistence nature of the economy in these districts which mainly comprise the hilly regions. In Manipur central district, 46.34% of the workers are engaged in activities other than cultivation. (Fig. 14)

For Manipur, as a whole, 59.23% of the workers are cultivators, 7.87% are agricultural labourers, 10.89% are workers in household industries and 22.01% are engaged in other activities (vide appendix No. VIII).

Thus by 1981, out of the total population of the state 40.35% are main workers, and 28.08% in primary sector, 5.39% in the secondary sector and 6.88% are in Tertiary sectors respectively. (Vide appendix No. IX).

(8) PARTICIPATION RATE:

According to 1971 census 51.41% of the persons in Manipur were in the age group of 15-59 years, and 6.09% were above 60 years and 42.50% were between 0-14 years. It is seen that about 51.41% of the population belongs to the population in the age group 15-59, from which most of the workers are usually drawn.
The population in the age group 0-14 and above 60 constitute 48.59% of the entire population. As such, the state has a large proportion of dependents.

Although with respect to working population in the assumed working age-group, 15 to 59, Manipur has a lower percentage than all India, yet the participation rate at 52 is higher than the all India figure of 40%; dependency is lower in the state.

The factors responsible for the higher participation rate are the highest female participation (99-females to every 100 males) in the state and the lopsided economy dependent upon only one crop i.e., rice, which is labour-intensive. Besides, due to the general poverty of the people, a few persons beyond the age group 15-69, are forced to seek employment. The agriculture labour's enquiry could discover no employment of child labour. There is no bonded labourers in the state also.

Agriculture employs about 63% of the persons engaged in economic activities; Industries 27% (mainly in small scale Industries) the largest proportion being in traditional handicrafts or cottage industries, and the tertiary activities about 10 percent, of which commerce shares 5.5% and 'other service' 3.9 percent.

The 'agriculture labour enquiry' presents that an adult male is employed for 96 days in a year in agriculture works, 6 days in non-agricultural work and 143 days remains self-employed. Thus, on an average he does not get employment for 120 days.
A female worker is employed for only 33 days in agriculture, and for the remaining period she has either home domestic work to do or is unemployed.

In the estimated of manpower in 1951 and 1971, it has been assumed that female participation rate will remain the same. The number of persons falling in the assumed working age group 15-59, has been adjusted down at the rate of 3 percent for those who would not come for work i.e. students etc. The results are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total population (in thousand)</th>
<th>Potential working force (in thousand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>578</td>
<td>301</td>
</tr>
<tr>
<td>1961</td>
<td>680</td>
<td>320</td>
</tr>
<tr>
<td>1971</td>
<td>840</td>
<td>400</td>
</tr>
</tbody>
</table>

Source: NCAER's Techno-Economic survey of Manipur published by: The Chief Secretary, Manipur Administration, PP.7-10.
Again, according to 1981 census report, 54.69% of the persons are in the age group of 15-59 years and 5.87% are above 60 years and 39.32% are between 0-14 years and the population in the age group of 0-14 and 60 to above constitute 45.19% and the total working and non-working population in the state are 6,13,808 persons (i.e., 43.20% to the total population) and 8,07,145 persons (i.e., 56.80% to the total pop.) respectively. Percentage distribution of cultivators and agricultural labourers to the total population is 27.67% and household industry and marginal workers consist of 6.75% and other workers 8.77%. So, there is a rise of working population from 39.9% in 1971 to 43.20% in 1981 and dependency rate has fallen down from 48.59% in 1971 to 45.19% in 1981. (Fig. 15).

As mentioned above, the state's population is growing at a faster rate and there is heavy pressure on land where agriculture is the main occupation of the people.

On the other side, Literacy is higher than the all India average (i.e., 41.4%). In 1983-84, there were 69 colleges (provisional—both general and professional) with an enrolment of 29,577 students and one university with an enrolment of 979 scholars.
Out of 26,237 students, in general colleges, the number of male and female scholars are 15,774 and 10,463 respectively and professional and other colleges (i.e., 3,340 students); the number of boys and girls are 2,394 and 946 respectively. But, the majority of the scholars in 1981, are concentrated in nursery to senior Basic schools, whereas, the scholars in high and higher secondary and college for general education ranks second. Thus, the number of colleges and students are increasing at a faster rate.

There is no scarcity of labour force in Manipur. But the problem in the state is one of unemployment both educated and uneducated persons. At the end of 1984-85, there were 1,94,581 persons on the live register of employment exchanges, but the number of candidates placed in appointment during the said period was 638 only.

Recently at the end of December 1989, there were 2,52,052 youths on the live register of employment exchanges, and out of this 51,753 youths were female.

But there is no scope for absorbing all these educated unemployed persons, due to lack of viable industrial units and other services in the state. There is a very little manufacturing activities mainly, small scale industries, which are comparable with the cottage industries of all India level.
The bulk of trading activities, including that relating to handlooms, is controlled by outsiders. Therefore, with the financial assistance from the Central Govt., the Govt. should try to develop the managerial and entrepreneurial talent within the state. The Govt. of Manipur also can initiate action in this direction, by opening more vocational guidance bureau and vocational and entrepreneurial training institutes to solve the problem of unemployments.

