CHAPTER-III

GEOGRAPHICAL BACKGROUND
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3.0 Introduction:

The state of Nagaland has hilly terrain with a variety of relief features, different drainage systems, various soil types and vegetation cover. The physiography creates specific situations and some times limitations for rural development like fragility, inaccessibility, specific resource niches and areas of population concentration. These aspects of physiographic conditions directly or indirectly influence (and somewhere control) the distributive nature of natural resources and human concentration. The study of such aspects of landscape would be helpful in understanding the required processes of rural development and also helpful in identifying the areas of available resources where the developmental processes may be intensified in future for raising standard of living of the local people. The detail features of geographic personality of the state have been highlighted in the following sections.

3.1 Location and Extent:

Nagaland the 16th state of Indian Union was inaugurated on the 1st December 1963. It is situated in the northeastern part of India between 25°6' to 27°4' North latitudes and
Names of the R.D. Administrative Blocks:

1. Jukkie
2. MedzipHEMA
3. Kuhuboto
4. Tsemirnyu
5. Kohima
6. Kikruama
7. Phiek
8. Meluri
9. Bagley
10. Wokha
11. Ospanghong
12. Manglofemba
13. Changtongya
14. Gathshi
15. Zunbeboto
16. Akhuto
17. Tokiye
18. Longjeng
19. Longlim
20. Sangsanggyu
21. Noklak
22. Kiphire
23. Sitimi
24. Shamator
25. Tobu
26. Chen
27. Wakching
28. Mon

Fig-3.1
93°20' to 95°15' East longitudes with an area of about 16,579 sq. km. Assam in its North and West, Arunachal Pradesh in its North East, the state of Manipur in the South, binds the state. The state is bound by the long International boundary of Myanmar in its eastern side. On account of gradual slope of the state from East to West, it is well connected with the plains of Upper Brahmaputra and also has a direct impact of socio-economic set up prevailing in Assam. It includes the area of Niuland sub-division of Dimapur district, which is in the Assam plains but administered by Nagaland Government. The state is transitional in its geological structure, physiographic conditions and climatic attributes because of its situation close to the Tropic of Cancer and its geological formation of the Tertiary deposits of younger folded mountains of the Alpine-Himalayan orogeny. There are 28 Rural Development Blocks in the state. The boundaries are generally coincides with the relief features (Fig.-3.1).

3.2 Physiography:

(a) Geological Formation:

According to geo-scientists, this region was once under a sea, which existed between India and Burma till the tertiary period. The land that now joins India and Burma did not exist at that time but came up much later, that the rocks are comparatively younger and of Tertiary origin (Ghosh 1982). This was proved from the fossil remains of marine deposits in different areas of the state. Besides marine deposition, there were volcanic activities in the basin. It has been proved by the existence of igneous rocks in the
eastern part of the state. The area remained submerged till the Eocene period that is 65 million years back when a powerful crustal movement initiated the first phase of mountain building activities. The sedimentary and volcanic rock layers were finally uplifted due to compressive forces from the sea floor, thus forming the first folded mountains. During the process, the water receded to the south into the present Bay of Bengal.

The first orogenic movement was partial; sedimentation took place in this basin forming a mountain range, which is today known as the Barail group formation. Numerous fossils of ancient flora and fauna are present in these rocks. Such rocks are mainly found in the eastern region especially in places like Pfütsero, Meluri, Kiphire etc. After the formation of Barail, Surma and Tipam groups of rocks, the second orogenic movement took place in this region, which gave rise to the more northeast, south-west trending hill ridges and valleys. These hills are higher than the previous ones. This movement took place during the period of Oligocene, Miocene and Pliocene. Third orogenic movement occurred during the Pleistocene and Recent periods and it shaped the present topographic features (Fig-3.2). It may be noted that all these three major orogenic movements were contemporaneous to the great Himalayan Mountain building activities. The state of Nagaland being within the tectonically unstable belt of the eastern Himalayas lies in an earthquake prone area.
NAGALAND
GEOLOGY

- RECENT
- PLEISTOCENE
- PLEISTOCENE
- MIocene
- Oligocene
- Eocene

Source: Geological Survey of India, N.E. Region.

Fig-3.2
There are rocks in the eastern region of the state, which are of comparatively ancient formation like Nimi and Zepuhu formations that were formed during the Palaeozoic and Mesozoic periods. In these two belts, some minerals of economic importance are found. The largest limestone deposit of the state occurs in the Nimi formation (Government of Nagaland 1978).

(b) Relief Features:

The state of Nagaland, which was once submerged in the deep sea, has at present complicated structural and physical features and the formation of land mass may be correlative with the young fold mountains of the Alpine–Himalayan orogeny. As a result, its topography is similar to that of any other young mountain terrain featured with high hills, sharp ridges, deep gorges and narrow valleys. These hills are a continuation of the Burmese arc, which joins with the Sub-Himalayan ranges in the north. The ranges stretch in general from northeast to southwest. The altitude in the state ranges from approximately 110m in the comparatively plain areas bordering Assam to about 3,826m in the eastern high ranges. The state can broadly be divided into three main physiographic divisions as:

(i) the high hills situated in the east,
(ii) the lower hill ranges in the intermediate zone, and
(iii) the plains and the foothills in the extreme west and north-western side of the state.
The high hills in the east are parts of the Patkai Ranges. In the south, such high ranges form the Barail Range. Saramati is the highest peak in the state, lying near the Myanmar border (3,826m). The Barail Range enters the state at its southwest corner and runs in a north-eastern direction beyond Kohima to merge with the Patkai Range. The Japvo, which is the second highest peak, is located near Kohima and stands at an altitude of about 3,014m, followed by Kahu (2,841m), Paona (2,791m) and Kapamedzü (2,429m).

The foothills of the west increase altitude in its eastwards from 600m to 900m to form the high mountain ranges in the extreme east. In the outlying hilly tracts, there are a few valleys, especially along the western side of the state, which have an average altitude of about 300m. Of these river valleys, the important ones are the Ghaspani valley in Dimapur District, Jalukie valley in Kohima District, the Baghty, Bhandari and the Merapani valleys in Wokha District, the Lakhuni and Tzurang valleys in Mokokchung District and the Tiru valley or Tirupathar in Mon District. The rest of the region is hilly with only occasional small river valleys here and there.

Lastly, the hills of Nagaland rise from the plains of Assam. The plains in the west as well as in the north-west form the Dimapur plain, which starts from Chümukedima and merges into the plains of Golaghat district of Assam. Its area is about 150 sq. km, which is situated in the south-western part of the state in Dimapur District. The plain of Naginimora in the mid-west of the state starts from Borjan and
extends upto Dikhu River on the west. The area of this plain is about 50 sq. km. The Tizit plain located in the Mon District is about 75 sq. km in area.

(c) The Drainage Systems:

Topography of the state is hilly, breaks into a wide chaos of gorges, spurs and ridges, and also many streams and rivers draining through it (Fig-3.3). Many of these hill streams dry up during the winter season but roar down torrentially in the rainy season. The drainage systems in the state are composed of the following three:

(i) The Brahmaputra Drainage System: The Doyang River is the largest and longest in the state. It originates from the Barail Ranges and flowing northward through hairpin bends to open into the Dhansiri in Assam. The principal tributaries of this system are the Dziüü and the Sidzü in Kohima District. As the river turns west, its largest tributary the Rengmapani in Wokha District joins it. During the later stage, it suddenly turns westward and then debouches into the plains and, finally, falls into the Dhansiri River in the Assam plain.

The Dhansiri river rises in the southwest of the state and it flows westward and then takes a northwardly course forming a boundary between Nagaland and North Cachar Hills of Assam. It flows past the Rangapahar and Dimapur plains and then flows on northwardly until it falls into the Brahmaputra at Dhansirimukh. Some
Source: Census of India, Regional Divisions of India, Vol-XV, 1981.

Fig. 3.3
important tributaries of this river inside Nagaland are the Intanki, the Taham and the Chathe rivers.

The Milak of Assam also known as Jhanzi in Nagaland is another important river in Mokokchung, which flows northward and, finally, turns westward in the plains of Assam. Dikhu rises from the northern flanks of the Nurato Mountain in Zunheboto flows a westward course into Mokokchung and flows northward forming a natural boundary between Mokokchung, Tuensang and Mon districts inhabited by the Ao, Sangtam, Phom and Konyak people respectively and, finally leaves for the plains near Naginimora. Nanung and Yango are its important tributaries.

(ii) The Barak Drainage System: The Barak River originates from the springs of Yumai village in the Mao-Naga area in Manipur, which does not fall within Nagaland. But it has many tributaries that flow within the state, of these the Tasanki and Sulen are the major streams. Also, there are many small tributaries that wash off the southern slope of the Barail Range falling within Nagaland.

(iii) The Chindwin Drainage System: The tributaries of the Chindwin river of Burma drain the south eastern part of Nagaland, which lies between the Patkai and the Barail ranges. Of these, the most important one is the Tizu, which first flows towards the south and then through successive right-angled turns reaches Myanmar. The Tizu is fed from
the north by the Zungki River and by the Laniye River from the east. The Tizu River forms an important drainage system in the eastern part of the state.

There are many spots of scenic beauty together with lakes and waterfalls in the state. The important natural lakes are Shiloi and Zaneibu in Phek District and Totsu Wozhu in Wokha District. There are some historical relics and tanks belonging to the old Kachari kings in Dimapur plains; named as Bongola Pukhuri, which is in the western part of the state adjacent to the Assam plains, there are swamps and marshy tracts.

During the rainy season, many small waterfalls appear in the state. Most of these are rapids and waterfalls occurring on the rock beds of unequal resistance. Similarly, a number of springs are also found in the foothills, which are the source of drinking water in many rural areas in the state.