(C) OTHER CULTURAL FEATURES 2

(i) TRANSPORT AND COMMUNICATION:

(a) EVOLUTION OF TRANSPORT IN MANIPUR:

The development of transport and communication in Manipur started along with the evolution of trade and commerce. According to Greek historian (Author of periplus of the Erythrean sea), Manipur has exported Gold, silk and Tejpata(majabathrum) to Greek in the first century A.D.11

But the actual form of international trade was started by the Britisher after 1758(primary devastation, the first time, sought external aid by Jai Singh and appeared a few years afterwards as supplicants for British protection). 12


Previously, the bulk of trade was not heavy due to its remoteness and difficult hilly terrains. Only land routes with difficult terrain were used to operate the trade with other countries. The trade relation between the Manipur and British India, was started by the Britisher with their policies of colonization and trade extension towards Burma and China, and it was the root cause for the evolution of present network of road transport in the state.

In 1873-74, the more important export items through Tongjei Maril route were, Ivory, Wax, silk, dyed yarn, mosquito curtain, salëophane, higok phane (phanek is a women lower garment), bed sheets, Maringphi (phi-cloth), Laiphi, Chadar, Kumlang-phurit (Black ready made shirts), Thouree phi (Thouree or rope) Lai-yeng (high class silk chadar), thread carpet, Lasing-phi (Lasing or cotton, padded cloth), silk Dhooti, silk phane, Buffaloes, ponies and Elephants.

In the same year, the import items like Betelnut, American-cloth, Longcloth, Mull Mull, satin, swiss-cloth, Steel, carpet, Brass, copper, Thread, Paper, Soap, Iron-pan, Nails, Velvet, Shantipur-Dhoti, Joypoore chadar, Woollen chadar (ektari), Umbrella, looking glass, Hooka, dyes spices, Lace, Buttons, Sugar, Tamarind, Iron-Dao, Axe, knife, pedlock, saw, Hammer and
needles, Books, Bottles, Phials, Shoes, Namabali, Vrindaban brass stamps (Chhaapaa), Conchs, Hooka-stand, Sandal wood, Cards and wooden boxes were also imported in Manipur.

As we know, the land route of Cachar road (Tongjel-Maril) existed during the year 1837-44, in a bad shape and peddles, Bullock carts etc. were used as a means of transportation. But, this road existed before 1700 A.D. in a worst condition. Recently, this road has been improved as a second lifeline of the state during the past independence period.

According to a political agent's report, Manipur, 1879, 'the trade with the Naga hills was about the same as in past years; but the chief drawback was the want of good carriage and the man's backs being the only means of carriage for goods.

Readings of the report on the administration of the Manipur Agency for the year 1879-80, by Lieutenant Colonel Johnstone, political Agent, Manipur, dated the 6th July 1880 gives full information about the trade expansion. At one place the report says 'the headquarters of the Naga hills districts have been transferred to Kohima and the construction of a proper road between that place and Manipur has become a matter of importance and the country within the Manipur territory presents not serious obstacles'.

A road from Mao, which is the last village in Manipur territory to Vishwema a long but easy tract laid out by Mr. Damant still exists. (It was completed in 1881 A.D.). From Vishwema to Kohima, the country is very difficult, but it is believed that even there the construction of a good road is by no means an impossibility.

It was later extended upto Dimapur in 1893 A.D. Thus Manipur was finally connected with Assam valley through Naga hills.(i.e., National highway No.39, Imphal-Dimapur-Kamgaon-Moreh road, the only life line of the state).

During the world war II, the absence of surfaced roads in the state was felt by the British Govt. and great war efforts were made to improve the existing one and new ones were also constructed by them. Even some jeepable road were constructed in the hill areas of Manipur during wartime.

Since then there has been a lot of improvements and at the beginning of first and second five year plan periods, there were only 216.4 kms. of National highways and 743.4 kms. of other district roads in the state (i.e. 959.8 kms. surface road as on 31st March 1956).

At the beginning of 7th five year plan, the total mileage of the state was 4324.4 kms. (as on 31st March 1985) i.e. 434.3 kms. National highways; 527.0 kms. state highways, 624.0 kms. Major district roads, 340.3 kms. other district roads, 2205.0 kms inter village roads and 193.8 kms Municipal roads.

The surfaced road during the year 1956 was 959.8 kms. only but during the year 1985, the surfaced and unsurfaced roads were 2532.4 kms. and 1792.0 kms. respectively. (vide appendix no. X).

As we know, geographically, it is land-locked and is isolated even from neighbouring states by hill and mountains on all sides. 90 percent of the state is hilly where there are still few facilities for mechanised transport and communication systems. The state has no water transport but the north-eastern frontier railway has extended the railway track (narrow gauge) from Silchar (Assam) to Jiribam area of Manipur. But, Jiribam's Railhead (second life line) is too far from Imphal town, the state capital and breached by difficult terrain. In the valley, Imphal is the only town, which has air transport. So, there is no cheap transport and communication inside Manipur state.