(d) The Climate:
The climate of Nagaland is controlled by the seasonal winds as in other parts of the country. These seasonal winds are the South-west Monsoon and the North-east Monsoon winds. These winds are controlled by the tropical monsoon, which are adjusted with the local factors like altitude, location of the area, direction of the prevailing local wind and seasonal rhythms.
Average annual rainfall varies from 150cm to 280cm with a large variability in the temperature that varies from 0°C in winters to about 35°C in summers. Occasionally, extreme weather conditions may also be observed but only for a short duration.

(1) The Seasons:

In Nagaland, agriculture is the main occupation of the people and, therefore, seasonal changes in weather exert a great influence on economic life of the Nagas. Seasons are characterized by considering variation with monthly rainfall and temperature. On the basis of rainfall, temperature and wind velocity and direction, the climate of whole year is conveniently divided into the following four seasons:

i) Winter (Cold weather) season (December to February),

ii) Spring (Hot weather) season (March to May),

iii) Summer (Rainy) season (June to September), and

iv) Autumn (Retreating Monsoon) season (October to November).

(i) Winter Season: The cold weather season starts in the later parts of November or early in December. During these months, it is bracing with a clear and fine weather. Few drops of rains, low humidity and temperature are the normal features of this season. The mean temperature during this season varies from 8.4°C to 16.4°C. The atmospheric humidity becomes low (60% to 80%). Condensation of water vapour is
common with dense fogs sometimes lingering till late forenoon. Rainfall is at its lowest and this is usually the driest season. The winter is quite severe with minimum temperature coming down to 1°C in some places during the night. Sometimes, serenity of the weather is disturbed with occasional rains. Sometimes, showers of rain are accompanied with light storms.

(ii) Spring Season: By late February, temperature begins to rise and appreciable weather starts from March. Temperature rises quickly; the cold air changes into warm with fast decrease in the atmospheric pressure from high to low. Mean temperature of the period is recorded 17.3°C and the mean range of temperature is about 11.6°C. The relative humidity varies between 40% (in March) and 78% (in May). Occasionally, thunderstorms occur during this period, which give some rainfall and also sometimes hailstorms occur in March and April. The weather becomes pleasant and fine during this period. However, the air is polluted by the smoke produced from the jhum fields due to burning of jungle.

(iii) Summer Season: The South-West monsoon sets in by the last week of May or early parts of June and it continues till September. The people of Nagaland are basically agriculturist and so, the rhythmical character of the monsoon rainfall is significant to them as adequate rainfall is required for agricultural purposes.
During this season, the relative humidity goes up to 95% and as such it is rather damp during summer. In the foothills, the temperature varies from 30°C to 35°C, while, on the hills, it rises up to 25°C. The highest rainfall recorded during this season is mostly precipitated in the month of July and August. Violent local storms often occurs in the areas where humid winds from the Bay of Bengal meet the hot dry land winds and these storms are often accompanied by violent winds, hail and torrential rains. As a result of heavy downpour, severe land erosion occurs in the hilly regions of the state.

(iv) Autumn Season: Towards the end of September, the rainfall begins to decrease in its frequency as well as in quantity and also the temperature decreases. The cool winds begin to blow from the Patkai ranges, which lie to the east of the state. This wind gets mixed up with northeast monsoon winds and it brings down the temperature substantially in the eastern region and, thus, the autumn season sets in.

During the period, the temperature at Kohima varies from 24°C to 14°C. The mean relative humidity is recorded about 75%. Sometimes, during this season, temperature, relative humidity and pressure may change suddenly, causing local storms and light cyclones.

(2) The Climatic Phenomena:
Atmospheric temperature, air pressure, rainfall, sunshine humidity is major elements of climate, which are influenced by the relief features, and the location of the area under
study. The elements are inter related themselves and form a nature of weather, seasons and climate, which have direct bearings on the developmental activities and socio-economic conditions. The details of these climatic-elements are given below by comparing them with elevation.

(i) **Temperature:** The physiographic difference of the state controls the regional variation in temperature. Maximum temperature even in the hills may rise up to 25°C in July, while minimum may go down to 2°C in December. Whereas, in the plain area like Dimapur and foothill areas like Medziphema, Jalukie, Tuli and Tizit, the temperature is recorded higher. In these foothill areas, temperature goes up to 35°C in July and August. As it is evident from the temperature figures, Kohima, the capital of the state, is situated at an altitude of 1,444.12m experiences a maximum of 25°C and a minimum of 5.6°C in January, Jharnapani is situated at an altitude of 250m, it experiences a maximum temperature of 34°C. Whereas, Pfütsero is situated at an altitude of 2,133.60m, experiences a maximum of 23°C and a minimum temperature of 2°C in December (Table-3.1).

(A) Jharnapani (250m a s l)

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<thead>
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<th>Temperature (°C)</th>
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<th>Relative Humidity</th>
<th>Mean</th>
</tr>
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(B) Kohima (1,444 m a s l)

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(C) Pfütsero (2134 m a s l)

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Sources: - Table No.3.1a - ICAR Research Station, Jharnapani, Nagaland.
Table No.3.1b & 3.1c - Directorate of Soil & Water Conservation, Government of Nagaland, Kohima.
(iii) Relative Humidity: The northerly winds and the southwest winds are mainly responsible for the seasonal variation. During winter season from the months of December to February, there is clear sky, fine weather, light northerly winds, less humidity and low temperature which are the normal features in the region. The months of March and April are also dry in the state. During these months, burning of jhum fields are common and low humidity is prevalent. In general, high humidity is observed in the plains and foothill areas where Jhamapani is located and less in the eastern mountain parts of the state. It means that the hills and mountain ranges are drier especially in the winters (Table-3.1).

Table-3.2: Monthly Rainfall of Three Stations in Nagaland (1999).

<table>
<thead>
<tr>
<th>STATION:</th>
<th>JHARANAPANI</th>
<th>KOHIMA</th>
<th>PFUTSERO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Days</td>
<td>Intensity (mm/day)</td>
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<td><strong>TOTAL</strong></td>
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Sources: ICAR Research complex for NE Region Jhamapani, Nagaland.
Govt. of Nagaland, Survey, Directorate of Soil & Water Conservation, Kohima.
(iv) **The Rainfall:** There is a significant areal variation in rainfall in Nagaland. The northern parts of the state receive comparatively more rain than its southern parts. The annual average rainfall in the state is recorded about 200cm with 150 rainy days. It shows that near about 5 months is rainy period, which generally starts from June and ends in October. Highest rainfall is experienced in the month of July and August.

The south-west monsoon sets in during the middle of June and continues up to the middle of September. During this period, the region receives more than 60% of its annual rainfall. In the month of August, the highest rainfall is recorded at Wokha, (i.e.; 1,108.5mm) but, in the same year, it was only 4.5mm in the same station in November. During winter season, December to February, weather is normally clear and rainfall is absent except occasionally. Thus in this region, practically two seasons, winter and summer dominate the whole year (Table-3.2).

(e) **The Soils:**
The weathering processes acting upon geological structure of a region help in the formation of soils. Therefore, soil types are the result of climatic conditions and are composed of degraded geological material. The undulating topography and variation in altitude ranging from 250m to 3,300m has given rise to diversity in climate and vegetation within this small region. The various soil types of Nagaland are derived from tertiary rocks belonging to Barail and Disang series. The Barail consists of alternate layers of sandstones and shales with carboniferous intrusions or even coal seams. The underlying Disang series represent unfossiliferous shales, slates and phyllites.
River valleys and foothills are made up of alluvial and colluvial soils and, in the higher altitudes, it is mainly residual soils. On the hill slopes, the soils of the lower ranges are subjected to stronger weathering processes than those at high altitudes. The hill slopes of the temperate region are rich in organic matter, while the soils covered by pine forests do not exhibit much accumulation of organic matter. Soils are generally fertile and responsive to application of fertilizer. The soils of the state are acidic in nature and rich in Organic Carbon, Phosphate and Potash contents. The pH value ranges from 4.80 to 6.50, while the Organic Carbon content may be as high as 2.943%. The average Phosphate and Potash contents are 20 kg/ha and 120 kg/ha respectively. The soils of Nagaland have been tentatively grouped into 4 orders, namely: Entisol, Oxisol, Mollisol and Spodosol (Fig-3.4).

(i) **Entisol**: The alluvial soils existing in the valleys have been grouped under this order. It is further sub-grouped into recent and old alluvium and mountain valley soils. These are characterised by Ochric Epipedon, low Organic matter and lighter colour. The total area covered by this group of soil is about 2,241.8 sq. km (13.52%). This type of soil is found in the plains and adjoining areas of Assam (Fig-3.4). It is the most important group of soils useful for agriculture.

(ii) **Oxisol**: This group is constituted mainly by the non-laterised red soils of the foothills. The group covers an area of about 4,495.8 sq. km (27.12%). The sub surface horizon of this group of soils is characterised by low base exchange capacity, friable

Fig.-3.4
and massive structure and accumulation of iron and aluminium. The soils of this group occur at the foothills and the lower ranges on the west, more or less up to an altitude of 750m from the sea level. These soils have a rain shadow belt and are predominantly under degraded grass and bamboo forests. This oxisol type is mostly found in the foothills running parallel along the borderlines with Assam and small pockets in the northeast of Kohima, and also in Meluri and Tuensang District at higher altitudes.