(b) TYPE AND ACCESSIBILITY :
(1) ROADWAYS :

One of the most important infrastructural potentialities of Manipur is transport and communication. The handicap
of transport and communication is easily reflected by a detailed studies from the state's existing roadways, Railways, airways, water routes etc.

As we know, 90 percent of the state is hilly where there are still few facilities for mechanised transport. These major parts of the state are highly inassessible except some areas.

Out of five hill districts of Manipur, three districts headquarters viz. Tamenglong, Ukhrul and Chandel are yet to be connected with black-topped roads i.e. standard state highways.

The sub-divisional headquarters at Henglep and Tousem are still not connected by a good road. Even the sub-divisional headquarters at Phungyar (specially at Tolloi), Chasad, Chingmei khullen, Kasom khullen, Saikul, and Singhat are connected with only fair weather roads and thus many roads are not useable throughout the year.

Thus, the remaining 10 percent of the geographical area of the state is covered by valleys, where there are some facilities for mechanised transport. Imphal is the capital town of the state, which is connected by three district headquarters at valleys and five district headquarters at the hills. Imphal possesses one reputed airport at Tulihal (about 7 kms from the heart of the town) Still, Manipur does not possesses any railway line or water routes worth the name.

The only surface communication connecting Manipur with the rest of India is the Kamagaon-Moreh or National highway No. 39 or Imphal-Dimapur road, which has a road length of about 215 kms. (134 miles). It is connected with the railhead at Dimapur (Nagaland) and as a matter of fact, this road is her life line. Comparatively road communication in the valley is better than that of the hill areas, which is yet to be developed due to difficult terrains.

Previously, the total length of roads in Manipur was 959.8 kms (surfaced road as on 31st March 1966) and out of this 216.4 kms were National highways and 743.4 kms were other district roads. Recently, the total length of roads as on 31st March, 1985, was 4324.4 kms, of which 2532.4 kms, were surfaced roads and 1792.0 kms. were unsurfaced roads. Surfaced and unsurfaced road length per hundred square kilometres of area is 19.4 kms. according to 1984-85 records (by using area of 1981 census). The length of road per lakh of population in 1971, was 242 kms. and per 100 sq. kms. of area was 12 kms. as against all India average of 135 kms. per lakh of population in 1967 and 29 kms. per 100 sq. kms. of area in 1968.

In 1984-85, Metalled (surfaced) road length per 10,000 of population of Manipur is 16.0 kms. worst still is that most of the roads are in the valley and 90 percent area of the state is still struggling for good roads. At present the total road
length per 100 sq. kms. of the total area is about 17 kms.

The classification of road as on 31st March 1985, are as given below :-

(i) National highways (434.30 kms.)
(ii) State highways (527.00 kms.)
(iii) Major district roads (624.00 kms.)
(iv) Other district roads (340.30 kms.)
(v) Inter-village roads (2205.00 kms.) and
(vi) Municipal roads (193.80 kms.).

As mentioned above, National highway No. 39, Kamagaon-Moreh (an important border town of Manipur near Burma border) road passes through the state and it touches Imphal town, Thoubal, Kakching, Sugnu, Pallel, Tengnoupal, Chandel, Chakpikarong etc. and further extended upto Tamu of Burma.

Another road of considerable economic importance is the 224 kms. long new-Cachar road connecting Imphal with Jirigi-ghat. It passes through dense forests and difficult terrains of the Manipur west district. The opening of this road brings many benefits and general development of the state. So, this road is the 'second life-line of the state' and it is now regularly operated by vehicular traffic and it is further extended upto Cachar district of Assam. But, this route has some other constraints.
The Imphal-Tiddim road is also another important road which touches, Bishnupur, Moirang, and Churachandpur. Beyond Churachandpur (Manipur south district), the road is further motorable upto Singhat and finally it enters into the Tiddim of Burma.

Another road which connected Imphal with Ukhrul district is about 78 kms. in length and passes through Imphal east sub-division. Kangpokpi-Tamenglong road is 112 kms. in length and runs through difficult hill terrain but the alignment is somewhat good and fair. There is another jeepable road of 75 kms. which runs through a village on the Indo-Burma border, north-east side of Imphal.

Recently, an outer ring road (viz, Tadubi via Chaka; Chaka via Magulong; Magulong via Jirighat; Jirighat via Tipaimukh; Tipaimukh via Hentam; Hentam via Samtal; Samtal via Moreh; Moreh via Humine; Humine via Chingai and Chingai via Tadubi) along the border of the state is going to be developed.

Moreover, some of the remote villages like Molecham near Burma border at Chandel district of Manipur is proposed to construct a roadway with the nearby town like Moreh. (Fig. No. 16).

Out of the five hill districts (excluding valley), Churachandpur and Chandel districts are having least road
length (i.e., 307.60 kms. & 399.35 kms. respectively according to 1985 census report). Whereas, Imphal district (valley) has the highest road length according to 1985 census report i.e., 942.46 kms. in total. But, many villages are not connected by roadways and even sub-divisional headquarters are not well connected with nearby towns.

There are some important private operators of motor transport in the co-operative sectors, besides the Manipur state road transport corporation (MSRTC). Nowadays, Assam-Bengal-Carriage (ABC) is also playing a great role in the transport network of the state. Recently, some tourist buses are also introduced by private organisations. They (tourist buses) have connected Imphal with some important places like Gauhati, Shillong, Darjeeling, Siliguri etc. MSRTC is the major transport organisation in the state and according to 1984-85 statistical there are 86 buses, 34 trucks, and 8 other vehicles viz. Jeeps, cars, Motor-cycles and auto-Rikshaw etc. Recently, some new vehicles are also proposed to be purchase for further development programmes.

In the state, the motor vehicles per lakh of population is 242, which is smaller than the all India rate of 350 as on March, 1973. But, during the year 1984-85, the motor vehicles on road is 12,328 which is about 78.0 motor vehicles per ten thousand of her population. Its' contribution to the S.D.P. (by industrial origin, at current prices, 1980-81) is about 2 percent only.
Recently, transport Department of Manipur has issued licenses to 13,452 vehicles and collected taxes (Token tax, Road-permit tax etc.) of Rs.1,06,77,546.07 P. in the year 1986-87 (April 1986 to 31st Jan. 1987) and registered 21,747 vehicles on 31st Jan. 1987. Out of this total registered vehicles, (about 16,547 vehicles) are now on the road.

Moreover, upto the end of April 1987, the motor vehicle Department has registered 23,860 vehicles and majority of the vehicles were occupied by two wheelers and a lot of vehicles are going to increase in the near future. This sudden increase of vehicles may be due to more possession of private motor-cycles, Scooters, Autocycles (two wheelers like luna moped and auto-rikshaw) etc. This indicates that there is a little increase of goods vehicles and other public service vehicles.

According to 1982-83 statistical report, number of motor vehicles per ten thousand of population is 58.0 and the number of motor vehicles on roads per 100 sq.kms. is about 35 only. In short, it is about 1 motor vehicles per 200 persons. The problem of motor transport is that the motor transport covers a large area in the valley and a small portion in the surrounding hill areas.
(ii) AIRWAYS:

Next to road transport, the air transport is the main type of transport available in this state. Tulihal airport at Imphal town is the only one reputed airport in Manipur. Domestic daily flight service from Imphal to Calcutta and Delhi and Guwahati and Vayudoot service from Imphal to Dimapur and Calcutta are also available from this airport.

During the year 1984-85, the movement of passenger by air originating from Imphal is 73,826 passengers and earned operational revenue of Rs.217.13 lakhs. Out of this total revenue, Rs.208.11 lakhs is from passenger, Rs.7.14 lakhs is from freight charges and Rs.1.88 lakh is from Mail respectively. But this type of transport is very costly.

(iii) RAILWAYS:

Still the Dimapur's (Nagaland) railhead is the most important life of the state. So, it is the first life line of the state. The next life line is at Jiribam's railhead. Recently, the north-eastern-Frontier Railway has extended its railway track (narrow-gauge) from Silchar (Assam) to Jiribam (Manipur). The total length of the track is about 50 kms. long and this track would traverse two big bridges on Buraik and Jiri rivers. Along with these two big bridges, there are about twenty medium bridges and seventy five small bridges with seven railway
stations (viz, New Silchar, Moinarband, Ranigao, Sribar, Kamrangga, Jirighat and Jiribam). In the state, it is about 1.3 kms. of route length in Jiribam area. It has daily passenger and goods trains running to and fro from Jiribam to Silchar. But, it has a number of problems, specially due to difficult terrain between Imphal and Jiribam. So, the Imphal Jiribam road, the second life line of the state has to be improved in many ways.

The Govt. of Manipur, has a proposal for an extension of railways line from Jiri to Makru (i.e. about 30 kms.) and another proposal of an extension of railway line from Diphu-Dhansari to Karong and Imphal town of Manipur. In Nagaland, the railway line is going to be extended upto Tuli from Dimapur. Moreover, a circular railway line connecting towns along the foot hills of Manipur is also proposed by the Govt. of Manipur.

(i.v.) WATER TRANSPORT:

As far as the water transport is concerned, it is too poor to be mentioned. Only rain-fed small rivers are found in the state and it is not suited for water navigation except some forms of water transportation in the rainy seasons.

Some forms of water transport are also found in the Barak, Imphal and other rivers of Manipur. A little amount of water transport is usually practised at Loktak lake.

But, these forms of transportations are always necessary for the growth of her industry as well as economy. In the absence of railways & water routes etc. motor-transport plays a vital role in the state. The bulk of transportation is now carried by road or motor-transport in the state.

(iv) OTHER TYPES OF TRANSPORT AND COMMUNICATION:

The other types of forms of transportation are post and telegraph, Newspapers, Journals, Magazines, T.V., Radio etc. Out of these types of transport and communication, the post and telegraph offices will give an additional picture of transport and communication in the state.