(iii) Mollisols: These soils are formed in cool and temperate regions, where temperate evergreen broadleaved rain forests are seen. It is characterised by a Mollic Epipedon, high organic matter and high base saturation. The sub-surface also has high base saturation, even much higher than that of Entisol and Oxisol soils. The area covered by this order is about 4,952.7 sq. km (29.87 %). This type of soil is found in the central parts of the state running parallel to the Oxisol type. It starts from Peren sub-division of Kohima District to Wokha, touching a part of Zunheboto and Mokokchung district areas and then to Mon district.

(iv) Spodosol: The soils of this order occur at higher altitudes, where temperate climate with coniferous vegetation is found. High cation exchange capacity and high base saturation are main characteristic features of this type of soil. The mean pH value recorded is 5.7. It contains about 1.804% of Organic Carbon with 54.3% of base saturation. The area covered by this order of soil is about 4,835.0 sq. km (29.16%),
which is dispersed in the southeast parts of Kohima and Phek districts and southern part of Zunheboto and Tuensang areas of the state.

(v) The Soil and Crops Relationship: Main food crop in Nagaland is paddy. It is well cultivated mainly in the Entisol areas where the pH value is comparatively less (mean 4.5). The cultivation of paddy is generally practised in the western part of the state where plains and open valleys with alluvial soils may be seen. In other parts of the state, rice is cultivated with the help of irrigation in the form of terrace cultivation. In the higher altitudes where the soils are of Mollisol and Spodosol orders and the pH value is comparatively higher, the jhum cultivation is a specific feature of agriculture. Other food crops are millets, yam, jobs tears, maize and pulses. In Mon district, where all the three types of soils – Entisol, Oxisol and Mollisol are found, yam and taro also constitute important food crops. Other crops such as potato, chilli, fruits, vegetables, mustard, sugarcane and soyabean etc. are also grown in many parts of the state irrespective of soil qualities.

(f) Flora / Vegetation:

Like other parts of the North Eastern region, Nagaland is also known for its diverse flora and fauna. The natural vegetation of the region within the monsoon belt varies with influence of the topographic features, altitudes and soils. Thus, a variety of flora species varying from the aquatic species to those growing on the higher altitudes are found in the state. It is evident from the accounts written by Master, a botanist, who
visited Nagaland in the year 1844 that the areas are an ideal home for many species of flora. It is also noted that some areas were once covered by thick evergreen vegetation. But continuous onslaughts by man, heavy exploitation and devastation caused by logging, burning of jungles have destroyed the natural vegetation to a great extent. Sharma (1978) stated that tribal economy is ultimately connected with forests. In Nagaland almost the entire population belongs to different Naga tribes and the land and its resources belong to either individual or the communities. Thus, in the absence of proper policies and because of the people’s apathy, conservation of natural vegetation is neglected and the vast forests have dwindled considerably. Moreover, these problems have become more acute because of increasing of population pressure on land. A policy implication must be initiated towards the conservation of natural vegetation.

The legal status of forests and its distribution show that the role of villagers in the forest protection or depletions is obvious. More than 88% forestland belongs to the villagers in their own capacity or community forests (Table-3.3). Out of the total forests land of Nagaland, more than half of it is under virgin forests, which have been looked after by the villagers. It is noticed from the table that a quite significant share of forests is under degraded forest category (32.9%). It appears that there is a direct interference of human activities, which are degrading the forest areas in the state.
### Table-3.3: Type of Forests in Nagaland (1999).

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Legal Status of Forest Land</th>
<th>Forest Area (in ha)</th>
<th>% total Forest area</th>
</tr>
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<tr>
<td>1</td>
<td>(i) Reserved Forests (Original)</td>
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<tr>
<td></td>
<td>(ii) Reserved Forests (Purchased)</td>
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<tr>
<td>2</td>
<td>Protected Forests</td>
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<td>5.9</td>
</tr>
<tr>
<td>3</td>
<td>Wild Life Sanctuary</td>
<td>22,237</td>
<td>2.6</td>
</tr>
<tr>
<td>4</td>
<td>Village Forests:</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(i) Virgin Forests</td>
<td>4,77,827</td>
<td>55.4</td>
</tr>
<tr>
<td></td>
<td>(ii) Degraded Forests</td>
<td>2,84,280</td>
<td>32.9</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>8,62,930</strong></td>
<td><strong>100.0</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Ownership of Forest Land</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>State owned</td>
<td>1,00,823</td>
</tr>
<tr>
<td>2</td>
<td>Cooperative</td>
<td>Nil</td>
</tr>
<tr>
<td>3</td>
<td>Private / Community</td>
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</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>8,62,930</strong></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Composition</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Coniferous</td>
<td>25,900</td>
</tr>
<tr>
<td>2</td>
<td>Non-Coniferous</td>
<td>7,61,195</td>
</tr>
<tr>
<td>3</td>
<td>Bamboo</td>
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</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>8,62,930</strong></td>
</tr>
</tbody>
</table>

Source: Department of Forests, Ecology & Environment and Wildlife, Government of Nagaland, (99)

Ownership of forestland is also an important aspect in this connection.

Private as well as community owned forests ownership is prevalent. It is clear now that the policies towards protection of forest may only be initiated with the help of villagers. Further, it may be highlighted here that the villagers and forest are inseparable in this part of the country, that forest and forest products are very important for the people. So, the villagers are responsible for forest depletion as well as forest protection.
(i) Types of Natural Vegetation:
Nagaland has both evergreen and deciduous vegetation as determined by climate and pedological conditions. There are tall trees, shrubs and herbs. The deciduous types of grasses invariably dry up in winter. These vegetations differ from foothills to hills and
hills to high hilltops. Based on these conditions and characteristics, the natural vegetation of the state can be categorised into five types: (a) Northern tropical wet evergreen or sub-tropical evergreen rain forest, (b) Northern tropical semi evergreen forests or sub-tropical moist deciduous forest, (c) Northern sub-tropical broad-leaved wet hill forests, (d) Northern sub-tropical pine forests, and (e) Northern Mountain wet temperate forests. (Fig-3.6)

(a) **Northern Tropical Wet Evergreen**: This type of vegetation is found only in the north- western part of Mon district. It is important for lumbering, but now this type of forest is found only in the Zankam area of the district. The area is less undulating. There are many valuable trees in the region such as Badam (*Mansonia dipikai*), Dhuna (*Canarium resiniferum*), Hollong (*Dipterocarpus macrocarpus*) etc.

(b) **Northern Tropical Semi Evergreen Forests**: Such forests are found mainly in the foothills situated on the Assam-Nagaland border especially in Mokokchung, Wokha and Dimapur districts. The average rainfall in this zone is recorded at 180 - 200cm, while the mean annual temperature varies from 20°C to 25°C. The average altitude of the area is about 600m. The species composition makes it different from the previous with evergreen species dominating in the former and in the later it is the deciduous species. Some of the important species are Bhelu (*Tetrameles nudiflora*), Hollong (*Dipterocarpus macrocarpus*).
Fig. 3.6

Source: Forest Department, Government of Nagaland, Kohima.
(c) Northern Sub-Tropical Broad Leafed Wet Hill Forests: These forests grow in altitudinal zone starting from 500m to 1,800m throughout the state. Some of the important timber species are Koroi (Schema Wallichi), Khokon (Chikrasia tabularis), Poma (Magnolia sp), Gamari (Terminalia myriocarpa), Badam (Mansonia dipikai), Bhola (Morus lavengata), Hollock (Artocarpus chaplasha).

(d) Northern Sub-Tropical Pine Forests: The sub-tropical pine forests are found in the altitudinal zone staring from 1,000m to 1,500m, where most of the part of Phek and Tuensang districts are covered. The dominant tree in this area is Pinus khasya. However, the Quercus, Schema wallichi, Prunus, Betula and Rhododendron forests are also found in the area. These trees are tall evergreen coniferous with soft white stem and produce good quality timber.

(e) Northern Mountain Wet Temperate Forests: Such type of vegetation is found in the eastern parts of the state bordering Myanmar. A few small patches are also found in the south of Kohima and in Tenning areas of Peren sub-division. These forests cover the areas of most of hilltops and hill ranges in the state like Saramati and Japvo, etc. Some valuable trees of this group are Quercus, Michelia, Magnolia, Prunus, Alnus Betula etc.
The Fauna:

Fauna of any region is of tremendous importance so far as the ecological balance is concerned. In Nagaland, there has been a rapid depletion in the wild life because of the illegal cutting of trees and burning of jungles. Besides, the government, which is responsible for the protection of wild animals, takes no policy measures.

Like other parts of the monsoon region, the common invertebrates found in the region belong to the categories such as: (i) Phylum Arthropoda - which consists of common insects like common fly, mosquito, bees, butterfly, mantis, shrimps, grasshopper, etc. (ii) Phylum Mollusca that includes snails and its various sub-species, and (iii) Phylum Annelida, which includes earthworm of various different varieties.

In small rivers, fish are found in different varieties. The rare fish varieties in the state are Boggra (*Channa punctatus*), Sareng (*Wallago attu*), Ngakra (*Clarias batrachus*) and Pengba (*Rothee ootio*), cold fresh water fish like Trout, etc. Among the reptiles lizard, tortoise, boa constrictus, large size python, king cobra and some of the common poisonous snakes are found in the state. Common amphibians are frog and toads.

The avi-faunal species like fowl, kaleej pheasant, hombill, black stork, common green pigeon, blue rock pigeon, spotted dove, great horn owl, woodpecker, etc. are common. The rare bird Tragopan is found in the higher altitude south of Kohima
(Japvo range and Dzükou valley). The state government has imposed a prohibition against killing and trapping of Blyth’s Tragopan and is also successfully promoting captive breeding at Kohima Blyth’s Breeding Centre.

Depletion of forests and the use of guns in the state have resulted in the reduction of wild animals all over the state. Bison and wild buffalos are found only in the Intanki area; elephants are found along the border with Assam in the plains of Nagaland. Among other wild animals, the large carnivores like leopard and tiger, the wild boar, barking deer, Himalayan black bear, wild goat, jackal, jungle cat, Indian porcupine, Royal Bengal tiger, wolf, fox, langur, rhesus monkey, flying squirrel, sloth bear, etc. are also found in the state.

3.3 Population and Demographic Features:

The population of Nagaland during the pre-British period is not known, as there is no written record on this account. Moreover, no villages in the past were ever under a constitutional government. The people only know that there were neighbouring villages and the towns in plain areas to where they travelled for days to buy some essential items such as salt, kerosene, etc. Even after the British rule started in the North East India, different parts of the present day Nagaland were annexed at different times. Therefore, no comparable population figures of the state covering a long period of time are available.
The British established Naga Hills District in 1866 at Samaguding (Chümukedima) at first, whose administrative jurisdiction covered the Angami villages, an area up to the watershed of Doyang in the east. Slowly other Naga areas were annexed to the district. During 1881, the general condition of the district was considered to be disturbed for census operation. Thus, the official census was taken in 1891 in the Naga Hills district for the first time in the history of the Nagas, even though it was partially operated. Since then, noticeable changes have been taken place in the state. The first census operation covering the entire area of Naga Hills district was conducted in 1961, after Tuensang and Mon sub-divisions were included to the district.

According to the first census operation done in 1891, the district's population was counted as 1,22,077 persons. According to 1901 census, it was recorded as 1,01,550 persons. The loss of 20,527 persons during the 1890s was mainly due to the adjustment of the boundaries of Naga Hills during that time under the British regime. At the time when Mokokchung area was brought under the political control (1,88,688), a good deal of the area on the plains, conforming the modern Boropathar area, Dhansiri valley and contiguous Karbi areas, towards the west were transferred to the then Sibsagar and Nowgong districts of Assam. The argument for this transfer was that the area lost was replaceable by the addition of the Mokokchung area. Further transfer of territory continued and in 1905 one part in the western portion, called Rengma Hills (which at present comprise the bulk of Karbi Anglong district) was taken away from Naga Hills (Ghosh 1982).
A) Growth Characteristics:

Population growth is a main attribute of demographic dimensions. It has been measured by using different methods such as (a) the simple growth rate of population (i.e., called linear growth in which the change is assumed at a constant rate), (b) the compound growth, where population increases in increasing trend and factor of population change overtime is considered for the measurement of growth, and (c) the exponential growth rate, when population increase is very fast over time and the rate coefficient and time variable are used as a 'power function' in it. The linear decadal growth rate measurement as used by Census of India has been adopted here for the assessment of population growth trend.

Secondly, the growth characteristics are only related to the analysis of general trend of population increase but also include the population composition. Changes in population composition alter the population trend and influence directly the population growth (Rao 1974, Siddiqui 1984). Therefore, the growth characteristics would be interpreted in relation to the general trend, male-female ratio, rural-urban share, density variations and the composition of tribal population in Nagaland.

(i) The General Trend: There is an alarming increase of population in the state of Nagaland especially after 1970, when it rose almost four times from 5.16 lakhs (1971) to 19.89 lakhs (2001). There was a slow growth of population prior to 1971. The decadal growth was recorded 6.55% in the 1920s and 6.04% in the 1940s; these were
the result of the Great World Wars, during these two periods of time, many Nagas were recruited in either Army or Labour Corps in both the wars. Then, during the 1950s, it was recorded 8.6%, the struggle for a separate sovereignty started in this period as a result, many volunteers went underground but gradually the decadal growth started picking up and it goes more than 50% during the 1980s and 1990s and was recorded the highest as 64.41% during the last decade of the century. There was an addition of about 7.8 lakhs people to the total 12.0 lakh population of the state during this decade (Table-3.4).

If the growth trends for the rural and urban population are compared, it is found that the growth trends have fluctuations. The rural population grew fast after 1951 when its record decadal growth of 67.6% during the 1960s. After that there is a gradual increase in the decadal growth from 32.86% during 1970s to 63.36% during the 1990s. However, three decades after independence (from 1951 to 1981) urbanisation took place in the state and the decadal growth of urban population was recorded more than 364% in the 1960s and more than 130% during the 1970s and 133% in the 1980s (Table-3.4). It means that the increase is because of its natural growth rate of about 4.0 to 6.3% annually. But the urbanisation took place due to migration of the outside population into the urban areas of the state.

(ii) Changes in Sex Ratio: The term sex ratio is commonly applied with reference to the proportion of women and men. This proportion is in terms of a given number of
women per 1000 men. Nature had intended that the strength of male and female members should be more or less equal.

There is a marginal increase of the sex ratio from 973 to 997 in the first four decades of the century (1901-1931), which shows a steady increase of both male and female population during the period under report. However, there was a fast increase in sex ratio during the 1930s. It means that the population of females exceeded that of the males. This was because of the tension built up during the Second World War. The fear of the Japanese invasion of this region led the outsiders (in-services and traders) to flee from this area, and also during this period thousands of male Nagas were recruited to the Volunteer Force (V-Force) and sent them to different parts. But after that there is gradual decline in the sex ratio, especially during the 1970s, 1980s and 1990s after independence because of immigration of male population at urban centres of the state.

(iii) Urbanisation: In 1901, there was only one small town in the state, which was Kohima (since the establishment of the Naga Hills District Headquarters in 1878) with a population of 3,093 persons. Even this small size urban population began to decrease and until 1961, it (Kohima) emerged to improve in the urban processes. When male workforce was in-migrated to the main town of the state, the process of urbanisation picked up with male dominated workforce after Nagaland attained her full-fledged statehood (Table-3.4). In 1961, Dimapur and Mokokchung were declared as urban
centres followed by Tuensang. In 1981, Wokha, Zunheboto and Mon district headquarters were added and then Phek district headquarter and Chumukedima town were added to the list. Although, these towns are administrative centres, they are also becoming commercial as well as educational centres for the people of the state. Likewise, there are many sub-divisional headquarters, which have civic amenities and basic infrastructures for health care, education and commercial services, which are coming up in the form of urban activities and can be declared as urban centre in the near futures.

The main reason for slow growth of urbanisation in the state is that Naga villages have their own traditional democratic independent administrative system in the villages, where the atmosphere is peaceful and full of festivities and time for merry making through out the year. This is one of the reasons why the people prefer to stay in the villages. There was lots of political turmoil in the state, which also contributed a major factor to the slow process of urbanisation.
## Table 3.4: Growth of population in Nagaland (1901-2001).

<table>
<thead>
<tr>
<th>Year</th>
<th>Total population</th>
<th>Decadal variation</th>
<th>Male population</th>
<th>Female population</th>
<th>Rural population</th>
<th>Urban population</th>
<th>Sex Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>Total</td>
<td>Decadal variation (%)</td>
<td>Total</td>
<td>Decadal variation (%)</td>
<td>Total</td>
</tr>
<tr>
<td>1901</td>
<td>1,01,550</td>
<td>... ...</td>
<td>51,471</td>
<td>46.76</td>
<td>74,077</td>
<td>30.32</td>
<td>3,093</td>
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<tr>
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<td>74,796</td>
<td>45.32</td>
<td>74,242</td>
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<tr>
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<td>79,063</td>
<td>6.49</td>
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<tr>
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<td>64.41</td>
<td>9,46,950</td>
<td>66.64</td>
<td>3,52,821</td>
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</tbody>
</table>

Sources: (i) Statistical Handbook of Nagaland, Millennium Issue 2000
(ii) Census of India 2001, Nagaland, Kohima.

# In working out Decadal variation and percentage decade variation 1951 and 1961, population of Tuensang district has not been taken into account as the area was census for the first time in 1951.

# 1951 census of Tuensang recorded an area of 129.5 sq.km whereas 1961 census Tuensang district was increased to 5,356.1 sq. km.
(iv) Population Density: The density of population means land-man-ratio. The fast growing population in the state resulted in an increase in the density of population. In 1961, there were 22 persons/ sq. km, which are increased to 120-persons/ sq. km. in 2001. The least density population in the country is Arunachal Pradesh with 13-persons/ sq. km and the highest is Delhi Union territory with a density of 9294-persons/ sq. km (2001), where as the all India average population density is 324-persons/sq. km. Unlike other parts of the country, the topographical situation in the state is undulating and more than fifty per cent of the area is not viable for settlement/agricultural operation due to its tragic conditions of the slopes. Hence, the increase in population density is a threat to the available resources in the state.

(v) Population Composition: The population of Nagaland is almost entirely tribal with distinct languages, costumes and cultural features. There are more than a dozen major tribes and nearly half a dozen sub-tribes in the state. Each tribe has its own dialect, dress, food habits, rites and rituals, festivals etc. An interesting social process of Nagaland is that some of the tribes living in a common territory are slowly amalgamating, while some others who earlier were identified as one tribe are breaking down to a couple of smaller tribes (Imnayongdang 1990). For example, Pochuri were formerly included in the Chakhesang tribe but now they identify themselves as separate group. And also, the three major groups of Chakru, Khezha and Sangtam living in the same territory in Phek district have now amalgamated into a major group called the Chakhesang. Many factors influence these social processes. The smaller groups that
assert their separate identity do so for political representation and economic gains in the state government welfare programmes. Of all the tribes and sub-tribes, *Ao* is the most numerous one, Mokokchung is the home of the *Aos, Semas or Sumi* are from Zunheboto district, *Konyaks* are from Mon district, *Chakhesangs* are from Phek district, *Angamis* are from Kohima along with the *Zealiang* and *Rengmas* in the same district. Wokha is the home of *Lotha*, and the *Sangtam, Phom, Chang, Yimchungre, Khiemmungan* are from Tuensang district along with the sub-tribes of *Tikhir, Chirr and Makwares*.