During the year 1984-85, the number of post and telegraph offices are as given below:

**TABLE - 20.**

1. No. of head office 1 (one) only.
2. Sub-office 55 only.
3. Branch-office 490 only.
4. No. of Telegraph office 37 only.
5. No. of letter box (excluding those at post offices) 704 only.
6. No. of public call offices (as on 31st March 1985) 36 only.
7. No. of Telephones (as on 31st March 1985) 2,773 only.

According to 1984-85 census report, the population served by per post office is of 2,888 people and number of banking offices (including branch offices) per lakh of population is 5.1 and number of Banking offices (including branch offices) per 1000 square kms. of area is 3.6 respectively. Moreover, Manipur has now STD (subscriber trunk dialling, telephony) connection with fifteen foreign countries. Shortly, the electronic exchange at Imphal will be converting into Digital computer exchange.

(C) IMPACT OF TRANSPORT-MEANS OF INDUSTRIALIZATION:

Efficient and cheap means of transportation are always necessary for any kind of industrial development. Cheapness is, however, to be combined with speed, for a slow transportation will prove costly in the long run.

Indeed, commercial farming is not possible without transportation facilities. In a region far flung from markets and ill-equipped with transportation facilities, commercial farming is a remote possibility. Thus, the term "Truck-farming" bears the unavoidable influence of transportation facilities on agriculture.

But, the geographical isolation and difficult terrain found in the state marks her handicaps mainly on transport and
communication. Not only these handicaps, but there are other handicaps mainly on power, capital, market, and other infrastructures (viz. other institutional set-up). So, one of the reasons for the present backwardness of areas like Manipur is the non-availability of basic-facilities, such as transport and communication, power etc. Manipur has very limited transport facilities for connecting it with the rest of India. Still, it is not well connected by rail. Indian airlines operates one daily service from Imphal to Calcutta and Delhi.

The main channels of communication is the 215 kms. road connecting Imphal with Dimapur, a railhead in Nagaland and another 224 kms. road connecting Imphal with Jiribam sub-division (via Gachar district of Assam), known as the new Gachar road.

These roads passing through the hill tracts of Nagaland and Manipur are liable to interruption especially during the rainy season. Goods moving in and out of the state are now carried through the Dimapur-Imphal road.

Thus, Manipur adds to the cost of transport and a large number of villages are also not well connected by road transport. Although the area has a number of rivers, none of them is navigable. All of them are rain-fed rivers. The problems of transport are that the number of vehicles on road are few (specially goods and passenger vehicles) which cover a small area
especially in valley. A substantial area of the hill is beyond reach of motor transport, which is very important.

Moreover, the north-eastern region's standing committee recommended for 100% transport subsidy for the whole of N.E. region. Raw material transport subsidy of 90% is allowed by central Govt. specially for the air transport of electronic products from Imphal to Calcutta.

(2) POWER:

(a) RESOURCES OF POWER:

One of the most important infrastructure is power. The state has at present not exploited the oil and coal for commercial uses. Wood is, on the other hand, consumed mostly for domestic and industrial purposes. There is no remarkable utilisation of wind power, solar energy, nuclear energy etc.

In the circumstances, hydel power is the only answer. Fortunately, the state is endowed with rich power potential in this respect. The state's rich hydro-power potential is estimated at 0.865 million KW at 60% load factor which constitutes 2.1 percent of the country's potential (excluding Bhakra complex).

In fact, the state is hopefully looking forward for the full completion of some of the multipurpose projects like Singda, Thoubal, Lokchao multipurpose projects in addition to present commissioned Loktak hydro-electric project (3x35 MW).

Moreover, there are some scope for the meso and micro development of hydro-electricity in most of the turbulent and torrential rivers of Manipur like, Barak, Jiri, Khuga, Chakpi, Iril, Thoubal, Singda, Sekmai etc. (vide Annexure No. XI).

Recently, Loktak down stream Hydro-electric project and its associated transmission system (98°35'24" long & 24°44'50" lat.) was taken up by state Government and it has published at Manipur Gazette (Extra-ordinary) No.647, Imphal dated 19-2-91. Its installed capacity is 3x30 MW and Firm power is 30 MW (263 gwh) and secondary power is 2104 (164 GWH). Power will be derived from a dam constructed near the Thoparhon hill (Tamenglong district). Thus, water from Leimatak river will be falling to Irang river. When it is finished state might be self sufficient in power.

(b) PRESENT STATE OF PRODUCTION OF POWER:

(i) THERMAL AND HYDRO POWER IN THE STATE:

In the state there are two important power houses i.e., at Keishampat(diesel/Thermal) power house and at Leimakhong(Hydro/diesel) power house including one sub-power house (diesel)
at Lamphelpat. Moreover, Yurembam (Transmission and distribution) sub-station of Loktak project is worth to mention. Loktak hydro-electric has been completed with successful power generation (Informally commissioned on 6th August, 1984). Even during the lean season, the project keeps on power supply on a restricted basis. Loktak project has so far generated more than 230 million units of energy and it achieved the generation targets and even exceeded the designed plant capacity of power generation. The project with an installed capacity of 105 MW is capable of generating 70 MW of firm power at 60% load factor and at present the daily generation figure varies between 65 MW to 70 MW depending upon the power demand from the beneficiary states.