There is mixed population of various tribes live in the Dimapur plain district at present, such as *Kukis, Kacharis, Garos and Mikiris* along with all the Naga tribes. There was a handful *Angami* village in the foot hills of the present Dimapur district, and were the first in contact with the British Expedition party, other tribes who had migrated in to the areas in recent time. There are more than 40 tribes and sub-tribes of Nagas living in the neighbouring states of Arunachal Pradesh, Assam, Manipur and even in northwest Myanmar.

*Ao* Naga tribe is in the majority and accounted for about 13.49% share of the total population, while *Makware* tribe shares only 0.08% to the total population in the state. There are also non-Naga tribes such as *Kuki* tribe, *Kachari, Garo* and *Karbi/Mikir* in the state in Dimapur district, which constituted a share of 2.44% of the total population (Table-3.5).
Table-3.5: Tribe-wise Composition of population in Nagaland.

<table>
<thead>
<tr>
<th>Name of the tribes</th>
<th>Total population (1981 Census)</th>
<th>Districts to which they belong</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ao</td>
<td>104,578</td>
<td>Mokokchung</td>
</tr>
<tr>
<td>2. Sema</td>
<td>95,312</td>
<td>Zunheboto</td>
</tr>
<tr>
<td>3. Konyak</td>
<td>83,651</td>
<td>Mon</td>
</tr>
<tr>
<td>4. Chakhesang</td>
<td>68,736*</td>
<td>Phek</td>
</tr>
<tr>
<td>5. Angami</td>
<td>62,555</td>
<td>Kohima</td>
</tr>
<tr>
<td>6. Lotha</td>
<td>58,030</td>
<td>Wokha</td>
</tr>
<tr>
<td>7. Sangtam</td>
<td>29,016</td>
<td>Tuensang</td>
</tr>
<tr>
<td>8. Phom</td>
<td>24,427</td>
<td>Tuensang</td>
</tr>
<tr>
<td>9. Chang</td>
<td>22,375</td>
<td>Tuensang</td>
</tr>
<tr>
<td>10. Yimchungru</td>
<td>22,054</td>
<td>Tuensang</td>
</tr>
<tr>
<td>11. Zeliang</td>
<td>21,085</td>
<td>Kohima</td>
</tr>
<tr>
<td>12. Khiemmungan</td>
<td>18,080</td>
<td>Tuensang</td>
</tr>
<tr>
<td>13. Rengma</td>
<td>15,313</td>
<td>Kohima</td>
</tr>
<tr>
<td>14. Tikhir</td>
<td>3,588</td>
<td>Tuensang</td>
</tr>
<tr>
<td>15. Chirr</td>
<td>1,560</td>
<td>Tuensang</td>
</tr>
<tr>
<td>16. Makware</td>
<td>612</td>
<td>Tuensang</td>
</tr>
</tbody>
</table>

Some non-Naga tribes in the state of Nagaland

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Total population (1981 Census)</th>
<th>Districts to which they belong</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kuki</td>
<td>9,837</td>
<td></td>
</tr>
<tr>
<td>2. Kachari</td>
<td>7,212</td>
<td></td>
</tr>
<tr>
<td>3. Garo</td>
<td>1,472</td>
<td></td>
</tr>
<tr>
<td>4. Mikir</td>
<td>440</td>
<td></td>
</tr>
</tbody>
</table>

Total 6,50,885 100

* Chakhesang tribe is sub-divided into two, another sub-tribe called as Pochuri from Meluri area.
Source: Census of India (1981).

(B) Population Distribution and Spatial Variation in Growth:

The block-wise distribution of population in the state indicate an uneven distribution, some of the R.D. blocks like Medziphema have a total population of 82,473 persons (1991), where as the total population in Meluri R.D. block of Phek district has only 12,863 persons in the same period of time. But the uneven distribution of village covered under an R.D. block and size of population within the block may be because of...
weak communication facilities and inaccessibility of the remote areas from the Block headquarters. Medziphema is in the foothill area near Dimapur plains. While, Meluri is in the hill area, three different tribes with indistinct dialect bounded the homeland of *Pochuris* and their area (Meluri R.D.block). The distribution of population of specific tribe in specific area creates unevenness in the population distribution (Table-3.6).

(i) **Areal Variation in Decadal Growth:** The decadal growth of population in the state varies from a slow growth rate of 4.76% in Phek block to as high as 163.37% in Longleng R.D. block. There are eleven R.D. blocks in the state, where their population growth rate exceeds to that of the state average (i.e., 36,075 persons in 1991). The decadal growth rate of population in Longleng R.D. block of Tuensang district is highest with 163.37% (1981-1991), followed by Kuhuboto R.D. block with 150.68%, whereas Phek R.D. block have a decadal growth of only 4.76% in the same period. Both Longleng and Kuhuboto blocks are adjacent to the plains of Assam (Table 3.6), even though they are far apart from each other and have very high growth rate as 163.37% and 150.68% respectively (Table-3.6). Kuhuboto is a newly established R. D. block and is occupied by mostly in migrants from the state as well as from outside Nagaland. Jalukie and Tseminyu blocks of Kohima district, Sitimi block of Tuensang district and Changtongya of Mokokchung District show more than 70% decadal growth (Fig.3.7). Only Phek, Akuluto and Noklak R.D. blocks have a decadal growth below the national level. The slow growth of population in Phek block is that it is near to Kohima, the capital of the state, where this urban centre serves all activities/commercial/
NAGALAND DECADAL GROWTH

Percentage of Decadal Growth
- Above 70
- 40 - 70
- Below 40

AGRICULTURAL DENSITY

Agricultural Density (in persons per hectare)
- Above 10
- 6 - 10
- Below 6
services. Hence, there is very little chance of immigration to this R.D. Block except natural growth of population. On the other hand, except Noklak block, all other blocks in the eastern sides of the state (Tuensang and Mon districts) all have a high growth rate (40% to 70%) and, incidentally, these areas are also low in literacy rate. Population increase in rural area is exceedingly high in the state as compared to the national level. The average decadal growth rate of the rural Nagaland is 56.30% (1981-1991).

(ii) Areal Variation in Agricultural Density: Agricultural density of the state is calculated dividing total population by the total cultivated area of the block. The figure of block-wise agricultural density shows that Changtongya R.D. block accommodates the highest with 47 person per hectare and the lower ones are recorded in density Sitimi and Mangkolemba R.D. blocks with 3 persons per hectare (Table-3.6). Changtongya, Onpankong, Chen and Tseminyu blocks have an agricultural density of more than 10 persons per hectare (Fig-3.8). The south-eastern parts of the state have shown a still low agriculture density population even lower than the state average that is calculated as 8 persons per hectare.

<table>
<thead>
<tr>
<th>Name of the R.D. Blocks</th>
<th>Total Population</th>
<th>Decadal Growth Rate (1981 – 91)</th>
<th>Sex Rate 1991</th>
<th>Agri. Density population / cultivated Area (in ha.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Jalukie</td>
<td>56,511</td>
<td>83.32</td>
<td>51.36</td>
<td>903</td>
</tr>
<tr>
<td>2) Medziphema</td>
<td>82,473</td>
<td>31.08</td>
<td>52.87</td>
<td>835</td>
</tr>
<tr>
<td>3) Kuhuboto</td>
<td>38,296</td>
<td>150.68</td>
<td>42.19</td>
<td>909</td>
</tr>
<tr>
<td>4) Tseminyu</td>
<td>30,583</td>
<td>101.08</td>
<td>46.78</td>
<td>996</td>
</tr>
<tr>
<td>5) Kohima</td>
<td>71,118</td>
<td>50.36</td>
<td>57.16</td>
<td>940</td>
</tr>
<tr>
<td>6) Kikruma</td>
<td>66,670</td>
<td>38.86</td>
<td>50.65</td>
<td>920</td>
</tr>
<tr>
<td>7) Phek</td>
<td>14,257</td>
<td>4.76</td>
<td>47.20</td>
<td>900</td>
</tr>
<tr>
<td>8) Meluri</td>
<td>12,863</td>
<td>42.98</td>
<td>49.81</td>
<td>793</td>
</tr>
<tr>
<td>9) Baghty</td>
<td>36,926</td>
<td>37.78</td>
<td>58.34</td>
<td>919</td>
</tr>
<tr>
<td>10) Wokha</td>
<td>31,307</td>
<td>38.51</td>
<td>57.47</td>
<td>979</td>
</tr>
<tr>
<td>11) Ongpankong</td>
<td>38,000</td>
<td>46.32</td>
<td>64.16</td>
<td>934</td>
</tr>
<tr>
<td>12) Mangkolemba</td>
<td>30,915</td>
<td>36.65</td>
<td>69.00</td>
<td>904</td>
</tr>
<tr>
<td>13) Changtongya</td>
<td>64,656</td>
<td>72.23</td>
<td>66.46</td>
<td>951</td>
</tr>
<tr>
<td>14) Gathashi</td>
<td>17,750</td>
<td>56.27</td>
<td>54.91</td>
<td>964</td>
</tr>
<tr>
<td>15) Zunheboto</td>
<td>25,240</td>
<td>26.44</td>
<td>51.47</td>
<td>982</td>
</tr>
<tr>
<td>16) Akuluto</td>
<td>24,960</td>
<td>16.64</td>
<td>51.43</td>
<td>982</td>
</tr>
<tr>
<td>17) Tokiye</td>
<td>16,795</td>
<td>38.51</td>
<td>45.17</td>
<td>999</td>
</tr>
<tr>
<td>18) Longleng</td>
<td>67,703</td>
<td>163.37</td>
<td>40.63</td>
<td>867</td>
</tr>
<tr>
<td>19) Longkhim</td>
<td>27,951</td>
<td>30.32</td>
<td>45.28</td>
<td>935</td>
</tr>
<tr>
<td>20) Sangsangyu</td>
<td>19,229</td>
<td>49.39</td>
<td>38.15</td>
<td>937</td>
</tr>
<tr>
<td>21) Noklak</td>
<td>26,034</td>
<td>19.21</td>
<td>28.34</td>
<td>927</td>
</tr>
<tr>
<td>22) Kiphire</td>
<td>35,113</td>
<td>67.04</td>
<td>35.75</td>
<td>890</td>
</tr>
<tr>
<td>23) Situmi</td>
<td>16,732</td>
<td>111.50</td>
<td>43.92</td>
<td>973</td>
</tr>
<tr>
<td>24) Shamator</td>
<td>19,126</td>
<td>53.34</td>
<td>31.98</td>
<td>966</td>
</tr>
<tr>
<td>25) Tobu</td>
<td>24,232</td>
<td>44.37</td>
<td>18.07</td>
<td>924</td>
</tr>
<tr>
<td>26) Chen</td>
<td>40,182</td>
<td>65.29</td>
<td>27.18</td>
<td>875</td>
</tr>
<tr>
<td>27) Wakching</td>
<td>17,675</td>
<td>36.98</td>
<td>42.01</td>
<td>859</td>
</tr>
<tr>
<td>28) Mon</td>
<td>56,820</td>
<td>63.14</td>
<td>27.60</td>
<td>890</td>
</tr>
</tbody>
</table>