So, there is a good hope for generation of more energy, if there is adequate power evacuation and varying demands from all the seven sisters of North Eastern states. As a central sector project, the beneficiaries of Loktak project are all the seven North Eastern states and at present, the project supplies power directly to Manipur, Nagaland, Assam and Tripura. Out of the total power generation by the project, Manipur consumes 22 MW, Nagaland 10 MW and the rest is drawn by Assam, which is the major consumer.

Recently, Lokchao hydro power house was commissioned in April 1987 and it will generate 400 KV of hydro power. It may be supplying power to eight nearby villages of Chandel district including Moreh town.
At present, the installed capacity of electricity in the state during the year 1984-85 is 24,270 KW and electricity generated in lakhs KWH is 63.77. The state consumption of electricity in lakh Kwh is 407.45 and out of this, the domestic consumption is 266.79 lakh Kwh. Commercial light and small power is 9.37 lakh Kwh. It is 36.62 lakh Kwh in industrial; 5.39 lakh KWh in street lighting; 32.11 lakh Kwh in Irrigation and Agriculture, 8.45 lakh in public water work and sewage pumping and 48.72 lakh Kwh in bulk supply.

Previously, the total installed capacity of generating stations was 19.672 MW upto the end of 1979 of which 18.772 MW is of diesel and 0.900 MW is of hydel.

Moreover, indigenous make D.G. sets of 11.096 were also installed during 1978-79. However, inspite of the installation of these new D.G. sets, the ever increasing demand for power could not be met. As the diesel Generation is costly, emphasis is given to the micro-hydel schemes. Under this schemes, 4 micro-hydel schemes were taken up during 1982-83.

Besides the above four micro-hydel schemes and Thoubal multipurpose scheme, 18 other micro hydel schemes in the state were also proposed during the sixth plan period. After completion of these schemes in coming years, the additional hydel installed capacity will be 16.15 MW.

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As mentioned above, the state Govt. is trying to establish one hydro power station of Loktak downstream at Leimatak and when it will be completed, the state may have adequate supply of power to her industrial units.

(ii) MAN AND ANIMAL POWER:

Man and animal power of Manipur is not also lacking. As mentioned above, more than two and half lakh of educated (both technical and non-technical) unemployed labour force is lying idle in the live register of employment exchanges of the state. Moreover, majority of the working force between the age group of 15-50 years, female participation is not significant, due to part times or under employment. A large number of unskilled and illiterate unemployed persons are also seeking job in the state.

Such a great numbers of unemployed and under-employed persons in the state can be utilised for the upliftment of her agricultural and industrial activities. Moreover, main power in agricultural is derived from animal population of the state. In agricultural practices both oxen and buffaloes are mainly used. Horse is rarely used in the state.

The total animal population of the state during the 1977-78 livestock census was 5,33,269 and out of this males over 3 years is 1,98,833, females over 3 years is 1,31,033, young stock
under one year is 76,542, and between one to three years is 76,861 and three years and under is 1,53,403 respectively. But no. of total cattle (both cross-breed and Indigenous) during the 13th quinquennial livestock census held in 1984 in Manipur, is 7,46,876 which includes buffaloes & horses and ponies (1,38,154).

(c) POWER AND ITS IMPACT ON INDUSTRIALIZATION:

Inadequate power has great impact on industrialization. Lack of adequate power (specially, electricity) is the main reason for the slow development of the state in the field of industrialization. In the developing economy of the state, electricity has to play an important role to provide power for agricultural operations and for its growing large, medium and small scale industries and agro-based industries. But, the state is still not very satisfactory on this line. (Fig. 17).

At the moment, the per capita power consumption in the state is awfully low at 25.84 KWh (1984-85) against 93 Kwh for all India (1975-76).

It may be due to some factors like inadequate distribution system, sub-standard power evacuation, frequent load shedings etc.

MANIPUR

ELECTRICITY GENERATED AND CONSUMED

1977-78 TO 1984-85

FIG. 17
The percentage of villages electrified to total No. villages according to 1984-85 census is 27.09. The rates of Domestic as well as industrial consumptions of electricity are not cheap in the state although the Loktak-Hydro-electric has been completed with successful power generation.

The present rate of electricity for domestic consumption, is about 70 paisa(tax) per unit but now it is going to be increased, (energy charges for the first 50 units per month is 70 paisa per unit and more than 50 units is Re.0.90 per unit). In respect of small industrial units, the energy charges for the first 500 units per month is Re.0.50 P. per unit and for more than 500 units it is Re.0.45 per unit only. But, in order states of India, it is about 15 paisa per unit only. Although Manipur Government has decided it at a subsidized rate of 25 paisa per unit.(in case of Industrial units). The electricity Department is still charging 50 paisa per unit to the industrial units of the state. That is why, spinning Mill is not getting any profits and is running without profits and losses. Such examples are plenty in Manipur.

3. BANKING AND CREDIT FACILITIES:

The banking and credit system is also one of the most important factor for the economic progress of the state. During the last few years, the growth of bank offices in Manipur is significant. Till 1970, the number of commercial banks was only 2 but this number has gone up steadily, reaching to by 43 in 1978.
The number of bank offices per one lakh of population at the end of 1978 is 3.3 and per capita deposits and advances of Bank in Manipur as on 31-12-78 was Rs. 88 and Rs. 48 respectively.

During the year 1984-85, the per capita net small savings securities and per capita total tax revenue were Rs. 4.42 and Rs. 119.38 respectively. Population served per post office was of 2888 persons in 1984-85. The State Bank of India, Imphal is functioning since 1958-59. As on 31-12-78, it has 9 banks offices and amount deposits and advances of Rs. 322.75 lakhs and 169.03 lakhs respectively. It also undertakes ordinary commercial banking business and provides credit to industry, trade and commerce. It also functions as an agent of the Reserve Bank of India.

The United Bank of India is also functioning since 1958-59 at Imphal. It has 16 bank offices and amount deposits and advances as on 31-12-78 of Rs. 422.05 lakhs and Rs. 198.46 lakhs respectively. It is a leading bank in Manipur, covering almost all the districts of the state.

Moreover, the Manipur state co-operative bank was established in 1957-58 at Imphal. It has 7 banks offices and amount deposited and advanced as on 31-12-78 were of Rs. 177.35 lakhs and Rs. 167.27 lakhs respectively.

It also extends agricultural credit to finance of short-term and medium term loans.

Likewise, the Imphal urban Co-operative Bank was established in 1966-67 at Imphal. It also provides banking facilities at Imphal town area of Manipur. As on 31-12-78, it had 3 bank offices and amount deposited and advanced were of Rs.46.83 lakhs and Rs.34.49 lakhs respectively.

During the year 1984-85, L.I.C. in Manipur had 3 offices with a policy holders of 2,531 persons and the premium assured (income) was Rs.105.55 lakhs and the sum assured of Rs.590.42 lakhs respectively.

Not only the above Banks, but there are also some other commercial banks in the state. They are, United commercial bank (2 Bank offices) with deposits amount of Rs.46.46 lakhs and advance amount of Rs.17.73 lakhs respectively as on 31-12-78); Bank of Baroda (1 Bank office) with deposits of Rs.26.79 lakh & advance of Rs.2.80 lakh as on 31-12-78). Allahabad Bank (2 offices) with deposits of Rs.15.13 lakhs and advance of Rs.8.15 lakhs as on 31-12-78); The Punjab and Sind Bank (1 office) with deposits of Rs.45.05 lakhs and advance of Rs.31.09 lakhs as on 31-12-78); Vijaya Bank (2 offices) with deposits of Rs.60.76 lakhs and advance of Rs.2.81 lakh as on 31-12-78.

Rural Bank, Women bank, Agricultural and industrial banks etc. are also organised in the state, with meagre funds. Out of these banks Manipur small industrial Bank Ltd. is also one of them.

Besides, there are Manipur small industrial corporation Ltd. and Assam financial corporation Ltd. to assist and finance small scale industries in the state. Reserve Bank of India has also sanctioned many loans for agricultural and rural development programmes.

As we know, some Banks have been nationalised, but their culture has not changed and they are still geared to served the rich.

Some of the short coming is providing the banking facilities in the state, is due to the inadequate number of banks and small working capital. Moreover, all the rural areas of the state are also not covered by these banks and the advance, loan, grant etc. are not available in easy terms and conditions. Law and order situation in Manipur is also not satisfactory. Even at the Urban area, banks are mostly used by rich businessman. Some times, Banks are closed due to security lapses and all of them are running inadequately. Moreover, the Banking habits of the people are not upto the mark.
4. FACILITIES OF EDUCATION AND TRAINING:

For general education, the state has a good number of schools, colleges and a university centre. Provisionally the total number of institutions in 1983-84 is 4,089 (3802 Male and 287 Female) including 69 colleges.

It may be added that the number of scholars is steadily increasing. The state has made rapid progress in the field of education, the percentage of literacy is increasing from 0.9% in 1901 to 41.4% in 1981.

As regards the case of educated persons, the problems are unemployment and underemployment. This can be seen from the fact that there were about 1,94,581 unemployed persons on the live register of the employment exchange during the year 1984-85.

But, the total number of Manipur Government employees during the year 1982 (as on 31st March) was 43,881 (excluding data in respect of D.C.'s Ukhrul and Tamenglong districts) and out of this, 4,283 were Gazetted and 39,598 were non-gazetted employees.

Moreover, out of the total Government employees, the percentage distribution of S/C is 1% and the percentage shared by S/T is 24.67% and the rest 74.33% is shared by other communities.
So, by analysing the above facts, there are plenty of educated persons but a little opportunities for Government employment.

More than two and half lakh educated persons are seeking jobs in different employment exchanges of the state. Some of them are given vocational and professional training inside and outside the state.

Inside the state, one agricultural college was established in October, 1979 at Iroisma as its main centre at a distance of about 10 kms. from Imphal, the capital of Manipur. The intake capacity of this college for each session is of 40 students.

Another one year certificate course in animal husbandry opened to matriculates or equivalent for general candidates(Class VIII for S/T & S/C) has been started since 1971. It has an intake capacity of 22 students. A monthly stipend of Rs.30 is being awarded to selected candidates. Moreover, the Govt. of Manipur is running a 3 years certificate course on carpentry at Thoubal, Pong, Ukhrul, Chandel, Mao-Maram, Tadubi, Tamenglong and Churachandpur; 3 years certificates course on bamboo and cane works at Thoubal and Churachandpur; 2 years certificate course on arts,
crafts and cottage industries & weaving at Thoubal, Tamenglong, Ukhrul, Churachandpur, Chandel, Sawombung, Tadubi, Khoupum valley and Jiribam; 2 years certificate course on tailoring and cutting at the training-cum-production centres at Thoubal, Tadubi, Ukhrul, and Moreh; 2 years certificate course on blacksmithy at the training-cum-production centres at Thoubal, Porompat and Churachandpur; 2 years certificate course on foundry at Thoubal training-cum-production centre and one training-cum-production unit of cotton spinning mill at Loitang khunou and one regional sericulture training institute at Kwakta(Sericulture-experimental farm-cum-training centre).

Meanwhile, Industrial training institute, Takyel was established in 1959. Its intake capacity is of 120 trainees (60 civil + 40 Elect. + 20 Mech.). The production of this institute is not sufficient to meet the requirement of the state. So, a number of students are also studied outside the state. It has been imparting 3 years diploma courses in civil, electrical and Mechanical Engineering to matriculate or equivalent examination passed students.

The state has also been providing facilities for 3 years nurse training at the General nursing Training School, Lamphel; and 2 years Auxiliary nurse/Mid-wifery course at the Auxiliary nurse/mid wifery training school, Lamphelpat. Six months Dai-Training course is also provided at the Maternity and child welfare centre, Imphal and primary health centres in rural areas.
The Regional Medical College was started in Manipur to provide M.B.,B.S. course. One Agriculture University is also proposed to established in Manipur. (Fig. 22).

Moreover, the Manipur Panchayati Raj and Co-operative training institute has been imparting a 30 week diploma course in Co-operation since 1956. The course is opened to Matriculates or above and in special cases to Middle school examination passed candidates.

For teaching training, 1 year B.T, diploma course is being imparted to graduate teachers at B.T. College, 2 year post-matric certificate course on basic training at Basic training college, Imphal, 1 year basic training course for elementary school teachers at Canchipur (Imphal), Kakching and Ukhrul Basic training institutes; and 1 year Hindi-training course at Hindi teachers Training institute, Imphal. Thus, the above vocational/technical/professional training centres have been establishing by the state Government to the local people for their development.
5. POLICIES AND PROGRAMMES OF GOVERNMENT:

The process of planned economic development in the state was initiated with the launching of the first five year plan in 1951. But, the investments during the first three five year plans were very small. It was only during the fourth plan period with an investment of Rs.31 crores that the process of economic development in Manipur can be said to have been initiated.

Just to reduce the magnitude of poverty and attainment of economic self reliance, the fifth five year plan of Manipur was designed to provide infra-structures over a period of 15 years and to direct efforts for stabilisation of the economy in various ways particularly in the agricultural sector by controlling jhumming&adapting measures to supplement income of farmers by diversifying agricultural production; utilizing natural resources through establishment of agro-based and forest and forest based industries; making provisions for wide avenues of employment opportunities; strengthening industrial set-ups to cater to the needs of small industries and agriculture and finding out provisions of basic minimum social consumption needs by extending facilities for elementary education, nutrition, health and water supply, roads, electrification etc. primarily to the weaker sections of the society, and specially in rural areas.
In the sixth plan of the state, it was contemplated to accelerate the process of development to reduce unemployment, to raise the per capita income so as to reduce the gap between it and the national average.

Thus self sufficiency in main food items and generation of employment opportunity have been the two main objectives of the agricultural programmes in the state's plans.

So, during the 7th five year plan, the financial outlays in different heads of development programme, such as Agriculture and allied services; co-operation, water and power development; Industry and minerals; Transport and communication, social community services; Economic services; General services etc.; are increased to a certain extent to meet the raising demand of more infra-structures for her industrial and economical developments.

Moreover, the state being mainly dependant on grants and assistance from the centre, such as non-plan grants given by the finance commission and plan assistances from the planning commission, the NEC and the various ministeries dealing with different centrally sponsored schemes are inadequate to meet the mounting expenditure. The heavy imports items of consumers goods, vagaries of nature like flood and draught, absence of industries,