State Average: 36,075 56.30 46.26 923 8

Source: Census of India 1991, Nagaland

(iii) Areal Variation in Literacy Rate: Literacy rate in different blocks of the state shows that Mangkolemba, Changtongya and Ongpankong R.D. blocks of Mokokchung district have 69.00%, 66.46% and 64.16% (1991) respectively. Kohima (57.16%) and
Wokha (57.47%) are neck to neck on the higher side of literacy rate (Table-3.6), where as Tobu R.D. block of Mon district has shown only 18.07% literacy rate in the same period of time. The figures indicate that literacy rate is still very low in the eastern part of the state bordering districts of Tuensang and Mon with Myanmar (Fig.-3.9), where all the blocks from these two districts are below the state average. The state average for rural literacy rate is 46.26%.

(vi) Areal Variation in Sex Ratio: Sex ratio of the state indicates that Tokiye, Zunheboto and Akuluto R.D. blocks have fairly higher with 999, 982 and 982 females per 1000 males respectively, Tseminyu of Kohima district with 996 per 1000 male. This is because of the out migration of male workforce, especially in Zunheboto district, where they are migrating towards Dimapur areas (Fig.-3.10).

Meanwhile, Meluri of Phek district is least in sex ratio (i.e., 793 per 1000 male), which shows that female population is far less than their male counter parts, this may be because of females from this area have been migrating to some other parts of the state in search of jobs etc. There is also a possibility that the state own Cement Plant factory is located in this area, where female workers are least expected to be working in the plant and the labourers are imported to this area. Moreover, the presence of Army and BSF barracks are also added to it, as it is International Border area with Myanmar Security Forces are there.
3:4 Transformations in Economy:

As mentioned in the preceding chapter that Nagaland is moving towards a greater economic progress by utilizing its own available resources such as human as well as natural resources. Creation of infrastructural facilities is an important factor so far as economic development or transformation in economy of the state is concerned. These are still lagging in many areas of the state. However, it is looking ahead and anticipating all round progress for a faster growth of economy. Even though, the state attained its full-fledged statehood in the 1960's, the participation in the National Five Year Plans was fully involved from the Fourth Five Year Plan (1969-74) as because of the disturbed political situation at national level and also the insurgency problem within the state. The participation of the state in Third Five Year Plan (1961-66) and the consequence Annual plans (1967-69) was thus insignificance so far as economic development of the state is concerned. But, during the Fourth Plan, the funds were gradually allocated to the State for planned development in various sectors of the state and after that only the National Plans have some feed back to the economy of the State.

(a) State Net Domestic Product (SNDP):

State Net Domestic Product (SNDP) is an important indicator of level of economic development and progress in the State. It is presented by considering the total Net Domestic Product for 10 years (1985-86 to 1994-95) to understand the progress of the state. The effect of commodity prices and progress in relation to population are also given here by showing SNDP at constant and current prices (Table-3.7).
Table-3.7: State Net Domestic Products at Constant Price and the Per-capita SNDP.

<table>
<thead>
<tr>
<th>Year</th>
<th>SNDP at Constant Price. (Rs. in crores).</th>
<th>Per capita SNDP at Constant Price (in Rs.)</th>
<th>Per capita SNDP current price (in Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985-86</td>
<td>154 -</td>
<td>1654</td>
<td>2591</td>
</tr>
<tr>
<td>1986-87</td>
<td>171 (11.04)</td>
<td>1764</td>
<td>2781</td>
</tr>
<tr>
<td>1987-88</td>
<td>192 (12.28)</td>
<td>1907</td>
<td>3385</td>
</tr>
<tr>
<td>1988-89</td>
<td>206 (07.29)</td>
<td>1975</td>
<td>3706</td>
</tr>
<tr>
<td>1989-90</td>
<td>214 (03.88)</td>
<td>1980</td>
<td>4333</td>
</tr>
<tr>
<td>1990-91</td>
<td>238 (11.21)</td>
<td>1976</td>
<td>4990</td>
</tr>
<tr>
<td>1991-92</td>
<td>248 (04.20)</td>
<td>2006</td>
<td>5590</td>
</tr>
<tr>
<td>1992-93</td>
<td>283 (14.11)</td>
<td>2239</td>
<td>6273</td>
</tr>
<tr>
<td>1993-94</td>
<td>288 (01.77)</td>
<td>2170</td>
<td>7730</td>
</tr>
<tr>
<td>1994-95</td>
<td>306 (06.25)</td>
<td>2388</td>
<td>8550</td>
</tr>
</tbody>
</table>

Source: Basic Statistics of North Eastern Region, NEC, Shillong.

A total SNDP was recorded Rs.154 crores in 1985-86 which rose to Rs.306 in 1994-95. It means that SNDP became double during the 10 years period of time. However, its annual increase is recorded faster in the early period (1985 to 1988) and slower during 1993 to 1994-95 as less than 10%. The year 1992-93 was recorded the highest increase in SNDP (14.11%). There is a gradual increase in per capita SNDP from Rs 1654 in 1985-86 to Rs 2388 in 1994-95 considering at the constant price of the commodities while per capita increase from Rs 2591 to 8550 was recorded when current prices of commodities were considered. The difference of per capita SNDP between the indexes of current and constant prices shows the effect of price fluctuations during the period of time considered (Table-3.7).

<table>
<thead>
<tr>
<th>SI no</th>
<th>Sector/Industry</th>
<th>1985-86</th>
<th>1990-91</th>
<th>1994-95</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Primary Sector:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Agriculture including</td>
<td>6,118 (23.43)</td>
<td>15,301 (23.07)</td>
<td>66,373 (21.69)</td>
</tr>
<tr>
<td></td>
<td>Livestock</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Forestry &amp; Logging</td>
<td>1,854 (7.10)</td>
<td>3,714 (5.6)</td>
<td>14,085 (4.60)</td>
</tr>
<tr>
<td></td>
<td>3. Fishery (inland fish)</td>
<td>138 (0.53)</td>
<td>252 (0.37)</td>
<td>1,294 (0.42)</td>
</tr>
<tr>
<td>B</td>
<td>Secondary Sector:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Manufacturing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(i) Registered</td>
<td>184 (0.70)</td>
<td>1,545 (2.33)</td>
<td>2,606 (0.85)</td>
</tr>
<tr>
<td></td>
<td>(ii) Unregistered</td>
<td>360 (1.38)</td>
<td>1,293 (1.94)</td>
<td>7,805 (2.55)</td>
</tr>
<tr>
<td></td>
<td>5. Construction</td>
<td>5,153 (19.73)</td>
<td>5,284 (7.97)</td>
<td>25,618 (8.37)</td>
</tr>
<tr>
<td></td>
<td>6. Electricity/Gas and Water supply</td>
<td>(-) 718 (-2.75)</td>
<td>(-) 75 (-0.11)</td>
<td>5,140 (1.68)</td>
</tr>
<tr>
<td>C</td>
<td>Tertiary Sector:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(i) Railway</td>
<td>31 (0.1)</td>
<td>33 (0.05)</td>
<td>56 (1.15)</td>
</tr>
<tr>
<td></td>
<td>(ii) Transport other means</td>
<td>276 (1.06)</td>
<td>3,047 (4.59)</td>
<td>49,070 (16.03)</td>
</tr>
<tr>
<td></td>
<td>(iii) Communication</td>
<td>58 (0.22)</td>
<td>214 (0.32)</td>
<td>632 (0.17)</td>
</tr>
<tr>
<td></td>
<td>8. Trade/Storage/Hostels /Restaurant</td>
<td>1,562 (5.98)</td>
<td>4,872 (7.34)</td>
<td>17,002 (4.56)</td>
</tr>
<tr>
<td></td>
<td>9. Banking &amp; Insurance</td>
<td>427 (1.63)</td>
<td>1,303 (1.96)</td>
<td>3,519 (0.94)</td>
</tr>
<tr>
<td></td>
<td>10. Real Estate, ownership of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dwelling &amp; Business service.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11. Public Administration</td>
<td>2,604 (9.97)</td>
<td>7,348 (11.08)</td>
<td>35,806 (11.7)</td>
</tr>
<tr>
<td></td>
<td>12. Other Services</td>
<td>4,596 (17.60)</td>
<td>12,697 (19.14)</td>
<td>50,246 (16.42)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3,472 (13.29)</td>
<td>9,428 (14.21)</td>
<td>26,825 (8.76)</td>
</tr>
<tr>
<td></td>
<td>Grand Total</td>
<td>26,115</td>
<td>66,331</td>
<td>306,077</td>
</tr>
</tbody>
</table>

Source: Department of Economic & Statistics, Government of Nagaland, Kohima

The details of the sources of SNDP in the state would show the importance of the economy and their changing nature. Agriculture is the main source of income, which contributes about 23.43% to NDP in 1985-86, while the Public Administration and
other services (the Tertiary sectors of economy) are noticeable for their contribution towards NDP of the state (Table-3.8). The activities related to 'construction' accounted for 19.73% share to NDP in 1985-86, which was decreased to 7.97% (1990-91) and then rose to 8.37% (1994-95). There is a fast increasing share of transportation activities, which contributed only 1.06% to NDP in 1985-86 and 16.03% in 1994-95. It means that, in spite of many programmes implemented for agricultural development during early 1990's the share of agriculture shrinks marginally.

However, total amount of its contribution to NDP increased fast from Rs 6,118 lakhs to 66,373, lakhs during the same period of time. The State Government is boasting of the multi-fold production especially in the field of horticulture, floriculture and livestock production in the last five years time. Secondly, the fast increasing importance of infrastructure (transport) activities in the state is a fairly good indication of development.

3.5 Occupational Structure and Changes therein:
The occupational structure or the work-division of labour determines the socio-economic status of a society and workers involvement in the work. A worker is defined by the 1981 Census as a person whose main activity is participation in any economically productive work physically or mentally; works involve not only actual work but also effective supervision and direction of work.
Before analyzing changes in the occupational structure and its
distributional pattern, the changing pattern of dependency (worker-non worker) ratio are
to be interpreted because it is directly or indirectly linked with the occupational
structure.

(a) Dependency Ratio: The 1961 Census, based on economic data and the involvement
of work by individual person, classified into two different groups of people as worker
and non-worker. The active group of population (18-59 years) is generally referred to
the working group of population. The dependency ratio may be interpreted with
reference to work participation of population in the state.

Nagaland is one of the states, which have fairly higher share of
population in the work participation with 51.39% (1981) and 45.22% (1991). The all
India level of main workers is 33.45% (1981), where Kerala state stood lowest at
26.68% in the same period of time (Census 1981 & 1991). There are varieties of
reasons for the rise and decline in the work participation rates. Nagaland being a tribal
state and the economy is primitive type of cultivation and labour intensive; both the
sexes equally shared the work in their respective field. The division of labours as
specialization in a particular work or trade does not arise. This is how work
participation is high in the state. The overall figure of working population in Nagaland
is recorded as 3,73,554 persons in 1981, which had been raised to 5,21,668 persons in
1991 with a decadal growth of 39.65%. During the 1980s, the percentage share of main
workers and marginal workers recorded a decrease and even most of the Blocks follow the decreasing trend. It means that the other segment of population (i.e., non-working force) has been increasing faster, which shows that the more number of children are being added to the population and the share of aged people is also increasing (Table-3.9).

The block-wise distribution of workers and non-workers indicates that Medziphema and Chantongya R.D. blocks have very low share of working population with 41.07% and 41.66% respectively in 1981, which again shrinks down to 37.16% and 37.5% respectively in 1991. It means that high dependent ratio in these blocks become higher than earlier (Fig-3.11a&b). The increasing burden of non-working population on the workers especially in Medziphema shows high profile of demographic transition in which the birth rate is higher with lower death rate. On the other hand, the extremely high percentage shares of working population in the state are recorded (as 67.24% and 62.25% respectively) in Tobu and Chen R.D. blocks in Mon districts, where low dependency ratio is revealed (Table-3.9). These two blocks are lying along the international boundary with Myanmar in the north-eastern side of the state. This International boundary is open, no fencing or demarcation, the imaginary boundary line passing through the middle of some villages in these areas. There is social affinity of the people in the area because people on Myanmar side are also belongs to the same Naga tribes mostly Konyaks in the upper and Khiemmungam on the lower side. The presence of migrant work force is there in these blocks. The presence of
servicemen from the Naga Home Guards and the Border Security Forces add to the higher share of work force population. However, there is faster increase in dependency ratio throughout.

Table-3.9: Dependency Ratio and Changes therein.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of R.D Blocks</th>
<th>Workers (%)</th>
<th>Non-Workers (%)</th>
<th>Dependency Ratio</th>
<th>Workers (%)</th>
<th>Non-Workers (%)</th>
<th>Dependency Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jalukie</td>
<td>50.80</td>
<td>49.19</td>
<td>0.9781</td>
<td>42.95</td>
<td>57.03</td>
<td>1.4474</td>
</tr>
<tr>
<td>2</td>
<td>Medziphema</td>
<td>41.07</td>
<td>58.19</td>
<td>1.4639</td>
<td>37.16</td>
<td>62.82</td>
<td>1.8985</td>
</tr>
<tr>
<td>3</td>
<td>Kuhoboto</td>
<td>57.31</td>
<td>42.55</td>
<td>0.7501</td>
<td>40.46</td>
<td>59.52</td>
<td>1.5563</td>
</tr>
<tr>
<td>4</td>
<td>Tseminyu</td>
<td>54.64</td>
<td>45.34</td>
<td>1.1569</td>
<td>42.41</td>
<td>57.60</td>
<td>1.3894</td>
</tr>
<tr>
<td>5</td>
<td>Kohima</td>
<td>54.30</td>
<td>45.69</td>
<td>1.4114</td>
<td>45.94</td>
<td>54.04</td>
<td>1.2035</td>
</tr>
<tr>
<td>6</td>
<td>Kikruma</td>
<td>53.34</td>
<td>46.56</td>
<td>0.8906</td>
<td>46.39</td>
<td>53.61</td>
<td>1.1765</td>
</tr>
<tr>
<td>7</td>
<td>Phek</td>
<td>50.74</td>
<td>49.24</td>
<td>0.9724</td>
<td>45.72</td>
<td>54.27</td>
<td>1.1869</td>
</tr>
<tr>
<td>8</td>
<td>Meluri</td>
<td>52.69</td>
<td>47.29</td>
<td>0.8980</td>
<td>47.78</td>
<td>52.21</td>
<td>1.0990</td>
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<td>9</td>
<td>Baghty</td>
<td>46.12</td>
<td>54.24</td>
<td>1.1869</td>
<td>43.19</td>
<td>56.81</td>
<td>1.3156</td>
</tr>
<tr>
<td>10</td>
<td>Wokha</td>
<td>44.70</td>
<td>55.29</td>
<td>1.2551</td>
<td>41.06</td>
<td>57.91</td>
<td>1.4350</td>
</tr>
<tr>
<td>11</td>
<td>Ongpangkong</td>
<td>46.66</td>
<td>53.33</td>
<td>1.1626</td>
<td>40.77</td>
<td>59.22</td>
<td>1.4525</td>
</tr>
<tr>
<td>12</td>
<td>Mangkolemba</td>
<td>45.48</td>
<td>54.52</td>
<td>1.1991</td>
<td>45.71</td>
<td>54.29</td>
<td>1.1871</td>
</tr>
<tr>
<td>13</td>
<td>Changtongya</td>
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<td>58.33</td>
<td>1.4244</td>
<td>37.50</td>
<td>62.90</td>
<td>1.6956</td>
</tr>
<tr>
<td>14</td>
<td>Ghatashi</td>
<td>50.44</td>
<td>49.55</td>
<td>0.9839</td>
<td>43.35</td>
<td>56.65</td>
<td>1.3090</td>
</tr>
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<td>15</td>
<td>Zhuheboto</td>
<td>47.19</td>
<td>52.79</td>
<td>1.1370</td>
<td>44.10</td>
<td>56.50</td>
<td>1.2991</td>
</tr>
<tr>
<td>16</td>
<td>Akuluto</td>
<td>49.82</td>
<td>50.18</td>
<td>1.0303</td>
<td>46.33</td>
<td>53.67</td>
<td>1.2041</td>
</tr>
<tr>
<td>17</td>
<td>Tokiye</td>
<td>45.40</td>
<td>54.59</td>
<td>1.2025</td>
<td>45.41</td>
<td>54.58</td>
<td>1.2020</td>
</tr>
<tr>
<td>18</td>
<td>Longleng</td>
<td>48.93</td>
<td>51.06</td>
<td>1.0476</td>
<td>47.83</td>
<td>52.16</td>
<td>1.0903</td>
</tr>
<tr>
<td>19</td>
<td>Longkhim</td>
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<td>54.64</td>
<td>1.2086</td>
<td>47.81</td>
<td>52.18</td>
<td>1.0713</td>
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<td>Sangsangyu</td>
<td>49.47</td>
<td>50.53</td>
<td>1.0255</td>
<td>45.28</td>
<td>54.84</td>
<td>1.2209</td>
</tr>
<tr>
<td>21</td>
<td>Noklak</td>
<td>57.68</td>
<td>42.30</td>
<td>1.3627</td>
<td>49.28</td>
<td>50.71</td>
<td>1.0291</td>
</tr>
<tr>
<td>22</td>
<td>Kiphire</td>
<td>54.69</td>
<td>45.29</td>
<td>0.8288</td>
<td>43.77</td>
<td>56.22</td>
<td>1.2843</td>
</tr>
<tr>
<td>23</td>
<td>Siti</td>
<td>54.29</td>
<td>45.70</td>
<td>1.1877</td>
<td>45.51</td>
<td>54.48</td>
<td>1.1972</td>
</tr>
<tr>
<td>24</td>
<td>Shamator</td>
<td>52.38</td>
<td>47.62</td>
<td>0.9090</td>
<td>41.20</td>
<td>57.89</td>
<td>1.4275</td>
</tr>
<tr>
<td>25</td>
<td>Tobu</td>
<td>67.24</td>
<td>32.75</td>
<td>0.4872</td>
<td>62.29</td>
<td>37.70</td>
<td>0.6058</td>
</tr>
<tr>
<td>26</td>
<td>Chen</td>
<td>62.25</td>
<td>37.75</td>
<td>0.4614</td>
<td>54.42</td>
<td>45.58</td>
<td>0.8374</td>
</tr>
<tr>
<td>27</td>
<td>Waching</td>
<td>49.79</td>
<td>50.19</td>
<td>1.0179</td>
<td>41.35</td>
<td>58.65</td>
<td>1.4186</td>
</tr>
<tr>
<td>28</td>
<td>Mon</td>
<td>59.39</td>
<td>40.59</td>
<td>0.6886</td>
<td>51.42</td>
<td>48.57</td>
<td>0.9446</td>
</tr>
<tr>
<td>State Average</td>
<td>51.39</td>
<td>48.60</td>
<td>1.0389</td>
<td>45.22</td>
<td>54.83</td>
<td>1.2566</td>
<td></td>
</tr>
</tbody>
</table>

Source: Census of India, Nagaland 1981 & 1991
It is indicated that almost all the blocks are on an increasing rate of dependency ratio; there are five blocks, which do not correspond with this increasing trend, are Noklak, Longkhim (in Tuensang district), Tokiye (Zunheboto), and Ongpangkong and Mangkolemba (Mokokchung district) (Table-3.9). There are three blocks in Mon district, which have dependency ratio lesser than unity (1991) and the rest of the blocks have more than one. The state average dependent ratio was 1.0389 recorded in 1981, which has been increased to 1.2566 in 1991. It means more children are added to the population.

(c) Occupational Changes: Working force is an indicator of development, which may be gauged through the study of occupational structure. It is also recorded an increase in the state during the 1980s. Going through the Block-wise figures of division of labour, it is obvious that there is a concentration of workforce in primary activities and it has been marginally increased from 82.645% (1981) to 84.45% (1991) (Table-3.10). In the Blocks, namely, Mon of Mon district, Chen, Sitimi, Longleng, Kuhoboto have more than 90% workforce concentration in primary activities. Therefore, major development processes are accelerated through the activities related to primary sector especially agricultural activities as also interpreted earlier.

There is also indication that some of the blocks are declining in its percentage from their primary activities, all together 12 RD blocks are shifting their
primary activities into secondary and tertiary activities, even though secondary and tertiary activities are being performed in its initial stage. The secondary activities are noticed negligible in the state. It means the workforce share engaged in industries (manufacturing and allied) is insignificant because the industrial sector is weak.

However, the overall percentage of secondary sector in 1981 was only 0.21%, which has been raised to 2.29% (1991). This is a good sign of transformation that workforce is shifting their occupations from agriculture into processing and manufacturing activities. The percentage in tertiary sector is declining but this is because of the rapid population increase and in the absence of heavy or medium industries, governmental service along cannot hold back the rising job seekers and population.

A balanced occupational structure and sectoral transformation of workforce to achieve the normative structure are major goals of rural development programme. It is observed that the more burdens of labour force are visualized towards primary sector with its stagnant conditions. The degree of sectoral transformation seems negligible because of weak operation of urban processes. It shows that the people living in urban areas, where tertiary sector dominates is changing their occupations from service to industries (cottage, as well as medium) through utilizing governmental loans
and investing their saving in establishing business and new industries. MedzipHEMA, Changtongya and Baghty are main blocks, where such trends of occupational changes may be seen obviously (Table-3.10).

**Table-3.10: Changes in Occupational Structure.**

(Figs. in percent)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of R.D Blocks</th>
<th>Primary Activities (%)</th>
<th>Secondary Activities (%)</th>
<th>Tertiary Activities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jalukie</td>
<td>85.95</td>
<td>86.30</td>
<td>0.43</td>
</tr>
<tr>
<td>2</td>
<td>Medziphema</td>
<td>48.80</td>
<td>59.39</td>
<td>0.38</td>
</tr>
<tr>
<td>3</td>
<td>Kuhoboto</td>
<td>95.77</td>
<td>88.25</td>
<td>0.10</td>
</tr>
<tr>
<td>4</td>
<td>Tseminyu</td>
<td>84.49</td>
<td>91.06</td>
<td>0.88</td>
</tr>
<tr>
<td>5</td>
<td>Kohima</td>
<td>75.49</td>
<td>73.20</td>
<td>0.25</td>
</tr>
<tr>
<td>6</td>
<td>Kikruma</td>
<td>85.36</td>
<td>83.28</td>
<td>0.16</td>
</tr>
<tr>
<td>7</td>
<td>Phek</td>
<td>71.56</td>
<td>83.89</td>
<td>0.04</td>
</tr>
<tr>
<td>8</td>
<td>Meluri</td>
<td>71.84</td>
<td>70.56</td>
<td>0.12</td>
</tr>
<tr>
<td>9</td>
<td>Baghty</td>
<td>83.29</td>
<td>82.38</td>
<td>0.23</td>
</tr>
<tr>
<td>10</td>
<td>Wokha</td>
<td>86.14</td>
<td>82.95</td>
<td>0.21</td>
</tr>
<tr>
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<td>Ongpangkong</td>
<td>74.64</td>
<td>82.08</td>
<td>0.08</td>
</tr>
<tr>
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<td>Mangkolema</td>
<td>81.10</td>
<td>84.79</td>
<td>0.57</td>
</tr>
<tr>
<td>13</td>
<td>Changtongya</td>
<td>78.72</td>
<td>79.95</td>
<td>0.41</td>
</tr>
<tr>
<td>14</td>
<td>Ghathashi</td>
<td>84.56</td>
<td>81.07</td>
<td>0.41</td>
</tr>
<tr>
<td>15</td>
<td>Zunheboto</td>
<td>82.90</td>
<td>84.68</td>
<td>0.11</td>
</tr>
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<td>Akuluto</td>
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<tr>
<td>17</td>
<td>Tokiye</td>
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<td>85.11</td>
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<td>Longleng</td>
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<td>Noklak</td>
<td>86.29</td>
<td>85.60</td>
<td>0.08</td>
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<td>22</td>
<td>Kiphire</td>
<td>84.36</td>
<td>84.56</td>
<td>0.06</td>
</tr>
<tr>
<td>23</td>
<td>Sitimi</td>
<td>92.85</td>
<td>90.82</td>
<td>--</td>
</tr>
<tr>
<td>24</td>
<td>Shamator</td>
<td>86.49</td>
<td>88.45</td>
<td>0.10</td>
</tr>
<tr>
<td>25</td>
<td>Tobu</td>
<td>89.44</td>
<td>93.02</td>
<td>0.05</td>
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<tr>
<td>26</td>
<td>Chen</td>
<td>92.80</td>
<td>92.60</td>
<td>0.08</td>
</tr>
<tr>
<td>27</td>
<td>Wokching</td>
<td>71.46</td>
<td>81.13</td>
<td>0.28</td>
</tr>
<tr>
<td>28</td>
<td>Mon</td>
<td>91.62</td>
<td>92.08</td>
<td>0.15</td>
</tr>
<tr>
<td><strong>State Average</strong></td>
<td><strong>82.64</strong></td>
<td><strong>84.45</strong></td>
<td><strong>0.21</strong></td>
<td><strong>2.29</strong></td>
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</table>

3.6 Concluding Remarks:

Physiographic conditions of the study area and socio-economic organization of the people living there make an interesting case for study of the work pattern in the state. The nature of topography and other agro-climatic conditions are not suited for intensive agriculture. However, the people have responded to the difficult environment by adjusting themselves to the situation through shifting cultivation on the slopes or on terraces, and the settled cultivation wherever the topography permits it. In fact, agriculture is only oriented towards subsistence food production. Even though, the agrarian produce is inadequate to meet the demands of the population. The Nagas have traditionally depended on other natural resources to meet their requirements. It is also noted that, abundance of forest resources has been an important source of livelihood and work for most people.

The state is experiencing unprecedented growth in population during the last three decades. This factor provides challenges to the available land resources and its sustainability. The physiographic zones and the areal variation of demographic characteristics provide some important dimensions for accelerating planning processes in the state. The following conclusions may be drawn from the present discussion.
1) The areas of high population density on agricultural land with low population growth (i.e., not below national average) are concentrated in the foothill pockets of inter piedmonts where there is a dominance of primary sector of economy with its stagnant conditions. Low growth is recorded because of rural-to-urban migration of males in such areas.

2) On account of rural-to-urban migration of males in the central parts of piedmonts and foothills, the sex ratio is obviously recorded higher, more females per unit of males. On the other hand, the eastern most parts of the state of high mountains and international border have much lower sex ratio because of more military establishment for which young males are migrated.

3) The literacy rate is recorded higher in the western plains and foothills and lower in mountain area of the east because of inaccessibility of road and different terrain conditions.

4) Dependency ratio increases over time in the state with significant differences over space. It is because of fast increase of children population in demographic composition, which increases non-working populations and adds burden on workers.
In the end, it may be said that the interpretation of available infrastructure for rural development and its accessibility to the people living in village would be forward to understand its deficiencies and effectiveness.

References:


